



# The Health Benefits of Exercise

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*Authors' Note: This is the third of our AUXFIT series on exercise science to assist Auxiliarists in developing their own fitness programs.*

## “Sitting” is the New “Smoking” Health Issue

You have probably heard the phrase that “sitting is the new smoking.” Unfortunately, our sedentary lifestyle has led to unforeseen health outcomes. Doctors believe that **not** exercising is worse for your health than smoking, diabetes or heart disease.

Contemporary research in both medicine and exercise science is repeatedly showing an intrinsic link between disease and lack of physical exercise. One study after another is showing a connection to almost every type of health condition from heart disease to diabetes. The impact of exercise is so powerful that most doctors now recognize that regular exercise is essential in maintaining health as well as helping treat a number of health issues.

A recent study by Cleveland Clinic comparing those with a sedentary lifestyle to those who exercise regularly, found the risk of premature death was 390% higher and 500% higher when compared to those in top physical condition. Exercise matters.

Recent research is showing that strength training, as well as aerobic exercise, has many health benefits. In the previous articles in our series on exercise, we looked at how strength training is essential to weight maintenance and how it can help slow down or even reverse the aging process in our bodies. In this article, we will focus on

research on strength training and aerobic exercise and its effect on a number of common health conditions. As research in this area continues, the list of ailments that exercise helps either cure or alleviate increases. The following are just some of the major health issues that research has found exercise has had positive effects on.



## Cardiovascular Health

We all know that aerobic exercise is good for heart health and strength training is good for maintaining muscle mass and bone density. However, did you know that strength training, even with no aerobic exercise could strengthen your heart? Researchers now suggest adding strength training to a routine of cardio workout to protect your heart.

## The Health Benefits of Exercise (cont.)

Fortunately, for those of us with a busy lifestyle, it does not take much exercise to reap major health benefits. A recent study by Iowa State University published in *Medicine and Science in Sports and Exercise*, has shown that strength training for one hour, once a week significantly reduces the risk of a heart attack or a stroke by 40 to 70 percent.

Three areas that exercise has an impact on cardiovascular health are resting blood pressure, blood lipid profiles and vascular condition. We will look at these in detail.



### Resting Blood Pressure (Hypertension)

Approximately 35% of American adults suffer from hypertension. High blood pressure caused by hypertension puts additional strain on the heart and blood vessels, which increases the risk of heart attack or stroke. It can also cause heart and kidney disease and some forms of dementia.

Various conditions can cause hypertension including obesity, diabetes, stress and chronic alcohol consumption, insufficient intake of minerals as well as lack of physical activity. The good news for those suffering from hypertension is that research has shown that several weeks of standard and circuit-style strength training can significantly reduce resting blood pressure.

Adding strength training to a routine of cardiovascular exercise has shown significant benefit in lowering blood pressure more than just cardio alone. Resistance training contributes to weight loss, which in turn helps lower blood pressure. See the AUXFIT article “Weight Management and Strength Training” (Q3 2018 Q3 Nor’Easter issue) for more information on how strength training aids in weight loss.

### Blood Lipids (Cholesterol)

Cholesterol is the fat-like substance found in all cells of the body. The body uses cholesterol to make hormones, vitamin D and substances to help digest food. Your body naturally produces all the cholesterol it needs. However, an improper diet and other factors can lead too much “bad” cholesterol in the blood, which can form plaque, sticking to the walls of arteries, leading to coronary artery disease where arteries are restricted or blocked.

Undesirable blood cholesterol affects approximately 45% of Americans. One of the causes of this is the lack of physical activity including lots of sitting with little exercise. This results in a lower HDL (high-density lipoprotein) cholesterol otherwise known as the “good” cholesterol. The American College of Sports Medicine has reported that strength training is associated with increases of 8 to 21 percent in HDL.

In addition, unhealthy eating habits such as eating lots food with saturated and trans-fats raise LDL (low-density lipoprotein), the “bad” cholesterol. Research has shown that strength training can result in a 13 to 23 percent reduction LDL levels as well as an 11 to 18 percent reduction in triglyceride levels both which contribute to the buildup of plaque. Changing both one’s diet and introducing exercise including strength training will help correct cholesterol imbalances.

### Vascular Condition

Vascular condition refers to the ability of arteries to supply blood flow, which directly affects blood pressure. Some studies have shown that resistance exercise enhances vascular conductance, while other studies show no effect. However, importantly studies have shown that resistance training has had positive effects in post coronary patients. While further studies are needed in this area, experts agree that a regime of aerobic and resistance training is beneficial to cardiac patients.

## The Health Benefits of Exercise (cont.)



### Type 2 Diabetes

Today's sedentary lifestyle, along with a diet of processed food high in sugar and trans-fat, is creating the obesity epidemic facing our society. The CDC estimates that in 2016 approximately 40 percent of American adults and 18.5 percent of children and adolescents are obese and those percentages are going up each year.

The impact on an individual's health is substantial. Obesity related conditions include heart disease, stroke, cancer and type 2 diabetes. Add to this the fact that as one gets older the body experiences a decline in insulin sensitivity furthering the risk of type 2 diabetes. Regular exercise can help offset or reverse this condition. Studies have shown that exercise reduces abdominal fat (as well as other accumulated body fat), which is particularly important for diabetes prevention. This is important, as insulin resistance is associated with abdominal fat accumulation. Research has shown that resistance training results in a greater glucose tolerance in adults with type 2 diabetes. Resistance training programs incorporating more intense workouts appear more effective than those with lower-intensity exercise do. However, before one embarks on any exercise program, particularly those with health conditions, seek the advice of medical professionals.

### Arthritis

Arthritis is associated with muscle loss and fat gain. Approximately 60 million Americans will have some form of arthritis, an increase of 40% over the last 20 years. Osteoarthritis, the most common form of arthritis, with 95% of cases, is a degeneration of cartilage that covers the bones where they form joints and the bone that lies below that cartilage, which acts as a shock absorber. Rheumatoid arthritis, which accounts for 5% of arthritic cases, is an inflammatory, autoimmune disorder, which also results in muscle loss and weight gain.

Fibromyalgia, which is an associated condition, is experienced by up to 3% of the population (mostly women) is less understood but no less debilitating. All result in pain, weakness, and dysfunction of the body.

The good news is that recent research is finding that guided, sensible resistance training can be an effective intervention to relieve pain, improve muscle strength, balance and overall health. Always consult with your doctor before beginning any new exercise program to make sure the exercises you incorporate do not cause further damage to your joints.



## The Health Benefits of Exercise (cont.)

### Bone Mineral Density

Approximately 10 million American adults (including 8 million women) have osteoporosis. Another roughly 35 million have osteopenia, the loss of bone mass as one ages, a precursor to osteoporosis. Americans' sedentary life style is a major factor in leading to this condition. Lack of physical exercise, especially strength training, results in loss of both lean muscle but also bone density. Our bodies were meant to be active or they literally waste away. Adults over 50 can experience a loss of muscle mass of almost 10% per decade and bone loss of as much as 30% per decade. This is a slow process and most of us do not realize it until the onset of symptoms present themselves. Muscle mass is associated with bone mineral density. As muscle mass is lost so is bone density.

The good news is the reverse is true. An increase in muscle mass results in an increase in bone mineral density. Studies have found that resistance training can halt the process of osteopenia and can even result in an increase in bone density of up to 3%. It is important to train both upper and lower body with resistance training. Exercising only one area such as lower body by running is not sufficient. Runners have strong bone density in their legs but not in their upper body, because running only puts pressure on the legs. Adding a comprehensive weight resistance-training program will provide the necessary strengthening of the bones in the upper body.



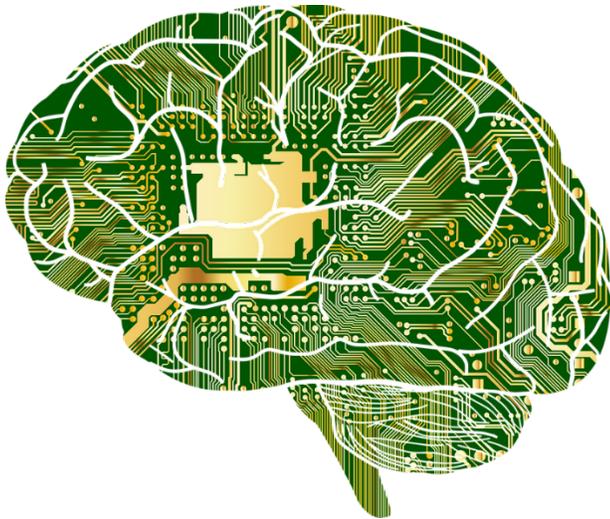
### Low-Back Pain

Approximately 80 percent of American adults experience low back pain at some point in their life. It is the most common cause of job-related disability and leading contributor of missed workdays. More than 25 percent of adults have reported experiencing low back pain in the past three months. Sedentary lifestyle, i.e. lack of physical exercise, is a major factor in the cause of low back pain. Proper exercise can strengthen core muscle groups that support the lower back as well as improve mobility and flexibility and posture which all help to relieve lower back pain. Care must be taken as to what strength exercises are performed as to not aggravate the condition. Traditional sit-ups or crunches place too much strain on the lower spine, which can lead to a herniated disk. Planks are a no impact core exercise recommended for core strengthening.

### Depression and Mental Health

Depression affects more than 300 million people worldwide. The condition is associated with an increased risk of cardiovascular disease, Alzheimer's, type 2 diabetes and death. People with major depression are approximately 30% less healthy than those that are not. That translates into a loss of 10 years of life expectancy. Since 2013, in a report by Blue Cross Blue Shield, major depression diagnoses have increased by 33% with bigger increases among adolescents and millennials. Depression is the second biggest impact on overall health of Americans following hypertension. The report studied numerous clinical trials that found strength training, as well as aerobic exercise was associated with significant reduction in symptoms of depression especially among those with a mild or moderate condition.

## The Health Benefits of Exercise (cont.)



### Cognitive Ability

Recent research has shown that combining resistance training with endurance training is more effective than aerobic exercise alone for improving cognitive function in older adults. The increased oxygen pumped to the brain through exercise helps stimulate brain plasticity with the growth of new neuronal connections between cells in the cortical areas of the brain. Exercise also increases the creation of mitochondria; the cellular structures that generate and maintain energy furthering brain function (see “Reversing Aging through Exercise” 2019 Q1 Nor’Easter for more information on mitochondria). The net effect is a healthier brain. Self-esteem improved in all age groups in one study, including cancer patients and those in cardiac rehabilitation. Adults and older adults have shown improvements in self-concept, total mood disturbance, depression, fatigue, positive engagement, revitalization, tranquility and tension.

### Conclusion

Our physical bodies, including our brains, need strenuous physical exercise in order to maintain good health. As a species, we have evolved to be physically and mentally active. Many of the health problems our society faces today are a result of a sedentary lifestyle. The good news is that research is showing these ill effects are reversible through

aerobic and resistance strength training. Before you start any new exercise program, discuss this with your doctor to make sure there are not any special conditions that might affect you.

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For more information on Dr. Wayne Westcott’s research visit: <https://quincycollege.edu/program/exercise-sciencepersonal-training>

References:

*Association of Cardiorespiratory Fitness with Long-term Mortality among Adults Undergoing Exercise Treadmill Testing*, Kyle Mandsager, JMA Network Open 2018

*Associations of Resistance Exercise with Cardiovascular Disease Morbidity and Mortality*, Yanghui Liu, Medicine & Science in Sports & Exercise, October 2018

*Build Muscle, Improve Health: Benefits Associated with Resistance Exercise*, Wayne Westcott, PhD, ACSM 2015

*Exercise and Cardiovascular Health*, Johnathan Myers, PhD, AHA Journal, Jan 7, 2013

*The Exercise Cure*, Jordan Metz, MD. 2013, Rodale Books

*How Does Exercise Benefit Cognition?* David R. Jacobs, Scientific American 2016

*The Influence of Exercise on Cognitive Abilities*, Ferando Gomez-Pinilla and Charles Hillman, NIH 2013

*Major Depression: The Impact on Overall Health*, BlueCross BlueShield, May 10, 2018

*Prevalence of Obesity among Adults and Youth: United States, 2015-2016*, Craig M. Hales, MD, NCHS October 2017

*Resistance Training is Medicine: Effects of Strength Training on Health*, Wayne Westcott, PhD, ACSM, 2012

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