

Review Article

Physical Activity — Addressing Effectively a Neglected Issue

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There are four pillars in the treatment of Diabetes : (1) Diet (2) Exercise (3) Drugs (4) Education. Unfortunately, exercise advice to patients in the most proper and scientific way is often neglected. The focus of all guidelines has been to decrease the sedentary time and introduce a structured, individualized exercise or physical activity program in all patients with Diabetes. In fact, this should be a way of life and be introduced from the earliest years in childhood as a routine part of school curriculum. However, no patient should leave the doctors clinic without a formal prescription for regular exercise as per the individuals' requirement.

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Key words : Exercise, Physical activity, Sedentary time, Structured & individualized.

Along with Diet & Medications, Physical activity is one of the pillars of treatment of Diabetes but unfortunately is often a neglected issue. A universal prescription that could not only prevent, but also treat all the life-style diseases would be most desirable and everyone would prescribe it.

Exercise has been called the “Silver Bullet” in Diabetes treatment. Exercise, as a prescription medicine has become a Global health initiative¹.

Sedentary lifestyle amongst Asian Indians is likely to contribute to the high risk of Diabetes & Cardio-Vascular Disease (CVD)³. The prevalence of T2DM and IGT has been shown to be significantly lower in those with higher levels of physical activity ie, 16.8%, 13.2%, and 11% for sedentary, moderately heavy and heavy workers in South India, respectively⁴. Infact, studies have shown that higher levels of cardio-respiratory fitness is associated with lower mortality rates⁵. When looking at the percentage that different risk factors contribute to mortality, a low level of Cardio-respiratory fitness exposes an individual to a greater risk of dying than does Smoking, Obesity, Hypertension or High Cholesterol – all risk factors that have traditionally received greater attention from Physicians and the medical field.

The health benefits of regular exercise are enormous both in adults and children & adolescents. It decreases pro-inflammatory cytokines and secretes a myokine by the contracting skeletal muscles, called Irisin⁶.

It has been shown in mice that even in the absence of any change in movement or food intake, Irisin can increase the energy expenditure, resulting in

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Editor's Comment :

- At least 30 minutes exercise in daily routine is essential to improve the physical and mental health of an individual.
- Sedentary time is defined as the time spent sitting during the non-exercising wake hours → Associated with obesity, diabetes, CVD and other NCD (Non-Communicable diseases).
- The health authorities are trying to promote the awareness to increase the leisure time physical activity as a strategy to prevent the spread of the NCD.
- The recent ADA guidelines on physical activity and exercise for people with diabetes recommend 3 or more minutes of light activity every 30 minutes during prolonged sedentary activities.
- The focus is to increase the physical activity during the office hours, traveling time and also during the leisure time².

improvements in Obesity and Glucose homeostasis. Irisin leads to changes in mature adipocytes and subcutaneous white adipose tissue by increasing Cellular Thermogenesis and leading to “browning”. On the other hand, it inhibits Adipogenesis and promotes Osteogenesis⁷.

It stimulates the growth of Neurons, improves cognition & slows the ageing process.

Exercise leads to the depletion of the Glucose stored in the muscles, which leads to two important changes occurring in the muscles, in order to refill their supplies: Not only their sensitivity to insulin increases but they start to absorb Glucose independently of any insulin action.

It lowers the HbA1c by modest 0.66%⁸.

The types of exercise are : (a) Anaerobic (Isometric / Isotonic) : Improves Flexibility, Muscular strength & Endurance. (b) Aerobic (Jogging / Brisk walking etc) : Improves Muscular Blood Supply, Weight, Blood Pressure & Cardio-respiratory Fitness.

Physical Activity Guidelines for Healthy Indian Adults⁹ :

(1) Avoid Sedentariness as much as possible.

Today, Sedentariness is considered the new smoking!

(2) Those with chronic diseases, particularly CVD, those who are symptomatic and those who are sedentary, should undergo a medical consultation prior to starting any exercise.

(3) In contrast to the ADA guidelines, Indian adults should ideally have a total of 60 minutes of physical activity daily which includes Aerobic activity, Work-related activity and Muscle-strengthening activity.

(4) The above timing can be distributed as follows : at least 30 minutes of moderate-intensity aerobic activity (eg, Brisk Walking, Jogging, Hiking, Gardening, Bicycling etc), 15 min of work-related activity (eg, carrying heavy loads, climbing stairs etc) and 15 min of Muscle strengthening exercises at least 3-4 times a week using light weights.

(5) A minimum of about 10 minutes of Aerobic activity should be performed at any one time.

(6) Moderate-intensity aerobic physical activity can be increased to 300 minutes per week, or 150 min of vigorous intensity aerobic physical activity per week, can give additional health benefits.

(7) Brisk walking (walking at an intensity wherein an individual finds speaking difficult but not impossible) is the easiest and most common initial mode of exercise, simply because of its simplicity and not requiring any special equipment.

(8) Physical activity should be initiated gradually and in a structured manner in those who have been sedentary for a long time.

(9) The total duration of physical activity could also be accumulated in small 10-15 minutes periods of physical activity 2-3 times a day.

(10) Physically intensive Yoga exercises should be encouraged but more research is required in this area.

Measures to reduce sedentary behavior¹⁰:

- (1) Reduce the screen / TV time to <30 mts. / day
- (2) Take stairs instead of Lift / Escalator
- (3) Walk in the office for atleast 5 mts. Every hour
- (4) Avoid prolonged sitting
- (5) Use cycle for nearby activities
- (6) Park your car a distance from the shopping venue
- (7) Daily physical activity

CONCLUSIONS

(1) Every patients' prescription should have a proper documentation of the current Physical activity levels

(2) A structured, individualized prescription for physical activity should be documented on the prescription.

(3) Patients should be encouraged, counselled and motivated to use simple strategies to reduce sedentary time and engage in moderate physical activity at all times.

(4) At times, a referral to qualified physical instructor may be needed for further counselling.

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