

Weightlifting: The Synergist to Athletic Development

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The sport of weightlifting has long intrigued coaches because its success is hinged as much on technique as it is on the power of the weightlifter (Rossi, S., Buford, T., Smith, D., Kennel, R., Haff, E., & Haff, G., 2007). The power produced during the second pull of the snatch has been recorded as high as 4, 807 Watts (Walker, M., & Gattone, M., 2007). Strength and Conditioning Coaches and Physical Educators alike are recognizing that when utilized properly, weightlifting is among the most effective ways of addressing strength, speed and power production. According to Takano, this growing interest in the Snatch and Clean and Jerk is reflected by large turnouts at national conference presentations that target technical instruction and inclusion of these movements in athlete training programs (Takano, B., 1992).

Snatch and other Olympic-style lifts are gaining in popularity possibly because of the way they address power. Power can be defined as the product of force and velocity, rate of performing work, the work performed in a given period, work per unit of time, or amount of force that can be generated over a distance in the shortest possible time (Waller, M., & Gattone, M., 2007). A volleyball player jumping to smash a ball, a fencer looking to increase first step quickness, or a skier looking to improve their ability to generate speed out of their turns, all require power production.

The sport specificity of the snatch can further be explained by two additional components: 1) athletic position; and 2) acyclic movement. Acyclic movement demands high coordination, as per Bernstein's idea of a kinematic kinetic chain in which each link adds to the creation of reactive or reflex forces transferred by one another (Campos, J., Poletaev, P., Cuesta, A., Pablos, C., & Carratala, V., 2006). At Lawrenceburg High School in the U.S.A, the choice to include an Olympic based training program was decided upon by five distinct factors: 1) The Olympic Lifts are performed standing (Athletic Stance); 2) they involve all muscles groups of the body; 3) the weights are supported by the body; 4) they involve better overall development of the synergists; and 5) the Olympic lifts require the muscles to fire in an impulse fashion, or in triphasic bursts (Armstrong, D., 1992).

The growing popularity of weightlifting in the field of Strength and Conditioning over the last two decades has been mirrored in popularity by unstable surface training.

The popularity of each training method could possibly be explained by the effectiveness of both to enhance shoulder stability, core strength, and spinal stabilization. Through the utilization of Weightlifting components this increased core strength is typically accomplished during the catch phase of the Snatch, with overhead squats, or by performing drop snatches. During a squat or sequence of triple extension a neutral position of the spine is required to be kept through the entire movement sequence (Waller, M., & Gattone, M., 2007). As an athlete progresses, the motor units will improve their resistance

to fatigue, allowing peak force to be reproducible and transferred more efficiently from the lower body to the upper extremities. During the performance of these lifts, it is the responsibility of the Strength Coach or Physical Educator to be aware of any technique breakdowns, specifically the over compensatory action of postural muscles in lieu of prime mover recruitment which is common with poor technique.

When properly taught and utilized, Olympic lifts and their variations may be some of the most effective ways of developing power, strength, speed, core stability and overall inter / intra-muscular coordination. However, when dealing with young athletes, the focus should be on programming a developmentally appropriate training model with a sound understanding of the biomechanics, spatial sequencing and timing mechanisms required to produce efficient lifting technique in a safe and fun environment. Before anyone should proceed with teaching athlete's / client's any of the Olympic Style Lifts, Coaching Certifications should be obtained through the National Coaching Certification Program and The Alberta Weightlifting Association. For further questions, pertaining to any portion of this article, please direct your correspondence to Alberta Sports Development Centre – Capital Region via materi@ualberta.ca

References

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