

## Seven Wonders (Principles) for Managing Diabetes

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We can trace back diabetes to ancient scripts. It finds mention in all major religious scriptures. In Hindu religion, the famous mythological idol Lord Ganesha was reported to suffer from this so called 'disease of affluence'. His disease condition was rightly attributed to his life style. It is said that Lord Siva; father of Lord Ganesha made a magic herbal remedy which effectively treated his son.<sup>1</sup>

World's attention was drawn to diabetes prevention during World War II. Adolf Hitler, the great German dictator, had a depleted army and was at the Bing of defeat. His woes were compounded by imposition of sanctions from friends and foes. He mobilized the civilian population to the war front as a last option to save his pride. 'Obesity was the symbol of affluence' and Germans' spearheaded this slogan during their days of progress and prosperity. This period of German supremacy was centered on World War I. Consequently, close to fifty percent of German population was overweight and a majority of them were diabetic. At the crunch moment of Second World War, entire Germany was maintained on a single meal per day schedule. Obesity epidemic vanished due to economic sanctions leading to this restriction in food supply and imposition of compulsory rigorous physical and arm training as a need to save the national pride. As an after match, fifty percent of diabetics reported normal sugar level.<sup>2</sup>

Whether it is Lord Ganesha or the war ravaged Germans, a solution to this disease was always in sight. In recent times when the world is ravaged by diabetes pandemic, an effective search for a strategy to control its menace and alleviate human suffering has become the mandate of the day.

At no point in time, our knowledge about the disease was as sound as of now. Research over centuries has generated enough evidences based on which we can draft guide lines and make valid recommendations.<sup>3,4</sup>

In depth research makes available multiple

options. Sometimes the enormity of options creates confusion and chaos in the mind of beneficiary and beneficiary providers. In the present day scenario, such a situation prevails for diabetes more so for type 2 disease. Time is ripe to comprehend the situation and spell out an easy, valid and sustainable approach. One such approach is '**seven wonders (principles) for managing diabetes**'. The concept of seven wonders imbibes the latest evidences within its previews. The major components in focus are related to screening, profile control and lifestyle modification. This concept once well adopted in the clinical setting of primary care physicians can travel a mile in addressing the issue of diabetes.

Screening involves adaptation of well documented seven point ADA (American Diabetes Association) guide line. This simple, non- invasive questionnaire takes less than a minute of the physician's time. Persons with a score of > 9 warrant invasive blood test to establish or rule out diabetes.<sup>4</sup>

Profile control involves blood (serum) profiles, medication and self care. A person with a score over 9 in screening test should record fasting plasma glucose (FPG) over 7 mill-moles per liter in order to be considered as diabetic.<sup>3-5</sup> Cases diagnosed with diabetes must record and maintain a level of HbA1c (glycated hemoglobin) below 7% for effective control.<sup>6-10</sup> Cardiovascular risk reduction associated with diabetes can be optimized by controlling one's blood pressure and serum triglyceride. The recommended level for blood pressure is a reading not more that 130/80 mm. of Hg. and a fasting level for triglyceride less than 7 mill-moles per liter.<sup>11-14</sup> Once medication is initiated, it must continue for 7 days. Any change in regimen must come from the physician's desk. Commonly recommended self cares are foot care and care during hypoglycemic episodes. Diabetic foot should be dry and protected. Drying involves regular wiping of wet feet and pat drying. Protection is provided by use of comfortable foot wears both indoor and outdoor

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when up and about. Managing hypoglycemia requires use of oral glucose or honey. All diabetics are advised to make a bottle of honey or packet of glucose biscuit their constant companion. It is strongly advised that a diabetic must experience an attack of hypoglycemia in control setting like in the clinic of a physician so as to acquaint oneself to this emergency. Management of hypoglycemia involves administration of oral glucose or honey at a dose of 7x2 ml, with a repeat after 7x2 minutes if BG stays less than 4 mill mole/l.<sup>15</sup>

Life situations (styles) needing attention are: food, exercises, sleep and relaxation. Activities needed to be targeted are losing weight by 7% of the initial one in obese cases. This is achievable in most cases by inducing a negative energy balance by adopting a diet which is less by 700kcal per day. It is proved beyond doubt that weight loss in the range of 5% to 10% of initial body wt. can be associated with improvement in the lipid profile and subsequent cardio metabolic risk reduction. Most important focus in the diet is imposition of restriction on fat consumption. Saturated fat and trans- fatty acids should not contribute to more than 7% of daily energy need of diabetics. Other items needing restriction are sucrose and sucrose containing foods. Here also the principle of 7 is applicable. These food items are also required to provide less than 7% of daily energy requirement.<sup>16 -20</sup> Third item in the restriction segment is salt. Its consumption must be limited to less than 7/2 grams per day or even less (3grams).<sup>21</sup>

Life for diabetics is not always about restrictions. There are areas where a liberal policy can be adopted. This involves consumption of fruits and vegetables. From the recommended total of 7 servings per day; at least 3 should be for fruits and 4 for vegetables.<sup>17-19</sup> A plant based diet incorporating a 'rainbow concept' i.e. fruits and vegetables from all possible color in fact 'the more the merrier' must be highlighted.<sup>22</sup> Time has come

to popularize this '**diet of 7 principles**'. In fact, this recommendation holds good for otherwise normal individuals.

Traditionally, it is emphasized that management of diabetes rests on three pillars. They are diet, drugs and exercise. Ideal work out for optimal health involves a weekly regime spread over all 7 days. This involves three types of exercises. They are aerobics (endurance) and resistance exercise. Common examples for them are walking, jogging, cycling, swimming, skipping (all aerobic) and weight training (resistance exercise). Sequence of events in the exercise schedule is divided into 3 phases each of 7 minutes duration. The first phase is warm up and the third is cooling down. In between these two phases lies intensive work out. An effective intensive phase is marked by increase in heart rate (pulse rate) by 10 bits per minute from the resting level, presence of sweating in non air-conditioned setup, increasing awareness of one's respiratory effort and interruption in normal flow of conversation due to increased respiratory rate. This phase should be maintained for 7 minutes before gradual cooling down begins,<sup>23, 24</sup> There is no age bar to weight training. Only bar is not to overdo the bar. The weight on the rods must focus on toning the muscles. Pumping the iron to bulge them is not our motto. When doing weight, the ideal recommended routine is sticking to 7 repetition 3 times a day.<sup>25, 26</sup> This '**7 point work out**' should be strictly incorporated to the daily routine. If one finds it difficult, an alternate day routine can be advised.

Advocacy on rest, relaxation and improvement of self esteem are a neglected domain in diabetes care. Recent research shows the importance of these in taking diabetic care an extra mile. Sound sleep for 7 hours a day and relaxation exercises like yoga, meditation, tai chi etc. for a minimum of 7 minutes can lift the self esteem and psychological health of individuals.<sup>27, 28</sup>

### Seven wonders for managing type 2 diabetes

1. Screening by ADA approved 7 point questionnaire.
2. Diagnosis: FPG > 7 mmol/L (Fasting = no caloric intake for at least 8 hours)
3. Control: HbA1c ('A1c') < 7 % (Recommended targets for glycemc control), Serum TG < 7 mmol/L (fasting TG – fasting for > 8 hours) and BP<130/80 mm. of Hg. for cardio metabolic risk control.
4. Activities:
  - Weight loss = 7 % of initial body weight by adopting a reduction of 700 kcal / day (Negative energy balance). Weight loss of 5 to 10% of initial body wt. can be associated with improvement in the lipid profile of individuals.
  - Diet: Saturated fats and Trans fatty acids = 7 % of energy.
  - Sucrose and sucrose- containing foods < 7 % of energy.
  - Fruits and Vegetables = 7 colors; 7 servings.
  - Salt < 7 grams/ day.
  - Exercise: muscle toning, endurance (aerobics) and cardiovascular work outs. Work out = 7 days/ week; 7x3 minutes/day; Weight training = 7 repetition x 3 times/ day
  - Rest and relaxation: sleep for a minimum of 7 hours a day. relax by yoga, meditation, tai chi
5. Management of hypoglycemia: Oral glucose or Honey = 7x2 ml; Repeat after = 7x2 minutes (If BG < 4 mmol/ l. after glucose repeat sugar/honey).
6. Treatment: for 7 days/week
7. Time for target achievement: within 7 months.

Target achievement in diabetes control means maintaining A1C level at less than 7%, keeping triglyceride level below 7mill mole per liter, reducing body weight by 7%, adopting a diet of 7 principles, sticking to a 7 point work out frame, adopting to 7 hour sleep pattern and achieving these within a time frame of 7 months. These seven golden principles of diabetes management are coined as “**Seven wonders for diabetes**”. This concept can provide the much needed input for translational research on diabetes at community dwelling.<sup>28</sup> A sustainable and cost effective solution to the largest pandemic of today is seen hidden in it. Dedicated implementation of the suggested recommendations can address the need of over 90% of diabetics. However severe cases; which are far and few need specialist referral. The objective is to make life easy, colorful, and worth living for those millions who suffer from it and those billions waiting in the wing.

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