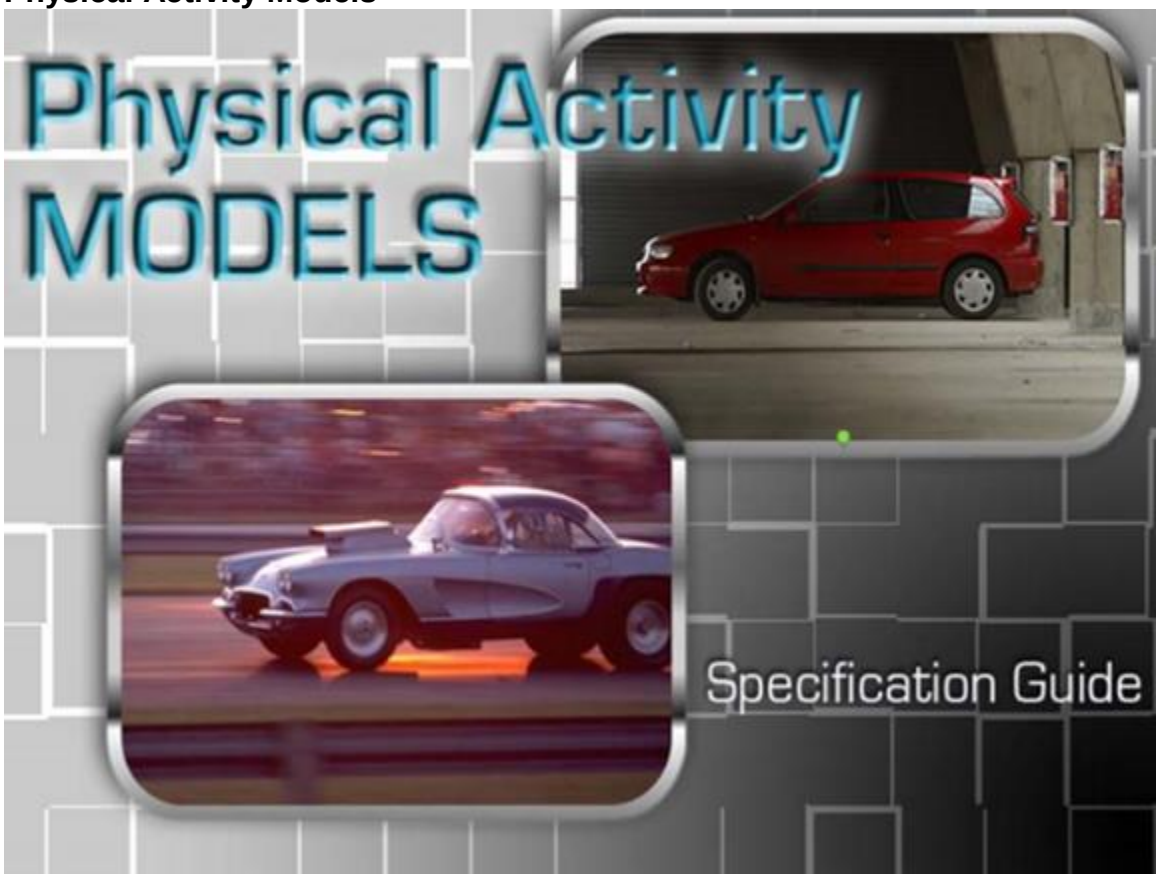
Module 1: The Perfect Machine
Topic 2 Content: Physical Activity Models Specification Guide

Physical Activity Models



Are you a roadster: one who loves to go out and run around and play and dance? Perhaps you prefer to take the stairs or walk to school. Or are you the show-piece that sits in the garage all the time? Do you get home from school only to plop in front of the computer or television every day? Sometimes the car may look good from the outside, but if it isn't maintained completely, it might have more problems than meet the eye.

Read the specifications on the two models of human bodies: the active model and the sedentary model. Study the effects of active and sedentary lifestyles on your body – your machine.

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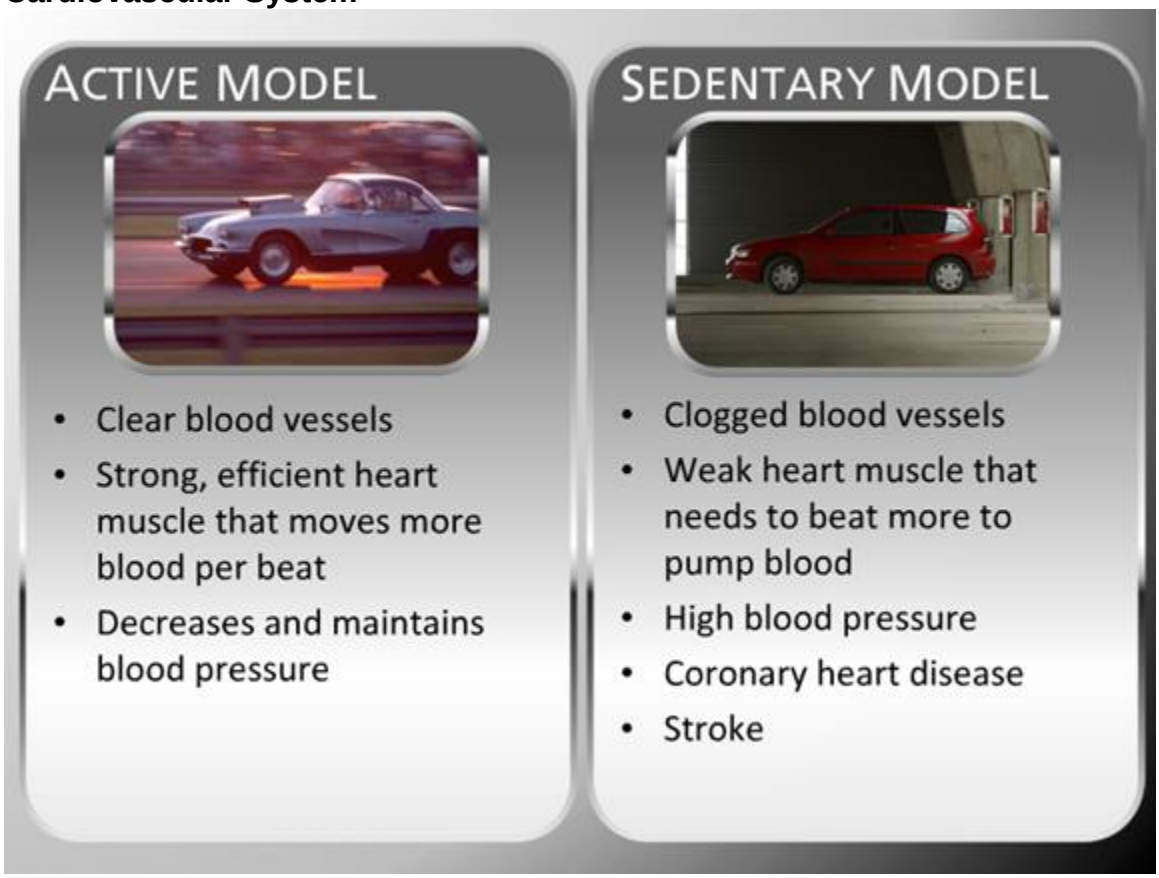
Cardiovascular System



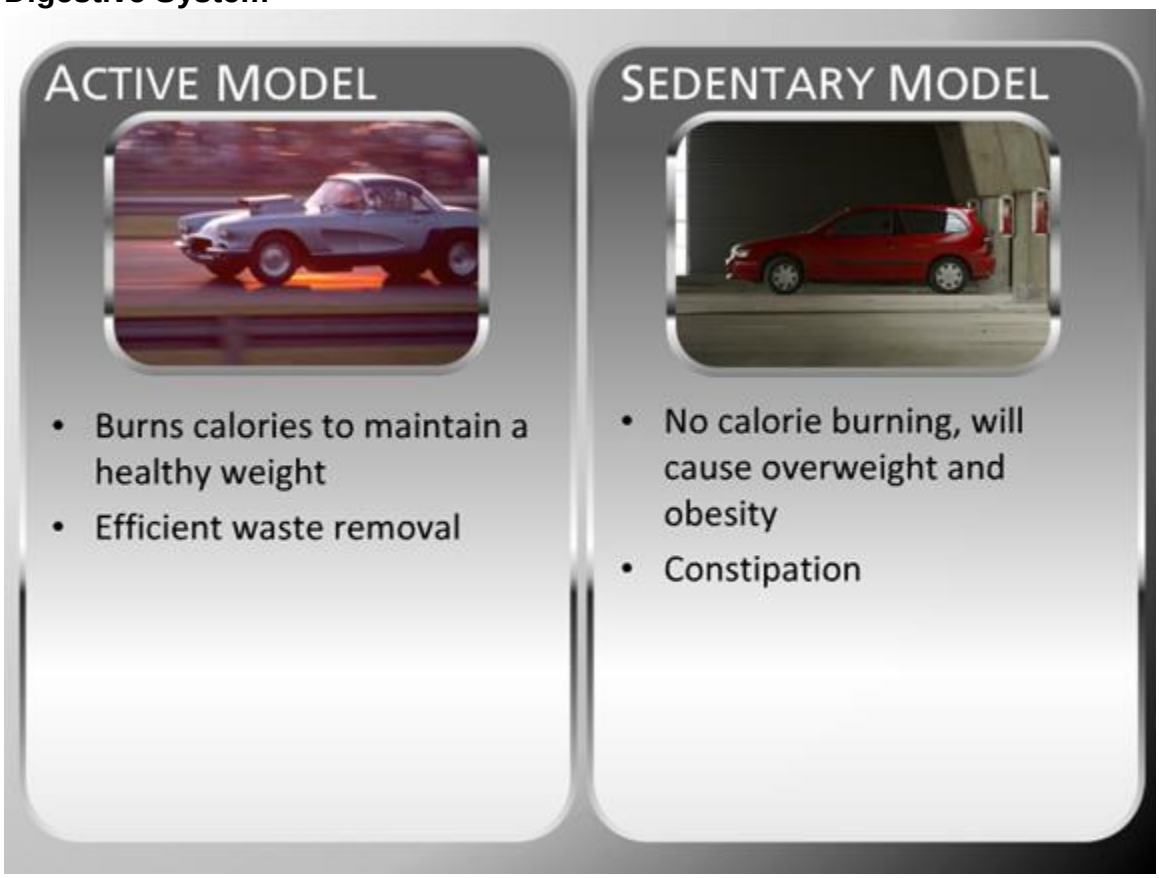
Much like needing to keep the gunk buildup out of your car's engine, you need to keep your arteries clean and clear. Exercise keeps the heart and blood vessels strong and flowing, with fewer problems. Sedentary lives increase the chances of cardiovascular diseases such as CHD or coronary heart disease, hypertension, or stroke.

Coronary heart disease is a condition of the heart where the arteries that supply oxygen and nutrients to the heart muscle are blocked or partially blocked with fatty deposits and plaque, resulting in stoppage or irregular heart rhythm.

Hypertension is often called high blood pressure; this is a cardiovascular disease that is caused by too much blood flow pressure in the blood vessels during and following heart beats.

Stroke is a cardiovascular disease in which blood vessels to the brain are blocked or partially blocked, resulting in brain damage.

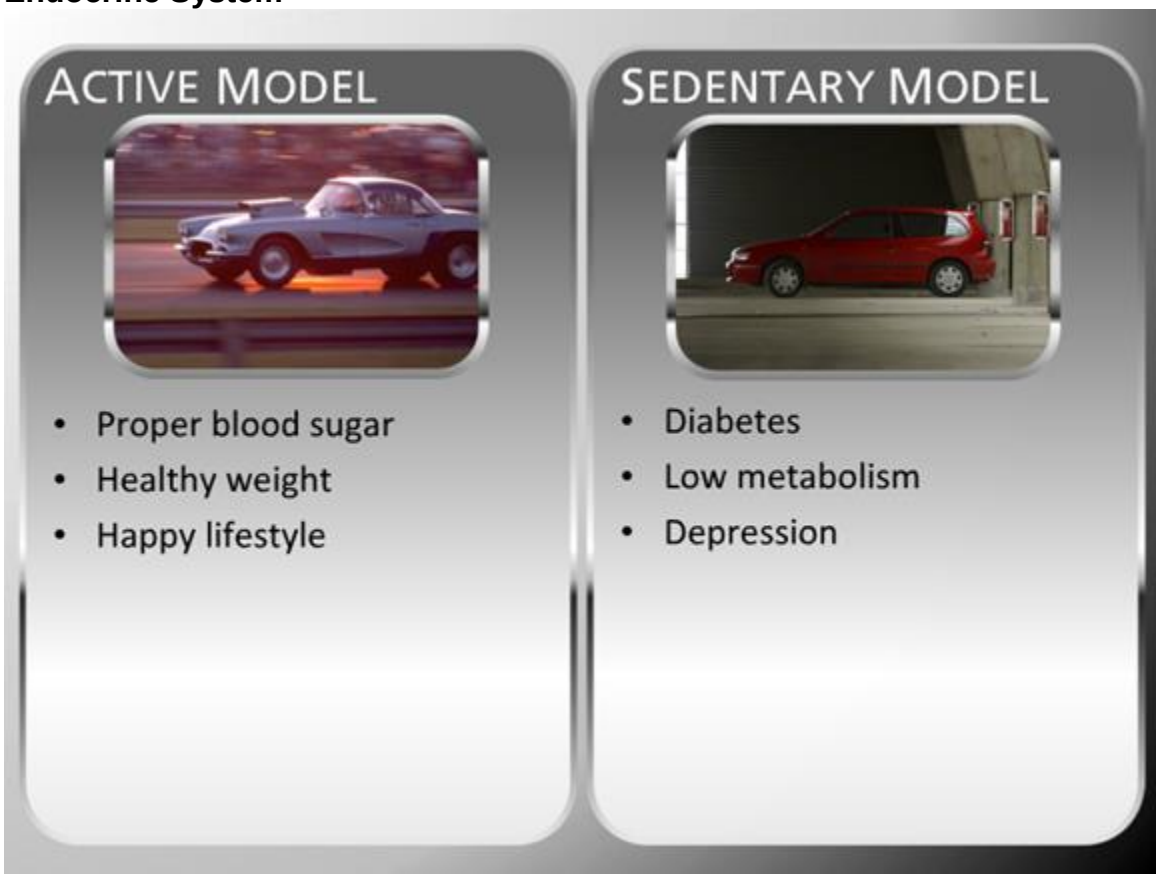
Digestive System



A vehicle will not gain weight sitting in a garage, but a human will. Exercise burns calories. Additionally, exercise keeps you regular; it makes waste removal more efficient. If your body has too much solid-waste backup, you can become constipated or have difficulty excreting the waste material.

Constipation is a condition in which the large intestine and rectum (or bowels) become dried and densely packed with waste material so that excretion is difficult.

Endocrine System

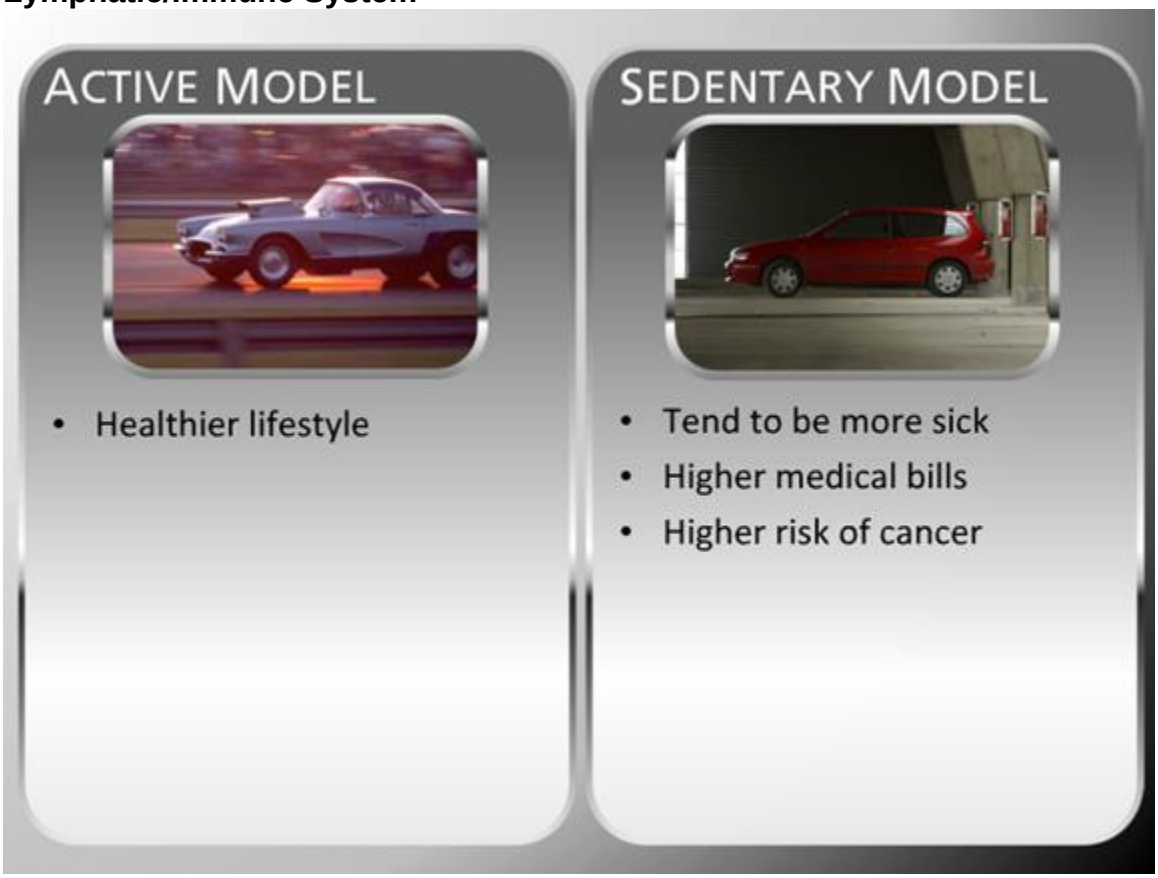


The endocrine system sends messages to the body in the form of chemical messengers called hormones. All of the body systems are affected by hormones, and hormone release is affected by need. During physical activity, the body needs more of the hormone insulin to turn sugars into energy. This leads to proper levels of blood sugar and healthier weight. Exercise increases endorphin release, which in turn decreases the occurrence of depression.

Diabetes is a metabolic condition in which the body either does not produce enough insulin (Type 1) or the body rejects the supply of insulin (Type 2), resulting in an irregular level of blood sugar.

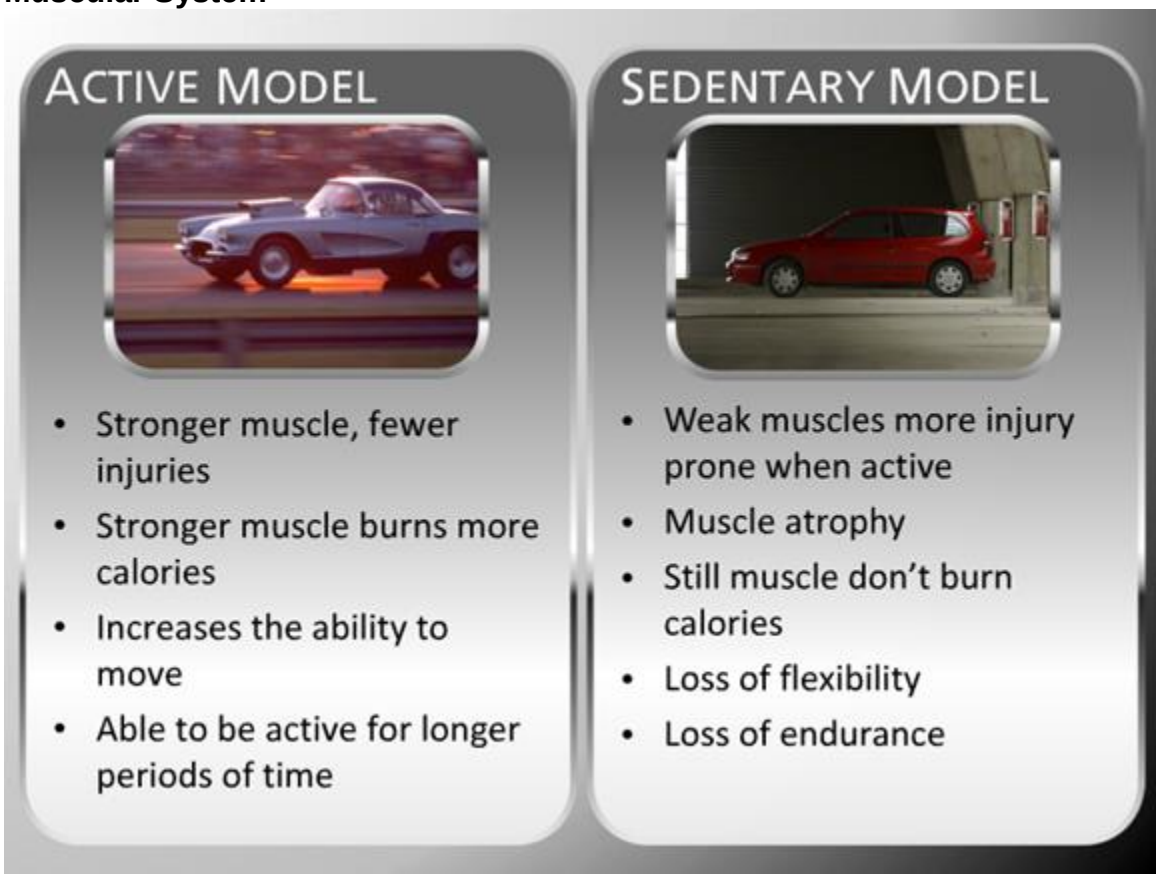
Depression is a prolonged period of feeling sadness and worthlessness.

Lymphatic/Immune System



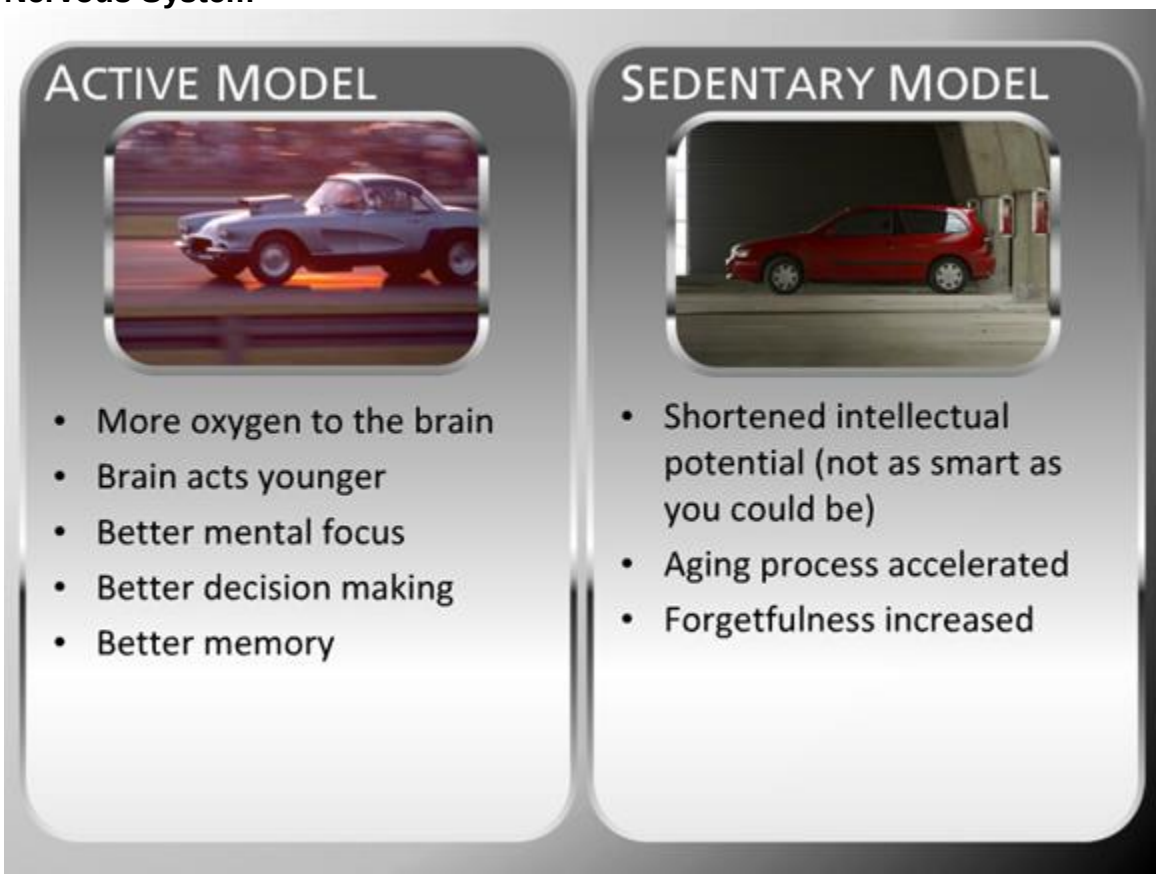
Like adding nitrous oxide to your car gives it more power, exercise gives a boost to your immune system. The blood increases in volume as a person becomes more fit. The volume is not only for red blood cells, but white blood cells as well. The white blood cells are the germ fighting cells when germs invade the body. People who are less active have more difficulty fighting germs from bacteria and viruses.

Muscular System



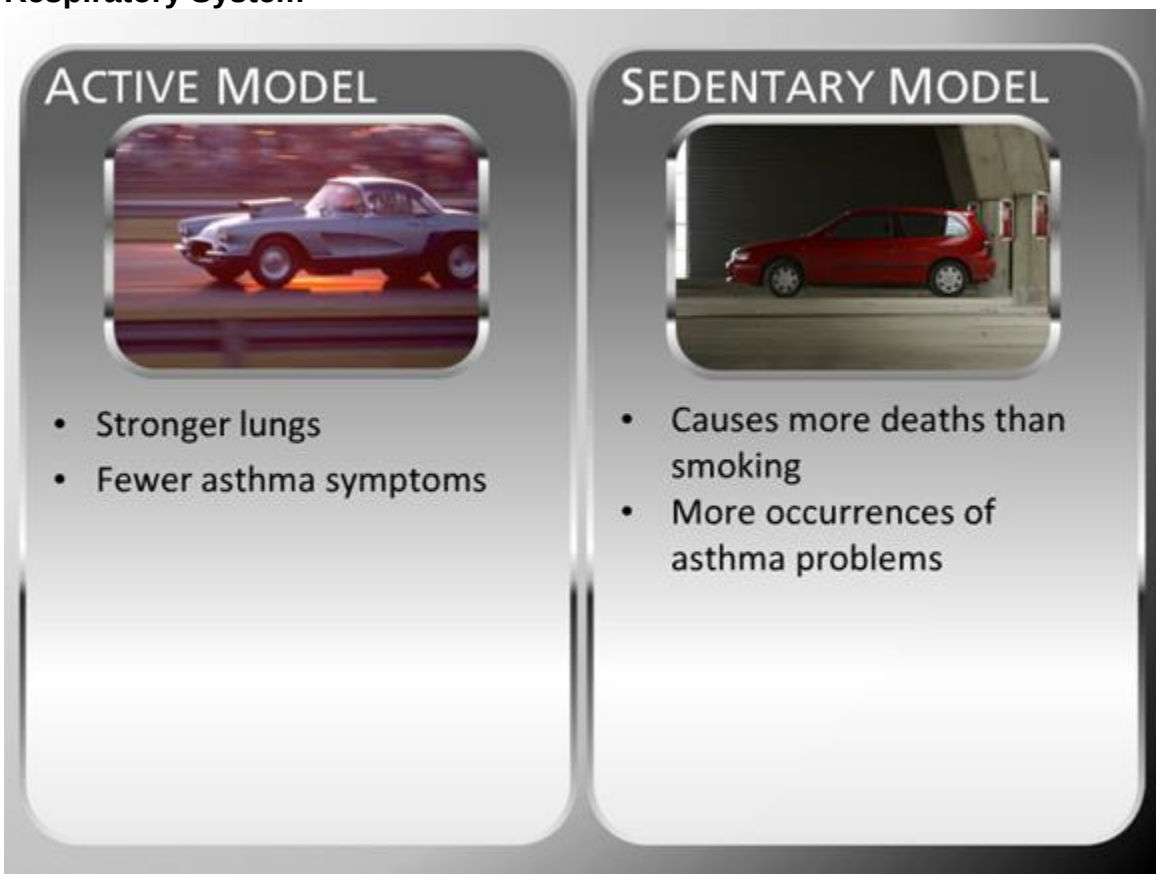
The muscular system is in a win-win situation with more exercise. Stronger muscles mean more muscle mass, more calories burned, and an increased ability to move. It builds upon itself: the more you move, the more you can and want to move, and the more benefits you receive. A sedentary lifestyle leads to muscle atrophy or a decrease in muscle size. With less size, metabolism decreases, and the ability or desire to be active also decreases.

Nervous System



When you exercise, blood flow increases. This stimulates nerve-ending growth in the muscles and the brain; brain activity increases and improves. Sedentary bodies speed up brain-tissue aging and slow brain function.

Respiratory System



People who are fit from activity have stronger lungs. Each breath takes in more oxygen; therefore, respiratory rate decreases.

People with asthma also benefit from physical activity. Asthma is a chronic condition that seriously distresses the respiratory system by causing tiny air passages to become narrowed or blocked. The more physically active asthmatics are, the less severe their asthma attacks can be. The reverse is also true: the more sedentary an asthmatic is, the more occurrences and symptoms of an asthma attack are likely.

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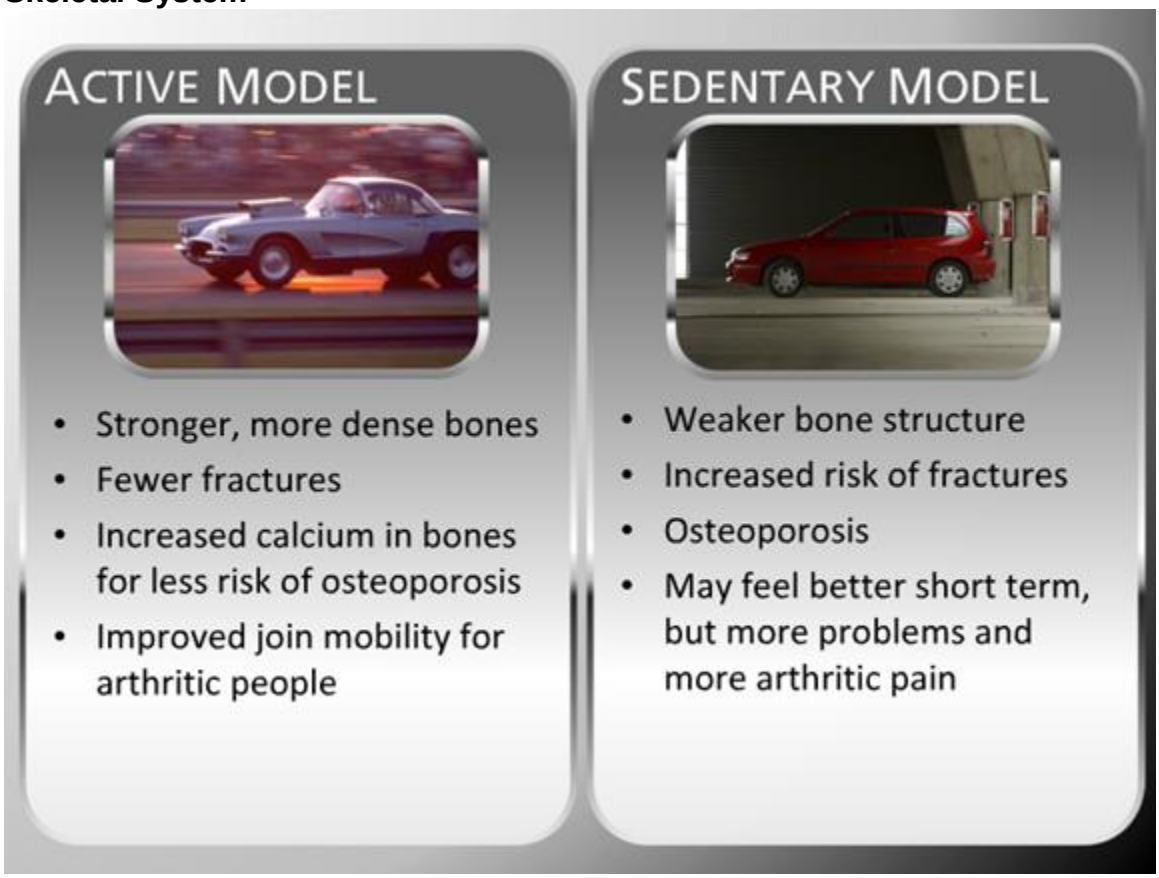
Skeletal System



Weight-bearing activities promotes bone density. People who are involved in physical activity, especially strength training, have increased calcium deposits in bone, making them more dense and firm. Activity also increases mobility and decreases symptoms of arthritis. Movement does not need to be high impact or rigorous, especially at first. Intensity can increase as people feel confident in their abilities.

Osteoporosis is a bone condition in which there is mineral loss, particularly calcium, resulting in frail, brittle bones. Exercise helps prevent osteoporosis.