

Exercise Therapy

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Aerobic Exercise Physiological Changes

Cardiovascular Changes

Changes at Rest

1. A reduction in the Resting pulse rate
2. A decrease in atrial rate
3. An apparent increase in parasympathetic (vagal) tone.
4. A decrease in blood pressure occurs
5. The decrease is in systolic blood pressure
6. An increase in blood volume and haemoglobin

Changes During Exercise

1. Reduction in the pulse rate
2. Increased stroke volume
3. Increased cardiac output
4. Increased extraction of oxygen by the working muscle
5. Increased maximum oxygen uptake (VO₂ max).
6. Increased ability of the muscle to extract oxygen.
7. Decreased myocardial oxygen consumption

Respiratory Changes

Changes at Rest

1. Larger lung volumes develop because of improved pulmonary function.

Changes During Exercise

1. Larger diffusion capacities occur for the same reasons as those listed previously

Metabolic Changes

Changes at Rest

1. Muscle hypertrophy and increased capillary density occurs.
2. Number and size of mitochondria are increased.
3. Increasing the capacity to generate ATP aerobically.
4. Muscle myoglobin concentration increases

Changes During Exercise

1. A decreased rate of depletion of muscle glycogen at submaximum work levels may occur.
2. Lower blood lactate levels at submaximum work may occur.
3. An increased capability to oxidize carbohydrate may result because of an increased oxidative potential of the mitochondria and an increased glycogen storage in the muscle.

Other System Changes

1. Decrease in body fat
2. Decrease in blood cholesterol and triglyceride level
3. Increased heat acclimatization
4. Increase in the breaking strength of bones and ligaments and the tensile strength of tendons

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