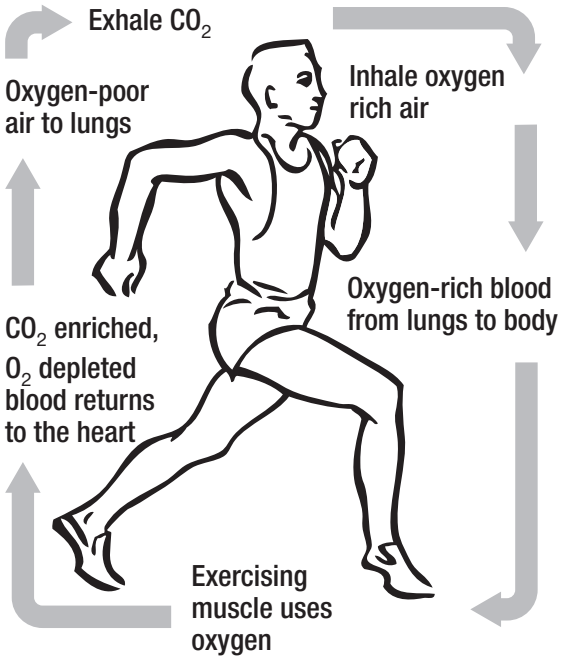

The pathways by which oxygen is transported from atmosphere air to the active muscles.

KEY FACTORS OF EXERCISE PHYSIOLOGY

- Energy for muscular contraction is predominantly obtained by biochemical pathways.
- Chemical energy is stored in the muscle in form of glycosyl units (glycogen).
- Muscular contraction needs ATP.
- The contraction itself doesn't need O_2 (energy), but oxygen is necessary for the cancellation of the actine-myosin binding.
- Perfusions of the muscle increases with the increase of PCO_2 & Lactate, and with the drop of PO_2 & pH.

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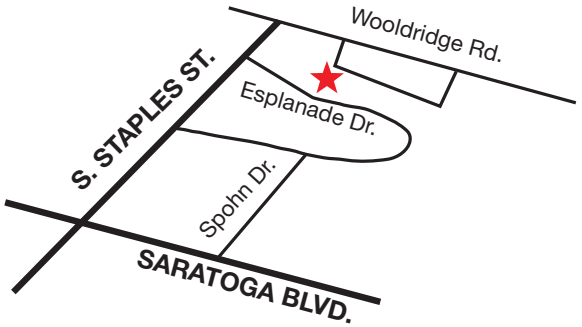
Hours: Mon through Thurs 8-5:30,
Friday 8-12, Evening and Saturday Appts.
Available upon Request.

VO_2max Testing is performed
by Appointment Only.
Please Call for Inquires and Pricing.



VO_2max

REACH YOUR PEAK OXYGEN UPTAKE

VO_2max TESTS THE VOLUME of oxygen your body uses once you have reached a max limit. The test reveals your potential endurance as well as if you have reached your maximum physical endurance.

WHAT IS VO_2max TESTING?

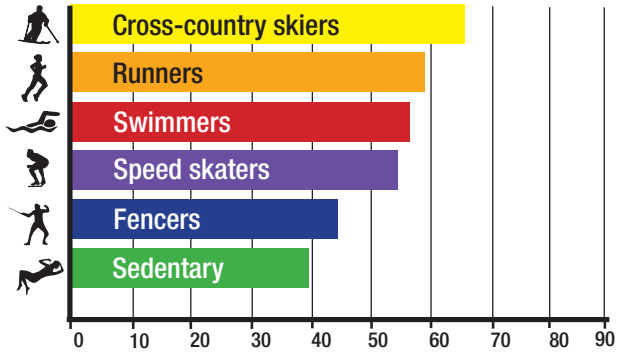
VO_2max is a test performed on a treadmill with the athlete wearing a mask. The test begins with very light intensity and gets slightly harder with time until athlete has reached a maximum. During the test Oxygen used and $C0_2$ made are simultaneously measured on a real-time. This test provides Anaerobic Threshold (AT) and VO_2max optimal intensity of exercise and heart rate needed to improve fitness.

GENETIC CONTRIBUTION

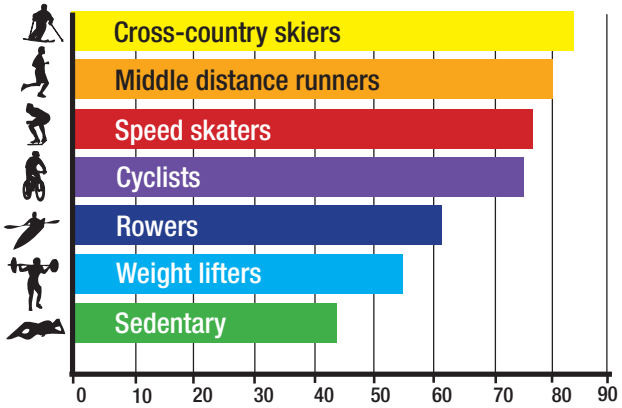
Estimated genetic contribution to individual differences in important components of health-related physical fitness.

FITNESS COMPONENT	GENETIC CONTRIBUTION
VO_2max	20-30%
Submaximal Exercise Response	20-30%
Muscular Fitness	20-30%
Blood Lipid Profile	30-50%
Resting Blood Pressure	30%
Total Body Fat	25%
Regional Fat Distribution	30%
Habitual Activity Level	30%

Modified from Bouchard, C., and Perusse, L.: Heredity, activity level, fitness, and health. Bouchard, C., et al. (eds.). In: Physical Activity, Fitness, and Health. Champaign, IL: Human Kinetics, 1994.



FEMALE Maximal Oxygen Uptake, mL • kg^{-1} • min^{-1}



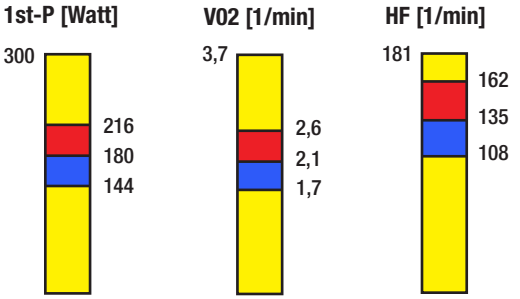
MALE Maximal Oxygen Uptake, mL • kg^{-1} • min^{-1}

OXYGEN UPTAKE BY ACTIVITY

Men and women who compete in distance running, swimming, bicycling, and cross-country skiing generally record the highest maximal oxygen uptakes (Think: why does a runner have a higher VO_2max than a swimmer? Does this indicate that they are a superior athlete?). Keep in mind that although these athletes have almost twice the aerobic capacity as sedentary individuals, this does not mean only VO_2max determines endurance exercise capacity.

Other factors, especially those at the muscle level such as capillary density, 'aerobic' enzyme content, and fiber type, strongly influence the capacity to sustain a high percentage of VO_2max (i.e., achieve a high blood lactate threshold). Nevertheless, measuring VO_2max provides useful information about the capacity to generate ATP, aerobically (Think: what does 'aerobically' mean?). Overall, achieving VO_2max requires the integration of respiratory, cardiovascular, and neuromuscular systems and as such provides significant physiologic "meaning" to this metabolic measure. For these reasons, VO_2max represents a fundamental measure in exercise physiology and often serves as the standard against which to compare performance estimates of aerobic capacity and endurance fitness.

TRAINING STATUS



Optimum Range For Cardiovascular Training

Optimum Training Range For Weight Reduction

Modified Balke Formula used to calculate VO_2max

$VO_2 = 0.172 \times (\text{metres}/15 - 133) + 33.3$

VO_2max Testing will give you the target heart rate to achieve your optimal cardiovascular fitness.