An Applicable Physical Activity Program Affecting Physiological and Motor Skills: the Case of Table Tennis Players Participating in Special Olympics (SO)

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Abstract

This research sought to discover the ways and extent by which a special intervention program affects the improvement of table tennis skills of SO (Special Olympics) participants. Over the years, several studies related to various sports in SO have been conducted. In order to evaluate the effect of the program on skills of four indicators, T tests were conducted at the beginning and the end of the program. The results showed a statistically significant improvement in each of the skills, following the implementation of the program.

Keywords: Special Olympics, Physical activity Programme, Family & Siblings, Special needs, Ecological Model of Human Development

1. Paper rational

Sports fields are many and varied. In Israel, there are a number of organizations training persons with disabilities such as ICSD (Israel Sport Center for the Disabled) and the IDF disabled Veterans Organization. Athletes training in those frameworks and are high achievers participate in competitions in the Paralympics.

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Persons with intellectual disabilities can participate in two types of Olympic competitions: the Paralympics games and the Special Olympics. In Israel, there are no persons with intellectual disabilities who participate in the Paralympics. However, there are a few hundred participants in nine Olympic fields in the Special Olympics competitions: football, swimming, judo, table-tennis, athletics, cycling, field tennis and bawling.

Over the years, several studies related to various sports in SO have been conducted. To the best of my knowledge, there are no studies on table tennis in general, and on the involvement of people with intellectual disabilities in this sector - in particular. This suggests the importance of this research which examines the effect of a special training program on the physiological aspects of intellectual disabled participating in table tennis.

2. Paper theoretical foundation and related literature

Persons with intellectual disabilities are often characterized by having motor difficulties and limitations expressed in the performance of sports skills. These difficulties may influence cognitive, social or emotional areas of functioning or be influenced by them. Therefore, work on the motor field serves both as a therapeutic and rehabilitative tool for each functioning domain. Hemayattala & Movahedi (2010) found that the development of motor or mental skills among persons with intellectual disabilities is not enough. These domains have to develop together, in harmony. They maintain the development and nurturing of one domain contributes to the development of the other (Hemayattalab & Movahedi, 2010).

One of the proposed ways for persons with disability to shift to an active state is physical activity (Hotzler, 2004). Physical activity seeking to develop the disabled person's coping ways, challenge and self-realization, is a means that leads to achievements in other domains. The sense of empowerment will lead to the wish to integrate into society, help in self-acceptance and also enhance the wish to change the environment despite the disability. The development of the motor domain is of great significance to the independence of a person living in the community as a disabled person. In case of disability in movement, a developmental delay is created in the psycho-motor and social aspects, which hinders the individual's ability to engage in normative interaction with the environment (Reiter, 2002; Hotzler, 2004; Almosni, 2007).

Research in the field of sports with persons with intellectual disabilities mostly show positive influences of physiological aspects such as gaining weight, fitness and health, quality of life, coordination aspects and muscular flexibility, a sense of self-efficacy and self-esteem (Ben Sira et. al., 2005; Ninot & Maiano, 2007; Lejcarova, 2009; Robertson & Emerson, 2009; Franciosi, 2010; Guidetti et al, 2010; Westendorp et. al, 2011; Cuesta – Vargas et al, 2011; Rasool & Ahmadreza , 2010; Hayakawa et al, 2011).

There are a few organizations engaging in sports for persons with intellectual disabilities. The largest organization is Special Olympics (SO), established in 1968. SO started as a community school program and developed into an organization encompassing some 3,000,000 people around the world competing in more than 30 sports (Maclean, 2008). Most participants are male and at a relatively old age for competitive sport (Gillespie, 2008).

Few studies were conducted in the SO domain, some of which focused on the physiological advantages and health implications for SO participants as well as on so influence on the participant's quality of life (e.g. Meghann et al, 2012; Gibson et al, 2011; Hild et al, 2008; Turner et al, 2008). Some of the studies focus on the advantages and disadvantages of participating in SO (e.g. Maclean, 2008; Glidden et al, 2011; Smith et al, 2010; Storey, 2004:2009). Other studies focus on the influence of SO participation on mothers and families of children with intellectual disabilities, both from the perspective of the family unit and that of the influence of participation on the pressure within the family (Weiss & Diamond, 2005; Weiss, 2008).
3. Author’s contribution on the existing theory and practice in educational field

Persons with intellectual disabilities are often characterized by having motor difficulties and limitations expressed in the performance of sports skills. These difficulties may influence cognitive, social or emotional areas of functioning or be influenced by them. Therefore, work on the motor field serves both as a therapeutic and rehabilitative tool for each functioning domain. Hemayattala & Movahedi (2010) found that the development of motor or mental skills among persons with intellectual disabilities is not enough. These domains have to develop together, in harmony. They maintain the development and nurturing of one domain contributes to the development of the other (Hemayattalab & Movahedi, 2010).
**Academic Sources**

- Physical Activity
- Training Program
- Table Tennis

**Gap of Knowledge:**
- Lack of studies in Special Olympics and in table tennis.
- No table tennis program for cognitive disabled people.

**Research Question:**
What are the effects of an integrative physical activity training program on athletes who participate in Special Olympics table tennis games on balance, eye & hand coordination, power regulation and coordination?

**Objectives of**

- Physical fitness training program
- Special Education physical fitness training program
- Special Olympics
- Table tennis

**Basic Assumptions for Building a Training Program**

- Founded on 4 basic skills of the table tennis game: eye hand contact, balance, power regulation and coordination
- Addressing the principles of work and education of cognitive disabled population (Ronen 2005)
- Relying on development scales (Greenspan 1997)

**Personal background for selecting a subject**
- Pedagogical Educator - Special Education Program
- Paralympic table tennis player
- Physical Activity
- Training Program
- Table Tennis

**The need for building a table tennis program for cognitive disabled people**

- Having a sister with special needs
- Physical disability as a result of military service
- Special Olympics
- Physical Activity Skills

**Referencing the low status of Special Olympics table tennis in the world and especially in Israel Special Olympics Israel Website**

**Relying on prior physical fitness skills according to age and disability Curriculum of Physical Activity and Special Education**
Special OTP (Special Olympic Training Program)

Research Objectives:
- To develop an integrative physical activity program for athletes who participate in Special Olympics table tennis games.
- To explore the influence of an applicable training program on the balance, eye & hand coordination, power regulation and movement integration.

A series of 5 exercises of 4 table tennis skills

Exercise 1
Developing eye hand coordination and power regulation

Exercise 2
Developing eye hand coordination and power regulation

Exercise 3
Developing balance, power regulation, coordination, eye hand coordination

Exercise 4
Developing balance, power regulation, coordination, eye hand coordination

Exercise 5
Developing balance, power regulation, coordination, eye hand coordination

Family Training
Developing balance, power regulation, coordination, eye hand coordination

End of Program

Draw conclusions and insights following the execution of the program and after assessing it.

Fig. 1 Formation of Table Tennis SO Training Program - Flowchart
4. Author’s contribution on the topic

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The Research can help to understand how a learning program can improve specific skills included in the program, such as - eye-hand contact, coordination, and balance and power regulation, in people with intellectual disabilities. Another practical contribution is the use of learning these skills for other sports areas with similar skills. The theoretical importance is the contribution to knowledge that people with intellectual disabilities have the ability to learn through a physical activity program. Another theoretical contribution is that this program can be implemented in special education schools.

5. References

Hemayattalab, R., Movahedi, A. (2010). Effects of Different Variations of Mental and Physical Practice on Sport Skill Learning in Adolescents With Mental Retardation.


