A positive interrelationship exists between motor skill development and muscular strength (14). Coaches can help athletes to develop athletic ability by including motor skills training into practice sessions. Development of fundamental motor skills has repeatedly been shown to enhance fitness and sport skills, reduce the risk of injury, and promote lifelong participation in physical activity (2,7,8,9,11,13,14). Central to the development of fundamental motor skills is the development of muscle strength in children and adolescents (3). Therefore, improvement of general and sport-specific skills can be maximized by including both motor skill mastery and muscle strength activities in a general preparatory strength and conditioning program (7). This approach is called integrative neuromuscular training (INT) and can be achieved by purposefully including activities that promote health fitness, skills fitness, motor skill mastery, and efficacy (1,10).

Motor skills can be thought of in a sports context as the combination of skills that produce athleticism. Vern Gambetta defines athleticism as “executing athletic movements at optimum speed with precision, style, and grace,” (5). This definition of athleticism fits well with the classic definition of physical literacy that promotes movement with competence and confidence throughout the lifespan (16). It is important for coaches to recognize their role is to develop youth into physically active adults. Coaches should provide a positive youth sports and strength and conditioning experience that builds on success, does not use exercise as punishment, and promotes motor skills and muscle strength development for all youth. Incorporating INT into sports practice and training can have long-term health and physical fitness implications for youth (15). The purpose of this article is to provide information to coaches on how to include INT into their youth fitness and sports conditioning program.

INTEGRATIVE NEUROMUSCULAR TRAINING

The concept of INT was developed by Avery Faigenbaum for use with youth across sports, fitness, or physical education settings (12). The integrated components of INT include:

- Motor skills (e.g., running, throwing, catching, and dynamic balance)
- Health fitness (e.g., muscle strength)
- Skills fitness (e.g., speed, agility, and balance)
- Efficacy, developmental appropriateness, and fun

The key to successful implementation of INT is a qualified coach who understands the unique needs of youth throughout the nonlinear stages of the developmental continuum. Successful coaches understand instructional pedagogy for youth and must be able to create a developmentally appropriate conditioning program that focuses on long-term positive development, following the Composite Youth Development (CYD) model (8,9).

THE COMPOSITE YOUTH DEVELOPMENT MODEL

Based on an analysis of long-term athletic development models, the CYD model was proposed as a “flexible blueprint” for coaches (8,9). The CYD model provides a holistic approach to positive youth development for all children and adolescents with a strong emphasis on designing physical conditioning programs that emphasize general physical preparation and the development of gross movement skills. The CYD model offers a comprehensive approach for multisport participation, physical activity, fun activities, and structured play for aspiring young athletes.

PUTTING IT ALL TOGETHER

Youth can begin participating in strength and conditioning exercises at approximately the same age that they begin playing sports (typically 6 – 8 years old) (4). It is incumbent on coaches, therefore, to provide the appropriate instructional guidance for youth as early as age 6 – 8 in INT as part of the CYD model. Every child deserves the opportunity to participate in a wide variety of sports and activities as well as to participate in a properly designed strength and conditioning program.

REFERENCES


ABOUT THE AUTHOR
Rick Howard helped start the National Strength and Conditioning Association (NSCA) Youth Special Interest Group (SIG) and served this year as Immediate Past Chair. In addition, Howard serves on the NSCA Membership Committee and is the NSCA State/Provincial Program Regional Coordinator for the Mid-Atlantic Region. Howard is involved in many pursuits that advance knowledge, skills, and coaching education to help all children enjoy lifelong physical activity and sports participation.

The National Strength and Conditioning Association in conjunction with the President’s Council on Fitness, Sports & Nutrition presents the Strength of America Award. This recognition is given to high schools and their coaches that exhibit the highest standards in the safety and success of young athletes. Apply Now.

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