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WARMING UP AND ITS PHYSIOLOGICAL BASIS

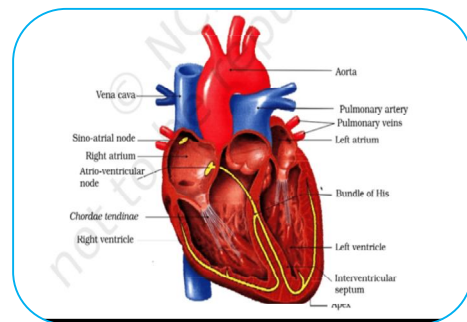
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ABSTRACT :

Warming up is a procedure, used prior to competition or hard training, by which an athlete attains the optimal body core temperature and specific muscle temperature for performance, and prepares physically and mentally for the activity.

KEYWORDS : *specific muscle temperature, prepares physically and mentally.*



INTRODUCTION :

A rise in temperature may be gained passively by taking a warm bath, but it more commonly involves taking light aerobic exercise.

There is a lack of general agreement about the effects of the warm-up, but the possible advantages include an increased metabolic rate; increased heart rate with improved oxygen and fuel transport to the muscles; increased speed of nerve conduction; and increased speed of muscle contraction.

The warm-up procedure varies, but usually involves 15-30 min of static stretching, calisthenics, and other exercises designed to reduce the risk of muscle and joint injury and fully prepare the muscles for the specific activity to be undertaken.



DEFINITION

- To prepare for an athletic event by exercising, stretching, stretching, or practicing for a short time beforehand.

- A routine used before strenuous activity to attain optimal body temperature, and to prepare physically and mentally for the activity.
- Procedure, used prior to competition or hard training, by which an athlete attains the optimal body core temperature and specific muscle temperature for performance, and prepares physically and mentally for the activity.

THE CONCEPT

Warm-up should progress gradually and provide sufficient intensity to increase muscle causing and core temperatures without causing fatigue or reducing energy stores. It provides a comfortable way to lead up to more vigorous exercise.

PHYSIOLOGICAL CONSIDERATION

Coaches, trainers, and athletes at all levels of competition generally recommend engaging in some type of physical activity or warm- up/preliminary exercise before vigorous exercise.

Warm-up helps to prepare physiologically or psychologically.

- Reduces joint injury.
- Reduces muscle injury.
- Injuring a warmed-up muscles requires more force than injuring cold muscles.
- The stretchability of the muscle increases.
- Reduces viscous resistance within active muscles.
- Increased body and muscle temperature.
- Improves enzyme activity and metabolic reactions.
- Increases blood flow and oxygen availability.
- Decreases contraction/relaxation and reflex time.
- Leads to attainment of second wind.
- It is generally characterized by a sudden transition from a rather ill-defined feeling of distress or fatigue during the early portion of prolonged exercise to a more comfortable, less stressful feeling later in the exercise

TYPES OF WARM-UP

- General warm- up - uses body movements or loosening-up exercises unrelated to the specific neuromuscular actions.
- Specific warm-up - uses rhythmic movements related to the actual activity.

SUGGESTED MOVEMENT

- Stretching exercises for flexibility



- provides a comfortable way to lead up to more vigorous exercise.
- precautionary measure against tearing muscle fibers and connective tissues.
- insurance against development of muscular tension.

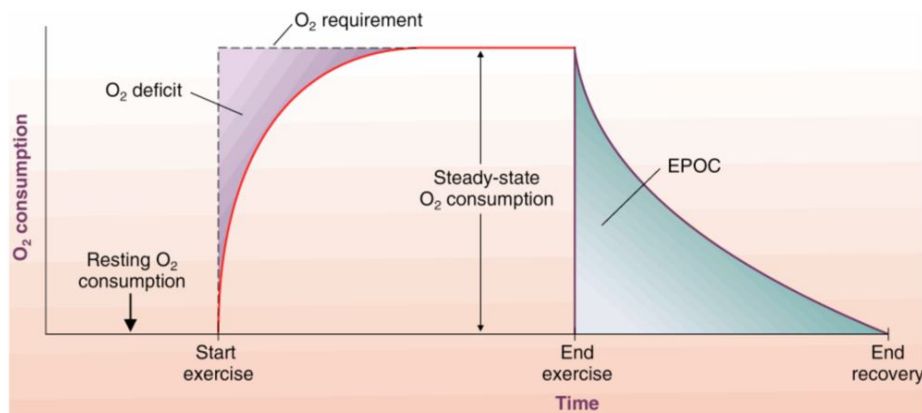
- Calisthenics exercises for development of strength
 - exercises should be performed after stretching routines
 - exercises involve muscular contraction.
 - exercises lead to further increase in body and muscle temperature.
 - exercises should not be overdone.
- Brief formal activity during the work interval
 - places the body in readiness for maximal effort.
 - muscle temperature and blood flow in active muscles come to optimal level.
 - improves coordination and neuromuscular mechanism.

COOLING DOWN

- Moderate exercise in recovery facilitates blood flow through the vascular circuit including myocardial vessels, keeps the muscle pump going and prevents the blood from pooling in the extremities.
- It should be performed in reverse order of warming up i.e. formal activities followed by calisthenics & stretching exercises.
- Active recovery removes lactate from the blood faster than passive recovery.
- It leads to faster recovery from oxygen debt.

OXYGEN DEBT

Normally during recovery the energy demand is considerably less as we are no longer exercising. However the oxygen consumption continues at a relatively high level for some time, the length of which is dependent on the intensity of preceding exercises. The amount of oxygen consumed during recovery above that which would have ordinarily been consumed at rest in the same time is called recovery oxygen.



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