

Olympic weight lifting: 2 event competition

Clean and jerk: weight is brought from floor to chest in one movement and then above head in a second..

Snatch: brings weight from floor to above head in one movement. Potentially dangerous if balance is lost.

Power lifting: Competitive event and emphasis on three lifts.

1) bench press 2) dead lift where weight is lifting from floor to waist level
3) squat: weight placed on shoulders and participant lowers until knees are parallel to the floor and then rises.

Training is with very heavy weights and long rest periods between lifts. The extreme weights can overload bones (fracture) muscle and tendons (strains - tears).

Body Building: Competition event, training usually with higher reps/lift, and higher intensity. Usually leads to better aerobic condition (the amount of O₂ consumed), compared with power/Olympic lifters.

Repetitions/RM/Sets:

Reps = number of times a resistance training motion is performed with rest. The max amount that can be lifted one time is 1RM. Similarly the max weight a participant can lift 6 times = 6RM. Usual wisdom is that loads from 2RM to 10RM are most effective for strength development. Optimum load appears to be 6RM.

Reps beyond 20 have progressively less effect. A weight training program is organized into sets and a brief rest between each set. Optimum number of sets appears to be 3 when utilizing 6RM.

Next Chapter: Injuries in strength training. What to avoid.

The Doctor's Corner

Injury - Free strength training in all its forms is the only way to go. In part I, we look at the forms of the sport.

Weight training = strength training to improve sports/activities. Typically uses machines and free weights and circuit training.

Isometric forceful muscle contractions against an unyielding load without length change in the muscle.

Isometric constant load to a muscle, usually with free weights, either concentric (muscle shortens) or eccentric (muscle elongates).

Variable resistance: Machine can vary the force presented to the muscle during range of motion (e.g. nautilus).

Isokinetic: Machines where resistance offered to the muscle is matched to the force applied by the muscle through the range of motions (e.g. Cybex).

Kinetic chain exercises:

Open chain: Foot is free e.g. hamstring curls. Isolates knee, but lacks co-contraction. Closed chain: foot is fixed e.g. leg press, promotes co-contraction of quads and hams, reduces shear, more functional, reduces patella problems. Best for rehab.

Circuit training: Multiple stations, in quick succession, doing a set of exercises and 50%-70% of max weight. Oriented to c.v. endurance and strength.

Plyometrics: Exercises that force a rapid lengthening of a muscle prior to contraction e.g. depth jump (participant drops from a controlled height and upon landing, immediately performs a maximum vertical jump.) The rapid pre-stretching of muscle before a contraction causes it to be more forceful. Helps coordination between neuro muscular skills and strength. Usually combined with weight training. Risk of tendon and ligament overload: best for conditioned athlete with warm-up.