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Tribute to Martin Lee

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BENEFITS AND RISKS OF PARTICIPATION IN ORGANIZED YOUTH SPORTS

1. Introduction

Participation in sport is perhaps the primary form of physical activity for youth of both sexes. Indeed, youth often identify physical activity with sport (Malina, in press). Sport participation by youth also has high social valence in many societies throughout the world. Given the value placed upon sport, questions often arise about the place of organized sport in the lives of youth. This is often reflected in commentaries in the print and electronic media, which often focus on the negative. To this end, this report offers a synopsis of evidence on the **benefits** and **risks** associated with participation in organized youth sports. Participation statistics, age trends, and the place of sport among the many demands of childhood and adolescence are initially reviewed.

2. Participation Statistics

According to the National Council on Youth Sports (2001), approximately 38.3 million youth ~6-18 years of age participated in organized sports in the United States in 2000. About 63% of the participants were male and 37% were female. Using enrollment estimates for American schools (US Department of Education, 2005), the total number of participants represented about 72% of school age youth (kindergarten through 12th grade) in 2000. The Sporting Goods Manufacturers' Association (2001) estimated that about 54% of United States youth 6-17 years of age participated in organized team sports in 2000; this represented about 29 million youth based on national school enrollment estimates. Variation by team sport is summarized in Table 1. About 54% of participants in team sports were males and 44% were females. Of interest, 44% played only one team sport, 30% played two sports and 26% played three or more sports. These figures are likely overestimates since many youth participate in more than one program or in more than one sport. Nevertheless, they highlight the involvement of United States children and adolescents in organized sport programs.

Data for other countries use different estimating strategies. Sport England (2003) surveyed a sample of 3028 youth in school years 2-11 (approximately 6-16 years of age).

Parents completed a questionnaire for those in years 2-6, while youth in years 7-11 completed the questionnaire. Frequent participation in sport out of school lessons was defined as at least 10 times per year. Results are summarized in Table 2. Sport out of lessons was done in several settings: youth clubs or other organizations (55%), sport club outside school (43%) and extracurricular school programs (42%).

Table 1. Estimated numbers of participants (in millions) 6-17 years of age in the most popular youth sports in the United States in 2000.¹

Sport	Boys	Girls	%Age Group ²
Basketball	6.231	3.790	20.7
Soccer	5.400	4.192	19.8
Baseball	6.836	0.647	15.4
Slow-Pitch Softball	0.772	2.791	7.3
Tackle Football	2.867	—	5.9
Swimming/Diving	1.165	1.548	5.6
Track and Field	1.328	1.220	5.3
Volleyball	0.363	2.033	4.9
Cheerleading	0.086	1.787	3.9
Touch football	1.218	0.221	3.0
Fast-Pitch Softball	0.18	1.339	2.8
Tennis	0.573	0.696	2.6

¹ Adapted from the Sporting Goods Manufacturers Association (2001).

² Percentage of all youth 6-17 years involved in the specific sports.

Among Australian youth, about 1.6 million children 5-14 years of age participated in school-, club- or association-sponsored sport outside of school hours in 2000 (Australian Bureau of Statistics, 2003). More males participated than females, and the most popular sports were soccer, swimming, Australian rules football and cricket among boys and netball, swimming, tennis and basketball among girls.

Table 2. Percentages and estimated numbers (millions) of school youth in years 2-11 (approximately 6-16 years) reporting frequent participation in sport out of lessons in England in 2002.¹

Sport Activity	Boys		Girls	
	%	number	%	number
Team games	68	2.3	39	1.7
Racket games	33	1.1	28	0.9
Swimming, diving	48	1.6	55	1.8
Dance, ice skating	6	0.2	26	0.8
Athletics, gymnastics	43	1.4	48	1.5
Outdoor, adventure	62	2.1	57	1.8

¹ Adapted from Sport England (2003). Frequent participation: sport out of lessons at least 10 times in the past year.

² Estimated numbers are based on children 6-16 years in all schools, August 2002 (Statistics of Education, 2003, www.dfes.gov.uk).

3. Age Trends in Participation

Trends in sport participation with age during childhood and adolescence vary among surveys. This variation reflects in part problems related to measurement and definition. Among United States youth in the late 1980s, there was a steady decline from 10 to 18 years in participation or the intention to participate in organized sport outside of school (Ewing and Seefeldt, 1989). The trend for team sports also suggested a decline in later adolescence (Sporting Goods Manufacturers Association, 2001): 6-8 years (24%), 9-11 years (27%), 12-14 years (28%), 15-17 years (21%). Among Finnish youth, daily participation in sport club training declined from 9 to 21 years, while participation twice per week declined from 12 to 18 years (Telama and Yang, 2000). Among Australian youth, participation in organized sport peaked at 11 years and then declined through 14 years of age (Australian Bureau of Statistics, 2003). In contrast, a sport participation score (based on the Backe questionnaire) increased from 10 to 18 years in a national sample of Portuguese boys and girls (Seabra et al., 2007). And, in the small sample of adolescents followed longitudinally in the Amsterdam Study, there were no age differences in participation in organized sport from 13 to 16 years and then at 21 years of age; on the other hand, participation in non-organized sport declined over this interval (Van Mechelen et al., 2000).

4. Tasks of Childhood and Adolescence

All children and adolescents have three primary tasks – "the business of growing up": to **GROW** - increase in the size of the body as a whole and of its parts and systems, to **MATURE** - progress towards the biologically mature state, which is an operational concept because the mature state varies with the body system, and to **DEVELOP** – learn the appropriate cognitive, social, affective, moral, motor and other behaviors expected by society. Growth and maturation are biological processes, while development is a behavioral process often subsumed in the term socialization specific to a culture. The three processes are distinct though related and interacting tasks that dominate the daily lives of youth for approximately the first two decades of life (Malina et al., 2004a). The processes are also characterized by a wide range of inter-individual differences, especially during adolescence. Interactions among growth, maturation and development vary during childhood and adolescence, among individuals, and within and between cultural groups.

Organized sport is one of many demands placed upon children and adolescents. Indeed, time spent in organized activities – hobbies, sports, arts – by American children 3-12 years of age has increased between 1981 and 1997; in contrast, free time and time in unstructured activities have declined over this interval (Sturm, 2005). A question of relevance is the following: Where does sport fit into the process of "growing up"? The overview of benefits and risks of participation in sport provides some insights.

5. Potential Benefits of Participation in Organized Sports

5.1. *Physical Activity on a Regular Basis.*

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Organized sport provides opportunity for physical activity on a regular basis and in a safe environment. However, information on the activity status of youth involved and not involved in sport is somewhat limited. Among youth 12-14 years of age, boys and girls involved in organized youth sports expended, on average, more overall energy (TDEE, absolute and per unit body mass) and energy in moderate-to-vigorous activities (≥ 4.8 METs) than non-participants (Katzmarzyk and Malina, 1998). Youth sports participants also indicated less television viewing time. Though limited to a single community in mid-Michigan which was surveyed in January and February (there may be variation by season of the year), the results suggest a greater level of physical activity and less time in one form of inactivity in participants compared to non-participants. Adolescent athletes 16-19 years of both sexes also had greater daily energy expenditure and energy expenditure in physical activity than non-athletes (Ribeyre et al., 2000). Sport participants were also more physically active than non-participants among rural South Carolina youth primarily 11-12 years (Trost et al., 1997), South Carolina girls about 13-18 years (Pfeiffer et al., 2006) and Finnish twins 16-18 years (Aarnio et al., 2002).

5.2. *Transfer to Adult Physical Activity.*

Participation in sports during adolescence tends to track at higher levels than other indicators of physical activity (Malina, 2001a). Sport club membership (by inference, participation), for example, tracks at a higher level than other indices of physical activity among Finnish adolescents and young adults (Telama et al., 1994, 1997). The higher inter-age correlations for participation in sport clubs suggest that more attention should be given to this context of physical activity among adolescents. Moreover, frequency of participation in sports at 14 years of age (Tammelin et al., 2003), membership in sport clubs at 16 years of age (Barnekow-Bergkvist et al., 2001) and sport club training and competition during adolescence (Telama et al., 2006) significantly predict physical activity in young adults of both sexes (late 20s-early 30s). The process of how participation in sport during adolescence translates into an active lifestyle in young adults needs study. An association between sport participation during adolescence and "psychological readiness" for physical activity in adulthood has been proposed (Engstrom, 1986, 1991).

The preceding data are from Scandinavian countries. Sport clubs vary among countries, in accessibility and cost, and in degree of sport specialization and participant selectivity (Heinemann, 1999). In addition, many European countries have adopted a "sport for all" theme that contrasts youth and interscholastic sport programs in the United States which become quite exclusive during adolescence. Sport offerings for youth with lesser skill or with less interest in elite competition are often limited in many communities in the United States. However, in the Michigan Study of Adolescent Life Transitions which sampled subjects at 12, 17 and 25 years of age, sport participation in childhood (time spent on sports) and adolescence (time in sports, kinds of after

school activities) was a significant predictor of sport and physical fitness activities in young adulthood (Perkins et al., 2004).

5.3. Skill Acquisition and Development.

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Improvement of motor skills in general and sport-specific skills is often a primary objective of youth sports programs ranging from those at the community level to more advanced sports schools and academies that ordinarily focus on a single sport. Improvement in sport skills is also a major motivation of children and adolescents for participation in sport. Given the importance placed upon skill acquisition, improvement and refinement, it is somewhat surprising that the youth sport literature that deals with these issues is not more extensive. By contrast, there is more focus on young adults and the development of expertise.

Nevertheless, evidence indicates a beneficial role for instruction and practice on skill acquisition in early childhood and during the transition into middle childhood (Malina, 2008). More data are necessary in this area, and other variables need consideration, especially those related to the environment of sport programs, e.g., instructional and practice protocols, quality of coaches and parental involvement.

With few exceptions, data dealing with skill acquisition at older ages are set within the framework of cognitive psychology and relate to relatively simple, discrete movement tasks in contrast to more complex tasks of a sport. Three stages in acquiring a skill are commonly recognized: cognitive, associative and autonomous (Williams et al., 2003). In the first stage, the basic mechanics of the performance of a skill are learned, and conscious evaluation and information processing are primary. Issues related to methods of improving performance highlight the associative stage. Performance is characterized by a reduction in variability and consistency as the individual progresses through the second stage. In the autonomous stage, the essentials of the skill are in place and performance becomes largely automatic; the individual performs the skill either without thinking or with a different manner of thinking compared to the novice (Williams et al., 2003).

General guidelines for instruction in soccer skills in the framework of the three stages of the learning process highlight the needs of learners at different stages of the sport skill learning process (Williams et al., 2003; see also Williams and Hodges, 2005). Individual differences in age, size, maturity status, fitness, skill, and motivation of young athletes (internal constraints) present a challenge in applying these principles to youth players. In adolescent soccer players 13-15 years of age, for example, age, experience, body size and stage of puberty contribute significantly to indicators of functional capacity (aerobic, power, speed), but considerably less to soccer-specific skills (Malina et al., 2004b, 2005). The challenge is to incorporate individual differences in internal constraints into the instructional and practice situations (environmental constraints) to facilitate the acquisition and refinement of soccer skills.

5.4. Improved Physical Fitness.

Youth who are regularly active tend to have higher levels of aerobic fitness compared to less active youth (Strong et al., 2005). Aerobic fitness is especially well

developed in many adolescent athletes, especially those in sports with a high endurance component, e.g., distance running, swimming, cycling, soccer, ice hockey (Malina et al., 2004a). Although data are not based on young athletes, experimental resistance training programs, which may be a component of sport programs, are associated with significant gains in muscular strength and endurance (Malina, 2006).

5.5. Regulation of Body Weight and Composition.

Regular physical activity has the potential to favorably influence body weight and composition. Much of the focus, however, is on adiposity and there are more data for elite young athletes in contrast to youth sport participants. Youth who are relatively high in physical activity tend to have less adiposity although the data are not entirely consistent across studies (Strong et al., 2005), whereas young athletes in a variety of sports, however, tend to have less adiposity (Malina et al., 2004a). The contrast between athletes and non-athletes is more apparent among females than males. There is variation among sports and some positions or disciplines within a sport, e.g., linemen in American football, throwing events in track and field.

Bone is a feature of body composition that is currently a focus of attention. Regular physical activity has a beneficial effect on bone mineral content and bone mineral density. This is apparent in a variety of studies in youth: experimental, case and correlation studies; comparisons of the active and less active; and comparisons of athletes and non-athletes; and in retrospective studies of childhood and adolescent activity, including sport, relative to adult bone mineral content (Strong et al., 2005). Retrospective studies of athletes in racket sports highlight the beneficial effect of early onset of training on bone mineral content (Kannus et al., 1995).

5.6. Psychosocial Outcomes.

Although there is considerable discussion of psychosocial outcomes associated with participation in youth sports, a good deal of the literature does not deal with outcomes per se. Much of the emphasis is on social influences – parents, coaches, peers – in contrast to the influence of sport on aspects of psychosocial development.

Self-concept and its different domains is a behavioral outcome that has received most attention. Self-concept refers to the perception of self, whereas self-esteem refers to the value placed on one's self-concept. Self-concept comprises several domains-academic, social, emotional, physical, sport competence and appearance. The structure of self-concept changes with age and becomes more clearly differentiated in the transition into puberty and during adolescence. In cross-sectional studies, physical activity is positively correlated with global and physical self-concept, but weakly correlated social, emotional and academic self-concepts. Quasi-experimental studies indicate strong positive effects of physical activity on physical self-concept, appearance and sport competence and also global self-concept, but weaker positive effects on social and academic self-concept (Strong et al., 2005). Although sport activities are positively associated with global self-concept, they have the potential for negative influence. Outcome of sport is a factor (i.e., winning or losing), while coaching styles are particularly relevant (Smoll and Smith, 2003).

Identifying other psychosocial outcomes associated with participation in youth sports is more challenging. A good deal of the research has focused on potential influences of adults – coaches and parents – in contrast to the potential influence of sport per se on behavioral development. Less research has focused on peers as important agents in psychosocial outcomes associated with sport. This may be expected given the degree of adult involvement in youth sports and the quality of adult-youth interactions in the context of sport. Research on parents has focused on expectations and pressures, perceptions of competence, goal orientation, responses to performances of their child, degree of involvement, role modelling, and so on (Brustad, 2003; Weiss, 2003). Research on coaches has focused on the coach as a source of information about sport competence, the frequency and types of feedback to young athletes and the effects of coach education on the quality of youth sport experiences (Weiss, 2003; Smoll and Smith, 2003). An additional concern, specifically in North America, is the dual role of the parent-coach. The earliest sport experiences of many youth occur under the guidance of parent-coaches.

Coaches who are supportive and who emphasize learning and improvement (a mastery-oriented climate) facilitate beneficial psychosocial outcomes, e.g., perceptions of competence, sport enjoyment, positive friendships, and so on. Similar outcomes are associated with coaches who undergo a coach effectiveness training program (Smoll and Smith, 2003). Nevertheless, much needs to be done to better understand and specific psychosocial outcomes of sport participation among youth. The complex interactions among young athlete, parents, coach and peers in the context of a sport highlight the need for creative methodology to better understand the process and potential outcomes.

5.7. Moral/Ethical Behaviors.

Participation in sport can be a vehicle for moral or ethical development. This is generally subsumed in the generic terms sportsmanship, fair play, being a "good sport" and character development, among others. Progress toward the development of morally competent behaviors includes the ability to recognize right from wrong, abiding by the rules of the game during practices and competitions, and respect for teammates and opponents. The potential influence of sport participation on the development of moral reasoning needs to be established (Bredemeier, 2003; Bredemeier and Shields, 2006). Some evidence indicates that much remains to be done! A recent survey of 5th to 8th grade sport participants (~10-14 years) noted that 9% acknowledged cheating, 13% reported attempts to injure an opponent, 27% noted behaviors associated with being a "bad sport", and 31% reported arguing with game officials. Moreover, 7% of the youth also reported encouragement from their coaches to cheat while 8% reported encouragement to injure an opponent (Shields et al., 2005).

Presently available evidence highlights the central role of coach behaviors, specifically deliberate attempts to teach ethical/moral values (Bredemeier and Shields, 2006). The role of the media and high level sport needs careful consideration in this context. One wonders what message is sent to youth by "professional fouls" in soccer and the fact that virtually all fouls towards the end of a basketball game are deliberate. More recently, during a nationally telecast professional American football match (20

November 2006, Chicago Bears vs New England Patriots), a situation focused on ball position and measurement for a first down. A player nudged the ball slightly with his foot to alter its position. One of the commentators noted that this was "...a smart player, any advantage you can get." Why not note that this is a violation of rules and essentially cheating? The line that separates strategy and cheating to gain an advantage in sport is indeed fine.

5.8. Other Social Outcomes

Other benefits have been attributed to sport participation, especially interscholastic sport, though the evidence is variable in quality. These include greater likelihood of staying in school and fewer absences from school (Marsh, 1993), reduced likelihood of being involved in delinquent behavior (Segrave and Hastad, 1982), and fewer risk-taking sexual behaviors and pregnancies (Sabo et al., 1998; Savage and Holcomb, 1999). Sport participation among youth is associated with a reduction in suicide ideation and suicide attempts (Oler et al., 1994; Women's Sports Foundation, 2000; Sabo et al., 2005). Of interest, higher rates of injury appeared to be a characteristic of male athletes who actually attempted suicide (Sabo et al., 2005). These associations, though interesting, need to be more critically evaluated in the context of the many factors known to influence adolescent behaviors.

6. Potential Risks of Participation in Organized Sports

6.1. Compromised Growth and Maturation.

As emphasis on elite sport for youth has increased, so has concern for potentially negative influences on growth (size attained) and maturation (timing and tempo of progress to the mature state). The concern is often expressed for young athletes at elite level and more so for girls than for boys. The number of youth who train at elite levels, of course, is a negligible, though highly visible, fraction of the large numbers who participate in youth sport programs.

It has been suggested that intensive training during childhood and puberty may stunt growth and delay sexual maturation of girls (American Medical Association, American Dietetic Association, 1991; Theintz et al., 1993; Tofler et al., 1996; Daly et al., 2005). On the other hand, potentially negative influences of training for sport on the growth and maturation of boys is rarely expressed, usually in the context of young wrestlers who may severely modify their diets to meet specific body mass criteria (Malina et al., 2004a). Concern for disordered eating among teenage athletes in aesthetic sports is a related factor.

Although compromised growth and maturation as a result of intensive sport training during childhood and adolescence is suggested, the presently available data are not adequate to establish causality. The evidence overwhelmingly indicates no negative effects of training for sport on growth in height and indicators of biological maturation (Malina et al., 2004a). If there is a potential risk, the environments of specific sports, specifically interactions among compromised nutrition, coaching

environment, unrealistic expectations and associated stresses, need closer examination and systematic study.

Gymnastics for girls has received most attention (Theintz et al., 1993; Tofler et al., 1996; Daly et al., 2005), but the data are not sufficiently longitudinal to fully capture the adolescent growth spurt, have major methodological limitations (Beunen et al., 1999; Malina, 1999) and do not control for other factors associated with the sport (selection, coaching and nutritional climate, differential drop-out, etc.) and growth and maturation (Malina et al., 2004a). Moreover, male gymnasts are also short and later maturing, and the events of males gymnastics (floor exercise, pommel horse, vault, parallel bars, rings, horizontal bar) are likely more strenuous than those of female gymnastics (floor exercise, vault, balance beam, uneven bars).

6.2. *Injury*

Children and adolescents incur injury in organized and unorganized sport, in addition to many other activities. Most data are case series based on convenience samples from emergency departments or sports medicine clinics; other data are from accident reports, insurance records, interviews, and retrospective questionnaires. Descriptive longitudinal studies that involve direct monitoring of injuries as they occur are an exception. These studies have a known denominator, relatively accurate exposure data, immediate access to treatment by an athletic trainer, and a well-designed data collection system.

Nevertheless, injuries occur in sport, but variation in definition, inadequate exposure data, and lack of description of the population at risk limit comparisons. Estimated rates per athlete exposures for different sports have been recently summarized (Caine et al., 2006; McGuine, 2006).

The injury-related clinical literature in youth sports focuses largely on risk factors that can be viewed as related to the sport environment and to the athlete (Table 3). Risk factors related to the sport environment are potentially manageable and modifiable, especially those related to training, equipment and playing conditions. Coach and parent education interventions and sport/rule modifications may serve to reduce risk.

Risk factors associated with participants need careful evaluation. Perhaps the most significant is injury history and rehabilitation. Previous injury and/or inadequate rehabilitation from the injury is a risk factor for subsequent injury. Some of the proposed risk factors change with normal growth and maturation, especially in the context of individual differences in timing and tempo. It is essential to critically evaluate player risk factors for a better understanding of injury risk. For example, what is unique about the growth spurt that places a young athlete at risk for injury? Is it the spurt per se or associated performance and behavioral changes? The same can be asked of late maturation as a potential risk factor.

The discussion of risk of injury can be extended to the team, especially since team sports dominate youth participation. What is the role of opponents, especially in contact team sports, as factor in injury? Can the team (players and coaches) be a risk factor?

Table 3. Suggested risk factors for injury in sport among youth.¹

<p>Internal risk factors related to participants:</p> <ul style="list-style-type: none"> • Injury history • Physique, structural alignment • Lack of flexibility • Strength deficiency, imbalance • Marginal/poor skill development 	<ul style="list-style-type: none"> • Behavioral factors – risk taking, inability to cope with stress • Adolescent growth spurt • Maturity mismatches in size and strength • Late maturation
<p>External risk factors related to the sport environment:</p> <ul style="list-style-type: none"> • Training errors • Equipment and playing conditions • Age groups – size, maturity • Inadequate rehabilitation from prior injury 	<ul style="list-style-type: none"> • Coach behaviors – inappropriate techniques and drills, poor instruction, participation after injury experience mismatches • Parent behaviors – having a child "play up", unrealistic expectations • Sport organizations – increased tolerance for aggression and body contact in some sports

¹ Collated from several sources, see Malina (2001b).

6.3. Psychological Risks

Discussions of potential psychological risks associated with sport for children and adolescents are usually set in the context of competitive stress. In fact, there has been concern for stress in organized youth sports since their inception. Stress is a physiological state and as such is beset with problems of measurement – physiological measures per se (heart rate, galvanic skin response, hormonal levels) and lack of correlation between paper and pencil scales commonly used in surveys of youth sport participants. Individual differences in perception or lack of perception of stress are considerable.

It is generally accepted that stress is accentuated in individual sports such as gymnastics, figures skating, diving, and distance running, sports in which athletes compete and perform as individuals, often in a one-on-one format. On the other hand, the greater number of athletes involved and the highly interactive nature of activities in team sports tend to diffuse responsibility so that the performance of any individual athlete is generally less conspicuous and performance evaluation is less of a threat. The buffer of team members may alleviate stress associated with mistakes and losing.

Potential consequences of competitive stress, and negative outcomes associated with it, include low self-esteem, elevated anxiety, aggressive behavior, increased risk for injury, "burnout" and perhaps others, including premature drop-out from sport. Factors associated with stress include failure; negative performance evaluations by coaches, parents and peers; and unrealistic expectations by self, parents and coaches.

The influence of biobehavioral interactions in potential psychological risk associated with sport is apparent in social physique anxiety and disordered eating, especially among girls. Puberty and the adolescent growth spurt include significant changes in size, physique, proportions and composition. These major physical and physiological alterations often occur at a time when there is considerable emphasis on sport selection and specialization.

Social physique anxiety refers to feelings of anxiety that an individual experiences when there is a prospect or presence of interpersonal evaluation of her/his physique (Hart et al., 1989). Social physique anxiety increases during adolescence and is associated with a decline in self-esteem. It is a concomitant of negative self-perceptions (Crocker et al., 2001; Monsma et al., 2006), which are precursors to dieting, smoking and eating disorders among adolescents (Friestad and Klepp, 1997; Hausenblaus and Mack, 1999; Thompson and Chad, 2002). Young females involved in the so-called "aesthetic sports" – gymnastics, figure skating and diving, and though not a sport, ballet – are probably more at risk for social physique anxiety and disordered eating than participants in other sports. Among young female figures skaters, for example, social physique anxiety was a significant predictor of risk of disordered eating (Monsma and Malina, 2004). Further, appearance-related physical self-perceptions of young figure skaters were related to biological (age at menarche, physique) and psychological (social physique anxiety) characteristics (Monsma et al., 2006).

Premature drop-out from sport is occasionally indicated as a potential psychological risk. It is often discussed in the context of the age-associated decline in sport participation which is evident in many, though not all, studies (see above). Drop-out is a risk that has an associated problem of definition. Does it refer to complete cessation of participation in a sport? Does it include youth who leave one sport only to begin participation in another? A potentially confounding issue is behavioral change with puberty and adolescence which include changing interests (sport and non-sport) and changing and often conflicting demands of home, school, sport and social activities.

This is normal development! Sport-related factors associated with drop-out include lack of playing time, lack of success, injury, limited progress in development of sport skills, lack of enjoyment, coach behaviors, poor training environment, unrealistic expectations, too much emphasis on competition, among others. These are commonly indicated motives for cessation of participation in sport (Ewing and Seefeldt, 1988; Siegel et al., 2004). A relevant question is the following: How can we modify sport to meet the interests of youth and permit broader participation, especially during adolescence? Issues related to selection versus exclusion also need to be considered. Does "cutting" represent premature drop-out?

"Burnout" is a concept that is commonly used in the context of high performance sports. It refers to withdrawal from sport due to chronic stress frequently associated with perceptions that the young athlete cannot meet the physical and/or psychological demands placed upon him/her. Reduction in accomplishment in sport and associated rewards (i.e., no longer receiving them) are additional factors. Signs of chronic stress include behavioral alterations such as agitation, sleep disturbances, and loss of interest in practice. Other manifestations include depression, lack of energy, skin rashes and nausea, and frequent illness (Weinberg and Gould, 1995; Gould, 2003).

The prevalence of burnout is not known with certainty. Data are based largely on small samples, case series and retrospective surveys of participants in individual sports – golf, tennis, swimming. Lack of information on the population at risk limits the value of much of the available data in drawing valid conclusions about the risk and prevalence of burnout among young athletes. In a survey of young swimmers (145 males, 86 females), for example, about 3% reported signs of burnout (Raedeke, 1997).

Many factors are involved in competitive stress and "burnout" which are distinct concepts. Two especially important factors are negative performance evaluations, which are usually critical rather than supportive, and inconsistent feedback from coaches and officials, which often translates into mixed messages for the young athlete. A contributing factor is overprotection by coaches, trainers, parents and sport officials, which limits exposure of young athletes to new situations and thus opportunities to develop coping mechanisms and social relationships. Overprotection may foster feelings of lack of control, dependency and a sense of being powerless. Self-perceptions of not being able to meet expectations imposed by self and/or others are additional factors (Gould, 2003). Injury is often a contributing factor to burnout. It should be noted that sport-related conditions conducive to burnout are superimposed on and interact with normal biological and behavioral demands of adolescence.

7. Overview

Involvement in organized sport has the potential for both positive and negative experiences and outcomes. The line between potential benefits and risks may be quite fine. Nevertheless, benefits outweigh the risks and participation in sports is a satisfying experience for most children and adolescents. The charge of those who work with youth in the context of sport is to maximize the benefits and reduce the risks. Like all youth, young athletes also have the need to be a child or adolescent.

8. References

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