



ISSN: 2456-0057

IJPNPE 2018; 3(2): 2316-2320

© 2018 IJPNPE

www.journalofsports.com

Received: 20-05-2018

Accepted: 22-06-2018

Dr. Ompal

Ph.D. Assistant Professor,
Department of Physical
Education, Chaudhary Charan
Singh University, Meerut, Uttar
Pradesh, India

A comprehensive review on the impact of different exercises and nutrition in reducing the risk of obesity

Dr. Ompal

Abstract

The systematic review mainly focuses on the effects of a variety of exercises to reduce the risk of obesity. Primarily, patients' check health status in medical centers or hospitals before doing any exercise programs. To reduce obesity and have good, smart, body composition different scholars recommended that they have to perform aerobic exercise for 30 minutes five days per week are good. Obesity is a serious problem for sedentary peoples and caused by excessive accumulation of fat in the body and lack of exercise training to control overweight. It affects daily human quality of spirit and health conditions. Aerobic exercise, resistance training and intensity training are very important to reduce risk of obesity health problems such as high blood pressure, cancer and diabetes. The present study reviewed from survey research, experimental and cross sectional research design researches. Lack of regular exercise, sedentary lifestyle and consuming fatty foods leads persons to obesity and overweight. Conclusion engaging in physical activity helps to have good posture and simply reduce the medical costs of persons.

Keywords: Aerobic exercise, nutrition, obesity, BMI and CHD

Introduction

Obesity is one side of the double burden of malnutrition, and today more people are obese than underweight in every region except sub-Saharan Africa and Asia. Once considered a problem only in high-income countries, overweight and obesity are now dramatically on the rise in low- and middle-income countries, particularly in urban settings. The vast majority of overweight or obese children live in developing countries, where the rate of increase has been more than 30% higher than that of developed countries.

Overweight and obesity are defined as abnormal or excessive fat accumulation that presents a risk to health. A body mass index (BMI) over 25 is considered overweight, and over 30 is obese. The issue has grown to epidemic proportions, with over 4 million people dying each year as a result of being overweight or obese in 2017 according to the global burden of disease. Rates of overweight and obesity continue to grow in adults and children. From 1975 to 2016, the prevalence of overweight or obese children and adolescents aged 5–19 years increased more than four- fold from 4% to 18% globally.

Obesity rate highly increased in America, Mexico, the Netherlands and Hungary, particularly women's because of social inequalities and less education. It is observed and explained by the experts on their study obesity and overweight peoples affected in developed and developing nations because of the following factors such as inactive lifestyle, excessive fat intake and sugar sweetened beverages, lack of physical activity. Additionally, the results of the study showed that Khartoum high school girls are at risks of obesity and overweight. (Mehrabani, Javad, 2018) [17]. Reviewed that world million people were dying and suffered with hypertension, cancer, fatness and CHD. Reforming nutritional behaviour and increasing physical activity and sport were needed.

Obesity, nutrition and exercise

(Bean, A, 1998) [11] Explained that eating a high and balanced diets Alcohol 7 kcal (29 KJ), Carbohydrate 4 kcal (17 KJ), Fat 9 kcal (38 KJ) and Protein 4 kcal (17 KJ) amount of energy should contain. Sport scholar researchers recommended a person who engaged in regular physical exercise programs fat contains 20-25%.

Corresponding Author:

Dr. Ompal

Ph.D. Assistant Professor,
Department of Physical
Education, Chaudhary Charan
Singh University, Meerut, Uttar
Pradesh, India

Study result indicates that intrinsic motivation was significance correlation energy expenditure during play. The researcher concluded that cooperative play enhance motivation and interest of obesity of young peoples.(Brouns, F,1993)) described that athletes who suffered with nutritional problems, better to consume appropriate foods based on training lodes and duration's. Adequate consumption of nutrients is important for reduction of obesity risks.

(Hankey, C., Eley, S., Leslie, W., Hunter, C., & Lean, M, 2004) ^[12] Systematic review indicate that knowledge of nutrition and weight management is really important to obesity patients. (Qi, L. 2014) ^[21] Explained that obesity is a severe problem in the United States and personalized nutritional programs are more important that of traditional eating habits. (BA, S., I, C., JC, S., & WPT, J, 2004) ^[13]. Review recommended that to reduce obesity, healthy choices of food and active physical activity programs are important. Recommended strategies to reduce obesity, stress on healthy diet and physical activity. Physical activity is controlled mechanisms of energy balance and solution to alleviate the risks of obesity epidemics.

Hazards of obesity

(Tariq Ali, A., & John Crowther, N, 2005) ^[30] reviewed on health risks associated with obesity. Obesity is a way of increasing body weight and fat mass because body weight and storage of the triglyceride relation between genetic, metabolic, environmental and psychological factors. Obesity is serioushealth risks such as hypertension, type 2 diabetes, cancer, respiratory problem and cardiovascular diseasein developing and developed countries.

(Aien Khan Afridi, Mahpara Safdar, M. M. A. K. K. and A.K, 2003) ^[2] reviewed on health risk of overweight obesity. Obesity is global endemic problem for world community which causes musculoskeletal problems and coronary heart dieses. So prevention, diagnosis and treatments of obesity risks needed to alleviate the challenges. (Aronne, L. J, 2008) ^[7] reviewed on classification and assessment of obesity related health risks. It is important for medical treatments and care of patients based on body mass index, waist circumstances and cardiovascular risk factors. For managements of obesity classification and assessments of patients is required. (Skinner, A. C., Perrin, E. M., Moss, L. A., & Skelton, J. A., 2015) ^[29] conducted across sectional analysis on cardiometaboloic risk and severity of obesity. The researcher concluded that obese boys and girls suffered with abnormal levels of HDL cholesterol, systolic blood pressure and glucose.

Effects of physical activity to reduce obesity

Most people aware of obesity risks and how to solve the problem. But because less attention, giving majority people suffered with obesity and overweight. Sport and recreational activities are vital sport medicine and treatment for obesity peoples and athletes who participated in sport activities regularly. According to reports of (World Health Organization, 2010) ^[32] peoples who leads an active lifestyle are happier and less stressed as compared with that of inactive peoples. Childhood obesity and overweight were not the concern of African and some Latin countries of low socioeconomic groups of peoples, but developed nation peoples like U.S.A peoples were dying because of obesity risk dieses. Researchers recommended that taking part regularly in physical fitness programs and avoiding excessive high cholesterol food advisable. Modern time in developed

nation's obesity, highly affects human health and suffers with diseases of diabetes, cardiovascular diseases and high line pressure. Aerobic exercise brings down the quantity of fatty tissue in the body, lose weight and change physical appearances of individuals. Consuming high cholesterol, fat foods and physical inactivity are serious causes of grater body fat accumulation which leads to obesity and overweight. As (Rocha, P. E. C. P. D., Silva, V. S. D., Camacho, L. A. B., & Vasconcelos, A. G. G. (2015) ^[22]. in his study states that performing resistance training and aerobic training for a long time helps to reduce and control body weight.

(Waumsley, J., Atter, N., Boyle, S., & Buckroyd, J. 2011) ^[31] study described as in England, Scotland and Wales obesity is a serious risk of health such as heart disease, stroke, diabetes, cancer and gall bladder disease and interrupted birthing during sleep. So, peoples better to take part in different exercise and variety fitness programs.

Results showed that the person who possess a positive position towards the effects of exercise in reducing risks of obesity have good health and lower body mass indicator (BMI) value as compared with that of people has negative attitudes towards exercise and improper habits of eating nutritionally. Obesity is globally epidemic disease throughout the world because of sedentary lifestyles of peoples and consuming high cholesterol fatty foods.

(World Health Organization, 2010) ^[32] report facts described that millions of peoples died per year because of cardiovascular diseases, diabetes, obesity, cancer, respiratory diseases, high cholesterol, high blood pressure, low fruits and vegetable intake, inactive lifestyle and smoking cigarette. People's dietary and engaging in exercise training habits affects health conditions. So, participating in a regular exercise program is useful in reducing risks of global chronic diseases.

(Al-Nakeeb, Y., Lyons, M., Collins, P., Al-Nuaim, A., Al-Hazaa, H., Duncan, M. J., & Nevill, A, 2012) ^[3] conducted survey study on differences in weight status, obesity and way of physical activity relation to gender and age in UK and Saudi Arabiya youth peoples. 2290 both male and females participated in this study. Results of study showed that there is significance relation between body mass indexes, physical activity and passive behavior. The researcher concluded that particularly females in developed countries like UK and Saudi Arabiya youth peoples at the age of 15-17 suffered with sedentary behavior and lack of exercise due to societal and cultural value factors. To have good quality life style peoples better to engage in regular physical activity programs and reducing high fatty cholesterol foods.

(Bo-Yeon Kim*, Dug-Hyun Choi, Chan-Hee Jung, Sung-Koo Kang, Ji-Oh Mok, C.-H. K., 2017) ^[8] reviewed from different scholars' research articles that obesity may cause type 2 diabetes, cardiovascular disease and nonalcoholic fatty liver diseases. Diets and exercise helps to reduce weight of persons. Aerobic exercise and resistance training recommended reducing obesity and overweight population. Wight management helps people to improve health conditions and makes active citizens.

(Ross, R., Dagnone, D., Jones, P. J. H., Smith, H., Paddags, A., Hudson, R., & Janssen, I., 2000) ^[23] Conducted randomized controlledtrial study on reducing obesity through diets and exercise in obese men. 52 obese men participated in his study. Results of study showed that exercise group reduces 7.5 kg (8%) weight as compared with that of the control group. Based on the results of study concluded exercise without caloric restriction reduces obesity. Recommended

that physical activity without weight reduction important to preventing obesity risks and reduced abnormal accumulation of fat.

Peoples better to participate moderate high intensity training 3-5 day per week for 60 mints helps to have good health conditions and minimize obesity. The researchers and sports scientists investigated longitudinal study on change in body composition, physical performance and cardiovascular risks. 45 women and 19 men age 30 participated in the study. Concluded that 3 week training program helps in weight reduction, muscle strength and reduce high density lipoprotein and cholesterol crises. (Al-Thani, M. H., 2017) ^[5]. Examine the influence of obesity in Qatar. Male and female adults participated in moderate physical activity program. There is no significant relation between obesity consumption of balanced diets. But, there is significance relation between physical activity and reducing obesity.

A trial study is conducted randomized on different modalities of exercise to reduce fat mass and cardiovascular disease. 100 participants age 50-70 years participated in endurance and resistance training programs. Concluded that high intensity training helps to improve accumulation of fat mass and cardiovascular disease.

(Romero Moraleda, B., Morencos, E., Peinado, A. B., Bermejo, L., Gómez Candela, C., & Benito, P. J., 2013) ^[24]. investigated exercise determines obese patient lipid profiles. 59 women and 61 men age 18-50 years participated in the study in strength training, endurance training and combined group. Results of study showed that all blood lipid profiles improved, i.e., high density lipoprotein cholesterol, no change, Low density lipoprotein cholesterol, Triglyceride and total cholesterol decreased. Based on the result of the study concluded that participating in different training method helps to improve blood lipid profiles of obese patient peoples.

(Miles, L., 2007) ^[19] Review described that physical activity effects on physiological of peoples. It increases resting metabolic rate, improve body compositions, reduce resting blood pressure and increase capacity of blood in the coronary arteries. Physical activity reduces risk of Type-2 diabetes, colon cancer and cardiovascular disease. Most researchers recommended that performing physical activity 30 mints for 3-5 days per a week helps to solve the above mentioned obesity risks.

(Leite, N., Milano, G. E., Cieslak, F., Lopes, W. A., Rodacki, A., & Radominski, R. B., 2009) ^[17] Conducted study on the effects of physical exercise and nutritional metabolic syndrome of obese adults. 64 boys were participating in the study 12 weeks of cycling, walking and stretching exercise. Results of study showed that systolic blood pressure, body mass index, waist circumference, fat mass and trigliceloid decrease. High density lipoprotein cholesterol and VO₂ max increase. Patients recommended engaging regular exercise programs and changing dither patterns to leave health lifestyles.

Objectives

The objectives of the reviews were to explore different studies which conducted in developed and developing countries on the effects of exercise in reducing risks of obesity. The purpose of this systematic review is critically summarizing different scholars' articles and papers.

Methodology

The review was conducted from 110 research papers and only 43 important article data reported from experimental studies,

survey research review and cross-sectional research related to the effect of exercise and risk of obesity. Additionally, research uses the BMI and WHO report.

Discussion

Changing physical activity and dietary habits are keys to obesity prevention and treatments. (Belay, M. A., c, Reddy, R., & M, S. B., 2013) ^[9] study conclude that combined aerobic and resistance exercise training for 12 weeks results in reducing body fat personage and improves the muscular strength capacity. Additionally, engaging physical activity reduces risks obesity health related problems. (Wakayo, T., Whiting, S. J., & Belachew, T, 2016) ^[33]. States that obesity and overweight high risk for developing countries like Africa. Cheap high calories dense foods and limited participation in physical activity serous causes of obesity risks including Ethiopia. So, engaging in regular physical activity and exercise helps to alleviate health problems. (Shaw, K. A., Gennat, H. C., O'Rourke, P., & Del Mar, C., 2006) ^[26] study reported that vigorous activity is more effective than moderate or light intensity exercise in reducing weight loss. In addition, both high and low intensity exercise resulted in reducing systolic blood pressure and serum triglycerides. Described that resistance training increase energy expenditure after six months due to decreased metabolism caused by weight loss for greater difficulty in losing weight. (Nazni, P., Vijayakumar, P., & Angamuthu, K. (2006) ^[20]. experimental study results showed that 30 mints treadmill and walking exercise show in reducing body mass index (BMI), blood sugars, total cholesterol, triglyceride, low density lipoprotein (LDL) and body fat and increased high density lipoprotein (HDL) at $p < 0.05$. treadmill exercise used to reduce risk of obesity and to have good body composition. (Khammassi, M., Ouerghi, N., Hadj-Taieb, S., Feki, M., Thivel, D., & Bouassida, A., 2018) ^[16] study result showed that 12 weeks high interval training and decreased BMI and fast mass, VO₂ max improved, total cholesterol and triglyceride and low density lipoprotein and high density lipoproteins unchanged on pre and post test results at $p < 0.05$.

So, high interval training is important to improve BMI, aerobic fitness and lipid profile. Maffioletti NA, Agosti F, Marinone PG, Silvestri G, Lafortuna CL, Sartorio A.) on their cross sectional studies concluded that in Africa, particularly low income socio economic group, overweight and obesity were not problematic because of most people are hard workers and low income poverty. (Al-Hamad, N. M., 1999) ^[4] described in a cross sectional study on the prevalence of obesity and characteristics founded that Kuwaiti sedentary lifestyle leads to the availability of high food and over feeding leads to hypertension, overweight and obesity. So, Kuwaiti sedentary peoples better to perform regular exercise to reduce the risk of obesity and health problems. (Jayaraj, PP Nair, Reny Napoleon, Justin Stephen, Nishanth K, Suresh D, 2014) ^[15] Explained on his cross sectional study aimed to evaluate the prevalence of overweight and obesity on college students. Researchers find out the relationship between physical activity, sleeping habits and diets. Results of studies show that 10% of students suffered with obesity and 44% are overweight. Eventually, concluded that participating regular physical exercise is significant for health and wellness of college medical students.

Conclusion

Obesity is caused by genetic factors, environmental, metabolism, endocrine function change, excessive fat,

lifestyle and eating habits, drug induced obesity and intestinal problems. Obesity has various risk diseases such as type 2 diabetes, cancer, and hypertension and leads to overweight. In modern times obesity become a serious epidemic disease in developing and developed countries. To solve the health related problems of obese peoples should have to perform and engaged in aerobic and anaerobic exercise, resistance training and strength training activities. Aerobic exercise reduces lipids in obesity even in the absence of body weight reduction. Resistance training can be helpful in increasing strength and preventing the loss of fat free mass. Aerobic exercise can consume body fat, which intern brings good weight loss effects, also increase blood flow, oxygen transmission capacity, and promotes blood circulation and inner metabolism. Regular exercise is very important to mitigate metabolic and cardiovascular consequences of obesity. Finally, consuming a balance diet and practicing individualized exercise programs is helpful for health lifestyles, persons by reducing risks of obesity. The researcher further recommended that a further systematic review needed for treatments of health, obesity risk and childhood obesity

References

1. Staiano E, Abraham AA, Calvert SL. Adolescent Exergame Play for Weight Loss and Psychosocial Improvement: A Controlled Physical Activity Intervention, Silver Spring; c2013.
2. Aien Khan Afridi, Mahpara Safdar MMAKK, AK. Health Risks of Overweight and Obesity - An Over View. Pakistan Journal of Nutrition. 2003;2(6):350-360. <https://doi.org/10.3923/pjn.2003.350.360>
3. Al-Nakeeb Y, Lyons M, Collins P, Al-Nuaim A, Al-Hazzaa H, Duncan MJ, *et al.* Obesity, physical activity and sedentary behavior amongst British and Saudi youth: A crosscultural study. International Journal of Environmental Research and Public Health. 2012;9(4):1490-1506. <https://doi.org/10.3390/ijerph9041490>.
4. Al-Hamad NM. Determinants and consequences of obesity in adult Kuwaiti females (Doctoral dissertation, London School of Hygiene & Tropical Medicine); c1999.
5. Al-Thani MH. Dietary and Nutritional Factors Influencing Obesity in Qatari Adults and the Modifying Effect of Physical Activity. Journal of Obesity and Weight Loss Medication. 2017;1(2):1-7. <https://doi.org/10.23937/2572-4010.1510007>
6. Antonio L, Camacho B, Rocha P, Silva VS, Vasconcelos AG. Effects of long-term resistance training on blood pressure: A systematic review. Revista Brasileira de Cineantropometria Desempenho Humano; c2017. p. 730-742. <https://doi.org/10.5007/19800037.2017v19n6p730>
7. Aronne LJ. Classification of Obesity and Assessment of Obesity-Related Health Risks. Obesity Research. 2008;10(S12):105S-115S. <https://doi.org/10.1038/oby.2002.203>.
8. Bo-Yeon K, Dug-Hyun C, Chan-Hee J, Sung-Koo K, Ji-Oh M, CHK, *et al.* Obesity and Physical Activity, National Institute of Health; c2017.
9. Belay Mac, Reddy R, MSB. Belay MAC, Reddy R, MSB. The Effects Of Workout- Based Combination of Aerobic And Resistance Exercise Training In Obese Adults Of Northwest Ethiopia. PLoS ONE. 2013;3(1):22.
10. Brouns F. (Fred), Nutritional Needs of Athletes, John Wiley & Sons; c1993.
11. Bean A. Health, Diet and Cardio Exercises, International Journal of Health Science, Prentice Hall, UK; c1998.
12. Hankey C, Eley S, Leslie W, Hunter C, Lean M. Eating habits, beliefs, attitudes and knowledge among health professionals regarding the links between obesity, nutrition and health, Public Health Nutrition; c2004.
13. BA S, IC, JC, S, WPT J. Effect of Different Exercise and Nutrition in Reducing Risk of Obesity: Systematic Review, International Journal of Sport, Exercise and Health Research; c2004.
14. Mehrabani J, Ganjifar ZK. Overweight and obesity: a brief challenge on prevalence, complications and physical activity among men and women. MOJ Womens Health Journal, Human Kinetics; c2018.
15. Nair JPP, Napoleon R, Stephen J, Nishanth K, Suresh D. Prevalence of Overweight and Obesity Among Students of a Medical College in South India: A Pilot Study. Indian Journal of Clinical Practice. 2014;25(4):333-337. Retrieved from <http://medind.nic.in/iaa/t14/i9/iaat14i9p333.pdf>
16. Khammassi M, Ouerghi N, Hadj-Taieb S, Feki M, Thivel D, Bouassida A, *et al.* Impact of a 12-week high-intensity interval training without caloric restriction on body composition and lipid profile in sedentary healthy overweight/obese youth of the Metabolic Adaptations to Exercise under Physiological and Pathological Conditions (AM. Journal of Exercise Rehabilitation. 2018;14(1):118-125. <https://doi.org/10.12965/jer.1835124.562>.
17. Leite N, Milano GE, Cieslak F, Lopes WA, Rodacki A, Radominski RB, *et al.* Effects of physical exercise and nutritional guidance on metabolic syndrome in obese adolescents, Brazilian Journal of Physical Therapy; c2009.
18. Maffiuletti NA, Agosti F, Marinone PG, Silvestri G, Lafortuna CL, Sartorio A, *et al.* Changes in body composition, physical performance and cardiovascular risk factors after a 3-week integrated body weight reduction program and after 1-y follow-up in severely obese men and women. European Journal of Clinical Nutrition. 2005;59(5):685-694. <https://doi.org/10.1038/sj.ejcn.1602130> Mehta, Geeta. Essentials of Physical Fitness, Sports Vision, Keshav Puram, New Delhi.
19. Miles L. Physical activity and health, National Bulletin, Lisa Miles, Nutrition Scientist, British Nutrition Foundation, High Holborn House, High Holborn, London WC1V 6RQ, UK; c2007. p. 52-54.
20. Nazni P, Vijayakumar P, Angamuthu K. Effect of Exercise on BMI and Biochemical Profile of Selected Obese Diabetic Women. Journal of Exercise Science and Physiotherapy. 2006;2(2004):66-70.
21. Qi L. A Protein-Tagging System for Signal Amplification in Gene Expression and Fluorescence Imaging, Cell Press; c2014.
22. Rocha PECPD, Silva VSD, Camacho LAB, Vasconcelos AGG. Effect of Different Exercise and Nutrition in Reducing Risk of Obesity: Systematic Review, International Journal of Sport, Exercise and Health Research; c2015.
23. Ross R, Dagnone D, Jones PJH, Smith H, Paddags A, Hudson R, *et al.*, Lifestyle Modification for Obesity, New Developments in Diet, Physical Activity, and Behavior Therapy; c2000.
24. Romero Moraleda B, Morencos E, Peinado AB, Bermejo L, Gómez Candela C, Benito PJ, *et al.* Can the exercise mode determine lipid profile improvements in obese patients? National Library of Medicine; c2013.

25. Kumar SM. Physical Fitness and Wellness, Nipun Prakashan, Keshav Puram, New Delhi.
26. Shaw KA, Gennat HC, O'Rourke P, Del Mar C. Exercise for overweight or obesity (Review). The Cochrane Library, 2006;18(4):CD003817.
<https://doi.org/10.1002/14651858.CD003817.pub3>
27. Kumari S, *et al.*, Fitness, Aerobics and Gym Operations, Khel Sahitya Kendra, New Delhi.
28. Sidney, Carols. Effects of longterm resistance training on blood pressure: a systematic review. Revista Brasileira de Cineantropometria Desempenho Humano; c2017. p. 730-742. <https://doi.org/10.5007/1980-0037.2017v19n6p730>.
29. Skinner AC, Perrin EM, Moss LA, Skelton JA. Cardiometabolic Risks and Severity of Obesity in Children and Young Adults, N Engl J Med. 2015;373:1307-1317.
30. Tariq Ali A, John Crowther N. Health risks associated with obesity, Journal of Endocrinology, Metabolism and Diabetes in South Africa; c2005.
31. Waumsley J, Atter N, Boyle S, Buckroyd J. Emotional Eating as a Factor in the Obesity of Those with a BMI > 35, Obesity in the UK: A Psychological Perspective, The British Psychological Society; c2011.
32. World Health Organization, Monitoring Health for the Sustainable Development Goals; c2010.
33. Wakayo T, Whiting SJ, Belachew T. Vitamin D deficiency is associated with overweight and/or obesity among schoolchildren in central ethiopia: A cross-sectional study. Nutrients. 2016, 8(4).
<https://doi.org/10.3390/nu8040190>
34. Raj YD. Physical Fitness and Wellness, Angel Publication, Keshav Puram, New Delhi.