
PROGRAMMING

Intergenerational Exercise Addresses the Public Health Issue of Obesity

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ABSTRACT. Health practitioners are increasingly concerned about the rise in obesity and decrease in physical activity in society. This article reports on an intergenerational exercise program involving participants from Jewish Community Housing for the Elderly and four preschool classes in Newton, Massachusetts. The program attempts to address those health issues using an intergenerational approach. Children between ages 3 and 5, and older adults come together weekly during the course of a school year for pre-literacy play, intergenerational stories that raise awareness of aging issues and nutritional snacks. An exercise class is added to this program monthly. The exercise component reflects the physical needs of both groups. The classes enable older adults to recognize their important role as models for lifelong exercise, while simultaneously addressing their own health habits. Children see older

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adults in non-stereotypic activity and begin to understand that exercise is a lifelong pursuit. Significant changes were seen in the ability of the children to follow directions, complete exercise routines, gain strength, and understand muscle and body functioning. Older adults gain health benefits from attending classes routinely, and show an increase in self-esteem as they act as role models. doi:10.1300/J194v05n01_06 [Article copies available for a fee from The Haworth Document Delivery Service: 1-800-HAWORTH. E-mail address: <docdelivery@haworthpress.com> Website: <<http://www.HaworthPress.com>> © 2007 by The Haworth Press, Inc. All rights reserved.]

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BACKGROUND

Obesity as a Healthcare Issue

Obesity in the United States has risen at an epidemic rate. Defined as a condition where there is an excess of body fat that can result in illness and is directly related to increased mortality, obesity is a major concern. According to the National Center for Health Statistics, the prevalence of overweight children aged 6-11 years quadrupled from approximately 4% to 16% from 1963-1970 to 1999-2002. During those same years, obesity among adolescents aged 12-19 years increased from 5% to 16%. Among the adult population, obesity increased from 15% to 30% between 1976-1980 and 1999-2002. In 1999-2002, approximately 9.9 million Americans visited physicians' offices where a diagnosis included obesity (NCHS Data on Overweight and Obesity, 2004). One of the Center for Disease Control's national health objectives is to reduce obesity to 15% of the population by 2010. This may be a difficult goal to achieve because the incidence of obesity continues to increase (National Center for Disease Control and Prevention, 2004). One acknowledged element in addressing the issue of obesity is to increase physical activity levels. Perhaps too, those who exercise regularly are more likely to address other factors associated with obesity and wellness.

Obesity in Children and Young People

The American Academy of Pediatrics reports that nationally children are facing obesity problems, and that Americans are in the midst of a youth fitness crisis (Prevention of Pediatric Overweight and Obesity,

2003). Preschool and school-aged children have always been considered physically very active, but unfortunately, many children now spend after-school hours watching television. Research from the United States, and other countries, has linked excessive television viewing at any time to an increase in childhood obesity (A.C. Nielsen Company, 1988; American Obesity Association, 2002; Crespo, Smit, Troiano, Bartlett, Macera, & Anderson, 2001; Dietz & Gortmaker, 1985; Kaiser Family Foundation, 2004; National Institute on Media and the Family, 2004; Neville, Thomas, & Bauman, 2005; The Obesity Society, 2001; Victoria, Canada Better Health Channel, 2006). Similar concerns are emerging concerning the time children spend playing computer games. In addition, even as the importance of health-related physical fitness for school-aged children is well understood, public school physical education programs are being eliminated due to shrinking budgets and growing demands for more time in classrooms to improve academic performance (Kemper, 2003; Physical Fitness and Activity in Schools, 2000). Nevertheless, the Academy continues to recommend that children be provided with physical activity within the school curriculum and during the school day (Physical Fitness and Activity in Schools, 2000).

Health consequences of obesity often begin in childhood or adolescence, bringing increased risk for many chronic diseases. Psychological effects of obesity in youth can include social discrimination and isolation, negative self-image that continues into adulthood, behavior problems, and school-related academic problems (Overweight and Obesity, National Center for Disease Control and Prevention, 2004).

Obesity in Older Adults

To counter the health risks related to obesity in older adults, health care professionals have advocated that sedentary lifestyles be replaced by lifestyles that include regular exercise. The beneficial effects of exercise in later life have been well documented (American Geriatrics Society Panel, 2001; Christmas & Andersen, 2000; Lee, Paffenbarger, & Hennekens, 1997; Mazzeo, Cavanaugh, & Evans 1998; Singh, 2002).

Exercise minimizes the physiological changes associated with aging. For example, it decreases fat mass and maintains lean body mass, and increases regional bone mineral density (Keiser, 1998). Exercise also contributes to psychological health and well-being, increased longevity, and strategies for chronic disease management and treatment for some diseases and disabilities (Exercise for Elders, 2003; Singh, 2002).

Intergenerational Programming Influences Both Young and Old

Practitioners in the field, utilizing the strengths of each generation to address individual and community social needs, are well aware that intergenerational relationships affect and influence participants. Much research has been done on the positive attitudinal and behavioral effects of intergenerational interactions on both the young and the old (Aday, Rice, & Evans, 1991; Bales, Eklund, & Siffin, 2000; Chowdhary, Schultz, Hasselriis, Kujath, Penn, & Henson, 2000; Couper, Sheehan, & Thomas, 1991; Dellman-Jenkins, Fowler, Lambert, Fruit, & Richardson, 1994; Kinnevy & Morrow-Howell, 1999; Lowenthal & Egan, 1991). Additional positive outcomes for youth are found when instruction on aging is included as part of an integrated curriculum (Anspaugh, Walker, & Ezell, 1986; Friedman, 1999; Laney, Wimsatt, & Moseley, 1999; McGuire, 1993; McGuire, 1994). While intergenerational programs with various goals are reported in the literature, articles about intergenerational exercise classes with young children are virtually non-existent.

Intergenerational Exercise as a Motivator for Addressing Obesity

In view of the positive effects of intergenerational interactions, the issue of health, wellness, and survival, involving cardiopulmonary performance or musculoskeletal strength, should also be able to be addressed using these interventions.

The Adult Health and Developmental Program (AHDP), which was piloted at the University of Maryland and has been replicated at colleges worldwide, demonstrates the motivational and behavioral impact of intergenerational exercise. AHDP results revealed that the special bond that forms between the student and an older adult creates a positive environment for maintaining the exercise program and stimulates changes in behaviors and attitudes of the student and elder toward exercise. When trying to determine the motivational factor that makes this type of program successful, participants in AHDP pointed to something “beyond the degree usually found in essentially volunteer organizations” and “what is special has yet to be quantified” (Leviton, 1992). A common motivator was not identified. Motivational factors such as promoting exercise for enjoyment, health, or mental alertness were perceived

differently by different age groups and, therefore, were not always a common motivator (Campbell, MacAuley, McCrum, & Evans, 2001).

In an attempt to identify these motivations, and using prior research as a guide, we hypothesized that the same positive results from intergenerational interactions that cause young and old to gravitate to each other would also (1) provide motivation for older adults to exercise more regularly when children are included, and (2) increase the older adults' self-esteem as they act as role models for positive lifelong exercise habits. Additionally, students would (1) see older adults in a non-stereotypic role and (2) recognize the importance of exercise as a lifelong endeavor. At the same time, both age groups would reap the physical and psychological benefits accrued to exercise, which could then contribute to the potential reduction of obesity.

Participants

Jewish Community Housing for the Elderly (JCHE) was founded in 1965 to give low-income elderly people of all ethnic and religious backgrounds an affordable and safe place to live. JCHE consists of five buildings in Newton and Brighton, Massachusetts, where over 1,300 tenants, whose average age is 80, live independently in their own apartments. Sixty-nine percent of the tenants are female, 31% are male, 1.6% African American, 16.50% Asian, .23% Hispanic, and 58.71% from the former Soviet Union. The programs and services offered at JCHE enable tenants to stay involved, avoid isolation, and enjoy dignity and peace of mind.

Approximately 30 residents in JCHE's two Newton buildings have an on-going relationship with approximately 70 pre-school children each school year; about 50 children, ages 3-5 years, from the Campus Pre-school at the Leventhal-Sidman Jewish Community Center in Newton, and 20 children, ages 4-5 years from the Viola and Joseph Rosenshine Nursery School at Temple Reyim in Newton. The program extends from late September until the end of May, and includes four components: pre-literacy play activities; intergenerational stories that raise awareness and discussion of aging issues; snacks; and exercise. Approximately 20 additional JCHE residents join these classes for the exercise portion only. Residents are recruited for the program each school year with an annual return rate for each of the five years the program has existed of about 75%. (This is a particularly strong return rate when considering that the average age of participants is 80). Typically three to five new tenants join the program each year. Although older adults are

able to attend sessions as often or as infrequently as they choose, they usually come regularly once they begin. When the relationship between the adults and children begins to grow, the bonds become equally strong for each generation. Indeed some relationships have outlasted the school year and parents have requested home visits with residents to whom their child has become particularly attached.

Program

It may not initially appear relevant to describe here the full program for the preschool interaction with JCHE residents rather than just the exercise sessions, but doing so will provide a better understanding of how the children's stereotypes are dispelled using various techniques, and how seeing older adults as role models is nurtured and enhanced throughout the entire program. This leads to a comprehensive approach to accepting older adults as role models for health and wellness.

The Reading Readiness Component

Children visit the older adult housing once a week for one hour. Weekly visits include four components: pre-literacy games, story time, exercise, and snacks. During the pre-literacy game time with the older adults there is undirected, but constant talk between young and old. Stories are read aloud and chosen from carefully selected picture books that involve younger and older people together. The stories are chosen for their non-ageist, non-stereotypic messages, or for the opportunity to discuss ageism and stereotypes with children because of the obvious examples of each. Both children and adults are asked to react to the story. Older adults' memories and life experiences are often evoked and shared. Students often share information about their own grandparents. Life lessons are learned.

Through stories, children learn about the following:

- Racial conflicts: *Uncle Jed's Barbershop* by Margaret King Mitchell
- The value of tradition: *The Keeping Quilt* by Patricia Polacco
- Community service: *Uncle Willie and the Soup Kitchen* by Dyanne DiSalvo-Ryan
- Grandparents raising grandchildren: *Robert Lives with his Grandparents* by Martha Whitmore Hickman
- Life in days gone by: *The Potato Man* by Megan McDonald

- How it feels to be old: *How Does it Feel to Be Old* by Norma Farber
- How society influences those who are aging: *Grandma According to Me* by Karen Magnuson Beil
- Culture and the arts: *Song and Dance Man* by Karen Ackerman
- The strength of intergenerational relationships: *Amazing Grace* by Mary Hoffman

In each story the older adult is a role model for the youth and the wisdom of age is seen as a positive and important value. The lessons learned from the stories about non-stereotypic aging, combined with the reflections, thoughts, and sharing of what the adults' present day lives and activities are, prepare the students to view the exercise component as an integral part of productive aging. Children expect that grandparent figures will interact in play and food preparation with them, but not usually in directed exercise classes. This entire program, incorporating play, stories, and exercise together, helps to dispel previously held notions.

The Intergenerational Exercise

Once a month, the children exercise with the older adults at JCHE. Exercise sessions usually last for 20-30 minutes. Students and adults arrange themselves either in a circle with students intermingled with the adults or with students in an inner circle. It is emphasized that exercise is fun, as well as something to be taken seriously. This exercise session is kept at the level of the adult exercise program, rather than simplifying the routines for the children. The demeanor of the leader, the older adults, and the children's teachers, helps students realize that it is important to concentrate in order to perform the exercises properly and avoid injury. Due to their desire to mimic, and because this is often a new experience, the students readily accept these messages. At the same time, the music is modern and upbeat, the leader is quick with praise and encouragement, and the older adults instinctively assist the children, all of which contributes to a supportive, enjoyable atmosphere.

Warm-Up Breathing Exercises

The session begins with breathing exercises to quiet the children, release tension in the older adults, and prepare both age groups for the class. Deep breathing includes inhalations and exhalations that bring the

muscles to a relaxed state. The group begins to breathe deeply together, finding a common rhythm, and connecting each person to him or herself as well as to the group as a whole.

Warm-Up and Cool-Down Stretching Exercises

Stretching exercises increase blood flow and, therefore, oxygen to the muscles, helping to promote muscle toning. They also create energy and body flexibility and help maintain good form. With arms overhead, children and older adults are asked to stretch to the left and then to the right. Many children do not yet know left from right, and the mistakes are clearly endearing to the older adults. Some of the stretching exercises here, and at the conclusion of the session, require all participants to make shapes with parts of their bodies on a high, medium, or low plane. The children and the older adults also form shapes and patterns that intersect, thereby engaging in direct interaction while stretching. This encourages creative self-expression and, when participants are asked to hold their shapes for a few seconds, provides a chance to test their balance. At the conclusion of the exercise session, stretching exercises help to reduce muscle soreness and aid relaxation.

Balance Exercises

Issues related to balance are equally important for young and old. Children learn to stand on one foot between the ages of three and five and they proudly display that balancing ability. Older adults, on the other hand, are very fearful of losing their balance, potentially resulting in falls and injuries. In our program, children and adults raise and lower each leg individually and very slowly. Children usually hold onto each other and the older adults hold onto a chair back if necessary. The group becomes empathetic as they watch one another needing some assistance. Raising the leg and rotating the ankle generates blood flow and isolates muscle groups. It also strengthens the quadriceps muscles of the legs that will, over time, increase mobility, improve range of motion, and increase muscle strength. All of this ultimately improves balance. Moving parts of the body repeatedly, and in isolation, releases muscle tension and develops strength. Balance exercises are often hard for both age groups and periodic exclamations of distress are often heard from all participants.

Aerobic, Cardiovascular Exercises

Marching is the aerobic, cardiovascular component of the exercise class. It builds stamina and endurance and supplies extra oxygen to the heart. Marching is a challenge for both age groups because it requires a great deal of concentration and hand/leg coordination when participants circle both arms as they march. Marching is done to accompanying pop music and enjoyed by all. Interaction is encouraged as children and older adults march around the room together, or children march towards the older adults who may need to sit.

Free Weight Strength Training

After the cool-down stretching exercises, the children leave the exercise class and the adults continue using free weights in the strength-training component of the class. Due to their age and the growth of their bones and muscle, it is not recommended that young children engage in the use of free weights.

RESULTS

After five years of this program, evidence suggests that this type of interaction yields positive results on physical, psychological, and social levels. Most intergenerational programming is a win-win proposition and this one is no different. Although the benefits extend beyond the participants to teachers, parents, and preschool directors, the focus of this report is on the results derived by the children and older adults.

Attendance records are kept for each session of the entire program and for each exercise session. Records are also kept for tenants who are not in the preschool program but who exercise regularly. Notation is made of their attendance at the sessions that included the children. The only deviation from perfect attendance at all sessions occurred at the initiation of the exercise component of the program. While 15-20 tenants attended all exercise sessions, three regularly avoided the sessions with the children. Two of those three now participate with the children. Two focus groups are held each year with the teachers who report on their informal interviews with parents. This helps us identify student reactions to the exercise program in particular. A yearly meeting is held between the Director of Intergenerational Programs at JCHE and the

Director of the Campus Preschool at the Leventhal-Sidman Jewish Community Center to assess the entire program.

The Director of Wellness at JCHE meets twice a year with participating tenants in informal focus groups, receiving feedback from them as to the effectiveness of, and their satisfaction with, the exercise portion of the preschool programs. Between 2003 and 2005, 11 questionnaires were randomly distributed asking for written feedback and 11 residents responded. Nine out of the 11 indicated, in a recurring theme, they love exercising with the children and the program makes them feel “valuable and young, and worthy that they are part of a learning experience for young children.” The other two residents indicated they didn’t like interacting with children and didn’t like their daily routine changed.

Concerning the student interaction in the exercise portion of the program, teachers and parents witness positive results. Teachers reported that the children initially express surprise that their older adult friends can actually exercise, but with time begin to see exercise as a normal activity for any age. As time passes and the exercise interaction becomes routine, a friendship emerges as young and old share comments about how hard it is, or excitement at accomplishing a particular exercise routine. Children’s attitudes about older adults and their physical abilities change. In one instance, a parent and child met one of the older adults early one morning at the community center. The mother commented on the older adult being up so early, and the child interrupted with “she exercises every morning!”

Parents and teachers report that through the course of the school year, the children have an increased ability to focus and follow directions. While not solely attributable to the exercise alone, they do credit this program as a major contributor to the progress achieved. In addition, the children look forward to the exercise and often arrive telling their friends they feel “very strong” today. Some have commented that they now exercise with their parents at home, a report confirmed by the parents.

In addition, the following has been observed and reported in the focus groups, by the group leader, program coordinator, and teachers:

- *Memory is enhanced.* Repetition of the repertoire of the exercise routine promotes self-confidence for both students and older adults. They begin to have a collective memory of the exercises and feel comfortable with each other as well as with the tasks at hand. A feeling of accomplishment is derived when they recognize what they have done together.

- *Competition is energizing.* Children can be competitive; older adults attempt to remain flexible and active as they compete against the aging process. When competition is internal, rather than provoked externally, it is healthy and energizing. The competition in this exercise program challenges participants to reach their personal physical limits.
- *Listening skills and attention span increases.* Students are expected to listen carefully, follow directions, and translate messages into activity. Older adults with any auditory impairment must focus their attention on the activity at hand.
- *Anxiety and depression decreases.* The release of endorphins during exercise creates a sense of well-being and good health. This is especially important in older adults who may experience anxiety or rigidity in their everyday lives. Both students and residents leave the class feeling happy and with a sense of accomplishment.
- *Self-validation and self-esteem increases.* Finding a way to be heard and validated is crucial for both age groups: it leads to ego-development in youth and helps older adults to psychologically reverse the negative societal images of aging. By succeeding together in a demanding program that challenges their minds and bodies, both generations build self-esteem. Creative self-expression, as part of the exercise repertoire, results in pride in oneself, and a sense of empowerment. In addition, older adults feel good about themselves as they recognize their importance as a role model for the children.
- *Stereotypic attitudes change.* As children see older adults exercise and accomplish what even they themselves may find difficult to do, their stereotypic attitudes towards older people change. Over time, older adults are viewed as capable and strong. This new image slowly replaces the negative media images of aging that are so prevalent in society.
- *Lifelong exercise is modeled.* Older adults view their responsibility as a role model with utmost importance and this motivates them to continue to attend classes. In our experience, adults were not motivated to come to exercise classes simply because the children were present, despite the fact that they enjoyed the children. They became more motivated to attend classes when it was explained how their presence would help change the image of aging, and how they would model the value of exercise as a lifelong activity. The chance to make a difference in attitudes became a motivating factor.

- *Kinesthetic awareness increases.* As older adults turn to look at or assist a child in the circle, they become aware of where their body parts are in space. Such actions in themselves contribute to the development of balance.

The intergenerational preschool program has been an overwhelming success. The older adults appreciate their role as mentors. While other intergenerational programs at JCHE require a more formal commitment of attendance, this program does not. Despite that flexibility attendance records prove that the same people participate on a regular basis. Adults look forward to the children's visits and miss them when school vacations interrupt the schedule. Many tenants report that they are motivated to attend class when they know the children will be there.

Parental anecdotes reveal that children ask regularly if today is the day they get to see their older friends. They also find that their children need reassurance that they can continue to visit the older adults when school is over. In two instances, parents reported that their child verbalized a desire to actually separate physically and psychologically from the close relationship with their adult friends so as to not be "too sad when I won't see him/her anymore." This became an opportunity for the staff and older adults at JCHE to share with the children their perspectives on accepting change throughout life, valuing present relationships and experiences, and adding those experiences to our store of pleasant memories.

DISCUSSION

The model used in this program provides support to the hypothesis that intergenerational exercise programs can reduce negative stereotypes about aging and physical activity, begin to address the health issue of obesity resulting from lack of exercise, and for many, act as a motivator to participate in regular exercise. A majority of older adults in this program embraced the opportunity to model lifelong exercise for children and they looked forward to the interactions—both physical and social.

In the first year (2001-2002 academic year) of these exercise classes, however, two unforeseen concerns necessitated some adjustments to the intended program. Initially, the exercise class was to be a weekly occurrence; it became instead a monthly activity. Also the program was hypothesized to be enough motivation to entice older adults to immediately exercise more, but instead the motivation has only occurred over time.

The first concern, as indicated in the results section, was that three older adults who participated in the JCHE fitness classes held two to three times each week, were hesitant about including children in one of the sessions. They felt it would either be a distraction to the serious nature of the class, or interrupt their daily routine. They were reluctant to join this intergenerational group. Four others agreed but were less adamant and would still participate. Logistics dictated the time of the intergenerational exercise program and it coincided with the residents' fitness classes. As a result of these concerns, while the students met with the tenants weekly, the intergenerational exercise component occurred monthly. The older adults' class routine did not change. This compromise did not affect the objectives of changing the image of productive aging, of older adults as role models for lifelong exercise, of exercise as important for good health, or of exercise as a factor in avoiding obesity, but the actual exercise time with the children was less than intended. Over time, most of the tenants have embraced the intergenerational exercise, as indicated in the questionnaires, and in 2006, an additional class each month is being added. As reported in the results, two of the three tenants who opted not to participate when the children were present are now attending those sessions as well.

Second, while being a role model was embraced by many of the older adults, a few were unable to see themselves in this position. In our nation's relatively recent past, our elder population was encouraged by media and other sources to view the retirement years as a time for self-indulgence and total relaxation. With that came the unintended message that elders were an expendable part of a productive society. Now that the population is aging and demographics are changing, the need for older adults in the social fabric of society is crucial. JCHE asks residents to participate in the building of a caring society and to offer children the nurturing, mentoring, and cultural and historical perspectives that older adults have in abundance. Yet, substituting one message for another is difficult and takes time. The more we have demonstrated the effects of their mentoring, and the more they see the change in the children during exercise from the start to the end of the school year, the more they are able to alter their own self-esteem.

Despite the slow pace at which these changes are taking place, the impact is significant.

The entire program contributes to the children seeing older adults as vital, productive people rather than in the stereotypic roles society has commonly placed them. This provides a strong basis for seeing the older

adult as a role model for lifelong exercise resulting in a start to addressing obesity.

The intended outcome of addressing obesity as a wellness issue for both young and old by increasing physical activity has been achieved. We never intended for this program to be a cure for obesity in either the children or adults. For children we did intend for them to be exposed to older adults participating in non-stereotypic ways, for the exercise to reinforce good health habits, and for children at early and impressionable ages to change their attitudes about the importance of exercise for every age. There is now sufficient qualitative evidence to justify that the exercise component is making a distinct contribution to these overall goals. Our hypotheses that intergenerational exercise would be a motivator for older adults is only beginning to become true after a few years and the change in older adult's self-esteem as they see themselves as role models for children is also just beginning to be true. While we acknowledge undue optimism regarding the time frame for change in motivation and role modeling, there is emerging evidence to support positive developments over a longer period. It appears unrealistic to assume those changes would happen quickly since society has created an age-segregated society for so long.

As the program continues, it will be important to differentiate between the older adults who participate in the exercise and those who do not. Baseline information concerning general wellness as well as relevant data collection for specific individual wellness issues before and after continuous exercise will be important aspects of further research in this area. Greater numbers of questionnaires need to be distributed and more focus groups need to occur. With time we believe this program will see an increase in number of participants and act as a model program for replication. As obesity continues to remain a worldwide public health issue, innovative ways such as this may begin to address the problem.

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