

Physical activity and diabetes: The role of physical education.

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Abstract:

Too many People do not engage in the required amounts of regular physical activity, despite overwhelming evidence to the contrary. Regular physical activity can both prevent and delay the onset of diabetes. Recent studies have looked at how altering the social and physical environment in which people live may ultimately have a greater impact on raising population levels of physical activity, even if most physical activity treatments to date have been focused on individual characteristics. Evidence that physical activity is essential for both preventing and treating diabetes has been building in recent years. There are numerous general and diabetes-specific health advantages of physical activity. Nevertheless, many people are physically inactive despite the wealth of advantages. Physical inactivity has become a serious public health issue as the prevalence of overweight and obesity, prediabetes, and type 2 diabetes has continued to climb alarmingly. Physical education has a great deal of potential to significantly improve public health and promote physical exercise. To help physical education fulfil its role in promoting physical activity, promoting health and learning among young people, and enhancing public health, advocacy for physical education and physical activity programmes as well as the development of school and community environments that encourage and enable participation in physical education and physical activity are crucial strategies. Unfortunately, the demands for academic accountability are rising at the same time as calls for physical education to play a bigger part in boosting physical activity and improving public health. However, there is proof that physical education is a successful strategy for encouraging physical activity and that both physical activity and physical education may improve academic performance.

Keywords: Physical Education (PE), Diabetes, Activity, Prevention.

Introduction:

Youth with diabetes ought should be able to take part completely in all team sports, field trips, and physical education classes at school. Participation in physical education is increasingly

expected due to greater diabetes awareness and novel management strategies. It is crucial to manage any diabetes-related issues that develop throughout the school day, including any that require activity, as children spend roughly seven hours a day at school. Knowing the long- and short-term diabetes and the impact of physical activity whether on the sports field, in a gym, either in a team sport or education class—is It's crucial for students and their families as well as well as for teachers. knowledge of link between blood sugar, insulin, and food blood glucose levels and exercise will drastically lower the number of issues that arise and increase the advantages of exercise for diabetic students. Evidence for Physical Activity's Primary Prevention of Diabetes: Interventions that aim to prevent or delay the onset of diabetes in people who are asymptomatic for the condition are referred to as primary prevention. The prevalence of disease is typically not decreased through secondary prevention; instead, the condition is identified at an earlier, more curable stage. Strategies for tertiary prevention are focused on reducing disability in patients with symptomatic disease. We concentrate our discussion on the importance of physical activity in the primary prevention of type 2 diabetes, even though it plays a part in each of these levels of diabetes prevention. It goes without saying that a student's general wellbeing depends on engaging in proper physical activity. The advantages of physical education in schools are extensive, and they include improved academic and physical performance of students. There is more to physical education than just kicking a ball or jogging around a track. In addition to enhancing children's health and wellbeing, it teaches them important life skills. More people are adopting sedentary lives, and obesity rates are rising dramatically worldwide. Promoting a positive attitude toward fitness at a young age will keep them healthy as they age. Numerous advantageous physiological alterations brought on by regular exercise are favourable for liver and muscle insulin sensitivity, muscle glucose absorption and utilisation, and overall glycaemic control. The advantages of living an active lifestyle, however, go beyond enhancements in insulin action and glucose control.

Regular exercise can lower blood pressure, drop cholesterol levels, reduce body weight and body fat percentage, improve thromboembolic condition, and improve lipid profiles, all of which diminish the risk of cardiovascular disease. For people with diabetes, who are twice as likely to have serious cardiovascular events and are two to four times more likely to die from

consequences of cardiovascular events than the general population, this decrease in cardiovascular disease risk is particularly significant.

Many of the individuals who receive registered dietitian counselling have a connection to the urgent national health challenge of physical inactivity. Therefore, it is crucial to encourage physical exercise in people who have diabetes or who are at risk of getting it. Registered dietitians can effectively persuade inactive people to incorporate physical activity and exercise into a management plan that promotes optimal health when offering diabetic medical nutrition therapy. Before providing particular exercise guidance, it is imperative to have a fundamental grasp of the advantages and disadvantages of physical activity and exercise for people with diabetes or prediabetes.

Youth physical activity can be strongly encouraged via physical education (PA). This paper discusses correlates of youth physical activity (PA), considers how these factors have been targeted in physical education (PE)-based interventions, and offers recommendations for PE pedagogy to support PA. Youth physical activity was consistently linked to perceived physical competence, pleasure of PA, intention, direct assistance from parents and significant others, and opportunities for physical activity. In order to increase out-of-school PA, large-scale PE-based promotion initiatives used a pedagogical framework that targeted characteristics related to motivation.

The Advantages of Physical Education: Many schools have reduced their physical education offerings recently in order to focus more on academics and better prepare kids for college and the workforce. Yet research shows that adults who had regular PE classes in school are more than twice as likely to be physically active as their non-PE counterparts. In reality, students who regularly participate in physical education sessions at school are more likely to get the following advantages:

Physical and Mental Health: Physical Education instructors, who are knowledgeable about child development, make sure that the curriculum includes age-appropriate exercises that promote developing bodies and brains. Lessons will be modified so that they are appropriate for the groups they are teaching, and they will take care to avoid

overburdening the students with difficult concepts or demands. In addition, they are aware of when kids need to be pushed. Students are more likely to engage in healthful activities outside of school when they have better motor skills, stronger muscles, and increased bone density thanks to physical education. Additionally, it enables kids to comprehend the positive effects of exercise and how good it may make them feel.

Social attitude: Early physical education teaches children the concept of teamwork, and being a team member provides them a feeling of identity. Children learn skills that open the door for positive interactions and relationships throughout life when physical education teachers exhibit prosocial behaviour. They learn vital social and communication skills from this. It enables students to support others, collaborate with a variety of team members, and develop as team players.

Development of Character and Self-Esteem: Team sports in a structured environment help develop leadership and sportsmanship. Students learn to respect themselves and their peers through taking on different responsibilities on a team and developing new abilities. Additionally, it teaches kids to empathise with others and help them get through tough times.

Better Academic Results: The many advantages of physical education (PE) transfer from the gym or playing field to the classroom, improving academic performance. According to research, kids who participate in physical education are better able to control their behaviour and pay attention in class. Children frequently have the chance to divert their attention from their academic work through sports. They get the chance to unwind, let out pent-up emotions, and enjoy time with their pals.

Breaks Up Boredom and Aids in Focus: Everyone is aware of what occurs when we don't take breaks. We become distracted from our task as a result. This monotony can be boring for children as well. If they are entirely focused on their academics, they need more than one break every day. Herein is the role that physical education plays. When kids participate in physical education in the classroom, they can break the monotony and expend the surplus energy that is feeding their boredom and preventing them from paying attention in class.

Understand The Value of Maintaining Good Health: Everyone can learn from watching others. Children can pick up knowledge by seeing our acts and behaviours. They require a

mentor who can encourage them to begin exercising so they can stay in shape. One of the best ways to impart the fundamentals of exercise is through physical education. We all know that students are introduced to exercises in physical education, and that if they enjoy them, they will keep doing them for the rest of their life. One of the finest ways for children in India to learn about the various sports and physical activities they can participate in is through physical education.

Learn constructive habits: An old English saying goes, "An idle brain is the devil's workshop," and that is certainly true of pupils who are left sitting around. Both academic instruction and physical activity keep children interested and keep them from wandering off course. Additionally, kids learn to collaborate as a team when participating in physical activities. Students that participate in physical education also learn to love education.

School-based physical education and its effects on students' health: Due to several restrictions and demands, physical education and activity programmes in schools have been substantially reduced. According to the accompanying graph, there is a serious issue with the decrease in exercise hours at schools. Promoting physical exercise is crucial for assisting in the reduction of childhood obesity and type 2 diabetes. School nurses can be effective advocates for physical education in the classroom.

Investment in Physical Education Is Required:

Kids who receive effective physical education are taught life skills (see above) that they can utilise for the rest of their lives.

Reduced Healthcare Costs - Our healthcare system is more akin to "sick-care." Real healthcare is one of the best ways to avoid "sick-care" costs. PE is real medicine and real prevention. "Prevention is Better Than a Cure," as has been said.

Everyone is interested in physical education, and recess is fun. The same goes for after-school programmes, but let's do more than just get kids moving who want to move. Every youngster receives training in physical education to have a healthy life.

PE Gets Children Moving Outside of the Classroom - Take a look at the US charts below. PE-trained adults are twice as likely to be active in their later years. Children who participate in physical education are three to four times more likely to engage in physical activity after school.

Adults Are More Difficult to Condition - It's much simpler to develop habits and conditioning early in life than to "teach an old dog new tricks." Let's instill activity into every child's resource so they can use them indefinitely.

Academic Success - The research and supporting data are abundant. Active children are simply better pupils. See this page for a summary of all the research we have done so far. Moreover, take a look at the study of 3 million kids below. Better academic performance is correlated with fitness.

The significance of Physical Education for diabetics: The advantages of exercise for patients with diabetes—or pretty much any other disease, for that matter—cannot be emphasised. Exercise helps you manage your weight, lower blood pressure, raise healthy HDL cholesterol, strengthen your bones and muscles, reduce anxiety, and enhance your overall health.

Cut Back on Health Risks:

Chronic Heart Disease: The two main causes of death in the US are heart disease and stroke. Your chance of developing these diseases can be decreased by engaging in at least 150 minutes of moderate physical activity each week. By engaging in additional exercise, you can further lower your risk. Additionally, regular exercise helps lower blood pressure and lower cholesterol.

Diabetes Type 2 and Metabolic Syndrome: You can lower your risk of metabolic syndrome and type 2 diabetes by engaging in regular physical activity. A combination of excess abdominal fat, high blood pressure, low HDL cholesterol, high triglycerides, and/or high blood sugar constitutes metabolic syndrome. Even if they don't get the recommended 150 minutes of moderate physical activity each week, people begin to see some benefits from exercise. Increased physical exercise appears to further reduce risk.

Numerous studies highlight these and other advantages of exercise. The highlights of those findings are as follows:

People with diabetes from various ethnic backgrounds who were taking various medications and adhering to various diets found that exercise reduced their HbA1c readings by 0.7 percentage points while without losing any weight.

Exercise of any kind, whether it be aerobic, resistance, or a combination of the two (combined training), can lower HbA1c levels in diabetics.

In previously inactive older people with abdominal obesity who were at risk for diabetes, resistance training and aerobic exercise both helped to reduce insulin resistance. It was shown that combining the two forms of exercise was more advantageous than practising each one alone. Compared to their inactive counterparts, people with diabetes who exercised three to four hours a week reduced their risk of dying from heart disease by an additional one hour.

Women with diabetes who engaged in moderate (including walking) or strenuous exercise for at least four hours per week had a 40% decreased chance of getting heart disease than those who did not exercise. Even after confounding variables like BMI, smoking, and other heart disease risk factors were taken into account by the researchers, these advantages persisted.

In general, one to three hours after eating, when your blood sugar level is probably higher, is the greatest time to exercise. If you use insulin, it's crucial to check your blood sugar levels before working out. A piece of fruit or a modest snack will raise the level if it is below 100 mg/dL before to exercise, preventing hypoglycaemia. Your blood sugar level will be stable if you retest 30 minutes later. Checking your blood sugar after any very taxing exercise or activity is also a good idea. Your risk of experiencing hypoglycaemia may be greatest six to 12 hours after working out if you take insulin.

A Review of Exercise for Diabetes and non Diabetes:

People Without Diabetes:Exercise-induced increases in glucose utilisation in adults without diabetes result in a variety of homeostatic reactions. The synthesis of glucose from the liver is increased as a result of decreased insulin secretion and possible increases in the levels of counter-regulatory hormones (glucagon, growth hormone, catecholamines, and cortisol), which raise blood glucose. Since there is no endogenous supply of insulin in type 1 diabetes patients, various counter-regulatory mechanisms may be compromised, especially after a number of years with the disease.

People with diabetes: who exercise may require less exogenous insulin or use it more effectively, which could lead to a reduction in diabetic prescriptions, typically insulin. Exercise has an immediate effect on the body by increasing the removal of glucose from plasma. The insulin dosage, timing, and composition of meals and snacks, exercise duration and intensity, fitness level, and hormonal response to exercise all affect blood sugar and hormone levels, but insulin availability is most important. Because a person with type 1 diabetes lacks an endogenous source of insulin, hypoglycaemia is the most frequent issue that arises after exercise (low blood sugar).

Conclusion: Empirical evidence supports the value of exercise in the treatment of diabetes. Resistance training is becoming more and more significant. Although there are effective physical activity techniques for people with diabetes that include print, telephone counselling, or pedometer use, large-scale randomised, controlled trials are still needed. Both the prevention and management of type 2 diabetes as well as the treatment of type 1 diabetes benefit greatly from an active lifestyle. Physical activity has many advantages, including helping people lose weight and keep it off, improving their insulin/glucose profile if they have prediabetes, their glycaemic control if they have type 2 diabetes, and generally enhancing their quality of life. Further research is required to optimise the combination of exercise and insulin therapy for the treatment of diabetes. The current insulin adjustment recommendations are based on small-scale research, many of which were conducted before the invention of the rapid and long-acting insulin varieties now utilised frequently. Short-term studies frequently concentrate on particular metabolic processes via which exercise enhances glycaemic control or causes hypoglycaemia, and results may not always translate into practical advice.

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