Chapter 2

Review of Literature
Rasmussen (1970) Conducted a normative study of the AAHPER youth fitness test for boys in grades seven through ten in the state of South Dakota. The results found that the medium scores of the national sample in all items except pull-ups and the shuttle run.

Busch (1970) Made a normative study of the AAHPER Youth fitness Test in grade seven through ten in the state of South Dakota. He found that the medium scores of south Dakota girls were higher then those of national girls in all items except the flexed arm hang.

Hopper (1971) Tried to determine that Negro and Caucasian children could be differentiate on the basis of strength and physical fitness scores. The tests were administered on eight four Negro and Caucasian disadvantage, sixth grade children of elementary school in the four North part, Alabama. The results showed that Negro, disadvantage children were superior in cardiovascular endurance, dynamic strength, static strength and dynamic flexibility, whereas Caucasian, disadvantaged children were superior in explosive strength.

Ralph (1971) Conducted a study to compare physical fitness of Negro and White boys of Texas school (N=200) each were subject of the study and were administered AAHPER Youth Fitness Test. It was revealed through analysis of data that Negro boys obtained higher mean scores than White boys on gross boys co-ordination (softball throw)
and difference was significant at 0.05 level. Further, Negro boys were higher than White boys in muscular explosive (standing board jump) and difference was statistically significant at 0.01 level.

An investigation was made by **Dahl (1971)** to determine the possible difference between Negro and white boys on measures of physical fitness. The three sup-tests, sit-ups, standing board jump and soft-ball throw of AAHPER Youth Fitness Test was used. The sample consisted of 100 Negro and 100 white, fifth and six grade boys and 100 Negro and 100 white ninth and tenth grade boys, from the same district. 't' test was employed to test the difference. Negro boys scored significantly higher than white boys on overall physical fitness at both levels.

**Terwey (1972)** Compared the motor fitness performance of male and female Sophomore junior and senior physical education majors on selected motor fitness parameters. The subjects of investigation were 100 undergraduate males and 66 female. Eight motor fitness components were identified as cardiovascular endurance, muscular endurance, flexibility, speed, power, balance and agility. Forty none test items considered to be valid and reliable measures of these components were administered. The data collected were analysed by the one-way analysis of variance. The five test items with significant F-ratio for females were (1) 12-minute run-walk,(2) leg lift, (3) Roger's
strength index, (4) 40-yards maxe run, and (5) leg movement time. The five items with significant F-rations for males were: (1) 12-Minute run-walk, (2) leg lift, (3) Roger's strength index, (4) 40-yards maxe run, and (5) leg movement. The five teams with significant F-ratio of males were: (1) shoulder-extensions strength, (2) Cable-tension strength, (3) Grip strength, (4) Back lift, (5) Roger’s Arm strength:

_Haley (1972)_ Conducted a study to investigate the effects of age on physical performance of elementary school boys in grades one through six. Twelve motor performance tests were administered. A one-way analysis of variance design was utilized and if the obtained F ratio was found to be significant, the Scheffe multiple comparison procedure was employed. Within the limits of this study, the following conclusions were drawn:

1. Motor performance scores on all variables increased with age.

2. Flexibility tended to decrease with age.

_Shore (1972)_ Constructed motor fitness test battery for lower elementary grade boys. Thirty experimental test items considered as valid and reliable measures of motor fitness were administered to 238 boys. After analyzing the data two test batteries containing seven items each were developed on the basis of the rotated factors loading of the
test items. Test battery I contained the highest loaded test for each factor; (1) Clarke's strength composite (2) Mc Cloy's endurance ratio (3) Well's sit and reach (4) Bass balance on stick (5) Leg flexion and extension flexibility (6) arm flexion or the back flexibility and (7) modified push-ups.

Robertson (1974) Study was to compare the physical proficiency of the 1972 five years old and seven years old boys and girls, with the raw scores for the 1954 seven years old boys and girls as set-up by the Pea-Cock Achievement Scale in physical education activities. It was found that the data tended to support that the 1972 seven years old excelled the other two groups, the 1954 seven year old differed significantly at or beyond the .05 level of confidence from the 1972 five years-old on all, but one test item-the side step.

Andrews (1976) Undertook a study to establish physical fitness norms for South African boys and to compare their physical fitness level with those of Canadian boys. AAHPER physical fitness Battery (1966) consisting of one minute speed sit-ups, the standing broad jump, the shuttle run, flexed armhand, 50-yard dash and 300-yard run were administered test was applied to compare the mean scores of the South African and Canadian students. The result was found to be significantly in favour of the South African boys. Zuti and Corbin (1977) established
physical fitness norms for college freshmen. They took 3,000 freshmen of Kansas State University from the age of 17.6 to 19.5 years. The tests were conducted for strength, flexibility, body composition and cardiovascular fitness. The result appeared to indicate that college freshman at Kansas State University were of a standard similar to the average American.

Robson et al. (1978) Undertook a comparative study on 150 boys and girls belonging to both defense and non defense personnel. The test battery composed of six items (viz. :50 dash ,4x10 mts. Shuttle run , sit-ups, modified push ups, vertical jump ,600 m. run and walk ) was administered to both boys and girls. In conclusion they found that Elementary School girls and boys studying in grade one to five, and belonging to defense personnel performed significantly better in physical fitness as compared to girls and boys belonging to non-defense personnel.

Elanshar (1982) Conducted this study on 399 males and 311 female aged 9-18 years enrolled in physical education classes in Fayoum (Egypt) and were evaluated using the 6 item AAHPER Youth Fitness test. Comparison of 50% with American norms revealed that Egyptian sample was substantially below average in fitness in both sexes across all age groups. Only pull-ups in males and flexed arm
hung in females in the early age group were above the American standard. Comparison between males and females revealed male’s significance superior across all ages even when age, height and weight were held constant by ANOVA. An eight week physical fitness programme produced significant improvement in all tests in both sexes.

**Morris et al. (1982)** Examined the relationship of age and sex to the performance of 3, 4, 5, and 6 years old on seven motor performance test items. The Schaffer post hoc analysis produced was used to test difference between all possible pairs of means where significant age and sex difference were found on most of the motor tests, it appeared that age generally was related more to performance than to gender. Except for the balance test on all the tests the 3 and 4 years old boys performed similarly. For the girls there were more significant difference from year to year in performance.

**Walker (1982)** Conducted study on white and black female students at northern high school. 50 while female 1 grade students were randomly selected as the subjects. AAHPER Youth Fitness test was administered on item. Statistically analyzed, it was concluded that the black subject scored significance higher (p.05) than the white subjects on leg power, (M=44.6% and 31.2%) and M=57.8% and 39.1% respectively. The white subjects performed significance higher than
black subjects on abdominal strength (M=31.5% and 24.7%). No other comparisons were significant.

**Uppal and Sareen (1986)** Made an effort to study cardiovascular endurance difference in rural-urban school students of Delhi. (N=60) each urban student randomly selected for the purpose of the study. Harvard stop test (Short Form) was administered for the assessment of cardio-motor endurance. The result of the study showed rural area students to be superior to urban area students in cardiovascular endurance.

**Johan (1992)** Special Olympics International has been a major advocate in promoting competitive experiences for persons with mental retardation. The purpose of this study was to investigate the level of happiness and satisfaction of winners, non-winners, and losers after participation in a Special Olympics competitive meet. The study also examined the attitude of participants toward competition and the perceived importance of competing in the event. The subjects for this investigation were participants from the Texas Special Olympics state swimming meet. The study included 95 males and 56 females. Comparisons were made among athletes placing first, second and last in races at the swim meet. Following competition subjects were administered the “Happiness and satisfaction” subscale of the Piers-
Harris Self-Concept Scale (PHISCS) and asked additional question relative to attitudes toward competition. This study is unique because it is one of the first studies to analyze the effects of competition on persons with mental retardation through direct interaction with the participants. Previous studies have relied on the observations of other including parents and coaches.

**Rider (1992)** The purpose of this study was to assess the perceived needs of parents of students with disabilities with regard to recreational services available to their children within their communities. Additionally, this investigation focused on how the respondents viewed the relative importance of fitness and leisure opportunities within the realm of the various community services available. According to kuhnly (1989) the community is generally the least destructive. Environment” for leisure/recreation participation of individuals with disabilities as resources becomes less abundant within the public school systems around the country, more and more families of exceptional support. Just how important the continuity is viewed in this light is the focus of this investigation. For the purposes of this study a modified version of the planning a Needs Assessment Management system (PANAMS) instrument was administered to more than 200 families of exceptional nits residing in either Hernando County or Leon Country Florida.
Ulrich (1992) The problem of the study was to determine specific mental and physical effects from participation one of two sport programs of the Special Olympics. Individuals with mental retardation participating either a segregated or integrated special Olympic basketball program were compared for this study. The program effects of interest were self-concept measures in the specific domains of social acceptance and physical ability as well as general self-worth. Actual physical abilities were also compared between the two groups. The ideal sports and fitness programs for individuals with mental retardation are considered to be those that result in improvements in social acceptance, physical skills, fitness, and the subsequent move toward complete social integration.

Surburg (1992) In order to improve motor performance, mental imagery procedures have evolved over the years with normal subjects. Studies researching the concept of mental imagery with special populations (Surburg & Stumpner, 1987) are very few in number. The purpose of this study was to determine the efficacy of utilizing mental imagery on students with mild mental handicaps in developing skill on meteorically oriented task (pursuit rotor) and a cognitively oriented task (peg board).
**Suomi (1992)** Levels of muscular strength in persons with mental retardation (MR) are reported to be substantially lower than their normal peers (Sheppard, 1990). The development of muscular strength and new test devices for persons with MR continues to be of importance for professionals assessing muscular strength levels and designing clinical intervention programs. Is kinetic and hydraulic resistance devices are exercise and/or test modest identified as meriting the consideration for this subject population (Compton et al., 1989). Purpose of this study was to determine the effects of hydraulic desistance (HR) Training on total work (TW) and peak torque (PT) measures of is kinetic strength for tests of knee extension (KE) and hip abduction (HAB) on men with MR.

**Bogdan & Biklen (1992)** On the whole, the most frequent teacher behavior exhibited by these teachers toward students with severe disabilities was verbal communication. These teachers regularly give feedback and verbally interacted with those students who had severe disabilities in their classes.

**Crew (1993)** The purpose of this investigation is to present the psychological behavioral an academic benefits of moderate intensity (05% of HR max), aerobic exercise for learned disabled children (i.e., attention deficit, autistic). These children are often treated with drugs
(i.e. Ritalin) to facilitate classroom behavior and learning. The psychological benefits of aerobic exercise have been documented for various populations; however, no studies have examined the prescription of aerobic exercise as a means of facilitating psychological well being behavior, and academic performance of learned-disabled children.

**Block (1993)** A recent trend in education is to include all students with disabilities into regular classes. Physical education may be one curricular area where inclusion is advocated. Many factors will affect the assimilation of students of server and profound disability into regular physical education classes. One critical factor will be the attitudes of teachers toward including these students in their classes. The purpose of this study was to assess the attitudes of public school (K-12) physical education teachers toward teaching students with severe and profound disabilities in regular classes.

**Croce & Horvat (1993)** There is presently a trend in our society to view exercise as a curative treatment for a plethora of physiological and psychological afflictions. In addition numerous researchers have reported that exercise can enhance cognitive functioning post exercise when individuals exercise at an intensity of between 50% to 60% of VO$_{\text{max}}$. Moreover this effect has most clearly been reported for those
individuals classified as “fit.” Empirical data supporting this position are lacking however, in the disabled population. The purpose of the present investigation was to determine whether fit and less-fit individuals with mild mental retardation exercising at a moderate intensity level (50%-60%VO\textsubscript{max}) and under different durations of exercise (no exercise control, 20min, and 30 min), differed in speed and accuracy of problem solving immediately, 15min, and 39min post exercise.

**Rory (1993)** Studies involving subjects with mental retardation (MR) have shown that these persons can use self-controlled programs to improve their social behavior and work productivity (Whitman & Coleman 1984; Croce & Horvath, 1992). The effects of long term self directed exercise on muscular strength levels in this population are not established. The purpose of this study was to determine the effects of long term self directed hydraulic resistance training on is kinetic measures of knee extension (KE) in men with MR.

**Billman, L.M. (1995)** As the International Special Olympics Games, which are held every four years, approach, Special Olympics state officers face the task of nominating athletics for competition. One would assume that the Olympic motto Citus, Alliu, Fortus, (Faster, Higher, and Stronger) would be used for the selected of these athletes.
The purposes of this study were to determine if the selection process used to choose track and field athletes for the International Special Olympics Games follows the same guidelines as those of the Olympics and to determine if three groups (i.e. Special Olympics area directors, undergraduate students, and adapted physical education professionals) view the best athletic performance as the foremost criterion for advancement to Special Olympics international competition.

**Meek (1995)** The purpose of this study was to determine relationships between preserves physical education teacher attributes (age, number of adapted physical education (APE) courses taken, year in school, number of other courses taken relating to individuals with disabilities, hands-on experience, perceived competence, hands on experience course requirement. Overall educational preparation, and certification level) and attitude toward teaching students classified as behaviorally disordered, mildly mentally retarded, and learning disabled. All institutions offering both a physical education teaching major and introductory APE course were given the opportunity to participate.

**Kramp (1995)** The purpose of this study was to compare physical education teaching major’s attitudes toward teaching students classified as behaviorally disordered (BD), mildly mentally retarded
(MIMR), and learning disabled (LD). Students with these labels are very likely to receive physical education in a regular class setting. These findings indicate the need for offering structured practical experience designed to foster acceptance of student who is BD and MIMR.

Cormick (1995) Although the potential benefit of integrating special needs children with their peers has been highly touted, little data concerning the impact of integrated programs on skill development of children have been presented. This study compared the motor skill development of developmentally delayed preschool children in integrated and segregated setting. A pool of potential subjects was identified from a group of developmentally delayed preschool children enrolled in a center-based, segregated program.

Gilders (1995) Establishing good fitness habits in children is likely to increase future adult health. Teaching recreational activities which are more likely to increase fitness (fitness awareness) is a neglected step in the overall process of establishing positive fitness habits in children, especially those with disabilities. The purpose of the study was to determine if children with and without disabilities will select age appropriate activities which are more likely to increase aerobic fitness. Fitness awareness training was conducted over 20
consecutive days during 30-minute activity sessions in a community-based, inclusive program.

**Jimmy 1995** This study assessed attitudes of youth soccer coaches toward coaching a player with mild mental retardation (MMR). Eighty-two (80%) of 103 coaches in a suburb and Southern California city completed the Coaches Attitudes toward Players with Disabilities (CATPD) survey. The CATPD was based on the theory of Reasoned Action (Azen & Fishbein, 1980). This survey consists of a description of MMR, 22 items about coaching a player with MMR, and demographic items. The CATPD uses an eight-point semantic differential scale to assess components of the theory.

**Terry (1995)** This study assessed the relationship between six selected attribute and beliefs, attitudes, and intentions of youth soccer coaches toward coaching a player with mild mental retardation (MMR). Attributes were age, perceived soccer coaching competence, number of family members with a disability, gender, income and education. Eighty-two (80%) of 103 coaches in a suburban Southern California city compared the Coaches Attitudes Towards Players with disabilities (CATPD) survey. Youth sport organizations should provide coaching effectiveness programs to insure that volunteer coaches know how to coach players with a wide range of ability.
**Zhu (1995)** Current assessment of motor proficiency are primarily based upon a few summary scores, e.g., total scores, that are based on the number of items responded/answered correctly. However, the summary scores on a test can disguise the fact that examinees’ incorrect responses/answers may yield important information about their proficiency or abilities. By analyzing item response patterns, information from both correct and incorrect responses is considered, and thereby, not only could examinees’ achievement level be determined, but also their weakness could be diagnosed. The purpose of this study was to apply the Modified Caution Index (MCI) a mathematical index of analyzing item response patterns to assess motor response patterns of special populations.

**Rizzo (1996)** Attitudes of physical educators toward teaching individuals with disabilities have received a significant amount of attention over the past 15 years. The premise of the body of research says that understanding attitude is prerequisite to improving attitude to enhance teaching individuals with disabilities. Application of theoretically based research with help in understanding the attitude behavior relationship. Moreover, research grounded in theory provides the foundation for educational intervention strategies. In this presentation theoretically driven attitude research is discussed. Included is a discussion about attitude and attributes of physical educators.
toward teaching individuals with disabilities. Additionally, intervention strategies to enhance attitude toward teaching individuals with disabilities will also be described. Adapted and regular physical educators will find this presentation relevant to the concept of inclusion.

**Bergerson, et al. (1996)** This study was undertaken to determine whether children with mild mental retardation and children without disabilities differed in percentile rank with regard to selected components of health related physical fitness. Subjects were elementary-age students with mild mental retardation (n=11) and students without disabilities (n=11), matched for chronological age and gender. All subjects received physical education in a regular class setting. Subjects were assessed with the 1994-1995 version of the President’s challenge Fitness Test in their physical education classes. Physical fitness measures addressed in this investigation were (a) cardiovascular endurance as measured by the one-mile run test, (b) abdominal muscular strength/endurance as measured by the sit-ups test and (c) flexibility of the hamstrings and lower back muscles as measured by the sit and reach test.

**Dummer, et al. (1996)** Proper nutrition is an essential component of the training regimen for all athletes, including those with
disabilities. In this study, participants (n=47) in a cross-disability training camp at the U.S. Olympic Training Center completed a nutrition survey designed to assess their typical dietary habits and to identify disability-specific issues related to nutrition. Discussion will focus on the dietary changes needed for athletes with disabilities to support personal health and athletic life-styles.

**Folsom & Watt (1996)** The purpose of this study was to describe course content characteristics of college/university introductory adapted physical education (IAPE) course for preserves physical education teachers (PPETs), and to determine which content variables discriminate between PPETs' attitude toward learners with disabilities. In conclusion, positive student attitude toward LWD is associated with instructors who teach other APE courses and require 10 or more hours of hands-on experience.

**Walt (1996)** The purpose of this study was to determine if the introductory adapted physical education (IAPE) curse could cause positive attitude changes in university students toward learners with disabilities. A Solomon four-group design was utilized to determine whether treatment (IAPE course), pretest, or interaction of treatment and presets could cause positive attitude Changes toward learners with disabilities.
**Liberman (1996)** Peer tutoring may be an effective and inexpensive way to help students with disabilities succeed in the regular physical education classroom. The purpose of this study was to determine the effect peer tutors on the time students with disabilities spent appropriately motor engaged in the regular physical education setting. In this study peer tutoring was a simple cost-effective way to improve the amount of other skill engagement of students with disabilities in integrated elementary physical education classes.

**Aufseser (1996)** The purpose of this study was to examine the reliability and validity of the Rockport fitness 1-Mile Walk Test (RFWT) as a measure of cardiovascular fitness in adults with developmental disabilities involved in a Special Olympics track and field programme. Specially, the study tried to ascertain the relationship between a cardiovascular fitness criterion test (VO max laboratory treadmill test) and a field test (RFWT). The subjects for this study were eight adults (5 males, 3 females) with developmental disabilities ranging in age from 14 to 39 years. All subjects were San Diego City Special Olympics tracks and field athletics.

**Nearing (1996)** The purpose of this study was to describe attributes of instructors of college/university introductory adapted physical educators (IAPE) courses for perseverance physical education
teachers (PPETs), and to determine which variables discriminate between PPETs with negative and positive attitudes toward learners with disabilities (LWD).

**Stanton (1996)** The study investigated the effects of parent training on the waking frequency and duration of children with mental impairments (MI). The training taught parents how to develop and implement behavior modification programs to increase waking behaviour of their children.

**Sutlive (1996)** The purpose of the study was to examine the effects of practice schedule variation on learning a flog skill by children (ages 10-12 years) with and without mild mental retardation (MMR). Thirty-six children with MMR and 36 non-disabled (ND) peers were randomly assigned to a blocked, random, or mixed practice schedule. There findings are similar to those of previous studies (e.g. Hall & Boyle, 1993) which suggest that, during the early stages of learning, children benefit from some form of blocked practice.

**Yang (1996)** There has been number of studies dealing with per-shot routines relative to enhancing the performance of sport skills with non-disabled athletes (e.g., Predeborn & Docker, 1992). However, the use of pre-shot routines for improving sport skill performances of athletes with mental retardation (MR) has yet to be conducted. The
purpose of this pilot study was to investigate the effect of using a pre-shot routine on the free throw accuracy of Special Olympics basketball players.

**Yun (1996)** Perceived competence (PC) is a construct that directly influences children’s level of motivation, self-esteem, and social development. Harter (1978) hypothesized that PC is multidimensional and domain specific. She suggested that perceived competence is an important mediating factor for continued participation in a domain of behavior. In other word if a child who perceives herself as good in an activity, she may continue participating in the activity. Also, she hypothesized that actual competence (AC) influences children’s level of PC. Several previous studies have supported Harter’s view, but most studies have investigated children without disabilities. In order to make Harter’s theory generalizable to children with mental retardation, direct examination of children with mental retardation is necessary. Therefore, the purpose of this study was to examine the relationship between physical PC and AC in children with mild mental relationship.

**Zhang (1996)** The constant time delay (CTD) procedure is response prompting strategy that results in near-errorless learning. With this method, the teacher’s prompts are faded by inserting a fixed
amount of time between when a teacher presents a target stimulus and a controlling prompt. Although the CTD procedure has been documented as effective in teaching fine motor skills in daily living activities, the accuracy effect of this procedure on teaching gross motor skills in physical education setting has not been systematically investigated. This investigation used a 4 second CTD procedure to teach gross motor skills to students with severe mental retardation. The major contribution of this investigation to the CTD literature is that the CTD procedure can be effectively employed in teaching gross motor skills in physical education settings to adolescents with severe mental retardation.

**Miko (1997)** Although constant time delay (CTD) has been found to be an effective instructional procedure in teaching gross motor skills to individuals with severe to profound mental retardation, research regarding the effectiveness of progressive time delay (PTD) procedure in teaching gross motor activities to individual with moderate-severe mental retardation has not been documented in adapted physical education. This study was designed to investigate the effectiveness of progressive time delay procedure in teaching gross motor activities to individuals with moderate-severe mental retardation. The findings of this study verify that the PTD procedure using verbal description plus physical assistance as the control lining prompt can be
effectively employed to reach gross motor activities to individuals with moderate-severe mental retardation in adapted physical activity setting.

**Krampf, et al. (1997)** The purpose of this study was to compare attitudes among students from the AAHPERD districts-Central, Eastern Midwest and Southern, toward learners from three disability categories behavioral disorders (BD), mild mental retardation (MMR), and learning disabilities (LD).

**Kozub & David (1997)** Data from the present study identify some of the potential issues that may need to be addressed so that athletes with disabilities can be integrated into interscholastic sports programs. The present authors believe that interscholastic sports programs have an obligation in public schools to pride comparable opportunities for all participants, including those with disabilities. One potential barrier to the integration of athletes with disabilities into interscholastic programs are coach’s attitudes. Also, a key factor in the integration of athletes with disabilities is related to the preparation programs for coaches.

**Lyberger (1997)** The purpose of this study was to examine the self-perceived level of compliance of health club facility operators to the American with Disabilities Act (ADA). A survey that consisted of 112 items was developed to assess health club facility operators: (a)
level of awareness of ADA regulations, (b) knowledge of the ADA and disability function, (c) perceptions toward ADA regulation and (d) self-perceived level of compliance to ADA regulation. The finding suggests that:

(a) Low level of awareness is associated with low to moderate level of self-perceived level of compliance.

(b) Facility operators have only moderate knowledge of ADA regulation.

(c) Facility operators have only a general perception of ADA regulation.

(d) Facility operator is not in full compliance with ADA regulation.

Chen, et al. (1999) Time delay is a prompting or fading procedure whereby a delay in time is inserted between the antecedent cue and the presentation off a prompt. Previous research indicated that time delay creates a lower error rate learning environment, and makes the learning more effective. The effects of time delay procedure in teaching gross motor skills to individuals with moderate to severe mental retardation have been reported by several studies. The purpose of this study was to analyze the fundamental relationship between the effects and the low error rates which resulted from progressive time delay (PTD) procedure, and to identify the factors which facilitate
maintenance and generalization of gross motor skills on adults with mental retardation.

_Terry, et al. (1999)_ Teaching students with disabilities in regular classes is an educational trend in the U.S. This study tested the viability of using three personal attributes (educational preparation, perceived competence, and experience with individuals with disabilities) to predict whether future professionals would have favorable or unfavorable attitudes toward teaching students with disabilities. Therefore, increased educational preparation with individuals with disabilities, higher perceived competence, and experience with individual with disabilities can predict favorable attitudes toward teaching students with disabilities.

_Lorenzi (1999)_ As a group, individuals with mental retardation are low in physical functioning as compared with their no retarded peers. Persons with mental retardation tend to have lower cardiovascular fitness, lower maximal heart rates, inferior muscle development, and greater body fat than their no retarded peers. (Fern hall, 1992). These factors together tend to limit overall fitness and activity levels of individuals with mental retardation. One theory as to why individuals with mental retardation fitness levels are inferior maintains that individuals with mental retardation, especially children,
are not as active during the course of the school day. A rationale for this inactivity may possibly involve the lack of role models or opportunities for play activity or placement in segregated settings. The recent emphasis on inclusion has advanced the theory that children with mental retardation may be more active when placed in less restrictive settings with their no related peers (Block, 1994). Therefore, the purpose of the study was to compare physical activity levels of elementary school children with and without mental retardations during an integrated recess setting. However, it was unexpected that children with mental retardation would be more active than children without mental retardation as measured by heart rate and activity counts. By observing these children in an inclusive, nonstructural setting, it seems apparent that this type of environment encourages and facilitates movement activity for children with mental retardation.

Romance & Vogler (1999) The purpose of this project was to study the effectiveness of including a child with severe disability into regular physical education (PE) in which an adapted physical educator was used to facilitate the class. The study was longitudinal, and teacher-student behaviors from the first 3 years of school (k-2) were compared to determine if inclusion was effective with ensuring years in school.
**Jiabei & Joseph (1999)** Children with attention deficits disorder (ADD) learning disabilities (LD) and educable mental retardation (EMR) usually demonstrate similar behaviors in learning activities. An investigation is needed to compare levels of their gross motor development. The purpose of this pilot study was to evaluate gross motor development levels of children with ADD, LD, and EMR.

**Hackney (2000)** With the passing of public Law 94-142, and its subsequent amendments individuals with disabilities have been guaranteed a free appropriate education, including physical education, with a continuum of alternative placements. The purpose of this study was to determine the perceptions and knowledge of the inclusion process of regular elementary physical education from a large southwestern school district. Participants were 112 (51 female, 61 male) physical education teachers. All participants taught in grades kindergarten through sixth grade and taught a minimum of one exclusionary physical education class per year. The Physical Educators Perception of Inclusion Inventory (PEPII) (Hodge, Murata, and Jansma, 1997) was used in this study. Participants in this study consistently expressed their need for small class size when including students with disability. Participants also expressed a desire not to include students with severe disabilities in physical education.
Richards (2000) For children with mental retardation the prevailing attitude is that fitness and overall functioning is lower because they are not as active during the course of the school day and have limited opportunities to participate in physical and play activities that are available to their peers. The recent emphasis on inclusion has advanced the theory that children with mental retardation may be more active when placed in less restrictive settings with their non-retarded peers (Block, 1994). In addition our recent investigation on inclusive recess revealed that children with mental retardation displayed recess provided similar activity profile in integrated recess settings. A time in the school day when children are free to move about and interact with peers with minimal supervision. Observing children during recess and class and classroom setting provides the opportunity to document activity in naturalistic settings and allows comparisons across environments that may be helpful in promoting activity for a traditionally inactive population. Physical activity must be measured in the natural environment in order to obtain an accurate gauge of activity levels. Therefore, the purpose of the study was to compare physical activity levels of children with mental retardation.

Temple & Walkley (2000) It has become increasingly evident that in populations of people with intellectual disability levels of cardiovascular fitness are very low and the prevalence of obesity is
high. It is generally accepted that sedentary lifestyles contribute to both increased obesity and low fitness levels, however to date, there is barely any published data on physical activity levels for this population. Evidence that does exist suggests that people with intellectual disability are predominantly sedentary. A limiting factor in the study of physical activity for people with intellectual disability is the methodological difficulty of measuring physical activity levels. The primary difficulty is the diminished capacity of individuals to recall events accurately. The aims of this study were to determine the feasibility of measuring physical activity of adults with intellectual disability using accelerometers and physical activity records and if feasible to collect data on the energy expenditure of adults with intellectual disability living in community residential units.

**Combs (2001)** The purpose of his study was to identify to what extent the state requirements (North Carolina Standard Course of Study) for physical education were being followed for students with special needs; the understanding of the laws of statues related to the inclusion of students in physical education; and the perceived barriers to increasing physical education participation of students with special needs. Therefore the curriculum being provided to students with special needs must address appropriate content in physical education.
Folsom (2001) Instruction in physical education is mandated for all students with disabilities. Another area mandated for students age 14 and older is transition services, which, in the state in which the research was conducted, include: (a) employment, (b) postsecondary education, (c) independent living, (d) eligibility of services, and (e) community participation including recreation and leisure. The purpose of this study was to survey physical education teacher’s level of involvement in providing transition services to students with disabilities age 14 and older. Based on results of this study, it can be concluded that fewer than half of the APE teacher provide transition programming in physical education and that the majority of transition programming takes place in the schools rather than in communities. This may be due to high costs associated with leaving school venues.

Inessinger (2001) Vermont has led the nation in inclusion of students into the regular classroom. To what degree this has manifested itself in the practice of physical educators-specifically regarding students with severe disabilities-was the underlying question driving this research. The purpose of this study, then, was to identify current practices that the successful in meeting the needs of students with severe disabilities and to identify current barriers to meeting those needs.
Zhang (2001) The analysis of relationship among variable in the recreation and therapeutic recreation (RTR) career is prerequisite for examining the need for RTR specialists in public schools. However, the review literature indicated that no studies have been found to investigate these relationships. The purpose of this investigation was to evaluate relationships among marketable variables in the RTR career of determining the shortage of RTR specialists in public schools in the United States. From Annual Reports to Congress (U.S. Department of Education, 1987-88).

Ammal, et al. (2002) The purpose was to examine general physical education teachers at the secondary level to determine their views and practices relative to inclusion and their interaction patterns with those students who had severe disabilities in their classes. Participants were two experienced general physical education teachers at two separate suburban high schools. Research method was descriptive qualitative. Hautala, et al. (2002), The development of mature fundamental movement skills is an important step in the lives of children because these skills form the foundation for lifelong physical activity. Currently several instruments measure children’s fundamental movement skills. The Test of Gross Motor Development (TGMD, Ulrich 1985) is one of the most popular instruments to assess children’s fundamental movement skills. The instrument has been
used in physical education setting, and also to examine the movement competence of individuals with disabilities in numerous research studies. Although the instrument has demonstrated good psychometric property for normative data, no cross-validation study has been reported for children with mental retardation (MR). The purpose of this study was to evaluate psychometric properties of the second edition of TGMD (Ulrich, 2000) for youth with mental retardation.

**Hodge & Porretta (2002)** The purpose of this study was to compare physical education and recess physical activity levels of elementary students with mental retardation and students without disabilities possessing either high or low cardio respiratory fitness. The system for Observing Fitness Instruction Time (SOFIT) instrument (validated for use with students with mental retardation) was used to determine physical activity level. The theoretical framework for this study was social cognitive theory. Students with mental retardation have similar physical activity levels when compared to students possessing low cardio respiratory fitness.

**Kozub & Spencer (2002)** Physical Activity levels found in adolescents with mental retardation (MR) are of considerable concern. A lack of opportunity for participation may lead to the failure of many individuals with MR to remain active outside of school- based
programs. This would explain low fitness and accompanying higher incidence of cardiovascular disease in this population (Pitetti & Campbell, 1991), related to this are motivation for physical activity and specially self-determined behavior in persons with MR (Wehmeyer, 1994). An additional factor is caregiver physical activity. The purpose of this study is to explore physical activity and intrinsic motivation in seven individuals (ages 13-15 years) with MR. Participants were interviewed using the Pictorial Motivation Scale (TPMS: Reid, Vallerand, & Poulin 2001) and assessed using The Brockport Physical Fitness Test (Winnick & Short, 1999) to determine levels of motivation and fitness.

**Yilmaz, et al. (2002)** Mental retardation (MR) plays an important role in a child’s physical fitness development as well as his or her cognitive abilities during life. Most literature on the subject states that mentally retarded children have a poor level of physical fitness compared to their no disabled peers. (Horvat & Franklin, 2001 Pitetti et al., 2001). The therapeutic effects swimming and aquatic exercises on physical fitness and well being have been recognized for people with disabilities (Broach & Datilo, 1996; Lepore, 2000; McHugh, 1995; Rulti et al., 1997). Furthermore, aquatic exercises are highly recommended for children as a recreational sport activity (Sherrill, 1986). Therefore, the purpose of this study was to evaluate
the effects of a 10-week aquatic exercise and swimming program on the physical fitness levels of mentally retarded children.

**Klavina (2003)** Since 1993, the Ministry of Education and Science of Latvia has developed several documents and policies to improve the education for children with disabilities. Data indicate approximately 8000 children with various special needs enrolled in regular schools in Latvia. To date there is limited research in Latvia examining the benefits of inclusion for students with disabilities. An Assessment Questionnaire for Sport Teachers (AQST) was developed to assess attitudes and concerns of physical education teachers regarding inclusion of students with disabilities in regular sport lessons.

The AQST Comprised 20 statements, using a 5-points reading scale, in five distinct themes relating to: (a) need for specialists in adapted physical activity (APA), (B) need for APA programs for students with disabilities, (c) education of regular physical education teachers about APA, (D) inclusion of disabled students in regular physical education, and (e) cooperative between school administration and parents. Overall, regular physical education teachers in Latvia have positive attitudes toward teaching students with disabilities in an inclusive environment.
Yanardag (2003) Mental Retardation (MR) may cause many cognitive and functional limitations in daily vital communication, physical and social skills. These multiple limitations have negative effects on muscular endurance, education life expectance and social skills with family and peers (Krebs, 2001). Research shows that mentally Retarded individuals have low physical fitness level as well as low cardiovascular fitness compared to their no disabled peers (Chaiwanichsiri et al., 2000; Femhall et al., 1996; Kenneth, 1989; Otman et al., 1989). Although there have been studies about the comparison of the physical fitness Levels of mentally retarded and non disabled individuals with literature there had been no research especially for mentally retarded and no disabled women. Therefore, the purpose of these studies was to compare the physical fitness levels of mentally retarded and non disabled women in Turkey.

Yılmaz (2003) Although physiological adaptations to aerobic endurance training differ in many ways in terms of age, gender and genetic factors, aerobic endurance training may result in decreased body fat, creased respiratory capacity, maximal oxygen uptake and working efficiency of the heart (Kraemer, 2000). The purpose of this study was to determine the effects of a 10-week aquatic exercise and swimming program on the body composition and under water working capacity of mentally retarded children. This study has several
limitations, including the characteristics of the participant’s intervention, including the characteristics of the participants, intervention, tests, and the measurements that were applied. Further studies should address the effects of different settings and types of physical activities on the body composition and underwater working capacity of children with mental retardation.

**Smail (2004)** The purpose of this study was to investigate the effectiveness of a balance and strength training program on physical functioning and work performance of high school students with mental retardation. Ten students with mental retardation were matched according to gender, age, height, and weight then randomly assigned to the treatment or control group. The treatment group participated in a 12-week balance and strength training program while the control group participated in low intensity recreational games. Isometric strength and work performance measures were collected at three intervals throughout training 6 weeks apart, with a retention measure collected 6 weeks past training. Balance measures were collected at pre-and post intervals.

**Draheim (2004)** The health benefits of being physically active are well documented, however little information exists on physical activity habits of adults with intellectual disabilities (ID). The purpose
of the study was to describe the physical activity habits of men and women with ID with and without Down Syndrome (DS) residing in community settings.

**Taylor & Yun (2004)** In order to provide appropriate physical activity services to individuals with mental retardation (MR), accurately evaluating one’s level of physical activity in a clinical setting becomes an important first step in planning and developing physical intervention program. Methods of measuring physical activity levels in field-based assessment should not only demonstrate good psychometric properties, but also have low cost and be easy to use in practical situations. Systematic observation is a field-based assessment method that records behavior based on specific guidelines and coding procedures, which can easily be used in clinical settings. Therefore, the purpose of this study was to examine psychometric properties of the System for Observing Fitness Instruction Time (SOFIT) and the Children’s Activity Rating Scale (CARS) for use with children with MR.

**Leon & Zhang (2004)** The top-down approach places emphases on teaching target skills selected from the top level of motor skill developmental sequence. This approach is believed to be one of the useful strategies for teaching individuals with disabilities. However,
few investigations have been found to examine the effects of this approach in adapted physical education. The purpose of this investigation was to evaluate the effects of a top-down program on teaching young adults with intellectual disabilities volleyball skills. A pre-posttest two-group experimental design was employed. The results indicated that the top-down program used in this investigation was effective in teaching individuals with mild intellectual disabilities three volleyball skills.