



INTEGRATIVE NEUROMUSCULAR TRAINING FOR YOUTH BASKETBALL PLAYERS

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When creating a strength and conditioning program for athletes of any age, a needs analysis is essential to identify the needs and limitations of the athlete for a particular sport (1). A needs analysis includes all fitness and performance attributes specific to the sport as well as the psychosocial elements of sport (4). For youth athletes, the focus of strength and conditioning should be on multilateral development, training-age related exercises and drills, and injury prevention through the application of safe and proper technique, rather than the amount of weight lifted (2,4,7). A needs analysis for basketball reveals that the phosphagen and glycolytic systems are the most dominant, but aerobic metabolism is also involved. Locomotor skills commonly seen in basketball include running, jogging, and submaximal repeated jumping (multiple-effort power) in combination with body awareness skills such as turning, landing, dodging, static and dynamic balance, and agility. Another aspect of the sport involves object control skills for controlling a basketball while dribbling, passing, shooting, rebounding, etc.

To satisfy the needs of strength and conditioning for youth basketball, a multidimensional, comprehensive youth-focused program is recommended. Integrative neuromuscular training (INT) has been shown to be an effective training methodology to improve fitness, promote physical activity, and engage youth in the strength and conditioning process (8). INT includes health fitness (e.g., muscle strength, cardiovascular endurance, muscle endurance, and flexibility), skills fitness (e.g., agility, balance, coordination, speed, power, and reactive ability), and sports

fitness (e.g., applied motor skills in a sports context) in a balanced age-related progression. INT has been shown to promote physical literacy and long-term athletic development (5).

SAMPLE INT EXERCISES FOR YOUTH BASKETBALL

It is important to remember that the training age of young athletes needs to be considered when designing the INT program. Each participant should have an individualized program based on their experience with strength and conditioning, not on their age or grade in school. Youth strength and conditioning coaches who work with youth basketball athletes are encouraged to select exercises and drills that are appropriate for their athletes. Table 1 provides several exercises and drills that may be integrated into a youth basketball athlete's INT program.

CONCLUSION

Basketball involves health, skills, and sport fitness attributes. INT incorporates, and improves, these attributes and is effective for reducing the risk of injury (5,8). Strength and conditioning coaches with knowledge of the exercise principles for youth and the specific demands of basketball can design effective INT programs based on the individual needs of for youth athletes.

TABLE 1. SAMPLE INT BASKETBALL EXERCISES

EXERCISE	BASKETBALL APPLICABILITY	REASON FOR INCLUSION
Kettlebell swing	Power	Reinforces athletic stance, hip mobility, and kinetic chain connectivity
Medicine ball partner pass	Passing	Involves upper body push work with release
Standing broad jump	Lower body strength and power	Correlates with other lower body strength measures and upper body strength measures (3)
Russian Kettlebell Challenge (RKC) plank	Trunk stability	Focuses on stability of all body segments
Goblet squat six-inch box jump complex	Lower body strength and power and proper landing mechanics	This type of complex training can improve jumping ability in youth basketball players (9)
Band rows	Strength	Promotes upper body muscular balance
Standing cable wood chop	Rotational strength and mobility	Works on trunk rotation
Unilateral balance drill	Balance	Improves balance, which predicts ankle sprain in youth basketball (6)

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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.