

**EFFECTS OF INTEGRATED OR SEGREGATED SPORT PARTICIPATION
ON THE PHYSICAL SELF FOR ADOLESCENTS WITH MENTAL RETARDATION.**

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Abstract

Background: The purpose was to examine the effects of the type of athletic program (integrated vs. segregated) on the athletic domain of perceived competence and on general self-worth.

Method: Participants were 32 adolescent females with mental retardation (MR) divided equally into four groups: (a) segregated swimming, (b) integrated swimming, (c) adapted physical activity, (d) sedentary. The experimental treatment was 32 months long; for sport groups, this involved 2 hr of training each week and twelve competitive meets. The Harter's (1985) Self-Perception Profile for Children 11 times was administrated to determine changes in physical perceived competence, and general self-worth.

Results: Results indicated (a) no change in perceived general self-worth for the four groups; (b) significantly lower perceived athletic competence only for the integrated swimming group, despite the increase in athletic performance.

Conclusions: The integrated sport participation for adolescents with MR placed in segregated school are useful but need to be well control by professional in physical education.

Keywords: Intellectual disability, social environment, swimming, perceived physical competence

Introduction

Researchers have long wondered about sport participation as a means to improve self-image, especially in adolescents with mental retardation (MR). Although some of the studies based on a single meet for persons with MR (Special Olympics) show an improvement in perceived competence over periods of up to 16 weeks, no study has studied the effects over a longer term, such as three entire sports season. Moreover, research has only recently begun to investigate the outcome of the new models of sport competition for these individuals, such as the Integrated Scholastic Sports Program.

Then, the purpose of the study was to analyze the effects of two modalities of regular sports meets on the perception of physical competence and general self worth in four groups of adolescents with mild to moderate MR over a period of 32 months.

Perceived competence and adolescence

The perception of competence is a component of self-concept (Weiss, 1986), which indicates mental health status (Biddle & Mutrie, 1991). Compared to the notion of self-esteem, a one-dimensional model that is global and abstract (Sherrill, 1997), perceived competence is based on a great number of perceptions relative to the different aspects of daily life in which we are confronted with our own competence. In each of these aspects, we are more or less satisfied with ourselves (Harter, 1982). According to Harter (1985a), the perception of competence in young adolescence integrates five specific domains of competence: scholastic competence (scholastic and intellectual performances), social acceptance (relationships with peers, popularity), athletic competence (performances in leisure and athletic activities), physical appearance (body image) and conduct (behavior with others). Additionally, Harter (1985a) recommends an evaluation of general self-worth (extent to which students like themselves as persons). For adolescents without MR, some authors wrote that general self-worth increases between 13 and 18 (McCarthy & Hoge, 1982; Rosenberg, 1986), equivalent to one standard deviation in eight years (O'Malley & Bachman, 1983). Moreover, age is the principal factor of accuracy of self-evaluations. Correlations increase between middle child period and end of adolescence (Harter, 1982; Harter & Pike, 1984). Harter (1986) thinks that accuracy of self-evaluation is a sign of a normal development. However, unrealistic expectations about own competencies are always possible (Harter, 1986), especially for adolescents with MR.

To measure perceived competence, Harter (1985a) validated the Self Perception Profile (SPP). The SPP, also validated in French by Pierrehumbert *et al.* (1987), is one of the tools most often used in research and was adapted to young adolescents with MR (Riggen & Ulrich, 1993). This test is able to differentiate between perceived competence in specific domains and a perception of general self-worth. The specific domains are scholastic and cognitive ability, social acceptance and popularity, athletic competence, physical appearance and conduct. The perception of general self-worth is measured by a separate scale, which indicates the degree of assurance and contentment of the subject in a very general manner.

Perceived physical competence and adolescents with MR

In an ordinary school context, Harter (1986), Kernis, Brockner and Frankel (1989), and Kloomok and Cosden (1994) showed with the SPP that adolescents with MR present a low level of the scholastic domain of perceived competence. Kernis, Brockner and Frankel (1989), LaGreca and Stone (1990), and Smith and Nagle (1994) showed also with the same instrument a low level of the social domain of perceived competence.

School placement of individuals with MR can create distortions. The placement in specialized classes or establishment in United States of America (USA) does not change the low level of

scholastic perceived competence (Renick & Harter, 1989; Butler & Marinov-Glassman, 1994). Eighty-four percent of adolescents of specialized classes want to compare themselves to ordinary pupils because they want to be considered as *normal* (Renick & Harter, 1989). However, other studies with the SPP show that children with learning disabilities do overestimate their academic abilities (Alvarez & Adelman, 1986; Bear & Minke, 1996). Moreover, adolescents with MR placed in a specialized center for at least 1 year, manifested a paradoxical high level of perceived scholastic competence in French speaking Switzerland (Pierrehumbert, Zanone, Kauer-Tchicaloff, & Plancherel, 1988), and in France, in the scholastic and physical domains (Ninot, Bilard, Delignières & Sokolowski, 2000a).

This article focuses on physical overestimation, named also physical auto-illusion (Ninot, Bilard, Delignières & Sokolowski, 2000a). Several explanations can be exposed in reference to the International Classification of Impairments, Disabilities and Handicaps (World Health Organization, 2000).

First, physical overestimation could be linked to the principal impairment, cognitive disorders. The cognitive disorders, demonstrated by an Intellectual Quotient test, can explain difficulties in the development of perceptions of competence. Adolescents with MR lack the ability to integrate evaluative information from multiple sources (Harter, 1986; Surber, 1984). Moreover, language disorders that commonly accompany MR include restricted or limited active vocabulary (Spradlin, 1968). Finally, self-concept literature has emphasized measurement problems. Instruments that require yes or no responses are believed to be weak because individuals with MR, when in doubt, tend to say yes (Alvarez & Adelman, 1986; Sigelman, Budd, Spanhel & Schoenrock, 1981). But today, these reasons are unsuitable because researchers validated appropriate perceived competence instruments. For example, the SPP is validated in English (Harter, 1985a) and in French (Pierrehumbert *et al.*, 1987) for adolescents aged more than 12 and with mild to moderate MR (Bear & Minke, 1996; Renick & Harter, 1989). Then, this overstatement phenomenon is believed to be founded in a self-protection tendency rather than an inability to make accurate self-evaluative judgments (Sherrill, 1997).

Second, research at the disability level in developmental psychology and social psychology offers several explanations why adolescents with MR tend to view their physical competencies unrealistically high. The literature confirms that students with school backwardness are intended to overestimate the level of physical competence compared to other students (Brown, 1998; Harter, 1982; Pierrehumbert *et al.*, 1988; Ninot *et al.*, 2000a). The placement in specialized centers can preserve high level of perceived physical competence. Moreover, the physical condition of a person with MR is often lower than subjects without MR because of their sedentary and non active lifestyles (Fernhall, Tymeson & Webster, 1988). The psychological process of attribution results in physical overestimation. Then, the lack of practice and experience can limit the development of realistic physical self-knowledge. Another behavioral explanations as a consequence of cognitive impairments can be noted in the literature. Bruininks (1974) show the difficulties of adolescents with MR to perceive motor stimuli. They selectively focus on the positive aspects of their physical performances. They engage in few social comparisons (Rubble, Boggiano, Feldman & Loebl, 1980). They tend not to consider the level of tasks performed and its relation to the effort needed (Nicholls, 1978). They even perceive success in easy tasks as an evidence of high ability (Stipek & Tannatt, 1984). They can attempt to preserve their self-esteem through mechanisms as denial, defensiveness, or rationalization (Edgerton, 1967; Fitts, 1972; Stipek, 1984; Weinberg, 1988; Wright, 1983; Yunker, 1988). Adolescents who score high on a self-report measure of physical self may be fooling themselves by defensively claiming to feel better about themselves than they really do. This psychological process is commonly named social desirability.

Third, according to the handicap level, a specialized environment (establishment) and a segregated social context create a specific mechanism for social comparison that encourages overestimation of self-competence compared to adolescents placed in integrated structures (Renick & Harter, 1989). Progressively, the adolescents in these segregated schools can develop the habit of

comparison only between themselves, and thus increase the risk of losing the sense of their physical capacities to work in integrated environment. Moreover, the teaching method based on systematic encouragement and maximal opportunities for success is very useful during the first year of the placement (Bear & Minke, 1996). But, the persistence of unconditional congratulation without appraisal can increase unrealistic perceptions of physical competencies.

Internal processes in evolution of the perceived physical competence

In the one hand, the importance of a sufficient level of general self-worth for mental health is now well known (Brown, 1998). In the other hand, physical health requires a satisfactory perceived physical competence, which motivates to practice regular physical activity (Fox, 1997). But, the causal relations between general self-worth and specific self-evaluations are not yet well known (Brown, 1998). Cognitive models of general self-worth assume a bottom-up process (Marsh, 1990; Pelham & Swann, 1989; Fox, 1997). They assume that positive evaluations in particular domains give rise to a high general self-worth. Inversely, affective models assume a top-down process (Brown, 1998). These models assume that a causal arrow goes from global general self-worth to specific self-evaluations. Liking oneself in a general way leads people to believe they have many positive qualities.

Sport competition and perceived competence for adolescents with MR

The relation between perceived physical competence and general self-worth in adolescents with MR is not clearly demonstrated (Sherrill, 1997). Researchers studied independently these self-appraisals over a short period and in a specific social context (integrated vs. segregated).

In the last decade in sport for persons with MR, two ways of organising sport meetings could be discerned: segregated and integrated forms. Segregated meets are organised exclusively for the persons with MR, and two international organisations exist. The first, Special Olympics International, has maximum participation as its principal objective, whereas the second, the International Federation of Sports for Persons with Intellectual Disabilities, a member of the International Paralympic Committee, places the emphasis on performance. The second modality, with integrated meets, invites the participation of non-handicapped athletes. These meets offer three types of practice: participation in ordinary clubs, unified sports wherein both handicapped and non-handicapped are on the same team (Unified Special Olympics), and normalised sports where students from specialised schools compete in traditional scholastic championships (integrated scholastic sports).

For the segregated sport meets, Wright and Cowden (1986) investigated the effects of the participation in segregated sport meetings (Special Olympics) on general self-worth in young American athletes with MR. Using the Piers and Harris Self-Concept Scale, they found that general self-worth of the athletes improved over a period of ten weeks. Gibbons and Bushakra (1989) specified with the SPP that if the performance improves, the perception of competence also shows increases in mentally retarded children when they are re-evaluated the day after a competitive meet.

Concerning the integrated meets, Riggen and Ulrich (1993) compared the progress in perceived competence in three groups of 25 adults with MR, with one group participating in Special Olympics competitions, another in Unified Special Olympic competitions, and a non-athletic control group. Using the SPP, the authors did not observe a significant increase in physical ability or general self-worth in the two athletic groups compared with the control group. They found no differences between the integrated and segregated groups. For mentally retarded subjects in a classic athletic structure or scholastic setting, no study has been published.

The literature reveals that the following variables have not often been taken into account: individual variables (age, sex, level of MR), environmental variables (type of sport organizations),

and, last, time. Indeed, no study has ever covered a period of more than four months (Riggen & Ulrich, 1993). Then, the previous studies are not sufficient to comprehend the effects of social environments during sport competitions and the links between general self-worth and perceived physical competence for adolescents with MR.

A repeated measures protocol was designed to evaluate change in athletic abilities, physical domain of perceived competence and general self-worth in mildly or moderately mentally retarded subjects engaged in one of two distinct sport programs: segregated or integrated. The effect of several sport conditions was assessed in evolution of physical overestimation compared to demonstrated athletic skills. The change of physical perceived competence and general self-worth over time was compared in French adolescent students placed in specialized schools. According to the effect of several sport conditions on physical overestimation, the first hypothesis was that only integrated athletic meets is more in accordance with real competence. The second hypothesis was that regular preparation for athletic competition would influence physical perceived competence and general self-worth.

Material and methods

Procedures

Four homogeneous groups were constituted, each with eight volunteer mentally retarded adolescents. The four groups participated in 16 athletic competitions over 32 months. One of these groups consisted of swimmers who participated in Special Olympics events (SwSO). The second athletic group practiced the same sport, but participated in integrated meets with teams from ordinary schools (SwISS). Two groups served as controls: the first one, physical education (PE) group, followed a classic program of adapted physical activities in a specialized center, and the second control group, Control, was composed of sedentary subjects.

Athletic skill tests were administered before the first meet (T0), and then after every two meets (T1, T2, T3, T4, T5, T6, T7, T8, T9, T10). The SPP was administered individually at the same times, always by the same investigator.

Subjects

Matched groups are formed (Table 1), and the following inclusion criteria were used: feminine sex; age between 13 and 17 years; school failure leading to placement in a specialized class; duration of placement of at least one year; either mild or moderate adolescent mental retardation—IQ of 40-78 on the Revised Wechsler Intelligence Scale for Children—of non-organic origin; associated problems of non-organic origin; little experience in athletic activity; and no prior experience of athletic competition.

Table 1: Description of the Four Groups of Adolescents with Mental Retardation

Name	Sport	Modality	Practice	n	Age		Placement period		IQ	
					M	SD	M ^a	SD	M	SD
SwSO	Swimming	Segregated	Classic SO	8	15.8	0.9	36	6.4	65.3	16.8
SwISS	Swimming	Integrated	School competition	8	15.5	1.2	39	5.6	60.0	6.8
PE	Swimming	None	Physical education	8	15.1	0.6	43.5	6.2	60.4	8.6
Sedentary	None	None	None	8	15.5	0.4	39	8.5	60.8	7.3

^a in months

A one-way analysis of variance (ANOVA) showed no difference between groups for age ($\underline{H}(3) = 4.32$, $p = .23$), duration of placement ($\underline{H}(3) = 4.83$, $p = .18$), or overall IQ ($\underline{F}(3,31) = 0.42$, $p = .73$). Thus, the four groups are considered as homogeneous from the start of the experiment.

Measures of sport performance

The swimming skill was measured by the time performance over 50 meters during training session (TP, training performance for 50 m of breast-stroke with diving start). No significant difference was noted with a ANOVA between SwSO, SwISS, and PE for the test before beginning the series of competition ($\underline{F}(2,21) = 3.14$, $p = .06$).

Measures of perceived competence

The SPP validated in French by Pierrehumbert *et al.* (1987) was used to assess athletic competence and general self-worth scales. The one way ANOVA revealed no difference at the beginning of the study for the two domains of perceived competence or general self-worth between the four groups (athletic competence, $\underline{F}(5,47) = 0.73$, $p = .602$; general self-worth, $\underline{F}(5,47) = 0.65$, $p = .662$).

Results

Figure 1 shows the performances on the test of swimming. The two-ways analysis of variance for repeated measures showed a significant effect of group ($\underline{F}(2,263) = 4.10$, $p < .040$), time ($\underline{F}(10,263) = 32.53$, $p < .0001$) and interaction ($\underline{F}(20,263) = 3.28$, $p < .0001$). The Student-Newman-Keuls method showed that all the three groups progressed on the test of swimming ($p < .05$). Although, the Student-Newman-Keuls method did not show any differences between groups.

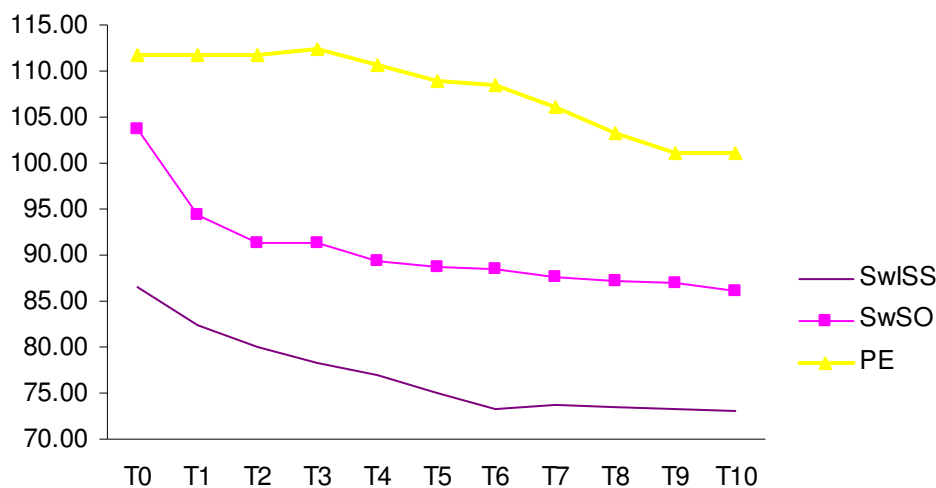


Figure 1 Progress in the Breast-stroke performances in the three Groups of Adolescents with Mental Retardation over an 3-years Period (seconds)

Note. * $p < .05$; ** $p < .001$; SwSO = Swimming in Special Olympics; SwISS = Swimming in Integrated Scholastic Sport; PE = Physical Education; Control = Sedentary. T0= Precompetition; T1= at 2 months; T2= at 5 months; T3= at 8 months; T4= at 14 months; T5= at 17 months; T6= at 20 months; T7= at 26 months; T8= at 29 months; T9= at 32 months; T10= at 36 months. TP= training performance for 50m.

For perceived athletic competence, the two-ways analysis of variance for repeated measures showed a significant difference for groups ($\underline{F}(3,351) = 3.61$, $p = .003$), time ($\underline{F}(10,351) = 9.47$, $p < .001$).

.0001) and not interaction ($F(30,351) = 1.46, p = .067$). There was a decrease between pretest and Test 10 for SwISS group ($p < .05$). The Student-Newman-Keuls method showed a SwISS score significantly lower than the Control group score ($p < .05$). The mean results for this domain of perceived competence between the three groups are illustrated in Figure 2.

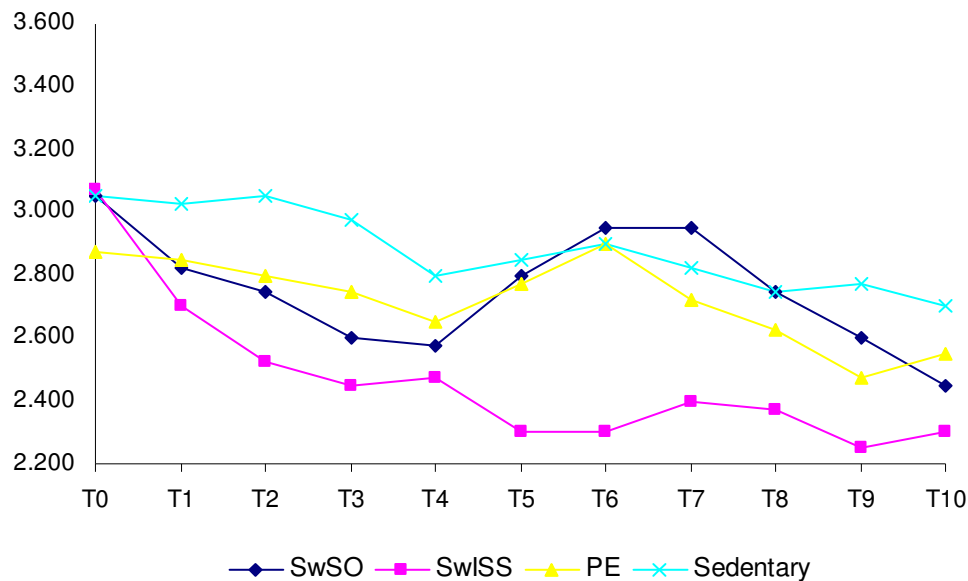


Figure 2 Changes in Perceived Athletic Competence Domain over three Years

Note. SwSO = Swimming in Special Olympics; SwISS = Swimming in Integrated Scholastic Sport; PE = Physical Education; Sedentary. T0= Precompetition; T1= at 2 months; T2= at 5 months; T3= at 8 months; T4= at 14 months; T5= at 17 months; T6= at 20 months; T7= at 26 months; T8= at 29 months; T9= at 32 months; T10= at 36 months. For each group, $n = 8$. Minimum and maximum scores respectively 1 and 4.

For the general self-worth scale, the two-ways analysis of variance for repeated measures showed a significant difference for time ($F(10,351) = 1.33, p < .0001$) and not for groups ($F(3,351) = 2.65, p = .080$) and interaction ($F(30,351) = 1.33, p = .123$). There was a global time variation between pretest and Test 10 for all groups ($p < .05$). However, the Student-Newman-Keuls method did not show any difference between two specific times or between groups. The mean results for the general self-worth between the four groups are illustrated in Figure 3.

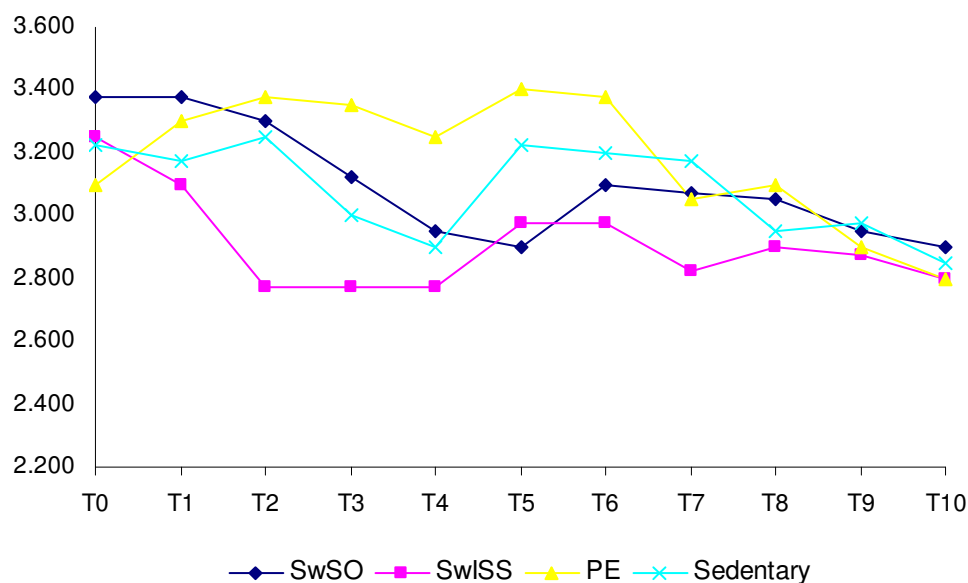


Figure 3 Changes in General Self-Worth over three Years

Discussion

The results approve the first hypothesis concerning the impact of integrated sport context. The stability in perceived physical ability, and general self-worth for SwSO, PE, and Control groups confirms the work of Dykens (1996) in subjects placed in a specialized center and participating in a segregated sport competition. For integrated meets, a sharp drop in perceived physical ability domain in the swimming group was observed after 32 months of practice and competition, despite the increase in athletic performance. This decrease indicates a more realistic perception of physical competence. It reflects the experience of these subjects, who abandoned their high level of perceived competence when they were confronted with a new system of social comparison like the integrated meets. Integrated scholastic sports, such as normalized swimming meets, led to a decrease in the declared physical perceived competence, as opposed to unified (Riggen and Ulrich, 1993) or segregated (Gibbons and Bushakra, 1989; Wright and Cowden, 1986) meets. The adolescents placed in a segregated school environment have a general tendency to overestimate their physical domain of perceived competence. Integrated athletic meets have contributed to limit the side effects of institutional care on these adolescents. The individual self-perceptions have been removed from an ordinary social setting. The segregated social context can influence self-judgements in that adolescents with MR who compare exclusively themselves to peers in the specialized school system will not have any opportunity to compare themselves to peers in the classic school. Comparison with non-mentally retarded individuals on the athletic field would thus encourage a more realistic evaluation of physical abilities. The field of athletics provides a framework within physical self-image can be adjusted in one year and stable after this period during two years. When perceived physical competence is based on real capacity, individuals with MR have a greater opportunity of undertaking athletic projects. Adolescents with MR can thus avoid future disillusionment. The study does not show if the phenomenon of distortions of perceived physical competence appears in every adolescent with MR placed in specialized institution. Research with larger group are necessary to evaluate how many people are affected by this trouble.

The results show that the physical domain of perceived competence has decreased as a result of participation in the competitive meets, particularly integrated meets. This result supports the second hypothesis. Concrete domain of self-perception seems to be more sensible to specific life event impact across time compared to global self-view (Fox, 1997). But, the frequency of measures is not regular and long enough to see the impact of the physical domain on the general self-worth. Future research has to assess the evolution of this question over a long period (from child to adult age). Moreover, relevance of few evaluations of somebody is not a sign of accuracy of his or her physical perception. Last, dynamic interactions between global self-esteem and physical domain of perceived competence are so complex that group analyses can not be sufficient. Thus, researchers could work with a method based on individual repeated measures survey of the physical self (Nowak & Vallacher, 1998).

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