



INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

Physical Activity and Children's Health – A Global Prospective.

IRSHAD MAQBOOL MALIK

Physical Education Teacher.

Department of Youth Services & Sports (J&K).

MOHAMMAD RAFIQ BHAT

Physical Education Teacher.

DYSSO (J&K)

Dr. NAZIR AHMAD WAZA.

Assistant Professor, Physical Education.

Government College of Physical Education, Ganderbal Kashmir.

Abstract

The intention of this review article is to provide a scientific update on evidence linked to the relationship between physical activity and health of school going children and youth. To accomplish this aim, the first fragment of the review article emphasis on physical activity guidelines for school-aged children and youth. This fragment also summarizes the information of how much physical activity is required to promote health and well-being in school going children and youth. The paper then provides an overview of relationship which exists between physical activity and health. this section of paper also emphasizes on the diseases in which world is judging this time especially the children, which is real threat to the world and how physical activity help us to overcome this big challenge of the world. The final fragment of the paper provides suggestions and recommendations that could be made to mandatory at grass root level especially in schools. In this section stress is given on implementation of physical fitness programs at school level to enhance the health status of school going children which depicts the important role of schools and physical education teachers in combating against fast growing diseases lead by physical inactivity which have affected the world badly. It also emphasis on the adjusting the physical activity programs (at least 30 minutes in a day) in the time table of the schools besides the sports activities.

Introduction

Accustomed physical activity is accepted as an essential factor responsible for healthy life style. Research reveals that physical inactivity directs not only too many non-communicable diseases like, coronary heart diseases, diabetes, some cancers, osteoporosis and lung diseases, but also to some chronic mental diseases. It has been shown that because of physical inactivity mortality from coronary heart is calculated as around 35%, death from diabetes mellitus is 35% and 32% death is caused by colon cancer. This means that the population dies because of these diseases that can be theoretically prevented or controlled if every individual, whether a child, adolescent or an old is active.

Even though the clinical symptoms of some chronic diseases become prominent in later stage of life, in fact the origin of these diseases lies in early childhood. Therefore, the attention towards prevention should be paid at the prepubertal stage. In order to wrap up these diseases from their roots the children must be indulged and engaged in the regular physical activities during their first decades of life. Therefore, the physical activity of children and adults should narrowly focus in order to make preventive measures in relation to their health status.

Therefore, the physical activities of children and adolescents need to be taken into consideration for making preventive strategies which aimed at enhancing their health status. Because of this, professionals of physical education and scientists of relevant field from all over the world are very serious about developing the guidelines of the physical activities for children and adolescents so that they are able to counter the biggest challenge of the world which has been broken out among youngsters during late 1990's, which is thought to be due to decline of physical activities among youngsters that is "**Obesity.**"

Physical activity guidelines for children and adolescents

Since there is no worldwide unanimity about physical activity criteria for children i.e., less evidence has been found so for guidelines of physical activity regarding children are concerned, there may be a reason that children are not physically active on daily basis or they may not realize physical activity as part of their life style. However, there is sufficient evidence in favor of adolescent physical activities guidelines.

Some studies reveal that children should be exposed to physical activities similar to those recommended or exposed to adults. The children and adult should obtain 20-30 minutes of vigorous exercise each day (American College of Sports Medicine, 1988). In the beginning of 1990's, this recommendation was refined by International Consensus Conference on Physical Activity Guidelines for Adolescents (Sallis & Patrick, 1994), in which new physical activity guidelines were made. The expert committee, comprising of various researchers from different countries like, Canada, Australia, Europe etc., adjudged not to form guidelines for children because of insufficient evidence related to prepubertal age group. Studies reviewed which were studied on British children determined that children sporadically take part in activities at the level that would have cardiovascular training effect or health benefit (Cale & Almond, 1992). On the other hand, another study by Sallis concluded that average child is sufficient active to meet the adult recommendation for conditioning activities with exceptions of average girl in mid to late adolescence (Sallis, 1993).

So, time to time many scientists and researchers came, who proposed and suggested various physical activity criteria for children (fig 1.1), which formed strong and scientific base, insisted the researchers to feel that forming the guidelines of physical activities as need of the hour for children's health. It has been found that in United Kingdom, 70% of boy's population and 61% of girl's population between the age group of 2 to 15 years are associated with one hour of physical activity every day through different means which include sports, exercise, walking, gardening or housework. However, for girls after attaining age of 15 the percentage declines to 50% who undergo physical activity of one hour each day (Department of Health 2003). Therefore, available scientific evidences provide the base for expert committee to develop guidelines for physical activity in children and adolescents. These evidences connate about the relationship which exists between physical activity during youth and health status during young period or more ideally, we can say between physical activity during youth and health status at adult age. But the question arises whether the relationship exists between the physical activity during the childhood and adolescence with the adult health status or not? The answer of this question is given through the (fig1.2), which is derived from Blair et al (1989), which depicts that there are three possible routes in which physical activity during childhood is related to adult health status.

Fig.1.1 Suggested Physical Activity Criteria for Children

| Reference | Country | Year | Suggested physical activity levels |
|-------------------------------------|-----------|------|--|
| Blair et al | US | 1989 | Minimum exercise energy expenditure of 3 kcal.kg-1.day-1 |
| Pyke | Australia | 1987 | Vigorous physical activity,3-4 times per week, at least 30 minutes per session |
| Shephard | Canada | 1986 | Three hours per week, ~25 minutes per session,4METs intensity |
| American College of sports medicine | U.S. | 1991 | Three times per week,20 minutes per session, intensity at or above 60% maximal oxygen consumption |
| Ross and Gilbert | U.S. | 1985 | Minimum of 3 times per week, 20 minutes per session, intensity at 60% of cardio respiratory capacity using large muscle groups |
| Telama et al. | Finland | 1994 | At least 30 minutes activity per day, every day |
| Haskell et al. | U.S. | 1985 | At least 30 minutes activity per day, every day, using large muscle groups |
| Silvennoinen | Finland | 1984 | At least 2 minutes per week, activity causing continuous breathlessness and abundant sweating |

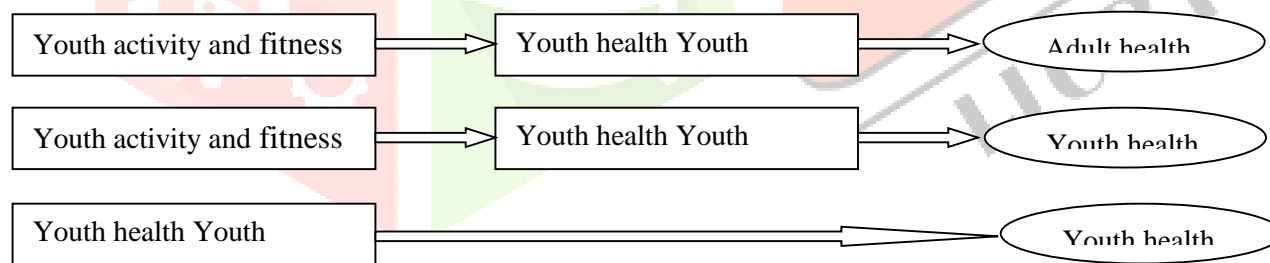


Fig.1.2. Possible relationships between physical activity during childhood adolescence and adult health (Adapted from Blair et al 1989.)

Relationship between physical activity and health

It is eye open fact that the population who are exposed to physical activity and enjoying it regularly has lower death rate than the population who are inactive. It means there exists a relationship of physical activity with one’s health status

Risk factors for cardiovascular diseases

In present era, more concern is about the physical activity and cardiovascular diseases. In most of developed countries like America, there are so many risk factors which can lead an individual to cardiovascular diseases

some of them are non-modifiable such as genetics or family history where as some are modifiable which can be prevented by taking precautionary measures, such as physical inactivity, cholesterol, blood pressure etc.

Physical Inactivity: - By globalization and increasing urbanization, the world has become such busy it has reduced physical activity level. According to WHO, that more than 60% of the total world's population is inactive. So, it means that physical inactivity invites many diseases to our body which can reduce the life span of an individual. Regardless of any adverse condition, diseases or inherited factor physical activity helps us to maintain our health status, which may definitely increase the life span. Despite of any age whether children or older physical activity helps to protect us against health problems especially from cardiovascular diseases by regulation or maintaining one's body weight.

Cholesterol: - cholesterol is a dense, fatty substance found in every cell of the body. Cholesterol is sometimes essential in order to sustaining functions of body. Cholesterol diffuses throughout bloodstreams in small bundles called lipoproteins. There are two main categories of cholesterol.

1. Low-density lipoproteins.

2. High density lipoproteins.

Low Density Lipoproteins (LDL): - It causes atherosclerosis which means thickening of inner walls of blood vessels by deposition. It is also known as hardening of blood arteries and considered as "bad" form of cholesterol.

High Density Lipoproteins (HDL): - It helps to reduce the level of LDL by transporting it to the liver where it is removed from the blood.

The cholesterol varies according to age, weight and gender. There are certain levels which describes the cholesterol level status and acts as alarm to heart diseases. Struggle is all about to maintain and balancing these levels.

Children with high level of cholesterol should be observed regularly. The acceptable range of total cholesterol for a child is less than 170mg/dl, if it raises from 170mg/dl to 199mg/dl then it forms a borderline for high total cholesterol, whereas if it goes beyond borderline and cross over 200mg/dl in a child it is too high. However, LDL cholesterol in children less than 100mg/dl is considered as normal and when ranges from above 110 to 129mg/dl is considered as borderline while over 130mg/dl is considered as high. So, the best recommendation in order to maintain these levels for children as well as adolescents to remain active which can be achieved only through regular exercises.

According to epidemiological studies regarding adults here are some particular verifications which advert association of physical activity with favorable lipid profile. American Heart association suggests 40 minutes of moderate to vigorous intensity of aerobic activity 3 to 4 times per week which includes brisk walking, bicycling and gardening as moderate intensity whereas jogging, running, aerobic dancing, hiking, uphill etc. as vigorous intensity.

Blood pressure: - physical inactiveness leads to high blood pressure, so increasing the physical activity level reduce the blood pressure. A healthy life style can also lower the blood pressure by increasing physical activity and by keeping your body weight in control. Regular physical activities will keep your heart healthy which reduces the risk of cardiovascular diseases. Sometimes it looks dangerous while going through physical activity if an individual having high blood pressure. Of course, the blood pressure increases after physical activity or exercise but for a short period. However, after stopping activity or exercise the blood pressure gets back to its

normal level. The quickly it returns to normal, the fitter you are likely to be. It is advisable to consult the doctor before starting to increasing the activity to next level. The below list will give you an idea regarding blood pressure and exercise recommendations.

Blood Pressure

140/90 – 179/99

180/100 – 199/109

200/110 – Above

Exercise Recommendation

It is safe to start increasing physical activity.

Speak to doctor before increasing the exercise.

Do not start any new activity.

From one of the population-based study by S D Leary et all in 2008, although there is less evidence regarding effect of exercise/physical activity on blood pressure of a child however existence of relation between physical activity and blood pressure in adults is well established. But sedentary life style in childhood is a big threat and risk factor to cardiovascular diseases (CVD) during childhood which can be controlled only through active participation in games and well-planned exercise programs. It has also been found that the blood pressure elevates in childhood can tracks into adulthood. In another study by G Knowles et al, (2013). Reported that there is inconsistent data regarding physical activity and its effect on blood pressure in childhood whereas regular physical activity reduces blood pressure in young.

Diabetes: - It is a chronic condition or diseases in which blood glucose level raises from its normal value. The glucose comes from the food that an individual take, the hormone called as insulin helps the glucose to get into the body cells to provide energy. The condition in which the body does not make insulin or sometimes unable to use this hormone well, is the main cause of diabetes. This condition is commonly found in the children which leads to serious effects on their health status. Diabetes in individuals can affect the health in following ways.

- Increase in blood sugar level will decreases the elasticity of blood vessels and causes them to constrict, tends to stop blood flow. This can lead to a reduced supply of blood and oxygen, increasing the risk of high blood pressure and damage to large and small blood vessels.
- cardiovascular disease is one of the leading cause of early death among people with diabetes.
- People with diabetes also tend to develop more serious heart problems at an earlier age than people without the condition.
- In addition, diabetes often occurs alongside other conditions that stress the heart, such as obesity, hypertension, and high cholesterol..
- A person with diabetes should check their skin regularly for wounds and see their doctor if they have any signs of an infection, including redness, swelling, or fever.
- Neuropathy, or nerve damage, is a common complication of diabetes. This causes pain and numbness in some parts of the body, such as: legs, feet, toes, arms, hands, and fingers.
- Neuropathy can also affect the hips and upper legs.
- Diabetes increases the risk of a number of eye problems, some of which can lead to vision loss. Short-term problems include blurred vision, due to high blood sugar. Long-term complications include: glaucoma diabetic retinopathy macular edema cataracts
- Damage to the nervous system can affect autonomic body functions, including digestion.

- Gastroparesis can happen when nerve damage interferes with the ability of the digestive system to move food from the stomach into the small intestine. The condition can result in nausea, acid reflux, bloating, abdominal pain, weight loss in severe cases
- Erectile dysfunction is more than three times more likely to develop in men with diabetes, and it can appear 10–15 years earlier than in those without the condition.
- Research appearing in 2009 found that girls who receive a diagnosis of type 1 diabetes before the age of 10 years are more likely to start menstruating later than those without the disease.

Globally diabetes in children in prepubertal children is increasing like fire. WHO, in the year 1997, accepted it as major public health problem (A. Vasarala Kameshwararao and Anil Krishna Bachu, *International Journal of Diabetes in Developing Countries*, 2009 May16. It is a big threat to the world in present scenario. An upsurge of diabetes leads the India towards the state of epidemic. More than 6.2 crores diabetic patients have been diagnosed presently in India. India ranked no.1 in the world with 31.7 million diabetic individuals in year 2000, followed by China with 20.8 million and United State with 17.7 at second and third place respectively, so this challenge needs to be monitored. There are so many factors which directs an individual to this condition such as overweight, food habits, physical inactivity etc. The challenge is to control this growing problem in the world especially in children because this condition can have bad impression on the child's mind for whole life which may ruin his/her academic career. There should be some way which will help the people of the world to extricate them from this affliction. Physical activity in this situation play a vital role to extricate from the problem called diabetes. Research revealed that there is positive relationship between physical activity and diabetes control and prevention in children and adults. It is reported that there is reasonable evidence that increasing amount of physical activity not only help in preventing diabetes but also delaying the development of type 2 – diabetes in adults. Increase in physical activity helps in increasing the amount of glucose level in body which is used by muscles for energy expenditure. Being physically active demands the body efficient use of insulin. Physical activity helps the child to maintain the healthy body weight, the factor more likely to be responsible for the diabetes in the children. It also leads to stimulate the hormone secretion in children which help them in good growth and development of their body.

Osteoporosis: - In modern years osteoporosis in children and young people has attracted to a great extension. Osteoporosis is the circumstance that cause bone to develop into less dense and drop their strength which creates the chance for the bone to break easily. Osteoporosis in children may be classified as primary osteoporosis, which is expected to an intrinsic bone irregularity usually genetic in basis and secondary osteoporosis which is because of health medical conditions. Work needs to be complete to determine optimal period during childhood in which such activities should be performed which helps in promoting the bone growth. There are some evidences that physical activity during the immediate pre-pubescent and pubescent years may be crucial for peak bone mass. (Haepasalo,1994; Morris et.al.,1997; Bradney et. al.,1998). However so far, the mechanical part of physical activity is concerned the result is quite different. It was suggested in a research that the mechanical force experienced through activities like jumping will have different effect of athletes' bone health than energetic part of physical part of physical activity. As there is progression in the physical activity there will have beneficial effects on bone health to a certain limit but if we further go on progression there will be no benefit, it means parabolic type of relationship exists between the mechanical part of physical activity and bone health, whereas hyperbolic type of relationship exists between energetic part of physical activity and bone health.

Physical activity therefore is a key motivation for bone structure and has capacity to enhance peak bone mass in children and youngsters within margin set by the nature (genetic & hormonal) and nutritional influence. Such enhanced bone mass has significant prospective to lessen the risk of bone diseases (osteoporosis) and those fractures linked with it afterward life.

It is ascertained that correlation between physical activity and osteoporosis can be bi fold. Firstly, increased and vigorous activity can be proved beneficial in later life in view to prevent the reduction of bone natural mineral density, which is considered as an indicator for bone health which in turn results in deferring the onset of osteoporosis. Second thing is that, vigorous physical activity during growing years will help in increasing peak bone mineral density which also results in delaying of osteoporosis.

Mental Health: -

The mental development that takes place during growing years is essential for the individual's health. Many researches revealed that cognitive scores assessed in early childhood have positive association with academic results besides that it has also association with mental abilities in later stage of life.

Children require to cover a beneficial mental health significance if they are ready to live up to their satisfied prospective and indeed live a living that is packed with confirmed experiences and the enthusiasm to organize. There are host of factors which may put positive as well as negative impression on child's mental health. If children with an environment in which love, compassion, trust and understanding will be established, will terribly impression an adolescent as a result they will have productive life. Most of the children do not receive such environment which leads them towards undeveloped mental abilities and deteriorated mental health. A child can get all these things like love, compassion, trust understanding etc. under an umbrella that is called "Physical Activity." Physical activity leads a child to cognitive development which refers to the procedure of increasing and adjustment in intellectual and mental abilities like thinking, reasoning and understanding.

Suggestions & Recommendations:

1. As children around the world are afflicted with diseases such as obesity, that has shaken the world. Physical activity is the way through which we can combat this disease, ***if physical activity programs will be designed for the children and implemented in the schools, somehow, we will be able to save the world.***
2. As physical activity encourages a healthy and active lifestyle throughout the school life, ***hence physical education should be strictly started in the schools as part of their curriculum.***
3. Physical activity will assist the students in reaching their peak physical potential through variety of fitness programs for school going children besides the sporting environments, which will help the students in their smooth growth and development. ***So physical activity programs should be implemented in the schools.***
4. If these guidelines of physical activity for the children will be adapted in the schools it will not only provide the base for improvement of sports performances of the students in their sports competitions but ***we will be able to enhance the immune system of the school going children to fight against the various fatal viruses not in contemporary but in future also.***

5. It is recommended that **20 – 30 minutes** of physical activity (fitness program) per day should be mandatory in schools besides the sports activity.

References:

Jurimae.T, Jurimae J. (2000). *Growth Physical Activity and Motor Development in Prepubertal Children*. New York, Washington DC: CRC Press.

Armstrong N. (2007). *Paediatrics Exercise Physiology*. Elsevier: Churchill Living Stone.

Allender S, Cowburn GG, Foster C. *Understanding participation in sport and physical activity among children and adults: A review of qualitative studies*. *Health Education Research*. 2006;21(6):826–835. [PubMed]

Bailey, Richard. (2006). *Physical Education and Sport in Schools: A Review of Benefits and Outcomes*. *The Journal of school health*. 76. 397-401. 10.1111/j.1746-1561.2006.00132x.

Dobbins, Maureen & DeCorby, Kara & Robeson, Paula & Husson, Heather & Tirilis, Daiva. (2009). *School-based physical activity programs for promoting physical activity and fitness in children and adolescents aged 6-18*. Cochrane database of systematic reviews (Online). 2. CD007651. 10.1002/14651858.CD007651.

Warburton DE, Katzmarzyk PT, Rhodes RE, Shephard RJ. *Lignes directrices éclairées par des données probantes sur l'activité physique à l'intention des Canadiens adultes [Evidence-based guidelines for physical activity of adult Canadians]*. *Appl Physiol Nutr Metab*. 2007;32 Suppl 2F:S17-74. French. doi: 10.1139/H07-168. PMID: 19377540.

