

Benefits of physical activities and exercises among students

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Abstract: The benefits of exercise extend far beyond weight management. Research shows that regular physical activity can help reduce the risk for several diseases and health conditions and improve overall quality of life. Regular physical activity can help protect us from various health problems.

Exercises are the bodily activities which enhances or maintains physical fitness and overall health and wellness. These are performed for various reasons, including strengthening muscles and the cardiovascular system, honing athletic skills, weight loss or maintenance, and merely enjoyment. Frequent and regular physical exercise boosts the immune system and helps prevent the "diseases of affluence" such as heart disease, cardiovascular disease, Type 2 diabetes, and obesity. It may also help prevent depression, help to promote or maintain positive self-esteem, improve mental health generally, and can augment an individual's sex appeal or body image, which has been found to be linked with higher levels of self-esteem. Childhood obesity is a growing global concern, and physical exercise may help decrease some of the effects of childhood and adult obesity. Health care providers often call exercise the "miracle" or "wonder" drug-alluding to the wide variety of proven benefits that it can provide.

Keywords: Physical activities, exercises, students, health.

INTRODUCTION

Physical exercise is important for maintaining physical fitness and can contribute positively to maintaining a healthy weight, building and maintaining healthy bone density, muscle strength, and joint mobility, promoting physiological well-being, reducing surgical risks, and strengthening the immune system. Developing research has demonstrated that many of the benefits of exercise are mediated through the role of skeletal muscle as an endocrine organ. That is, contracting muscles release multiple substances known as myokines which promote the growth of new tissue, tissue repair, and multiple anti-inflammatory functions, which in turn reduce the risk of developing various inflammatory diseases.

Exercise reduces levels of cortisol, which causes many health problems, both physical and mental. Conversely, exercise increases levels of saliva nitrite, which can be converted to the nitric oxide, thereby, increasing intensity and training load. Saliva testing for nitric oxide serves as a marker for training status.

Endurance exercise before meals lowers blood glucose more than the same exercise after meals. According to the World Health Organization, lack of physical activity contributes to approximately 17% of heart disease and diabetes, 12% of falls in the elderly, and 10% of breast cancer and colon cancer.

There is evidence that vigorous exercise (90–95% of VO₂ Max) induces a greater degree of physiological cardiac hypertrophy than moderate exercise (40 to 70% of VO₂ Max), but it is unknown whether this has any effects on overall morbidity and/or mortality.

Exercise in space: Astronaut Daniel Tani, Expedition 16 flight engineer, works out at the Unity node of the International Space Station using the short bar of the Interim Resistive Exercise Device (IRED) to perform pull-ups to increase his upper body strength while in a microgravity environment. Both aerobic and anaerobic exercise works to increase the mechanical efficiency of the heart by increasing cardiac volume (aerobic exercise), or myocardial thickness (strength training). Ventricular hypertrophy, the thickening of the ventricular walls, is generally beneficial and healthy if it occurs in response to exercise.

Not everyone benefits equally from exercise. There is tremendous variation in individual response to training; where most people will see a moderate increase in endurance from aerobic exercise, some individuals will as much as double their

oxygen uptake, while others can never augment endurance.[19][20] However, muscle hypertrophy from resistance training is primarily determined by diet and testosterone.[21] This genetic variation in improvement from training is one of the key physiological differences between elite athletes and the larger population.[22][23] Studies have shown that exercising in middle age leads to better physical ability later in life.

Although there are no sure-fire recipes for good health, the mixture of healthy eating and regular exercise comes awfully close. Most of The Nutrition Source is dedicated to singing the praises of a good diet. This is where physical activity gets its due.

Regular exercise or physical activity helps many of the body's systems function better, keeps heart disease, diabetes, and a host of other diseases at bay, and is a key ingredient for losing weight.

Relationship Between Physical Activity and Health

In many studies covering a wide range of issues, researchers have focused on exercise, as well as on the more broadly defined concept of physical activity. Exercise is a form of physical activity that is planned, structured, repetitive, and performed with the goal of improving health or fitness. So, although all exercise is physical activity, not all physical activity is exercise.

Studies have examined the role of physical activity in many groups—men and women, children, teens, adults, older adults, people with disabilities, and women during pregnancy and the postpartum period. These studies have focused on the role that physical activity plays in many health outcomes, including:

Premature (early) death;

Diseases such as coronary heart disease, stroke, some cancers, type 2 diabetes, osteoporosis, and depression;

Risk factors for disease, such as high blood pressure and high blood cholesterol;

Physical fitness, such as aerobic capacity, and muscle strength and endurance

Functional capacity (the ability to engage in activities needed for daily living);

Mental health, such as depression and cognitive function; and

Injuries or sudden heart attacks.

These studies have also prompted questions as to what type and how much physical activity is needed for various health benefits. To answer this question, investigators have studied three main kinds of physical activity: aerobic, muscle-strengthening, and bone strengthening. Investigators have also studied balance and flexibility activities.

Types of Physical Activities

Aerobic Activity

In this kind of physical activity (also called an endurance activity or cardio activity), the body's large muscles move in a rhythmic manner for a sustained period of time. Brisk walking, running, bicycling, jumping rope, and swimming are all examples.

Aerobic activity causes a person's heart to beat faster than usual.

Aerobic physical activity has three components:

Intensity, or how hard a person works to do the activity. The intensities most often examined are moderate intensity (equivalent in effort to brisk walking) and vigorous intensity (equivalent in effort to running or jogging);

Frequency, or how often a person does aerobic activity; and

Duration, or how long a person does an activity in any one session.

Although these components make up a physical activity profile, research has shown that the total amount of physical activity (minutes of moderate-intensity physical activity, for example) is more important for achieving health benefits than is any one component (frequency, intensity, or duration).

Muscle-Strengthening Activity

This kind of activity, which includes resistance training and lifting weights, causes the body's muscles to work or hold against an applied force or weight. These activities often involve relatively heavy objects, such as weights, which are lifted multiple times to train various muscle groups. Muscle-strengthening activity can also be done by using elastic bands or body weight for resistance (climbing a tree or doing push-ups, for example).

Muscle-strengthening activity also has three components:

Intensity, or how much weight or force is used relative to how much a person is able to lift;

Frequency, or how often a person does muscle strengthening activity; and

Repetitions, or how many times a person lifts a weight (analogous to duration for aerobic activity). The effects of muscle-strengthening activity are limited to the muscles doing the work. It's important to work all the major muscle groups of the body: the legs, hips, back, abdomen, chest, shoulders, and arms.

Bone-Strengthening Activity

This kind of activity (sometimes called weight-bearing or weight-loading activity) produces a force on the bones that promotes bone growth and strength. This force is commonly produced by impact with the ground. Examples of bone-strengthening activity include jumping jacks, running, brisk walking, and weight-lifting exercises. As these examples illustrate, bone-strengthening activities can also be aerobic and muscle strengthening.

Brain Function in respect to Physical Activities

Physical activity has been shown to be neuroprotective in many neurodegenerative and neuromuscular diseases. Evidence suggests that it reduces the risk of developing dementia. The Caerphilly Heart Disease Study followed 2,375 male subjects over 30 years and examined the association between regular physical exercise and dementia. The study found that men who exercised regularly had a 59% reduction in dementia when compared to the men who didn't exercise.

In addition, a 2008 review of cognitive enrichment therapies (strategies to slow or reverse cognitive decline) concluded that "physical activity, and aerobic exercise in particular, enhances older adults' cognitive function".

In mice, exercise improves cognitive functioning via improvement of spatial learning, and enhancement of synaptic plasticity and neurogenesis. In a 2009 study, scientists made two groups of mice swim a water maze, and then in a separate trial subjected them to an unpleasant stimulus to see how quickly they would learn to move away from it. Then, over the next four weeks they allowed one group of mice to run inside their rodent wheels, an activity most mice enjoy, while they forced the other group to work harder on mini-treadmills at a speed and duration controlled by the scientists. They then tested both groups again to track their learning skills and memory. Both groups of mice improved their performances in the water maze from the earlier trial. But only the extra-worked treadmill runners were better in the avoidance task, a skill that, according to neuroscientists, demands a more complicated cognitive response.

The mice who were forced to run on the treadmills showed evidence of molecular changes in several portions of their brains when viewed under a microscope, while the voluntary wheel-runners had changes in only one area. According to an author of the study, "our results support the notion that different forms of exercise induce neuroplasticity changes in different brain regions."

Furthermore, anecdotal evidence suggests that frequent exercise may reverse alcohol-induced brain damage. There are several possibilities for why exercise is beneficial for the brain. Examples are as follows:

increasing the blood and oxygen flow to the brain;

increasing growth factors that help neurogenesis and promote synaptic plasticity - possibly improving short and long term memory;

increasing chemicals in the brain that help cognition, such as dopamine, glutamate, norepinephrine, and serotonin.

The Health Benefits of Physical Activities and Exercises

- Regular physical activity reduces the risk of many adverse health outcomes.
- Some physical activity is better than none.
- For most health outcomes, additional benefits occur as the amount of physical activity increases through higher intensity, greater frequency, and/or longer duration.
- Most health benefits occur with at least 150 minutes a week of moderate-intensity physical activity, such as brisk walking. Additional benefits occur with more physical activity.
- Both aerobic (endurance) and muscle-strengthening (resistance) physical activity are beneficial.
- Health benefits occur for children and adolescents, young and middle-aged adults, older adults, and those in every studied racial and ethnic group.
- The health benefits of physical activity occur for people with disabilities.
- The benefits of physical activity far outweigh the possibility of adverse outcomes.
- Lower risk of early death
- Lower risk of coronary heart disease
- Lower risk of stroke
- Lower risk of high blood pressure
- Lower risk of adverse blood lipid profile
- Lower risk of type 2 diabetes
- Lower risk of metabolic syndrome
- Lower risk of colon cancer
- Lower risk of breast cancer
- Prevention of weight gain
- Weight loss, particularly when combined with reduced calorie intake
- Improved cardiorespiratory and muscular fitness
- Prevention of falls
- Reduced depression
- Better cognitive function (for older adults)
- Better functional health (for older adults)
- Reduced abdominal obesity
- Lower risk of hip fracture
- Lower risk of lung cancer

- Lower risk of endometrial cancer
- Weight maintenance after weight loss
- Increased bone density
- Improved sleep quality

CONCLUSIONS

The health benefits of physical activity are seen in children and adolescents, young and middle-aged adults, older adults, women and men, people of different races and ethnicities, and people with disabilities and chronic conditions. The health benefits of physical activity are generally independent of body weight. Adults of all sizes and shapes gain health and fitness benefits by being habitually physically active. The benefits of physical activity also outweigh the risk of injury and sudden heart attacks, two concerns that prevent many people from becoming physically active.

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