Chapter 10

Child and adolescent development and sport participation

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Psychological, social, and physical development processes project powerful influences on sport participation, defined broadly as engagement, learning, and performance in sport. Understanding these processes and the developmental trajectories of children and adolescents helps coaches work more effectively with the young athletes in their programs. Both maturational and environmental factors influence the progressive development of children and youth. Biological and experiential maturation factors need accommodation as part of effective sport skill instruction, and physical and socio-cultural environment influences can be advantageously structured to maximize the positive physical, mental, and social gains associated with participation in sport programs. Although the broad field of developmental psychology encompasses human growth and behavior change across the lifespan, the focus of this chapter is on discussing some of the developmental psychology issues affecting sport participants during childhood and adolescence, as these are formative years for the development of most sport skill proficiencies.

Developmental sport psychology is the term for the area of study focused on (a) exploring maturation and experience-related patterns of development in psychosocial factors affecting sport participation, (b) determining the role of sport participation experiences in developing psychological, social, and physical competencies, and (c) demonstrating how important social and task influences within the sport environment can be structured to enhance mental and physical development. The acquisition of sport skill expertise is both a product of development and a process for development, meaning that psychological development affects sport skill acquisition and that the sport skill acquisition process results in psychological changes. For example, psychological development affects sport learning and performance through maturation-related improvements in factors such as memory and perspective taking, and, participation in well-structured sport activities leads to improvements in specific psychological factors such as moral judgment and movement confidence. Effective coaches work with athletes and structure their programs in ways that advantage these developmental processes.

In the context of sport participation, important developmental considerations include the evidence-based beliefs that children are both quantitatively and qualitatively different from adults in maturation and experience and sport participation results in various developmental outcomes. The majority of the research upon which this chapter is based involves athletes from predominantly middle and upper-middle socioeconomic class populations in countries such as the United States, Canada, England, and Australia. In an attempt to mitigate cultural biases, an effort will be made to introduce principles of child and adolescent development that appear to transcend culture.

The purposes of this chapter are to (a) identify some of these quantitative and qualitative differences in cognitive, social, and psychomotor development,
and explain how they influence the sport engagement, learning and performance of children and adolescents and (b) describe some examples of how important social influences can be used to maximize effective climates and instructional strategies that will accommodate and benefit the psychosocial and physical development of young athletes. This knowledge can be used by sport professionals in helping children and adolescents maximize their sport potentials to the extent they desire and are motivated to commit to their improvement and development.

**Global models of sport participation**

In the broadest sense, a macro-systemic developmental perspective viewed through the lens of elite international competitions such as the Olympic Games and current rosters of professional sport teams around the world provide a reminder that multiple developmental paths to sport participation and excellence exist. At least historically, the ways sport talent has been identified and developed in various parts of the world have been influenced by the ideology of countries in which the programs exist. Three models of sport talent development are described along the lines of cold war era geopolitical order.

The First World model of sport talent development, common in countries such as the United States and Australia, is characterized by high levels of participation across social classes at young ages, followed by continually decreasing participation levels as athletes become older and progress toward more elite levels of competition. In the First World model, youth sport is used to provide recreation and learning opportunities for many children and, for a few individuals, the opportunity to receive a university scholarship or professional contract. At each level of competition, the First World model involves a relatively high degree of organization and volunteerism by parents and other adults. Although some youth sport leaders do earn their incomes as officials, administrators, or coaches, a “parent as coach” model predominates at the younger age levels. It is worth noting that this chapter is based heavily on research conducted in the context of the First World model of sport talent development.

Compared to the First World model, the Second World model of sport talent development is a more intentional way of developing elite athletes. The Second World model has been present in Russia and China, and the history of this model can be traced back at least to 1919 when V.I. Lenin established the first Institute for the Study of Sport and Physical Culture in St. Petersburg, Russia. It was here that some children were trained by a staff of professional coaches—many of whom were former competitive athletes who had gone on to receive graduate degrees in the exercise sciences—to compete in international competitions with the objective of demonstrating the strength of the Communist system. Due in part to the practice of identifying sport potential at early ages, fewer children enter into competitive sport training but consequently the rate at which athletes are eliminated from sport is lower than in the First World model in which peak participation occurs at around 13 years of age. The Second World model involves a high degree of organization and control by trained adults, many of whom earn their primary income through coaching and who coach within strongly autocratic systems of leadership.

The Third World model of sport talent development is the least proactive, but perhaps the most natural method of developing talented athletes, and is common in developing nations such as Uganda and the Dominican Republic. Compared to the First and Second World models, the Third World model involves far less organization and adult control, especially at the younger ages. Children participate in sport for the joy of participation and for something to do, but often, for boys at least, in the hopes of one day earning a living playing sport. They freely and imaginatively find ways to practice and play their sport in the available spaces and with often minimal or make-shift equipment but a high level of intrinsic motivation.

Though dramatic differences exist between each of these models in access, opportunity, structure, leadership, and training, the key point from a developmental perspective is that each model has and will continue to generate interest in sport participation among children and youth as well as produce world class athletes from a subset of these participants.
The success of these diverse models demonstrate that multiple and varied paths exist for the cultivation of sport engagement and the development of sport talent, and the path that is “best” is that which is a match between each unique child and the system in which he or she is raised. These models also serve as a reminder that although the development of sport talent is an important goal in and of itself, in the larger picture, the overall equity of sport opportunities provided and the engagement of a broad pool of youth in sport are equally important goals.

Cognitive development and sport participation

At the micro-systemic developmental level, the origin and the development of the sport-related capacities of athletes are affected by a complex interplay among genetic contributions, social climates, and physical environments. Cognitive development focuses on the maturity and growth of internal mental capabilities and functioning, such as thought processes, memory, motivation, and self-perceptions. These capabilities are essential to sport engagement and skill improvement, and understanding how they change with maturation and ecological exposure can help sport leaders more effectively structure their programs at an optimally matched level for the age and capacities of their athletes.

Cognitions

To best understand the psychological development of young athletes, it is helpful to look to two of the most influential research traditions in child development: (a) the intellectual stage theory of Jean Piaget and (b) the information-processing theories. Piaget suggested that development is driven by basic cognitive processes, including assimilation and equilibration. Assimilation is the process through which new information is adapted to existing ways of thinking. One form of assimilation—functional assimilation—is particularly relevant to youth sport, as functional assimilation occurs when children engage in behaviors for the sheer joy of mastering new skills. Children are naturally motivated to learn and are rarely bored or “unmotivated” when offered the opportunity to learn new skills in a way that is challenging and interesting for them. Rather than using incentives, threats, or persuasion, coaches can keep children motivated by introducing challenging practice activities that facilitate learning.

Piaget suggested that learning occurs through equilibration, his term for the process through which children integrate disparate pieces of information from their world into an integrated whole. Equilibration can be summarized in three steps: First, the child is initially satisfied with existing ways of thinking (e.g., a young tennis player who believes that she should begin her service motion with her torso facing the target). Second, the child recognizes limitations in and becomes dissatisfied with existing ways of thinking (e.g., after watching more experienced athletes, the young tennis player realizes that a spin serve will be impossible unless she changes her service motion). Third, the child regains equilibration after replacing old ways of thinking with more complex ways of thinking (e.g., the young tennis player practices and masters the new service motion). Together, the processes of assimilation and equilibration allow children to progress through a typical series of developmental periods that span infancy to adolescence. Although development is not as stage-like as Piaget originally indicated, four developmental periods described by Piaget provide a helpful starting point to understand intellectual development in children. Because some organized youth sport programs start as early as 18 months of age, all four developmental periods are relevant to the present chapter.

Certain reflexes and other mental capacities are present prior to birth. During the first developmental period, the sensorimotor period (ages 0–2 years), the reflexes of children serve as a foundation upon which more complex mental capacities are built. During the sensorimotor period, children begin to imitate the motor behaviors of caregivers, discover that certain actions will bring about predictable consequences, experiment with different ways of manipulating objects, and begin to form mental representations of objects and events. Piaget noticed that toward the end of the sensorimotor period, children tend to reproduce behaviors with slight variations in order to observe different outcomes.
The ability to imitate behavior is fundamental to motor skill learning, as motor skills are often learned by watching coaches or other athletes demonstrate behaviors.

Representational ability, a key component of the second developmental period known as the preoperational period (2–7 years), is evidenced by “deferred imitation,” in which children repeat a behavior modeled by another person hours after the behavior occurred. For children to learn from peer or coach demonstrations, they must have the ability to form a mental representation of the behavioral sequence. During the preoperational period, children are limited by egocentric thinking, such that they are not fully able to take the spatial perspective of others until the end of the preoperational period. Most young children are unable to imagine that someone standing in a different place on a football pitch would view an object, such as a goal, differently than they view the object. This limitation partially explains why young footballers may not notice that a teammate is open and is in a better position to score a goal.

During the third developmental period, the concrete operations period (ages 7–11 years), children develop the ability to represent transformation. In one of Piaget’s most famous studies of the conservation of number, Piaget placed two rows of checkers next to each other (each with the same number of checkers) and asked children to indicate whether each row had “the same number or a different number.” Piaget then asked the child to watch him spread out one of the rows of checkers. Once he had spread out one row of checkers, he again asked the child to report whether both rows had the same number of checkers or a different number. Most 5-year-olds reported that once one of the rows was spread out, the rows contained a different number of checkers. An ability to represent transformations is a necessary capacity for children to succeed in team sports such as basketball, which require players to watch and react as plays develop.

In the fourth developmental period, known as the formal operations period (11 years and older), children and adolescents develop the ability to entertain abstract concepts and imagine realities different from their own. The ability to consider concepts like meaning and truth also emerge during the formal operations period, allowing adolescents to think like adults. The advances that emerge during the formal operations period are a precondition for such sport tasks as learning a complex basketball offense or engaging in moral reasoning during adolescence and adulthood.

Memory

Although Piaget focused on intellectual advances that occur during childhood, information-processing theorists emphasize the development of memory systems. Unlike Piaget, most information-processing theorists contend that development is continuous rather than stage-like in nature. Information-processing theory focuses on “cognitive architecture,” which is relatively enduring throughout development, as well as the efficiency of these structures in processing information. Compared to adults, information processing for children is limited by the amount of information that they can attend to simultaneously and the speed at which information can be processed. Different types of information are “stored” in different memory systems. Both adults and children are capable of storing vast amounts of sensory information from their environment for a short period of time. Sensory memory for both auditory and visual information increases with age such that 6-year-olds remember less sensory information than 9-year-olds or adults. Due to these limitations, it is especially important to be concise when speaking to young athletes.

Active thinking occurs in working memory, which is the system in which people manipulate information in order to comprehend language and develop strategies to solve problems. Working memory serves as a “processing area” where sensory information is combined with information from long-term memory to organize information in new ways. Working memory is limited in capacity—the amount of information that can be processed simultaneously and the length of time that information is held there. Older children can process more information in working memory than younger children, and can do so for longer periods of time. Limitations in their sensory and working memories help explain why most 3- to 5-year-old children appear to have “short attention spans.” Although the sensory and working
memories of young children are limited compared to adults, both adults and children have long-term memories that are virtually unlimited in capacity and duration. Long-term memory includes information about specific experiences (e.g., a child receiving her first trophy), rules (e.g., a ball that hits the white line on a tennis court is “in”), and procedures (e.g., the sequence of movements necessary to hit a tennis serve). Once children encode episodic, semantic, or procedural information in long-term memory, the memories often endure throughout the lifespan.

**Motivation**

Aside from the more general theories of child development, additional cognitive constructs, such as the personal motives of young athletes for sport participation, have been explored through the lens of other psychological and developmental theories. Competence motivation theory suggests that mastery behavior in activities such as sport is predicted by one’s perceptions of ability and sense of control over performance situations. Youth sport participants typically have higher perceptions of competence and control than those who drop out. Achievement goal theory shows that behavior is often predicted by children’s perceptions of their abilities and their goal perspectives, meaning their views on what it means to be “successful” in sport. Children and youth high in ego-orientation, an achievement focus that is other-oriented, often avoid challenges for fear of being viewed as incompetent by observers and only feel successful when they are superior to others. Task-oriented children and youth more strongly self-reference their perceptions of achievement, and thus typically better persist in their sport efforts because they are more focused on improving their own performances relative to their past abilities and performances than they are worried about how their success compares to others.

Children themselves give many specific reasons or motives for sport participation. Factors related to enjoyment are consistently listed by children and youth as among the most important reasons why they participate in sport. In addition to enjoyment or fun, they participate in sport to develop competencies, spend time with friends, improve fitness levels, experience challenges, gain new opportunities, and bring honor to their families and nations. Conversely, it is not surprising that they quit sport when it is “no longer fun” or they are “no longer interested,” or because of such factors as “lack of playing time,” the “competitive emphasis in the program,” or an “overemphasis on winning.” Other children, and youth discontinue participating in sport because they have “other things to do” such as homework and other extracurricular activities, perhaps a reflection on the dramatic increase in the time commitment expectations placed on many young athletes in recent years.

Youth sport attrition is often influenced by stress experienced while participating in youth sport. Possible sources of stress include self-perceptions, self-esteem, social evaluation, perceptions of goal attainment, and parent and coach behavior at youth sport events. Among these social sources, angry parent behavior (e.g., yelling at officials) can be distressing for children, as the behavior can be a source of threat for young children and a source of embarrassment for older children. Likewise, the behavior of coaches can be a source of stress for children and has been found to have a significant effect on attrition. Coaches who create a climate centered on punishment, criticism, and favoritism have athletes who are more likely to drop out of sport than coaches who create a climate focused around contingent praise, encouragement, skill improvement, and equity.

In understanding long-term committed participation in sport, a distinction is often drawn between sport dropout, characterized by a withdrawal from sport participation due to a change in interest, and sport burnout, characterized by withdrawal from a sport due to chronic stress. Sport behavior is largely motivated by the desire to maximize the probability of positive experiences and minimize the probability of negative experiences. To maximize long-term interest and motivation, those responsible for structuring sport environments can do so in ways that keep children and youth interested in sport and that minimize the effects of chronic stress and negative experiences.

In the broadest participation sense, however, many children and youth throughout the world who would like to participate in sport never had the opportunity to do so because a variety of barriers stood in their way. These barriers include
sociocultural barriers (e.g., sport participation is not deemed important in the society, perceptions that sport is not culturally appropriate for some youth [typically girls]), access and opportunity barriers (e.g., limitations in transportation, facilities, equipment, program offerings, or finances), interpersonal barriers (e.g., minimal caregiver support for sport engagement, parental belief that sport participation is less important than other activities), psychological barriers (e.g., limited confidence in one’s physical abilities, little knowledge about sport, low perceived behavioral control over participation), and time-based barriers (e.g., too much homework, parental expectations for child to do chores or care for younger siblings). Policy makers and other influential adults could benefit the health and development of their children and youth through striving to reduce barriers to sport participation.

Self-perceptions

The cognitive perceptions that young athletes hold about their physical competencies affect their sport engagement. Younger children are generally more optimistic and older children are more realistic in evaluations of their competencies, with children's beliefs in their physical competencies declining over time. Children and youth rely on a variety of sources to gather information about their physical competencies. These sources change with age and as a function of certain psychological factors such as perceived competence and anxiety. During early childhood, children rely more predominantly on parent and spectator feedback and game outcome as information sources for knowing how they are at physical activities. In later childhood and early adolescence, children demonstrate greater reliance on peer comparison and evaluation from peers and coaches. Later adolescence finds youth having greater dependence on self-referenced information about physical competence (e.g., effort exerted, goal achievement, skill improvement) and on a wider variety of information sources than at earlier ages.

Children's motivation for sport is affected by self-perceptions of their abilities in relation to the perceived difficulty of sport tasks. Early childhood athletes more typically use egocentric and self-referenced assessments of task difficulty, judging whether sport tasks are difficult or not based on whether they are hard for them personally. During middle childhood, children begin to adopt more objective levels or norm-referenced views of task difficulty, such that they recognize tasks that a few children can do are difficult and require high ability. In later childhood and early adolescence, children begin to believe that performance on tasks can be improved with effort, but they believe that effort is the cause of ability. From about early adolescence on, effort and ability are viewed as negatively related, meaning that if one has to work harder at something like a sport task, one must not have high ability. These beliefs affect athlete perceptions of their own competence and potential for future success, and thus affect their motivated behaviors in sport contexts.

In sum, cognitive development affects the sport participation of children and youth through many important mechanisms. Understanding thought processes, memory, motivation, and self-perceptions helps sport leaders match the demands of sport opportunities with the abilities of the young athletes.

Social development and sport participation

Social development looks at the nature and causes of how human social behavior develops as a function of both cognitive development and social experience. Trajectories in the development of interpersonal relationships, reactions to social climates, and effectiveness of group processes explain some of the differences in sport engagement, skill acquisition, and performance observed among children and youth.

Sports are inherently social contexts that intersect with other important social contexts such as family, education, community, culture, and economic systems. Research in child development demonstrates that children develop through shared activities such as sports. Children grow in and through connections with others, supporting the fundamental importance of warm, trusting, supportive, and close interpersonal sport relationships to overall well-being.
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A scientific understanding of the development of social relationships helps practitioners understand how the social context of sport and the social agents within sports (e.g., parents, peers, siblings, coaches, fans, referees) interact with individual athlete differences (e.g., motives, goals, confidence) to influence cognitions, emotions, moral development, skill development, and sport performance.

**Social development in early childhood**

The genesis of many “sport careers” is in early childhood, often at around age five or six when children enter formal schooling. Children arrive in the social landscape of sport with developmental health assets and competencies derived from relational experiences during infancy, the toddler stage, and the preschool years. During these early times, parents and/or primary caregivers are important social agents that influence child development. Within the first year, infants have already learned the association between their distress, the caregiver’s approach and soothing attention, and the infant’s resultant comfort. Also within the first year, parental emotional cues are used by infants as a social reference that serves to help them clarify and interpret ambiguous events.

Attachment strength and security between children and their adult caregivers (usually their mothers) within the first year is believed to influence social, emotional, and personality development in subsequent years. Early relationships with available and responsive caregivers foster self-worth and self-efficacy, and aid in learning the skills, such as empathy and reciprocity, which are necessary for ongoing interactions with others. Attachment strength and adult responsiveness have significant effects on infant and early childhood social and emotional reactions, and provide the basis for a child’s “internal working model.” Internal working models of children generalize onto other relationships, such as extra-familial relationships (e.g., peers, coaches, intimate partners), and are strongly associated with children’s abilities to form and maintain close relationships throughout their lives. Once children enter sport, relationships with key social agents, as further described, affect their subsequent development, sport participation efforts and accomplishments.

**Parents and social development**

Parents are typically the initial and most influential sport socialization agents for children. Mothers and fathers model their own sport participation and act as providers of sport experiences, supporters of sport participation, and interpreters of sport experience. Children consequently develop beliefs in their abilities, maintain certain expectations for their participation, and acquire sport-related value systems based largely on the influences of their parents. Parental encouragement, support, and praise have consistently been found to enhance children’s perceptions of their abilities, enjoyment, interest, and involvement in sport. Conversely, unrealistically high parental expectations, excessive pressure, and frequent criticism have been linked to lesser enjoyment, interest, beliefs in abilities, intrinsic motivation, and greater perceived stress among youth athletes. Athlete perceptions of parental beliefs regarding effort, learning, enjoyment, and outcome provide situational cues about success and failure, which in turn influence athletes’ achievement-related cognitions and subsequent sport behaviors.

Research has examined the effects of angry behaviors on children, such as inter-parental angry behaviors in the family context. These angry behaviors provoke distress and maladaptive responses among children, and are predictive of psychopathology and impairments in normal development. Therefore, if continuous sensitive care of adults over time is important for adaptive functioning, it likely follows that this is true outside of the private context of the family home, such as in the public context of sport participation. Parents at youth sport events often engage in undesirable behaviors such as yelling at the referee, yelling at athletes, and coaching from the sidelines. These behaviors are perceived by children and youth as distracting, annoying, and embarrassing. Negative parental sideline behaviors can produce stress, anxiety, and performance decrements in young athletes, and chronic exposure to these behaviors may result in undesirable consequences for them, such as psychological burnout or sport attrition.
Children's vulnerability to angry sideline behaviors may increase when their parents are also their coaches; thus these parent–coach may be not only a source of angry parent behaviors but also the target of them. The rate of occurrence for this dual-role relationship is typically highest at the childhood and early adolescent levels—precisely when adult and particularly parental influence is most salient for children. Research indicates that children and youth report both positive and negative aspects of playing for a parent–coach. Regardless of the nature of the parent role in sport, parents remain the most important social influence in the development of their children. However, as children enter adolescence, the primary influence of the parent lessens, and peers and peer groups become increasingly important, as do social comparison and peer conformity.

Social development and peer relationships

Although parent influence on development is important, peer influence becomes increasingly influential through middle childhood and into adolescence. Establishing relationships with other children is a central task of early childhood and given that sport is played within a context of friend and peer interactions, sport is a powerful context for social development. Sport participation provides opportunities for children to make friends, interact with diverse peers, play cooperatively, make comparisons that form competence beliefs, regulate emotions, and manage conflicts that may arise during the pursuit of collective or individual achievement goals. Research has demonstrated that friendship qualities in sport have both positive and negative dimensions, yet little is known about how perceptions of friendship qualities and peer relationship dimensions are linked to athletes’ developmental outcomes.

Children with interpersonal attachments in which a sense of security is established and the core relationship strengths of stress resilience and emotional flexibility are formed are more likely to have positive and adaptive peer relationships. In early childhood, beginning about age six, as cognitive and language skills expand, children's social skills grow in concert. As patterns of play move from functional non-social activity in infancy to cooperative games with rules in early childhood through adolescence, social skills are necessary for success, including sport participation success. Popular versus rejected children not only have different experiences with peers and social situations, but exhibit different patterns of development. Patterns of disruptiveness and antisocial behavior in early childhood predict aggressiveness and peer rejection and possibly early-onset delinquency later in their developmental trajectories.

Children who lack the social skills necessary to positively interact with peers, such as the abilities to take the perspective of others, sustain attention, regulate impulses, and manage conflict, are more likely than their self-regulated peers to be rejected by peers and develop early conduct problems. Unfortunately, children who lack social competence or self-regulation skills (e.g., children who have difficulty regulating emotions or behavior, or who do not feel accepted or a sense of belonging with peers) may be less likely to enter and stay in sport, or are more likely to be selected out of sport (e.g., cut from the team by coaches because of disruptive behavior). Subsequently, some children fail to have continuing access to the developmental benefits of sport because of their unsuccessful peer relationships.

Coach influences on social development

Children arrive at sport contexts through a developmental pathway largely governed in the early years by parent-child interactions and family climates. Once they enter sport, coaches have the opportunity to affect athlete development in two ways: (i) through the interdependent nature of coach–athlete relationships and (ii) through the climates they create. For children and adolescents who lack caring and secure relationships with adult caregivers at home, coach-athlete relationships may provide complementary or surrogate sources. Caring, supportive, and secure relationships with important adults such as coaches can convey protective influences against risk and lead to positive psychological outcomes such as emotional resilience, personal empowerment, stronger self-worth, and capacity to deal with conflict.

Coaches can also facilitate development through meeting athletes’ essential needs for belongingness,
competence, and autonomy. Strategies employed by coaches to meet these athletes needs will vary across the developmental trajectories. For example, coaches cannot give the same amount of autonomy in decision-making for practice drills to 8-year-olds as they do to 18-year-olds and expect successful outcomes, due to variations in cognitive skills and experience. Similarly, fostering rapport and helping athletes feel cared about requires age-matched strategies; to meet athletes' needs successfully throughout development requires technical and relational expertise on the part of coaches. The research of scholars exploring youth sport coach effectiveness demonstrates that coach expertise is trainable. For example, athletes who play for coaches trained to give positive reinforcement for performance and effort (care), and follow mistakes with encouragement (care) and technical instruction (competence) have been found to enjoy sport more, like their teammates better, and drop out less than those who play for coaches without such training. As athletes mature and reach higher levels of competition, they desire coaches who are both technically and relationally competent. This means that coaches must be knowledgeable about their sports and be able to teach and develop athlete skills, while simultaneously making athletes feel cared about and supported, and allowing them increasingly more input and self-governance as their autonomy matures.

Coaches can also influence athlete's development through the types of social-psychological climates they create. Research consistently reveals that athletes who perceive mastery (i.e., focus on learning, self-referenced standards of success) versus performance (i.e., focus on outperforming others, other-referenced standards of success) motivational climates as cultivated by the coach—regardless of age, gender, or competitive level—demonstrate adaptive achievement patterns and positive cognitive and emotional responses.

**Moral development**

Differences in moral understanding developed across these early years are likely related to the quality of later relational experiences with others. Moral understanding is fostered when parents and coaches help children to become aware of and learn normative standards of behavior in sport, and to interpret, label, and explain causes and consequences of emotion as well as social behaviors. The organization and content of parent-child and coach-athlete dialog is an important mechanism through which moral understanding develops. Through dialog parents and coaches build understanding, clarify causality and personal responsibility, and foster perspective taking, empathy, and the importance of cooperation with others. Perspective taking—perceiving the situation from the other's point of view—is an important social-cognitive skill, and good perspective takers are generally well-liked by their peers. During early childhood, children can begin to adopt the perspective of another person and recognize that others can do the same. By adolescence, the ability to step outside a two-person situation (e.g., knowing that the referee must hate it when people yell at him) is replaced by the ability to view self and others from a third-person perspective (e.g., knowing that Sam must feel embarrassed when his mom screams at the referee from the sidelines), and by early adulthood a societal perspective emerges (e.g., knowing that it is not right to scream at the referee because the referee is a human being who deserves everyone's respect). These stages also closely reflect stages of moral reasoning—the reasons individuals give to explain actions.

Moral development is also influenced by coach discipline strategies. Strategies that are coercive and power assertive, and those which heighten athlete anxiety and defensiveness, are less effective than strategies that reduce threat to athletes and use reasoning and justification for compliance. Ineffective strategies, for example, may include publicly humiliating, punishing, or embarrassing athletes for rule violations and simultaneously failing to explain the rationale behind the punishment to the athlete or the team (e.g., "We're all going to watch while Jake runs sprints in his underwear until he throws up"). If coaches can neither rationally explain neither "why" they are punishing individual athletes or the team nor how the punishment relates to core values, evidence would suggest those actions to be ineffective. Rather than relying primarily on imposing will and power on athletes, coaches should strive to appeal to the collective "good and right," justify decisions, and
make transparent their reasoning and decision-making processes. Moral reasoning is more likely to develop when coaches ask athletes to reflect on how their actions affect everyone on the team (e.g., “What would happen if everyone dis obeyed curfew and went out drinking the night before a game?” or “What does this say about our team that one of our members thought it was ‘okay’ to break curfew?”), rather than only appeal to individual responsibility (e.g., “It was your choice to disobey curfew.”). In short, how coaches punish reflects and communicates whom and what they value.

Employing democratic decision-making is another relational process by which coaches can influence moral development. Coaches may be leery of adopting a “power-with” (i.e., shared) model of democratic leadership and may worry that children, not to mention adolescents, are incapable of being responsible for themselves, let alone for others. Coaches fear anarchy may be the result of their letting go of the reigns of discipline, but embracing power-with leadership does not involve the surrender of responsibility, but rather the ability to provide autonomy support and guidance to the members of their teams. This also does not mean burdening children with decisions and responsibilities that are inappropriate for their stages of development, but making athletes partners in their own sport experiences. Involvement in decision-making helps children to develop as autonomous persons, and autonomy has to do with making decisions about what is right and good for oneself and others.

Decisions are made and allowed, however, within the broader motivational climates created by coaches. Research demonstrates that athletes who perceive the sport climates to be ones in which coaches value performances and outcomes over the processes of learning and self-referenced mastery are more likely to demonstrate unsportsmanlike behaviors. The degree to which important people—parents, coaches, and peers—in the lives of athletes believe, endorse or engage in good or poor sport behavior, is predictive of the beliefs and actions of the athletes “on the field.” Therefore, coaches who construct a “win at all costs” climate are more likely to have athletes that will, for example cheat to win and believe it is justifiable to do so.

In sum, social influences such as parents and coaches can use an understanding of social development to enhance the sport participation experiences of children and youth in two primary ways: (i) through the development of warm, caring, and supportive relationships with their athletes and (ii) by constructing and maintaining moral and mastery motivational climates. When these two dimensions are deliberately constructed by adult sport leaders working together with parents, a host of positive outcomes typically accrue for young athletes, including greater enjoyment, higher self-esteem, positive emotions, sustained and committed participation, more mature levels of sportsmanship, positive psychosocial and psychomotor development, and reduced competitive anxiety. In addition to fostering social development, both moral and motivational strategies simultaneously foster intrinsic motivation, the presence of which increases the likelihood that long-term commitment and optimal psychomotor development and performance will result, as further described.

**Psychomotor development and sport participation**

Learning sport skills is an educational process, and understanding the psychological aspects of effective teaching and learning helps coaches understand how to best encourage sport participation and develop motor and sport skill in their athletes. The acquisition and the performance of motor and sport skills in childhood and adolescence are critical to lifetime movement literacy, psychomotor confidence, and competitive success. Two important dimensions of psychomotor development include understanding: (i) how children develop motor skill and sport-specific abilities given maturational and experiential processes and (ii) effective educational strategies for maximizing this sport talent development. Sciences underling these dimensions include motor learning (how motor skills are acquired and perfected), motor development (maturation and ecological processes underlying motor skill acquisition), motor control (control of motor skill by the neurological system),
Sport psychology (motivating athletes who want to participate in sport and to learn and improve motor skills), and educational psychology (employing effective ways of facilitating motor skill acquisition and knowing how to optimize motor skill learning through instructional strategies).

**Psychomotor skill**

Sport skills are a specialized subset of motor skills. At young ages, children benefit from a broad foundation of general motor skills, whereas with increasing age they naturally and typically begin to choose a few sport activities in which to develop more skill. Many elite athletes evidence a pattern of broad-based physical activity participation throughout their childhood years that lays a foundation for their later expertise, rather than intense and exclusive sport specialization at early ages. In general, it is advantageous to engage in this rudimentary form of cross-training early in life, when the goal is to develop an adaptable bandwidth of movement competencies that provide the groundwork for later motor specificity and specialization.

This pattern of broad participation in the early years, though, is somewhat dependent on the specific sport and the desired level of skill attainment. Studies from a variety of sports show that variability in athletes' physical maturation status has a strong influence on early sport success, providing an advantage in some sports, such as football and hockey, and something of a disadvantage in others, especially for girls participating in sports such as gymnastics or diving, which favor a pre-pubertal physique. However, the fact that success in sports such as gymnastics and figure skating requires intense early training and a career that peaks in puberty is a function not only of the demands of the sport and the physical and psychological capabilities of athletes at certain ages, but also of the fact that the social influences of governing boards lead to them choosing to adopt rules and judging criteria that reward physical maneuvers that may force young athletes to excel early before their bodies mature, specialize in one sport at a young age, accept and play with injuries, and follow the dictates of authoritarian and sometimes abusive coaches and parents in the quest for elite status and achievement.

**Sport talent**

Coaches and other adults play a critical social role in influencing young athletes' efforts toward developing expertise in sport performance. In order to achieve elite levels of sport skill performance, some researchers have estimated that athletes must accumulate ten thousands hours of "deliberate practice"—described as effortful practice usually guided by a coach with the goal of facilitating performance improvements—over at least a 10-year period. This process is characterized by increasing amounts of practice time invested as athletes move up to higher levels of competition and age. Although intense commitment and preparation are necessary to achieve world class sport performance, researchers in this area also say that young athlete development programs must concurrently provide sufficient periods of mental and physical rest to allow for mental and physical recuperation, tissue regeneration, and avoidance of injury.

Intrinsic motivation for improvement also is inherent in the development of expert levels of sport skill. Retrospective evidence demonstrates that early in the careers of many elite athletes, they spent more time outside of organized practice sessions working on their individual motor skills than did their ultimately less elite counterparts. A composite of research on sport practice would lead to a rough estimate of approximately 4-6 practice hours per week outside of organized practices spent by these future elite young athletes on their individual motor skills from about 8 to 12-years of age. Additive to the physical practice effects, these unstructured child-centered times are driven by intrinsic motivation and behavioral choice, and they allow opportunity for the development of creative play-making and decision-making skills required in so many sport activities, but often stifled by a rigid focus on coach as decision maker in organized sport practices and competitions.

Scholars have argued that early sport talent identification cannot be achieved exclusively by traditional discrete or single-item assessments (such as coach-judged tryouts), but rather requires a complex and dynamic systems approach that embraces the role of developmental processes and variable paths to excellence in sport. Under this system, the emphasis
is on sport leaders continuously assessing the changing learning potential of young sport participants rather than relying on highly time-isolated, genetically driven indicators of sport performance that are heavily influenced by physical maturity and individual differences in biological trajectories. Current systems for the early identification of sport talent are developmentally constrained by their emphases on short-term adult-governed assessments and expectations, such as through holding sport team tryouts, cutting athletes from teams, and emphasizing coaching practices that invest more time with the “high talent” young athletes from the earliest of ages. The consequence is that many children and youth with great developmental sport potential are prematurely eliminated from organized sport, either directly through coach-related de-selection or indirectly through their own loss of confidence in their sport competencies following such de-selection and their subsequent limited expectancies for future success. Scholars from the United Kingdom and elsewhere have emphasized that youth sport talent identification strategies should focus on multiple dynamic assessments of physical, motor, and psychological dispositions, and their capacities to develop across transitions in individual athletes. The powerful social influences exerted by the evaluations of coaches during such sport talent identification processes should be focused on maximizing opportunity for development and improvement among a broad base of young athletes, for reasons related both to advantaging their personal growth and development and to their sport talent development.

**Coach effectiveness**

Expert coaches who get the most out of their young athletes employ a variety of educational and psychosocial strategies that make them effective. These strategies include those related to social psychology (e.g., creating effective and motivating learning climates that match the preferences of the athletes), cognitive psychology (e.g., understanding how much information to provide to learners at different levels of psychological development or what to expect of their attention spans and performance levels), and educational psychology (e.g., effective teaching of motor and sport skills).

One of the key instructional techniques used in sport skill acquisition is that of giving demonstrations, also referred to as observational learning or modeling. Effective sport skill demonstrations that involve both showing and telling young athletes how to perform sport skills correctly can greatly improve athletes’ efforts, although the specifics of how and when to use these demonstrations are somewhat specific to the sport task and to the age of the athletes. From a biomechanical standpoint, there is typically a range or bandwidth of effective mechanical approaches to a specific sport skill contingent upon the anatomical, physical, and developmental profile of the individual athletes (e.g., their physical maturation, stature, and flexibility) and the constraints on the skill performances imposed by the sport rules (e.g., the requirement to keep the feet on the ground during a football throw-in). Demonstrations can serve the very useful function of conveying key motoric information about what to do quickly and effectively, and general recommendations for giving demonstrations include such considerations as repeating the demonstration more than once, giving the demonstration at actual speed before slowing down and then reconstructing to full speed, and using brief and descriptive verbal cues to cognitively connect the observer to the few most critical motor aspects of the performance. Again, depending on the sport, there may be some advantage conveyed by downplaying emphases on the outcomes for beginners and rather focusing more on the critical aspects of the form and timing of the movement (e.g., developing greater speed in a softball pitcher is advisable before an extensive emphasis on developing greater accuracy). Demonstrations are also typically more interesting to observers than merely listening to verbal instructions, and so convey a motivational advantage as well. In addition to their usefulness in showing athletes what specific sport skills look like (as many beginning young athletes may not have ever seen a specific skill performed before), demonstrations are helpful in showing athletes what particular drills look like so that they can quickly be organized to replicate the drill themselves. Demonstrations can also be used to develop perceptual-cognitive skills and game intelligence by directing athlete attention to demonstrations of opponent
patterns of play or to view offensive or defensive sequences from the perspective of the performer. The key consideration seems to be that demonstrations should give the learners the idea of what to do and direct their attention to the most critical aspects of a performance. It is also important for demonstrations not to unduly constrain the performance of athletes to be required to perfectly match that of the demonstrator or model in order to allow for individual variability in maturity, development, and mechanics.

The ways in which physical activity leaders give feedback about motor performances once athletes begin their own practice efforts affect athlete psychological responses. Augmented feedback is the general term used to describe feedback provided by extrinsic sources such as coaches. Informational feedback provides skill-relevant information in response to physical attempts, and can be in the form of descriptive feedback, which "describes" what just happened, and/or prescriptive feedback, which "prescribes" how to fix errors or how to maintain good performances for the future. Evaluative feedback places judgments of approval or disappointment on the performances (such as praise, criticism, or ignoring). How athletes interpret these types of feedback and the consequences for their perceptions of competence and ability appear to be moderated by a variety of factors such as age and sport experience. Feedback affects athletes through their perceptions of physical ability, effort, and future expectations for success. Research has shown that coaches benefit athlete participation through their extensive use of positive, contingent, supportive, informational feedback combined with low punitive feedback. They detract from athlete participation with an overemphasis on ignoring (no feedback), negative feedback, and punitive feedback. Thus, as mentioned earlier, well-executed feedback is critical to establish task-focused and positive environments to generate longer term commitment to sport participation.

Expert coaches of children and youth seem particularly adept at knowing when and where to use the key behaviors of silence, praise, encouragement, and instruction in developing their young athletes. Quality (rather than quantity) instruction and feedback, punctuated by periods of silence and contingent praise, appear to be the characteristic of effective coaches based on a composite of literature using observational assessments. From the perspective of the athletes, interviews with children and youth show that they are very clear and consistent about what they prefer their coaches to do and be. A good coach, according to young athletes, has the personal traits of being credible, nice, and fun; and behaviorally assumes competently the roles of manager, teacher, trainer, and performance enhancement specialist.

But even with the best of coaches and instructional strategies, not all sport participation can and should be adult structured, even for the maximization of sport talent. Children and youth gain much from the opportunity to practice and participate in sport activities without adult intrusion, or with minimal adult intrusion such as that provided by guided discovery and ecological approaches to coaching. As stated earlier, there are multiple models of sport participation and talent development, some of which have limited adult leadership until later in the athletes’ development. The psychology literature demonstrates that there is variability of developmental windows of maturation and experience within which elite levels of sport skill can be achieved. Adults who establish rules and standards for sport development programs are encouraged to use that power in ways that recognize and benefit the physical, mental, and social development of children and youth.

**Adversity and coping**

Young athletes who are more resilient and are better prepared to handle adversity in sport engagement, learning, and performance will be advantaged in their development for and through sport. For example, excessive stress leads to physical and mental consequences such as fatigue, injury, decreased enjoyment, and emotional control problems. Learning to cope with adversity in sport is necessary to maintain and enjoy continued participation. Coping consists of those cognitive, emotional, and behavioral efforts used to manage difficult life situations. A variety of these difficult situations arise during sport participation, such as injury, abusive coaches, performance setbacks, and competitive losses. Three dimensions of coping with the stress and anxiety of sport situations have
been identified: (i) problem-focused coping (trying to change the situation), (ii) emotion-focused coping (managing the emotions associated with the situation), and (iii) avoidance coping (removing oneself from the situation). Minimizing perceptions of excessive stress by providing a more positive and task-involved climate and developing coping and social resources among athletes are important mechanisms by which continued participation in sport can be achieved. In addition to the strategies described earlier for creating optimal psychosocial climates, individualized mental skills training programs as organized and implemented by sport psychologists are another effective way of preparing athletes to cope with difficult sport challenges. These programs typically include both cognitively and somatically based strategies for controlling stress and dealing with adversity, in addition to proactively developing mentally tough approaches to sport participation and competition. For example, psychological skills training programs often teach athletes to use mental skills such as imagery, goal setting, relaxation, self-talk, emotional control, and automaticity in effective ways for alleviating stress and enhancing performance. These self-regulatory psychological skills are essential to enjoyable and competent sport performance, just as they are for older athletes.

Life skills programs are another approach that has been used to help athletes develop broad bases of psychological and social skills necessary not only for coping with the challenges of sport participation but for broader life situations as well. Most of this chapter has focused on how child and adolescent development processes affect sport participation. This reciprocal path of influence—that is, that sport engagement, learning, and performance are not only achieved through the developmental readiness of athletes, but that they also develop athletes—is equally important. A positive youth development approach focuses on how sport participation can strengthen a variety of life assets for young people. In addition to the most obvious life skill assets of gaining motor competency and sport skill, sport participation can also be used to promote social, emotional, cognitive, behavioral, physical, and moral competence; foster resilience, self-efficacy, and identity; and develop connection and civic engagement in ways that extend far beyond the sport engagement.

Experiences and qualities central to positive youth development include building specific developmental health assets, all of which can be garnered through properly structured sport opportunities and climates. Developmental health assets or life skills typically include positive assets gained through the social climate and social institutions (e.g., supportive others, personal empowerment, behavioral boundaries, constructive use of time) and personal assets or skills generated through positive experiences (e.g., commitment to learning, positive values, being skilled in interpersonal and social interactions, feeling good about oneself). Having a greater quantity of developmental health assets relates to positive and successful youth development across a variety of contexts. Although not explicitly identified in most existing models of developmental health assets or life skills, unique groups of desirable benefits or assets attained through the context of sport participation should also include a more explicit focus on key physical assets, such as movement literacy, physical and mental health, physiological capacities, motor skills, and physical activity competencies. Beyond the sport performance benefits to having these assets, they also convey similar advantages to youth development across a broader variety of life situations. In sum, psychomotor development through effective instructional and educational practices is central to youth sport participation.

Summary

Figure 10.1 depicts a summary view of the aspects of development influencing sport participation among children and adolescents. Understanding athlete development as readiness for, process during, and outcome of sport participation, is the key to effective coaching and teaching of young athletes. This chapter described developmental psychology issues in a way that will help coaches use their knowledge of development to (a) structure effective progressions of mental and physical training and (b) hold realistic expectations of their athletes given their cognitive, social, and psychomotor developmental levels. By keeping these principles in mind, the sport talent of young athletes across the world can be developed to best advantage.
CASE STUDY

The following case illustrates how some of the principles in this chapter can be applied in sport settings for children and youth to achieve better physical and psychological outcomes.

Athletes
Beginning football players, about 5–7 years of age.

Background
Parents, coaches, and other adults working with young football players in a rural community recreation program meant well, but shouted loudly and created a somewhat heated context during Saturday morning football games as their children played competitive contests. A sport psychology professional was approached to offer recommendations for adapting the program to better match the developmental needs of the young athletes.

Professional assessment
In the opinion of the sport psychologist, the goals of recreational football programs at this early age group from a psychological perspective are to generate a love for the sport, offer opportunities to experience success, and instill a desire to keep playing the game without premature deselection. Socially, the goal is to minimize stress and anxiety for the young athletes who are learning skills in a very public context. Psychomotorically, the goal is to have children maximize individual touches on the ball to develop football skill competence.

Intervention
For reasons related to psychological and social development, it was recommended by the sport psychology consultant that teams at this age should not have goal keepers, as this is a very stressful position associated with "winning" and "losing" in this public setting and is not well matched to athlete readiness for this specialized play. Another psychological advantage of no keepers is that it is exciting and very motivating to score goals, and without keepers more children would have a chance to score.

For reasons related to psychomotor development, the consultant recommended that they play small-sided football, with fewer players per team and smaller play spaces thus allowing more frequent contact with the ball by all players and reflecting the fact that their kicking skills are just beginning to mature at this age.

Outcomes
After pilot testing the proposal for the first year, the local youth football association decided to continue the recommended practices for future years, as the children and families involved reported liking the changes and feeling that the desired objectives were achieved.
Further reading


Handbook of
Sports Medicine
and Science

Sport Psychology

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