



health benefits of physical exercise

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ABSTRACT

Some people live sedentary life, while other prefers to have active life by doing physical exercise. Physical exercise has many health benefits such as, it reduces depression levels, reduces BMI, lowers the elevated blood pressure, reduces the blood sugar level, improves sleep pattern, improves body posture, reduces waist circumference and lowers the bad cholesterol. Persons belonging to all age group must find time to have daily physical exercise. People belonging to the low age group can opt for higher levels of exercise, while middle age group and old people must opt for moderate levels of exercise. Also it is recommended to start slowly and then increase level gradually.

KEYWORDS : walking, physical exercise, mental health, blood pressure

Researchers have classified people by their activity level (Tudor et al., 2004)

- < 2,500 steps/day (sedentary – basal activity)
- 2,500–4,999 steps/day (limited activity)
- 5,000–7,499 steps/day (low active)
- 7,500–9,999 steps/day (somewhat active)
- 10,000–12,499 steps/day (active)
- ≥12,500 steps/day (highly active)

Exercise has beneficial effects on mental health, reduces depression levels, reduces BMI, lowers the elevated blood pressure (Mikalacki, Cokorilo and Katia, 2011), reduces the blood sugar level, improves sleep pattern (Fritz et al., 2011), improves body posture (Reuter et al., 2011), reduces waist circumference (Knowles et al., 2012) and lowers the bad cholesterol.

The simplest and most beneficial physical activity is walking it has many Benefits on Health and Well-being, it reduces risk of non-communicable diseases (NCDs). Around 5.3 million deaths per year have been reported due to sedentary habits (Lee et al., 2012). walking can also help people to avoid weight gain over the long term, even slow walking burns around 114 calories per mile. For someone weighing 200lb (91kg.), to calculate the number of calories burned walking a mile at casual walking speed, multiply weight in pounds by 0.49, and for brisk walking multiply it by 0.57.

Benefits of Physical exercise:

a) Effect of physical exercise on mortality rate

Exercise in form of walking reduces death rate, the benefit of walk depends on the frequency and length of exercise (Lee, & Skerrett, 2001). Usual recommendation for physical activity for adults is 30 minutes at least five times a week. the health benefits of brisk walking has additional benefits, just 30 minutes/day or 10,000 steps a day with 15 minutes a day of brisk walking add up to three years to life expectancy.

b) Effect of exercise on NCDs

Physical exercise has been shown to have an important preventive effect on NCDs; It increase fitness and reduce significantly the risk of developing type 2 diabetes, it is good therapy for the prevention, treatment and control of hypertension. Also with the age there is loss of muscle mass and increased total fat, particularly abdominal fat (Schwartz et al., 1990), these fats are cause of many cardiovascular abnormalities, including hypertension. (Smith et al., 2001) Exercise improves body composition by decrease body weight, body fat percentage and waist circumference and increase muscle endurance in old persons (Mourier et al 1997, Kohrt et al 1992)

C) Effect of physical exercise on Hyperlipidemia

Lipids cover all type of fats in the body, including cholesterol in blood and subcutaneous fat beneath skin. Exercise is of two types: long-term and short-term. The choice of exercise depends on fitness level, goal, preference and how much and how quickly body needs energy.

When it needs energy replenished immediately over a short period of time (high intensity exercise), body undergoes anaerobic respiration, which doesn't require oxygen to generate energy, and then it relies almost entirely on glucose, which is supplied by liver and skeletal muscles. Fat oxidation is lower in high-intensity exercise than in moderate-intensity exercise. Examples of anaerobic endurance activities include basketball, gymnastics and soccer.

Fat metabolism, however, takes a longer time to get accessed than glucose metabolism. Aerobic respiration involves fat cells for energy. And this respiration is used during exercise at consistent pace for a long period of time. – Example is marathon or long-distance cycling. Triacylglycerol oxidation increases progressively during exercise. it improves HDL ('good') and reduced LDL ('bad') cholesterol; lower levels of triglycerides (the fat that can cause hardening and narrowing of the arteries)

d) Effect on other NCDs

Physical exercise prevents cancers, such as breast cancer (Lee, 2003) (20–40 per cent of risk is reduced for those who do vigorous physical activity for 30–60 minutes on five days each week) and colon cancer

Physical activity can also be of great benefit to those living with and beyond cancer, with positive effects on fatigue levels, body strength, mental health (for example, anxiety levels and self-esteem) and quality of life (Speck et al., 2010)

Selected studies have also examined the impact of walking on other types of chronic disease, such as chronic lung disease, arthritis and lower-back pain. Walking has been demonstrated to: increase aerobic capacity and reduce pain for people with arthritis and have a low to moderate effect on the treatment of lower-back pain.

e) Effect on mental health

Physical exercise can relieve symptoms of depression and anxiety, results in improvements in

individual quality of life, improve cognitive performance (performance in mental processes such as thinking, understanding and remembering) (Martinez et al., 2011), improves sleep quality, elevates mood (e.g. pleasure), results in increased psychological well-being for individuals with type 2 diabetes and increases the size of the hippocampus and prefrontal cortex, potentially beneficial for memory.

Many neurotransmitters work in harmony to influence mood, serotonin is one of the most important. Physical exercise increases Serotonin level (happy messenger). Serotonin performs many functions, including regulating mood, appetite and the sleep/wake cycle. Approximately 75 percent of this chemical is located in cells of the gut. The rest is synthesized in neurons of the brain; High levels are associated with an elevated mood while low levels are associated with depression. Its levels are influenced by external factors, such as sunlight, diet and exercise. There are two mechanisms by which physical activity increases brain serotonin. First, motor activity increases the rate

and frequency at which serotonin is used within the brain, resulting in an increase in both the release and synthesis of it. Secondly, regular exercise increases the level of tryptophan in the brain (an amino acid used to manufacture serotonin).

CONCLUSION; regular physical activity can help to reduce risk for several diseases and health conditions, it improve your overall quality of life, boosts energy, controls weight, promotes better sleep, improves mental health and mood, increase chances to live longer. The moderate-intensity aerobic activity, like brisk walking, is generally **safe for most people**. It is recommended to start slowly and gradually and then increase level of activity.

It has been recommended that physical activity should be performed for a minimum of 30 minutes (not necessarily in a single bout of 30 minutes), it can be taken in shorter sessions, on five days per week. For good health, physical activity should be of 'moderate intensity'. For walking, this is at least 100 steps per minute, equivalent to approximately 3,000 steps per half hour (Marshall et al., 2009)

REFERENCES

- Fritz, T. et al., (2011), 'Effects of Nordic walking on health-related quality of life in overweight individuals with type 2 diabetes mellitus, impaired or normal glucose tolerance' *Diabet Med* 11, 1362-72. | | Gordon-Larsen, P., et al., (2009), 'Active commuting and cardiovascular disease risk: the CARDIA study'. *Arch Intern Med* 169,1216-23. | <http://www.springerlink.com/content/p1500840qt11h157/>; Fong, D.Y. et al., 'Physical activity for cancer survivors: meta-analysis of randomised controlled trials', *BMJ* (2012) 344:e70 | | Hu, P. and T. Reuscher, (2004) Summary of Travel Trends (US Department of Transportation):<http://nhts.ornl.gov/2001/pub/stt.pdf>. | | Knowles, A.M. et al., (2012) 'A pilot study examining the health benefits of Nordic Walking in sedentary adults', *Journal of Sport and Health Research* 4(1), 45-56L | | Kohrt WM,Obert KAHolloszy JO. (1992)Exercise training improves fat distribution patterns in 60- to 70-year-old men and women. *J Gerontol*, 47,M99-105 | | Lee, I.M. and Skerrett, P.J. (2001), 'Physical activity and all cause mortality: what is the dose-response relation?' *Medicine and Science in Sports and Exercise* 33,S459-S471 | | Lee, I.M., (2003) 'Physical activity and cancer prevention - data from epidemiological studies', *Med Sci Sports Exerc*,35,1823-7 | Lee, I-M. et al., (2012), 'Effect of physical inactivity on major non-communicable diseases worldwide: an analysis of burden of disease and life expectancy', *The Lancet*, 380 (9838),219-29 | | Marshall, S. et al., (2009), 'Translating physical activity recommendations into a pedometer-based stepgoal 3,000 steps in 30 minutes', *American Journal of Preventive Medicine* 36: 410-15 | | Martínez-Gómez, D. et al.,(2011), 'Active commuting to school and cognitive performance in adolescents: the AVENA Study', *Arch Pediatr Adolesc Med*165(4),300-5: <http://archpedi.amaassn.org/cgi/content/short/archpediatrics.2010.244> and Weuve, J. et al. 'Physical activity, including walking, and cognitive function in older women', *Journal of the American Medical Association* (2004) 292(12): 1454-61 | | Mikalacki, M., N. Cokorilo and R. Katiae, (2011), 'Effect of Nordic walking on functional ability and blood pressure in elderly women', *Coll Anthropol*. 35(3): 889-94. | | Mourier AGautier JFDe Kerviler E et al(1997). Mobilization of visceral adipose tissue related to the improvement in insulin sensitivity in response to physical training in NIDDM: effects of branched-chain amino acid supplements. *Diabetes Care* ,20385- 391 | | Murtagh, E.M., M.H. Murphy and J. Boone-Heinonen, (2010) 'Walking - the first steps to cardiovascular disease prevention', *Curr Opin Cardio*. 25(5), 490-6 | National Center for Safe Routes to School, (2011), How Children get to School: School Travel Patterns from 1969 to 2009: http://www.saferoutesinfo.org/sites/default/files/resources/NHTS_school_travel_report_2011_0.pdf, p. 2. | Reuter, S. et al., (2011) 'Effects of a flexibility and relaxation programme, walking, and Nordic Walking on Parkinson's Disease', *Journal of Aging Research* | | Schwartz RSShunan WPBradbury VL et al(1990). Body fat distribution in healthy young and older men. *J Gerontol*, 45 M181- M185 | | Smith SRLovejoy JCGreenway F et al(2001). Contributions of total body fat, abdominal subcutaneous adipose tissue compartments, and visceral adipose tissue to the metabolic complications of obesity. *Metabolism* ,50425- 435. | | Speck, R.M. et al., (2010) 'An update of controlled physical activity trials in cancer survivors: a systematic review and metaanalysis', *Journal of Cancer Survivorship*, 4,87-100. | | Tudor-Locke, C. and D.R. Bassett, (2004), 'How many steps/day are enough? Preliminary pedometer indices for publichealth', *Sports Med* 34, 1-8 | | Van Eijkeren, F.J.M. et al., (2008), 'Nordic walking improves mobility in Parkinson's disease', *Mov. Disord*. 23: 2239-43 |