



## Why Exercise??

Exercise is key to de-stressing! It helps the body clean out toxins, it releases natural chemicals that help fight depression, and most importantly, it helps us feel good about ourselves. Exercise for weight loss involves 20-30 minutes, 4-7 times per week, at 60-70% of the maximum heart rate. The maximum heart rate is calculated as follows: Max HR = 220-age. There are many ways to calculate this, but the provided equation is more than sufficient.

i.e. 28 years of age female,  $220 - 28 = 192$ .

$192 \times 0.6 = 115$

$192 \times 0.7 = 134$

Therefore, target HR = 115-134 beats per minute.

## What does 60-70% of maximum heart rate feel like?

This intensity is comfortable. It is, for most people, a brisk walk. In theory, aside from getting very bored, you could maintain this intensity for a period of hours. At 60-70% of max heart rate, the person is capable of comfortably engaging in conversation, without gasping for breath whatsoever.

## Will it feel easier after a period of time?

No. By basing the intensity relative to heart rate, perceived exertion will remain the same. For example, when you begin you will achieve your intended heart rate after a relatively small amount of time but as you continue to work out it will take you longer to achieve this rate. The net effect of training is *more output* with *less perceived* exertion.

Repeated bouts of exercise override the physiological signals to slow the body down. The body will not use muscle (protein) as an energy source, instead it will use fat. Exercise will increase muscle mass and increased muscle mass will modestly increase basal metabolic rate. The basal metabolic rate is the amount of calories required to conduct essential functions of life. For example it is the amount of energy consumed by the heart during sleep.

## Cardiovascular Changes

- Lower resting pulse
- Increase in blood volume and hemoglobin
- Reduction of pulse rate during exercise
- Increased cardiac output, meaning: doing more with less effort
- Increased extraction of oxygen, meaning: your body is getting more oxygen
- Muscle is more efficient therefore decreased blood flow/kg of working muscle.
- Decrease myocardial (heart) oxygen consumption

## Respiratory Changes

At rest and during exercise larger lung volumes and surface area increases results in increased diffusion capacities (because lung volume and surface area increases) meaning that your lungs work much more efficiently.

## Metabolic Changes

*At rest:*

- Muscle hypertrophy and increased capillary density mean new blood supply which is why it takes time for fitness to improve (because has to grow). Important: if you stop exercising the blood supply decreases!
- Increased number and size of mitochondria therefore increased capacity to generate cellular energy



*During exercise:*

- Decreased rate of depletion of muscle glycogen at submaximal work levels (glycogen sparing)
- More ability to draw from energy sources
- Won't get lactic acid (the stuff that makes muscles ache after exercise) produced to same degree because there are lower blood lactate levels at submaximal work

**Other system changes:**

- Decrease in body fat; everyone is different with respect to what effects your body composition i.e. cardio vs. weight training. If you are short on time do circuit training because it does both.
- Decrease in blood cholesterol and triglyceride levels
- Increase in heat acclimation – this system is trained through exercise (cardio) therefore people who exercise regularly are training this system regularly.
- Increase in strength of bones and ligaments and tensile strength of tendons

It takes at least 10 – 12 weeks of consistent exercise before significant physical changes will be noticed as a result of exercise. It takes this long because your body must make physiological changes - grow more blood vessels, more muscle fibers, etc!

**Physical Benefits**

**Mental/Emotional Benefits**

- | Physical Benefits  | Mental/Emotional Benefits   |
|--|---|
| <ul style="list-style-type: none"> <li>▪ Speeds up the removal of toxins and waste material from the cells.</li> <li>▪ Increase blood flow that carries nutrients and oxygen to every cell</li> <li>▪ Increases lymph circulation</li> <li>▪ Increase levels of high density lipoprotein (HDL) cholesterol</li> <li>▪ Helps lower blood pressure</li> <li>▪ Helps prevent heart attacks</li> <li>▪ Help maintain appropriate blood sugar levels</li> <li>▪ Increases body temperature</li> <li>▪ Prevents the formation of gallstones by increasing the solubility of cholesterol in bile</li> <li>▪ Restores lung power, endurance and strength</li> <li>▪ Increases muscle flexibility and strength</li> <li>▪ Improved bone structure an support for the body</li> <li>▪ Can shorten the duration of an allergic inflammatory cascade</li> <li>▪ Can reverse adult onset diabetes</li> <li>▪ Aids in weight reduction programs</li> </ul> | <ul style="list-style-type: none"> <li>▪ Improves overall mental health</li> <li>▪ Elevates mood with the release of endorphins</li> <li>▪ Relieves depression</li> <li>▪ Increased sense of well being</li> <li>▪ Improves self-confidence and self image</li> <li>▪ Increased oxygen levels improves mental abilities , learning potential and cognitive skills</li> <li>▪ Improves memory</li> <li>▪ Enhances sense of personal achievement</li> <li>▪ Improves reaction time</li> <li>▪ Decreases feelings of inertia</li> <li>▪ Reduces mental stress</li> <li>▪ Reduces tension and anxiety</li> <li>▪ Decreases anger and hostility</li> </ul> |

***The medical information provided is of a general nature and cannot substitute for professional medical advice, diagnosis, or treatment.***

***Always seek the advice of your Naturopathic Doctor or other qualified health provider with any questions you may have regarding a medical condition!***