



# KADAMBINI ORTHOPAEDIC & SPINE TRUST

(Kadambini Charitable Trust )

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NEWS LETTER



Dear all,

I am back at Kalarahang , my mother's village, after 8 months of the first camp that was held here at Dhableswar temple on 2nd December 2012. In these 8 months we have had four health camps in Orissa. We have distributed medicines, diagnosed and directed patients who need surgery or hospitalization to appropriate hospitals and distributed health awareness booklets to around 2000 odd patients who attended these camps.

All this has been possible because of help and support from my family, friends and well wishers. I specially would like to thank my friends from Shusrutam (medical college friends), and Nobel 2005 (ravenshaw college friends) who have never said no to anything I have requested them to do.

In this follow-up camp at Kalarahang our aim would be to monitor all those who saw us at our first camp and assess their progress. We have also called school children from the village school. My aim is to do a musculoskeletal health screening, pick and guide cases that need treatment.

In these four camps that we have held, I have observed that there are four groups of people who attend these camps.

1. Elderly patients with generally frail health needing, health supplements, sympathy and counseling.
2. Women with small children who come with simple health problems and to take medicines for their children
3. Some genuine surgical cases who have either neglected themselves or not managed to find the right doctor or hospital yet.
4. Young unemployed youth who come looking for freebies & fun.

My concern is for the elderly patients. It is really disturbing to learn that even in villages old couples are living alone with no social security or help. Most of their children are in the cities doing jobs. We boast of our culture of tradition and high values, but probably that was all in the past. In reality old age is tough and is going to be tougher in future for us as well.

Doing health camps will not solve any of the above problems except give my friends and me the satisfaction that " every little helps."

I need encouragement, help and guidance from all of you who read this in my endeavor to carry on with activities of the Trust.

You can reach me by mail [spineshankar@gmail.com](mailto:spineshankar@gmail.com)

**Shankar Acharya**

Trustee (KOST-KCT), NOBEL 2005, Sushrutam 79, SPAI 76

# Diabetes-Causes, Prevention and Control

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## What is diabetes?

Diabetes mellitus, commonly referred to as diabetes, is a disease which is synonymous with high blood sugar levels. Normal blood sugar levels in the fasting state are below 100 mg/dL, usually between 60-100 mg/dL. After having a meal (i.e. in the post-prandial state), the blood sugar levels rise, and in normal individuals they return back to near normal levels in about 2 hours i.e. between 100-140 mg/dL. In patients suffering from diabetes, the fasting and/or post-prandial blood sugar levels are high. A fasting blood sugar level  $\geq 126$  mg/dL and 2-hour postprandial blood sugar level  $\geq 200$  mg/dL is diagnostic of diabetes. Additionally a random blood sugar measurement  $\geq 200$  mg/dL in presence of symptoms of diabetes is also indicative of diabetes. Recently, another criteria has been added to aid diagnosis of diabetes i.e. glycosylated haemoglobin (HbA1c) values  $\geq 7\%$  are also diagnostic of diabetes.

## Why do the blood sugar levels rise in diabetes?

In patients suffering from diabetes, there is an absolute or a relative deficiency of insulin. Insulin is a hormone which is produced by the beta cells of the islets of Langerhans in the pancreas. It is required for proper utilisation of the food components that we eat i.e. of carbohydrates, proteins and fats. In the deficiency of insulin, glucose remains in the blood and is not transported in to the body tissues/cells where it can be utilised or stored.

## What are the types and causes of diabetes?

Commonly, diabetes is classified in to type 1 and type 2. Type 1 diabetes is associated with absolute deficiency of insulin wherein the pancreas do not produce any insulin .It occurs in young, lean and thin persons, who require insulin for their sugar control. This type of diabetes usually occurs in early childhood or adolescents and less commonly in young adults. .

However, commonly (about 95%) patients have type 2 diabetes, wherein there is a relative deficiency of insulin. This is usually because of insulin resistance, a phenomenon where normally produced insulin action is deficient. It occurs classically in middle-aged individuals above 35-40 years of age, who are obese. In India, type 2 diabetes occurs a decade earlier than the West. With rapid urbanisation and increase in consumption of fast-foods supplemented by refined sugar rich drinks (fruit juices and cola drinks), and a sedentary lifestyle especially with television, computers, laptops and internet, type 2 diabetes is being seen even in adolescents and young adults. It can be managed with different types of oral drugs and/or insulin.

## Common symptoms of diabetes

The symptoms and signs of Type I and Type II diabetes are more or less similar. Many a times the patient is asymptomatic and diagnosis is by chance.

The patient usually complains of excessive hunger (Polyphagia), excessive thirst (Polydipsia) and frequent urination (Polyuria). There may be loss of weight. This is more pronounced in type I diabetes. Weakness and fatigue are common symptoms. Patient may often complain of tingling and numbness in hands, legs and feet. Sometimes, the patient might present with the symptom of blurring of vision which may lead to diagnosis of Diabetes.

## **How does one manage diabetes ?**

One of the primary goals in any diabetes patient is to keep the blood sugar levels within normal range. Type 1 diabetes patients, in any way require insulin therapy. Dietary modification and restriction is a valuable adjunct for type 1 diabetes patients. In type 2 diabetes patients, diet forms a cornerstone of therapy supplemented by regular physical exercise and if required, medications.

In dietary modification, patients should try to avoid refined sugars and distribute their caloric intake throughout the day. Ideally they should have three major meals and two minor meals, thereby dividing and distributing uniformly their total caloric intake into five meal times. In this way, the available insulin in the body is used more efficiently and since there is no bingeing i.e. no single major meal, the blood sugar excursions are not too high after any single meal.

Daily regular exercise is advocated and a brisk walk for 30-45 minutes daily is convenient and ideal. It helps reduce insulin resistance, thereby making the available insulin in the body more effective.

If blood sugar levels are not controlled on diet and exercise, patients need to be started on oral drugs and/or insulin. There are a variety of oral medicines and insulin regimens which can be offered to these patients. All patients should take their diabetes medicines after consultation with a doctor and one should never self-medicate.

Diabetics should carry a card indicating they are suffering from diabetes, because in patients whose blood sugar levels are well-controlled hypoglycaemia can ensue. Hypoglycaemia refers to low blood sugar levels and can be promptly remedied by providing something to eat, may be sugar, biscuits, toffees or sweets; to rapidly aid a rise in blood sugar levels. Symptoms of hypoglycaemia include sweating, irritability, lapses in concentration, palpitations, blurring of vision, lack of alertness, drowsiness, and if not treated, even coma can ensue.

Management also requires control of associated illnesses like obesity (excess weight), hypertension (high blood pressure), dyslipidemia (abnormal cholesterol and lipid fractions in the blood).

## **What are the risks associated with untreated diabetes mellitus ?**

It results in high blood sugar levels which can increase predisposition to infections- acute skin infections like furunculosis, cellulitis, fungal infections ; symptomatic or asymptomatic urinary tract infections, respiratory infections and among chronic infections- tuberculosis. Type 1 diabetes patients can develop 'diabetic ketoacidosis' because of very high blood sugar levels and can present with breathlessness (because of acidosis) and coma. High blood sugar levels in type 2 diabetes does not acutely result in coma but in elderly, non-ketotic hyperosmolar state can supervene which is associated with a high mortality.

However, it is the chronic complications of diabetes which are more dreaded. These complications arise because of irreversible glycosylation of the proteins in various tissues. They are responsible for the microvascular complications namely, neuropathy, nephropathy and retinopathy. Neuropathy is abnormalities of the nerves which can result in tingling and numbness of the limbs in the initial stages, and later on result in sensory loss and motor weakness in the limbs. Nephropathy results in gradually progressive decline in kidney function eventually causing end-stage kidney failure which mandates renal replacement therapy in form of dialysis or renal transplantation. Retinopathy can result in loss of vision in one or both eyes. There are several drugs which are available and can control these microvascular complications of diabetes, but reversal of these complications has not been possible, except in the very early stages. Therefore, it is imperative that we prevent the onset of these complications.

It is imperative that everyone who is overweight or obese, has high blood pressure, has a first-degree blood relation of diabetes or kidney disease, has lipid abnormalities, has a history of recurrent infections, has unexplained weight loss should get himself screened for blood sugar testing- both fasting and 2-hours post-75 g glucose. After the age of 40 years, one should regularly get himself or herself screened for diabetes. Spreading awareness about the diseases, early diagnosis and educating the patient and the public about the various aspects of diabetes are important to control the present-day epidemic of diabetes. This short article is just to appraise the readers about some aspects of diabetes.

# FIRST AID IN SPINE INJURY PATIENTS

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Spinal injuries can lead to permanent disability and paralysis. Knowing how to properly treat someone who has had a spinal injury can lower the risks of damaging the spinal cord. Spinal cord injuries can cause long-term, irreversible damage and death.



- Know when a person is at risk of a spinal cord injury. Below are some signs of spinal cord injury. If you are treating someone with these symptoms, follow the steps below
- Victim reports severe pain in neck or back.
- Victim cannot or will not move neck.
- Victim has fallen on, or has suffered trauma to the back, neck or head.
- Head trauma with ongoing effects on consciousness.

Call for emergency services. Medical professionals will be better able to assess and manage potential spinal injuries, and will have backboards and special equipment for moving people with these injuries.



Do not move the victim unless he is in immediate danger of further injury or you need to open an airway for them to breathe

Stabilize the victim to prevent any movement of the head, neck, or body. You have to keep the victim totally still until professional help arrives if possible.



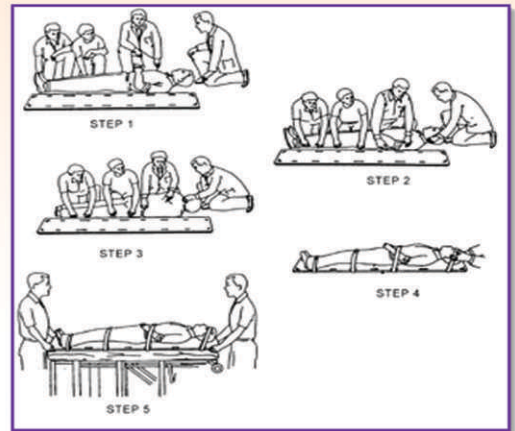
Do first aid without moving the victim's head or neck. If the person is not breathing or showing signs of circulation, begin CPR but do not lift the chin to open an airway. Instead, you should gently pull the jaw forward. Wait for help to arrive. Stay with the victim until help can arrive.

Your best choice is to avoid moving the person if at all possible. However, if you must move the victim to avoid further injury, follow these steps.

- Pull them by their clothing. Grab a shirt collar and use your forearms to support their head while pulling the body in a straight line. This is a preferred method as the victim's head is braced while moving.
- Pull the victim with their feet or shoulders. Use both feet, both shoulders, or both arms pulled over the shoulders.
- Keep the neck and torso of the body as straight as possible, and pull the victim in a straight line. Do not pull the body sideways!

### ROLLING A SPINAL INJURY VICTIM

Use at least two people if you must roll a victim over. If you must roll a spinal injury victim over to prevent choking on blood or vomit or other harm, use two people. Roll the victim over in such a way that the neck, back, and torso move as one unit. Do not allow the body to twist



### WARNING

- Any movement of a victim with a spinal injury may result in paralysis or death.
- Do not try to move the victim unless he is in immediate danger!
- Damage to the spinal cord is permanent.
- If a victim is unconscious or has a head injury, automatically assume they have a spinal injury.

### ACKNOWLEDGEMENTS

This monsoon news letter will coincide with the 5th KOST camp. I have been extremely lucky to be able to hold these camps so successfully in Odisha. A successful camp needs a lot of hard work and team effort. I will be failing in my duties if I do not acknowledge all those who helped in the success of these camps.

I thank Mr. U. P. Mishra (Uma mamu), Mr. Santosh Babu, Sarpancha Kalarahanga village and Headmistres Mrs. Bijayalaxmi Mohanty for having organized this fifth camp at Kalarahanga Patia, Bhubaneswar. Dr. Tanmaya Panda and Dr Sivaji Patnaik have been instrumental in aranging doctors for the camp.

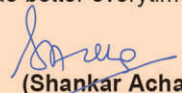
I thank all my friends who have spared their valuable time for their humane service. All my friends from NOBEL 2005 have always supported wholeheartedly for the success of the camps.

All members of SUSHRUTAM ( my medical college friends) have gone out of their way by spending their time, energy and money to come and offer their services. I thank my family for their constant encouragement and support to continue these activities.

I am grateful to Gaurav Anand , Sumanta and his team from Stadchem Pharma,who have always gone out of their way to provide logistics for the camps. Other pharmaceuticals have helped me with medicines namely Wanbury, J&J, Lupin, Intas, Zuventus, Novartis, Sun Pharmed, Macleods Pharma, Reddy Lab & many others

I thank my Delhi team namely Rakesh Bhusan, Sandeep Dhull, Sailesh Tiwari, Satish Kumar and others for arranging medicines for the Camp.

I thank the patients attending the camps for having put their trust in us and encouraging us to do better everytime.

  
(Shankar Acharya)

Trustee KOST, Member NOBEL2005, Shustrutam79, SPAI 1976

# Calcium preparations available in the market : Which one to choose?

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Calcium is a micronutrient, which has an important role in various body functions like maintenance of bone strength, nerve conduction, muscle contraction, cardiac function, integrity of membranes, and blood clotting. It is present mainly in bones and teeth (99%) and remaining 1% in extracellular fluid and soft tissues. It is important to consume enough calcium to maintain adequate blood and bone calcium levels.

Calcium is easily available in food products like milk and other dairy products, dark green leafy vegetables and products fortified with calcium. Vitamin D deficiency which may be due to reduced sun exposure or deficient dietary intake hampers active absorption of calcium in the gut.

Inadequate calcium intake early in life can lead to osteopenia and osteoporosis in old age. For people who cannot meet their daily requirement of calcium by food, need calcium supplements i.e. in individuals with osteopenia or osteoporosis, perimenopausal and postmenopausal women, pregnant and breast feeding females, women with prolonged amenorrhoea, residents of long-term care facilities and in individuals who are lactose intolerant or receiving chronic corticosteroid therapy.

Calcium supplements are readily available over the counter and with so many calcium preparations in the market; it is very difficult to choose the right one. The efficacy of any calcium preparation essentially depends on amount of elemental calcium and the quality of the calcium supplements. Elemental calcium is the amount of calcium in a salt. It is expressed as percentage or amount of calcium per gm of a calcium salt. The amount of elemental calcium in different minerals is given in

Table 1.

Calcium salt	% Elemental calcium content per gm of salt
Calcium carbonate	40%
Calcium chloride	27%
Calcium acetate	25%
Calcium citrate	21%
Calcium lactate	13%
Calcium gluconate	9%

The critical evaluation of different calcium salts is given below:

Calcium carbonate

Calcium carbonate supplement is the cheapest and easily available calcium preparation in the market. It can be obtained from dairy products, leafy greens, and a variety of other sources. If one is not getting enough dietary calcium, calcium carbonate makes an inexpensive supplement. Although it contains the maximum amount of elemental calcium (40%), it is not as well absorbed by the body as other types of calcium and one may need to take more calcium carbonate as compared to any other salt. It is commercial available preparation in the market is Shelcal.

Coral Calcium is a good source of calcium and minerals. It is a type of calcium carbonate which comes from above-sea fossilized deposits, or below-sea dredging operations which uses the coral sands, mainly from Okinawa, Japan. It was shown to be 100% absorbable and the most bio available. It is commercially available in the market with the name of tablet Corcium.

### Calcium lactate

Calcium lactate occurs naturally in some foods, including dairy products. Milk is an excellent source of calcium lactate; there is approximately 300 mg of calcium in a single cup of milk. Calcium lactate pills vary in their quantity of calcium; many pills contain i.e. 300 to 500 mg of calcium each, available in the market as tablet Lactocal. Calcium lactate has a lower amount of elemental calcium or calcium available for absorption (13%), compared to many other calcium salts. The body absorbs supplemental calcium lactate more easily when it is taken with food. Calcium lactate tablets may cause side effects, including nausea, vomiting, anorexia, constipation, dry mouth or increased thirst and frequent or increased urination.

### Calcium citrate

Calcium citrate salts are quite soluble due to the negatively charged particles. It can be consumed with or without food and delivers a significant nutritional benefit to individuals of all ages. The composition of calcium citrate makes it a particularly beneficial calcium source for individuals with hypochlorhydria or achlorhydria, which generally includes elderly & those on medications that decrease gastric acid secretion. It is also recognized as a calcium source that does not increase the risk of kidney stones, and in fact it protects against stone-forming potential. The versatile nature of calcium citrate makes it a convenient and practical calcium salt for use in moist foods and beverages. It is costly as compared to other sources of calcium commonly used for fortification (e.g., calcium carbonate and tricalcium phosphate). As calcium citrate supplements contain only 21% calcium, there is need to take more tablets or capsules to make the dose equivalent to that of calcium carbonate; the only drawback associated with it. A requirement for more tablets may affect compliance. It is available in the market as tablet Triple A Cal, Milical.

### Calcium formate

It is highly soluble calcium salt containing 30.8% of elemental calcium. The high solubility and calcium content of calcium formate suggests that it might be an efficient source of calcium for dietary supplementation.

### Hydroxyapatite preparation

It is the crystalline form of calcium phosphate salt that is found in the human skeleton. Side effects are constipation. It is available in the market as tablet Calex. Calcium-fortified beverages are increasingly available in the marketplace. They are a convenient and popular way to increase calcium intake and are especially helpful for individuals who have difficulty swallowing large tablets and for children, vegans, and individuals with dairy allergies or intolerances.

### MX Calcium Complex

It has not one, but two types of essential calcium:

- Calcium Citrate: More dissolvable and absorbable than calcium carbonate, this citrate form of calcium is especially effective for those with less than optimal digestion. Calcium Citrate not only slows bone loss, but has been shown to actually stop it from progressing.
- Hydroxyapatite: This is an all natural form of calcium produced from whole bone extract. Containing all the naturally occurring minerals found in healthy bone, hydroxyapatite not only supports healthy bone structure, it is thought to increase bone density all on its own.

One should remember that calcium preparations must be preferably given full stomach for better absorption. If patient is taking thyroxine tablets, H2 blockers and protein-pump inhibitors, tetracyclines, biphosphonates and quinolone antibiotics, there should be 2-6 hours difference between them and calcium tablets.

### Vitamin D preparations

Vitamin D has an important role in calcium absorption and maintainance of bone strength. As given below in table 2, the addition of vitamin D to the calcium tablet will depend on the type of vitamin D deficiency. In primary vitamin deficiency as in inadequate sun exposure or inadequate nutritional vitamin D intake any type of vitamin D supplementation is adequate. But in primary 1,25OH D3 deficiency (in renal diseases) and in vitamin D resistance cases i.e. ageing (associated with reduction in vitamin D receptor concentration), higher levels of 1,25 OH D3 is needed to produce same biological action. Thus one should have combination of calcium with calcitriol or alphacalcidol .

**Table 2**

Type of Vitamin D deficiency	Treatment
Primary Vitamin D	Vitamin D or Alfacalcidol or Calcitriol
Primary 1, 25(OH)2D3 deficiency	Calcitriol or Alfacalcidol
1, 25(OH)2D3 Resistance	Calcitriol or Alfacalcidol

**Conclusion :** One can choose the calcium preparation according to patient's acceptability and affordability.



## DIVINE

Painting by : Sangeeta Rath

The proceeds of the sale of this painting will go to the **KADAMBINI CHARITABLE TRUST**. I am glad to be a part of this initiative in my small way of help in the good work you are doing.

### GLIMPSES OF FOURTH HEALTH CAMP AT SATYABHAMAPUR



Please visit my web site  
[www.spinesurgeon.in/india.com](http://www.spinesurgeon.in/india.com)  
 for free download of  
 Back & Neck exercises chart.

