PEPHSI

Physical
Education
Programs for
Handicapped
Students in
Iowa

STATE OF IOWA

DEPARTMENT OF PUBLIC INSTRUCTION

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Foreword

This manual has been produced through the joint efforts of personnel from Drake University, Iowa State University, the Department of Public Instruction, and many other contributors interested in the improvement of physical education opportunities for handicapped pupils in Iowa. Its contents represent an effort to influence preservice and inservice personnel preparation programs toward the common objective of improved physical education programs for handicapped students as provided by both physical educators and special educators.

Public Law 94-142 and its appending regulations, as well as state statutes and rules, clearly delineate the requirement for physical education opportunities appropriate to the specific individual needs of children requiring special education. Furthermore, such opportunities are to be implemented in the least restrictive environment possible; thus, maximizing the handicapped child's integration with normal peers. This manual addresses the practical applications that hopefully will prove useful in designing and implementing strategies that will assist in this endeavor.

We wish to express our appreciation for those who have contributed their time and energy in formulating the concepts contained in this manual. We hope that you will find it useful and solicit your reactions and recommendations for future revisions.

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PEPHSI MANUAL

INTRODUCTION

Public Law 94-142, Education for All Handicapped Children Act, is perhaps the single most significant piece of legislation pertaining to education that has been passed in the history of our country. All handicapped children are assured the right to a free, appropriate public education in the least restrictive environment. The effects of this legislation on general education, special education, and physical education are profound. It is of particular significance that instruction in physical education is mandated for all handicapped children.

Physical educators have a very great opportunity and responsibility in providing appropriately designed physical education experiences for all handicapped. There are opportunities for providing the handicapped with the movement experiences they need and deserve, for fostering development of good self concepts, and for establishing attitudes of acceptance alike. There is great responsibility in seeing that all handicapped students do receive instruction in physical education in the least restrictive environment. In some instances this may mean placement in a regular physical education class in which some accommodations may be necessary, or it may mean specially designed programs. Whatever the arrangement, emphasis is placed on the fact that the handicapped are more like the non-handicapped than unlike them, and that they are more alike than different in the way they learn.

This manual has been written in an effort to assist state, area, and local education agencies meet the physical education mandates of P.L. 94-142. More specifically it has been developed for use by physical educators who ultimately have the opportunity and responsibility for providing meaningful physical education experiences for the handicapped. The following chapters are included: Legislation and Physical Education, Disabilities, Medication and Physical Activity, Assessment and Evaluation, Program Placement Alternatives, Accommodations and Modifications of Activities, Rhythms, Aquatics, and Modification of Equipment. The disabilities covered in this manual are those that have been identified in Iowa Rules of Special Education. Discussions are included for : Emotional Disabilities, Mental Disabilities, Hard of Hearing and Deaf, Physical Disabilities, and other Health Impairments. The conditions covered are only representative and are not inclusive of each category.

Although this manual is not exhaustive in its coverage of physical education for the handicapped, it is hoped that the contents will be of assistance in providing quality physical education programs for all Iowa students.

Darlene Conover
Beverly Kukowski

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In several chapters of this manual the words "he" and "him" are used generically to designate both sexes. This was to avoid frequent duplication of he/she, him/her expressions.

FEDERAL AND STATE LEGISLATION, RULES AND REGULATIONS PERTAINING TO PHYSICAL EDUCATION FOR HANDICAPPED STUDENTS

P.L. 94-142
and
Iowa School Laws

by

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Because of the increased interest in physical and leisure time pursuits of the American citizenry, public and private schools have made efforts to broaden the scope of programming available in the physical education programs offered at the local education agency level. While many local education agencies have provided options to include the handicapped in this process, there are still many who do not.

Federal and State Legislative Rules and Regulations

In 1975, the Education for all Handicapped Children Act (P.L. 94-142) went into effect. This piece of legislation and the ensuing Rules and Regulations have special significance and implications for those in public and nonpublic education. As a result of this legislation, physical education became one of two curricular areas that was specifically mandated for handicapped students served in public and private schools. P.L. 94-142 Rules and Regulations describe the mandate:

> Physical education services, specially designed if necessary must be made available to every handicapped child (student) receiving a free appropriate public education. Each handicapped child must be afforded the opportunity to participate in the regular physical education program available to non-handicapped children unless:
>
> (1) the child is enrolled full time in a separate facility; or
>
> (2) the child needs specially designed physical education, as prescribed in the child's individualized physical education program. If specially designed physical education is prescribed in the child's individualized education program, the public agency responsible for the education of that child shall provide services directly, or make arrangements for it to be provided through other public or private programs.

Recreation. The role of recreation in the educational program for each handicapped child is defined in Section 121a.13 of the final regulations:

121a.13 Related services.

(a) As used in this part, the term "related services" means transportation and such developmental, corrective, and other supportive services as are required to assist a handicapped

child to benefit from special education, and includes speech pathology and audiology, psychological services, physical and occupational therapy, recreation, early identification and assessment of disabilities in children, counseling services, and medical services for diagnostic or evaluation purposes. The term also includes school health services, social work services in schools, and parent counseling and training.

(b) The terms used in this definition are defined as follows:

(9) "Recreation" includes:

(i) Assessment of leisure function;

(ii) Therapeutic recreation services;

(iii) Recreation programs in schools and community agencies; and

(iv) Leisure education.

Nonacademic Services. Further reference to physical education and recreation is presented in Section 121a.306 in which it is stated:

121a.306 Nonacademic services.

(a) Each public agency shall take steps to provide nonacademic and extracurricular services and activities in such manner as is necessary to afford handicapped children an equal opportunity for participation in those services and activities.

The committee expects the Commissioner of Education to take whatever action is necessary to assure that physical education services are available to all handicapped children.

Physical education is defined as follows:

(i) The term means the development of:

(A) Physical and motor fitness

(B) Fundamental motor skills and patterns; and

(C) Skills in aquatics, dance, and individual and group games and sports (including intramural and lifetime sports)

(ii) The term includes special physical education, movement education, and motor development.

The above regulations have far reaching implications for the preparation of teachers, the inservice needs of physical educators, physical education programming and scheduling, and most of all, the increased understanding of and improved attitudes toward handicapped persons.

It was the intent, as stated in the Report of the House of Representatives on P.L. 94-142, that special education as set forth in the bill includes instruction in physical education, which is provided as a matter of course to all non-handicapped children enrolled in public elementary and secondary schools. The Committee was concerned that although these services are available to and required of all children in our school systems, they are often viewed as a luxury for handicapped children.

The directives stated in the federal legislation thus facilitate the intent: handicapped children shall be provided physical education opportunities. This position is currently supported in the School Laws of Iowa. The following are excerpts from the School Law that pertain to physical education for students served in Iowa's Public and Nonpublic Schools:

> Chapter 257.25 EDUCATIONAL STANDARDS. In addition to the responsibilities of the state board of public instruction and the state superintendent of the public instruction under other provisions of the Code, the state board of public instruction shall, except as otherwise provided in this section, establish standards for approving all public and nonpublic schools in Iowa offering instruction at any or all levels from the prekindergarten level through grade twelve.
>
> 1. If a school offers a prekindergarten program, the program shall be designed to help children to... learn to use and manage their bodies, and to extend their interests and understanding of the world about them.
>
> 2. If a school offers a kindergarten program, the program shall include experiences designed to develop healthy emotional and social habits and growth in the language arts and communication skills, as well as a capacity for the completion of individual tasks, and protection and development of physical being.
>
> 3. The following shall be taught in grades one through six...health and physical education, including the effects of alcohol, tobacco, drugs and poisons on the human body; the characteristics of communicable diseases; traffic safety, including pedestrian and bicycle safety procedures; music and art.
>
> 4. The following shall be taught in grades seven and eight as a minimum program:... health and physical education, including the effects of alcohol, tobacco, drugs and poisons on the human body, the characteristics of communicable diseases, including venereal diseases and current crucial health issues; music; and art.

5. Provision for special education services and programs shall be made for children requiring special education.

6. In grades nine through twelve, a unit of credit shall consist of a course of equivalent related components or partial units taught throughout the academic year. The minimum program for grades nine through twelve shall be:
... g. All students physically able shall be required to participate in physical education activities during each semester a student is enrolled in school. A minimum of one-eighth unit each semester shall be required, except that any pupil participating in an organized and supervised high school athletic program which requires at least as much time of participation per week as one-eighth unit may be excused from the physical education course during the time of his/her participation in the athletic program. Physical education activities shall emphasize leisure time activities which will benefit the student outside the school environment and after graduation from high school.

In addition to the above, the following is defined in the October 1979 Minimum Curriculum Requirements and Standards for Approved Schools (Iowa):

670 - 3.5 (10) (257) Provisions for physical education.

All students physically able shall be required to participate in physical education activities and meet the requirements as set forth in 257.25 (6) "g" and 257.25 (7).

Modified physical activities for credit shall be provided as an alternative for those pupils who for health reasons are certified by a physician as unable to take courses as set forth in Chapter 257.25.

Federal Legislation (P.L. 94-142) describes the various delivery systems that shall be provided handicapped students to assure appropriate physical education programming.

121A.307 (a) General. Physical education services, specially designed if necessary, must be made available to every handicapped child receiving a free appropriate public education.

(b) Regular physical education. Each handicapped child must be afforded the opportunity to participate in the regular physical education program available to non-handicapped children unless:
(1) The child is enrolled full time in a separate facility; or
(2) The child needs specially designed physical education, as prescribed in the child's individualized education program.

(c) Special physical education. If specially designed physical education is prescribed in a child's individualized education program, the public agency responsible for the education of that child shall provide the services directly, or make arrangements for it to be provided.
(d) Education in separate facilities. The public agency responsible for the education of a handicapped child who is enrolled in a separate facility shall insure that the child receives appropriate physical education services in compliance with paragraphs (a) and (c) of this section.

When a specially designed physical education program is needed, P.L. 94-142 Rules and Regulations require that the student has an individualized educational program (IEP) developed via the staffing process. The following are some suggestions for the physical educator who may feel they need some supportive assistance.

1) If you have a student in your physical education class who is not able to participate and benefit from the regular physical education program, ask the homeroom teacher if the student is currently receiving any special education services.

a) If the student is currently receiving special education services (instructional programming or support services), there will be a staffing report concerning the student's individualized educational program. Ask to review the IEP with the teacher and principal. If the student is currently receiving special education services and there are no references made regarding physical education for the student, discuss it with the building principal or supervisor. The administrator or the building principal will initiate a process for reviewing the student's program.

b) If the student is not receiving any special education instructional or support services currently, discuss your concerns with the classroom teacher (homeroom) and the building principal or supervisor. The building principal or supervisor can initiate a referral if sufficient data is available to warrant it.

In an effort to clarify some of the ambiguity of the IEP process defined in P.L. 94-142 Rules and Regulations, the Office of Special Education (OSE) published a policy letter (May 13, 1980) in an attempt to clarify what requirements must be met in order for public agencies to be in compliance with the IEP provisions in the Act and Regulations. The following are excerpts from the policy paper that are appropriate to the general IEP process.

The Purpose of the IEP Requirements

The IEP provision in the Act and regulations has two main parts:

(A) the IEP meeting(s) - at which parents and school personnel jointly make decisions about a handicapped child's "program", and
(B) the IEP document itself - which is a written record of the decisions reached at the meeting. The overall IEP requirements, comprised of these two parts, has a number of purposes and functions, as set out below:

1. The IEP meeting serves as a communication vehicle between parents and school personnel, and enables them, as equal participants, to jointly decide upon what the child's needs are, what will be provided, and what the anticipated outcomes may be.

2. The IEP itself serves as the focal point for resolving any differences between the parents and the school; first through the meeting and second, if necessary, through the procedural protections that are available to the parents.

3. The IEP sets forth in writing a commitment of resources necessary to enable a handicapped child to receive needed special education and related services.

4. The IEP is a management tool that is used to insure that each handicapped child is provided special education and related services appropriate to his/her special learning needs.

5. The IEP is a compliance/monitoring document which may be used by monitoring personnel from each governmental level to determine whether a handicapped child is actually receiving the free appropriate public education agreed to by the parents and the school.

6. The IEP serves as an evaluation device for use in determining the extent of the child's progress toward meeting the projected outcomes. (NOTE: The law does not require that teachers or other school personnel be held accountable if a handicapped child does not achieve the goals and objectives set forth in his/her IEP. (P.L. 94-142 Regulations SS 121a. 349)

Contents of the IEP

Written individualized educational programs (IEP) for each handicapped student must be developed and annually reviewed by a student's parents, teacher(s), and a designee of the local education agency. P.L. 94-142 mandates that the IEP shall include a statement of specific educational services to be provided to the student, including:

1. a statement of the child's present level of educational performance; (e.g. reading, social studies, physical education)

2. a statement of annual goals, including short-term instructional objectives;

3. a statement of specific special education and related services to be provided to the child, and the extent to which the child will be able to participate in regular educational programs;

4. the projected dates for initiation of services and the anticipated duration of the services; and

5. appropriate objective criteria and evaluation procedures and schedules for determining, on at least an annual basis, whether the short-term instructional objectives are being achieved.

The development of the IEP provides and facilitates a valuable liaison between the assessment of a student's needs and the management of resources by all concerned to meet the student's instructional needs.

Who Attends the IEP Meetings ?

1) For students considered for an initial placement which teachers should attend?

The "teacher" could be either (1) a teacher qualified to provide special education in the child's area of suspected disability, and/or (2) the child's regular teacher. In any event, there should be at least one member of the school staff at the meeting who is qualified in the child's area of suspected disability.

NOTE: Sometimes more than one meeting is necessary in order to finalize a child's IEP. If in the process, the teacher who will be working with the child is identified, it would be useful to have the teacher participate in the meeting with the parents and other members of the IEP team in finalizing the IEP. When this is not possible, the agency should insure that the teacher (i.e., the "receiving"

special education teacher) is given a copy of the child's IEP as soon as possible after the meeting(s) and before the teacher begins working with the child.

2) If a handicapped student is enrolled in both regular and special education classes, which teacher should attend the IEP meeting?

The special education teacher. At the option of the agency or the parent, the child's regular teacher also might attend. If the regular teacher does not attend, the agency should insure that he/she either receives a copy of the IEP or is informed about its contents. Moreover, the agency should insure that the special education teacher or other appropriate support person is able, where necessary, to consult with and be a resource to the child's regular teacher.

If a handicapped student in high school attends several regular classes, should all of the child's regular teachers attend the IEP meeting?

This is a State or local decision. However, the following are some points to be considered in making the decision:

a. Generally, the number of participants at IEP meetings should be small. Holding small meetings has several advantages over large ones. For example, they 1) allow for more open, active parent involvement, 2) are less costly, 3) are easier to arrange and conduct, and 4) are usually more productive. NOTE: In an informal examination of IEPs from five states, Bureau Education Handicapped (BEH) staff found that, on the average, IEP meetings were attended by four persons.)

b. While large meetings are generally inappropriate, there may be specific circumstances where additional participants are essential. The regulations authorize the attendance of other participants at the discretion of the agency or parents. (P.L. 94-142 SS121a.344 (a)(5). When the participation of the regular teachers is considered by the agency or the parents to be essential to the child's success in school (e.g. in terms of his/her participation in the regular education program), it would be appropriate for them to attend as "other participants". Usually, the need for such attendance is greater for children with severe handicaps.

c. While the student's regular teachers would not routinely attend IEP meetings, they should either 1) be informed about the student's IEP by the special education teacher or agency representative, or 2) receive a copy of the IEP itself. Moreover, as mentioned

earlier, the agency should insure that the special education teacher is able, where necessary, to consult with, and be a resource to, the student's regular teachers.

3) When may a handicapped student attend an IEP meeting?

Generally, a handicapped student should attend his/her IEP meeting whenever the parent decides that it is appropriate. Whenever possible, the agency and parents should discuss the appropriateness of the child's participation before a decision is made, in order to help the parents determine whether or not the child's attendance will be 1) helpful in developing the IEP and/or 2) be directly beneficial to the child. The agency must inform the parents about this provision before each IEP meeting -- as part of the "notice of meeting" requirement in Section 121a. 345(b).

NOTE: Although not required by the Act or regulations, it is recommended that, through the combined efforts of the parents and agency, older handicapped children (particularly those at the secondary school level) be encouraged to participate in their IEP meetings.

4) Are the parents precluded from attending IEP meetings when the student reaches the age of majority?

No. The parents retain the right to participate in IEP meetings after the student reaches the age of majority. (NOTE: The Act is silent concerning the rights of a handicapped student at the age of majority. However, if a student wants to attend his/her IEP meeting, it is expected that the student would be allowed to do so. The only exception would be where a student had been declared legally incompetent. Even in those cases, the student could attend if the parents decide it is appropriate.)

5) Do related services personnel have a role at IEP meetings?

Yes, if a handicapped student has an identified need for related services. For example, when the student's evaluation indicates that he/she needs a specific related service in order to benefit from special education (e.g. physical therapy, occupational therapy, or counseling), the agency should insure that a qualified provider of that service either (a) attends the IEP meeting, or (b) provides a written recommendation concerning the nature, frequency, and amount of service to be provided to the student. (NOTE: This could be a part of the evaluation report.)

6) Are agencies required to use a "case manager" in the development of a handicapped child's IEP?

> No. However, some local schools have found it helpful to have a special educator or some other school staff serve as coordinator or "case manager" of the IEP process for an individual child or for all handicapped children served by the agency. Examples of the kinds of activities which case managers might carry out are: 1) coordinating the multidisciplinary evaluation process, 2) collecting and synthesizing the evaluation reports and other relevant information about a child that might be needed at the IEP meeting, 3) communicating with the parents, and 4) participating in, or conducting, the IEP meeting itself.

In Summary:

Physical education teachers, regular education teachers, and special education teachers must become more skilled in developing IEPs based upon each student's assessed needs. A systematic approach to instructional accountability and reporting must be implemented to monitor, evaluate, recommend, and implement changes at both the individual student and the program levels. Accountability consists of a clearly defined set of procedures. It is a six step process which is done with people not to them: (a) setting program goals; (b) establishing sequential performance objectives for students to achieve stated goals; (c) assessing student needs; (d) planning the instructional program based on the assessed needs of each student; (e) continuously measuring and evaluating each student's progress; and (f) recommending and implementing changes indicated by evaluation.

The physical education teacher is important in the determination of an individual's physical education program, and physical education placement, through proper evaluation. The physical educator is also responsible for the quality of the planned program and communicating with the parents and other teachers on the student's motor development, performance, and progress.

P.L. 93-112

VOCATIONAL REHABILITATION ACT AMENDMENTS OF 1973

by

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What is Section 504?

Section 504 of the Vocational Rehabilitation Act reads:

> *"No otherwise qualified handicapped individual... shall solely by the reason of his/her handicap, be excluded from participation in, be denied the benefits of, or be subject to discrimination under any program or activity receiving Federal financial assistance."*

P.L. 93-112, of the Vocational Rehabilitation Act Amendments of 1973, includes Section 504 which is the basic civil rights provision with respect to ending discrimination against America's handicapped citizens. The rules and regulations of Section 504 were published in the Federal Register May 4, 1977, for all recipients of funds from HEW, including elementary and secondary schools. The rules cover all programming and include other services an educational agency may provide such as preschool, adult and community education, community recreation, etc.

Section 504 regulations are divided into seven sub-parts: 1) general provisions, 2) employment practices, 3) program accessibility, 4) preschool, elementary, and secondary education, 5) post-secondary education, 6) health, welfare, and social services, and 7) procedures.

While sub-parts 3 and 4 are central, certain aspects of sub-parts 1,2,5,and 7 can have significant impact upon state and local education divisions. Each sub-part does not exist independently and they must all be considered as a whole.

Section 504 - the act and over-reaction

"All school buildings must now have expensive elevators." "Our varsity football team must have at least one player in a wheelchair." NOT SO!

The basic requirements provide for equal opportunity for all students. Where students have handicapping conditions, accommodations may be necessary to assure and provide equal educational opportunity. The basic requirements are:

- .that every handicapped child is entitled to a free public education regardless of the nature or severity of handicap.
- .that handicapped students must not be segregated in public schools but must be educated with non-handicapped students to the maximum extent appropriate to to their needs.

.that evaluation procedures be improved to avoid the inappropriate education that results from misclassification.

.that procedural safeguards be established so parent and guardians can be a part of and can object to evaluation and placement decisions made with respect to their children.

.that state or local education agencies locate and identify unserved handicapped children.

An appropriate education that can be afforded students who have handicapping conditions include regular classes with or without aids, special programming or resources in the regular school, provisions of educational opportunity in public or private homes and institutions, or various combinations so the handicapped and non-handicapped students are educated together to the maximum extent possible. The result must be to provide the educational program best suited to the individual needs of each handicapped student. It must help each student be a part of the general educational community and not apart from.

Over-reaction seems to come from a lack of understanding of Section 504, a lack of understanding of what the student with a handicap can do, a lack of inventiveness and imagination on our part, and in some instances, prejudice and fear. We need an open mind, a real concern for students and common sense.

Who are the handicapped?

For purposes of the Rehabilitation Act, a "handicapped" person is (1) anyone who now has a physical or mental handicap which substantially limits one or more major life activities, (2) anyone who has a record of such a handicap, and (3) anyone who is regarded as if he or she had such a handicap. The Section 504 Regulations note a number of examples of "physical or mental impairments and define"major life activities." (See Regs.SS 84.31; and Analysis 3.) Alcoholism and drug addiction are also considered handicaps within the context of the Regulations to the extent that either one substantially limits a major life activity. (See Regs. Analysis 4.)

Physical and mental disabilities do not necessarily constitute a handicap unless they are severe enough to substantially limit one or more major life activities. Major life activities include functions such as caring for one's self, performing manual tasks, walking, seeing, hearing, speaking, breathing, learning, and working.

On the other hand, a person may be considered handicapped if the person has "a record of such disability" or "is regarded as having such a disability". For example, if a person is diagnosed as epileptic but the epilepsy is controlled by medication, then it is not functionally handicapping. But if this person is excluded from programming or faces discrimination due to the "label", then such person is covered under the regulations.

Program Accessibility

Section 504 provides that programs must be accessible to handicapped persons. This does not mean that every building or part of a building must be accessible. The section states that a recipient's program or activity when viewed in its entirety, must be accessible to and usable by handicapped persons. The intent is to make all benefits or services available. In meeting the objection of program accessibility, a recipient must take care not to isolate or concentrate handicapped persons in settings away from non-handicapped participants where such separation is unwarranted. Structural changes in existing facilities are required only where there is no other feasible way to make the program accessible.

Accessibility to program or activity may be achieved by a number of means including redesign of equipment, reassignment of classes or other services to accessible buildings and making aides available to students.

Any new building must be accessible to the handicapped. All buildings for which site clearance has begun after June 3, 1977, must be designed and constructed to be accessible.

Physical Education and Athletics

Again, both P.L. 94-142 and Section 504 ensures the students' right to an equal opportunity to participate in a physical education program and in non-academic and extracurricular activities such as intramurals and interscholastic sports.

The regulations state:

> *"In providing physical education courses and athletics and similar programs and activities to any of its students, a recipient to which this sub-part applies may not discriminate on the basis of handicap. A recipient that offers physical education courses or that operates or sponsors interscholastic (intercollegiate), club, or intramural athletics shall provide to qualified handicapped students an equal opportunity for participation in these activities.*

A recipient may offer to handicapped students physical education and athletic activities that are separate or different from those offered to non-handicapped students only if separation or differentiation is consistent with the requirements...and only if no qualified handicapped student is denied the opportunity to compete for teams or to participate in courses that are not separate or different."

Students must have maximum opportunity for appropriate instruction in physical education programs and activities with their non-handicapped peers. Where the setting is considered appropriate and normal, programs can be modified or implemented as a part of the regular class. Students who cannot perform safely, satisfactorily, or successfully in regular physical education programs are guaranteed placement in specially designed opportunities.

If the disabled student can "make the team" or meet all regular requirements for participation, then that student cannot be discriminated against due to a disability. The all-conference high school football player without legs? You bet, but we need to make sure the prosthetic legs won't injure the student or another player. We have done this with the temporary cast, eye-glasses, etc. for years.

Adaptive physical education is fast becoming a specialized area geared to assist in the provision of appropriate physical education, recreational, and intramural programming for disabled students.

It is the development of positive expectations for disabled students that will enable the educational community to more adequately plan for the full participation of its disabled students in all school programming and activities. The disabled students and their parents may be excellent resources for ideas and suggestions in program planning and individual accommodations needed.

DISABILITIES

Physical Disability

Visual Impairments

Emotional Disability

Mental Disability

Learning Disability

Communication Disability

Hard of Hearing and Deaf Disability

Other Health Impairments

DISABILITIES

Physical and Visual Disabilities
Other Health Impairments

by

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PHYSICAL DISABILITIES

The broad definition of physical disabilities includes those individuals with physical impairments which prevent them from functioning in the same manner as able bodied persons. These disabilities may be congenital (existing or originating at birth) or may be caused by accident or disease. Disabilities included in this definition are organic, muscular and neurological conditions affecting motor activities. The degree of involvement ranges from minimal effects to severe crippling which often forces the individual to function from a wheelchair.

Visual impairments are among those that can most severely affect developmental patterns of the child. Thus a visual impairment can put the student at an obvious disadvantage. With proper education and training the student has an opportunity to live a happy and enriched life, and can successfully participate in and contribute to society.

INTRODUCTION

In the Iowa Rules of Special Education 12.3 (4), physically disabled students in need of special education services are described as follows:

(4) Students requiring special education are those students handicapped in obtaining an education as specified in Chapter 281 of the Iowa Code, and as defined in the rules of special education.

PHYSICAL DISABILITY

Iowa Special Education Rules and Regulations

A "Physical disability" is the inclusive term used in denoting physical or visual impairments of pupils requiring special education programs and services.

(1) Pupils with physical impairments manifest an aberration of an essential body structure system or function. Included may be disabilities resulting from cardiac, congenital, or orthopedic anomalies and conditions, or conditions of unknown or miscellaneous causes.

(2) Pupils with visual impairments are those whose vision deviates from the normal to such an extent that they, in the combined opinion of an educator qualified in the education of visually impaired and an eye specialist, require special education programs, facilities, or services. Visual acuity and educational functioning are used in determining needs of partially sighted and blind pupils.

Public Law 94-142 (Education of Handicapped Children Act) defines the physically disabled as:

SS 121a.5 (6) "Orthopedically impaired" means a severe orthopedic impairment which adversely affects a child's educational performance. The term includes impairments caused by congenital anomoly (e.g. absence of some member), impairments caused by disease (e.g. poliomyelitis, bone tuberculosis, etc.), and impairments from other causes (e.g. cerebral palsy, amputations, and fractures or burns which cause contractures).

P.L. 94-142 Regulations

(7) "Other health impaired" means limited strength, vitality, or alertness, due to chronic or acute health problems such as heart condition, tuberculosis, rheumatic fever, nephritis, asthma, sickle cell anemia, hemophilia, epilepsy, lead poisoning, leukemia, or diabetes, which adversely affects a child's educational performance.

(11) "Visually handicapped" means a visual impairment which, even with correction, adversely affects a child's sight.

GENERAL OVERVIEW OF CHAPTER CONTENTS

This chapter will describe those disabilities termed as orthopedic impairment and other health and visual impairments. Each disabling condition will be defined separately including general characteristics, suggested special movement needs, selected research findings and general findings.

The section "Orthopedically impaired" will include the following:

1. Amputation
2. Arthritis
3. Brain Damage
4. Cerebral Palsy
5. Hip Dislocation (Congenital)
6. Legg-Calve-Perthes Disease (Disease of the hip of the growing child)
7. Muscular Dystrophy
8. Postural Spinal Deformities
9. Spina Bifida
10. Spinal Cord Injuries

Other health impairments includes conditions such as the following:

1. Asthma
2. Cystic Fibrosis
3. Diabetes Mellitus
4. Epilepsy
5. Obesity
6. Rheumatic Heart Disease

The section "Visually handicapped" will include the following categories:

1. Totally Blind
2. Partially Sighted

AMPUTATIONS

DEFINITION:

Absence of a limb or part of a limb caused by congenital impairment or an acquired loss.

Descriptive categories include:

Congenital:	Absence of a limb or part of a limb at birth. These anomolies may be confined to the digits, or may be a complete absence of all four extremities.
Tumor:	Removal of a portion or an entire limb may be required to arrest a malignant condition.
Trauma:	Result of a sudden physical occurrence such as accidents.
Disease:	Diseases of the circulatory system which may become serious enough to require amputation of a limb.

GENERAL CHARACTERISTICS:

1. May be congenital or acquired.

2. Classification according to level of occurance or level at which surgery is performed.

   A. Above elbow (AE)

   B. Below elbow (BE)

   C. Above knee (AK)

   D. Below knee (BK)

ETIOLOGY:

1. Congenital birth defects.

2. Surgical removal of the limb.

SPECIAL MOVEMENT NEEDS:

1. Activities to provide a well balanced body-awareness offer early successes and increase self confidence.

   a. Above the elbow: provide exercises to strengthen opposite shoulder girdle in order to prepare the individual to use the prosthetic device. Also provide exercises to strengthen upper back, head and neck.
   b. Below the elbow: include exercises to strengthen upper back, head, and neck.
   c. Above the knee: provide exercises to strengthen the uninvolved lower extremity, lower back, and the abdominal area.
   d. Below the knee: include all of the above as well as exercises for the knee.

2. The unilateral amputee can participate in most areas of competitive organized athletics and should be encouraged to participate within their capabilities.

3. Psycho-social activities: are important during the early stages of adjustment to amputation.

4. Balance activities: such as running should be encouraged for upper extremity amputees who wear prosthesis.

5. Activities from a standing, sitting or prone position should be offered for bilateral above-knee amputees, (e.g. archery, spin and bait casting).

6. A general physical fitness conditioning program should be adapted to their needs.

7. It is particularly important to offer opportunities for both fine and gross motor experiences which should be adapted to the level of need. Success is important.

8. Opportunities to develop and improve the ability to shift weight to balance, to walk forward, backward, and so forth, are important for lower extremity amputees.

9. A general exercise program to improve posture adapted to the level of loss is essential.

SELECTED RESEARCH FINDINGS

AUTHOR	DATE	FINDINGS
National Federation of State High School Associations	1975	"Illegal equipment shall not be worn by any player. This applies to any equipment which in the opinion, of the umpire, is dangerous or confusing. Types of equipment which shall always be declared illegal include artificial hand, arm or leg."[1]
Adams, Ronald C. Daniel, Alfred Rulman, Lee	1975	It has been estimated that there are 311,000 amputees in the United States of which 32 percent has lost part or all of the upper extremity and 68 percent the lower extremity.[2]

GENERAL FINDINGS

1. Many amputees avoid swimming because of psychological reasons. However, it is one of the best activities to increase endurance and promote better physical conditioning. It should be encouraged, particularly for lower extremity amputees.

2. The physical education teacher is able to help guard against needless anxieties and help the amputee to withstand the psychological trauma of amputation.

3. It is of prime importance that the child not only be physically capable of performing the activity, but also have sufficient skill to make it interesting and challenging.

4. Because of the relative difficulty of moving and successfully participating in movement experiences, the amputee may lead a sedentary existence, particularly children with above-the-knee amputation. It is not uncommon for them to become overweight and further restrict their ability.

ARTHRITIS

The term arthritis is broadly applied to more than 100 different conditions which cause aching and pain in joints and connective tissues throughout the body. It is synonomous with rheumatism, and is marked by heat, pain, redness, and swelling of joints and/or connective tissue.

ETIOLOGY:

Unknown, with the exception of symptoms caused by rheumatic fever.

GENERAL CHARACTERISTICS:

A. Rheumatoid (Juvenile Arthritis)
   1. Most serious, painful, crippling.
   2. Primarily attacks joints, but may affect skin, blood vessels, muscles, spleen, and heart.
   3. Painfully tender, swollen stiff joints.
   4. May feel "sick all over", with fever.
   5. Poor appetite, loss of weight.
   6. Tends to flare up and subside, causing progressive, irreversible damage.
   7. Affects three times as many women as men.

B. Osteoarthritis:
   1. Also called degenerative joint disease.
   2. Usually mild and non-inflammatory.
   3. Can cause considerable pain.
   4. Mild to severe disability may develop.
   5. Pain results from fraying of cartilege between bones.
   6. Disability caused by muscle weakness and inability to move joints easily.

C. Ankylosing Spondylitis:
   1. Rare spinal arthritis.
   2. Affects ten times as many men as women.
   3. Chronic inflammatory disease in which the spine becomes progressively more stiff.

SPECIAL MOVEMENTS NEEDS:

1. Modified sports and games can be employed to reduce stresses and strains on affected joints.

2. Activities with high social/recreational value are useful.

3. Foot classes designed to strengthen the intrinsic foot muscles to prevent or modify flattening of anterior metatarsal arch are helpful.

4. It is sometimes necessary to modify activities in sports involving power kicking due to the possibility of traumas to the knee joints.

5. Exercises designed to strengthen back and abdominal muscles and general fitness are often useful.

SELECTED RESEARCH FINDINGS

AUTHOR	DATE	FINDINGS
Rusk, H.A.	1964	Physical therapy has no curative effect in arthritis, nor does it alter the course of the disease. It is a prophylactic and, as such, must be carried out daily and indefinitely as long as the active disease process persists.[3]
Brewer, E. J.	1970	The age of onset varies in the juvenile group. Two peaks of incidence seem to occur between 2 and 4 years, and also between 8 and 11 years.[4]

GENERAL FINDINGS

1. With early diagnosis and treatment, crippling can usually be minimized and permanent damage can be kept to a minimum if the condition is kept under control.

2. Most children who develop rheumatoid arthritis, (Still's Disease), do so before age 7 and have the first symptoms in the knee. Others develop pain in various joints.

3. Arthritis is reported more often in women than men.

4. Steroid therapy for rheumatoid arthritis is usually administered as a last resort, when other agents fail to control the clinical manifestations.

5. The extent of joint damage is a major factor in determining what types of activities are to be recommended.

6. Students should be allowed to move about frequently instead of sitting in one position for long periods of time in order to minimize joint stiffness.

7. The student should not be allowed to become chilled.

ASTHMA

DEFINITION:

Bronchial asthma is a disorder of the respiratory system characterized by dyspnea wheezing, lightness in the chest, and bronchospasm. The primary disturbance occurs in smaller bronchi and bronchioles where there is a spasm of the smooth muscle, or inflammatory edema of the mucous membrane, or both.

GENERAL CHARACTERISTICS:

A. It is caused by allergen agents, extrinsic infection, fatigue, or emotional factors (intrinsic).

B. Characteristics:

1. Allergic or extrinsic asthma tends to occur in children and young adults who have previous allergy history. Some of the agents that cause these allergies are as follows:
   a. Pollen
   b. Dust
   c. Mold
   d. Animal emanations

ETIOLOGY:

1. Allergen agents (extrinsic).

2. Infection, fatigue and emotional factors (intrinsic).

SPECIAL MOVEMENT NEEDS:

1. Participation in most physical education activities is recommended. In some instances individually prescribed activities are needed. Emphasis on non-contact sports such as tennis or gymnastics is suggested.

2. Devote attention to increasing the strength and development of abdominal, trunk, and shoulder muscles. The development of these muscles is important to aiding diaphragmatic breathing.

3. Activities for the improvement of vital capacity and aerobic capacity are also valuable.

4. Swimming should be encouraged as it combines the use of all muscle groups with practical breathing functions.

5. Activities with high social/recreational value should be included.

6. Activities to stimulate conscious relaxation are important.

7. Activities to encourage proper body alignment are essential for aiding respiratory functioning.

SELECTED RESEARCH FINDINGS

AUTHOR	DATE	FINDINGS
The Committee on Children with Handicapped and the Commission on Physical Fitness, Recreation and Sports Medicine of Pediatrics	1973	They approve participation in physical education under medical supervision for the majority of asthmatic children.[5]
Harvey, Birt	1975	Harvey advocates participation in physical education so that asthmatic children do not feel different from their peers.[6]

The Joint Committee of the Allergy Foundation of America and the Thoracic Society	1973	An exercise program designed to improve physical fitness is a valuable part of rehabilitation of the chronic asthmatic. Exercise provoked asthma can be prevented by use of an aerosol epinephrine, or isoproterenal, or by administration of an ephedrine capsule so that patient need not keep from exercising.[7]

GENERAL FINDINGS

1. Anxiety may induce an attack in certain cases. Decisions on a child's participation in athletics or highly competitive activities should be made with medical consultation. However, every effort should be made to minimize restrictions.

2. Identification of causative factors is important, as activities can be selected to eliminate exposure to allergen (i.e. horseback riding discouraged for those who are allergic to horse dander).

3. Care must be taken to avoid or reduce exposure to cold and to sudden changes in temperature, since these conditions may trigger asthmatic attacks.

4. Since attacks may be caused by over-exertion, the intensity of activity must be suited to the physical tolerance of the individual.

5. Frequent periods of, and gradual involvement in activities are of particular importance in inhibiting or preventing attacks caused by over-exertion.

BRAIN DAMAGE

DEFINITION:

Damage to the brain due to a traumatic injury (i.e. blow to the head), cerebral palsy, tumors, toxic agents (i.e. carbon monoxide) or a cerebral vascular accident (i.e. stroke).

GENERAL CHARACTERISTICS:

1. Brain damage by trauma.
   a. Severity depends on how much brain tissue is damaged.
   b. Most often characterized by hemiplegia (paralysis on one side).
   c. Aphasia (communication difficulty) may be present.
   d. Altered social and emotional behavior.
   e. May have seizure disorder.
   f. Confusion is not uncommon.

2. Brain damage by stroke (cerebral vascular accident-C.V.A.).
   a. Stroke caused by disruption of blood supply to the brain, either through vascular blockage or vascular rupture.
   b. Can occur at any age.
   c. Effects may be severe, moderate, or slight and may be temporary or permanent.
   d. Hemiplegia is present in the side of the body opposite the damaged area of the brain.
   e. Aphasia (communication difficulty) may be present.
   f. Can be very frustrating for individual who can't communicate.

ETIOLOGY:

Damage at birth (e.g. cerebral palsy).
Damage due to a blow to the head (accident).
Cerebral vascular accident.

SPECIAL MOVEMENT NEEDS:

1. Activities with high social/recreational value are important.

2. Perceptual motor games which challenge cognitive functioning in non-threatening ways are recommended.

3. Activities to encourage proper body alignment are necessary.

4. Activities which enhance body awareness.

GENERAL FINDINGS

1. The student may have poor balance, or be unsteady.

2. Patience is necessary to facilitate communication if aphasia is present.

3. Visual, auditory, and tactile perceptual disturbance are sometimes evident.

CEREBRAL PALSY

DEFINITION:

A disturbance of muscular function that arises from destruction or congenital absence of upper motor neurons. It is frequently complicated by occurrence of convulsions, behavior disturbances, or mental retardation. About 50 percent have only motor involvement. The remaining 50 percent have other involvements such as hearing, sight, and speech in addition to motor impairment.

GENERAL CHARACTERISTICS:

1. Athetoid-Athetosis is seen in about one-fourth of the cases. It is marked by purposeless, involuntary and incoordinated motion with varying degrees of tension. Extraneous movement may be less severe when the individual is relaxed.

2. Spastic-Spasticity occurs in approximately one half of the cases of cerebral palsy. It is characterized by hyperactive reflexes and contracted flexor muscles which produce awkward movement. Mental impairment is often associated with this type of cerebral palsy.

3. Ataxia is less common and is characterized by incoordination of activity and/or function due to disturbance of kinesthetic sense (e.g. swaggering gait, poor balance, and poor tactile awareness).

4. Rigidity is often thought of as a severe form of spasticity. In rigidity, both contracting and contralateral muscles are affected, thus further inhibiting motion. Mental disability is generally present.

5. Tremor is characterized by uncontrolled, involuntary, rhythmic, alternating, and pendular movement. Tremors are caused by a lesion in the basal ganglia.

6. Atonic is extremely rare and usually develops into athetosis. It is characterized by poor muscle tone.

7. Mixed type: it is possible to have a combination of more than one type.

ETIOLOGY:

1. Prenatal (most frequent)
   a. Functional disturbances of mother (e.g. high blood pressure, diabetes).
   b. Incompatibility of maternal and fetal blood (R H factor).
   c. Infection in early months of pregnancy (e.g. Rubella).
   d. Diseases of germ plasma causing faulty development of the brain.

2. Natal (frequent)
   a. Brain injury during birth due to prolonged or difficult labor or any condition leading to lack of oxygen for the baby for more than a few minutes during delivery.
   b. Premature birth.

3. Postnatal (less frequent)
   a. Diseases such as whooping cough and encephalitis.
   b. Insufficient oxygen in the blood (e.g. gas poisoning).

SPECIAL MOVEMENT NEEDS:

1. Activities with high social/recreational value are recommended.

2. Highly competitive activities are not recommended, since excitement and tension should be avoided.

3. Early success in games is important. Adaptations (e.g. distance modification in a ring toss game) may be helpful.

4. Free gross motor movements that aid in movement exploration are better than those involving fine finger dexterity.

5. Activities to improve neuromuscular efficiency such as swimming are recommended.

6. Stall bar exercises are good for climbing and holding onto during exercises (e.g. child can "walk" hands up the bars and straighten the body and legs into a standing position). Termed "stabilization technique" and it stimulates various neurologic reactions.

7. Stretching exercises are needed to increase flexibility, (range of motion), to relieve muscular contractures, and thus inhibit bone deformity.

8. Exercises to encourage proper body alignment are important.

9. Balance activities should be emphasized particularly for the ataxic. Body positioning may free movement of extremities.

SELECTED RESEARCH FINDINGS

AUTHOR	DATE	FINDINGS
Force, Dewey G.	1956	Many children use splints and other assistive devices to compensate for physical and motor disabilities. Although only slight modification of activities is necessary for some children, a great deal of modification may be required for successful participation by severely afflicted children.[8]

GENERAL FINDINGS

1. Since motor dysfunction is the central feature of cerebral palsy, physical therapy has become an important part of treatment.

2. Although physical treatment responsibility may lie with the physical therapist, it is important that recreators, physical educators, and others involved with movement experiences help complement the treatment.

3. The physical educators may help the child develop motor abilities and skills for participation in play, games, sports, exercise, and dance.

4. Physical characteristics and involvement vary greatly, and are not indicative of mental ability.

5. Many children with cerebral palsy have a shorter attention span than other children.

6. Space for activities should be relatively large in order to allow for freedom of movement.

CYSTIC FIBROSIS

DEFINITION:

Disturbance of the exocrine glands (glands that secrete mucous, saliva and sweat) causing chemically and physically abnormal secretions.

GENERAL CHARACTERISTICS:

1. Thick sticky mucous can interfere with functioning of lungs and digestive system.

2. Viscid (thick and sticky) substances clog and obstruct the lungs, pancreas and liver.

3. Obstruction may lead to development of cysts and fibrous scarring of the organs.

4. Respiratory infections are more frequent and prolonged.

ETIOLOGY:

Inherited as a recessive gene trait from both parents.

SPECIAL MOVEMENT NEEDS:

1. Encourage participation in movement activities to the greatest extent possible.

2. Breathing exercises are recommended.

3. Running activities should be included.

4. Individual sports activities which contribute to strengthening abdominal and shoulder muscles are encouraged.

5. Activities which encourage development of good postural and breathing habits are needed (e.g. archery and swimming).

SELECTED RESEARCH FINDINGS

AUTHOR	DATE	FINDINGS
Scheickhorn, Jay	1977	Active play, running, swimming, and skipping are often more effective than other forms of therapy for raising sputum.[9]

GENERAL FINDINGS

1. In order to counteract heavy salt loss through perspiration, supplemental salt amounts are recommended as prescribed by the student's physician.

2. The National Cystic Fibrosis Foundation-Research reports that one year has been added to the life span of persons with cystic fibrosis since the year 1960. The average age of death has risen from 2 years to 12 or 14, and some individuals live beyond 20 years of age.

3. Care must be taken to provide good respiratory hygiene in order to prevent respiratory infection (e.g. water for swimming should be warm and children should dry thoroughly).

4. A program of sports and games can help a child win social approval and acceptance.

5. Participation in athletics can promote positive body image concepts through which individuals may adjust and recognize limitations and strengths.

DIABETES MELLITUS

DEFINITION:

Diabetes mellitus is a hereditary metabolic disorder in which the ability of the body to properly metabolize or utilize food is impaired.

GENERAL CHARACTERISTICS:

1. It is manifested by abnormally large amounts of sugar in blood and urine.

2. Deficiency of insulin resulting from disturbance in the function of the islands of Langerhans of the pancreas, or interference with action of insulin in the tissues are common.

3. Excessive urination, thirst, and fatigue are generally present.

ETIOLOGY:

Heritary or developmental disease.

SPECIAL MOVEMENT NEEDS:

1. Encourage participation in regular sports and games, and also exercise and rhythmic exercise. (Establish individual tolerance levels through coordination with medical record information.)

2. Activities with high social/recreational value are important.

3. Include movement exploration activities in each program.

4. General exercises and mild weight training can be helpful.

5. Exercises to encourage general body tone and good posture are beneficial.

SELECTED RESEARCH FINDINGS

AUTHOR	DATE	FINDINGS
Cunningham, Lee N. Etkind, Edward L.	1975	With the exception of the 600 yard run-walk, the performance of 175 diabetic boys aged 10 through 15 was significantly below the mean performance of non-diabetic boys on items of AAHPER Youth Fitness Test. Data indicates that diabetics are able to participate in endurance activities with success.[10]

Zankle, Harry T. (et al)	1957	Zankle found that hospitalized diabetic patients were able to improve their physical proficiency after 23 days of physical activity.[11]
Larson Yngve (et al)	1962	This study found that a majority of adolescent girls improved their physical work capacity after long-term and short-term training sessions.[12]

GENERAL FINDINGS

1. Obesity is not so prominent a feature preceding development of diabetes in children as it is in adults, although it does exist in occasional cases.

2. One benefit of physical activity for the diabetic is enhanced circulation.

3. Psychic stress may influence metabolism resulting in changes in blood sugar levels, ketone production, and urinary excretion.

4. Maintenance of proper body weight is stressed in the treatment of diabetes.

5. Care must be taken to avoid circulatory restrictions during physical activity.

6. Physical activity must be coordinated with insulin and food intake.

7. Special care should be taken to avoid abrasions and bruises.

EPILEPSY

DEFINITION:

Outward manifestation of a disturbance in the brain; not a specific disease entity in itself, but rather a pattern of recurrent seizures.

GENERAL CHARACTERISTICS

1. The central feature of epilepsy is seizure, and the types of seizure are classified according to their cause.

    A. Idiopathic (sometimes referred to as "treie" epilepsy).
        1. Structural damage or disease of the nervous system is absent, but the possibility of recurrent attacks in seizures and convulsions is present.

        2. The symptoms are believed to be transient disturbances in the electrochemical activity of the brain.

        3. Sometimes the cause of the seizure is unknown.

    B. Symptomatic seizures are caused by the following:
        1. Acute infection of the brain.
        2. High fever.
        3. Meningitis.
        4. Trauma.
        5. Prenatal causes.
        6. Malnutrition.
        7. Birth injuries.

2. There are several catagories of seizures; each with its own characteristics.

    A. Tonic-clonic or "Grand Mal" (most common).
        1. Convulsions and complete unconsciousness are typical.
        2. Thrashing about and contractions often occur.
        3. An excessive amount of saliva is excreted by the individual.
        4. He/she may lose control of the bowel and/or the bladder.
        5. He/she may have aura; a warning to the person that he/she is about to have a seizure (e.g. spots before the eyes, tingling of skin etc.).
        6. He/she may be tired after a seizure.
        7. The seizure may last for minutes.

B. Petit Mal:
   1. A sudden brief loss of consciousness.
   2. No overt convulsions.
   3. The individual may not lose consciousness, but appear to day dream or show a blank look for a few minutes.
   4. Myoclonic jerks (e.g. blinking of eyes, flickering movements of face, and jerking movements of arms) are typical.

C. Focal:
   1. It may be limited to a particular area of the body.
   2. It may spread to other parts of the body displaying Jacksonian seizure characteristics (jerking and stiffening of muscles or producing numbness, tingling or heaviness in a part of the body).

D. Psychomotor:
   1. It begins in one small part of the brain and results in a variety of behaviors.
   2. Often one exhibits a blank look and begins some repetitive "automatic" behavior (e.g. chewing, stroking the hair, and/or wandering aimlessly).
   3. At times temper tantrums, hyperactivity, inactivity, confusion or other non-social behavior may occur.

ETIOLOGY:

1. Idiopathic: 60%-70% fall into this causes unknown catagory.

2. Symptomatic:
   a. Acute infection of the brain.
   b. High fever.
   c. Meningitis.
   d. Trauma.
   e. Prenatal causes.
   f. Malnutrition.
   g. Birth injuries.

SPECIAL MOVEMENT NEEDS:

1. Vigorous activity is encouraged.
2. Cardio-vascular endurance exercises are recommended.
3. Physical fitness activities are needed.
4. Activities with high social/recreational value are recommended.
5. Activities to increase coordination skills should be included.
6. Swimming is encouraged if it can be well supervised.
7. Group games at appropriate developmental levels are recommended.

ACTIVITIES CONTRAINDICATED:

1. Climbing, some gymnastics, bicycling, diving, horseback riding, archery, rifle shooting, and underwater swimming are generally contraindicated.
2. Sports such as boxing, wrestling, football, and ice hockey may be contraindicated.

SELECTED RESEARCH FINDINGS

AUTHOR	DATE	FINDINGS
Goldenshon, Eli S. Burrow, Howard S.	(n.d.)	This study indicates that restricted activity and idleness tend to make seizures occur more frequently.[13]
Kemp, Robert	1963	Participation in games is not only more likely to discourage attacks than to encourage them, but is also beneficial in psychological adjustment.[14]

GENERAL FINDINGS

1. The practice of prohibiting children with epilepsy from physical activity is widely acclaimed as outmoded.

2. Certain restrictions and safeguards need to be considered in regard to seizures, anxiety, and head injury, (e.g. use of helmet in some cases).

3. Sedentary existence, due to social ostracism or parental and social overprotection, is not uncommon in some cases.

4. As a side effect of drug therapy, a lack of coordination may be evident.

HIP DISLOCATIONS (CONGENITAL)

DEFINITION:

Congenital or developmental hip dislocation refers to conditions in which the femoral head may be partially displaced upward (subluxated), or completely displaced from the acetabulum.

GENERAL CHARACTERISTICS:

1. Females are more commonly affected than males by a ratio of nine to one.

2. The condition is more prevalent in left hip than the right, and involvement is generally unilateral.

3. It is a congenital disorder.

4. Muscle and ligament deviations occur in response to displacement.

ETIOLOGY:

Congenital

SPECIAL MOVEMENT NEEDS:

1. Activities that stress spatial relationships and presure changes through movements of the upper limbs (e.g. ball throwing and catching, games, and dart throwing) are important.

2. Activities to promote body image should be included.

3. Participation in games with high social/recreational value is recommended.

4. Movement exploration should be provided.

SELECTED RESEARCH FINDINGS

AUTHOR	DATE	FINDINGS
Turek, Samuel L.	1967	The condition may be caused by faulty prenatal development and abnormal birth conditions.[15]
Turek, Samuel L.	1967	Females are more commonly affected than males by a ratio of nine to one.[16]

GENERAL FINDINGS

1. Treatment for this disorder depends on the child's age, and whether there exists a partial displacement or a complete dislocation.

2. As the age of the child increases, placing the head in its normal position becomes more difficult, and muscles, ligaments, and other tissues resist reduction and may need altering.

3. Since the disorder is congenital, treatment generally will be instituted before school age. The physical education professional will usually deal with the children who have a history of congenital hip dislocation rather than with children in acute stages of the disorder.

LEGG-CALVE-PERTHES DISEASE

DEFINITION:

A disease of the hip of the growing child (osteochondrosis of the capitular epiphysis of the femur.

GENERAL CHARACTERISTICS:

1. Degeneration of top of the thigh bone due to circulatory disturbance occurs.

2. It generally runs a definite course lasting from one to three years; always healing.

3. Some residual deformity occurs.

4. The causes not known.

5. Occasionally this disease is present in more than one child in a family.

6. Injury, apparently is not a causative factor.

ETIOLOGY:

Unknown

SPECIAL MOVEMENT NEEDS:

1. Activities that stress spatial relationships and pressure changes through movements of upper limbs (e.g. ball throwing and catching games, and dart throwing) are important.

2. Participation in games with high social/recreational value are recommended.

3. Movement exploration and activities to promote body image are needed.

GENERAL FINDINGS

1. Until recently the physical education teacher had little contact with children with Perthes because they were excused from physical education classes.

2. Most physicians tend to support the principle that children in abduction braces and casts can participate in any activity that will not aggravate the condition. Activities requiring quick reactions, for example, are discouraged.

MUSCULAR DYSTROPHY

DEFINITION:

A progressive degeneration of the skeletal or voluntary musculature.

GENERAL CHARACTERISTICS:

1. It is characterized by muscular weakness and atrophy.

2. Generally it is classified according to the age of onset and the location of involved musculature.

3. Types of muscular dystrophy and characteristics are as follows:

   A. Pseudohypertrophic (Duchenne):
      1. It is inherited through recessive female gene, and occurs in males (ages 3-8).
      2. It is the most common and also the most severe.
      3. Affected first are the pelvic girdle muscles and followed by shoulder girdle muscle involvement, and leading to general involvement.
      4. Distinctive, apparent enlargement of the calf muscle occurs which is caused by fat deposits taking the place of wasted muscle tissue.
      5. The progressive, degeneration of this disease occurs very rapidly.
      6. At this time, remission is not a possibility.

   B. Facio-Scapulo-Humeral (Landouzy Dejerine):
      1. It occurs in both males and females.
      2. The onset generally occurs in early adolescence, but it occasionally occurs in the mid twenties.
      3. The face and shoulder girdle muscles are affected first. A characteristic forward slope of the shoulders and difficulty in raising the hands above the head are common.
      4. It has a slow progression with long "plateaus".

   C. Limb Girdle:
      1. The onset occurs between 10 and 20 years of age.
      2. It affects proximal muscles of the pelvic region.
      3. The shoulder girdle is affected.
      4. The disease progresses at a variable rate.
      5. Disability may be slight, with little affect on life span.

   D. Myotonic Dystrophy (Steinert's Disease):
      1. Symptoms may appear in puberty, but appear more commonly in young adulthood.
      2. It affects distal extremities first.
      3. A normal life span is rare for those with this disease.

E. Progressive Spinal Muscular Atrophy (Werdnig-Hoffman's Disease):
   1. Early onsets are common.
   2. It affects the pelvic girdle first; then spreads to other extremities.

ETIOLOGY:

1. Pseudohypertrophic, or Duchenne, is carried as a recessive trait by an unaffected female.

2. With other types the hereditary defect may be transmitted by either or both parents.

SPECIAL MOVEMENT NEEDS:

1. General exercises should be continued as long as possible. Coordinate programs with a physician and therapist.

2. Cognitive function activities (e.g. table games, chess, backgammon etc.) should be included in the program.

3. Activities with high social/recreational value are important.

4. Expose the children to varying degrees of physical activity, depending on the stage of progression.

5. Posture exercises while sitting in a wheelchair are necessary.

6. Ambulation activities for those not confined to wheelchairs are essential.

7. Direct leisure abilities to stimulate interest in becoming a skilled observer (e.g. athletic events).

8. Encourage participation in "fun" activities in order to counteract boredom and provide social stimulation.

SELECTED RESEARCH FINDINGS

AUTHOR	DATE	FINDINGS
Walton, John N. Gardner	1974	They agree with many other authorities that not only is physical activity beneficial, but that inactivity is detrimental for all people with this disease.[17]

Zither, Fred A. Allsap, Kent G.	1975	Active exercises should be encouraged. A prescribed range of motion exercises should be conducted twice a day for about ten minutes per session.[18]
Abramson, Arthur S. Rugoff, Joseph	1952	They found that muscle strength and contracture in their subjects improved as a result of their exercise program.[19]
Vignos, Paul J. Watkins, Mary D.	1966	Increases in muscular strength, especially in people with the limb-girdle and facio-scapulo-humeral types, may be developed through organized programs of maximum resistance exercises.[20]

GENERAL FINDINGS

1. Skillful psychological direction and an optimistic, but realistic, approach are necessary.

2. Muscle weakness causes stress on bones to be lessened, allowing bones to become brittle.

3. Excessive eating and immobility may result in obesity (although not all patients are overweight), and lack of activity contributes to skeletal changes that make the bones susceptible to fracture.

4. Cardiac problems are also exhibited by many people with muscular dystrophy.

5. Respiratory infections are common at later stages due to a general weakness of the body.

OBESITY

DEFINITION:

Obesity is described as excessive fatness.

GENERAL CHARACTERISTICS:

1. Obesity is defined as an excess of 20% or more above the ideal weight.

2. Overweight is defined as an excess of 10% or more above the desirable weight.

3. Overweight and obesity cannot be simply equated research findings (Welham and Behnke).

ETIOLOGY:

1. Overeating/physical inactivity.

2. Genetic predisposition or other physiological conditions.

SPECIAL MOVEMENT NEEDS:

1. Endurance games and sports which encourage physical ability over long periods of time are helpful in controlling weight.

2. Physical activities that can be enjoyed regularly away from school facilities (e.g. swimming, bicycling, and hiking) should be included.

3. Include body and self image programs such as physical fitness, and participation in sports and games that offer early success.

4. Activities with high social/recreational value are important.

ACTIVITIES CONTRAINDICATED:

1. Activities in which body weight must be lifted (e.g. rope climbing, high jumping, and pushups) are not recommended.

2. Avoid activities that require sustained exercise in hot, humid weather.

3. Team games that require agility and ability to carry on muscular effort over a large playing area, such as basketball and soccer are not ideal.

SELECTED RESEARCH FINDINGS

AUTHOR	DATE	FINDINGS
Welham, W.C. Behnke, A. R.	1942	The study of professional football players showed that the athletes were actually "thin" on the basis of a low body fat content, although average body weight was 24.6% above the army standard for men of the same height and age.[21]
Adams, Ronald C.	1973	Some blame for obesity in children can be placed on the medical profession itself. Pediatricians have possibly encouraged poor child-raising practices in that we have tended to go along with the idea a big baby is a healthy baby.[22]

GENERAL FINDINGS

1. Obesity and heart disease are so widespread and difficult to control in adulthood that many physicians favor preventive measures, particularly early childhood diet control, as the best way to focus on the problem.

2. Many obesity experts think eating and weight patterns are set in infancy.

3. Many studies have shown that obesity runs in families, and that apparently both genetic and environmental factors may be involved.

4. Peaks of fatness occur in early childhood and in late maturity.

5. In addition to the health risks, obesity may adversely affect the child's or adolescent's social relationship, school performance, and emotional adjustment.

6. Obesity is relatively common during pubescence and adolescence.

7. Nutritional instruction is very important.

8. A key to effective weight control is keeping energy intake (food) and activity energy output (physical activity) in balance.

9. Every physical education teacher should understand that boys and girls are eager to be physically sound and possess bodies that are agile and attractive.

POSTURAL SPINAL DEFORMITIES

DEFINITION:

Rapid physical and emotional growth during adolescence makes children particularly vulnerable to certain illnesses that affect the development process. Some of these relate to the development of the spine and result in spinal deformities.

GENERAL CHARACTERISTICS:

1. Scoliosis:
   a. Lateral curvature of the spine.
   b. May be just one curve or both primary and secondary compensatory curves.
   c. May be fixed because of muscle and/or bone deformity.
   d. May be mobile because of unequal muscle contraction.
   e. The primary curve is the major structural curve in the deformity. There is usually a compensatory curve above and below primary curve.
   f. Functional scoliosis is chiefly caused by growth faults or poor posture habits.
   g. Structural scoliosis changes in the anatomy of vertebral body and facets (small flat surface on bone) have taken place.

2. Kyphosis (Sheuermann's Disease):
   a. Abdominal convexity or backward curvature of the spine.
   b. Degeneration of one or more of the growth ossification centers in the vertebrae, followed by regeneration or recalcification (vertebral osteochondrosis).

ETIOLOGY:

Cause unknown.

SPECIAL MOVEMENT NEEDS

1. Activities to strengthen back muscles are essential.

2. Fitness and postural exercise programs and training should be included.

3. Activities with high social/recreational value are important.

4. Balance beam exercises are encouraged for children wearing "Milwaukee Braces" for scoliosis correction.

5. Active hanging exercises with arms widely spread to stretch restricting muscle forces (for scoliosis) should be utilized.

6. Deep breathing exercises should be encouraged for children wearing a "Risser Cast" following scoliosis surgery.

7. Non-contact sports and games such as, badminton, bowling, billiards, and volleyball are encouraged.

GENERAL FINDINGS

1. Treatment for structural scoliosis is directed at straightening the spine and stablizing it in the corrected position in order to prevent progression of the curvature.

2. The specially designed ambulatory brace, known as the "Milwaukee Brace," is the most effective orthesis for the treatment of scoliosis and round back. It allows for movement activities.

3. Graded activities on the low balance beam are especially valuable for children who have been recently fitted with a brace, because such activities aid in the development of kinesthetic awareness skills.

4. Balance movements can cause fatigue quickly and, therefore, should be limited to fifteen minutes per day.

5. Participation in physical education should be encouraged immediately upon return to school. Use caution with exercises requiring flexibility in the back (e.g. tumbling, somersaulting, apparatus dismounts, etc.).

RHEUMATIC HEART DISEASE

DEFINITION:

Acquired most often in childhood or adolescence, usually as a result of one or more attacks of rheumatic fever, (a type of allergic inflammation that develops in reaction to antibodies produced by the body as a defense against streptococcal bacteria).

GENERAL CHARACTERISTICS:

1. Scarring of heart valves.
2. Rheumatic fever follows a streptococcal infection, but is not directly caused by bacterial infection.
3. One or both valves in the left side of the heart can be affected.
4. Valves may become narrowed (stenotic) or leaky (regurgitant) and interfere with the heart pumping blood throughout the body.

ETIOLOGY:

Damage from rheumatic fever.

SPECIAL MOVEMENT NEEDS:

1. Activities with high social/recreational values.
2. Game activities to challenge cognitive functioning (e.g. table games, chess, etc.), particularly during the first six months after return to school should be provided.
3. Body image and posture and body alignment exercises are needed, particularly during the first six months after return to school.
4. Gradually return the student to regularly scheduled activities, games, and sports.
5. Activities allowing relaxed body movements and using space (movement exploration) are helpful.

6. Competitive sports are appropriate with a physician's concurrance.

7. An aerobic exercise program (e.g. rope jumping, jogging) should be developed.

ACTIVITIES CONTRAINDICATED:

1. Highly competitive game situations or activities demanding bursts of energy during early stages of recovery.

2. Activities requiring effort against resistance such as weight lifting at near maximum exertion and isometric exercises.

SELECTED RESEARCH FINDINGS

AUTHOR	DATE	FINDINGS
Cooper, K. H.	1968	Exercise must be carried out long enough to train both the skeletal muscles and cardio-pulmonary system. This can be done only if the exercise is aerobic.[23]

GENERAL FINDINGS

1. The teacher should be aware of the common symptoms of heart disease.
   a. Uncomfortable breathlessness experienced with exertion.
   b. Persistent palpitation with only mild effort.
   c. Pain under the breast bone which may radiate from the middle of the chest into the shoulder and down the inside of the arms.
   d. Swelling of legs and ankles.
   e. Increasing or deepening of bluish skin color.

SPINA BIFIDA

DEFINITION:

Characterized by a developmental defect in one or more vertebral arches through which the contents of the spinal cord protrude.

ETIOLOGY:

Birth defect.

GENERAL CHARACTERISTICS:

1. Spina Bifida Occulta:
   a. Defect in the fusion of the posterior neural arch.
   b. Usually asymptomatic.
   c. Occasionally, it is detected by x-ray.
   d. Does not require treatment.
   e. The skin and spinal cord are normal.

2. Meningocele:
   a. Meninges (coverings of spinal cord) protrude through a defect in a sac composed of the dura mater and arachnoid, and filled with cerebrospinal fluid.
   b. Rarely associated with neurological disability.
   c. The only danger is rupture of the sac with a resultant ascending infection of spinal fluid (meningitis).
   d. Surgical closure is not generally required to prevent this complication.

3. Meningomyelocele:
   a. This condition occurs when sac protruding from the defect includes both meninges and portions of the spinal cord.
   b. This most common type of spina bifida is always associated with some degree of neurological deficit, and requires early surgical correction.
   c. The nature and degree of involvement depends largely upon the location of the spinal cord lesion.
   d. Sacral meningomyeloceles cause little involvement with weakness confined to feet only.
   e. Midlumbar lesions affect legs and feet.
   f. High lumbar area lesions cause parsis (weakness) of muscles throughout the lower extremities.
   g. Nerves of urinary and anal sphincters from lumbar-sacral spine are involved in most cases and sphincter disturbances become a management problem.

4. Hydrocephalus:
   a. Characterized by abnormal enlargement of the head.
   b. Associated with meningomyelocele in majority of cases.
   c. Usually caused by inadequate absorption of cerebrospinal fluid.
   d. Might be present at birth, or may develop later; usually within first six weeks of life.

SPECIAL MOVEMENT NEEDS:

1. Upper extremity strength should be encouraged through the use of such sports as archery, bowling, and fencing.

2. Physical activities to develop strength in trunk muscles and postural awareness are needed.

3. Cognitive functioning activities (e.g. table games, chess, backgammon, etc.) should be included.

4. Provide activities to increase perceptual awareness (see chapter on Learning Disabilities).

5. Swimming is an excellent activity, provided it is used with proper cooperation and management of necessary appliances (see General Findings following).

GENERAL FINDINGS

1. Any combination of paralysis, urinary and bowel incontinence, and absence of sensation in affected parts, constitutes a multiple disability. With successful management of these problems, and correction of orthopedic deformities, children may be able to attend school and participate in activities.

2. Most children can learn to walk with the aid of braces and crutches.

3. Care must be taken to prevent obesity, malnutrition, and secondary contractions.

4. Using a wheelchair during participation in sports and games enables a person to achieve a certain amount of independence, and prevents excessive fatigue.

5. Children with meningomyelocele are often able to participate in group activities and have impressive vocabularies, however, a high percentage may have perceptual inadequacies, particularly laterality problems.

SPINAL CORD INJURIES

DEFINITION:

A trauma to the spinal cord (e.g. accidents or disease). The location of the damage is the most important consideration, while the level of injury (e.g. lumbar or thoracic) is also important.

GENERAL CHARACTERISTICS:

1. Paraplegia:
   a. Paralysis of both limbs and the lower trunk from the the level of the injury down (lumbar or thoracic area).
   b. Bowel and bladder functioning is involved.
   c. The loss of sensation of the skin below the lesion is experienced.
   d. Skin in the affected area is prone to pressure sores (decubitis ulcers) caused by the interruption of nerve impulses to skin and the lack of blood supply to tissues.

2. Quadriplegia:
   a. All four extremities are involved (level of injury above thoracic area).
   b. Bowel and bladder functioning is involved.
   c. Loss of sensation of the skin below the lesion is experienced.
   d. The skin in the affected area is prone to pressure sores (decubitis ulcers) caused by the interruption of nerve impulses to skin and the lack of blood supply to tissues.

ETIOLOGY:

Trauma to the spinal cord or disease of the spinal cord.

SPECIAL MOVEMENT NEEDS:

1. Activities with high social/recreational value are necessary.

2. Paraplegics can perform most physical education activities from a wheelchair.

3. Exercises to strengthen upper extremity muscle groups, and stretching muscles which have become shortened through disease should be included.

4. It is important to offer activities that promote the individual's feeling of comfort with his/her body image.

5. Quadriplegics will need more assistance with adapted sports and games (see chapter on Adaptive Equipment).

6. Wheelchair sports activities should be introduced for paraplegics. Many quadriplegics can also participate.

7. Weight lifting for upper extremity building is important for paraplegics.

8. Archery is encouraged for paraplegics. Some quadriplegics can also participate with use of assistive devices.

9. Exercises and training to promote good sitting posture and body balance are essential.

10. Swimming is recommended, particularly for paraplegics. Quadriplegics can enjoy the water with assistance from a trained assistant.

SELECTED RESEARCH FINDINGS

AUTHOR	DATE	FINDINGS
Howell, Linda	1978	Applied research in this field involves refinement of techniques of surgery, improved treatment of spastic bladder, study of sexual functioning of spinal cord injury, and the development of more effective devices for rehabilitation (e.g. biofeedback treatment) for independent living.[24]

GENERAL FINDINGS

1. Until World War II, survival from spinal cord injury was rare. Usually death was due to infections of the urinary tract which were uncontrollable.

2. The National Center for Health Statistics estimates that there are 5,000 to 10,000 new cases of spinal cord injuries each year, with approximately 150,000 paraplegics and quadriplegics in the population.

3. The psychological stress on a person with a spinal cord injury is immense.

4. Spinal cord injury affects many systems of the body including; sensation of the skin, eliminative processes of the bowel and bladder, and sexual functioning.

Glossary of Terms

aphasia--loss or impairment of the power to communicate verbally resulting from a brain injury.

ataxia--disorder or irregularity. Muscular incoordination, especially that manifested when voluntary muscular movements are attempted.

athetoid--slow irregular, twisting, snake like muscular movements seen mostly in upper extremities.

cognition (cognitive function)--awareness, having perception and memory. The mental process by which knowledge is acquired.

contracture--permanent contraction of a muscle due to spasm, or paralysis.

diabetic coma--loss of consciousness due to severe diabetes mellitus which has not been adequately regulated.

insulin--a hormone secreted by the beta cells of the islets of Langerhans of the of the pancreas. It is essential for proper metabolism of carbohydrates, lipids, and amino acids.

insulin shock (reaction)--condition resulting from an overdose of insulin or lack of food intake which reduces the blood sugar level below normal.

perception--consciousness, awareness; the awareness of objects or other data through the medium of the senses; the process or faculty of perceiving; insight or intuition as of an abstract quality.

perceptual--of or involving perception.

rheumatic fever--sometime following a streptococcal infection the individual will experience the sudden occurrence of fever and joint pain. May result in heart damage if not treated with eaution.

spastic--resembling or of the nature of spasm or convulsions. Spasm; an involuntary, sudden movement or convulsive muscular contraction.

VISUAL IMPAIRMENTS

DEFINITION:

Iowa Rules of Special Education provide the following descriptive information regarding visual impairments:

> "Pupils with visual impairments are those whose vision deviates from the normal to such an extent that they, in the combined opinion of an educator qualified in education of the visually impaired and an eye specialist, require special education programs, facilities, or services. Visual acuity and educational functioning are used in determining needs of partially sighted and blind pupils."

GENERAL CHARACTERISTICS:

1. Legal blindness:

   a. Visual acuity of 20/200 or less with correction in the better eye.

   b. Many students with visual acuity of 20/200 are actually able to function as visual learners.

   c. Some of these students are able to read standard print.

2. Partially sighted:

   a. May perceive movement, light, and form.

   b. Visual acuity may vary between 20/70 and 20/200 in the better eye after correction.

3. Field defects:

   a. Peripheral vision may be restricted while central vision remains intact.

   b. May have "blind spots" in their visual fields.

ETIOLOGY:

Trauma (an accident).
Mother has Rubella.
Infection during delivery.
Congenital birth defects (present at birth).
Damage to the optic nerve either prenatally or postnatally.

SPECIAL MOVEMENT NEEDS:

1. Active and strenuous sports and games should be encouraged for most visually handicapped children.

2. Suggested sports include: bowling, wrestling, hiking, swimming, horseback riding, and fishing.

3. Swimming is an excellent physical activity for visually impaired students.

4. Games requiring low organization are encouraged, particularly with younger students. These games usually require little or no modification.

5. Tactile stimulation activities are important.

6. Exercises to develop and maintain good posture should be provided. Many tend to adapt poor postural patterns (e.g. shoulders forward).

7. Games with high social/recreational values are important.

8. Include movement exploration activities.

9. Body balancing exercises are necessary.

10. Climbing activities are encouraged to develop strength of arms, shoulders, and abdomen.

11. Activities to develop appropriate foot striking patterns and basic locomotor skills should be included.

GENERAL FINDINGS

1. Children who wear glasses to correct their vision should use glasses guards for protection during vigorous physical activities.

2. Common postural defects which may occur are: kyphosis, protruding stomach with a corresponding lordosis, and head tilting (up or down), often referred to as common fatigue slump posture.

WAYS THE PHYSICAL EDUCATOR CAN HELP

1. Complex motor skills may be explained through a "feel" of the movement and the use of other senses. The teacher can supplement this tactile input with the use of oral definitions and explanations.

2. Orientation to the gymnasium should start with a verbal introduction to the facility. Begin the introduction with a walk around the perimeter of the facility while describing the activity area.

3. Basic orientation to outdoor play areas should include clues that may be used by the students when playing in these areas (e.g. grass, cement and gravel).

4. Lighting, fatigue, and emotions are important factors to consider when planning physical education programs for the non-handicapped as well as the visually impaired student.

5. Mechanical sounds may be used to provide sensory assistance to the visually impaired student (e.g. a sound at the goal or at a base in ball games).

6. Bright, clear markings for basketball court sidelines, track lanes, etc. may be helpful to the non-handicapped as well as the visually impaired students.

In most cases, blind students will be able to participate in regular class activities, with little or no modifications. If there are games that require fast moving activity, such as basketball, the visually impaired student should not be excluded, but assistance provided to allow for the student's safe movement as well as his/her peers. When reasonable accommodation cannot be made an alternative activity should be offered.

Glossary

of

Some Common Visual Impairments

albinism - a hereditary condition manifesting itself in a lack of pigment throughout the body including the eyes. It is usually accompanied by an involuntary rapid movement of the eyeballs from side to side, up and down and rotary motion or a combination of the involuntary movements mentioned. This involuntary movement is known as nystagmus.

astigmatism - A defective curvature of the refractive surfaces of the eye causing blurred vision. Light rays are not sharply focused on the retina as a result of this condition.

cataract - This condition causes the normally transparent lens of the eye to become cloudy or opaque.

glaucoma - A condition causing an imbalance in the aqueous humor (fluid) inside the eye. Loss of sight may be gradual or it could be sudden and may be present at birth. Decreasing peripheral vision as it may be controlled with use of eye medication.

hyperopia - Commonly referred to as farsightedness. The eyeball is shortened from the front to the back.

myopia - Commonly referred to as nearsightedness. The eyeball is too long from front to the back.

nystagmus - Rapid involuntary movements of the eyeballs from side to side, up and down, un a rotary motion or a combination of those mentioned. May be present in albinism.

retinitis pigmentosa - A hereditary condition causing degeneration of the retina beginning with night blindness and producing gradual loss of peripheral vision. Some individuals may lose all of their vision with others retaining some central vision.

retrolental fibroplasia - An ocular disease in which a mass of fibrous tissues forms in the back of the lens of the eye, blocking vision. Oxygen given to incubated premature babies may cause this visual impairment.

strabismus - An imbalance of the eye muscles creates an inability of the eyes to simultaneously direct toward the same object.

REFERENCES

1. National Federation of State High School Association, Football Rule Book Rule 1, Section 5, Article 3.

2. Adams, Ronald C., Alfred Daniel and Lee Rulman, *Games, Sports and Exercises for the Physically Handicapped*, 1975.

3. Rusk, H. A., *Rehabilitation Medicine*, 2nd. Edition, St. Louis, C. V. Mosby Co., 1964.

4. Brewer, E.J., *Juvenile Rheumatoid Arthritis*, Philadelphia, W. B. Saunders Co., 1970.

5. The Committee on Children with Handicaps and the Commission on Physical Fitness, Recreation and Sports Medicine of Pediatrics.

6. Harvey, Birt, "Asthma" in Physically Handicapped Children a Medical Atlas for Teachers.

7. The Joint Committee of the Allergy Foundation of America Thoracic Society.

8. Force, Dewey G., "Social Status of Physically Handicapped Children", Exceptional Child 23: 104-107, 1956.

9. Schleickhorn, Jay, "Physical Activity for the Child with Cystic Fibrosis", Journal Physical Education and Recreation, 48:50, 1977.

10. Cunningham, Lee N., Edward L. Etkind, "Let the Diabetic Play", Journal of Physical Education and Recreation 46: 40-42, 1975.

11. Zankle, Harry T., et al. "Physical Fitness Index Studies (PFI) in Hospitalizes Diabetic Patients" Arch. Phys. Med. and Rehab. 38: 25-253, 1957.

12. Larson, Yngve etal. "Physical Fitness and the Influence of Training in Diabetic Adolescent Young Girls" Diabetes 11: 109-117, 1962.

13. Goldenshon, Eli S. and Howard S. Burrows, *Handbook for Patients*. A pamphlet distributed by Ayerst Laboratories, New York, N. Y. (n.d.)

14. Kemp, Robert, *Understanding Epilepsy*. London Tavistock Publications Ltd., 1963.

15. Turek, Samuel L., *Orthopedics: Principles and Their Application,* Philadelphia, J. B. Lippincott Co., 1967

16. Tureck, Samuel L., *Orthopedics: Principles and Their Application,* Philadelphia, J. B. Lippincott Co., 1967.

17. Walton, John N. and David Gardner-Medwin, "Progressive Muscular Dystrophy and the Myotonic Disorders" in Disorders of Voluntary Muscle, edited by John N. Walton, Edinbargh Churchill Livingston, 1974.

18. Ziter, Fred A. and Kent G. Allsop, "Comprehension Treatment of Childhood Muscular Dystrophy", Rocky Mountain Medical Journal, 72: 329-333, 1975.

19. Abramson, Arthur S. and Joseph Rugoff, "Physical Treatment in Muscular Dystrophy Abstract of Study", In Proc. Second Med. Cont. Musc. Dys. Assoc. Amer. New York: Muscular Dystrophy Association of America, Inc., 1952

20. Vignos, Paul J. and Mary D. Wathins, "The Effect of Exercise in Muscular Dystrophy", JAMA 197: 843-848, 1966.

21. Welham, W. C. and Behnke, A, R.: Specific gravity of healthy men; body weight ÷ volume and other physical characteristics of exceptional athletes and Naval personnel. JAMA, 118: 498, 1942.

22. Adams, Ronald C., "When to start dieting? At Birth", Medical World News, September 7, 1973.

23. Cooper, Kenneth H., *Aerobics,* New York: Bantam Books, Inc., 1968.

24. Howell, Linda, from *Disability and Rehabilitation Handbook,* McGraw-Hill Book Co., New York, St. Louis, San Francisco, 1978.

25. Kirk, Samuel A., *Educating Exceptional Children,* Boston: Houghton-Mifflin Co., 1962.

26. Barraga, Natalie C., "Utilization of Sensory Perceptual Abilities" in The Visually Handicapped Child in School, edited by Berthold Lowenfeld, New York: The John Day Co., 1973.

DISABILITIES

Emotional, Mental, and Learning Disabilities

by

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EMOTIONAL DISABILITIES

(BEHAVIORAL DISORDERS)

The most difficult to define of all handicapping conditions is that of emotional disability. Definitions vary according to perspective and purpose; however for educators the criteria employed to identify and categorize a child as emotioanlly disabled are detailed in the state code and federal law (illustrated in the following section).

The staffing team at the LEA level is concerned with identifying ED children on the basis of observable behavior patterns which can be grouped into four general behavioral clusters:

1. Withdrawal from social interaction in the school environment.

2. Unsatisfactory interpersonal relations.

3. Consistently inappropriate behavior under normal circumstances.

4. A general pervasive mood of unhappiness or depression.

Such behavioral patterns are objectively quantified by examining the consistency, intensity, duration, and age appropriateness of the behavior. Understanding of such terms is expanded by applying the following questions:

Consistency - Is the behavior seen rarely or on a consistent basis?
- Is the behavior seen once every three weeks or on the average of every fifteen minutes during the school day?

Intensity - Does the student's behavior disrupt the classroom?
- If the behavior is verbal, is it excessively loud or in a normal tone of voice?

Duration - Does the behavior last or does it quickly fade away?

Age-appropriateness-- Viewing the behavior in the context of normal peers, does it appear to be appropriate or inappropriate?[8]

DEFINITION OF EMOTIONAL DISABILITIES:

The definition of emotional disability and chronically disruptive as found in the Iowa Rules of Special Education and the federal rules and regulations of seriously emotionally disturbed are as follows:

IOWA RULES OF SPECIAL EDUCATION

EMOTIONAL DISABILITY

Manifested as a behavior disorder, it is:

a. a pattern of situationally inappropriate behavior,
b. observed in the school setting,
c. deviating substantially from behavior appropriate to one's age, and
d. significantly interfering with the learning process, interpersonal relationships, or personal adjustment of the pupil.

Determination of this handicap is based on the consistency, intensity, and duration of the behavior of concern.[6]

CHRONICALLY DISRUPTIVE

Those pupils who repeatedly exhibit markedly inacceptable behavior preventing: 1) a satisfactory adjustment to the regular school program and 2) significantly interfering with the pupil's learning process and interpersonal relationships.

Such behavior occurs to the degree that the administration or local school district board has excluded the pupil from the regular instructional program.

IOWA RULES OF SPECIAL EDUCATION

The school is required to document prior attempts to modify the regular educational program in such a way as to meet the educational needs of the pupil.

The director of special education is required to consult with representatives of appropriate juvenile agencies as a part of the diagnostic educational staffing process.[6]

SERIOUSLY EMOTIONALLY DISTURBED

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RULES AND REGULATIONS

The term means a condition exhibiting one or more of the following characteristics over a long period of time and to a marked degree, which adversely affects educational performance:

a. An inability to learn which cannot be explained by intellectual, sensory, or health factors;
b. An inability to build or maintain
b. satisfactory interpersonal relationships with peers and teachers;
c. Inappropriate types of behavior or feelings under normal circumstances;
d. A general pervasive mood of unhappiness or depression; or
e. A tendency to develop physical symptoms or fears associated with personal or school problems.

The term does not include children who are socially maladjusted, unless it is determined that they are seriously emotionally disturbed.[3]

ETIOLOGY:

1. BIOLOGICAL FACTORS — Genetic, neurological, or biochemical factors may influence behavior. However, it is difficult to demonstrate a causal relationship between a specific biological factor and an emotional disturbance.[4]

2. FAMILY FACTORS — Because the family has such a large influence on the child's early development, some authorities believe that emotional problems stem from early negative family interactions. However, recent research indicates that such family interactions are reciprocal in nature.[4]

3. SCHOOL FACTORS	The school may develop or enhance emotional problems by: 1) emphasizing conformity and being insensitive to children's individuality, 2) holding inappropriately high or low expectations for the child's achievement or behavior, 3) demonstrating too lax, too rigid, or inconsistent management, 4) inadvertently rewarding misbehavior with attention and providing instruction in nonfunctional skills.

SPECIAL MOVEMENT NEEDS:

Physical and motor activity is usually suggested for the emotionally disabled because participation in such activities enhances therapeutic and educational efforts, and has social and emotional value for the child.[9]

Children with emotional disabilities vary individually in regard to physical and motor performance. The variation ranges from some children who exceed normal performance levels to those who function below normal expectations. As a group the emotionally disabled generally lag one to two years behind the norms in physical and motor activities. Such developmental lags may be attributed to having never been taught some fundamental or prerequisite skills because of exclusion for inappropriate behaviors. Therefore, deficits in fundamental or prerequisite skill need to be determined and then taught.[9]

Special movement needs and their relationship to specific characteristics of the emotionally disabled are presented in the following chart.[9]

GENERAL EXHIBITED BEHAVIORS	PERFORMANCE IN PHYSICAL AND MOTOR EXPERIENCES
1. Uncooperative and aggressive behavior	1. Difficulty in team games and group activies.[9]
2. Tendency to withdraw from social situations	2. Less participation in physical activity, since many are conducted in social settings.[9]

GENERAL EXHIBITED BEHAVIORS	PERFORMANCE IN PHYSICAL AND MOTOR EXPERIENCES
3. Preoccupation with "self-problems".	3. Limits normal attention to physical activity.[9]
4. Previous lack of success and/or lack of participation.	4. Low performance level in physical and motor activities.[9]

SELECTED RESEARCH FINDINGS

AUTHOR	DATE	FINDINGS
Winnick, J.	1979	As a group emotionally disturbed children fall below their normal peers in measures of motor proficiency.[9]
		Physical fitness of mental patients is frequently low.[9]
		ED child is not retarded physically.[9]
		In coordination there appears to be great variation among autistic children.[9]
		ED children score less well than normal peers on measures of strength, power, agility, speed, coordination, and balance.[9]
		Perceptual-motor abilities of emotionally disturbed children are below normal.[9]
		ED children have difficulty in making space and time assessments.[9]
		Performance scores of ED children on the Kephart Perceptual-Motor Survey were less than those of comparable normal peers.[9]

MENTAL DISABILITIES

There are many diverse opinions and misconceptions about mental disabilities. Many people think of mental disabilities as a distinct disability; that mentally disabled persons are all similar to each other and quite different from normal people. However, mental disabilities is on a continuum with normalcy, and the line which separates the mentally disabled person's behavior from normal behavior patterns are somewhat arbitrary. There is a great amount of overlap in abilities between those who are labeled mentally disabled and those who are not. To educators, mentally disabled children may be viewed as having "general disabilities and specific abilities".[5]

The determination of mental disabilities is made by the referral and staffing team process and is based upon a measured deficiency in both subaverage intellignece and adaptive behavior. The diagnosis of mental disability reflect current status only and that status is not considered irreversible.

In Iowa, the term mental retardation and mental disabilities are not directly synonymous. Iowa currently identifies and serves students as mentally disabled who meet the intellectual criteria of 85 I.Q. and below if there is also significant deficiency identified in the student's adaptive behavior performance.

DEFINITIONS OF MENTAL DISABILITIES:

Legal definitions of mental disabilities as stated in the Iowa Rules of Special Education and P.L. 94-142 are as follows:

	MENTAL DISABILITY
	Inclusive term denoting significant deficits in adaptive behavior and subaverage general intellectual functioning.
IOWA RULES OF SPECIAL EDUCATION	For educational purposes, adaptive behavior refers to the individual's effectiveness in meeting the demands of one's environment and subaverage general intellectual functioning as evidenced by performance greater than one standard deviation below the mean on a reliable individual test of general intelligence valid for the individual student.[6]

P.L. 94-142 RULES AND REGULATIONS	Significantly subaverage general intellectual functioning existing concurrently with deficits in adaptive behavior and manifested during the developmental period which adversely affects a child's educational performance.[3]

ETIOLOGY:

The circumstances in which mental disabilities may become a factor in a child's performance are varied. Generally, such etiologies have been grouped into six areas.

(1) GENETIC

(a) Biochemical disorders: Sometimes heredity causes a child to be born mentally disabled. Biochemists have identified a number of chemical substances through which abnormal genetic conditions can be traced. Two examples are:

1. Phenylketonuria, or PKU caused by an inherited abnormality in the amino acid metabolism.

2. Galactosemia, caused by an inherited recessive trait which results in defective carbohydrate metabolism.

(b) Chromosomal Abnormalities: The most common example is Down's Syndrome.[7]

(2) PRENATAL COMPLICATIONS — Factors such as x-rays, excessive drugs and alcohol, diseases such as Rubella, and infectious hepatitis can result in mental disability.

(3) PERINATAL — Conditions that may affect the child during or immediately preceding birth that may result in mental disability are: birth injuries, asphyxia, and prematurity.[7]

(4) POSTNATAL	Some conditions and diseases can result in mental disability when they occur in infancy and early childhood. Two examples of infectious diseases are: 1. Encephalitis, which is a term covering a variety of infections that produce high fever and possible destruction of brain cells. 2. Meningitis, a condition resulting from bacterial infection which causes damage to the central nervous system. Nutritional problems such as a diet lacking in protein can result in inadequate development of brain cells.[7]
(5) SOCIOCULTURAL	Sensory or stimulus deprivation, insufficient attention given to a child's need for attention and activity during his/her early growing years and different child rearing practices can cause retarded mental development.[7]
(6) UNKNOWN	Those factors which cannot be attributed to any of the above.

SPECIAL MOVEMENT NEEDS:

The mentally disabled, as is true with most handicapped populations, vary among themselves and exhibit a wide variety of abilities and interests. Some mentally disabled individuals may exceed or fail ability levels generally associated with their peer population. The following chart may be beneficial for general information in planning for special movement needs for the mentally disabled student.

GENERAL EXHIBITED BEHAVIORS	PERFORMANCE IN PHYSICAL AND MOTOR EXPERIENCES
1. Difficulty with abstraction.	1. Difficulty in understanding rules and strategies of games.

(continued)

2. Lack of normal intellectual abilities which may influence ability to follow directions or understand a task.
3. Inability to concentrate for prolonged periods.
4. Socially immature (which may vary from individual to individual).
5. Short attention span.

2. Difficulty in performing movements in sequence.
3. Problems with understanding when more than one concept is present at a time.
4. Withdrawal from social activities which may lead to withdrawal from play and movement activities as well.
5. Difficulty in learning new tasks.

SELECTED RESEARCH FINDINGS

MOTOR AREA — STATIC STRENGTH

AUTHOR	DATE	FINDINGS
Rarick, Dobbins, & Broadhead	1976	Intellectually normal subjects of both sexes exceed the performance levels of mentally disabled children. The slopes of the performance scores of the normal and the mentally disabled are similar, and significant sex differences favoring boys exist on measures of grip strength.[9]
Francis & Rarick	1959	
Howe	1959	Grip strength of normal boys significantly exceeded that of mentally disabled boys, but the grip strength of normal girls was not significantly different from that of mentally disabled girls.[9]

MOTOR AREA — DYNAMIC STRENGTH

Rarick, Dobbins, & Broadhead Rarick, Widdop, & Broadhead	1976	Performance of mentally disabled boys exceed that of mentally disabled girls, the gap between the two is substantial, and the gap increases to age 17, whereas little improvement is noted in scores of mentally disabled boys after age 15, mentally disabled girls, after age 14, and normal girls after the age of 14.[9]

MOTOR AREA		EXPLOSIVE STRENGTH
AUTHOR	DATE	FINDINGS
Howe	1959	Performance of normal boys and girls significantly exceeds that of mentally disabled subjects of the same sex on the Sargent jump.[9]
Rarick, Dobbins, & Broadhead	1976	Toe touching, spinal rotation, spinal extension, and lateral spinal extension performances of mentally disabled children and normal children between the ages of 6-9 were compared. Normal children were found to be significantly superior to mentally disabled children on all four measures of flexibility, and mentally disabled boys were superior to mentally disabled girls.[9]
MOTOR AREA		SPEED
Sengstock	1966	Normal boys significantly exceeded mentally disabled boys on the 50 yard dash.
MOTOR AREA		CARDIOVASCULAR ENDURANCE
Sengstock	1966	Normal boys significantly exceeded mentally disabled boys on the 600 yard run-walk.[9]
Rarick, Dobbins, & Broadhead	1976	Performance of mentally disabled children and normal children on a physical work capacity test and a 150 yard dash were compared. The mentally disabled boys were found to be superior to normal girls between the ages of 6-9 and at the age of 8 the mentally disabled girls performed slightly better than normal girls.[9]
MOTOR AREA		AGILITY
Rarick, Dobbins, & Broadhead	1976	The scramble test was administered as a measure of agility in mentally disabled subjects. Performance of normal subjects significantly exceeds that of the mentally disabled. There was a greater gap between mentally disabled boys and girls than between normal boys and girls.

MOTOR AREA		BALANCE
AUTHOR	DATE	FINDINGS
Turnquist & Marzolf	1954	Mentally normal individuals were significantly superior to mentally disabled individuals in balancing on tiptoes with eyes closed, balancing on one leg with eyes closed, and balancing on tiptoes with right foot and with the left foot.[9]
Howe	1959	Normal children between the ages of 6½ and 12 years were significantly superior to mentally disabled children of the same age and sex in balancing on one foot.[9]

MOTOR AREA		MOTOR DEVELOPMENT
Sloan	1951	Performance of normal populations exceeds that of mentally disabled populations in tests for motor proficiency.[9]
Fallers	1948	
Turnquist & Marzof	1954	
Langan	1965	
Howe	1959	
Rarick, Dobbins, & Broadhead	1976	
Cratty	1974	
Distenfano, Ellis, & Sloan	1958	A positive relationship between mental and motor proficiency was found.
Rabin	1957	A positive relationship between chronological age and motor proficiency was found.[9]
Rarick, Dobbins, & Broadhead	1976	Positive relationships between both mental and chronological age and motor proficiency were supported.[9]

LEARNING DISABILITIES

The handicapping condition termed "learning disabilities" is a relatively new area of study in relationship to the other handicapping conditions. Many issues in the field remain unanswered and need more research to provide a basis for more understanding; however, at the present time the following criteria for determining the existence of a specific learning disability are:

> The child does not achieve commensurate with his or her age and ability levels in one or more of the areas listed below when the child is provided with learning experiences appropriate for the student's age and ability levels. The staffing team at the LEA level must determine that a child has a severe descrepancy between achievement and intellectual ability in one or more of the following areas:
>
> - oral expression;
> - listening comprehension;
> - written expression;
> - basic reading skill;
> - reading comprehension; and
> - mathematical reasoning or calculation.
>
> The staffing team may not identify a child as having a specific learning disability if the discrepancy between ability and achievement is primarily attributed to:
>
> - visual, hearing, or motor handicap;
> - mental retardation (mental disabilities);
> - emotional disturbance (behavioral disorder); and
> - environmental, cultural or economic disadvantage.

DEFINITIONS OF LEARNING DISABILITIES:

The definition of learning disabilities as defined in the Iowa Rules of Special Education and P.L. 94-142 are as follows:

	LEARNING DISABILITIES
IOWA RULES OF SPECIAL EDUCATION	Deficiencies which inhibit a pupil's ability to efficiently learn in keeping with one's potential by the instructional approaches presented in the usual curriculum and require special education programs and services for educational progress.

IOWA RULES OF SPECIAL EDUCATION

Such deficiencies occur in the acquisition of learning skills and processes or language skills and processes, including, but not limited to the ability to read, write, spell, or arithmetically reason and calculate. These deficiencies may also be manifested in an inability to receive, organize, or express information relevant to school functioning.

Deficiencies displayed by pupils with learning disabilities are not primarily due to sensory deprivation, mental disabilities, severe emotional disabilities, or a different language spoken in the home.[6]

P.L. 94-142 RULES AND REGULATIONS

A disorder in one or more of the basic psychological processes involved in understanding or in using language spoken or written, which may manifest itself in an imperfect ability to listen, think, speak, read, write, spell, or to do mathmatical calculations.

Includes such conditions as perceptual handicaps, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia.

Does not include children who have learning problems which are primarily the result of visual, hearing, or motor handicaps, of mental retardation or of environmental, cultural, or economic disadvantage.[3]

ETIOLOGY:

Authorities in the field of learning disabilities have hypothesized certain etiological factors which inhibit a child's ability to learn. Such etiological factors are summarized in the following chart:

BRAIN DYSFUNCTIONS

As the control center of the body, the brain controls all of the physical, emotional, and mental functions of the organism. When something goes wrong with the brain, any or all of these areas could be affected. At the present scientists only have partial knowledge of the relationship which exists between the brain, and specific behavior; therefore conclusive

	BRAIN DYSFUNCTIONS (continued)	knowledge of the relationship of behavior to specific disabilities requires more investigation.[7]
2.	GENETICS	Some supposition supports the tendency of learning disabilities to run in families; however, such statements need to be substantiated by further research.[4]
3.	ENVIRONMENTAL DEPRIVATION AND NUTRITION	Lack of early environmental stimulation and the effects of severe malnutrition at an early age are factors being studied to determine their causal relationship to learning problems.[7]
4.	BIOCHEMICAL FACTORS	Some researchers are proposing that there could be some biochemical imbalance which subsequently could lead to learning disability.[7]

It should be noted that the cause of the condition usually has little relevance to actual teaching. The task of the teacher is to adapt instruction to the observable deficit and provide appropriate remedial efforts.

SPECIAL MOVEMENT NEEDS:

Most characteristics associated with the learning disabled child affect performance in physical and motor activities. The relationship between LD characteristics and performance in physical and motor activities is illustrated in the following chart:[8]

GENERAL EXHIBITED BEHAVIORS	PERFORMANCE IN PHYSICAL AND MOTOR EXPERIENCES
1. Receptive or expressive language deficit.	1. Difficulty in understanding directions or in playing games involving vocalization.[9]
2. Mathematical calculation or reasoning deficit.	2. Difficulty in following or understanding numeral sequences or patterns.
3. Perceptual or sensory deficits.	3. Difficulty in throwing and catching, body awareness, eye-hand coordination, gross and fine motor abilities, awareness of position in space, spatial relationships, and balance.[9]

GENERAL EXHIBITED BEHAVIORS	PERFORMANCE IN PHYSICAL AND MOTOR EXPERIENCES
	May demonstrate confusion when participating in rhythms and dances, or playing games involving communication.
4. Problems of attention	4. May demonstrate an abnormal degree of movement or restlessness. Continued movement such as bouncing a ball, or running after a signal to stop has been given. Difficulty in maintaining attention and concentration.
5. Dissociation	5. Failure to carry out a series of instructions, dance patterns, or movement routines.
6. Social/emotional problems	6. May exhibit such behaviors as emotional outburst, impulsive behavior or other inadequate or socially unacceptable behavior.

SELECTED RESEARCH FINDINGS IN THE AREA OF MOTOR PERFORMANCE:

AUTHOR	DATE	DESCRIPTION OF STUDY	RESULTS/CONCLUSIONS
Bruininks and Bruininks	1977	Motor proficiency of 55 learning disabled and 55 non-disabled students was studies by administering a battery of motor-skill tests.	LD students demonstrated greater deficiency on tasks requiring body equilibrium, controlled fine visual-motor movements, and bilateral coordination of movements involving different parts of the body. Authors conclude that such deficits necessitate the need to provide LD students with structured motor training.1

AUTHOR	DATE	DESCRIPTION OF STUDY	RESULTS/CONCLUSIONS
Johnson and Myklebust	1967	Learning disabled children demonstrated an immature body image.	The student would have difficulties such as: finger agnosia; inability to identify body parts and surfaces; inability to make right-left discriminations on self and others; difficulty in distinguishing between male and female body types and proportions; and problems in matching own somatotype and body parts to those of others.[2]
Clarke	1973	A diary of the physical development of a learning disabled boy by his mother.	He couldn't manage a tricycle, but he had the freedom of a large safe beach where he could run for a mile if he felt so inclined. Beach balls eluded him - he could neither throw nor catch - but there was the warm sand to mess in, and the water itself. The big moment of Mike's young life came at three-and-a half, when he learned to swim.. The beach baby turned into a water rat. By five he could safely swim out of his depth, and by six he not only had a crawl stroke, but was so at home in the water that he literally did not seem to know if he was on it or under it.[5]

REFERENCES

1. Bruininks V., & Bruininks, R., Motor proficiency of learning disabled and nondisabled students. *Perceptual and Motor Skills,* 1977, Vol. 44, pp 1131-1137.

2. Johnson, Doris J. and Myklebust, Helmer R., *Learning Disabilities,* Grune Stratton, New York, New York, 1967

3. Education of Handicapped Children Act. *Federal Register,* 1977, 42, No. 163.

4. Hallahan, D. and Kauffman, J., *Exceptional Children, Introduction to Special Education,* Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1978.

5. Clarke, Louise, *Can't Read, Can't Write, Can't talk too Good Either,* Walker & Co. New York, New York, 1973 p. 20.

6. Iowa Department of Public Instruction. *Rules of Special Education,* 1977, pp 2-3.

7. Kirk, S. and Gallagher, J., *Educating Exceptional Children,* Boston: Houghton Mifflin Company, 1979.

8. Smith, C., *Iowa Perspective,* Iowa Department of Public Instruction, May, 1977.

9. Winnick, J., *Early Movement Experiences and Development, Habilitation and Remediation,* Philadelphia: W.B. Saunders Company, 1979.

COMMUNICATION DISABILITIES
HARD OF HEARING AND DEAF

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COMMUNICATION DISABILITIES

All educators would agree that one of the most vital aspects of a student's development is language. His/her ability to communicate his/her thoughts, wants, and needs to others, and in turn his/her understanding of thoughts and feelings of others, depends on crucial language skills. The normal development of language skills depend on the rich sensory data supplied by the auditory mechanism. If the auditory mechanism is impaired, the process of education becomes changed.

Utilizing the expertise of the speech and language clinician and the hearing clinician, students who have a communication disability are identified according to the Iowa Administrative Code, Chapter 12 and regulations to implement "the Education for All Handicapped Children Act of 1975" (P.L. 94-142).

LAWS DEFINING COMMUNICATION DISABILITIES AS THEY PERTAIN TO HEARING LOSS:

IOWA RULES OF SPECIAL EDUCATION

"'Children requiring special education' means persons under twenty-one years of age, including children under five years of age, who are handicapped in obtaining an education because of physical, mental, emotional, communication or learning disabilities or who are chronically disruptive, as defined by the rules of the department of public instruction."

"Impairment in hearing is a loss of auditory sensitivity ranging from mild to profound which may effect one's ability to communicate with others."

"'Deaf' pupils include those individuals whose hearing impairment is so severe that they do not learn primarily by the auditory channel even with a hearing aid, and who need extensive specialized instruction in order to develop language, communicative and learning skills."

"'Hard of hearing' pupils include those individuals whose level of communicative ability is adequate to allow them to acquire speech, language and to learn by auditory means although they may

	need various classroom and instructional modifications in order to make full use of school experiences."
P.L. 94-142 Federal Definition Deaf	"Hearing impairment which is so severe that the child is impaired in processing linguistic information through hearing, with or without amplification, which adversely affects educational performance."
P.L. 94-142 Federal Definition Hard of Hearing	"Hearing impairment, whether permanent or fluctuating, which adversely affects a child's educational performance but which is not included under the definition of 'deaf'."

To teachers who are anxious to set goals and achieve them employing expedient methodology, the announcement that hearing impaired students will participate in their classes may cause many emotions...shock, bewilderment, depression, anger, or anxiety.

This chapter is devoted to avoid these uncomfortable experiences and begin a process of habilitation and education that includes the dynamic interaction of the teacher, hearing students, and the hearing disabled. It is important to accept the realities of the situation and initiate teaching techniques in alliance with the hearing clinician who will be providing more extensive services.

BEHAVIOR YOU MIGHT EXPECT FROM HEARING IMPAIRED STUDENTS:

1. Hearing impaired students may demonstrate less continuous attention. It is much more of a strain for the hard-of-hearing child to listen than for the normal hearing child. It is fatiguing.

2. The hearing impaired student may miss much of what you say. Memory of a long list, or a several-step direction may be difficult if given aurally.

3. The hearing impaired child will respond better when he/she is able to see the face of the speaker. Lip reading will become more difficult at greater distances as well as decrease the effectiveness of a hearing aid.

4. The hearing impaired student will have special vocabulary limits.

5. The hearing impaired student will not understand at all times no matter how bright or how diligently he tries.

6. Localizing sound, recognizing who spoke, or responding to a whistle may be difficult for the hearing impaired.

7. A student with a hearing impairment may be more aware of movement than of sound. Many times they learn through movement imitation.

8. Frowning or straining forward when addressed by name may be observed as the hearing impaired student attempts to ready himself to understand the incoming message.

9. The hearing impaired student may be with drawn and reluctant to participate in group games because of previous isolation and lack of basic skill development.

10. The hearing impaired student may demonstrate defective speech including articulation difficulties and monotonous tone of voice.

TO HELP YOU MEET THE CHALLENGE OF THE HEARING IMPAIRED STUDENT:

1. Try to accept the hearing impaired student positively no matter how inadequate his speech, his comprehension, or his vocabulary. Since you often set the example for the class, your reactions are likely to trigger similar response patterns in the other students.

2. Remember that even two students with almost identical hearing losses may fucntion very differently and hence cannot be effectively lumped into one generalized category for teaching purposes. They must be motivated, taught, and challenged according to their ability to function as total individuals.

3. Expect the hearing impaired student to do what is within his/her chronological and mental age level, and encourage independence. Be prepared to give him/her latitude due to possible motoric developmental delay.

4. Bring success to his/her attention. Often, after all of his/her hard work, he/she cannot hear his/her own communication improvements. He/she must also depend on the listener to let him/her know when he is right, and often does not hear your praises.

5. Position the hearing impaired student where he/she can read your lips and follow the group procedure the easiest. Circular arrangements are very beneficial. Lip-reading is a difficult art to master. Lip-reading depends on acute vision, good lighting, and exposure of the lips is extremely limited by distance between speakers. Lip-reading is almost totally useless in dimly lit environments. As you speak, the light should be shining in your face, not the student's eyes.

6. Try to stand fairly still when talking. This may be difficult for you at first, but give it a try. A distance of 2-10 feet in front of the student is ideal for achieving his/her maximum communication potential.

7. Rephrase a question or message if the hearing impaired student does not appear to understand it in its original form. It is helpful for the hearing disabled student to have the assistance of a "buddy", a classmate who is willing and able to give information and repeat explanations when necessary. The "buddy" should be a responsible student who is a good listener and will be generous about sharing. There may be too much noise in the room for the hearing impaired student to hear you or you may be using words that look and/or sound alike to him /her but are in reality quite different.

8. Encourage the hearing impaired student to ask for repetition or rephrasing when he/she has not fully understood what was said. If he/she seems self-conscious about this, remind him/her of the many times normal hearing students need repetition.

9. Speak in a careful, yet natural manner. Avoid exaggerated lip movements. Whenever possible, accompany verbal directions with gestures.

10. Encourage the hearing impaired student to participate in musical activities to stimulate his/her residual hearing and enhance his sense of rhythm.

11. If a student has a hearing aid, see that he/she uses it according to instructions from the audiologist or hearing clinician. The student should assume responsibility for its care.

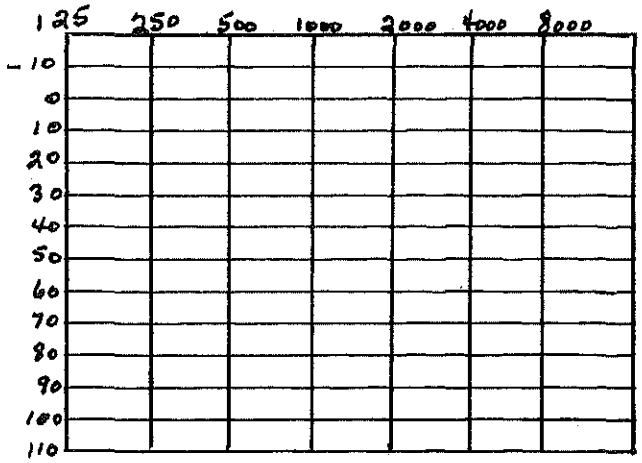
12. Remember that hearing aids are not like prescription glasses. No hearing aid is completely free of distortion. No hearing aid will permit a child even with a moderate hearing loss to hear exactly as he/she would hear if he/she had normal hearing. Problems can arise from mechanical distortions within the aid. Competing signals, such as noisy rooms that are of poor acoustical quality, talking by a number of people at the same time and other annoying background signals, which we often tend to ignore, can greatly reduce and limit the ultimate potential of the hearing aid for the student.

GENERAL INFORMATION ABOUT HEARING LOSS:

Generally, the result of any hearing evaluation is contained in an audiogram, which is a graphic illustration of how a person hears. It is simply a chart, indicating how loud a sound must be for him/her to hear at different pitches. Despite its simplicity,

it gives a great deal of information, and you as a teacher will understand your hearing impaired student better, if you understand basic information about hearing loss.

PURE TONE AUDIOGRAM



As you read numbers on the top of the chart from left to right, you will see that the numbers range from 125 to 8000. These numbers refer to frequencies, also called cycles per second (cps) and hertz (hz). If you are familiar with the piano keyboard, you can relate 250 hz to middle C, 125 hz to one octave below middle C, 500 hz to one octave above middle C, 1000 hz to two octaves above middle C, and so on. In other words, the lower the number, the lower pitched the sound. Most vowel sounds, the bass drum, deep male voices are examples of low pitched sounds. The gym whistle, many consonant sounds, and soprano voices are examples of high pitched sounds.

In looking at the numbers running down the side of the audiogram, you will see the number at the top is minus ten, the number at the bottom 110. These numbers refer to decibel (db) levels or levels of loudness. Minus 10 is an exceptionally soft sound many normal hearing people do not hear at all. Thirty db is the level of a whisper, 50 db is the level of average conversational speech, 90-110 db is a very loud sound like the subway or a jet plane overhead.

The audiogram tells how a person hears without a hearing aid. With a hearing aid on, a person with a 50 db hearing loss may be able to hear sounds as loudly as a normal hearing person but, even with a hearing aid, the hearing cannot be considered normal. Hearing aids tend to amplify a limited number of pitches or frequencies. A hearing aid may amplify only 500 hz, 1000 hz, 2000 hz, and since these are generally considered the most important frequencies for understanding speech, the person using this aid might find that speech is quite clear with the aid on even when the speaker uses

a soft voice. Because all the frequencies are not amplified, the quality of the sound will be different from that heard by normal hearing persons.

It is not only the privilege of the hearing impaired person and his/her family to have this information, it is the responsibility of those people to learn as much as possible about how the hearing impaired student hears with and without a hearing aid and why. Your school audiologist or hearing clinician can answer further questions about audiograms.

SEVERITY OF LOSS	EFFECTS OF HEARING LOSS	TEACHING CONSIDERATIONS
Mild Loss (25-30db)	May have difficulty hearing faint or distant speech.	Needs to have close physical proximity to the teacher for comprehension of directions. Students may answer questions inappropriately and repetition may be necessary. Behavior may be either loud to make himself known, or may be introverted and withdrawn because of difficulty in hearing peers converse.
Moderate Loss (30-55db)	Usually understands conversational speech (face to face) at 3-5 feet. May miss as much as 50% of class discussion if not in line of vision.	May be wearing a hearing aid. Hearing aid may be removed if gym situation is excessively noisy or physically very active and it might be lost from the ear. Buddy system becomes appropriate.
Moderate to Severe (56-70db)	Conversation must be loud to be understood. Student will have difficulty in group discussions. Is likely to be deficient in language useage and comprehension. Likely to have defective speech.	Student will probably be lipreading as well as using a hearing aid. Grammar, usage, and language development will probably require you to listen "with a third ear" to what the student says.

SEVERITY OF LOSS	EFFECTS OF HEARING LOSS	TEACHING CONSIDERATIONS
Severe (71-90db)	May be able to identify environmental sounds. May be able to discriminate vowels but not all consonants. Speech and language may be defective.	Will probably be engaged in special education follow-up with speech-reading, auditory training and possibly signing. Your support will be paramount in this student's success in physical education.
Profound (91db or more)	May hear some loud sounds but is aware of vibrations more than tonal pattern. Relies on vision rather than hearing as the primary avenue for communication. Speech and language defective.	Will be involved in special education follow-up. Probably in full-time program for the deaf with emphasis on communication skills. Possibly using sign-language.

ETIOLOGY:

Hearing losses are generally identified as conductive or sensorineural. When a combination of both types of hearing loss occurs, we speak of a mixed type hearing loss. When auditory dysfunction can be shown to exist, yet the hearing mechanisms are normal, the loss is categorized as a central auditory defect.

Hearing loss may be unilateral (one ear) or bilateral (both ears).

1. Stenosis and Atresia of the outer ear:
   Stenosis, or narrowing of the auditory canal may occur as a result of trauma, surgery, congenital anomaly, or chronic infection.

2. Otitis Externa:
   This condition is due to dermatitis of the external ear canal from bacterial infection.

3. Cerumen and Foreign Bodies:
   Hearing loss may result from massive accumulation of cerumen, or wax that completely blocks the ear canal. Children often push beans, crayons, food, small toys, or pieces of jewelry into their ear canals and have a temporary hearing loss until it is removed.

4. Perforations of the tympanic membrane (ear drum):
   Perforations may occur from some sort of trauma such as a blow to the side of the head, sudden changes in

air pressure, or from middle ear infections.

5. Otitis Media:
   Infection causing a collection of fluid in the middle ear may result in temporary hearing loss.

6. Cleft Palate:
   Hearing loss as a secondary problem to cleft palate is very common and may exist in as much as 90% of these students.

7. Ototoxic Drugs:
   Certain medications may permanently create sensorineural hearing losses.

8. Noise induced or noise trauma hearing loss:
   Some students who hunt or operate noisy farm machinery will show evidence of noise-induced hearing loss. These students should be fitted with adequate ear protection and protected against additional unnecessary noise exposure.

9. Viral Diseases:
   Both prenatal and postnatal infections have been identified as a cause of hearing loss. Maternal rubella has been the cause of large numbers of deaf children. Infectious meningitis, mumps, measles, chicken pox, influenza may cause mild to profound sensorineural hearing loss.

10. Rh Incompatibility:
    Audiometric reports show mild to profound hearing losses, usually in both ears; Rh incompatibility account for about 3% of profound hearing loss among school age deaf children.

11. Acoustic nerve tumors:
    Cases of acoustic tumors in children are rare; the total number of published cases, by 1973, were 10.

12. Audiologic disorders accompanying syndromes:
    Malformations and anomalies in children often "run together". When multiple congenital malformations appear together, the person can be described in terms of a "syndrome". Hearing loss may accompany many.

It is the clear responsibility of every teacher to be aware of the difference that it makes to a child to be handicapped by a speech disorder. It is, furthermore, the teacher's responsibility to do all he/she can to meet the needs of such a child. One generation ago the speech handicapped student was laughed at, rejected and pitied. Today through special programs he/she will be better prepared to function in community activities.

LAWS DEFINING COMMUNICATION DISABILITIES AS THEY PERTAIN TO SPEECH AND LANGUAGE

Iowa Rules of Special Education	"'Communication disability' is the inclusive term denoting deficits in language, voice, fluency, articulation and hearing." 1. "Impairment in language is a disability in verbal language resulting in a markedly impaired ability to acquire, use , or comprehend spoken, read or written language due to difficulties in acquisition and useage of syntax, morphology, phonology, and semantics." 2. "Impairment in voice is an abnormality in pitch, loudness, or quality resulting from pathological conditions, psychogenic factors, or inappropriate use of the vocal mechanism which interferes with communication or results in maladjustment." 3. "Impairment in fluency is a disruption in the normal flow of verbal expression which occurs frequently, or is markedly noticeable and not readily controllable by the pupil. These disruptions occur to the degree that the pupil or the pupil's listeners evidence reactions to the manner of one's communication and one's disruptions so that communication is impeded." 4. "Impairment in articulation is defective production of phonemes which interfered with ready intelligibility of speech."
P.L. 94-142 Federal Definition	Speech Impaired: A communication disorder, such as stuttering, impaired articulation, a language impairment, or a voice impairment, which adversely affects a child's educational performance.

DISORDERS OF ARTICULATION

CHARACTERISTICS OF STUDENTS WITH ARTICULATION DISORDERS:

1. Speech that sounds like a much younger child than his/her age, making you think of "baby-talk". Actually sounds are being omitted, added, distorted, or substituted for the desired sounds. Common errors include:
   a. Lisping or allowing the tongue to come between the teeth, rather than placed behind the teeth, most commonly presenting in the production of z, s, sh, zh.
   b. Other sound substitutions such as "w" for "r".
   c. Dropping the last sounds of words.
   d. Distorting the production of the "l".
   e. Many other errors as numerous and varied as the students themselves. The errors are not mutually exclusive, The important features of all articulatory disorders are the presence of defective and incorrect sounds.

2. Articulatory errors are not always consistent. In fact, they may be highly inconsistent; in certain words a student may acceptably produce the same sound which he fails to produce adequately at other times.

WAYS THE PHYSICAL EDUCATOR CAN HELP

1. Be especially careful to present a good speech model. Control your speaking rate, and carefully articulate.

2. Reinforce, privately, the improvements you see emerging in the student's speech.

3. If a student asks a question and articulation errors appear pronounced, restate the question as though it was for the benefit of non-listeners, and carefully articulate the sounds correctly. This may serve as "eartraining" or auditory comparison experience for the speech defective student.

4. Attempt to reduce the anxiety in speech situations.

5. Provide non-speech success experiences for these students. They may be dealing with peer ridicule and discouragement in many speech oriented activities. You might provide an avenue in which they can shine!

ETIOLOGY OF ARTICULATION DISORDERS

1. The presentation of incorrectly produced speech sounds to the young child from a poor speech environment, baby talk, or foreign accent.

2. Hearing loss.

3. Mental disability.

4. Poor control of muscles used in the formation of various sounds.

5. Emotional factors - the desire to remain a child or to return to childhood security sometimes produces symptoms of articulation disorders.

6. Organic conditions such as cleft palate and cerebral palsy.

7. Most articulatory deviations seem to be traceable to no other cause than a simple failure to learn the correct patterns of normal speech. For various reasons, incorrect habits have been formed and have become strongly established.

DISORDERS OF VOICE

CHARACTERISTICS OF STUDENTS WITH VOICE DISORDERS:

1. Poor posture is frequently observed in the student whose voice is so soft it is nearly inaudible. The muscles controlling the breathing process cannot function properly in a torso all bent over because the lungs cannot expand sufficiently to allow an adequate amount of breath to flow into the body in the act of inspiration. A diaphragm that is thrown out of shape through a protruding abdomen is likewise of little service in the breathing process.

2. Poorly coordinated big bodily movements are generally indicative of poorly coordinated smaller muscles such as those that control the mechanism of speech. Poor coordination is closely associated with a weak, underdeveloped body that is lacking in sufficient energy to initiate the precise, accurate movements that are essential to good speech.

3. Poor breathing habits.

4. Harsh, raspy, uncomfortable sounding voice quality.

5. Unusual resonance that sounds like the person is "talking through his/her nose" or like he/she "has a very bad cold" most of the time.

6. Monotonous, monotone pitch pattern lacking in variation.

7. No voice at all - whispered speech.

WAYS THE PHYSICAL EDUCATOR CAN HELP:

1. Consult with speech-language clinician regarding the student's medical status and specific goals or precautions.

2. Relaxation exercises for reducing muscle tension may be helpful. Sometimes rhythmic dancing when accompanied by movements of the arms and head are effective in inducing relaxation.

3. Exercises in correct posture and correct breathing with emphasis on movement of the diaphragm may help students become aware of their breathing mechanism and how they can better control it.

4. Discourage vocal abuse.

5. Body developing activities that stimualte circulation and strengthen musculature will have a positive affect on voice production.

ETIOLOGY OF VOICE DISORDERS:

1. Tension in any part of the body is recognized in the student's voice for constriction in one body part is likely to result in constriction in the muscles controlling breathing and the other muscles of voice production.

2. Malfunction or defect in the soft and hard palate of the mouth may produce hyponasality (no nasal quality at all in the voice) or hypernasality (excessive nasal quality in the voice).

3. Vocal abuse - excessive screaming may cause abnormal growths or callouses to form on the vocal cords. The voice, as a result, sounds strident, grainy, without full rich tone.

4. Vocal cords not approximating due to muscle spasticity or tumor may result in lack of voice.

DISORDERS OF FLUENCY

CHARACTERISTICS OF DYSFLUENT STUDENTS:

1. Blockings, prolongations, or repetitions of words, syllables, sounds, or mouth postures creating breaks in the fluency of speech and distracting from the message being conveyed are characteristic of the dysfluent student.

2. Students may purposefully avoid certain words and then give up the speech attempt altogether, substitute a different word for the one feared, or change the order of the sentence.

3. Because students are afraid they can't say their message correctly at the moment intended, they may pause, pretending to think, to gain time and control. Their speech will be halting and arrhythmic.

WAYS THE PHYSICAL EDUCATOR CAN HELP:

1. Avoid interrupting the student as he is speaking.

2. Do not suggest, "Take a deep breath", "Stop and start over", or "Think before you talk" because each of these suggestions call attention to the student's speech pattern and indirectly punish him/her for his/her fumbled speech attempt.

3. Help the student maintain good physical condition. Many students who are very dysfluent, work hard to verbally express themselves and become very fatigued both emotionally and physically.

4. Try to be an unemotional listener. If you are surprised, embarrased or impatient, the student will begin to struggle more than ever. Look at the student right in the eye while he/she is talking, show no signs of impatience, and make no attempt to help him speak.

5. Increase the child's personality and physical assets in every way and decrease his liabilities.

6. Rhythmic activities such as drums or movement to music that relieve the student of the responsibility of establishing rhythm may be successful for him/her. This may be accompanied by an Indian chant or a verbalization to regular beats. The dysfluent student with this kind of support, will usually be fluent.

ETIOLOGY OF DYSFLUENCY:

Although more research has been carried out on stuttering than on any other speech disorder, speech clinicians have failed to agree on any one explanation of its cause. Possibilities include:

1. An underlying neuromuscular condition may reflect itself peripherally in nervous impulses that are poorly timed in their arrival to the speech musculatures. These students are able to speak pretty well as long as the coordinating centers of the brain are not contending with emotional pressures. But the student's threshold of resistance to the emotional disturbances are low. His/her coordinations break down relatively easily under stress.

2. Developmental factors:
   a. Inability to find or remember appropriate words may cause dysfluency. Dysfluent speech is found in some bilingual conflicts where vocabulary is deficient.

   b. Beginning from the perfectly normal hesitations and repetitions of normal children, dysfluency may be developed. When wrongly labeled as stuttering, the child begins to react to the evaluations as though the symptoms were actually abnormal, and hence abnormal behavior is produced.

3. Emotional factors:
   a. Fear of unpleasant consequences of the communication, or in situations involving conflict, the speaker may become dysfluent.

   b. Loss of the listeners attention or speaking to unresponsive listeners may cause the speaker to react insecurely.

   c. Speaking in competition with others with pressure to perform verbally may cause dysfluency.

   d. Speaking in distracting or disturbing circumstances may cause hesitations, repetitions, and arrhythmic speaking patterns.

DISORDERS OF LANGUAGE

CHARACTERISTICS OF STUDENTS WITH LANGUAGE DISORDERS:

1. The foreign student speaking English as a second language may demonstrate problems in sentence construction and grammar as he/she speaks and writes. He may also not understand all of the language he/she hears or reads.

2. The student may demonstrate the knowledge of what to do with an object, but not know what to call it. He/she has the concept, but not the verbal symbol.

3. The student may not remember a multi-step direction. He/she may execute only the last thing he hears, or begin an activity and forget what your finishing instructions were.

4. The student may isolate him/herself from his/her peers, or may interact at the other extreme, in a disruptive fashion.

WAYS THE PHYSICAL EDUCATOR CAN HELP:

1. For the aphasic student, reducing both visual and auditory distractions may help him/her focus his/her attention

and better comprehend your message.

2. Distinct gestural communication accompanying your verbalization may help the student with a language dysfunction better understand the meaning of your message.

3. As you speak, reduce your sentence length. This will help the student better comprehend what you are saying, provide sentence structure he/she can model, and give him/her only as much information as he/she can remember at one time.

4. Repetition of directions may be necessary and useful.

5. Before you give an individual student instructions, attempt to gain his/her full attention before you speak. Putting your hand on the student's arm will cause him/her to attend and generally will facilitate eye contact. Then he/she is ready to better understand what you will say.

6. When the student responds correctly, give immediate reward.

ETIOLOGY OF LANGUAGE DISORDERS:

1. One cause of a lnaguage dysfunction in the student population is called "aphasia" which is usually the result of an injury to the brain at birth or as a result of later head trauma. The aphasic student has problems using the symbols of language - words, letters, numbers. The problems may affect his/her comprehension, memory, speaking, reading, writing, or may be in combination.

2. Many languages express ideas using sentence structure unlike that in English. The bilingual student may then have problems in manipulating the new structures of English.

3. Mental retardation may be the cause of language problems.

4. Hearing defects may cause language problems.

5. Delayed speech development may be the cause of an impairment in language. For social, environmental, intellectual, medical reasons, the student's language skills are not commensurate with his/her chronological age.

6. Psycho-neurological disorders such as dyslexia, dyscalcula, minimal brain dysfunction, autism, schizophrenic, may all present disorders in language.

BIBLIOGRAPHY

Bowen, Edith, Unpublished papers, Teacher Education Laboratory School, Utah State University, Utah.

Department of Public Instruction, Rules of Special Education, 1977, State of Iowa.

Huddleston, Ron L., Unpublished papers, Department of Hearing Conservation/Education Services, Mississippi Bend Area Education Agency, Iowa.

Johnson, Brown, Curtis, Edney, Keaster, Speech Handicapped School Children, 1967, Harper and Brothers, New York.

Karnes, Merle B., Helping Young Children Develop Language Skills, 1970, The Council for Exceptional Children, Arlington, Va.

May, Judith S., Unpublished papers, New York League for the Hard of Hearing Audiology Services Department, New York.

Northern, Jerry L., Downs, Marion P., Hearing Children, 1974, The Williams and Wilkins Company, Baltimore, Maryland.

Travis, Lee E., *Handbook of Speech Pathology*, 1971, Prentice-Hall, New York.

Van Riper, Charles, *Speech Correction, Principles and Methods*, 1978, Prentice-Hall, New York.

MEDICATION AND PHYSICAL ACTIVITY

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MEDICATION AND PHYSICAL ACTIVITY

There are no harmless medications. One clinical pharmacologist wrote that "one seventh of all hospital days is devoted to the care of drug toxicity at an estimated annual cost of $3 billion." Two other authorities wrote that medications cause the deaths of 140,000 Americans annually. While these may have been slightly overstated for the sake of emphasis, they are indicative of a serious situation. The need for better education of health professionals, parents, educators, and patients concerning the hazards associated with the use of drug products is evident.

Many commonly prescribed medications are used in the treatment of pathological conditions in individuals with handicapping conditions. Drugs are used to produce biochemical, physiological, and/or psychological changes. Accordingly, drugs can produce many adverse effects. The incidence and severity of the adverse effects vary depending on the drug used, the dosage, the route of administration, existing disease states, and the response of the user.

Many popular drugs can have significant effects on motor development and motor performance. It is imperative that physical educators be aware of potential drug-induced changes in motor behavior in order to more effectively plan appropriate physical education experiences for the handicapped.

The following charts list the most commonly prescribed medications indicated by: category, trade name, common therapeutic use, generic components, potential non-motor adverse effects and potential motor and/or developmental adverse effects. Even though the charts do not contain a complete list of adverse effects for each drug, an educator can, by reading the charts, gain appreciation of readily observable adverse effects (e.g., sedation), and those that may be understood by interviewing the patient (e.g., nausea) for each drug and/or its components.

Category	Trade Name	Common Therapeutic Uses	Generic Names	Potential Non-Motor Adverse Effects	Potential Motor/Developmental Adverse Effects
1.0 Analgesics	1.1 Darvocet-N	Mild to moderate pain	acetaminophen	—	drowsiness (infrequent)
			propoxyphene	Nausea, vomiting, constipation abdominal pain, skin rashes	dizziness, sedation, headache, lightheadedness, minor visual disturbances
	1.2 Darvon Compound 65	Mild to moderate pain	aspirin	nausea, heartburn	dizziness, mental confusion, headache, or muscle tremor (large doses)
			caffeine	nausea, increased frequency in urination	insomnia, restlessness, excitement, muscle tremors
			phenacetin	stomach pains, nausea, vomiting	weakness, dizziness, confusion, drowsiness, irritability
			propoxyphene	nausea, vomiting, constipation, abdominal pain, skin rashes	dizziness, headache, sedation, lightheadedness, minor visual disturbances
	1.3 Empirin Compound with Codeine	Mild to moderate pain	aspirin	nausea, heartburn	dizziness, mental confusion, headache, or muscle tremors (large doses)
			caffeine	nausea, increased frequency in urination	insomnia, restlessness, excitement, muscle tremors
			codeine	nausea, vomiting, sweating	lightheadedness, dizziness, sedation, muscle tremor, uncoordinated muscle movements, disorientation, visual disturbances
			phenacetin	nausea, vomiting, stomach pains	dizziness, drowsiness, weakness, confusion, irritability

Category	Trade Name	Common Therapeutic Uses	Generic Names	Potential Non-Motor Adverse Effects	Potential Motor/Developmental Adverse Effects
	1.4 Fiorinal	mild to moderate pain	aspirin	nausea, heartburn	dizziness, mental confusion, headache, or muscle tremors (large doses)
			butalbital	nausea, vomiting, allergic reactions	dizziness, drowsiness, lethargy, sedation, paradoxical excitement (children and geriatric patients)
			caffeine	nausea, urinary urgency	insomnia, restlessness, excitement, muscle tremors
			phenacetin	stomach pains, nausea, vomiting	dizziness, drowsiness, weakness, confusion, irritability
	1.5 Percodan	moderate to severe pain	aspirin	nausea, heartburn	mental confusion, dizziness, headache, or muscle tremors (large doses)
			caffeine	nausea, increased frequency urination	insomnia, restlessness, excitement, muscle tremors
			oxycodon	nausea, sweating, vomiting	dizziness, lightheadedness, sedation, muscle tremor, disorientation, uncoordinated muscle movements, visual disturbances
			phenacetin	stomach pains, nausea, vomiting	confusion, weakness, dizziness, drowsiness, irritability
	1.6 Phenaphen with codeine	mild to moderate pain	acetaminophen	—	drowsiness (infrequent)
			codeine	nausea, vomiting, sweating	dizziness,sedation, lightheadedness, muscle tremor, uncordinated muscle movements, disorientation, visual disturbances

Category	Trade Name	Common Therapeutic Uses	Generic Names	Potential Non-Motor Adverse Effects	Potential Motor/Developmental Adverse Effects
	1.7 Talwin	moderate to severe pain	pentazocine	nausea, vomiting, sweating, stomach cramps, diarrhea, dry mouth	dizziness, lightheadedness, sedation, headache, faintness, muscle tremors, irritability, excitement, disorientation, alteration of mood, blurred vision
	1.8 Tylenol with codeine	mild to moderate pain	acetaminophen codeine	— sweating, nausea, vomiting	drowsiness (infrequent) sedation, dizziness, lightheadedness, muscle tremor, uncoordinated muscle movements, disorientation, visual disturbances
2.0 Anorexigenics (Appetite Suppressants)	2.1 Tenuate	curb appetite	diethylpropion	dry mouth, nausea, vomiting stomach cramps	blurred vision, overstimulation, nervousness, restlessness, dizziness, insomnia, anxiety, sedation, drowsiness, euphoria, tremor, confusion, incoordination, headache, psychotic episodes
3.0 Anti-Anxiety Hypnotics Sedatives	3.1 Benzodiazepines	anxiety, sedation, insomina	flurazepam	constipation, urinary retention, dry mouth	transient drowsiness, blurred vision, confusion, depression, disorientation, agitation, hypoactivity, slurred speech stupor, faintness, dizziness, irritability
	3.11 Dalmane				
	3.12 Librium		chlordiazepoxide		
	3.13 Tranzene		chlorazepate		
	3.14 Valium		diazepam		

Category	Trade Name	Common Therapeutic Uses	Generic Names	Potential Non-Motor Adverse Effects	Potential Motor/Developmental Adverse Effects
	3.2 Barbiturates 3.21 Luminal	Anxiety, sedation, insomnia, epilepsy	phenobarbital	nausea, vomiting, allergic reactions	dizziness, drowsiness, sedation, paradorical excitement (children and geriatric patients)
	3.3 Miscellaneous 3.31 Atarax	anxiety, sedation	hydroxyzine	dryness of mouth	drowsiness, involuntary motor movement including tremors and convulsions
	3.32 Equanil		meprobamate	nausea, vomiting, diarrhea, loss appetite, dry mouth	drowsiness, dizziness, slurred speech, headache, weakness, impaired vision, depression, confusion

Category	Trade Name	Common Therapeutic Uses	Generic Names	Potential Non-Motor Adverse Effects	Potential Motor/Developmental Adverse Effects
4.0 Anti-Infective	4.1 Cephalosporins 4.11 Keflex 4.12 Valosef	Bacterial Infections Cephadrine	Cephalexin Cephadrine	Allergic reactions, nausea, vomiting, diarrhea, stomach cramps	dizziness, headache
	4.2 Erythromycins 4.21 E.E.S. 4.22 E-Mycin 4.23 Erythrocin 4.24 Ilosone	Bacterial Infections	erythromycin ethylsuccinate erythromycin base erythromycin stearate erythromycin estolate	nausea, vomiting, diarrhea, abdominal cramps, allergic reactions	———
	4.3 Penicillins 4.31 Pentids 4.32 Polycillin 4.33 Amoxil 4.34 V-cillin-K 4.35 Pathocil	Bacterial Infections	penicillin G ampicillin amoxicillin penicillin VK dicloxacillin	allergic reactions, nausea	———

Category	Trade Name	Common Therapeutic Uses	Generic Names	Potential Non-Motor Adverse Effects	Potential Motor/Developmental Adverse Effects
	4.4 Sulfonamides 4.41 Gantrisin	Bacterial Infections	sulfisoxazole	nausea, vomiting, diarrhea, allergic reactions	psychoses, headache, depression, unsteadiness, insomnia, fatigue, dizziness, drowsiness, hearing loss
	4.5 Tetracyclines 4.51 Achromycin V 4.52 Sumycin 4.53 Vibramycin 4.54 Declomycin	-Bacterial Infections - Rocky Mountain Spotted Fever	tetracycline tetracycline Doxycycline Demeclocycline	Nausea, vomiting, loss of appetite, intestinal cramps, allergic reactions	———
5.0 Gastrointestinal Relaxants	5.1 Donnatal	diarrhea spasms of intestines duodenal ulcers	atropine hyoscine hyoscyamine phenobarbital	Nausea, vomiting, constipation, heart burn, urinary retention ———	blurred vision, headaches, weakness, dizziness, sedation, confusion dizziness, drowsiness, lethargy, sedation, paradoxical excitement (children and geratric patients)
	5.2 Librax	spasms of intestine	chlordiazepoxide clidinium	constipation, dry mouth, urinary retention, hiccoughs	blurred vision, drowsiness, confusion, depression, disorientation, agitation hypoactivity, stupor, faintness, dizziness, irritability.
	5.3 Lomotil	diarrhea	diphenoxylate atropine	nausea, vomiting, urinary retention	sedation, depression, dizziness, headache

Category	Trade Name	Common Therapeutic Uses	Generic Names	Potential Non-Motor Adverse Effects	Potential Motor/Developmental Adverse Effects
6.0 Anticoagulant/ Antiplatelet	6.1 Coumadin	Blood clotting conditions	Warfarin sodium	Nausea, vomiting, diarrhea, stomach cramps, bleeding	———
	6.2 Persantin	Blood clotting conditions	dipyridamole	Nausea, stomach cramps	headache, dizziness, weakness, faintness
7.0 Anti-epileptic *Note 1.	7.1 Dilantin	seizure disorders	phenytoin	Nausea, vomiting, diarrhea, constipation	mental confusion, dizziness, sedation, nervousness, depression, tremor, fatigue, headache, irritability, visual disturbances
	7.2 Luminal	anxiety seizure disorders	phenobarbital	Nausea, vomiting	lethargy, sedation, drowsiness, dizziness, paradoxical excitement (children & geriatric patients)
8.0 Antidepressants	8.1 Elavil	depression	amitriptyline	dry mouth, constipation, urinary retention, nausea, vomiting, diarrhea	blurred vision, confusion, disorientation, anxiety, delusions, insomnia, drowsiness, excitement, panic, nightmares
	8.2 Sinequan	depression and/or anxiety associated with psychoneuroses	doxepin	Nausea, vomiting, diarrhea, urinary hesitancy, dry mouth, constipation	confusional state, delusions disorientation, drowsiness, panic, blurred vision, excitement
	8.3 Triavil	depression and anxiety	perphenazine	Nausea, vomiting, constipation, nasal congestion, dry mouth, urinary retention	fatigue, drowsiness, tremors, muscle spasms, blurred vision, headache

Category	Trade Name	Common Therapeutic Uses	Generic Names	Potential Non-Motor Adverse Effects	Potential Motor/Developmental Adverse Effects
	8.3 (cont.)		amitriptyline	dry mouth, constipation, urinary retention, nausea, vomiting, diarrhea	blurred vision, confusion, disorientation, anxiety, delusions, insomnia, drowsiness, excitement, panic, nightmares
9.0 Antigout	9.1 Zyloprim	gout certain renal stones	allopurinol	nausea, vomiting, diarrhea, abdominal pain, skin rashes, itching	drowsiness, fatigue, fever, chills
10.0 Antihistamine/ Decongestant	10.1 Actifed	Respiratory tract congestion	pseudoephedrine triprolidine	-nausea, urinary retention dryness in mouth, nose, and throat, heartburn, nausea, vomiting, constipation, urinary retention	nervousness, insomnia, tremors, tension, dizziness, headache euphoria, faintness, headache, dizziness, sedation, uncoordination, confusion, tremor, irritability, blurred vision
	10.2 Bendadryl	allergic reactions	diphenlydramine	-dry mouth, urinary retention, constipation, nausea, vomiting, heartburn	unsteady gait, faintness, dizziness, sedation, drowsiness, confusion, tremor, blurred vision, headache, irritability
	10.3 Chlortrimeton	allergic conditions	chlorpheniramine	-nausea, vomiting, constipation, heartburn, urinary retention	sedation, drowsiness, uncoordination, dizziness, blurred vision, muscle tremors, irritability

Category	Trade Name	Common Therapeutic Uses	Generic Names	Potential Non-Motor Adverse Effects	Potential Motor/Developmental Adverse Effects
	10.4 Dimetapp	respiratory tract congestion, allergic conditions	phenylpropanolamine	nausea, vomiting, urinary retention	muscle tremors, tension,dizziness, nervousness, insomnia, headache
			phenylephrine	nausea, urinary retention	muscle tremors, tension, dizziness
			brompheniramine	heartburn, dry mouth, nausea, vomiting, constipation, urinary retention	headache, dizziness, sedation, confusional state, tremors, faintness euphoria, blurred vision, irritability
	10.5 Drixoral	respiratory tract congestion, allergic conditions	pseudolphedrine	nausea, urinary retention	nervousness insomnia, tremors, tension, dizziness, headache
			dexbrompheniramine	nausea, vomiting, heartburn, constipation, urinary retention,	dizziness, sedation, confusion, uncoordination, tremor, blurred vision, faintness, euphoria
	10.6 Naldecon	respiratory tract congestions, allergic conditions	phenylpropanolamine	nausea, vomiting, urinary retention	muscle tremors, tension, dizziness, nervousness, insomnia, headache
			phenylephrine	nausea, urinary retention	muscle tremors, tension, dizziness
			chlorpheniramine	-nausea, vomiting, constipation, heartburn, urinary retention	sedation, drowsiness, uncoordination, dizziness, blurred vision, muscle tremors, irritability
			phenyltoloxamine	heartburn, dry mouth, nausea, vomiting, constipation, urinary retention	-headache, dizziness, sedation, confusional state, tremors, faintness, euphoria, blurred vision, irritability

Category	Trade Name	Common Therapeutic Uses	Generic Names	Potential Non-Motor Adverse Effects	Potential Motor/Developmental Adverse Effects
	10.7 Ornade	respiratory tract congestion, allergic conditions	phenylpropanolamine	nausea, vomiting, urinary retention	muscle tremors, tension, dizziness, nervousness, insomnia, headache
			chlorpheniramine	nausea, vomiting, constipation, heartburn, urinary retention	sedation, drowsiness, uncoordination, dizziness, blurred vision, muscle tremors, irritability
			isopropamide	nausea, vomiting, constipation, heartburn, urinary retention	headaches, dizziness, weakness, sedation, confusion
	10.8 Tuss Ornade	respiratory tract congestion, allergic conditions, cough	phenylpropanolamine	nausea, vomiting, urinary retention	muscle tremors, tension, dizziness, nervousness, insomnia, headache
			chlorpeniramine	nausea, vomiting, constipation, heartburn, urinary retention	sedation, drowsiness, uncoordination, dizziness, blurred vision, muscle tremors, irritability
			isopropamide	nausea, vomiting, constipation, heartburn, urinary retention	headaches, dizziness, weakness, sedation, confusion
			caraminephen		sedation, weakness, dizziness, incoordination
11.0 Antiinflammatory	11.1 Butazolidin	gout, rheumatoid arthritis, bursitis	phenylbutazone	nausea, vomiting, diarrhea, heartburn, stomach cramps	blurred vision, hearing loss, agitation, confusional states, lethargy
	11.2 Indocin	rheumatoid arthritis, bursitis	indomethacin	nausea, vomiting, heartburn, stomach cramps	headache, dizziness, depression, fatigue, anxiety, muscle weakness

Category	Trade Name	Common Therapeutic Uses	Generic Names	Potential Non-Motor Adverse Effects	Potential Motor/Developmental Adverse Effects
	11.3 Motrin	rheumatoid arthritis, mild to moderate pain	ibuprofen	nausea, vomiting, diarrhea, heartburn, dry mouth, indigestion	dizziness, drowsiness, headache, tension, nervousness, confusion, inability to concentrate, tremor, fatigue
	11.4 Naprosyn	rheumatoid arthritis, mild to moderate pain	naproxen	nausea, vomiting, diarrhea, heartburn, dry mouth, indigestion	dizziness, drowsiness, headache, tension, nervousness, confusion, fatigue
12.0 Antinauseant	12.1 Bendectin	nausea,vomiting	doxylamine pyridoxine	heartburn, constipation, urinary retention —	dizziness, sedation, confusion, uncoordination, tremor, faintness, blurred vision non-energetic
	12.2 Compazine	nausea, vomiting	prochlorperazine	dry mouth, constipation, urinary retention	confusion, disorientation, anxiety, delusions, fatigue, drowsiness, blurred vision, tremors, muscle spasms
13.0 Antipsychotic	13.1 Mellaril	depressive neurosis psychotic disorders	thioridazine	nausea, constipation, nasal congestion, dry mouth, urinary retention	fatigue, drowsiness, tremors, muscle spasms, blurred vision, headache
	13.2 Thorazine	psychotic disorders hiccoughs	chlorpromazine	dry mouth, urinary retention, constipation, nasal congestion	sedation, drowsiness, tremors, muscle spasms, confusion, blurred vision, headache

Category	Trade Name	Common Therapeutic Uses	Generic Names	Potential Non-Motor Adverse Effects	Potential Motor/Developmental Adverse Effects
14.0 Antisecretory	14.1 Tagament	peptic ulcers, hypersecretion states of gastro-intestinal tract	cimetadine	diarrhea, muscle pain	dizziness, confusion, hallucinations, delirium, unsteady gait, blurred vision
15.0 Antivertigo	15.1 Antivert	nausea, vomiting, dizziness, motor sickness	meclizine	dry mouth	sedation, drowsiness, blurred vision
16.0 Cardiotonic	16.1 Lanoxin	heart failure cardiac irregular beat	digoxin	nausea, vomiting, diarrhea, irregular or slow pulse	dizziness, headache, aberrant color vision, blurred vision, delirium, faintness
17.0 Cholesterol Lowering agent	17.1 Atromid S	elevated blood cholesterol	clofilerate	gastrointestinal upset, nausea, vomiting, flatulence	muscle weakness, muscle pain, fatigue, drowsiness, dizziness, headache, tremors, blurred vision
18.0 Diuretic agents	18.1 Aldactazide	edematous states, hypertension	spironolactone hydrochlo-thiazide	gastric irritation, nausea, vomiting, stomach cramp-ing, diarrhea, constipation	dizziness, headache
	18.2 Diuril	edematous states, hypertension	chlorthiazide	gastric, irritation, nausea, vomiting, stomach cramping, diarrhea, constipation	dizziness, headache, muscle weakness, muscle cramps
	18.3 Dyazide	edematous states, hypertension	hydrochlor-thiazide triamterene	gastric irritation, nausea, vomiting, stomach cramping, diarrhea, constipation	dizziness, headache

Category	Trade Name	Common Therapeutic Uses	Generic Names	Potential Non-Motor Adverse Effects	Potential Motor/Developmental Adverse Effects
	18.4 Hydrodiuril	edematous states, hypertension	hydrochlor-thiazide	gastric irritation, nausea, vomiting, stomach cramping, diarrhea, constipation	dizziness, headache, muscle weakness, muscle cramps
	18.5 Hydroton	edematous states, hypertension	chlorthalidone	gastric irritation, nausea, vomiting, stomach cramping, diarrhea, constipation	dizziness, headache, muscle weakness, muscle cramps
	18.6 Lasix	edematous states, hypertension	furosemide	gastric irritation, nausea, vomiting, stomach cramping, diarrhea, constipation	dizziness, headache, muscle weakness, muscle cramps
19.0 Expectorant/Cough suppressants	19.1 Phenergan with codeine	cough	promethazine	nausea, constipation, dry mouth, urinary retention	fatigue, drowsiness, tremors, muscle spasms, blurred vision, headache
			codeine	nausea, vomiting, sweating	lightheadedness, dizziness, sedation, muscle tremor, uncoordinated muscle movements, disorientation, visual disturbances
			potassium guaiacolsulfon-ate	stomach irritation	———
	19.2 Actified C	cough	pseudoephedrine	nausea, urinary retention	nervousness, insomnia, tremors, tension, dizziness, headache
			triprolidine	dryness in mouth, nose and throat, heartburn, nausea, vomiting, constipation, urinary retention	euphoria, faintness, headache, dizziness, sedation, uncoordination, confusion, tremor, irritability blurred vision
			guaifenesin	stomach upset	———
			codeine	nausea, vomiting, sweating	lightheadedness, dizziness, sedation, muscle tremor, uncoordinated muscle movements, disorientation, visual disturbances

Category	Trade Name	Common Therapeutic Uses	Generic Names	Potential Non-Motor Adverse Effects	Potential Motor/Developmental Adverse Effects
20.0 Hormonal/Steroidal	20.1 Lo-Ovral	contraception, regulation of menstrual cycle	ethinylestradiol norgestrel	nausea, vomiting, abdominal cramps, swelling in extremities, weight change, rash	headache, mental depression, nervousness, dizziness, blurred vision, fatigue, irritability
	20.2 Ortho-Novum	contraception, regulation of menstrual cycle	mestranol norethinedrone	nausea, vomiting, abdominal cramps, swelling in extremities, weight change, rash	headache, mental depression, nervousness, dizziness, blurred vision, fatigue, irritability
	20.3 Ovulen	contraception, regulation of menstrual cycle	mestranol ethynodiol	nausea, vomiting, abdominal cramps, swelling in extremities, weight change, rash	headache, mental depression, nervousness, dizziness, blurred vision, fatigue, irritability
	20.4 Paracort	inflammatory conditions	prednisone	nausea, vomiting, abdominal distention, weight gain, increased appetite	muscle weakness, loss muscle mass, headache, convulsions, suppression of growth, blurred vision.
	20.5 Premarin	menopause	conjugated estrogens	nausea, vomiting, diarrhea, bloating, abdominal cramps, changes in weight	blurred vision, headache, dizziness, depression
	20.6 Synthroid	thyroid hormone deficiency	Levothyrorine	altered heart beat, weight loss, diarrhea, sweating	tremors, headache, nervousness, insomnia, intolerance to heat
	20.7 Thyroid	thyroid hormone deficiency	Desicated thyroid	altered heart beat, weight loss, diarrhea, sweating	tremors, headache, nervousness, insomnia, intolerance to heat

Category	Trade Name	Common Therapeutic Uses	Generic Names	Potential Non-Motor Adverse Effects	Potential Motor/Developmental Adverse Effects
21.0 Hypoglycemics/ Antidiabetics **Note 2.	21.1 Diabenese	diabetes mellitus	chlorpropamide	skin rashes, nausea, vomiting, diarrhea	weakness, fatigue, dizziness, unsteady gait, headaches
	21.2 Orinase	diabetes mellitus	tolbutamide	nausea, vomiting, diarrhea, skin rashes	weakness, fatigue, dizziness, unsteady gait, headaches
22.0 Hypotension	22.1 Aldomet	high blood pressure	methyldopa	nausea, vomiting, diarrhea, dry mouth, nasal stuffiness, altered heart beat, weight gain	sedation, headache, weakness, dizziness, lightheadedness, decreased mental acuity, depression
	22.2 Inderal	high blood pressure, ischemic heart disease, cardiac arrhythmia, migraine	propranolol	slow pulse, nausea, vomiting, diarrhea, difficulty in breathing	lightheadedness, mental depression, weakness, fatigue, visual disturbances, disorientation, memory loss, emotional liability
	22.3 SER-AP-ES	high blood pressure	reserpine	nausea, vomiting, diarrhea, altered heart beat, rash, nasal congestion, nose bleed, dry mouth	drowsiness, depression, nervousness, anxiety, nightmares, deafness, blurred vision, headache, muscle aches, muscle tremors
			hydralozine	nausea, vomiting, diarrhea, rash, altered heart beat, dry mouth	drowsiness, nervousness, anxiety, headache, muscle tremors
			hydrochlorothiazide	gastric irritation, nausea, vomiting, stomach cramping, diarrhea, constipation	dizziness, headache, muscle weakness, muscle cramps.

Category	Trade Name	Common Therapeutic Uses	Generic Names	Potential Non-Motor Adverse Effects	Potential Motor/Developmental Adverse Effects
23.0 Muscle Relaxants	23.1 Parafon Forte	muscle spasms	chlorzoxane acetaminophen	nausea, vomiting, diarrhea —	drowsiness, dizziness, faintness, sedation drowsiness (infrequent)
24.0 Potassium Supplements	24.1 Slow-K	potassium deficiency	potassium	nausea, vomiting, diarrhea, abdominal discomfort, changes in heart beat	listlessness, mental confusion, weakness, heaviness of legs
25.0 Vasodilators	25.1 Isordil	ischemic heart disease	isosorbide dinitrate	nausea, vomiting, flushing, altered heart beat	headache, dizziness, weakness, faintness, restlessness
	25.2 NTG	ischemic heart disease	nitroglycerin	nausea, vomiting, flushing, altered heart beat	headache, dizziness, weakness, faintness, restlessness
	25.3 Pavabid	ischemic heart disease, peripheral vascular disease, cerebrovascular insufficiency	papaverine	nausea, abdominal distress, sweating, flushing, constipation or diarrhea	dizziness, drowsiness, headache
26.0 Vasopressor/ Stimulants	26.1 Dexedrine	hyperkinesis obesity narcolepsy	dextroamphetamine	altered heart beat palpitations, dryness of mouth, nausea	restlessness, insomnia, dizziness, tremor, headache, overstimulation
	26.2 Ritalin	hyperkinesis narcolepsy	methylphenidate	nausea, palpitations, abdominal pain	nervousness, insomnia, headache, dizziness

Summary Statement:

In education, teachers are constantly compelled to deal with the masses, and in meeting those demands they frequently fail to meet the needs of the individual. Individual physical education assessment and counsel is vital not only for knowledge of one's self, but for the protection of the student.

This chapter is designed to give the physical education instructor an understanding of potential adverse effects of drugs that can have great impact on student performance. However, this information will be of value only if the physical education teacher strives to understand the student's condition in connection with the medication prescribed for the disorder(s). This physical assessment can be used as a basis for the planning of physical activities to meet the needs of each student.

The adverse effects of drowsiness, dizziness, faintness, lightheadness, mental confusion, muscle tremor, muscle weakness, confusion, visual disturbances, uncoordinated muscle movements, disorientation, fatigue, unsteadiness, and depression can compromise, if not endanger, the student in many individual and team sports. It must be recognized that the incidence and severity of these adverse effects depend upon many complex factors which further underscore the necessity to evaluate each student individually. If there are questions and/or concenns, a health care professional should be consulted.

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*Note #1 - (7.0) - Other commonly prescribed anti-epileptic agents are ethosuximide (Zarontin), methsuximide (Celontin), Trimethadione (Tridione), clonazepan (Clonopin), primidone (Mysoline), valprioc acid (Depakene), and carbamazepine (Tegretol). The potential motor adverse effects of these agents mimic phenytoin (Dilantin) and phenobarbital (huminal). Sedation, drowsiness, dizziness, and lethargy may be seen.

**Note #2 - (21.0)- Many diabetic patients are being treated with one of the insulins (regular insulin, isophane insulin, insulin zinc, protamine zinc insulin, or globin zinc insulin.) Regardless of whether the patient is being administered an oral or parenteral antidiabetic agent, a delicate balance between therapy, food intake, and exercise must be rigidly maintained. For guidance in directing the patient's (especially children) dietary and exercise programs, contact the family physician or other health professionals.

ASSESSMENT AND EVALUATION

by

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ASSESSMENT AND EVALUATION

INTRODUCTION

Public Law 94-142, "the Education for all Handicapped Children Act of 1975", has a great impact on physical education for the handicapped. Federal regulations state that all handicapped students must have a physical education program which allows for the student to be an active participant. This participation must be the result of planned activities tailored to meet the student's needs. To make certain physical education educators are making the best decisions in placement and programming for each student, decisions must be based upon sound assessments. Finding the most appropriate program for an individual depends to a large degree upon a teacher correctly assessing a student's present performance levels in physical education.

Each individual receiving special education services must have an Individual Education Program (IEP). The IEP specifically outlines the appropriate program for a student. The IEP is a written statement containing the following points to assure an appropriate public education for every handicapped individual:

1. The student's present level of performance.

2. Annual goals, including short-term instructional objectives.

3. Specific special education and related services to be provided to the student, and the extent to which the student will be able to participate in regular programs.

4. When the student will begin participating in his/her educational program and how long the student will need individualized help.

5. Appropriate objective criteria and evaluation procedures and schedules for determining, on at least an annual report, whether the short-term instructional objectives are being achieved.

Not every handicapped student receiving special education services will be or should be in a specialized physical education class. If a student does not require a specially designed program, the IEP will state that the student is participating in a "regular" physical education class. When a specially designed program is required, the IEP must state what activities the student needs, the goals for the year, and short-term objectives. Only when the student's needs cannot be met through the regular program would it be necessary for the student to participate in a special program.

In order to determine the needs of a student and develop an IEP, an assessment must be performed. For a determination to be valid for IEP use, the law mandates the administration of more than one assessment. This chapter describes procedures for conducting an assessment and integrating the assessment data into an IEP. Detailed information is provided on considerations when conducting an assessment, selection of assessment procedures, and procedures to transform assessment data into IEP's. An example of a completed IEP is presented. This chapter also contains a resource list of selected appropriate assessment instruments.

TYPES OF ASSESSMENTS

Assessment is the process of collecting information and then making decisions based upon the information collected. Assessment of performance and/or progress can pinpoint and diagnose strengths and weaknesses to plan a better program for individuals.

There are several types of assessments which can be utilized. Assessment procedures can vary from highly objective to highly subjective. The more objective procedures will be discussed as formal assessments, while the more subjective procedures will be discussed as informal assessments.

Formal assessments are usually standardized tests with established norms. Standardized tests can be found in the areas of perceptual-motor functions, gross motor ability, fine motor ability, physical fitness, cardiorespiratory function, and specific sport skills. These assessment instruments require the tester to follow an established procedure to assure that testing results are reliable and valid. When using norm-based assessments, the results are compared with the established norms in order to ascertain an individual's ability level. Some formal assessments require the tester to be specifically trained to conduct the assessment. This may require specific training for the instructor to become proficient in testing. More time may be needed to evaluate when using a formal assessment in order to cover all established procedures set up under guidelines for administered the same way in order to assure test reliability.

Informal assessment usually takes the form of anecdotal records, rating scales, checklists, screening activities, questionnaires, and observation. An informal assessment may consist of an instructor simply writing down items to be assessed, and observing the class as a whole as they are in a group activity. Volunteers and student-peers can be utilized to perform assessments such as checklists and inventories, When using informal tests, there are no norms for comparing your results.

ASSESSMENT PROCEDURES

PRE-ASSESSMENT

Since assessment is a planned and systematic process, there are several guidelines that are appropriate for preparing for assessment. The four main types of considerations during the pre-assessment phase are: knowledge and history background about the student being tested, selection of skills and qualities being assessed, selection of the assessment instrument, and knowledge of the assessment procedure. Each consideration will be stated and accompanied with an example or explanation.

Knowledge of the student: (The following questions and examples may not be available to the instructor; but one must utilize all information that is known).

1. What modes of communication does the student use? (verbal or nonverbal)

2. Are there any auditory handicaps or impairments? (good hearing)

3. Are there any visual handicaps or impairments? (totally blind)

4. Are there any physical disabilities that can affect the results of any of the tests? (student wears short leg braces)

5. Is there a specific behavior problem? (sudden outburst of anger and frustrations)

6. Is the student taking any medications that may contribute to abnormal motor performance? (student is on dilantin)

7. On what grade level is the child functioning? (4th grade level)

Selection of skills and qualities being tested:

1. What skills will be assessed? (basic gross motor and in some instances fine motor)

2. What qualities are to be assessed? (physical fitness)

Selection of the assessment instruments:

1. Are any formal assessment instruments available? (formal are preferred over informal)

2. Do the instruments test what they purport to test? (physical fitness test, cardiorespiratory endurance, agility, strength)

3. Are the tests reliable? (replicate results)

4. Can tests results be used to develop an IEP?

5. Is more than one assessment instrument available to test a particular behavior?

Instrument administration:

1. Can the instructor be prepared to administer instrument? (self taught, learn from observation, workshops, etc.)

2. Can appropriate testing conditions be obtained? (private area with limited distractions)

3. Can results be scored and tabulated according to instructions? (have available scoring sheets and explanation of scoring procedure)

4. Can instructor anticipate possible responses? (problems arise, behavior)

ASSESSMENT ADMINISTRATION:

The teacher must establish a good rapport with the student so he/she feels at ease during the testing situation. At no time should a teacher compromise the testing procedures for the student's ease, inadequate equipment, lack of time, or lack of space. The teacher should be concerned with the process rather than the product while observing a behavior. The quality of a person's performance and how he/she moves, not just the product of the skill, should be observed. The teacher should take notes on the performance of a task, and not just whether

the task was completed. After the task is completed, appropriate feedback to the student is necessary.

SUMMARIZING THE ASSESSMENT DATA:

After the testing is completed, the physical education instructor analyzes the results from each assessment instrument. More than one set of data will be analyzed since the law requires several assessments and/or evaluations to determine abilities and needs. The physical education instructor will translate the assessment results into one composite (determination) of the abilities and needs of a student. This forms the basis for the annual goals and short-term objectives to be stated in the Individual Education Program.

The physical educator is one member of a "team" that is made up of the following individuals:

1. A representative from the public agency, many times the principal is the one involved.

2. The student's teacher (more than one may be involved). The physical education teacher is involved when the student needs a specially designed program in physical education.

3. The parents of the student.

4. The student, when appropriate.

5. Other individuals: social worker, psychologist consultant, occupational therapist, physical therapist, and speech clinician.

The staffing team discusses the findings from the various assessments. After discussing the student and his/her level of functioning the staffing team develops an IEP for the student, and they place him/her in the most appropriate program.

SAMPLE ASSESSMENT PROCEDURES

In order to better explain the process of assessment and programming for a student, an example of one student who had an IEP written for him is given below:

Bob is a ten year old mentally disabled student in a fourth grade resource teaching program. Bob appears to have difficulty in performing basic gross motor skills and appears to have a low level of physical fitness. The O.S.U. Sigma was chosen to assess Bob's gross motor skills because the assessment examines

eleven basic gross motor skills, it is easy to administer, and no expensive or elaborate equipment is needed.

TABLE I describes the levels of the Sigma. The eleven skills are divided into four developmental stages. Level I is the least mature level and Level IV, the most. Below is a discussion of the testing situation for Bob:

Walking - Bob walks with an opposition gait. (Level IV)

Stair Climbing - Bob used an alternate foot pattern while going up and down the stairs. (Level IV)

Running - Bob performed a mature "non-support-run". (Level IV)

Throwing - Bob stepped out with his right foot and threw with his right hand. This is "one-sided/homolateral throw". (Level III)

Catching - When Bob attempted to catch a ball he displayed a typical fear reaction (arms outstretched and as the ball came toward him he turned his head). (Level I)

Kicking - When Bob attempted to kick a ball he demonstrated kicking with "stiff leg" rather than a "knee action" with proper follow through. (Level II)

Jumping - Bob could jump forward over a fifteen inch piece of paper with ease; but he demonstrated improper arm action. (Level III)

Hopping - Bob demonstrated a mature level of hopping on both sides. (Level IV)

Skipping - When assessing skipping, Bob demonstrated "same side skip". (Level II) The assessment on hopping indicates that Bob can hop on both sides. A skip is simply step-hop-step-hop. Bob must learn the coordination and rhythm.

Striking - Bob demonstrates striking with a "rocking swing". (Level III)

Ladder climbing - Bob performed with alternate step up and down. (Level IV)

TABLE I

Adapted Physical Education
The O.S.U. Scale of Intra-Gross Motor Assessment
Summary of Descriptions of Levels[1]
W.F. Ersing and E. Michael Loovis

Basic Skill	Level I	Level II	Level III	Level IV
Walking:	Ten second stand	cruising	walks-with support	opposition walk
Stair Climbing:	creeps or animal walk	two foot landing up, and down	alternate up two foot landing down	alternate up and down
Running:	rapid walk	wide base wide arms	egg beater	non-support
Throwing:	two hand push	arm only no foot movement	one sided/ homolateral	opposition throw
Catching:	arm stretch	scoop	vice squeeze	cup fashion
Kicking:	part of	stiff leg	knee action kick	knee action kick with follow through
Jumping	jumps	jump in place with no arms	jump, improper arm action	jump with arm action
Hopping:	jump	raises up on toe	leg lift hop	body lift hop
Skipping:	runs/hops/ leaps/ gallops	same side skip	segmented alternate skip	alternate skip
Striking:	one hand chopping	two hand chopping with waist bending	rocking swing	twisting swing
Ladder Climbing:	climbs one step	two step climb	alternate up, two down	alternate step up and down

AAHPER Youth Fitness Test

To assess Bob's general physical fitness, the AAHPER'S Youth Fitness Test was administered. This test was chosen over the Special Fitness Test Manual's Test for Mildly Retarded Persons, and the Motor Fitness Testing Manual's Test, for the Moderately Mentally Retarded because Bob was enrolled in a regular physical education class. The AAHPER Fitness Test was the most appropriate for the class. Performance comparisons are available through national norms for the Youth Fitness Test. The test battery consists of the following items:

1. Pull-ups (with flexed-arm hang for girls) for judging arm and shoulder girdle strength.

2. Flexed leg sit-ups for judging efficiency of abdominal and hip flexor muscles.

3. Shuttle run for judging speed and change of direction.

4. Standing broad jump for judging explosive muscle power of leg extensors.

5. 50 yard dash for judging speed.

6. 600 yard run-walk for judging cardiovascular efficiency.

Bob's results in these tests are listed below.

1. Pull-ups (65th percentile)

2. Flexed leg sit-ups 14 (15th percentile)

3. Shuttle run 1110 (60th percentile)

4. Standing long jump 5 feet 2inches (60th percentile)

5. 50 yard dash 8.1 (55th percentile)

6. 600 yard run-walk 2:45 (30th percentile)

Bob displayed deficits in the areas of abdominal strength and cardiovascular endurance as evidenced by the sit-up score and the 600 yard run-walk.

After the assessments were administered and analyzed, the IEP was developed. Bob's annual goals (Sample I) state his current level of functioning and annual goals. Goals in the areas of throwing, catching, kicking, skipping, striking, jumping, increasing abdominal strength, and improving cardiovascular endurance are stated on the Short Term Objectives (Sample II).

INDIVIDUALIZED EDUCATION PROGRAM (I.E.P.)

Sample I*

(ANNUAL GOALS)

Student Bob Miller Birth Date April 1, 1970

Grade Level 4th School - Walling Elementary

Anticipated Program Duration:

_____ Less than 1 year

__X__ 1 year

_____ 2 years

_____ more than 2 years

Type of Physical Education Program Regular Physical Education

Program with additional remedial sessions

Enrollment Date 9-5-80 Annual Review Date 5-15-81

Summary of Current Level of Functioning:

According to The O.S.U. Scale of Intra-Gross Motor Assessment Bob performed the following skills in a mature fashion: walking, stair climbing, running, hopping, and ladder climbing. Also, he performed in an immature fashion on the following skills: throwing, catching, kicking, jumping, skipping, and striking. Performed the following physical fitness skills at these percentiles: pull-ups - 65%ile, shuttle run - 60%ile, flexed leg sit-ups - 15%ile, 600 yard run-walk - 30%ile, standing long jump - 60%ile, 50 yard dash - 55%ile.

Annual Goals:

Bob will demonstrate improvement in the gross motor skills of throwing, catching, kicking, skipping, striking, jumping.

Bob will demonstrate improvement in his physical fitness in the areas of abdominal strength and cardiovascular endurance.

The AEA support service is an itinerant adaptive physical education teacher who will assist the physical education and/or special education teacher develop and monitor the motor program until his/her assistance is no longer needed.

*The above sample is designed only to depict information necessary as it pertains to physical education. Appropriate IEP forms are available to each local education agency (LEA) from the area education agency (AEA) serving them directly.

SHORT-TERM OBJECTIVES

Student Bob Miller Semester - Fall 1980

Birth Date April 1, 1970 Grade Level 4th

1. Proposed Physical Education Program: Regular Physical Education Program with additional special remedial sessions. Bob will attend two twenty minute sessions each week working in small groups and in a one-to-one educational setting.

2. Short-Term Objective Date 9-9-80
   Anticipated Completion Date 11-10-80
   Evaluation Completed Date _____

	Accomplished Objectives	Seen Progress	No Progress	Carry-over Objective	Discontinued Objective
1. Bob will demonstrate a mature level of throwing, by throwing with opposition 100% of the time upon request.					
2. Bob will demonstrate catching using a "cup fashion" 100% of the time upon request.					
3. Bob will demonstrate an alternate skip pattern 100% of the time upon request.					
4. Bob will demonstrate a mature level of kicking upon request 100% of the time.					
5. Bob will demonstrate a mature striking pattern 100% of the time upon request.					
6. Bob will demonstrate abdominal strength by performing 30 bent knee sit-ups, 100% of the time upon request.					
7. Bob will improve his cardiovascular endurance by jogging continuously for at least 5 minutes.					
8. Bob will demonstrate a mature jumping pattern 100% of the time upon request.					

Individual Responsible for Physical Education Objective:

_____

Administrator Signature: _____

Comments: _____

_____

_____

Detailed Description of Selected Assessment Instruments

To provide physical education instructors with a more in-depth understanding of assessment instruments, three very useful assessments are explained in detail.

O.S.U. Scale of Intra-Gross Motor Assessment

The O.S.U. Scale of Intra-Gross Motor Assessment is a criterion-referenced assessment tool which examines eleven gross motor skills. The eleven basic motor skills of the O.S.U. Sigma assessment are: walking, stair climbing, running, throwing, catching, jumping, hopping, skipping, striking, kicking, and ladder climbing. Very little equipment is needed; a plastic bat, a 6 inch ball, a piece of 8x11 paper, and a 6 inch ball suspended from a string. This assessment can be used with any age ambulatory individual. Each of the eleven skills are divided into four levels of development, Level I (least mature performance) to Level IV (most mature level). "Specific criteria have been established for each level to provide the examiner with a descriptive assessment of the individual's current gross motor functioning behavior for all eleven motor skills.[1]

The different levels of each skills are stated in Table I. To help one interpret a level, the following example is given:

> If a student were assessed on skipping and performed a "step-hop" only on one side, the student would be Level II, or "same side skip".

The scoring of the O.S.U. Sigma is based upon the behavioral criteria for performance levels. The behavioral criteria consist of the behavior(s) a student demonstrates at a particular level of performance. The trials criterion is stated as the number of times the behavior is demonstrated out of a predetermined number of trial attempts. A score for particular motor skills consists of the performance level numeral and one or more of the performance subscripts listed below.

C. Performs all behavioral criteria and accomplishes the trial criterion.
IT. Trials criterion has not been met, but demonstrates behavioral criteria.
IB. Behavioral criteria have not been met, but accomplishes the trial criterion.
R. Child refuses to participate.

The Performance Based Curriculum (PBC) assists the instructor in planning sequential motor activities that correlate with the findings of the O.S.U. Sigma and also in implementing

the individualized motor program. Each level on the O.S.U. Sigma is linked directly to the PBC, which has specific performance objectives. The PBC gives the teacher instructional alternatives designed to change motor behavior in a programmed manner. The organization of the PBC is similar to that of the O.S.U. Sigma in that it consists of four levels of instruction. Each level within a skill has "Behavioral Objectives" and "Teaching-Learning Experiences". "The 'Behavorial Objective' within a given instructional level is designed to describe the specific behavioral outcomes to be achieved as a result of implementing the 'Teaching-Learning Experiences' designed for the given Behavioral Objective."[1] The purpose of the experiences is to promote the student's current motor behavior toward the mature level of that skill.

Procedures for using the PBC are:

1. Determine the child's level of functioning by assessing with the O.S.U. Sigma.

2. Determine what basic skills need program planning.

3. Determine what instructional level should be used.
   a. If the individual is on Level III on the O.S.U. Sigma, the student will be working on instructional Level IV. A student's instructional level is on the next higher level from the level on the O.S.U. Sigma.

   b. If the individual is on Level IV of the SIGMA, the instructional activities should be those suggested on the Supplemental List.

   c. If a student cannot demonstrate a Level I behavior of the SIGMA, the student should be assigned to Level I of the instructional abilities.

Below is an example of the PBC for the skill Skipping (Level III). "Behavioral Objective: #1

To skip alternately twice on each foot. When standing and facing the instructor who is approximately 25 feet in front of him, the child, without support, alternately skip twice on each foot in the direction of the instructor two out of three times.

Teaching-Learning Experiences:

1. Child hops rhythmically in place alternating feet.
   a. Hop once on right and left.

   b. Hop twice on right and left.

c. Hop twice on right and once on left.

d. Hop once on right and twice on left.

Denver Developmental Screening Test

The Denver Developmental Screening Test (DDST) is a simple screening device that shows evidence of slow or delayed development in infants and preschool children. The test is made up of 105 items written in the range of accomplishment from birth to six years.[2] The four categories tested are:

1. Personal-Social - tasks which indicate the child's ability to get along with people and to take care of him/herself.

2. Fine Motor - child's ability to use his/her hands to pick up objects, and to draw.

3. Language - child's ability to hear, carry out commands, and to speak.

4. Gross Motor - child's ability to perform simple motor skills.

"The format of the DDST was devised to present all of the normative data for the total sample in a graphic manner. Each item is represented by a horizontal bar placed along an age continuum. Various points on the bar represent the specific ages at which 25 percent, 50 percent and 90 percent of the sample children pass an item. For example look below, Figure 1, illustrates the item "walk well". The left end of the bar designates the age (11.2 months) at which 25 percent of the children can walk well; the hatch mark at the top of the bar the age (12 months) at which 50 percent of the children can walk well; the left end of the shaded area the age (13.5 months) when 75 percent of the children can walk well; and the far right end of the bar the age (14.3 months) at which 90 percent of the children can walk well."[2]

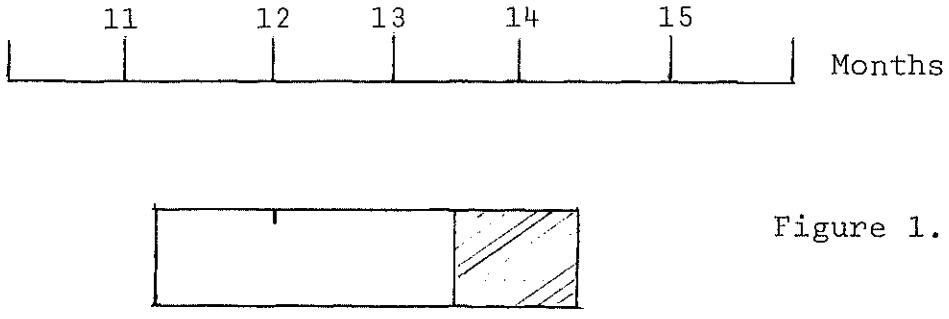


Figure 1.

DENVER DEVELOPMENTAL SCREENING TEST

STO. = STOMACH
SIT = SITTING

PERCENT OF CHILDREN PASSING
May pass by report → 25 50 75 90
Test Item
Footnote No. → see back of form

Date
Name
Birthdate
Hosp. No.

MONTHS: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
YEARS: 2½ 3 3½ 4 4½ 5 5½ 6

PERSONAL-SOCIAL

- REGARDS FACE
- SMILES RESPONSIVELY
- SMILES SPONTANEOUSLY
- INITIALLY SHY WITH STRANGERS
- PLAYS PAT-A-CAKE
- PLAYS BALL WITH EXAMINER
- FEEDS SELF CRACKERS
- INDICATES WANTS (NOT CRY)
- HELPS IN HOUSE — SIMPLE TASKS
- RESISTS TOY PULL
- 50%
- PLAYS PEEK-A-BOO
- DRINKS FROM CUP
- WORKS FOR TOY OUT OF REACH
- ★ 100% pass at birth
- IMITATES HOUSEWORK
- PUTS ON CLOTHING
- USES SPOON, SPILLING LITTLE
- BUTTONS UP
- WASHES & DRIES HANDS
- DRESSES WITH SUPERVISION
- SEPARATES FROM MOTHER EASILY
- PLAYS INTERACTIVE GAMES e.g., TAG
- REMOVES GARMENT
- DRESSES WITHOUT SUPERVISION

FINE MOTOR-ADAPTIVE

- FOLLOWS TO MIDLINE
- EQUAL MOVEMENTS ★
- FOLLOWS PAST MIDLINE
- GRASPS RATTLE
- REGARDS RAISIN
- REACHES FOR OBJECT
- SIT, LOOKS FOR YARN
- SIT, TAKES 2 CUBES
- BANGS 2 CUBES HELD IN HANDS
- FOLLOWS 180°
- HANDS TOGETHER
- RAKES RAISIN ATTAINS
- THUMB-FINGER GRASP
- PASSES CUBE HAND TO HAND
- NEAT PINCER GRASP OF RAISIN
- SCRIBBLES SPONTANEOUSLY
- TOWER OF 2 CUBES
- TOWER OF 4 CUBES
- TOWER OF 8 CUBES
- DUMPS RAISIN FROM BOTTLE-SPONT.
- DUMPS RAISIN FROM BOTTLE-DEMONSTR
- IMITATES VERTICAL LINE WITHIN 30°
- COPIES +
- COPIES O
- COPIES □
- IMITATES BRIDGE
- IMITATES □ DEMONSTR.
- DRAWS MAN 3 PARTS
- DRAWS MAN 6 PARTS
- PICKS LONGER LINE 3 OF 3

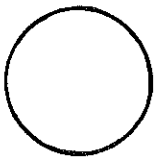
LANGUAGE

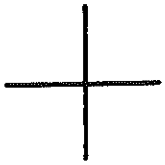
- RESPONDS TO BELL
- VOCALIZES - NOT CRYING
- LAUGHS
- SQUEALS
- DADA OR MAMA, NONSPECIFIC
- TURNS TO VOICE
- DADA OR MAMA, SPECIFIC
- IMITATES SPEECH SOUNDS
- 3 WORDS OTHER THAN MAMA, DADA
- COMBINES 2 DIFFERENT WORDS
- POINTS TO 1 NAMED BODY PART
- NAMES 1 PICTURE
- FOLLOWS DIRECTIONS/2 of 3
- USES PLURALS
- GIVES 1ST & LAST NAME
- COMPREHENDS COLD, TIRED, HUNGRY/2 of 3
- COMPREHENDS PREPOSITIONS/3 of 4
- RECOGNIZES COLORS/3 of 4
- OPPOSITE ANALOGIES 2 of 3
- 87%
- DEFINES WORDS/6 of 9
- 87%
- COMPOSITION OF/3 of 3

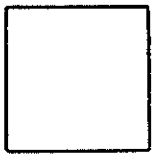
GROSS MOTOR

- R STO LIFTS HEAD
- STO HEAD UP 45°
- STO HEAD UP 90°
- STO CHEST UP ARM SUPPORT
- SIT - HEAD STEADY
- ROLLS OVER
- BEAR SOME WEIGHT ON LEGS
- PULL TO SIT NO HEAD LAG
- SITS WITHOUT SUPPORT
- STANDS HOLDING ON
- PULLS SELF TO STAND
- GETS TO SITTING
- STANDS MOMENTARILY
- WALKS HOLDING ON FURNITURE
- STANDS ALONE WELL
- STOOPS & RECOVERS
- WALKS WELL
- WALKS BACKWARDS
- WALKS UP STEPS
- KICKS BALL FORWARD
- THROWS BALL OVERHAND
- BALANCE ON 1 FOOT 1 SECOND
- JUMPS IN PLACE
- PEDALS TRICYCLE
- BROAD JUMP
- BALANCE ON 1 FOOT 10 SECONDS/2 of 3
- HOPS ON 1 FOOT
- CATCHES BOUNCED BALL/2 of 3
- HEEL TO TOE WALK/2 of 3
- BACKWARD HEEL-TOE/2 of 3
- BALANCE ON 1 FOOT 5 SECONDS/2 of 3

1. Try to get child to smile by smiling, talking or waving to him. Do not touch him.
2. When child is playing with toy, pull it away from him. Pass if he resists.
3. Child does not have to be able to tie shoes or button in the back.
4. Move yarn slowly in an arc from one side to the other, about 6" above child's face. Pass if eyes follow 90° to midline. (Past midline; 180°)
5. Pass if child grasps rattle when it is touched to the backs or tips of fingers.
6. Pass if child continues to look where yarn disappeared or tries to see where it went. Yarn should be dropped quickly from sight from tester's hand without arm movement.
7. Pass if child picks up raisin with any part of thumb and a finger.
8. Pass if child picks up raisin with the ends of thumb and index finger using an over hand approach.



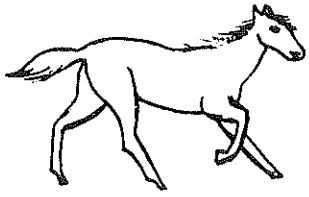


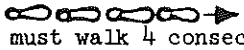


9. Pass any enclosed form. Fail continuous round motions.
10. Which line is longer? (Not bigger.) Turn paper upside down and repeat. (3/3 or 5/6)
11. Pass any crossing lines.
12. Have child copy first. If failed, demonstrate

When giving items 9, 11 and 12, do not name the forms. Do not demonstrate 9 and 11.

13. When scoring, each pair (2 arms, 2 legs, etc.) counts as one part.
14. Point to picture and have child name it. (No credit is given for sounds only.)



15. Tell child to: Give block to Mommie; put block on table; put block on floor. Pass 2 of 3. (Do not help child by pointing, moving head or eyes.)
16. Ask child: What do you do when you are cold? ..hungry? ..tired? Pass 2 of 3.
17. Tell child to: Put block <u>on</u> table; <u>under</u> table; <u>in front</u> of chair, <u>behind</u> chair. Pass 3 of 4. (Do not help child by pointing, moving head or eyes.)
18. Ask child: If fire is hot, ice is ?; Mother is a woman, Dad is a ?; a horse is big, a mouse is ?. Pass 2 of 3.
19. Ask child: What is a ball? ..lake? ..desk? ..house? ..banana? ..curtain? ..ceiling? ..hedge? ..pavement? Pass if defined in terms of use, shape, what it is made of or general category (such as banana is fruit, not just yellow). Pass 6 of 9.
20. Ask child: What is a spoon made of? ..a shoe made of? ..a door made of? (No other objects may be substituted.) Pass 3 of 3.
21. When placed on stomach, child lifts chest off table with support of forearms and/or hands.
22. When child is on back, grasp his hands and pull him to sitting. Pass if head does not hang back.
23. Child may use wall or rail only, not person. May not crawl.
24. Child must throw ball overhand 3 feet to within arm's reach of tester.
25. Child must perform standing broad jump over width of test sheet. (8-1/2 inches)
26. Tell child to walk forward,  heel within 1 inch of toe. Tester may demonstrate. Child must walk 4 consecutive steps, 2 out of 3 trials.
27. Bounce ball to child who should stand 3 feet away from tester. Child must catch ball with hands, not arms, 2 out of 3 trials.
28. Tell child to walk backward,  toe within 1 inch of heel. Tester may demonstrate. Child must walk 4 consecutive steps, 2 out of 3 trials.

<u>DATE AND BEHAVIORAL OBSERVATIONS</u> (how child feels at time of test, relation to tester, attention span, verbal behavior, self-confidence, etc,):

Very specific instructions are given in the test manual describing where the child's age line should be drawn. It is extremely important that an accurate age line be used as this determines which of the 105 items will be given to a particular child. The reader is encouraged to consult the test manual for age calculation procedure.

In addition specific procedures for test administration and scoring are also given in the manual. Basically each item is scored in one of the following ways: "P" for pass, "F" for fail, "R" for report, and "N.O." for no opportunity to observe. Interpretation of the test results is based on the number of delays which appear on the test. Again the reader is encouraged to consult the test manual for purposes of the test scoring and interpretation.

The Purdue Perceptual-Motor Survey

The Purdue Perceptual-Motor Survey (PPMS) should be used as a screening device for detecting errors in perceptual-motor development. It is not designed to diagnose specific problems, but rather it is designed to aid in observing perceptual-motor behavior. The PPMS was not developed or designed for children with specific handicaps, such as blindness, cerebral palsy, or paralysis. The items on the survey were chosen for second, third, and fourth-graders in mind. Many of the items are too simple for older children although one can use this survey with mentally disabled individuals. The norms available were developed with children 6 years of age to 10 years of age.

This survey consists of 5 different areas to be observed; Balance and Posture, Body Image and Differentiation, Perceptual-Motor Match, Ocular Control, and Form Perception. There are several subtests under each of the five areas to be observed and rated. Below are the items to be rated, the equipment needed, and a brief description of what is being tested and the behavior expected:

Balance and Posture:

Walking Board: 2 by 4 board - 8-12 feet long -placed in brackets so the board is 6 inches off the floor. Use the 4-inch side of the board surface.
Forward - Walk forward
Backward - Walk backward
Sideways - Walk sideways

Jumping: This task deals with hopping on the right and left foot, skipping, and regular and irregular patterns of hopping which demonstrate coordination.

Body Images and Differentiation:

Identification of Body Parts: Knowledge of its parts.

Imitation of Movement: Child imitates movement done by tester; unilateral, bilateral, and contralateral movements.

Obstacle Course; Child reacts to objects in environment by going over, under, and through obstacles.

Krans-Weber: Minimal strength test.

Angels-in-the-Snow; Spots specific problems with right or left sidedness and possible neuromuscular differentiation.

Perceptual-Motor Match:

Chalkboard: Chalkboard and 2 pieces of chalk. This test reveals problems with directionality and perceptual-motor matching.

Circle - Child is to draw a circle on the blackboard.

Double Circle - Child is to draw two circles on the blackboard.

Lateral Line - Child is to draw two lateral lines between two dots.

Vertical Line - Child is to draw two vertical lines.

Rhythmic Writing: Only done with children eight years of age or older. There are eight different motifs that the child must reproduce. They are judged in the areas of rhythm, reproduction, and orientation.

Rhythm - Performance smooth, etc.

Reproduction - Is the reproduction similar in size and shape?

Orientation - Is reproduction adequate in direction and position compared to example?

Ocular Control:

Ocular Pursuits: A penlight is needed. This is designed to detect if the child can establish and maintain visual eye contact with a target.

Follow penlight with:
Both eyes,
Right eye,
Left eye, and
Convergence of both eyes.

Form Perception:

Visual Achievement Forms: After viewing cards, the child is asked to copy the shapes on an 8 by 11 piece of paper.

Form - Child is asked to reproduce given shapes.

Organization - Child is evaluated as to how he/she used the paper, and if the shapes are organized on the paper.

Each item is rated with the numerals 4, 3, 2, or 1 (4 being the best). The manual is very specific in regard to the guidelines and how the ratings are to be given for each subtest. "The survey is written for the practitioner." The early recognition of probable academic difficulty is certainly the goal of every educator. The main purpose of this manual, therefore, is to provide the teacher with a tool which can be used to identify those children who do not possess perceptual-motor abilities necessary for acquiring academic skills by the usual methods.[3]

Resource List of Assessment Instruments

AMMP (Awareness, Movement, Manipulation of Environment, Posture, and Locomotion Index

American Journal of Mental Deficiencies
Volume 74, 1969, pages 283-295

For: profoundly retarded individuals 1½-17½ years of age.

Adapted AAHPER Youth Fitness Test for Blind and Partially Sighted Students

Physical Education and Recreation for
the Visually Handicapped
AAHPER Publication Sales
1201 16th N.W.
Washington, D.C.

For: blind and partially sighted students, ages 10-17.

Basic Motor Fitness

Donald A. Hilsendager, Department of Physical Education
Temple University, Philadelphia Pennsylvania 19122

For: varied ages

Tests: fundamental motor skills and specific motor skills. The pass/fail method is used for scoring.

Body-Image Screening Test for Blind Children

The American Foundation for the Blind
15 West 16th Street
New York, New York 10011

This screening test was designed for blind youngsters with a few modifications, which can be used with sighted, retarded, and deaf children.

Cratty-Six Category Motor Test

Cratty, B.J., Perceptual-Motor Behavior and Educational Processes
Charles C. Thomas, Publisher
Springfield, Illinois

Cratty-Six Category Motor Test (continued)

For: normal children 4-11 years of age
mentally retarded individuals 5-23 years of age

Screening of gross motor difficulties for normal and retarded populations.
Test: locomotor agility, throwing, gross agility tracking, body perception, and balance. There are averages available, but no norms.

Denver Developmental Screening Test

JFK Child Development Center
Box C234
4200 East 9th Ave.
Denver, Colorado 80262

For: birth to 6 years of age
detects developmental lags

Test: 105 items covering personal-social, fine motor, adaptive, language, and gross motor. A screening device that shows evidence of slow or delayed development.

Fitness Screening Tests

Croft Teacher's Service
Croft Educational Service, Inc.
Models for Teaching Physical Education
100 Garfield Avenue, New London, Connecticut 06320

For: school age children

Screening tool for arm and shoulder strength and endurance, flexibility and abdominal strength, and agility. There is no training required to administer the test. A small area is needed, and it takes very little time to administer the test.

Fleishman Basic Fitness Test

Prentice-Hall, Inc.
Englewood Cliffs, New Jersy

For: children of all ages.

Harris Tests of Lateral Dominance

The Psychological Corporation
304 East 45th Street
New York, New York 10017

For: all individuals

Standardized test of lateral dominance.

Hughes Basic Gross Motor Assessment (BGMA)

Jeanne Hughes, Adaptive Physical Education Consultant
Office of Special Education
Denver Public Schools
Denver, Colorado 80203

For: children 6-12 years of age who may have gross motor deficiencies.

This evaluation was not designed for the child having a serious physical disability, but should be used in detecting strengths and weaknesses of children with minimal motor dysfunction.

Individual Motor Achievement Guided Education

The Deverue Foundation Press
Devon, Pennsylvania 19333

For: primarily for emotionally handicapped and/or neurologically impaired children between 4-10 years of age.

Tests: Fine motor, static balance, perceptual-motor, and sequential motor. The test can be administered individually to a child in 20 minutes.

Lincoln-Oseretsky Motor Development

C. H. Stealting Company
Chicago, Illinois

For: children 6-14 years of age.

Tests: 36 items arranged in order of difficulty which measures static coordination, dynamic manual coordination, general motor coordination, motor speed, simultaneous movements, and asynkinesis. This requires a one to one testing situation and at least 30 minutes for each student.

Motor Developmental Activities for the Mentally Retarded

Louis Bowers, Division of Physical Education
College of Education, University of South Florida
Tampa, Florida, 33620

For: mentally retarded

Developmental sequences of motor skills. This suggests activities and approaches that would help evaluate fitness.

Motor-Fitness Test for Moderately Mentally Retarded

AAHPER Publication Sales
1201 16th St. N.W.
Washington, D.C.

For: Moderately mentally retarded individuals

Tests: shoulder girdle, muscular endurance, abdominal strength, agility, speed, cardiorespiratory endurance, leg power, coordination, and explosive power of arm and shoulder girdle. Requires no training to administer, uses very little equipment, and is easy to administer to a class.

Movement Pattern Checklist

Margaret M. Thompson, Department of Physical Education
University of Illinois
Urbana, Illinois 61801

For: all children

This is a good checklist of basic movements, walking, running, jumping, throwing, etc. It doesn't require a lot of training for the instructor and uses minimum equipment. This checklist could be completed in two P.E. periods.

Perceptual-Motor Survey

Matthew E. Sullivan
Physical Education Consultant
Special School District of St. Louis County
12100 Clayton Road
Town and Country, Missouri 63125

For: normal children 5-13

Test: a complete screening test several items of balance, body awareness, and spatial orientation. Classroom teachers can

evaluate students during a group activity. Simple, yet specific directions for administering and scoring the tests are provided.

Physical Fitness for the Mentally Retarded

Metropolitan Toronto Association for Retarded Children
186 Beverly Street, Toronto 2B
Ontario, Canada

For: school-age mentally retarded children, norms are available for ages 8-17 years of age.

Tests: muscular fitness of arms and shoulders, back flexibility, leg power, hamstring flexibility, cardiorespiratory endurance, and physique.

Physical Fitness Test Battery for Mentally Retarded Children

Hollis Fait
School of Physical Education
University of Connecticut
Storrs, Connecticut 06268

For: mentally retarded children

Measures: speed, static muscular endurance of arm and shoulder girdle, muscular endurance of leg and abdominal muscles, static balance, agility, and cardiorespiratory endurance.

Special Fitness Test Manual for the Mentally Retarded

American Alliance for Health, Physical Education, and Recreation
1201 16th St. N.W.
Washington D.C. 20036

For: mentally retarded children 8-18 years of age.

Tests: arm-shoulder, abdominal, and cardiorespiratory endurance, agility, leg power, speed, and coordination. This test requires no training and is easy to administer to an entire class.

Stott, Moyes, and Henderson Test of Motor Impairment

Brook Education Publishing Limited
Ontario, Canada

For: children 5-13 years of age.

Tests: control and balance of the body while immobile, control and coordination of the upper limbs, control and coordination of the body while in motion, manual dexterity with emphasis on speed, and tasks which emphasize simultaneous movement and precision.

The Perceptual-Motor Attributes of Mentally Retarded Children and Youth

The Los Angeles County Department of Parks, Recreation, and Special Education
Los Angeles City Schools
450 N. Grand Avenue
Los Angeles, California 90012

For: children 5-24 years of age, norms are provided for each test for the following ages in each category:

trainables (5-24 years)
educables (5-20 years)
educationally handicapped (5-16 years)
Down's syndrome (5-22 years)

Tests: body perception, gross agility, balance, locomotor agility, ball throwing, and ball tracking. The test should be administered individually by a teacher in a room 30 feet by 30 feet with a ceiling 9 feet high. The test requires 30 minutes to administer.

Glossary of Terms

Annual Goals -- a realistic statement regarding the student's desired progress in the regular and special education programs.

Short-Term Objectives -- short-term steps to reach the annual goals.

Reliability -- the test would produce similar results if given under similar circumstances.

Validity -- measures what it is designed to measure.

Criterion Reference -- permits the interpretation of test results in relation to a set of well defined objectives. The tests are interpreted as pass or fail, according to an acceptable level of performance based upon each objective.

REFERENCES

1. E.M. Loovis and W.F. Ersing, *Assessing and Programming Gross Motor Development for Children,* Mohican Publishing Company: Loudonville, Ohio, 1980.

2. William K. Frankenburg et.al. *"Denver Developmental Screening Test." The Journal of Pediatrics,* Vol. 70, No. 2, August, 1967.

3. Eugene G. Roach and Newell C. Kephart, *The Purdue Perceptual-Motor Survey,* (Columbus: Charles E. Merrill Publishing Co., 1966).

PROGRAM PLACEMENT/ALTERNATIVES

by

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Des Moines Public Schools
Des Moines, Iowa

Program Placement/Alternatives

A summary of the special education student's physical education performance levels is necessary in order to begin the process of identifying the physical education program needs of the handicapped student.

If the physical educator determines after original screening and testing that additional physical education supportive assistance may be necessary, he/she should discuss the situation with his/her building principal (supervisor). Each local education agency (LEA) has a process for contacting the area education agency (AEA) for supportive assistance. Through this referral process, a determination can be made whether a specially designed physical education program is necessary or whether the student can be accommodated in the regular physical education program.

Federal legislative regulation (P.L. 94-142) require that the following program options be accessible to the handicapped student:

GENERAL: Physical education services, specially designed if necessary, must be made available to every handicapped student receiving a free appropriate public education.

REGULAR PHYSICAL EDUCATION: Each handicapped student must be afforded the opportunity to participate in the regular physical education program available to non-handicapped students unless:

1. The student is enrolled full time in a separate facility; or
2. The student needs specially designed physical education as prescribed in the student's individualized education program.

SPECIAL PHYSICAL EDUCATION: If specially designed physical education is prescribed in a student's individualized education program, the public agency responsible to the education of that student shall provide the services directly, or make arrangements for it to be provided through other public or private programs.

EDUCATION IN SEPARATE FACILITIES: The public agency responsible for the education of a handicapped student who is enrolled in a separate facility shall insure that the student receives appropriate physical education services in compliance with the GENERAL and SPECIAL PHYSICAL EDUCATION sections.

Some creativity will be required on the part of the total educational community in order to assure that the above options will be available to handicapped students. The charge and the concern formally registered by the House of Representatives' Committee, however, remains poignant.

> Special education as set forth in the Committee bill includes instruction in physical education, which is provided as a matter of course to all non-handicapped students enrolled in public elementary and secondary schools. The Committee is concerned that, although these services are available to and required of all students in our school systems, they are often viewed as luxury for handicapped students.
>
> The Committee expects the Commissioner of Education to take whatever action is necessary to assure that physical education services are available to all handicapped students, and has specifically included physical education within the definition of special education to make clear that the Committee expects such services, specially designed where necessary, to be provided as an integral part of the educational program of every handicapped student.
>
> House Report No. 94-332, p.9 (1975).

What is an I.E.P.?

The development of an I.E.P. (Individualized Educational Program) is an actual process of identifying, establishing, and documenting educational approaches for specific needs of a handicapped student. Prior to the writing of the I.E.P. an assessment should be given to establish the student's level of performance. Once the level of performance has been identified, educational goals and objectives should be established. Next, prescribed activities should be assigned to facilitate the achievement of these goals. It is important that the activities are measurable because documentation of the student's achievements is required.

P.L. 94-142 Rules and Regulations identify the following components of the individualized educational program:

1. The individualized education program for each student must include:
   a. A statement of the student's present levels of educational performance;
   b. A statement of annual goals, including short term instructional objectives;
   c. A statement of the specific special education and the extent to which the student will be able to participate in regular educational programs;

d. The projected dates for initiation of services and the anticipated duration of the services; and
e. Appropriate objective criteria and evaluation procedures and schedules for determining, on at least an annual basis, whether the short-term instructional objectives are being achieved.

It is these required elements of the I.E.P. that will in turn dictate the placement of the handicapped student into an appropriate physical education program.

The Least Restrictive Environment

When a handicapped student is being placed into a physical education program, it is important that the placement be made to the least restrictive environment. This means, whenever possible, a handicapped student should be placed in the regular physical education program. When such a placement is not appropriate, the student should be placed in a program which can meet the educational needs of the handicapped student as dictated by the student's motor assessment.

The Range of Alternatives for Program Placement in Physical Education and the I.E.P. Requirement

The options listed below are examples of program strategies which will enable a local education agency (LEA) to provide a handicapped student with an appropriate physical education program:

1. Enrollment into the regular physical education program with no needed changes in instructional approaches, equipment or staff. This placement would be appropriate for a student whose handicapping condition does not cause any educational motor limitations in physical education. It would allow all educational benefits of the regular physical education program to occur.

COMMENT: If a handicapped student is enrolled in the regular physical education program without any special adaptations, only minimal information about the physical education program is required in the I.E.P. Section 121a.346 (c); (P.L. 94-142 Regs) requires a statement of "the extent to which the student will be able to participate in regular educational programs". Thus, for a handicapped student participating in the regular physical education program there would need to be only a statement indicating that the student is enrolled full-time in the regular education program. One would be well advised to insert program time as well since Chapter 257 of the Iowa School Law states minimum time requirements.

2. Enrollment in the regular physical education program with modifications that can be readily made by the physical education instructor with minimal assistance from other school personnel.

COMMENT: It would be advisable in this particular situation to reflect in the I.E.P. the intervention strategy for the handicapped student so that those persons who volunteer to assist understand what the program is to provide for the student, and what their responsibility will be. The volunteer's assistance will be under the supervision of the physical education teacher.

3. Enrollment in regular physical education with adaptations. Some students in various disability areas (including those with physical disabilities) are able to participate in the regular physical education program with non-handicapped students if special adaptations are made for them.

COMMENT: For these students, the I.E.P. would include a brief statement of the needs which require special programming and describe the special adaptations that are necessary.

4. Enrollment in specially designed physical education. Sometimes an individual handicapped student will require specially designed physical education that is different from that for non-handicapped students. It might also differ from the kind of physical education provided to other children with the same handicapping condition. A student might participate in a special body conditioning or weight-training program, or, depending upon his/her specific needs and abilities, participate in some type of individual skill sport.

COMMENT: For these students, the physical education program would include all components of the I.E.P.

5. Enrollment in physical education in Special Settings. Under certain circumstances, some of the handicapped students within a given disability receive their education in a special setting (e.g. a residential school or a separate wing of a regular school building). The physical education program for these students is usually based on a State approved curriculum guide; and most of the students participate, as a group, in the same basic physical education program. (NOTE: In Iowa, the local education agencies are required to develop the curriculum and have it on file, Minimum Curriculum Requirements and Standards for Approved Schools, 670--3.5 (4) p.25).

COMMENT: When a handicapped student in a special setting participates in a basic physical education program with the other students and no individual adaptations are made for the child, only minimal information is required in the I.E.P. For example,1) the I.E.P. would indicate that the child is participating in the basic physical education program, and 2) could make specific reference to the applicable parts of the physical education curriculum guide which apply to the individual student.

For all children who have special physical education problems or need specific help in the development of gross motor skills, the I.E.P. would include a statement of 1) the child's special physical education needs, and 2) the specific physical education program, and any other special education services which will be provided to meet those needs. However, since the I.E.P. is not an instructional plan, the physical education program would not have to be described in any more detail than any other areas included in the I.E.P.

NOTE: For handicapped children who are educated in special settings, it is assumed that the least restrictive environment provision has been implemented (e.g. that determinations have been made about whether an individual child can participate in some part of the regular school program of the local education agency).

In summary, the five program alternatives discussed should facilitate physical education programming for handicapped students enrolled in any of the following instructional delivery systems:

1) regular education
2) resource teaching programs
3) special classes with integration
4) special classes with little or no integration
5) special classes with no integration
6) homebound instruction
7) hospital instruction
8) itinerant instruction

Glossary of Terms

Appropriate - An educational environment so designed to meet the unique needs of the student and one in which he/she can function successfully.

I.E.P. - Individualized Education Program.

Least Restrictive Environment - Refers to placing a student in an appropriate educational setting, which is as similar as possible to the regular education program.

BIBLIOGRAPHY

Arnheim, Daniel Auxter, David and Crowe, Walter. *Principles and Methods of Adapted Physical Education and Recreation.* 3rd Ed., St. Louis, Mo., C.V. Mosby Co., 1977.

Conover, Dr. Darlene and Kukowski, Beverly. "The PEPHSI Project Physical Education Programs for Handicapped Students in Iowa." *Iowa Association for Health, Physical Education, Recreation, and Dance Journal.* Vol. 12, No.1 , Fall 1979 p. 11.

Dauer, Victor P. and Pangrazi, Robert P. *Dynamic Physical Education for Elementary School Children.* 6th Ed. Minneapolis Burgess Publishing Co. 1979.

Fait, Hollis F. *Special Physical Education - Adapted, Corrective, Developmental.* 4th Ed., Philadelphia, Saunder Co., 1978.

Focus on the Educational Staffing, Placement, and IEP Process. Revised Ed., Des Moines Public Schools, Des Moines, Iowa.

Geddes, Dolores. *Physical Activities for Individuals with Handicapping Conditions.* St. Louis, Mo., C.V. Mosby Co., 1978.

Kukowski, Beverly. "Public Law 94-142 Implications and Needs for Physical Educators." *Iowa Association for Health, Physical Education and Recreation Journal.* Vol. 11, No. 2, Spring 1979, pp., 8-12.

Martin, Reed. *Educating Handicapped Children: Legal Mandate.* Champaign, Illinois, Research Press Co., 1979.

Molosky, Gerald. *Adapted Physical Education Curriculum Resource Guide K-12.* Bloomington Public Schoolds, Bloomington, Minn., 1967.

Morris, Dr. Don. *Physical Education Manual for P.L. 94-142,* Montana State University, July, 1978.

Sherrill, Claudine. *Adapted Physical Education and Recreation,* Dubuque, Iowa, Wm. C. Brown C., 1978.

Weiss, Raymond and Karper, William B. "Teaching the Handicapped in the Regular Physical Education Class." *Journal of Physical Education and Recreation*. Vol. 51, February 1980 pp. 32-35 + 77.

Wessel, Janet A. *Planning Individual Education Programs in Special Education*. Northbrook, Illinois: Hubbard Publishing, 1977.

"Final Draft Policy Paper on Individualized Education Programs (IEPs)" Department of Health, Education, and Welfare, Office of Special Education and Rehabilitation Services, May 23, 1980.

ACCOMMODATIONS AND MODIFICATIONS OF ACTIVITIES

by

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ACCOMMODATIONS AND MODIFICATIONS OF ACTIVITIES

Physical Education is the area of the child's education whereby the child is physically involved in learning tasks and behaviors through the use of the body, mind, and personality. It is the interrelationship of the psychomotor, cognitive and social-affective behaviors through which the child becomes a whole person.

Many of our students have limitations: psychomotor, cognitive and/or affective which can restrict them from free and full participation in play activities when playing with others or playing alone. The role of the teacher is to establish the least restrictive environment for all students. One way of doing this is by adapting and modifying the activities to better accommodate each child in the program. This means the establishment of an individualized program. The student's Individualized Educational Program (IEP) specifies physical activity on a one-to-one basis or small group. The teacher meets at specified times with this student so modifications and adaptations of the activities can be accomplished for this child's specific needs. It is a specially designed program which may require more hands on, use of manual manipulation, and visual and verbal cues geared to the strengths and weaknesses of this child's abilities. Psychomotor involvement, cognitive understanding, and affective development can be monitored more easily on a one-to-one basis.

The second approach to establishing a least restrictive environment is through accommodating the child in the regular "normal" physical education class. Less adjusting is required in the activities planned and the student can participate successfully with peers. These students are less restricted in their disability. Learning in the "normal" situation can help them relate to a more realistic enviornment. It also helps the "normal" student learn how to participate with students limited in ways they are not and still be able to progress at their own rate.

Many teachers, administrators, students, and parents are asking how to successfully implement a program to meet the individual needs of these special students as well as to meet the needs of the "normal" students. A lot of minor adaptations and changes can be made in the physical activities normally planned to assist many of these students in the regular physical education

class. There are few students who will need the one-to-one learning situation in physical education. Many times a peer or an older student can assist the physical education teacher in working with this special student; for example, in swimming class. The student helper would be trained by the physical education teacher and be under the teacher's watchful eye while class is in session.

Below are suggestions for adapting physical activities in the following areas: overall programming principles; general guidelines for specific handicapping conditions (mentally disabled, emotional, physical, visual, auditory, and learning disabilities and the unfit); and guidelines for specific age groups (preschool, elementary, and secondary).

Overall Programming Principles

Following are suggestions in general programming techniques that may be helpful in combining special and regular students or on a one-to-one basis in physical activities.

Instill safety consciousness in all students: contact-related activities are usually contraindicated for students who have a condition in which bones are brittle.

Limit the play areas if some students have movement limitations; narrower courts and fields.

Provide frequent rest periods for those with limited endurance. Less vigorous games and activities can be rotated with more vigorous ones.

Build on the student's self-concept. Include activities he/she can successfully accomplish.

Modify activities where competition is involved: strike a stationary object instead of a moving one; strike a ball before bouncing it.

Use some activities and games where the regular students assume the impairment which is part of the activity: one-legged relay; one/two hands beyond your back relay.

Assign appropriate positions based on abilities of the disabled: soccer goalie, floor hockey - student is assigned to play in a specified zone.

Use buddy system.

Instill in all players their role in playing their own position. This will aid in preventing a play being taken away from a disabled student.

Use movement education experiences because they can move

and progress at their own rate.

Modify size, shape and weight of equipment used: large plastic bat; whiffle balls; lighter-weight racquets.

Modify the game rules: Number to a team; equipment; scoring; time of play in game.

Avoid staying in one position too long: standing; sitting.

Allow a student to run or bat while a peer executes the other depending on upper/lower body function and/or degree of vision.

Select teams to include the disabled student before the last choice is made; instructor could make some choices on a random basis.

In programming, include exercises which maintain function and/or remediate impairments. Include, as much as possible, the same sports, games, and other activities which are offered to regular students.

Vary the method of serving: in table tennis drop the ball and hit it on first bounce.

Let students guide you (teacher) as to their capabilities in playing. Be aware of the lack of confidence within the student and push them within their capabilities. Know the limits of all your students.

State rules, directions, cues in very simple terms. Use key words.

Use a partly deflated ball in kicking games: soccer, kickball to slow down the game.

Strike or kick a stationary ball in softball or kickball if they cannot experience success in contacting a moving ball.

Apply the same rules for discipline for all students.

Be patient and encourage student.

Demonstrate tasks and skills needed for some; arm stroke in crawl.

Manually manipulate limbs and body parts used in teaching skills and tasks used: blind, and some orthopedic and mental disability students.

Repeat tasks, skills, and cues for students who are not

grasping the task.

Build on successes rather than weaknesses.

Build on peer-teacher acceptance of the special student.

Use a multi-sensory approach; tactile kinesthetic, and verbal approach: for blind or mental disability student.

Match physical/motor activities to chronological age (CA) if possible: change name of game and adapt rules to match CA.

Do not accept "I can't" until the student has tried, tried, and tried again.

General Guidelines for Specific Handicapping Conditions

Check for activities that are contraindicated for each disability.

Mental Disability

Consider psychomotor and cognitive functioning abilities in planning and directing activities.

Simplify directions, rules, and teaching cues.

Use manual manipulation.

Repeat task: if game requires several steps, rules, moves, teach and repeat part 1 before adding second step.

Be patient and wait on the answer, be it physical or verbal; response may be slower for many students.

Plan for periods of rest after active play; relaxation is needed for many.

Demonstrate skills: Use teacher/peer demonstrations of skills to be used as well as how play goes and rules interpreted through play.

Use simple group activity to help bridge gap between self and group.

Use few rules and few directions when selecting play activities.

Use visual aids: posters, films, models.

Concentrate on gross motor tasks: locomotor skills (running, walking, jumping, sliding), non-locomotor skills (bending, twisting, extending), and manipulation tasks (throwing, catching, kicking, and striking).

Substitute a locomotor step for another step if child cannot perform ones required: jump for hop, walk for run.

Emotional Disability

Adjust rules if touching/holding hands is required: in dances and games students stay in formation but not touch.

Plan and execute very organized movements, tasks, and skills.

Use eye contact.

Mix active games and tasks with quiet games.

Praise for good jobs. State praise for the specific task so the child will know where he/she succeeded.

Program for activities where child is participating in a group yet alone.

Encourage participation from working alone into small groups to large groups judging by how well the children are controlling their behavior with tasks and groups at hand.

Set boundaries and enforce them: boundaries made of cones, ropes, benches, and chairs.

Stay within familiar environments: playgrounds, gyms, pools etc. Being moved to new environments can cause the hyper-active to over react and the withdrawn to close deeper within.

Very Active Child

Be patient, very calm, and firm: these children need guidelines.

Enforce working within the child's boundaries.

Rotate child out of task if they cannot control self.

Have child repeat directions to see if they understand task at hand.

Start and end activity periods with relaxation.

Use simplicity in environment: too much equipment, space, etc, is hard for them to control.

Withdrawn Child

Be patient and give much encouragement.

Provide stimulation: many verbal cues in group play.

Use hand puppets in quiet and small group play to encourage verbalizations with motor movement.

Be enthusiastic and encouraging.

Use bright colors, choices of equipment, and space that is open yet warm: many prefer small spaces.

Tell the student when you are going to hold his/her hand and when you are going to touch him/her.

Auditory Impairment

Use partner/buddy in helping the deaf understand play as it progresses: soccer-partner near them to answer questions.

Use special signals to start and stop play: wave a flag, blink lights, or make very loud noise.

Be sure these students are facing you when you are giving directions and demonstrations so they can read your lips and/or see demonstrations.

Be sure these children understand the directions: you may have to ask them. If you see they are having problems, do not let them continue with the wrong task.

Encourage the student to stand where he/she can see the teacher's lips and/or signing.

Check to see if student reads lips and/or signs. Teacher should learn how to work with both.

Place them close to the discussion if the student has partial hearing.

Assist the students in feeling the musical beat by placing the speaker of the recorder on the floor and let student put hands on the speaker. Have student with bare feet feel the beat from the vibrations on the floor.

Keep the student near the music in activity emphasizing the loud underlying beat.

Use flashing lights to indicate rhythm pattern.

Remove hearing aids during contact sports.

Talk in a normal voice.

Visual Impairments

Use equipment with sounds in them: beep ball , balls with bells in them.

Use ropes, rails, etc. as guide: running, swimming, track,

Use a sighted partner/buddy for movement and skills: in dance (folk) as a partner, creative movements and games.

Provide targets with sound so they know when they have succeeded at the task: metal or sound behind target, window shade that makes a noise when object thrown contacts it.

Use larger and brighter targets.

Use manual manipulation and verbal directions (simple yet complete are best).

Provide bright yellow balls and objects for the partially sighted.

Familiarize child with playing area, equipment, and environmental design before task is started.

Use whole-part-whole concept in teaching activities.

Never move anything--equipment, doors, and furniture unless you tell children.

Use good lighting.

Mark well-defined surfaces and limited play areas.

Inform students of changes in game situation: base runners, etc.

Physical Disability

Teach individuals how to fall correctly from crutches, wheelchairs or from unsupported positions: use extra mats or padded outdoor surfaces.

Use peers to push wheelchairs if wheelchair-bound students need assistance.

Limit excessive bending, twisting, lifting and falling motions for those with spinal cord conditions.

Be careful of contact sports when students are wearing prostheses or braces.

Use lightweight equipment.

Substitute sitting or lying positions for a standing position.

Extend length of striking implements.

Use larger, lighter weight balls for catching, striking, or kicking.

Allow extra stopping space in activities.

Attach a string to an object so it is easily retrievable.

Learning Disability

(Many of these children are not that restricted in motor skills).

Use gadgets such as rocks, coins, tokens, blocks to assist student in keeping score.

Shorten rules into key words for children to read and understand.

Transfer reversal letter problems to the gym floor by placing large E, 3, M, W, with tape or chalk on the floor. Create games using basic locomotor and manipulative skills on these designs. Then let the child transfer tasks to large paper with large magic markers or pencils: drawing activity and writing words/numbers used.

Simplify the rules.

Unfit Disability

(Malnutrition - Obesity)

Pace child with activity depending on endurance level: rotate out of activity if tires, then back in as soon as rested.

Use individual and dual activities: stunts and tumbling, floor exercises, movement education, games of lower organization, dance, and individual and dual games.

Never place the obese child on his head: no headstand as it may cause neck problems.

Build for flexibility, cardiorespiratory endurance and strength on a graduated program.

Alternate active play with rest and relaxation.

Individualize program according to each child's needs.

Praise weight loss.

Build on self confidence.

Place students in medium active positions in games until they build up their endurance.

General Guidelines for Specific Age Groups

Preschool Age

A period of individualization, play alone and or parallel play in small groups.

Offer opportunities for development of fundamental motor skills: running, jumping, and kicking.

Vary size and weight of equipment so all can succeed at their level.

Use manual manipulation and demonstration for those needing it.

Let children explore to see what their bodies can do: teacher may have to assist if child is not capable.

Arrange equipment and play toys on lower shelves so children who cannot stand can reach them.

Use movement exploration and problem solving methods.

Provide love, guidance, and assurance to enter into tasks.

Involve all their senses in play.

Work with perceptual motor tasks.

Include activities for climbing, swinging, pulling to help develop shoulder girdle.

Present one idea or task at a time. Child can concentrate on only one concept at this time.

Repeat task or skill especially those they enjoy.

Plan many tasks for one class period spending a short period on each to help child handle their short attention span.

Elementary School Age

General

Assist child with the parts to gain the whole.

Adapt size, weight, etc. of equipment so all can succeed at their own level.

If hand-foot dominance has not been established, do not force it.

Consider distance to and from target for visual perception problems at this age: throwing to a target and in catching. Start closer then move back within child's visual range.

Individual yet small group interaction needed with ultimate success in large groups also.

Teacher needs patience, calmness, and willingness to insist the child try different ways to accomplish tasks at hand.

Let children explore movement tasks, use problem solving as well as follow direct patterning when learning tasks.

Keep fun in the activities.

Rhythms/Dance

Teach rhythm skills: some will not be able to move to each beat, alter their movements to every two measures or to a phrase.

If they cannot move their feet to the music, move hands, head, and trunk to the beat.

Use adaptive equipment to assist child: wheelchair, scooter board, roller mat, or the three wheel cart.

Use partners or an adult helper.

Creative dance is good for the special child because they can move to their own beat, interpret themes within their limitations, and experience the freedom of their bodies in movement and succeed.

Lead-up Games to Sports

Note suggestions listed under general principles, helpful hints under specific sports, and for specific handicaps.

Begin with middle grades after children have mastered their basic motor patterns.

Alter equipment size, color, and shape.

Alter rules.

Movement Exploration

Use of movement exploration and problem solving are effective ways in assisting all skill levels of children in their learning fundamental motor skills, games, dance, gymnastics, and aquatics.

Through these approaches all children can participate in tasks assigned and successfully solve the problems within their mental, physical and emotional limitations.

The teacher can move in, out and around the class assisting those who need extra help especially the special student.

Not all children have to perform the task at hand to the same level of expertise.

All succeed.

Extra matting may be needed for some orthopedic children.

Excellent for individuals to learn what they can do with their bodies and how to solve problems their way.

Games of Low Organization

Good for the special child where they can play alone, or in a small group of one to three within the large group.

Use games that utilize basic motor skills they have learned.

Alter locomotor and manipulative skills for the child.

Alter boundaries, distances to move, ways to travel distance, and equipment used: scooter boards, walk instead of run and start half way to target.

For relays put extra people on team to even chances.

Note general guidelines and guidelines for specific handicaps in this chapter.

Physical Fitness

Instead of running for cardiovascular endurance, use swimming, bicycling, and/or jumping rope.

If a child cannot run, walk for longer distances.

Alter height of wall bars in increasing arm shoulder strength: rod across two chairs.

Alter fitness exercises: one leg moving instead of two, recline instead of standing.

Alter length of time, number of exercises and distance to individual's ability.

Include strengthening and stretching tasks to maintain the level of strength the cerebral palsy child has and to increase the degree of extension in the limbs or maintain the degree they possess.

Work to maintain and increase flexibility in children.

Use pulse to set rate and govern distance in cardiovascular endurance.

Aquatics

Refer to Aquatics chapter and reference listed.

Do not force children into group swimming if fear is so great in some: can trigger seizures or hyperventilation.

Do not expect all these children to accomplish the skills as fast as normals. Give the student time.

Individualize program for students with lack of body/ body parts control. Some cerebral palsied individuals cannot control their head.

Progress slowly. Build confidence.

Instill safety in mobility and activity in and around the pool.

Teach water safety skills first.

Use verbal cues, manual manipulation and demonstrations in teaching skills.

Keep fun in the activity.

Use one-to-one teaching until confidence is gained by the individual.

Use an appropriate buddy system: assisting in floating, kicking, and arm actions.

Fins and hand paddles are beneficial to many orthopedic individuals for greater mobility in the water.

Adapt movement patterns to increase efficiency: breathing pattern may be forward or on a diagonal, timing different, body position altered.

Teach resting strokes: elementary back stroke, side stroke, breast stroke with adaptations.

Teach survival skills and elementary forms of rescue: bobbing, floating, reaching, throwing with adaptations.

Fade out use of flotation devices and other assistive devices unless they are necessary for safety or proficiency in swimming.

Offer your assistance when the individual needs the help. Do not be over-protective, but be safe.

Ask the individual how you can best help. No two individual's needs are the same.

In making adaptations, let the handicapped swimmer make suggestions. They may prove better.

Raise the temperature of the water if possible. If you cannot, be sure to watch for chilling: purple or bluish lips, fingers and toes.

Children who are limited in movements on land can accomplish many of these game tasks in water: greater mobility and range of motion occurs in water.

V. Secondary School

As a rule, activities are selected from those which are most appropriate for various age groups of normal children. The difference lies in the application of these activities.

Adapting Individual and Dual Sports

Archery - use lighter bow, arrows with rubber tips and shorter arrows. Student may sit or stand supported. Sound device on target--vary distances.

Bait-fly casting - place target boards on gym floor or field at various distances. Student may sit or stand supported. Use lighter reel and rod, sound device on targets.

Badminton - four players on each side, each playing small zone. "Hoopbird" played with bird or yarnball. Adaptation of serve--some may sit or stand supported.

Bowling - use plastic "Gym-bowl" equipment or plastic detergent bottles. Student may bowl from a chair or sit on the floor. Roll ball through cardboard tube or box.

Croquet - use plastic mallets and whiffleballs, vary the distance to the wickets.

Dance - refer to the Rhythm/Dance chapter.

Gymnastics - use extra mats, tumbling, showing own adaptations.

Golf - hit plastic practice ball into old tennis or volleyball nets which are faced with burlap. Putt on an old rug into a can placed on its side. Use larger whiffle balls.

Handball - one wall, use partially deflated volleyball or smaller playground ball to slow the action of the game. Use three players.

Horseshoes - rubber shoes or quoits can be used in and out of doors. Throw shoes into a box. Use sounding device on targets. Sit instead of stand.

Shuffleboard - shorten distance between scoring zones. Students may sit. Use sound device at scoring zones.

Swimming - obtain ARC manual "Adapted Aquatics"; refer to aquatics chapter; references listed, and aquatics discussed in this chapter with elementary age children.

Table Tennis - use larger paddles, make small tablesize hoop and play as "Hoopbird". Place plywood sides on the table so the ball will not bounce off the table as often--off the sides, ball remains in play. Doubles or doubles on one side, singles the other.

Tennis - use lighter racquet, narrow court, use three players to one side.

Tetherball - sit or stand, punch or kick. Make small table size game with broomstick and small rubber ball in a silk stocking.

Quiet games - Nok-hockey, table shuffleboard, pool, darts, bean bag toss games, box soccer.

Adapting Team Sports

Baseball - Softball type games. Use light plastic bats and whiffleballs, batting tee. Use base runners, two sets of bases (one of shorter distances), throw the ball into the field rather than bat it. Give children positions that require little movements. Strike ball from a tee using regular ball and bat. Use beeper ball and add pitcher/catcher/1-2 extra players to their team.

Basketball type games - limit movement in the game by playing 21, Around the World, Six Court Half-Court, Scooter Basketball, Foul Shooting Barrellball. Have student do the foul shooting for both teams. Walk instead of run. Use sound device on backboard.

Kickball - punch or throw the ball rather than kick it. Place ball on home plate rather than roll it. Run for self or let someone else run for you. Walk instead of run.

Soccer-Hockey type games - Have student play goalie or other positions if capable. Reduce size of goal. Use partly deflated ball. Put extra person on their side. Play own positions. Scooter games--punching a playground ball. Hockey played with old brooms and volleyball. Barrellball shooting for hole. Sound device in ball or puck will help.

Volleyball type games - deck tennis, Newcomb, use larger soft bladder ball. Have both teams sit on floor--put net at 4'-5'. Use beachball. Have them sit in a chair or stand with crutch or support and play own positions.

REFERENCES

Adams, Ronald C., Daniel, A. N. & Rullman, L., *Games, Sports, and Exercises for the Physically Handicapped* (2nd ed), Philadelphia: Lea & Febiger, 1975.

American Alliance for Health, Physical Education and Recreation. Tips on Mainstreaming: Do's and Don'ts in Activity Programs. *Practical Pointers, 1* (10), March, 1978.

American National Red Cross, *Adapted Aquatics*. Garden City, New York: Doubleday & Co., Inc., 1977.

Arnheim, Daniel D. & Pestolesi, R. A., *Developing Motor Behavior in Children*, St. Louis: The C. V. Mosby Co., 1975.

Arnheim, Daniel D., Auxter, D., and Crowe, W. C., *Principles and Methods of Adapted Physical Education and Recreation*, St. Louis: The C. V. Mosby Co., 1977.

Arnheim, Daniel D. & Sinclair, W. A., *The Clumsy Child*, (2nd ed.) St. Louis: The C. V. Mosby Co., 1979.

Buell, Charles, *Physical Education and Recreation for the Visually Handicapped*. Washington D. C.: American Alliance for Health, Physical Education and Recreation, 1973 (Order No. 245-25416).

Cathey, Mary L., "Creative Approach for Teaching Basic Swimming Skills: for Mentally Retarded." Washington D. C.: AAHPER, *IRUC Briefings*, Vol. 4, No. 4, May, 1979.

Cathey, Mary L., "For Assisting Only! Teaching Basic Swimming Skills to the Mentally Retarded." *National Association Girls, and Womens Sports - Aquatics Guide*. American Alliance for Health, Physical Education, and Recreation. September, 1975.

Cathey, Mary L. and Jansma P., "Mainstreaming Orthopedically Disabled Individuals in Various Activities - Part 1." *The Directive Teacher*, Fall, 1979 Vol. 2, No. 2, p. 9 and 29.

Cathey, Mary L. and Jansma P., "Mainstreaming Orthopedically Disabled Individuals in Various Activities - Part II." *The Directive Teacher*, Winter, 1980, Vol. 2, No. 2, p. 16 and 27.

Daniels, A. S. & Davies, E. A., *Adapted Physical Education,* (3rd ed.) New York: Harper and Row, 1975.

Fait, Hollis F., *Special Physical Education: Adapted, Corrective, Developmental.* (4th ed.) Philadelphia: W.B. Saunders Co., 1978.

Harvat, Robert W., *Physical Education for Children with Perceptual-Motor Learning Disabilities.* Columbus, Ohio: Charles E. Merrill Publishing Co., 1971.

Kepart, Newell C., *The Slow Learner in the Classroom.* Columbus, Ohio: Charles E. Merrill Publishing Co., 1973

Kratz, Laura E., *Movement Without Sight.* Palo Alto, California: Peek Publications, 1973.

Moran, Joan M. & Kalakian, L. H., *Movement Experiences for the Mentally Retarded or Emotionally Disturbed Child.* (2nd ed.) Minneapolis: Burgess Publishing Co., 1977.

Vannier, Maryhelen, *Physical Activities for the Handicapped.* Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1977.

Winnick, Joseph R. & Jansma, P., *Physical Education Inservice Resource Manual for the Implementation of the Education For All Handicapped Children Act (P.L. 94-142).* State University College: Brockport, New York, 1978.

RHYTHMS

by

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RHYTHM AND MOVEMENT ACTIVITIES

Students can benefit from specific rhythm movement that is designed to meet their individual needs. Learning, mentally, physically, and emotionally handicapped students often have a very poor concept of their own body and it's relationship to the space around it. Rhythmic movement that is correlated with music can aid in developing awareness of body parts, attention to task, awareness of how the body moves, eye-hand coordination, gross motor skills, fine motor skills, relaxation of muscles, and so on. A progression explained by Ann Riordan, dance therapist, in a publication by the National Committee-Arts for the Handicapped has been helpful in designing the activities found in this chapter. Riordan begins with "Exploration--how the body moves" and then expands the program to "moving through space which includes locomotor movement". Riordan emphasizes the importance of beginning at the student's level of functioning. "Energy, time, space, and weight are explored by beginning at the student's normal use of each." According to Riordan, "Music is a fantastic motivator for encouraging exploration in movement".1

The activities described in this chapter are only selected suggestions that have been used specifically with mentally disabled students in the music classroom, but can be adapted for most populations and used by physical education instructors. These could also be used in a team teaching situation with the physical educator and the music educator working together.

PURPOSE:

These activities are designed:

1. To acquaint the students with the space around them through the use of rhythms, music and movement.

2. To develop and improve gross and fine motor skills.

3. To improve body concept, specifically dealing with body parts.

4. To improve and reinforce the development of creative and structured movement activities.

5. To encourage relaxation of muscles that are stiff from lack of use.

I. "Move It"

Objective: The students will allow the teacher to move them physically to music as rhythmically as possible to lessen rigidity in motor movement.

Skill Areas: Awareness of body parts, awareness of how the body can move, and relaxation of muscles.

Activities:

1. Raise and lower arms, legs, feet, hands, and other body parts/stretching.

2. Bend and curl.

3. Sway.

4. Walk forward and backward.

5. Rolling.

6. Crawling.

7. Spinning - turning - twisting.

Suggested Music:

"Amen" and "Ease on Down the Road" from Fun Activities for Perceptual Motor Skills, Kimbo Educational, Long Branch, New Jersy 07740 (Instrumental only).
"Joy" from The Feel of Music, Hap Palmer.

Any music that has a good steady beat, but does not move too fast.

Teaching Strategies:

1. Begin with small movements and gradually extend movements trying for full extension of all body parts, such as arms, legs, and fingers.

2. Keep movements as smooth as possible, always trying to keep muscles relaxed.

3. More physically involved students will require more assistance from the teacher.

II. "Mirror Me"

Objective: The student will be able to match the movements of a teacher, volunteer, or another student as if looking in a mirror.

Skill Areas: Awareness of body parts, how body can move, extension of body parts and attention to task.

Activities:

1. Raise and lower arms and other body parts stretching in all directions.
2. Bend and curl.
3. Sway.
4. Walk forward and backward.
5. Rolling.
6. Crawling.
7. Spinning - turning - twisting.

Suggested Music:

"Africanus Brasileiras Americanus" and "Icarus" from The Winter Consort, AM Records, ROAD Album.
"Playground In My Mind" from 1-2-3 MOVE (Instrumental only), Kimbo Educational, Long Branch, New Jersey 07740.

Any music that is slow enough for gross motor movements.

Teaching Strategies:

1. This can be done in a small group, but it is most effective when done one to one.
2. Scarves can also be utilized in this activity.
3. Use three foot dowel rods about one inch in diameter and match movements using the sticks.

III. "Stick Game"

Objective: Student will be able to mimic movements in a group situation with directions spoken or suggested.

Skill Areas: Build hand grasp, eye-hand coordination, body awareness, and directionality.

Activities:

1. Using one stick, balance it on the arm at the elbow, on the arm at wrist, on flat-palm of hand, on the shoulder, on the forehead, on the ankle, on the knee, on two or three fingers, and any other places you can think of.

2. Using two rhythm sticks, follow movements, shapes, or letters made by teacher and recreate those things with their own sticks.

3. Using two rhythm sticks, hit sticks together on the floor, behind back, to the side, or up above head trying to maintain a steady rhythm.

Suggested Music:

"The Syncopated Clock" by Leroy Andersen, "The Shuttle", and "One Sweet Kiss" by Walter Murphy from Disco for Kids, Kimbo Educational Records, Long Branch, New Jersey 07740.

Any music with rhythmic drive.

Teaching Strategies:

1. Sticks can be 12" dowel rods or "lummi sticks" that are painted bright colors.

2. Have students sit in a circle on the floor for these activities or in a straight line on the floor opposite the instructor so that mirroring or matching of movements can occur.

3. For finger extension, have the students roll two or more sticks, using both hands, on the floor working the sticks from the back of the palm to the fingertips.

IV. "Body Parts"

Objective: The student will be able to correctly identify parts of the body using rhythmic and musical activities.

Skill Areas: Body awareness.

Activities:

1. Rhythmic Speech:

   As the rhyme is chanted the students identify those specific body parts named by touching them. Here is an example:

   Head, head, touch your head.
   Nose, nose, touch your nose.
   Toes, toes, touch your toes.
   1 2 3 4
   Turn around and try once more.

   Legs, legs, touch your legs.
   Knees, knees, touch your knees.
   Eyes, eyes, touch your eyes.
   5 6 7 8
   Turn around and don't be late.

   Arms, arms, touch your arms.
   Ears, ears, touch your ears.
   Hands, hands, touch your hands.
   5 6 7 8
   Bend down low, then stand (sit) up straight.
   (A. Micich)

2. While playing a steady four-beat pattern on a drum have the students touch those body parts named/called by the teacher four times, staying with the beat of the drum.

   Example: Teacher says: arms, arms, arms, arms, then student touches arms and repeats chant while touching that part.

Suggested Music:

"Che, Che, Koolay" an African singing game, Silver Burdett Music Series, Book 3.
"Aiken Drum", The Small Singer (Book and Record), Bowmar Publishing Co.

This can be done with a flannel board activity to give a visual representation of the body, as well as a tactile one.

"I've Got Two", Sesame Street Songbook or Record.
"Father Abraham", Camp Song, Unknown source, Song included.
"Clap, Clap, Clap Your Hands", Children's Singing Game, Magic of Music, Book One, page 135.

Teaching Strategies:

1. Use visual aids that reinforce identification of body parts.

2. Use students to lead the class on rhythmic games.

3. "Father Abraham" is a fairly sophisticated motor skills song, which is difficult to do correctly for even the most coordinated, but it is an enjoyable way to experience the large moving parts of the body.

4. Many severely handicapped students can be quite adept at mimicking movement if the teacher will slow commands/directions and the tempo/speed of the activity to meet the needs of the students.

V. "Statue" - author unknown

Objective: The students will explore the space around them by placing body in different positions and remaining immobile for a few seconds.

Skill Areas: Locomotor, spatial awareness and directionality.

Activities:

1. Discuss "statues" with the students telling what they can and cannot do.

2. Explain that they can be human statues because the drum will allow them to move at a certain time.

3. While the drum plays a steady, soft beat the statues are "frozen" and cannot move or talk. When the drum plays a triplet (♩♩♩) rhythm, loud and fast the statues must change to a different position.

4. Students must be encouraged to use all the space around them.

Music Suggestions: None

Teaching Strategy:

1. Demonstration of this activity is often easier than a lengthy verbal explanation.

2. The teacher can suggest specific body positions to the students to determine where weaknesses or strengths are.

3. A tambourine or other rhythm instruments can be substituted for the drum.

VI. "Circle Game" - an adaptation of "Musical Chairs"

Objective: the student will be able to demonstrate locomotor skills on request.

Skill Areas: Locomotor skills, following direstions, and boundary recognition.

Activity:

1. Place plastic circles or hula hoops on the floor and have students stand inside the circle.

2. When the music starts the student must get out of the circle and use the motor skill directed to them.

3. Hop, skip, jump, walk, run to the music.

4. When the music stops students must get back inside the circle; however, each time one circle is removed leaving one person out of the game.

Music Suggestions:

"Swingin' Gently" and "King of the Road" from Clap, Snap, and Tap Record, Educational Activities, Inc., Freeport, N. Y. 11520
Any music is apporpriate for this activity.

Teaching Strategies:

1. Give simple directions that are consistent with what is expected of the students.

2. Use students to pick up the circles so they will not feel unsuccessful when they are left out.

VII. "Freeze" - adapted from a workshop "Education through the Dance Experience" presented by David Docherty, University of Victoria.

Objective: The student will be able to demonstrate locomotor skills of walking and running.

Skill Areas: Locomotor skills, boundary limits, and spatial awareness.

Activity:

1. Set boundary limits within the movement area.

2. As tambourine plays a steady beat the students walk around exploring the space around them.

3. When tambourine stops the students must freeze. While frozen the teacher gives verbal commands to reinforce spatial awareness such as: look up, look down, look behind you, etc.

Music Suggestions: None

Teaching Strategies:

1. Play the tambourine rapidly to have students run.

2. Students must not "bump" into anything or anyone while in motion.

3. Keep making the boundaries smaller and smaller.

VIII. "I Am" - adapted from a workshop given by Miriam Perrone, Rockford, Illinois.

Objective: The student will be able to initiate creative movement with the assistance of a variety of musical selections, and manipulative objects such as rhythm instruments, scarves, and creative dramatics.

Skill Areas: Awareness of self, awareness of others, gross motor skills, object manipulation, and group interaction.

Activity:

1. The students are seated on the floor in a large circle and the leader/teacher walks around the circle playing a small hand drum to the rhythm of the words "I AM, I AM".

2. The teacher stops in front of a student and says "Who are you"? The student responds and the teacher continues with "Show us what you can do". At this point any of the following activities can occur:

   a. Mirroring.
   b. Follow the leader.
   c. Act out a tennis, basketball, baseball, or golf game.
   d. Play rhythm instruments with music.
   e. Bounce a ball in time to the music.
   f. Improvisation of movement to music.
   g. Act out a creative dramatics story.
   h. Anything else that can be used.

3. After one activity is completed return to the rhythmic chanting of "I Am" and go on to a different person or persons.

Music Suggestions:

"My Secret Place" and "Dancing Animals", Parts 1 and 2 from Volume 1, Developmental Motor Skills for Self-Awareness, Kimbo Educational, Box 246, Deal, New Jersy 07723
Pretend by Hap Palmer, Educational Activities, Inc., Freeport, N. Y. 11520

Teaching Strategies:

1. Many moderately and severely retarded students are very good at mimicking movement and rhythms, but they also need an opportunity to be creative on their own, without being told what to do. This activity allows for that creative aspect.

2. When using the sports activities mentioned in the "Activity" section it is helpful for the students to have a partner or team-mate to assist in re-creating the "looks" of the sport without real props.

3. Some of the activities can be done with the entire group rather than one or two people.

IX. "Streamer Signals" adapted from Glass and Capon's Streamer Ribbon Activities, Educational Activities, Inc., Freeport, N. Y. 11520

Objective: The student will be able to improve body flexibility, coordination, strength, and control through streamer/ribbon activities.

Skill Areas: Arm extension, cross over, tracking, eye hand - eye foot coordinations, and balance.

Activity:

1. The record and book set designed by Glass and Capon is explicit in its explanation of the activities and movements. Students may require a simplified explanation of the movements used.

2. Have one student or the teacher lead the movements desired and the rest of the class follow, always working for extension and flexibility in movement.

Music Suggestions:

"Rubber Band Man" - The Spinners from the album Happiness is Being With the Spinners, Atlantic Records, 75 Rockefeller Plaza, New York, N. Y., 10019

Streamer/Ribbon Activities by Henry "Buzz" Glass and Jack Capon (AR 578), Educational Activities, Inc., Freeport N.Y. 11520

Teaching Strategies:

1. Physically handicapped students may need assistance in holding and controlling the movement of the streamer.

2. Darken the room and use a flashlight to make shapes or movements on the wall, and have the students follow the light with their streamers.

3. A student with a head stick perhaps could have a streamer attached directly to his/her stick for movement.

4. Spray the streamers or sticks with fluorescent paint and use black lights to emphasize the movement of the streamer itself.

5. Students often become so involved in the streamer's movement that they will extend their arms without realizing what is happening. The teacher should verbally reinforce good extension by saying, "Good, your arm is stretching high", or something similar.

X. "People Machine" adapted by Anita Micich.

Objective: The student will be able to choose four

different body movements and demonstrate them repeatedly in the same sequence following a four-beat pattern.

Skill Areas: Body awareness, rhythmic pulse recognition, sequencing, and number skills (1-4).

Activity:

1. Have the students count to 4 and repeat it.

2. Have the students think of a motion/movement to go with count number 1, then 2, then 3, and 4.

3. Have the students repeat and practice their movements always sequencing them in the same order.

4. Have students stand in a straight line and have first person do their four movements, then on down the line.

5. Repeat number 4 above, but have the first person immediately repeat their sequence so that the machine works continuously.

Music Suggestions:

"We All Live Together" from Volume 1. We All Live Together, Brogan and Martin, Youngheart Music Service, Los Angeles, Calif. 90027
"The Clown" from Happiness is Being With The Spinners, Atlantic Records, SD 18181, New York, N.Y. 10019, 1976 (c).
"Close Encounters of the 3rd Kind" - Theme Song - John Williams, Arista Records, 1977, New York, N.Y. 10019.

Teaching Strategies:

1. Lower functioning students may all require an identical sequence or the sequence may need to be shortened to a two beat pattern rather than four.

2. Do the same movements all together while counting to four.

By using music to reinforce movement activities in the classroom the teacher brings another dimension of exploration to the students. Music can allow the student to free his/her body and move more rhythmically. Norma Canner expresses what movement provides to any child and especially the handicapped:

"For the young child, movement is a way of exploring and discovering his world and himself. As an infant

he moves indiscriminatley. He soon discovers and then learns to control his body. He uses his body to move about and explore first his immediate environment and then a broader world."[2]

TECHNIQUES FOR SPECIFIC HANDICAPPING CONDITIONS

Included in this section are specific techniques that have been used successfully with handicapped students.

MENTALLY DISABLED:

1. Give simple directions rather than two or three directions at once to complete a given task, (e.g. stand up, look up, look at me, and so on).

2. Be consistent in all activities. Try to use the same terms from one activity to another.

3. Discipline in the classroom should be firm, but kind. A soft, but firm voice will often get the best results when problems occur.

4. A structured environment is much easier for these students to work in; however, as they become familiar with the teacher's expectations they should be encouraged to try more creative activities and the teacher should incorporate more flexibility in the classroom activities.

BLIND AND PARTIALLY SIGHTED:

1. Use tactile or braille symbols to represent different activities or movements desired.

2. Play a sound on an instrument and have the student move toward the sound. This develops localization skills.

3. Use a rhythmic pattern as a code for a specific movement rather than just a verbal command.

4. Help the student become familiar with equipment by allowing them to feel those things that will be used in any given activity.

5. Have the students work as partners through an activity. For example, partially sighted with a blind student, or blind with sighted student and

once the activity is mastered have the blind or partially sighted student lead the sighted student while blindfolded through an activity.

6. Allow for activities that provide manipulation of equipment, sticks, balls, etc.

DEAF AND HARD OF HEARING:

1. When giving directions, use visual representations such as flashcards with pictures of specific movements or words that represent the movement.

2. Use physical demonstrations of the desired result to enhance the understanding of an activity.

3. Use sign language or a language board, if one is available, for better communication between teacher and student. Perhaps the speech clinician would be available to assist in the classroom when introducing new activities.

4. Place the student closer to the sound source, record player, and/or instrument so they can possibly feel the vibrations of the sounds.

PHYSICALLY DISABLED:

1. The adaptations with this particular handicap are varied because the muscle strength and disabilities will vary from one student to another.

2. Wheelchair students may need assistance in moving their chair, or they may be able to participate in activities under their own power.

3. Remove the students from the wheelchairs and have them move on mats with, or without assistance.

EMOTIONALLY DISABLED:

1. Structured and consistency are essential in working with students with emotional problems. Many of these students do not cope well with change.

2. Music selected to correlate with the movement activities may be used to stimulate more acting out of behaviors, or be used to calm or relax the students.

3. Plan activities that will keep the students involved and provide for individual expertise in an activity

which will aid in the development of a positive self-concept.

LEARNING DISABLED:

1. Provide learning experiences that keep the goal constant while varying the process. This can be accomplished by breaking motor skills down into the smallest component parts.

2. Concentrate on how the student performs rather than on the end result so you assess whether the student's learning tends to be fragmented or integrated.

3. Make all learning experiences as concrete as possible by using a multisensory approach.

4. Include methods of relaxation.

5. Devise techniques to enable the student to overcome dissociation.

6. Be firm in expectations.

7. Support the need for free play (activities in which free rein is given to experimentation and where no right answer is prescribed).

Most of the suggested activities discussed in this chapter are designed for younger students or students with severe disabilities. At the secondary level it is important to incorporate "regular" types of activities that non-handicapped students would participate in and are appropriate for the chronological ages of the students. Adaptions can be made to accommodate all students in the classroom.

When working with handicapped students the teacher should realize that: the learning disabled child needs well designed and structured experiences, the mentally disabled child learns much more slowly about how his/her body can move, the emotionally disabled child may need additional support in coping with rapid change and movement, the physically handicapped child may use the rhythmic movement activity as an expression of emotion, and the visually impaired student needs rhythmic movement to better enable him/her to move about in the environment.

There are six essential points to keep in mind when working with special students:

1. Flexibility: As a teacher, one must be willing to change or adapt to any situation and to provide for the needs of the special student in the classroom.

2. Success: Handicapped students have had many failures and the physical education and music classrooms can help the student succeed. They need to feel worthwhile and useful, and group activities that fit their needs offer situations in which they may succeed.

3. Attitude: Many handicapped students have a poor self-concept and, instead of admitting this, they may display acting out behavior, refuse to participate, indicate verbally what's wrong with the activity, or be so quiet that the teacher will not notice them at all. We, as teachers, must look carefully at each student and try to draw him/her into the class by emphasizing their likeness in abilities and personalities, not their differences. A good system to adopt when problems like this occur is a "buddy" system. A non-handicapped student works with a handicapped student.

4. Expectations: If one doesn't expect the students to complete a task or succeed at an activity, they won't. (Set high goals, even though you may question them at times, and then move through the activities to achieve these goals.)

5. Techniques: Every teacher has a little different approach to teaching and that is good because it indicates our individual differences. However, the handicapped student may require different techniques that we had not previously incorporated in the classroom. The student may need simple directions to complete a task, require physical assistance to complete the task, or require use of sign language, braille, or large print materials. Most of all he/she needs consistency in programming, and it is the educator's task to provide this.

6. Humor: A sense of humor will help keep things in perspective, and the teacher's expression of joy is a necessary part of the learning experience.

Equipment:

The first thing to consider when purchasing equipment for use with handicapped students is that it should be quality material that is durable and can take some abuse as the students learn how to deal with the instruments and equipment. This does not mean that the students are prone to destroy equipment, but they do have difficulty with motor skills and may, by accident, break something. Do not think that just because the student is handicapped that the quality of the equipment purchased can be

less. If anything it should be better than average because these students have a limited frame of reference for their experiences.

Some essential equipment would include:

1. Drums, all sizes and all kinds - some drums such as those found in a trap set that are free standing and adjustable are excellent because the student does not have to be able to hold the drum to play it.

2. Traditional rhythm band type instruments such as jingle bells can be well used. Jingle bells come in an assortment of shapes and sizes, but the ones most hightly recommended are those that can be attached to the student's wrist and/or legs. Other instruments should include: triangles, sticks, maracas (plastic and gourd), sand blocks, castanets, and others.

3. A record player.

4. A piano, an autoharp, or a guitar.

5. A set of resonator bells.

6. A cassette recorder and tapes.

7. Hula hoops or plastic circles.

8. Dowel sticks of varying sizes.

Additional equipment that can be very helpful would be:

1. Orff instruments (Sonor, Kid's Stuff are both good--do not mix).

2. Listening head sets.

3. Drum set/Trap set.

4. Instruments found in other culutres--African log drums, etc.

5. Cupboards to store equipment and space available in the room.

6. Variety of records, such as rock, pop, disco, country, movement, etc.

Footnotes

1. Riordan, Ann "Dance for the Handicapped ", National Committee-Arts for the Handicapped pamphlet, 1701 K. Street N.W., Suite 905, Washington D.C. 20006

2. Canner, Norma, And A Time To Dance, Excerpt from The Creative Interface in Movement, Boston, Plays, Inc., 1975.

ADDITIONAL RESOURCES

Records

Fun Activities for Perceptual-Motor Skills, KIM 9071, C.C. Stewart, Kimbo Educational, P.O. Box 477, Long Branch, New Jersey, 07740, 1976.

Learning With Circles and Sticks, AR 585, Hap Palmer, Educational Activities, Inc., Box 392, Freeport, New York, 11520, 1979.

Rhythm Stick Activities, AR 55, Class and Capon, Educational Activities, Inc., Box 392, Freeport, New York, 11520, 1974.

Witche's Brew, AR 576, Hap and Martha Palmer, Educational Activities, Inc., Box 392, Freeport, New York, 11520, 1976.

Books

Findlay, Elsa, *Rhythm and Movement, Applications of Dalcroze Furhythmics*, Summy-Birchard Co., Evanston, Illinois, 60204, 1971.

Kokaska, Sharen Metz, *Creative Movement for Special Education*, Fearon Publishers, Belmont, California, 1974.

BIBLIOGRAPHY

Barlin, Ann and Paul, *The Art of Learning Through Movement,* Claremont, California, Richie Press, 1971.

Barsch, Ray H., *Achieving Perceptual-Motor Efficiency: A Space-Oriented Approach to Learning Vol. 1 of a Perceptual-Motor Curriculum,* Special Child Publications, Seattle Seguin School, Inc., Seattle Washington, 1967.

Barsch, Ray H., *Enriching Perception and Cognition Techniques for Teachers, Vol. 2 of a Perceptual-Motor Curriculum,* Special Child Publications, 1968.

Bradley, W. T., *Daily Sensorimotor Training Activities, A Handbook for Teachers and Parents of Preschool and Primary Children,* Mountain View, California, Peer Publications, 1968.

Case, Maurice, *Recreation for Blind Adults,* Charles Thomas, 301-327 Bast Laurence Ave., Springfield, Illinois, 1966.

Cratty, B.J., *Developmental Sequences of Perceptual-Motor Tasks, Movements Activities for Neurologically Handicapped and Retarded Children and Youths,* Freeport, L. I., New York Educational Activities, Inc., 1967.

Hackett, L. C., *Movement Exploration and Games for the Mentally Retarded,* Children' Book and Music Center, California.

Kephart, N. C., *The Slow Learner in the Classroom,* Columbus, Ohio, Merrill, 1971.

Ross, Dorothea M. and others, "Rhythm Training for Educable Mentally Retarded Children", *Mental Retardation,* 11: 20-23, December, 1973.

Sheehy, Emma D., *Children Discover Music and Dance,* Teachers' College Press, Columbia University, 1968.

Stein, Julian, "Professional Preparation in Physical Education and Recreation for the Mentally Retarded", *Education and Training of the Mentally Retarded,* 101-108, October, 1969.

Witkin, Kate, *To Move, To Learn,* Temple University Press, Philadelphia, 1977.

AQUATICS

by

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AQUATICS FOR THE HANDICAPPED

Aquatics is a major area of discussion and concern at many workshops, institutes, and clinics dealing with programs for the handicapped. The use of adapted swimming skills, stunts, and activities is a valuable aid in teaching physical education to special populations. This chapter introduces a variety of ideas and techniques to assist in programming for adaptive aquatics.

I. Why Adaptive Aquatics?

One of the advantages of aquatics is that it provides a less restrictive environment enabling many handicapped individuals to experience a certain degree of success and accomplishment which might otherwise be impossible on dry land. In addition to its contributions to physical fitness, motor development, and physical proficiency, aquatics provides an opportunity for the participant to gain confidence, to take pride in accomplishments, to become more cooperative and more competitive, to see a task through from beginning to end, and have fun. For the hyperactive, water can be therapeutic and quieting. It can also be an activator and a stimulus for action.

A. Purposes:

1. To teach the necessary motor skills for a child to learn to swim or improve his/her level of swimming.

2. For the individual to make successful adjustments to the water.

3. To give the individual an opportunity to experience success while having fun.

4. To provide the individual with skills that will enable him/her to participate with other members of his family.

5. To provide the individual with activities designed to improve his/her physical condition.

6. To develop a higher degree of body coordination.

7. To develop the ability to follow directions to the limit of the individual's capacity.

8. To develop the desire to be safe while in and around the water.

B. Benefits to the Participant:

1. Swimming and water games comprise a physical and recreational activity which can involve social participation without competition.

2. Since the handicapped individual is faced with a great deal of leisure time, the interaction and socialization gained from appropriate group water activity is very satisfying and most essential.

3. The water is an aid to movement that provides an environment where the handicapped individual can often locomote and perform certain motor skills that he might be restricted from doing on land.

4. Swimming movements, while exact, are so diversified as to permit the learner to experience success on his own level during the learning process. This success results in a feeling of satisfaction and increased confidence.

5. Swimming offers the opportunity for the learner to participate in a family activity, or an activity with non-handicapped individuals. Water is a great equalizer.

6. Swimming offers the learner an opportunity to improve his ability without the necessity of competing against anyone except himself.

7. Swimming provides a series of skills that safeguard the individual while in, on, or around the water.

8. Success in aquatics may promote a positive self-image, and even motivate the learner to attempt other activities.

9. The combination of immersion and activity has a sedative effect. This can result in a release of tensions for the hyperactive individual.

10. Swimming is an enjoyable activity performed in an atmosphere where inhibitions are cast aside and a feeling of belonging to the group prevails.

11. Success in swimming and the desire to continue to improve may result in a lengthened attention span.

12. Swimming can be done individually, or in a group. This enables the swimming instructor to enhance socialization indirectly as well as directly.

13. Overcoming a fear of the water, or apprehension concerning it, may produce a sense of ability to overcome other fears.

14. Neuromuscular efficiency may be improved through learning swimming skills. This improvement in coordination may carry over into activities experienced in daily living.

15. Swimming skills and strokes present a challenge which allows the handicapped individual to better adjust to his/her condition.

16. Not only is the handicapped person less handicapped in the water, but the handicap itself is less apparent.

II. Water Accommodations:

A successful adjustment to the water is the most important phase of any aquatics program, regardless of whether you are dealing with a handicapped, or non-handicapped individual. The water can be a very hostile environment for humans, and no time limit should be set on learning to swim. Items to be considered during acclimation are; pool conditions, readiness, water entry, breath control, movement tasks, and swim-nastics.

A. Pool Conditions:

1. Clean and well supervised pools are necessary.

2. Water temperature should be between 85 and 90 degrees.

3. Wheelchair ramp or lift for non-ambulatory individuals is needed.

4. The shallow area should be no more than two-foot in depth (portable flooring may be used to accomplish this).

B. Swimming Readiness:

1. Home orientation - should start with water play first in a pan of water, then in the bath-tub, and finally in a wading pool.

2. Classroom Orientation - is necessary to make each student knowledgeable about the water before they enter the pool for the first time. Stories about water fun, movies such as "Teaching Johnny to Swim" (American Red Cross) and "I'm No Fool In Water" (Walt Disney Productions) filmstrips, slides, and other audio-visual materials can be helpful to the student and the instructor.

3. Pool Orientation should include locker room procedure, dressing, showering, safety practices, and location of safety equipment. Each participant needs the opportunity to become familiar with the pool area itself; shallow and deep water, diving boards, ramp or lift, and safety ropes.

C. Water Entry:

1. Pool entry and water adjustment can be approached simultaneously.

2. The student sits on the side of the pool and dangles his feet in the water either independently or with the aid of an instructor, if necessary, in order to develop a feeling of ease and comfort around the water.

3. Many toys, games, relays, and low organized activities can be used to promote adjustment to the water.

4. As the individual gains in confidence he should move or be moved to water of increasing depths.

D. Breath Control (exercises)

1. Blowing through a straw or a pipe.

2. Blowing a ping pong ball.

3. Blowing water held in hands.

4. Retrieving submerged objects.

5. Touching a foot with each hand.

6. Counting to five under water.

7. Blowing bubbles across the pool.

8. Blowing bubbles under water.

E. Movement Tasks to be performed in the shallow water, either independently, or with the aid of a walker, flotation devices, or with the instructor:

1. Balance in shallow water on one hand.

2. Balance in shallow water on one hand and one foot.

3. Sit on the bottom of the pool.

4. Kneel on the bottom of the pool.

5. Stoop down and put an elbow on the bottom of the pool.

6. Jump up and down while holding on to the edge of the pool.

7. Hold on to the edge of the pool and lie flat on your back.

8. Move slowly through the water.

9. Move quickly through water.

10. Move quickly through water using hands to aid in movement.

11. Move through water making yourself as tall as possible.

12. Move through water making yourself as small as possible.

13. Move through water jumping up and down.

14. Move through water hopping.

15. Move through water skipping.

16. Move through water taking giant leaps.

F. Swim-nastics: Exercises to be performed in the water either independently, or with the aid of a cane, flotation devices, or the instructor:

1. Shoulder Exercises:

a. vertical arm swing
b. shoulder rotation
c. lateral arm lift
d. rowing
e. vertical wall pushaway.

2. Abdominal Exercises:

a. knee ups
b. trunk twist
c. knee pull
d. leg lift
e. vertical dolphin kick
f. vertical spin

3. Pelvic and Hip Exercises:

a. lateral leg lift
b. rear leg extension
c. leg rotation
d. crossover leg swing
e. frog kick

4. Extremity Exercises:

a. hamstring and shoulder pull
b. lateral arm press
c. stationary arm swimming strokes
d. back push ups
e. head and neck rotation
f. knee rotation

III. Sample Program for Teaching Basic Swimming Skill Progression to the Handicapped:

This sample program is a three part process which preceded the traditional Red Cross Program in the progression of teaching basic swimming skills. It was designed for use with the handicapped and has been successfully field tested. It includes three basic areas of instruction: The minnow program, which is a composite of objectives designed to provide the learner with water accommodations skills; the marlin program, which is a composite of objectives designed to provide the learner

with basic body buoyancy skills; and the dolphin program, which is a composite of objectives designed to provide the learner with basic water locomotion skills. Any student initially entering the program is given a pre-test to determine proper placement within the three areas. If a student passes out of all three skill areas during the pre-test, the individual would be re-evaluated and placed in the appropriate Red Cross skill program.

Each skill in the minnow, marlin, and dolphin program is written in behavioral terms and compiled in an overall "Behavioral Objective Guide". Individual skill sheets are made for each student in the program. They list behavioral objectives in phrased form which correspond with the objectives for each skill progression level. Level I - minnow skills, Level II - marlin skills, Level III - dolphin skills. They are marked after each session in order to be kept up to date. A pupil record book is also kept on each student and corresponds with the "Behavioral Objective Guide". This book is an over-all composite recording of the objectives a student has completed throughout the program. It is updated bi-annually.

Motivation is a primary concern if this program is to be successful. Recent reports and studies emphasize that progress and achievement in motor activities and physical performance tasks are more indicative of participant interest and motivation than of motor or physical ability. As a result, an incentive system was developed to insure the needed ambition and enthusiasm from the participants. Colorful wall progress charts were constructed which correspond with each of the three skill levels. A badge system was developed in which the student is awarded either a minnow, marlin, or dolphin patch for his swimming suit after successfully completing all of the objectives in a particular skill area. Task analysis certificates are awarded to students for completion of sequential task analysis skills. After students have completed the minnow, marlin, and dolphin programs, they are promoted to the Red Cross Program. There they are once again motivated with the appropriate wall charts, task analysis certificates, cards, pins, and badges for mastering Beginner, Advanced Beginner, and Intermediate swimming courses.

A. Level I - Minnow Program - Water Accommodation Skills:

1. The student, given the command, will enter the water without hesitation or assistance from the instructor.

2. Given instructions to move the water, the student will do so using hand movements in the water as his only means of balance and support.

3. The student, assigned to perform the alligator walk, will do so in both the prone and back position for one complete width of the pool.

4. Given the command, the student will cup his hands with water and wash his face without hesitation.

5. While being suspended in the instructor's arms, the student will perform the mouth control humming game without hesitation.

6. The student, instructed to place his face in the water, will proceed without coaxing from the instructor.

7. After ducking his head beneath the surface of the pool, the student will open his eyes immediately.

8. Given the challenge to duck under, the student will completely submerge and touch his toes without hesitation.

9. At the command of "go", the student will hold his breath under water for a count of five seconds.

10. Grasping both of the instructors hands, the student will perform the "seesaw" a minimum of five times.

11. Given instructions to sit on the bottom of the pool, the student will do so in chest deep water.

12. Challenged with a submerged object, the student will be able to retrieve the object without keeping his feet in contact with the bottom of the pool.

13. After an object has been submerged on the bottom of the pool, the student will touch the object with the tip of his nose while in thigh deep water.

14. After placing his face in the water, the student will blow bubbles without swallowing water or choking.

15. While in the prone alligator position, the student will locomote a ping pong ball by means of rhythmic breathing for one complete width of the pool without touching the ball with his hands.

16. While in the prone alligator position, the student will perform vertical rhythmic breathing a minimum of five times.

17. Positioned on the entrance ramp, the student will perform the stationary prone and back flutter kick for fifteen seconds each.

18. While in the firm grasp of the instructor, the student will allow himself to be pulled for one complete width of the pool in both the prone and back position without struggling or holding on to the instructor.

19. After being placed in the prone body position drag, the student will perform vertical rhythmic breathing for one complete width of the pool.

20. Upon being placed in the body position drag by the instructor, the student will flutter kick in both the prone and back position for one complete width of the pool.

21. Minnow Combined Skills Test:

    When placed in neck-deep water, the student will demonstrate the ability to perform three continuous bobs while inhaling above the surface and exhaling with eyes open beneath the water.

B. Level II. - Marlin Program - Body Buoyancy Skills:

1. The student, positioned in the prone alligator walk, will perform vertical breathing for one complete width of the pool.

2. The student, positioned in the alligator walk, will perform rotary breathing for one complete width of the pool.

3. After being placed in the prone alligator position, the student will place his face in the water, raise his hands and float motionless without the aid of an instructor.

4. After being placed in the alligator position, the student will lay his head back, raise his arms off the bottom of the pool, and float motionless without the aid of an instructor.

5. In waist-deep water, the student will float in a prone position with the help of an instructor.

6. While in waist-deep water, the student will float on his back and return to a standing position with the assistance of an instructor.

7. Given the command, the student will perform a prone float for five seconds in waist-deep water and recover to a standing position without the aid of an instructor.

8. Given the command, the student will perform a back float for five seconds in waist-deep water and recover to a standing position without the aid of an instructor.

9. While standing in waist-deep water the student will assume the jellyfish float position for five seconds and then return to his feet without the aid of an instructor.

10. While standing in waist-deep water, the student will assume the turtle tuck position for five seconds and then return to his feet without the aid of an instructor.

11. Provided with a kickboard to grasp, the student will place his face in the water and allow the instructor to tow him the width of the pool in the prone position.

12. Provided with a kickboard to grasp, the student will allow the instructor to tow him the width of the pool in the supine position.

13. While the instructor is initiating a kickboard tow, the student will perform a prone flutter kick for the width of the pool.

14. While the instructor is initiating a kickboard tow, the student will perform a back flutter kick for the width of the pool.

15. While the instructor is initiating a kickboard tow, the student will perform vertical breathing for the width of the pool.

16. While the instructor is initiating a kickboard tow, the student will perform rotary breathing for the width of the pool.

17. While standing against the edge of the pool in chest-deep water the student will push off and perform a back kickboard glide for five feet.

18. While standing against the edge of the pool in chest-deep water, the student will perform a prone glide for a distance of five feet without the aid of a kickboard or an instructor.

19. While standing against the edge of the pool in chest-deep water, the student will perform a back glide for a distance of five feet without the aid of a kickboard or assistance from an instructor.

20. Marlin Combined Skills Test:

    Given the command to push away from the edge of the pool in chest-deep water, the student will demonstrate the ability to make the transition from a prone glide body position to a back glide body position, or vice versa, without standing up or sinking below the surface.

C. Level III - Dolphin Program - Water Locomotion Skills:

1. While standing in neck-deep water, the student will perform five continuous bobs with proper breath control and arm movements.

2. Provided with a kickboard, the student will push off from the edge of the pool in neck-deep water, and flutter kick in the prone position for a distance of ten feet.

3. Provided with a kickboard, the student will push off from the edge in neck-deep water, and flutter kick in the prone position demonstrating vertical rhythmic breathing.

4. Provided with a kickboard, the student will push off from the edge in neck-deep water, and flutter kick in the prone position demonstrating rotary rhythmic breathing.

5. Standing at the edge of the pool in neck-deep water, the student will push off and perform a prone kick-glide for a distance of ten feet without the aid of a kickboard.

6. Provided with a kickboard, the student will push off from the edge in neck-deep water and flutter kick in the supine position for a distance of ten feet.

7. Standing at the edge of the pool in neck-deep water, the student will push off and perform a back kick-glide for a distance of ten feet without the aid of a kickboard.

8. Standing in neck-deep water and given the command to submerge, the student will do so and then perform a prone kick-glide level off for a distance of ten feet.

9. Standing in neck-deep water, the student will push off from the edge into a prone kick-glide and demonstrate vertical rhythmic breathing.

10. Standing in neck-deep water, the student will push off from the edge of the pool into a prone kick-glide and demonstrate rotary rhythmic breathing.

11. Provided with a body support, the student will perform the human stroke for a distance of ten feet.

12. Given the command, the student will demonstrate the human stroke for a distance of ten feet without the use of a body support.

13. Provided with a support, the student will perform the prone arm stroke for a distance of ten feet.

14. Given the command, the student will demonstrate the prone arm stroke for a distance of ten feet without the aid of a body support.

15. Provided with a body support, the student will perform finning movements in the supine position for a distance of ten feet.

16. Given the command, the student will perform finning movements in the supine position for a distance of ten feet without the aid of a body support.

17. Provided with a body support, the student will demonstrate the arm stroke while performing vertical rhythmic breathing.

18. Given the command to demonstrate proper vertical rhythmic breathing, the student will do so while performing the prone arm stroke without the aid of a body support.

19. Provided with a body support, the student will demonstrate the prone arm stroke while performing rotary rhythmic breathing.

20. Given the command to demonstrate proper rotary rhythmic breathing, the student will do so while performing the prone arm stroke without the aid of a body support.

21. Dolphin Combined Skills Test:

    Given the command to demonstrate the prone crawl stroke and a combined stroke on the back, the student will perform both strokes for a distance of twenty-five feet.

IV. Teaching Suggestions:

Any program in adaptive aquatics should include a sequential plan to meet the individual needs of each participant. It should provide the opportunity for progress and achievement, even in the most elementary of movements, skills, and activities. Special needs, unique problems, and specific knowledge about each swimmer must be considered if the swimming program is to be completely individualized. The instructor should have a complete record of each swimmer's medical history on file. This should include information on medication, history of illness, and any unique medical problems the student may have.

Suggestions for planning and evaluation of an individualized aquatics program are discussed in this section, as are examples of task analysis and skill reinforcing water play.

A. Planning for Individualized Instruction:

1. Annual Goals - an overall yearly plan of what the instructor expects to accomplish in the water with a particular child should be utilized.

2. Subordinate Goals - short-term goals which include the objectives you are planning to work on with the student for that particular short range period in order to meet the annual goals you have established for the year.

B. Evaluating a Program of Individualized Instruction:

1. Skill Test for Determining Program Placement: is administered at the beginning of each year or when an individual first enters the program. A skill test should include: basic water accommodation skills such as water entry, putting the face under water, blowing bubbles, and bobbing; body buoyancy skills such as prone floating and back floating; and water locomotion skills such as gliding, flutter kicking, arm stroking, and combined strokes on the front and back. This will determine the skill level at which an individual is functioning, and in which program he should be placed.

2. Short-Term Progress: keep a complete record of those objectives which have been mastered during a particular period of instruction, and which objectives need to be carried over.

3. Annual Progress: also keep a record of an individual's progress during the year in regard to the annual goals which were established for him in the beginning. If these goals have not been achieved, the reasons must be understood, and then a course of action must be fixed upon.

4. Overall Progress: an overall composite recording of all of the objectives an individual has acquired throughout the entire program should be kept and up-dated annually.

C. Use of Task Analysis:

1. Task analysis is a process which breaks down a behavioral objective into sequential parts. This system allows the handicapped individual to experience periodic success and eventually meet

the objective with the least amount of frustration, since he is rewarded for each sequential task that is mastered.

2. Example - Rhythmic Breathing:

   a. straw breathing
   b. locomotion of ping pong ball
   c. blowing bubbles
   d. stationary breathing
   e. flutterboard with breathing
   f. prone kick-glide with breathing
   g. stationary arm stroke with breathing
   h. walking arm stroke with breathing
   i. arm stroke (support) with breathing
   j. complete crawl with rotary breathing

3. Example - Prone Float:

   a. alligator float with flotation support - 5 seconds
   b. alligator float with no assistance - 5 seconds
   c. prone float with (flotation support) - 5 seconds
   d. prone float with no assistance - 5 seconds
   e. prone float - 5 seconds - recovery to a standing position with assistance from an instructor
   f. prone float - 5 seconds - recovery to a standing position without assistance

4. Example - Front Crawl Stroke:

   a. stationary flutter kick
   b. flutterboard
   c. stationary arm stroke
   d. arm stroke with pull-buoy
   e. front crawl stroke - arms and kicking
   f. stationary kicking with rhythmic breathing
   g. flutterboard with rhythmic breathing
   h. stationary arm stroke with rhythmic breathing
   i. arm stroke with pull-buoy with rhythmic breathing
   j. complete front crawl stroke with rhythmic breathing

E. Water Play

1. Games for Beginners:

   a. Treasure Hunt - sink or float a variety of objects in the playing area, assign the various objects different point values. After a specified time limit, the value of the "booty" of each side is counted - the team with the most points wins.

   b. Bull in the Ring - have students form a circle and each join hands with the person standing next to him. Bull in the center of the circle tries to break through the circle.

   c. Over and Under - two people hold a brightly painted pole (5 ft.) at each end. Lower it under the water as students line up, one behind the other. They first step over the stick. Then bring the stick or pole to the surface and have them duck under it.

2. Shallow Water Race:

   a. Outboard Motor Race - give a kick-board to each swimmer or to each team. Each player kicks to the other side and back until everyone has had a turn. The team that finishes first wins.

   b. Tunnel Swim - Divide 8 - 20 swimmers into two teams. Have the members of each team stand single file in the shallow end of the pool. Players, with the exception of the last one in line, stand with feet spread wide apart. On the word "Go", the last player in each line swims under water between the legs of the other players to the front of the line. Each player has a turn and the team that finishes first wins.

3. Games for Basic Swimmers:

   a. Water Tag - have one person who is "it" chase and try to tag other players. A player is safe from being tagged if he goes underwater.

b. Will o' the Wisp - (good game for 10 to 15 players) blindfold all players. All go into water with "it" who is not blindfolded and carries a bell. "It" dives under water and remains "it" until one of the blindfolded players tags him at which time the two change places.

c. Pom Pom Pull Away - have everyone except the person who is "it" line up on one side of the pool. When "it" calls "Pom Pom Pull Away" everyone must try to cross to the other side of the pool without being tagged or caught before he touches the other side of the pool then helps "it" catch others. Continue until all are caught and the last person remaining is the winner.

4. Games for Advanced Swimmers:

a. Log - mark off spaces at opposite ends of the pool for two goals. One player, the log, floats on his back in the center of the pool midway between the tow goals. The other players (5-20) swim in a circle around the log who without warning suddenly rolls over and chases them. Players try to reach one of the goals without being tagged by the log; those caught must join the log and float in the center with the first log. The last player to be caught is the winner.

b. Follow the Leader - have one student act as leader and the others follow him as he performs various strokes, does different dives, and executes other swimming skills and movements in the water. The followers must do everything the leader does or they are out of the competition. The last player remaing is the winner.

c. Cross Dive Relay - divide the group into teams of equal numbers and have them line up at side of pool. On "Go" one player from each team dives in swims across the pool, gets out on the opposite side, dives back into the pool, swims back, and touches off next player. Team finishing first wins.

5. Floating Stunts:

   a. Five Pointed Star - have five students float with their bodies radiating from a common center. Have them place their feet on an inflated inner tube if necessary. Arms are extended sideward and changed to full extension overhead upon signal.

   b. Spider Web Float - have a group of eight swimmers form a circle with four facing in, four facing out, and the tallest students facing center. Those in the center float, join hands to form the hub, and spread their legs so those on the outer circle can grasp them with extended arms; this forms a wheel which may be turned. If outer circle members float with their legs together, two swimmers may turn the wheel by swimming around and turning it.

   c. Butterfly Floating - have two students float on their backs next to each other with the feet of one next to the head of the other. Partners grasp each other's nearer leg by placing the nearer hand under the ankle. The pair will turn themselves around by spreading and closing their arms and legs gently.

6. Obstacle Swimming:

   a. Swimming in clothes - swim while wearing one or more items of clothing.

   b. Swimming in the rain - swim with one arm stroking while carrying an umbrella.

   c. Towel Race - swim, crawl, or back stroke while holding a corner of a towel in each hand.

7. Stunt Diving:

   a. The Look Out - spring high from diving board; quickly place one hand above eyes as in a look out position; place the other hand on hip; hold one foot against the inside of the other leg in crane fashion; drop straight down and enter the water feet first.

b. Cannon Ball - spring high into air from diving board or side of pool, bring knees to chest and drop into the water with a big splash.

c. Hesitation Dive - run strongly and confidently along board, hesitate timidly at the end of the board, and fall into water.

d. Jump for Distance - jump from diving board or side of pool striving to go as far out into the water as possible. Judge distance by a rope or cord to be touched with feet upon entry into water.

V. Specific Activities for Specific Disabilities:

An aquatics program for the handicapped requires the adaptation of activities and equipment to best accommodate the specific disabilities encountered with each participant. The instructor should have a complete understanding of mental disabilities, cerebral palsy, blind and partially sighted, deaf and hard of hearing, muscular dystrophy, emotional disturbance, epilepsy, and other health impairments before attempting to deal with these disabilities. He must also determine which aquatic skills and activities are most appropriate and feasible for a particular disability, and which special equipment would best aid the participant in the performance of these tasks.

A. Special Equipment:

1. Neck Collars - inflatable neck harnessess may be used to keep the head above water and in line with the body in cases of cerebral palsy and muscular dystrophy.

2. Ring Buoy - styrofoam ring used for head support in cases of hydrocephalus.

3. Safety Bubble - strapped styrofoam flotation device used for body support with all disabilities, but espeicially cerebral palsy and muscular dystrophy.

4. Floaties - inflatable water wings which provide support for the extremities.

5. Swim Fins - aid in kicking and locomotion for those with either crippled or very weak extremities.

6. Hand Paddles - flat plastic discs which are strapped to the hands to assist in arm locomotion.

7. Walker - light aluminum walking standard which provides support and stability in the shallow water, and aids in locomotion and performance of stationary skills.

8. Water Ski Vest - a very sophisticated life jacket which provides a great deal of stability for the participant by keeping the head above water at all times. Excellent for epilepsy and cerebral palsy students.

9. Portable Flooring - aluminum riser sections positioned on the pool bottom to decrease the water depth in the shallow end of the pool.

B. Activities for the Mentally Disabled:

1. Severe and Profoundly Retarded

a. Proper breath control should be taught in order to avoid swallowing and choking when the face is submerged. The severely and profoundly retarded individual can learn how to inhale above the water and exhale when the face is submerged.

b. Floating in the prone and back positions should be initiated so the individual becomes comfortable in these positions independently, or with the aid of flotation devices.

c. With the aid of safety bubbles or water ski vests, the individual can learn to locomote through the water in either the prone, back, or side positions with kicking movements, and finning or winging movements with the arms.

d. Simple water play activities are valuable in creating a pleasant aquatic experience for the severe and profoundly retarded individuals. Water basketball, recovering submerged objects, alligator races, water tag, and tug of war are a few examples of appropriate water play.

2. Moderately Retarded

a. The moderately retarded individual should have an understanding of locker room procedure. He should be able to shower and dress independently, and take care of his own belongings.

b. A skill test should be administered and appropriate placement should be made in either the minnow, marlin, dolphin, or Red Cross skill program.

c. Water games which reinforce and correspond with the student's level of placement should be employed. If a student is working on water accommodation skills; alligator relays, shallow water tag, and battle ball might be appropriate games. If a student is working on body buoyancy skills; floating contests and surface diving for submerged objects might be more appropriate. If a student is working on water locomotion skills; kick board relays, tunnel swimming, and gliding contests would be most suitable. If a student is already in the Red Cross program, he might benefit more from swimming stroke relays and races, deep water tag, or Pom Pom Pull Away.

d. A basic understanding of water safety and survival swimming is necessary for the moderately retarded individual. He should be familiar with pool rules, safety equipment non-swimming rescues, how to release a cramp, treading water, mouth to mouth resuscitation, and basic survival swimming.

e. Competition in local or Special Olympics offers a new challenge in aquatics to the moderately retarded individual.

C. Activities for the Individual with Cerebral Palsy:

1. The instructor should adapt teaching methods to meet the students special problems. Since each cerebral palsied individual is different, the instructor must decide what skills a student is able to learn in order to make swimming an enjoyable and profitable experience.

2. Introduce basic safety skills, breath control, prone and back float, turning over, and changing directions.

3. The easiest stroke for those cerebral palsied individuals afflicted with either spasticity, ataxia, or rigidity is done in the supine (face up) position, employing a movement of the arms similar to sculling, finning, winging, or a modification of one or more. The legs are usually moved in a modified flutter kick pattern. This stroke will be very difficult for an athetoid to perform and as many as three aids may be needed when such an individual is placed in the position.

4. The use of flotation devices, hand paddles, and swim fins aid in the successful execution of underwater recovery strokes.

5. A stroke on the front similar to the human stroke and flutter kick is also a possibility, especially for those individuals having a great amount of buoyancy.

6. Learning to walk in the water is one of the most gratifying experiences for those unable to walk on land and can be accomplished by the cerebral palsied individual with the use of either a walker, or flotation devices, and assistance from the instructor.

7. Adapted swim meet competition offers a great deal of satisfaction to the victim of cerebral palsy.

D. Activities for the Blind and Partially Sighted:

1. Introduce basic safety skills (breath control, prone and back float, turning over, and changing directions).

2. Orientation to locker room, and pool facilities should precede any water work.

3. Visually impaired students may learn any basic swimming skill as long as the instructor makes clear explanations, tactile impressions, and provides manual assistance.

4. If possible, it is best to avoid strokes and skills which require the student to have his ears below the surface. However, if the student must place his ears below the surface

for either competitive swimming or diving, he may experience possible disorientation, and should be instructed on how to recognize visual landmarks in the pool.

5. Competition in group swim meets and Special Olympics can be very rewarding, but must be adapted with a system of hand signs or lip reading to allow the victim an opportunity to understand directions and commands.

F. Activities for the Emotionally Disturbed:

1. Swimming is a valid rehabilitation method of working with individuals with emotional problems.

2. The emotionally disturbed individual should be taught any skill or stroke he is capable of learning.

3. When working with disturbed individuals, one on one attention is essential at all times.

4. The teacher must realize that the disturbed individual is essentially inable to conform to group discipline, and must be permitted to speak out in anger without being harshly censured.

5. The disturbed individual is frequently impulsive, disorganized, aggressive, and negativistic. The instructor must accept this and teach, not by a required curriculum, but with innovation and flexibility.

6. Watch the reaction of the disturbed individual when presented with activities in the water. If he appears to enjoy recreational activities in place of formal instruction, stress the recreational aspects and introduce the formalized instruction in a subtle manner.

7. Competitive games, relays, and races are valuable tools for working with the emotionally disturbed in the water, but these activities should not be allowed to cause anxiety, or develop into pressure situations for the participant.

8. Be alert for signs of extreme emotional instability. Emotionally disturbed individuals tend toward instability when frustrated in an activity above their skill level.

G. Activities for the Epileptic Individuals:

1. The epileptic should be presented with any skill or stroke he is capable of learning.

2. Feelings of anxiety or fear should not be aroused.

3. Over exertion, unusually fatiguing situations and under water swimming may bring on seizures and should be avoided.

4. Epileptics must never swim alone. An instructor must supervise an epileptic swimmer at all times.

5. It is advisable for the epileptic to swim with a water ski vest in order to be fully prepared in case of a seizure.

6. If a seizure does occur in the pool, the instructor should make sure to keep the swimmer's head above the water and tilted back. He should keep away from the side of the pool, and stay out of the way of any thrashing of the victim's body.

7. The instructor must be familiar with all the participant's medication and make sure this medication has been taken properly before entering the pool.

8. Competitive games, relays, and races are valuable tools in the aquatics program for the epileptic, as long as they are not carried to the point where they cause extreme anxiety or fatigue.

9. Diving is recommended as long as it does not cause extreme anxiety or fatigue, or trigger a seizure. When diving, the epileptic must be under the constant supervision of the instructor.

F. Activities for the Individual with Muscular Dystrophy:

1. Through the use of neck collars, the muscular dystrophy victim can float on his back with the proper body position, leaving his arms and shoulders free to move about from the floating position.

2. From the supine position, the elementary backstroke can be performed with little difficulty using hand paddles for the arms and fins for a modified flutter kick with legs.

3. Diving can be accomplished by having the participant first sit on a therapy table and then allowing him to fall in.

4. The muscular dystrophic student can profit a great deal from adapted swimming competition. He is either given a head start, credited with a pre-determined point bonus, or outfitted with fins, flotation devices, or hand paddles to increase his speed. Through the use of this handicapping format, the participant is capable of competing on an equal basis with other swimming activities.

G. Activities for Amputees:

1. The loss of one or more limbs, while reducing the speed of the swimmer, will not interfere with his ability to swim. Swimming will enable the individual to exercise all remaining body parts. The amputee who is able to learn to swim should have instruction in basic skills and strokes adapted to his particular involvement.

2. Learning to tread water should be taught as soon as possible to those who have lost either one or both legs.

3. Those who have lost a limb have difficulty in floating because their body weight is not balanced and they tend to roll over or sink on one side. This can be corrected or equalized in two ways: (a.) The right leg can be bent to equalize the weight loss from an amputated left leg, and the right arm can be lowered to the side to give a cross balance of weight and compensate for a missing left arm. (b.) A person who has lost both legs generally has no trouble floating. One who has lost both arms

can bend his knees to raise the center of gravity in his body. If a person has had both limbs on one side amputated, he can bend the arm and leg on the opposite side close to his body or extend them sidewards to maintain a floating position.

4. Asymmetrical strokes such as the modified side stroke, the single overhand stroke, and the Trudgen stroke should be taught to those individuals with the loss of an arm.

5. Those with the loss of a leg should be taught symmetrical strokes on the back or stomach, such as the elementary back stroke, the breast stroke, the human stroke, and the back and front crawl.

6. When both of a person's arms or both of a person's legs are missing, symmetrical strokes provide the best balance. Those with an affected arm and leg on the same side also seem to adjust easiest to symmetrical strokes.

7. A basic understanding of water safety and survival swimming is necessary for the amputee. He should be familiar with pool rules, safety equipment, treading water, basic survival techniques and non-swimming rescues.

8. The amputee can also benefit a great deal from local or Special Olympic swimming competition if this competition is adapted so as to allow him to compete on an equal basis with other swimmers.

VI. Water Safety:

A constant thread of safety which encourages loss of fear and gain of respect for the water must be stressed throughout all stages of the instructional program. The handicapped individual should be made aware of safety equipment, pool rules, non-swimming rescues, the correct procedure for helping a non-swimmer to his feet, how to release a cramp, how to tread water, basic survival floating, mouth to mouth resuscitation, and "The Buddy System".

1. Safety Equipment:

   a. ring buoys
   b. shepherd's crook
   c. backboard

d. personal flotation devices (P.F.D.'s)
e. reaching poles
f. floatable objects

2. Pool Rules:

a. no horse play on deck or in the water
b. no running, pushing, or dunking
c. obey whistle signal to clear the pool

3. Non-Swimming Rescues:

a. arm, leg, and towel extensions
b. reaching assists - pole or shepard's crook
c. throwing assists - floating objects, ring buoy, lifeline

4. Helping a non-swimmer to his feet:

a. avoid this in chest-deep or deep water
b. approach from the rear
c. keep your body braced and at a distance
d. do not allow victim to place a grip on you

5. Release of a Cramp:

a. alternate jelly fish float with breathing
b. gradual kneading of cramped area will release cramp
c. avoid panic

6. Treading Water:

a. holding onto the edge of the pool
b. neck-deep water
c. deep water - wearing flotation devices
d. deep water without assistance
e. deep water - changing positions from back

7. Basic Survival Floating:

a. Take a deep breath, float face down with the chin on the chest, arms and legs dangling, and the back of the neck and shoulders at the surface of the water, hold this position for four or five seconds.

b. Draw up the arms slowly to form an x at the face, slowly press the arms downward until they are straight and at the same time raise the face out of the water to blow out and take in air.

c. Place the face back in the water, raise the arms to an x position, press the arms downward again and relax, hold for four or five seconds. The arm pressure will bring the body back to the surface if there is any tendency to sink.

d. Scissor kick the legs at the same time the arms are moved to stay near the surface of the water.

8. Class Discussion of Mouth to Mouth Resuscitation:

a. when it is used and why it is effective
b. how to open a victim's airway
c. correct procedure for jutting the jaw and pinching the nostrils
d. correct procedure of inhalation and exhalation process for the victim

9. The "Buddy System".

a. never enter the water without a "buddy'
b. conduct periodic "buddy" checks during a class period
c. practice safety skills during each class period utilizing the "buddy" system

VII. Competitive Opportunities:

Healthy competition is a valuable motivational tool and an integral part of any successful program in aquatics. The opportunity to compete provides a physical and emotional outlet for the handicapped individual in which he can experience success and develop pride in his achievements. Examples of competitive opportunities for an adaptive aquatics program include: class games and relays, Intra-group or Intra-school meets for non-swimmers, Intra-group or Intra-school meets for average swimmers, and Special Olympics swim teams for more advanced swimmers.

A. Competition for Swimming Lessons or Classes:

1. Games:

a. follow the leader
b. water tag
c. simon says
d. red rover
e. treasure hunt
f. diving contest

g. battle ball
h. innertube water polo

2. Relays:

a. alligator walk
b. shalon
c. spoon and ping pong ball
d. over - under
e. leap-frog
f. strokes

3. Motivational Devices to stimulate competitiveness:

a. non-consumable reinforcers
b. certificates
c. ribbons

B. Intra-group or Intra-school Competition for Non-swimmers:

1. Events:

a. timed alligator walk
b. treasure hunt
c. tug of war
d. simon says
e. club or homroon relays

2. Divisions:

a. divided into age groups
b. divided according to ability from preliminary records
c. participants compete for individual points as well as either homeroom or club points

3. Motivational Tools to Stimulate Competitiveness:

a. ribbons
b. homeroon or club plaques
c. outstanding participant trophies
d. pool records
e. certificates of participation
f. awards presentation or assembly

C. Intra-group or Intra-school Competition for Average Swimmers:

1. Events:

a. freestyle
b. back stroke
c. breast stroke
d. club or homeroom relays
e. student - staff match races

2. Divisions:

a. divided into age groups
b. divided according to ability from preliminary qualifications
c. participants compete for individual points as well as either homeroom or club points

3. Motivational Tools to Stimulate Competitiveness:

a. ribbons
b. homeroom or club plaques
c. outstanding swimmer trophies
d. pool records
e. certificates
f. awards presentation or assembly

D. Special Olympics Program for Advanced Swimmers:

1. Events:

a. 25 yard freestyle
b. 25 yard back stroke
c. 25 yard breast stroke
d. 50 yard freestyle
e. 100 yard freestyle relay

2. Competition:

a. dual meets with other schools or clubs
b. District Special Olympic meets in April
c. State Special Olympic meets in May
d. National Special Olympic competition during the summer

3. Practice:

a. regular workouts at least three times per week
b. work on endurance, starts, and individual strokes
c. use practice equipment - goggles, kickboards, hand paddles, fins, drag belts, and pull-buoys

d. utilize timers and managers
e. use video tapes to analyze strokes

4. Motivational Tools to Stimulate Competitiveness:

a. time charts - kept up to date daily
b. rewards for outstanding times
c. current pool and meet record boards
d. team tee shirts
e. team suits, warm-ups, and racing cups
f. team pictures displayed in trophy cases
g. ladder system for practice - best swimmers in lane 1, next best in lane 2, next best in lane 3
h. pep assemblies before meets
i. victory assemblies after successful meets
j. year-end awards banquet - school or club chenille letters, certificates of participation, special awards (outstanding swimmer, most valuable swimmer, hardest worker, etc.), Special Olympic Patches

Glossary of Terms

1. *Adaptive Aquatics* - The process of making modifications in a swimming program in an effort to gear skills and activities to best provide for an individual's particular handicap or disability.

2. *Alligator walk* - Locomoting through the water with only the use of the hands in contact with the bottom of the pool.

3. *Back board* - A plywood plank used for transporting victims of back injuries in the water.

4. *Flutterboard* - A rectangular styrofoam floating device which aids the swimmer in practicing his kick in either the front or back position.

5. *Hydro-therapy* - The practice of using water as an aid in the process of rehabilitating an individual.

6. *Personal Flotation Devices*- A buoyant vest type life preserver.

7. *Prone* - Lying in a face down position.

8. *Rehabilitation* - The process whereby one's health and efficiency are restored.

9. *Ring buoy* - A throwable circular flotation device made of buoyant styrofoam with a 50 foot retrieving line.

10. *Shepherd's crook* - A light weight aluminum reaching pole with a blunt hook on the end.

11. *Supine* - Lying in a face up position.

12. *Swim-nastics* - Exercises controlled to use muscles of a specific area of the body while submerged in the water.

13. *Task analysis* - The process of breaking down a behavioral objective into sequential parts.

BIBLIOGRAPHY

American Red Cross, *Life Saving: Rescue and Water Safety*, Doubleday and Co. Inc., New York, 1974.

American Red Cross, *Swimming and Water Safety Cources Instructor's Manual*, Washington D.C., 1968.

American Red Cross, *Swimming and Water Safety Textbook*, Washington D.C., 1968.

American Red Cross, *Swimming for the Handicapped Instructor's Manual*, Washington D.C., 1965.

American Red Cross, *Teaching Johnny to Swim*, Washington D.C., 1969.

Council for National Cooperation in Aquatics, *A Practical Guide for Teaching the Mentally Retarded to Swim*, American Association for Health, Physical Education, and Recreation, Washington D.C. , 1969.

Cowle, Lucile, *Teaching Your Tot to Swim*, Vantage Press, New York, 1972.

Groscost, Joseph K., *The Basic Swimming Guide*, World Publications, Mountain View, Ga., 1975.

Lea, Isobel M., *Manual for Organizing and Conducting Swimming Tests for the Trainable Mentally Retarded*, Canadian Association for Retarded Children, Toronto, Canada, 1975.

Reynolds, Grace Demmery, *A Swimming Program for the Handicapped*, Association Press, New York, 1973

Ruby Van Meter School, *An Instructional Manual on Behavioral Objectives for Aquatics Instruction*, Heartland Education Agency, Ankeny, Iowa, 1976.

Shapiro, Sidney M., *Swim-Nastics: Water Exercises for Better Health*, Creative Editorial Services, Hollywood, Calif., 1971.

Smith, Hope, *Water Games*, The Ronald Press, New York, 1972.

Wessel, Janet A., *I Can Aquatics Program*, Northbrook, Illinois, Hubbard Scientific Co., 1976.

ADAPTATIONS, MODIFICATIONS, AND USE OF EQUIPMENT FOR HANDICAPPED STUDENTS

by

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ADAPTATION, MODIFICATION, AND USE OF EQUIPMENT FOR THE HANDICAPPED STUDENT

Adapted or modified equipment can be beneficial in a physical education program which includes the handicapped. Generally, adapting the rules of a game or the way a game is played will allow the opportunity for all to participate in the activity. However, in some instances modification and/or adaptation of equipment may be necessary in order to allow a handicapped child to participate on an equal basis.

It is important to understand the difference between modified and adapted equipment. Modification of equipment refers to taking a piece of equipment and physically adding to, or removing from it in order to control the equipment in a different way. An example would be adding a handle to a bowling ball to allow a person with a weak grip to hold and throw the ball. Adapting equipment refers to changing the use of the equipment to meet the individual's needs (e.g. lowering a volleyball net so the student with less strength can hit the ball over).

Adaptation and modification of equipment gives the handicapped student the opportunity to participate in a sport, develop skill, learn sportsmanship, and interact socially and competitively. In essence, meaningful group interaction will provide opportunities for developing psychological and emotional qualities which are important to all students. However, changing equipment,or its use, should be done sparingly and only if it is required in order for the student to participate on an equal basis with classmates. If the student can play a certain position or play a game satisfactorily, it is more appropriate to: 1) reduce the the playing area, 2) adjust the scoring, 3) do nothing rather than alter the equipment.

Preschool and primary school physical education programs may present challenges for the teacher in terms of equipment. Often the manufacturer of equipment does not provide adequate instructions for its use. Preschool and primary school equipment is often gross motor (e.g. therapy balls, bolsters, and rocking boards). This equipment, when used to its fullest advantage, can be very beneficial for the development of body strength, coordination, and balance.

Playground equipment is also an excellent source for developing strength, coordination, and balance. However, some standard playground equipment is often difficult, or impossible for the disabled child to operate. If a student must constantly be

assisted in order to play with the equipment, he/she is denied the learning experiences of trial and error. Choosing playground equipment that is accessible for the handicapped student to use with relative independence is important for personal growth. With proper playground equipment all children can enjoy participating.

This section will provide information on: 1) adaptation of sports and game equipment, 2) modifications of general physical education equipment, 3) modification of sports and game equipment, 4) equipment utilization for perceptual-motor development, 5) pre-school and primary developmental equipment, and 6) specialized equipment.

Modification of General Physical Education Equipment:

A. Scooter Board: Suggested uses for the child with physical impairment:

1. Use ball bearing casters to allow freedom of movement and ease in turning.

2. Add an abductor wedge to inhibit scissoring of the legs due to spasticity.

Diagram shows suggested placement of abductor wedge.

The wedge could be easily cut out in the school maintenance department, or wood working classroom. It should be removable and adjustable. A 6 inch slot needs to be cut into the scooter board and the wedge can be secured with a long screw and wing nut. This slot will allow for changing the position of the wedge to adjust to each child's height.

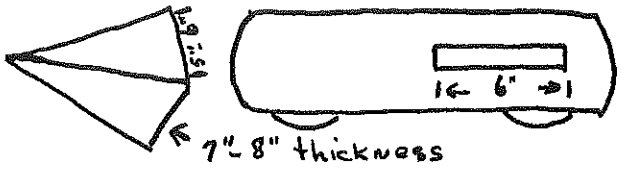


Diagram shows slot to allow for changing position of wedge to adjust to each child's height.

The size of the scooter should support a child from chest to thigh if used for a child having poor muscle strength.

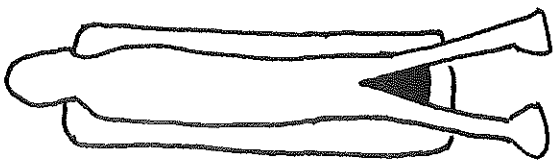
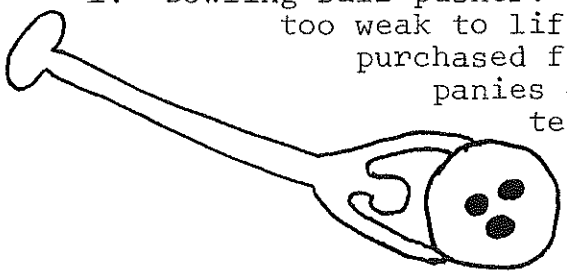


Diagram shows placement of body on scooter using abductor wedge.. The length of the wedge is dependent on the height of the child.

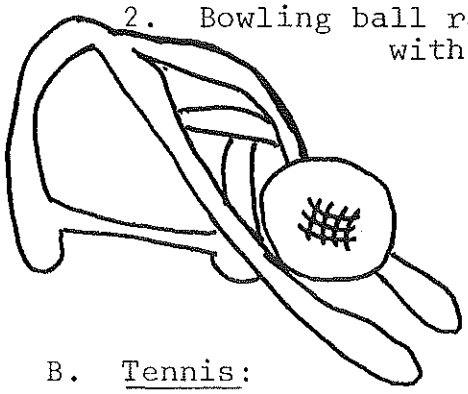
II. Adaptation of Sports and Game Equipment:

A. Bowling:

1. Bowling ball pusher: for use when arm strength is too weak to lift the ball. Pusher can be purchased from adaptive equipment companies or made in the school maintenance departments, or shop class. See available resources list for ordering instructions.



2. Bowling ball ramp: Useful for severely disabled with very weak arm strength and control. See available resources list.



B. Tennis:

1. Net adjustments.

2. Extended handle on racket to allow for higher reach from a wheelchair.

C. Volleyball:

1. Lower net to allow greater potential for success in clearing the net.

2. The standard volleyball, which is rather heavy and hard, may be replaced with a beach-ball, a large utility ball, or a large foam ball. These replacements reduce the strength required to play the game as well as lessen the child's fear of the ball.

3. Reduction of playing area.

D. Baseball:

1. Plastic bats, which are extra wide, help the beginner learn the proper batting pattern and reduce bat weight.

2. Batting tee: Use instead of hitting a pitched ball. (See suggested available resources section)

3. Options for standard baseball: foam ball, or utility ball. The use of softer balls will be helpful for children who have perceptual difficulty. The reduction of the speed of the ball coming toward them will minimize the fear of being hit by the ball.

E. Basketball:

1. Adjustable hoop height: lower for students in wheelchair or with weaker arm strength.

2. Use a 16 inch utility ball rather than a basketball.

3. Wheelchair basketball: a specially designed lightweight chair is used for wheelchair basketball.

F. Archery:

1. Use bows which have lower pound resistance and which are smaller in size.

2. Shooting distance may be reduced.

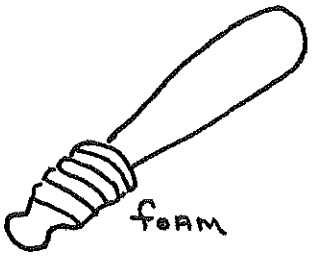
G. Gymnastics:

1. Parallel bars: Use one bar for a chin up bar for students in wheelchairs.

2. Student may do chin ups at the bar from sitting position in chair to begin building arm strength.

III. Modification of Sports and Game Equipment:

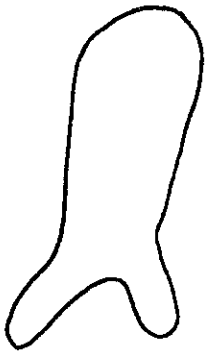
A. Built up handles: (baseball bat, tennis racket, golf club, archery bow, etc.)



Built up handles allow for easier grasp when hand strength is weak. Handles can be built up with thick foam (1 inch or more) and secured with adhesive tape.

B. Grip Glove: a grip glove or mitt may be useful when grasp is weak or nonexistent. Instruction for making grip glove are as follows:

Sew two pieces of suede, leather, or other strong



material together to form a mitt, with an opening for the thumb. Sew a velcro strap to the middle at the top of the fingers end, with the "fuzzy" side up. Sew velcro straps on the top of the wrist area with the "sticky" side down. The strap over the fingers will bend the fingers toward the palms to fit around the bat when secured on the wrist strap. The built up bat referred to above may also be beneficial in cases when a child's grasp is weak.

IV. Equipment Utilization for Perceptual-Motor Development:

A. Scooter boards: develop laterality skills, coordination, and extremity strength.

1. On stomach:
   a. Pull across rope with both hands.
   b. Push with both arms at the same time.

2. Sitting:
   a. Push with opposite arm/opposite leg.
   b. Push with both feet at the same time using no hands.
   c. Push feet alternating as in walking.
   d. Hold feet up in the air with knees bent and push with both arms slightly behind the body.

3. Kneeling:
   a. Push with both arms at the same time.

B. Barrell or Drum: provide opportunities for vestibular stimulation. Large drums may be obtained from supermarkets, or laundries using large amounts of detergent. Line inside with carpet pieces.

1. Roll inside the drum with body straight. It is easier when rolling with feet inside first.

2. Roll with entire body inside curled up on hands and knees.

3. Crawl inside barrell to make it move. Crawl sideways or turn body in barrell and crawl forward.

4. Roll over the top of the barrell, catch self with both hands and roll into a somersault. Do this on a mat with spotters to ensure neck support.

C. Crawl Tunnel: (See available resources list)

1. Crawl on hands and knees forward and backwards blindfolded.

2. Put sand bags under the tunnel at various points to create bumps to crawl over.

D. Balance Equipment:

1. Bolster: also referred to as spot trainers. (See available resources list)
   a. Straddle bolster and play catch with both hands not at midline.
   b. Kneel upright with buttocks off the heels. Play catch throwing ball at a target etc.

2. Tilt Equipment: balancing discs, rocker boards, etc. (See available resources list)
   a. Sit and continue to make the board rock side to side or back and forth while playing a game.
   b. Kneel and continue to make the board rock side to side or back and forth while playing a game.
   c. Stand and continue to make the board rock side to side or back and forth while playing a game.

3. Balance Beam:
   a. Walk heel to toe, on tip toe, sideways, backward, stoop to pick a bean bag, and/or step over a box on the beam.
   b. Crawl forward, sideways, and backwards.
   c. Begin with feet positioned one on each side of the beam. Cross one foot to the opposite side, continue to cross feet over each other and the beam.
   d. Jump forward and sideways across the beam from one end to the other.

E. Hoola Hoops: develop laterality, directionality skills, and auditory visual sequentaling.

1. Lay hoops on the floor in a straight line or zig-zag pattern.
   a. Jump with both feet.
   b. Hop on one foot.
   c. Make up patterns to remember (e.g. blue hoop hop on left foot, red hop on right, yellow jump with both feet, etc.)

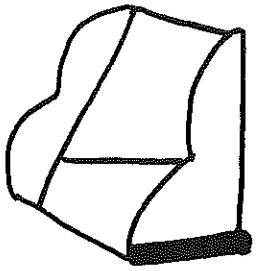
2. Use as jump rope.

3. Use as target to throw ball through.

V. Preschool and Primary Developmental Equipment:

A. Floor Sitters:

1. Allow sitting balance flat on the floor with freedom of movement of the arms.



2. Allows child to play sitting games independently.

3. Standard kitchen or straight back chair can be used by cutting off legs.

4. Use safety belts for children with weak balance.

5. Chair backs with vertical rungs are best to allow different adjustment widths when using a safety belt.

B. Seesaw (Teetor): Develops sitting balance.

1. A preschool seesaw should not be more than two feet off the floor, have a solid base of support, and handles for the child to grasp.

2. Provides opportunities to develop sitting balance when body is in motion, and leg strength when pushing off the floor.

C. Sliding Board:

1. Three feet high by six feet long is suitable for preschool.

2. Smaller size reduces fear of the new experience and a wide base will increase child's feeling of security.

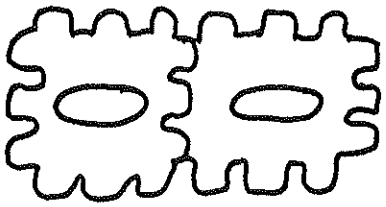
3. Stairs leading to the slide should not exceed six to seven inches in height.

D. Snap Wall:

1. It provides an option to a standard jungle gym.

2. It can be assembled as a box, a straight wall,

Snap Wall (continued)

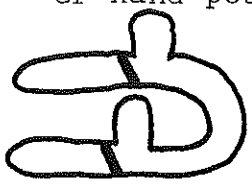


flat on the floor, and other combinations.

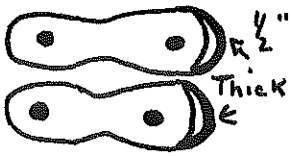
3. Changing position of the walls allows a variety of holes to crawl through and on top of,. and is easily managed by children with limited motion.

E. Tricycle: (modifications for spastic children)

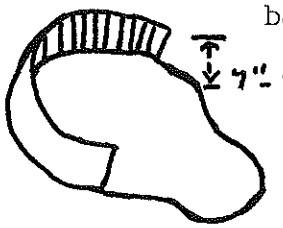
1. Use handle bars with upright grips to allow proper hand position. Cruth handles (already have a hole drilled through the middle) screwed with a long screw through the handle bars. A power drill will be needed to drill the hole through the handle bars.



2. Add pedal shoe supports to allow feet to remain stable on the tricycle pedals. Cut 4 pieces of wood in the shape of the sole of the child's shoe. Drill matching holes at the forefoot and heels. They can also be purchased commercially (see available resources list). Screw or nail leather or velcro strap to hold the toe. Heel back rest can be easily cut and formed using orthoplast and is secured to the wooden, pre-cut foot using a screw. The leather or velcro ankle straps are riveted to the orthoplast. Two large screws are used to secure the wooden bases to the pedals of the tricycle.



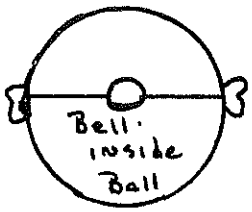
3. Seat back support: a back support is frequently necessary for children with spasticity, particularly when shoe supports are used. The back support helps keep the child from pushing him/herself backwards off the tricycle seat. A piece of orthoplast, kydex, or similar material can be molded to fit around the back of the seat. The height of support should be 7 to 8 inches from the seat. The support is secured with screws through the hole in the support seat.



VI. Specialized Equipment:

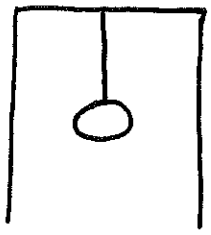
A. Auditory Ball: (assist in sensory perception)

A utility ball with a bell inside can be useful to help a blind child attend to direction of the sound. These can be purchased commercially or can be made from a large tether ball. Tie a small bell on a string and secure the string between holes across from each other.



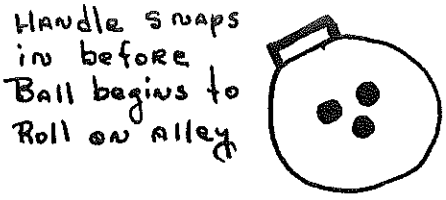
B. Suspended Ball:

Secure string to a ball and suspend from the ceiling or an overhead pole. A suspended ball can be useful in teaching beginning catching skills in a controlled atmosphere. Beginning hitting skills can also be taught. Tie the string to a tether ball, or screw a ceiling hanger into a rubber ball and tie string through the hanger to suspend from ceiling.



C. Handle Grip Bowling Ball:

A specifically designed ball available commercially to allow control of a bowling ball when grip strength or finger coordination is a problem. The ball handle automatically contracts when released.



The adaptation and/or modification of equipment is an excellent means through which to allow the handicapped student to interact with his/her peers. As noted earlier, it is important to adapt rules of a game or the way a game is played rather than to modify equipment whenever possible. When modification is necessary, only the modifications needed, should be utilized. This allows for the handicapped to work to his/her limits with his/her classmates, and as a result, advance and improve as rapidly as possible.

INEXPENSIVE AND HOMEMADE EQUIPMENT

AND

GENERAL BIBLIOGRAPHY

by

Lila Frommelt

Assistant Professor
Elementary Physical Education
Briar Cliff College
Sioux City, Iowa

Inexpensive and Homemade Equipment

Balance Beam:	To promote both static and dynamic balance, kinesthetic awareness and laterality.
Balance Boards:	Used for the challenge of static and dynamic balance.
Batting Tees:	Promote eye-hand and foot coordination, game playing, partners and all movement skills.
Beach Balls, Sponge Balls:	Used as a learning tool for all parts of the body- can be made into the alphabet and numbers for integration with other subjects.
Bounding Board:	To promote airborn and dynamic balance plus total body awareness.
Bowling Pins:	For markers, targets, directionality, color discrimination and locomotor movement.
Broomsticks, Wands, Golf Tubes:	To promote self testing activities, partner exercises, movement exploring, directionality and isometrics.
Carpet Squares:	Promote coordination, balance, basic motor skills, rhythms and directionality- best size is 12 x 18.
Chinese Jump Ropes:	For agility, jumping, endurance, eye-foot coordination and as a creative activity.
Flash Cards:	Symbols representing activities for movement.
Foam Strips:	Creativity, correlation for language and mathematics, geometric figures, jumping and exploring.
Form Targets:	Eye-hand and gross motor coordination, dominance, cross-lateral acitvities and spatial orientation.
Geometric Puzzles:	Geometric discrimination, fine finger dexterity.

Geometric Shapes:	For all locomotor skills, form perception and hand-eye coordination.
Golf Tee Pegboards:	Perception of form, finger coordination and memory.
Hoops:	Used for targets, all body coordination, directionality, rhythms, and creativity.
Individual Tug of War Ropes:	Used for manipulative activities and restrictive exercises.
Jumping Box:	Can promote space awareness, balance, jumping, leaping, creeping, and body controlled movement.
Ladder:	Promote locomotor skills, foot-eye coordination, directionality and balance.
Launching Boards:	Used for hand-eye-foot coordination and split vision activities.
Lummi Sticks:	For the development of perceptual motor skills, rhythms, and creativity.
Parachute:	Used to accomplish physical fitness goals, development of agility, coordination, endurance, and rhythm.
Rebound Nets:	Ball handling skills, hand-eye coordination and directionality.
Rocker Board:	Used for balance, laterality, directionality and spatial awareness.
Rhythm Band:	Promotes creativity, timing, rhythm, and total movement.
Ropes:	For endurance, balance, climbing, coordination, laterality, and rhythm.
Rubber Bands:	Used for conditioning exercises against a flexible resistance.
Stilts:	To promote coordination and balance.
Streamers:	Used for free movement, creativity, and color discrimination.

Turtle-Spring Board:	For jumping and airborn balance.
Twister Set:	Promotes laterality, directionality, color discrimination and locomotor skills through visual cues.

BIBLIOGRAPHY

Aitken, Margaret H., *Play Environment for Children*, Bellingham, Washington: Educational Designs & Consultants, 1972.

Arnheim, Daniel D. and Peotolesi, Robert A. *Elementary Physical Education: A Developmental Approach*, St. Louis, Mo., Mosby Co., 1978.

Capon, Jack J., *Ball, Rope, Hoop Activities*. El Segundo, California: Prismatica International, Inc., 1974.

Capon, Jack J., *Perceptual-Motor Lesson Plans*. Alameda, California: Front Row Experiences, 1975.

Christian, Quentin A., *The Beanbag Curriculum: A Homemade Approach to Physical Activity for Children*, Wolfe City, Texas: The University Press, 1973.

Cochran, Norman A., Wilkinson, Lloyd C. and Furlow, John J., *Learning on the Move: An Activity Guide for Preschool Parents and Teachers*, Dubuque, Iowa, Kendall/Hunt Publishing Co., 1975.

Dauer, Victor P. and Pangrazi, Robert P., *Dynamic Physical Education for Elementary School Children*, 6th Ed., Minneapolis, Minnesota: Burgess Publishing Co., 1979.

Friedberg, M. Paul, *Handcrafted Playgrounds: Designs you can Build Yourself*. New York: Vintage Books, 1975.

Gallahue, David L., *Developmental Play Equipment for Home and School*. New York: John Wiley and Sons, Inc., 1975.

Irvin, Sally M., *Improving Motor-Perceptual Skills*, Corvallis, Oregon: Continuing Education Publications, 1971.

Kirchner, Glenn, *Physical Education for Elementary School Children*, Dubuque, Iowa: W. C. Brown, 1978.

Moran, M. and Kalakian, Leonard H., *Movement Experiences for the Mentally Retarded or Emotionally Disturbed Child*, Minneapolis, Minnesota: Burgess Publishing Co., 1977.

Project HOPE, Title III, Elementary & Secondary Education Act. Every Child a Winner : With Improvised Physical Education Equipment. Atlanta, Georgia: Irwin County Board of Education, 1973.

Schurr, Evelyn L., *Movement Experiences for Children.* Englewood Cliffs, N. J., Prentice-Hall, Inc., 1975.

Skinner, Louise, *Motor Development in the Preschool Years.* Springfield, Illinois. Charles C. Thomas, 1979.

Werner, Peter, and Rini, Lisa, *Perceptual-Motor Development Equipment: Inexpensive ideas and activities,* New York: John Wiley & Sons, Inc., 1976.

Werner, Peter H. and Simmons, Richard A., *Inexpensive Physical Education Equipment for Children.* Minneapolis, Minnesota: Burgess Publishing Co., 1976.

APPENDIX A

AVAILABLE RESOURCES

APPENDIX A

AVAILABLE RESOURCES

The lists in this appendix section are a sampling of available resources to apprise physical educators of some resources available to them as specialized physical education programs are implemented. It is not the intent to provide a comprehensive list, but a sampling of materials and equipment that is easily obtained through mail catalogue or direct contact with vendors or resource people.

VENDORS AND ADDRESSES

Academic Therapy Publication, 1539 Fourth Street, San Rafael, California 94901

American Alliance for Health, Physical Education and Recreation (AAHPER), 1201 16th Street, N.W., Washington, D.C. 20036

American Alliance for Health, Physical Education and Recreation, Physical Education and Recreation for the Handicapped, Information and Research Utilization Center, 1201 16th Street, N.W. Washington, D.C. 20036

Department of Human Resources, Dr. Bluford Hestir, Director of Media Services, John H. Reagan Building, 15th & Congress, Austin, Texas 78701

Developmental Learning Materials, 7440 North Natchez Avenue, Niles, Illinois 60648

Enrichment Materials Company, P.O. Box 812, Campbell, California 95008

Learning Resources Press, 609 LaCruz Drive, El Paso, Texas 79902

Lind Climber Company, 807 Reba Place, Evanston, Illinois 60202

National Association for the Education of Young Children, 1834 Connecticut Avenue, N.W., Washington, D.C. 20009

Northwest Regional Center for Deaf-Blind Children, Community Services Division, Department of Social and Health Services, 3411 South Alaska, Seattle, Washington 98118

Skill Development Equipment Company, 1340 North Jefferson, Anaheim, California 92807

United States Government Printing Office, Superintendent of Documents, Washington, D.C. 20402

EQUIPMENT SOURCES

A number of companies supply equipment which can be employed to meet specific needs of the handicapped in physical education programs. Socio-leisure; locomotor; and sports equipment are readily available from the following firms.

American Foundation For the Blind, 15 West 16th, New York, New York 10011

Baker and Taylor Educational Products, P.O. Drawer 471, Bryan, Texas 77801

Berkly - Cardy, 1900 North Narragansett Avenue, Chicago, Illinois 60639

Dick Blick, P.O. Box 1267, Galesburg, Illinois 61401

Childcraft Education Corporation, 20 Kilmer Road, Edison, New Jersey 08817

Community Playthings, Rifton, New York 12471

Constructive Playthings, 1040 East 85th Street, Kansas City, Missouri 64131

Flaghouse, Inc., 18th West 18th Street, New York, New York 10011

Hoover Brothers, Inc., 1423 South Big Bend Boulevard, St. Louis, Missouri 63117

J. A. Preston Corporation, 71 Fifth Avenue, New York, New York 10003

SPECIFIC EQUIPMENT SOURCES

The following information provides the sources for the equipment discussed in the chapter on Adaptation, Modification, and Use of Equipment for Handicapped Students.

Flaghouse, Inc., 18th West Street, New York, New York 10017

1. Bowling ball pusher
2. Bowling ball ramp
3. Handle grip bowling ball

4. Floor sitters
5. Foot support blocks (pedal shoe supports)
6. Snap walls

Dick Blick, P.O. Box 1267, Galesburg, Illinois 61401

1. Snap walls

APPENDIX B

ACKNOWLEDGEMENTS

APPENDIX B

ACKNOWLEDGEMENTS

The PEPHSI Project wishes to express its appreciation to the following individuals and groups for their involvement with and commitment to the successful completion of this manual.

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APPENDIX C

The project director and project coordinators would like your assistance in the evaluation of the manual. Your comments and ideas are needed to make it a worthwhile and useful document. On the following page is an evaluation form which may be removed and sent back to the project coordinators.

We appreciate your cooperation and assistance in completing this form.

APPENDIX C

EVALUATION FORM - PHYSICAL EDUCATION MANUAL

1. Please check your current employment:

☐ Teacher - Position (e.g. classroom, physical education, etc.) _____

☐ Elementary ☐ Junior High ☐ Senior High ☐ Other

2. Check your major area of responsibility

☐ Physical education regular and special

☐ Physical education regular

☐ Classroom teacher

☐ Special Education

☐ Other (specify) _____

3. How much of the information in this document was new to you? (Check one)

☐ 0% ☐ 25% ☐ 50% ☐ 75% ☐ 100%

Comments: _____

_____

4. In the table below rate each chapter by circling one of the numerical ratings using the following scale:

1 Poor, 2 Below Average, 3 Average, 4 Good, 5 Excellent

Chapter	Usefulness					Understandability				
1. Legislation and Physical Education (Section 504) (P.l. 94-142) Iowa Code	1	2	3	4	5	1	2	3	4	5
2. Disabilities	1	2	3	4	5	1	2	3	4	5
3. Medication and Physical Activity	1	2	3	4	5	1	2	3	4	5
4. Assessment and Evaluation	1	2	3	4	5	1	2	3	4	5
5. Program Placement Alternatives	1	2	3	4	5	1	2	3	4	5
6. Accommodations and Modifications of Activities	1	2	3	4	5	1	2	3	4	5
7. Rhythms	1	2	3	4	5	1	2	3	4	5
8. Aquatics	1	2	3	4	5	1	2	3	4	5
9. Modification of Equipment	1	2	3	4	5	1	2	3	4	5

APPENDIX C

(continued)

5. How would you rate the quality of this document? (check one)

☐ Poor ☐ Below Average ☐ Average ☐ Good

☐ Excellent

6. How much of the information in this manual will you use in your physical education program? (check one)

☐ 0% ☐ 25% ☐ 50% ☐ 75% ☐ 100%

7. Please list information you would like to see added to this manual as a supplement.

_____

_____

_____

_____

8. Additional Comments:

_____

_____

_____

Please return this completed evaluation form to:

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