

Warm-up

- Types of Warm-ups
 - passive: increase temperature by external means
 - general: increase temperature using non-specific body movements
 - specific: increase temperature using similar biomechanics used in subsequent, more strenuous activity.
 - best option since it provides rehearsal of activity or event
- Warm-up benefits
 - rehearsal of movement
 - elevation of body temperature
 - increase dissociation of oxygen from hemoglobin and myoglobin
 - lowering of activation energy rates of metabolic chemical reactions
 - increase muscle blood flow
 - reduction in muscle viscosity
 - increase sensitivity of nerve receptors
 - increase speed of nervous impulses
 - reduces incidence and likelihood of musculoskeletal injuries
 - supplies adequate blood flow to heart
 - warm up of two minutes prior to sudden exertion can decrease relative myocardial hypoxia and decrease blood pressure during exercise.
 - warm up may precede strenuous exercise by as much as 10 to 15 minutes and still decreased arrhythmias indicative of inadequate oxygen to the heart.
 - warm up may be particularly crucial for those with a degree of underlying coronary artery disease.
 - although the original study examined men ages 21 to 52 years who were asymptomatic to heart disease

Banard RJ, et al. (1973). Cardiovascular responses to sudden strenuous exercise - heart rate, blood pressure, and ECG. J Appl Physiology. 34:833.

Shellock, FG & Prentice, WE (1985). Warming-Up and Stretching for Improved Physical Performance and Prevention of Sports-Related Injuries, Sports Medicine, 2: 267-278.

Weight Training Warm-up

- 12 to 15 reps performed before workout set
 - Approximately 50% of workout weight (10 RM)
 - 30 seconds to 3 minutes rest before workout set
- Benefits of specific warmup
 - muscles and joint can be warmed up with the exact mechanics which will be performed during the workout set(s)
 - muscle and joint is less susceptible to injury
 - muscle can contract with greater intensity
 - motor skill and breathing can be rehearsed
 - Specific warm up can be considered more effective for weight training than general warmup

- Example of general warmup: jumping jacks, aerobic warm up, etc.
 - No warm up set is required for high repetition exercises
 - Example: 20-30 or 20-50 reps on abdominal training
 - high repetition sets are not as intense and serves as a warm up in its self.
 - A second warm up may be performed if the muscles and joints involved may be more susceptible to injury (based on past experience)
 - Example: squats, bench press
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