



MARUTHUVA VIVEKAM

Doctors Advice - For a Healthier Life



Plus:

***Kidney Failure: Myths
and Reality***

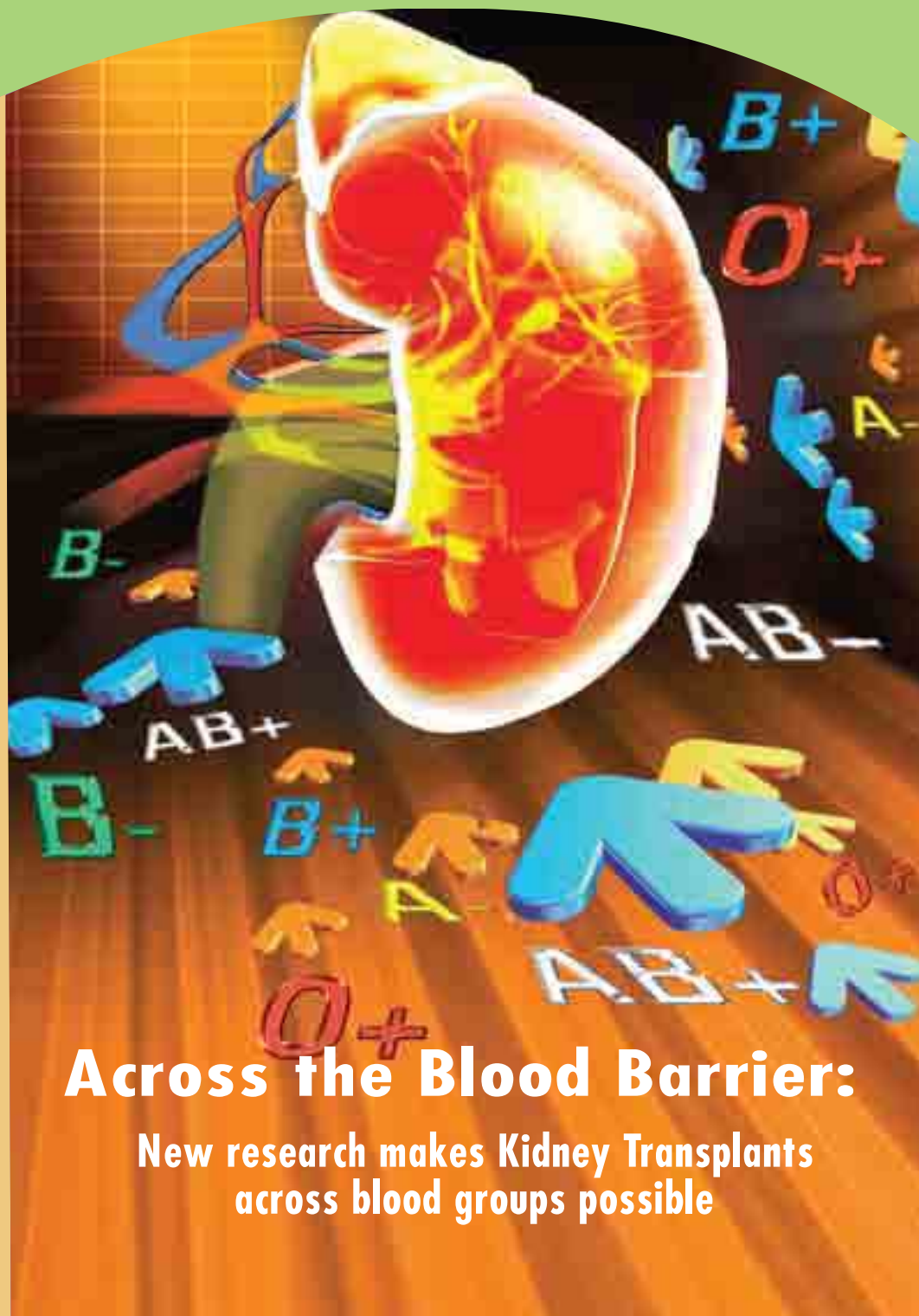
***What every woman
should know about
urinary tract infection***

Articles by:

Dr. Rajan Ravichandran

Dr. Ganesh Prasad

July 2008 Vol:11



Across the Blood Barrier:

**New research makes Kidney Transplants
across blood groups possible**

From the Chairman's Desk

Front Piece



Dear Friends,

Greetings. This issue of Maruthuva Vivekam is dedicated to Nephrology. Why Nephrology? You may ask. Just consider - that 20% of our country's population suffers from diabetes. Most people with prolonged diabetes develop kidney disease. Even if 1% of them contacts kidney disease, the number of people needing kidney treatment will be tremendous. That's why we have launched the MIOT Institute of Nephrology. We will not only be providing the best team and facilities but we also want to be proactive and participate in research to bring the latest treatments to India.

I hope you will find this issue useful. Do mail me feedback at enq@miothospitals.com

Good luck and good health!

Mrs. Mallika Mohandas
Chairman, MIOT Hospitals

Laughter is the Best Medicine



WHY an Institute for Nephrology ?

As an active Orthopaedic Surgeon, dealing with trauma and surgery of elderly people with chronic renal failure, I have long realized the importance of Nephrology (ailments of the kidney). In poly trauma with multiple injuries, when patients are transported over a long distance and they develop kidney problems with acute renal failure. Some of them respond with therapy and some of them require help in the form of dialysis and looking after by a Nephrologist.

Sometimes we perform Joint Replacement Surgery for patients who suffer from chronic renal failure and to get them into

optimum condition before surgery, we need the help of a Nephrologist. This would require the presence of an in-house Nephrologist in the hospital. We started a small unit with the brilliant and dedicated Nephrologist, Dr. Ganesh Prasad, who has solved many of the renal problems faced by my patients.

No department can be static! To have the cutting edge of technology in all fields, we need to have men (several specialists) and material. This was realized by Dr. Rajan Ravichandran, a renowned Nephrologist, who has shifted completely to our institution. We now have state-of-art Nephrology

Unit, with 100 patients beds. we can offer dialysis to nearly 30 patients everyday and kidney transplants to about 20 patients a month. MIOT has provided him with the equipment he wanted and we shall continue to support him in every way.

We are all familiar with the problems faced by Nephrologists because some unscrupulous doctors commercialized the speciality. I am sure with honesty, dedication, diligence and compassion, MIOT Institute of Nephrology will provide great succour to patients with chronic renal failure.

Prof. Dr.P. V. A. Mohandas





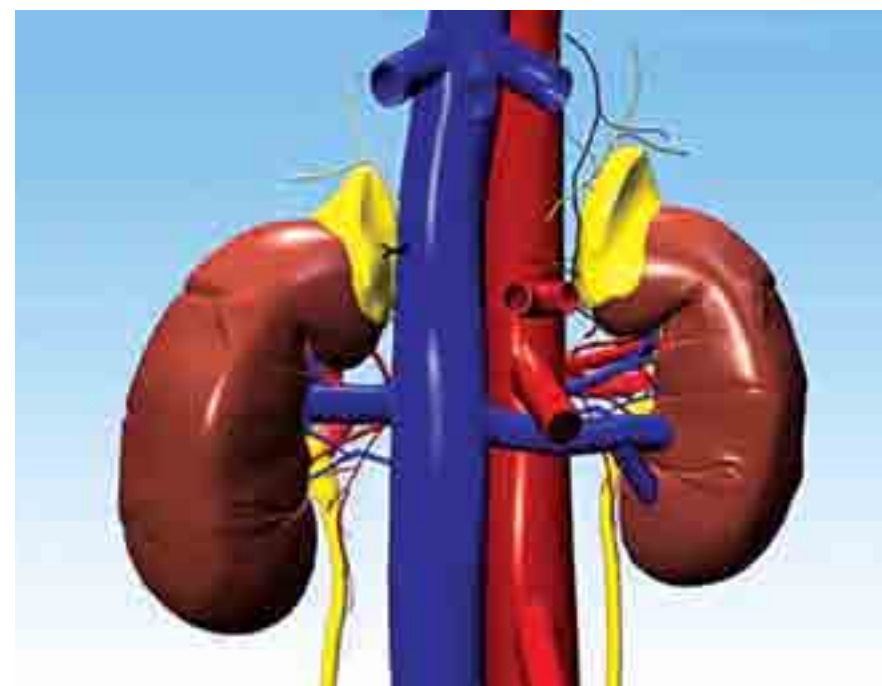
Your Kidneys : The Inside Story

We take care of our hearts and we monitor our sugar and BP, but what do we know about our kidneys?

The kidneys are responsible for maintaining the body's internal environment i.e. the composition of the fluid that bathes each and every cell in the body. Hence the optimal functioning of every organ from head to toe depends on the functioning of the kidneys. Of course, they are also responsible for removing the waste products of metabolism of the food that we eat. This includes the various medications consumed by us. They also have three important hormonal functions in relation to - blood production, control of blood pressure and growth of bones.

How does the kidney perform these functions?

The kidneys are two bean shaped organs weighing about 150 gm each located in the loin (back). They receive one fourth of the cardiac output i.e. the blood pumped by the heart, which is equal to almost 1.25 – 1.5 litres per minute. About 180 L of fluid is filtered in a day, out of which only 1 to 2 litres comes out as urine. The rest of the fluid is reprocessed in the microprocessor units called nephrons. Each kidney has one million nephrons. That is why a physician treating kidney disease is called a nephrologist. The reprocessed fluid comes from the kidney and is stored in a reservoir called bladder and excreted as



urine. Hence it is possible that even if 90% of the kidney is damaged, a patient can still pass normal quantity of urine.

What are the types of kidney failure?

Basically a kidney failure can be potentially reversible and happens over a short period of time suddenly. This is called acute kidney failure. Here the kidneys are normal in size and only the function is deranged, either because of less blood reaching the kidney as in low blood pressure or due to toxins or drugs that damage the kidney. Here, the patient has severe symptoms since the kidneys have failed suddenly and the body does not have time to adapt to this

kidney failure. Patients may require temporary treatment like dialysis and often recover fully. Kidney transplantation is not indicated in this condition.

The second type of kidney failure is the chronic kidney failure or chronic kidney disease (CKD). Here the kidneys are progressively and slowly damaged over years. Commonest causes are diabetes and blood pressure. The kidneys start shrinking in size and ultimately the patient cannot live without dialysis or kidney transplantation. This is called End Stage Renal Disease (ESRD). Here the patient requires permanent or life long dialysis or till kidney transplantation.

Article

Dialysis? What's that?

Dialysis is a process where an exchange occurs across a semi permeable membrane. When the blood is withdrawn and passed through a membrane and returned back to the patient, it is called Hemodialysis. When the body's peritoneal membrane i.e. the lining of the abdomen is used to exchange with the chemical solution, it is called **Peritoneal Dialysis**. Hemodialysis involves coming to the hospital weekly twice or thrice and being connected to the machine for at least four hours. It is an expensive procedure, involving a cost of about Rs. 15000 – 20,000 per month. Peritoneal Dialysis can be performed at home by the patient himself and involves a similar cost. Both types of dialysis have their own merits and disadvantages. Hemodialysis is basically more effective than Peritoneal Dialysis in removing fluid and small molecular weight substances.

Transplantation: The Permanent Answer

Once a patient reaches the stage of End Stage Renal Disease (ESRD), transplantation is the only cure. Since the reserve capacity of the kidneys is extremely high, it is possible to donate one kidney and still the person can live normally. The kidney that is left behind actually increases in size and almost does the work of both kidneys. Kidney transplantation is being done for the last almost 50 years in the world. Donors can develop high blood pressure or increased protein excretion over the years. Hence



they require to be followed up once a year after transplantation. It is possible to remove a person's kidney either by open surgery or by laparoscopy. Normally a donor has to stay in the hospital for about a week. He can join his normal work one month after the surgery.

How safe is it?

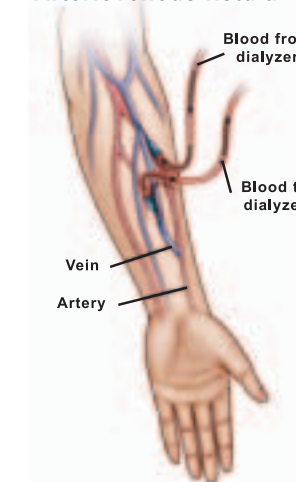
The person who receives the kidney is called the recipient. Both donor and recipient undergo surgery simultaneously. The kidney that is removed is cooled in ice and perfused with a special fluid to preserve the cells. It is then transplanted in the patient in the front lower abdomen either on the right or left side. So the recipient has usually three kidneys since his two old kidneys are not removed – except in certain situations. Normally the transplantation takes about 3 to 4 hours. Both the donors and recipients recover rapidly and can be discharged within a week from the hospital. The recipient is also permitted normal work after three months. He has to be on lifelong drugs (immuno-suppressive drugs) to lower the body's

resistance so that he does reject the kidney. This definitely makes him more prone to infections. The success rate of kidney transplantation is 95% plus in the first year. Over years, it does come down to almost 80%.

Is it legal?

Legally, after the organ transplantation bill was introduced in this country, only near relatives can donate kidney. The term near relative refers to mother, father, brother, sister, children and spouse. Except the spouse, other near relationships can be established by tissue typing. If a person is not near related, still it may be possible to donate kidney if he can prove that the donation is not for any commercial basis. This has to be established in front of the authorization committee. Once the committee approves, it is possible to do such kidney transplants also. Lastly, cadaver transplantation is the other form of transplantation where the kidneys can be retrieved from a brain dead victim. This involves certain legal formalities. The success rate of such a kidney transplantation is usually less by 10-15%.

Arteriovenous fistula



ARE YOUR KIDNEYS OK?

You are at risk from kidney disease, if you are obese or smoke or are diabetic and have hypertension or if simply, you are over 50 years of age.



Prevent your healthy kidneys from damage

Chronic non-communicable diseases including chronic kidney disease – have now replaced communicable diseases as the leading threat to health. About 1 in 10 adults have some degree of chronic kidney disease. Kidney disease is a “disease multiplier”. It causes death in many with diabetes and hypertension and usually is a prelude to a heart attack.

Chronic Kidney Disease (CKD)

CKD is present when individuals have an increase in excretion of albumin in the urine or a major decrease in kidney function of GFR (Glomerular Filtration Rate). This may lead to complications such as high blood pressure, anemia, and heart and blood vessel disease.

Causes:

The most common causes of CKD have been inflammatory diseases of the kidney, infections, obstruction in the urinary tract and inherited

disorders like polycystic kidney diseases. Diabetes and hypertension have also emerged as common causes.

Symptoms:

Loss of appetite, frequent vomiting, hiccups, frequent urination during night, bleeding with urine, pain in urination with fever, swelling on face, high blood pressure and anemia (deficiency of blood) are some of the symptoms which indicate kidney disease.

Detection:

Simple laboratory tests are done on small samples of blood and urine to measure creatinine content and calculated GFR and albumin excretion.

When CKD is undetected

- Slow and steady loss of kidney function leading to kidney failure and the need for dialysis or transplantation.
- Premature death from associated cardiovascular disease (CVD)
- Individuals who appear to be healthy who are found to have CKD may not develop kidney failure but have a tenfold risk of dying prematurely from coronary disease.

Prevention and delay

Screening must be high priority in subjects considered to be at high risk of kidney disease, namely:

- Patient with diabetes mellitus and hypertension
- Individuals who are obese or smoke
- Individuals over 50 yrs of age
- Individuals with family history diabetes mellitus, hypertension and kidney disease

Current kidney protective treatments should now be extended to those with early stages of renal failure

Key preventative measures

Measures that have been defined and proven successful in protecting against both renal and cardiovascular diseases:

- Screening for proteinuria and decreased GFR.
- Reduction of high blood pressure – the lower the blood pressure, the lower the GFR decline
- Control of glucose, blood lipids and anemia
- Quitting smoking
- Increased physical activity
- Control of body weight

The Solution: Early detection & prevention

The majority of individuals with early stages of CKD go undiagnosed. The early detection of kidney impairment is essential and allows suitable treatment before kidney damage or deterioration manifests itself through other complications.

Simple tests are now available for serum creatinine, calculated GFR and urine albumin that allow early detection of CKD.

In developing countries like in India less than 10% of all patients receive Kidney Transplants because it is unaffordable. The only feasible response to this health and socioeconomic crisis is to forestall chronic disease by early detection.

DR.GANESH PRASAD

DNB(Gen Med) DNB (Nephro) MNAMS

Across Blood Barriers

New research makes kidney transplantation across blood groups, a reality.

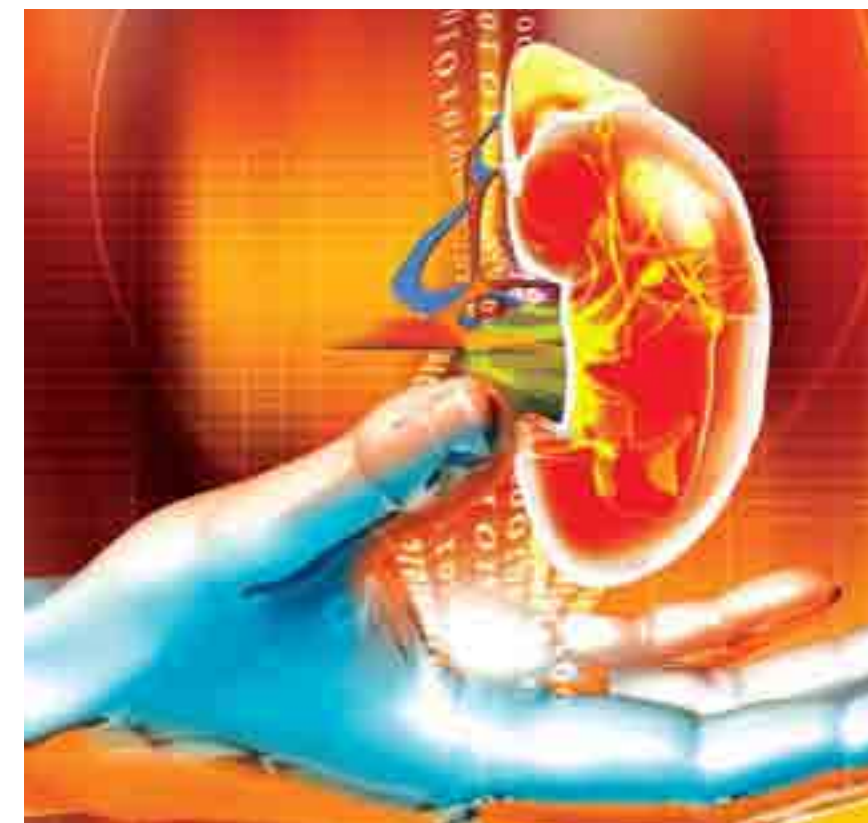
The demand for kidneys is expected to increase due to the rising rates of renal failure, but the donor supply is likely to remain limited. These approaches are increasing the opportunities to complete a successful transplant in those who need them.”

Lloyd Ratner, MD

Kidney transplantation is usually done within blood group compatible people. The donor (who donates the kidney) and the recipient (who receives the kidney) should usually be the same blood group or compatible blood group. If blood group incompatible transfusion is done, it results in serious reactions. Likewise blood group incompatible kidney transplantation (across the blood group) results in the rejection of the transplanted kidney. In the past, blood group incompatible transplantation was not performed. But now pathbreaking research is opening up new possibilities.

A Closer Look at Blood Groups

The surface of human blood cells is coated with proteins called ABO antigens. There are two types of antigens – A and B. People who express both antigens are AB blood group. People who express A antigen are A group, and B antigen are B group. People who do not express both antigens are O group. Antibodies are present in the blood, which can destroy any organ if it is directed against it. Early in life, humans develop antibodies against antigens, which are absent on the blood cells. For example, A group people have antibodies against B antigens. B group people have antibodies against A antigens, O group people have antibodies against both A and B antigens and AB group



people have no antibodies. ABO antigens are important in kidney transplantation as kidneys also express these ABO antigens.

Pioneering Research: As the number of patients needing renal transplantation went on the rise and there was a shortage of donors, research into across blood group transplantation became a priority. Today across blood group transplantations are done by removal of antibodies and use of powerful immunosuppressive medications. Removal of antibodies can be done by a dialysis technology called

plasma exchange. These procedures are being done at specialized centers across the world. Japan is a pioneer in the field of incompatible blood group transplantation. The benefit of doing across the blood group transplantation is that it offers a chance for people whose donor has an incompatible blood group. Such patients were normally not offered transplantation. When successful it can help achieve a near normal life like other kidney transplantation patients.

Dr. RAJAN RAVICHANDRAN

MD.MNAMS,FCAP(USA)FRCP(EDIN)



Kidney Failure - Myths & Reality

*Is kidney disease hereditary?
Is beer drinking good for kidneys? Read on to find the answers.*

There has been a remarkable increase in the incidence of kidney disease in the last decade. This is due both to better diagnostics and increased detection as well as an increase in the occurrence of the disease itself. High occurrence of diabetes, hypertension, lack of physical exercise, use of drugs toxic to the kidney are some of the causes that have contributed to this rise.

What does the kidney do?

The basic functions of the kidneys are :

- Maintenance of the internal environment - that is the pH, water content and electrolyte content of the body so that each and every cell and organ in the body can function properly. (That is why when the kidneys are diseased, the symptoms and signs are sometimes found in different organs.)
- Excretion of various waste products of metabolism and drugs from the body. Again a very important function which explains why drugs should carefully be used in kidney patients.
- Production of hormones responsible for the bone growth and blood production by the marrow.

Acute or Chronic?

- **Acute** - This means a sudden reduction in the kidney function due to reduced blood supply following dehydration - due to conditions like gastroenteritis, heart attack, blood loss etc. If the underlying disease is not rapidly corrected, the patient may die. On the contrary if the underlying disease is corrected, the patient recovers fully and may require only temporary dialysis.
- **Chronic** - The most important cause of this is diabetes in middle aged or elderly. High blood pressure is also an important factor and can combine with diabetes to produce a devastating outcome. Both the above conditions affect the kidney slowly over the years. The body can adapt itself till ninety percent of the kidney is damaged and hence patients do not have any symptoms. The detection is done by lab testing of the urine and blood. Albumin leak is the earliest warning of kidney damage. Subsequently the urea and creatinine rise in the blood indicates the severity of the kidney failure. It is unfortunate that still many patients are being detected at

this stage and not at the early stage of albumin leak when corrective measures can be taken.

Another curse of modern life is excessive medication which includes pain killers, tonics and various alternate or native medical preparations. Over a long period of time, these drugs tend to damage the kidney. Needless to say patients are often asymptomatic (show no symptoms) and only after a careful laboratory evaluation is the kidney disease deduced.

Myths about Kidney Diseases

- *Kidney disease is hereditary* – In reality very few kidney diseases are hereditary.
- *Single or double kidney failure* - All medical diseases affect both the kidneys. The word kidney failure refers to both the kidneys not functioning. If a single kidney isn't functioning the blood urea will not go up.
- *Dialysis once started has to be permanent* – Again this depends on whether the patient has acute or chronic kidney failure. Acute failure might require only temporary dialysis.
- *It is not safe to donate a kidney* - If the general health of the donor is normal without diabetes or blood pressure, it is safe to donate a kidney. Donors have led a normal life including marriage and childbirth.
- *Water should be consumed in large quantities* by patients with kidney disease – on the contrary a kidney patient must restrict water consumption as maintenance of water balance in the body is one of the functions of the kidneys.
- *Beer drinking is good for the kidneys* - beer, because of its large content of water produces increases urine output and does not improve kidney functioning.
- *Salt substitutes are good for kidney patients* - Salt substitutes being potassium chlorides are more dangerous in patients with kidney failure as potassium excretion is already affected.

Changing Diets : Do's and Don'ts for Kidney Patients

*Restrict salt? Avoid tomatoes? Drink plenty of water?
A look at the changing patterns of diets for kidney patients.*

Traditionally diet plays an important role in any disease. The first doubt the patient has is what to eat when he has any medical problem. To understand the concept of diet in patients with kidney disease, we should know briefly the functions of the kidneys.

● Basically the kidneys excrete the products of digestion. The food we eat is broken down into simpler components and after absorption energy is produced in the body. The most important component of the food (ie) protein is broken down into amino acids which then release ammonia as an end product. Ammonia is removed by the kidneys. Similarly animal proteins produce acids which are excreted by the kidneys. Hence when kidneys are diseased the blood urea levels go up and acid accumulation takes place in the body.

● The second important function of the kidney is to maintain the internal environment of the body (i.e) the acid-base and electrolyte of water and it is the responsibility of the kidneys to correctly remove the exact quantity so that we are neither dehydrated nor swollen up. Similarly we take lot of salt in our diet to improve the taste of food and it becomes the duty of the kidneys to remove this extra salt so that we do not get high blood pressure. Various minerals including potassium are found in natural food which again are excreted by the kidneys.

When to avoid protein

● Historically the first diet that was recommended for patients with kidney failure was Rice Potato diet based on the concept that proteins should be avoided to the maximum and the patients should get energy from



carbohydrates. This would then result in less production of urea. Subsequently the 20gm protein diet was introduced. This amounts to a total reduction of protein including vegetable and animal proteins. The biggest drawback is that while urea levels came down patients become under nourished. Hence the present concept where protein restrictions mainly applies for the Western diet to about 40-50gms per day. The vegetarian diet does not contain large protein to be restricted. So average Indian vegetarian diet is more or less tailor made with regards to the protein intake in patients with kidney failure.

● It is also important to differentiate whether patients suffer from acute or chronic kidney failure. In acute kidney failure where there is chance for recovery of kidney function, nutrition is important. Hence protein restriction is not advocated. Whereas in chronic renal failure where the kidneys are irreversibly damaged protein reduction to 40gms per day especially animal protein is advocated early in the disease to prevent progression. When the disease is advanced protein restriction is

not recommended since patients will become under nourished.

Salt: All patients with kidney disease do not require salt restriction. Only those who have swollen legs do. Salt substitutes are dangerous since they contain potassium.

Water: There is a misconception that large quantities of water will improve kidney function. On the contrary, in patients with kidney failure, water accumulates in the body. Hence water or fluid restriction is important which will vary from patient to patient.

Potassium: Patients with kidney failure require potassium restriction in the diet. High potassium is found in fruit juices, coconut water, dried fruits, red meat, etc.

Diet for patients with Kidney Stones

Originally since majority of the stones are calcium oxalate stones, low calcium and oxalate diet were recommended. However it has been proven that restriction of calcium leads to loss of calcium in bones while stone formation continues. Similarly tomatoes are considered responsible for stone formation which is incorrect. The fact is, it is the high protein in the diet that leads to uric acid formation. Also high salt in the diet drags the calcium along with sodium in the urine resulting in stone formation.

A low protein, low salt diet is best for patients with kidney stones. Similarly when acidic urine results in a burning sensation, a diet with large quantities of vegetables makes the urine alkaline and relieves the symptoms.

Dr. RAJAN RAVICHANDRAN,
MD, MNAMS, FRCP(EDIN), FACP(USA)



Water: when too much is not good

**Health books urge us to drink plenty of water.
But is water always good? Not if you're a kidney patient...**

Seventy three year old Mr. Ketan Shah was admitted to hospital for drowsiness and abnormal behavior that had been evident for over a week. There was no past history of diabetes, blood pressure or any other illness. His CT scan too was normal. A test revealed the diagnosis - the plasma sodium (salt level) was found to be low. Investigation revealed that he had a few litres of water every day.

Mr. Venkat an 83 old patient was brought to the hospital with a history of weakness, difficulty in urinating and walking. He had high blood pressure. A few weeks earlier he had complained of feeling weak. He was diagnosed as being depressed and was prescribed anti depressants. His condition deteriorated and he was unable to move or urinate. Examination was normal except for a distended bladder. Again all investigations were normal except the plasma sodium level. Antidepressants drugs were withdrawn. His water intake was restricted and he was given intravenous normal saline. With that he improved remarkably. His plasma sodium also returned to the normal range.

Both these cases demonstrated the lurking danger of Hyponatremia or low plasma sodium, as a result of indiscriminate water intake in persons whose " free water clearance is impaired".

Why legs swell

Our diet varies tremendously both in salt and water content. Our dietary intake of salt varies from 10-15 grams of sodium chloride a day. The kidneys can vary the excretion of sodium from 0 to 20 gms a day. Because of this the sodium in the body is maintained in balance in spite of a variable diet. But conditions like heart or liver failure or kidney disease can impair this function resulting in accumulation of salt in the body. This manifests as swelling of the legs because the excess sodium retains water.

The dangers of salt imbalance

Similarly, our water intake is highly variable, dependent on the sensation of thirst. There is an osmostat in the brain which senses the tonicity of the blood and which produces an ADH (hormone) which stimulates the thirst centre in the brain as well as reduces water loss in urine. This helps the kidneys to maintain a balance inspite of a variable water intake. The kidney can vary urine output from 300 ml. to 10 litres per day. The ability of the kidneys to get rid of excess water from the body is called " free water clearance". Because of this plasma sodium is normally maintained between 135-145 meq/l.. A Plasma sodium less than 135 meq/l is called " Hyponatremia".

How common is Hyponatremia

Hyponatremia as commonly seen in hospitals, in 10-15 per cent of all patients. In critical care units, its incidence can be as high as 30 per cent. It is a very important factor determining the mortality or outcome in critically ill patients.

Causes:

Any condition that leads to impairment of free water clearance by the kidneys results in Hyponatremia. For example vomiting, diarrhoea, burns, use of diuretic drugs (increase urinary output). etc., upset the balance of sodium and water in the body.

Sometimes due to disturbances (brain tumours, head injury) in the osmostat the ADH is inappropriately secreted causing hyponatremia.

Two important groups of drugs are worth mentioning- (a) Diuretics which increase the loss of both water and sodium in urine. However water is replaced because of thirst and this results in an imbalance. (B) Anti-depressants that produce dryness of mouth resulting in excess water consumption.

Misleading symptoms

The manifestations of Hyponatremia depend on whether the condition has occurred acutely (a short period of time) or chronically(a long period of time). The symptoms that follow include weakness, nausea, vomiting, drowsiness, abnormal behavior, convulsions or fits and, ultimately, coma.

Diagnosis: Plasma Sodium is the key

As the symptoms are neurological, patients are mislead to a neurologist or psychiatrist. An estimation of plasma sodium will reveal the correct diagnosis. Unfortunately, this simple investigation cannot be performed by small laboratories predominant in the country.

If left untreated..

The rapidity with which plasma sodium should be corrected depends on the condition of the patient and the acuteness of onset. This is important because if asymptomatic chronic Hyponatremia is not corrected, the brain system can be damaged irreversibly. Treatment consists of assessing the volume correctly, replacement with intravenous normal saline and restricting water intake. Underlying diseases like heart or liver failure should be treated and drugs responsible for Hyponatremia stopped. There are certain drugs, which are available to correct Hyponatremia. These are used only when water restriction fails.

How much water should we take?

A healthy person can consume a large quantity of water without any deleterious effect. However, the body has an excellent thirst centre which helps guide in consuming the right quantity of water. But in those people who have impaired water clearance (examples are heart, liver or kidney failure patients on diuretics, anti-depressants etc.) Hyponatremia would result if they drink a lot of water.

Dr.RAJAN RAVICHANDRAN,
MD,MNAMS,FRCP(EDIN),FACP(USA)



A Shocking Case of Renal Failure

Working in the Nephrology department at MIOT I have seen some complex cases and some rare cases, but on August 20, 2007 I saw a case like no other.

The patient was a 30 year old farmer from Pudukottai District. Yelumallai was happily married and blessed with a daughter. Earlier that morning he had gone to his fields to turn on the water motor. Little did he realize that the heavy rains of the previous night had affected the power cables. No sooner did he flip the switch on the motor than he was hit with a powerful electric shock. The impact was so powerful that he was thrown several yards away. "My whole body twitched in shivers and I had a shooting pain on my right hand", he told me when he was narrating the incident.

A shock to the system

Yelumallai was rushed by his family and neighbours to a nearby clinic for first aid. From there he was brought in an ambulance to MIOT Hospitals. We realized that his hand was burnt due to the electric shock. But there was severe internal damage as well. There was absolutely no urinary output which made me suspect acute renal failure. I suspected that the electric shock had caused muscle protein to be dislodged into the blood stream and it had clogged the tubes in the kidneys.

He was subjected to haemodialysis. A couple of dialysis sessions reduced the swelling and nausea and gave him relief. Then we performed a kidney biopsy to check the extent of the damage. The test showed that he suffered from Acute Tubular Necrosis where the tubules in the kidney were burnt and the cells inflamed.

Happy outcome

For the next 25 days he was put on medication for a month with dialysis on alternate days. In 20 days his kidneys began functioning normally. Meanwhile his hand too was reshaped to the extent possible. Soon he was able to return to his normal life. A satisfying outcome for me as well – as it was my first experience with electrical shocked induced kidney failure.

From the case files of :

DR.GANESH PRASAD
DNB(Gen Med)DNB(Nephro)MNAMS

It's Painful! It's Excruciating! It's a Kidney Stone!

People suffering from kidney stone complain from pains only second to labour, new medication and intervention makes its removal painless.

The prevalence of kidney stones is three times higher in men than women, and is higher among Caucasians than Asians or Africans, for reasons that are not clear. They are especially likely to strike between the ages of 40 and 60.

Stones usually result from the crystallization of calcium (present in foods or supplements) and oxalate which is a part of many plant foods. Some people have a tendency to lose excessive amounts of calcium or oxalate through their kidneys and they have a greater likelihood of a stone.

Preventing stones is like keeping a salt crystal from forming in a glass of salty water. You can either reduce the concentration of salt or add more water. Certain elements of our diet help reduce the amount of calcium that filters into the urine.

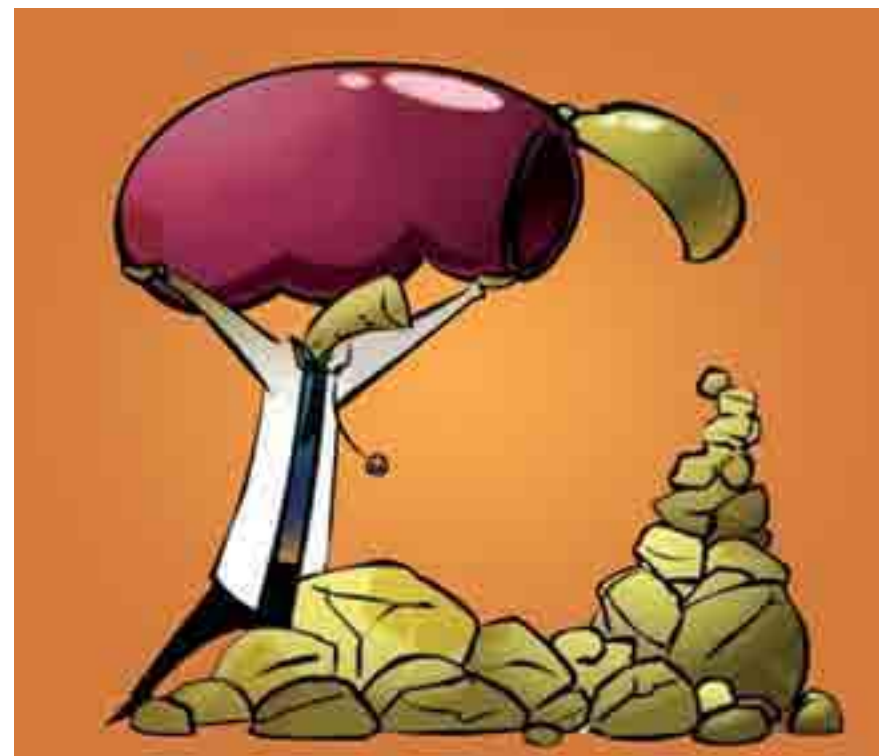
Eating right can not only prevent stones, it can also help prevent recurrences, which is important given that 30-50 percent of people diagnosed with a renal stone have a recurrence within five years.

WHAT IS A STONE?

Calcium Oxalate	72%
Uric acid	23%
Ammoniomagnesium phosphate (struvite)	5%
Cystine	<1%

Protective Foods:

Certain elements of our diet clearly help reduce the risk.



Water: Water dilutes the urine and keeps calcium, oxalates, and uric acid in solution. In research studies, those subjects whose total fluid intake (from all sources including juices soups etc) over 24 hours was roughly 2.5litres, the risk of a stone was about one-third less than that of subjects drinking only half that much.

High-Potassium Foods: High potassium intake can cut the risk of kidney stones in half. Potassium helps the kidneys retain calcium, rather than sending it out into the urine. A diet including regular servings of vegetables, fruits, and beans supplies plenty of potassium.

Calcium: Although most stones contain calcium, the calcium in foods does not necessarily contribute

to stones. Calcium supplements taken between meals may increase the risk of stones, because about 8% of any extra dietary calcium passes into the urine. On the other hand, calcium consumed with meals has the opposite effect, reducing the risk of stones.

Caffeine: Caffeinated beverages reduce the risk of stones. Caffeine's diuretic effect causes the loss of both water and calcium, but the water loss is apparently the predominant effect. Similarly, alcoholic beverages are associated with a reduced risk of kidney stones, again presumably due to a diuretic effect.

Article

Problem foods:

Animal Protein: Animal protein cause calcium to be leached from the bones and excreted in the urine where it can form stones. Diets rich in animal proteins also increase uric acid excretion.

Between 1958 and the late 1960s, there was a sharp increase in the incidence of kidney stones in Great Britain. During that period, it was found that consumption of vegetables decreased, and the use of poultry, fish, and red meat increased.

Sodium (Salt): Sodium increases the passage of calcium through the kidney and increases the risk of stones. Plants of any kind - grains, vegetables, legumes, and fruits-contain almost no sodium at all unless it is added during cooking. Dairy products and meats contain more salt than plant products and table salt, frozen, processed and snack foods are the highest-sodium food products.

Sugar: Sugar accelerates calcium losses through the kidney.

SUGAR IN COMMON FOOD (grams)	
Chocolate bar (2 ounces)	22-35
Cookies (3)	11-14
Frosted corn flakes (1cup, 41 grams)	17
Grape Jam (1 tablespoon)	13
Ice cream (1/2 cup, 106 grams)	21
Soft drink(12ounces)	40
White bread (2 slices)	1
Source: Package information	

Climate: Kidney stones are also more common in warm climates, presumably because perspiration leads to dehydration and more concentrated urine. Surprisingly, oxalate-rich foods, such as chocolate, nuts, tea and spinach, are not associated with a higher risk of renal stones, not is vitamin C, even though it can be converted to oxalate.

Who will develop kidney stones?

Stone disease is usually suspected in patients who have had stones previously or a family history of stones, who are on certain viral drugs, are exposed to hot weather, eat a lot of animal protein, high salt, low calcium diet and have excessive Vitamin D in their diet.

Sometimes other diseases may lead to stone formation, including Crohn's Disease, mal absorption syndrome, recurrent UTI, cancer, intestinal resection etc.

General instruction for stone formers will be

Increase fluid intake

Low fat consumption, Protein restricted.

Avoid the specific agents that has cause stone in that individual.

Detecting the Stone

Presence of Kidney stone is confirmed by Ultrasound abdomen Scan, Intra venous Pyelography a special contrast study of the kidney, ureter & bladder for stone, CT Scan, Nuclear Imaging and Magnetic resonance Imaging.

A decision on the treatment modalities by surgery is based on the size of the stone, position of the stone, consistency (shown by the Imaging test) and the problems arising out of the stone.

The Way to a Cure

Various treatments include:

ESWL- Shock wave inducing technique to break the stone.

Pinhole surgery & blasting (or) removal of the stone

Open surgical technique.

Using YAG laser (Holmium) to blast the stones (expensive)

In the recent times robots have been employed to remove the stone by

pinhole technique and using the latest imaging guidance.

Without treatment, long standing stones can lead to infection and can cause obstruction, or completely destroy the kidney. The treatment including diet and medication will also depend on the type of stones we are dealing with.(As of now we have identified 7 major constituents of stones in human kidney like Calcium Oxalate monohydrate stone, Hydroxy apatite, struvite, calcium phosphate, uricacid, cystine, etc.)

Treatment is also decided by the individual patients Health, age and factors, like, diabetes, hypertension, obesity, blood disease etc. Stones can also be formed during pregnancy but the treatment modalities differ.

Simple steps to avoid Kidney Stones:

Don't wait till you're thirsty. Drink plenty of water or other fluids.

Include generous amounts of vegetables, fruits and beans in your diet. They are rich in potassium and very low in sodium.

If you have to take calcium supplements, take them with meals, rather than between meals.

Avoid animal products. Their proteins and sodium content increase the risk of stones.

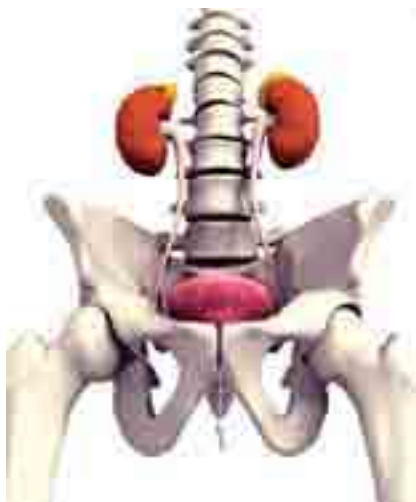
Cut down on salt and sugar.

DR.GANESH PRASAD

DNB(Gen Med)DNB(Nephro)MNAMS



What every woman should know about urinary tract infection.



If you're a woman the chances are that by now you must have experienced the discomfort and burning sensation of a urinary tract infection. It can not only cause discomfort but in severe cases, can be life-threatening too.

There are more chances of women contracting this common medical problem than men. (Atleast 50% of all women will experience this in their lifetime). This is because of the short urinary passage (Urethra) which has the potential to be injured during sex.

Males do get urinary tract infections - either in their first year due to abnormalities from birth or after the age of sixty when the prostate gland blocks the urinary tract. Otherwise during the sexually active period, it is predominantly a disease of the females.

Causes of the Urinary Infection:

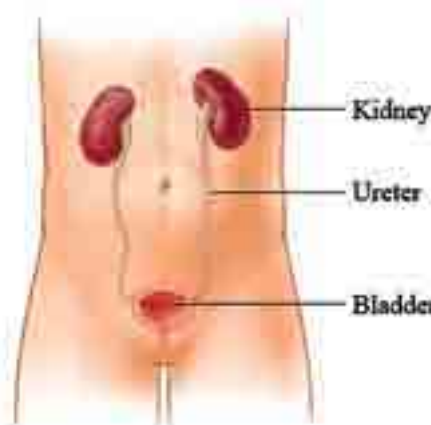
- Colonisation of the urinary tract by organisms (bacteria) is called urinary tract infection. The urinary tract consists of a collecting system in kidney, ureter (tube from the kidney to the bladder) bladder and lastly the urethra. The kidneys and the ureter constitute the upper urinary tract. Bladder and urethra constitute the lower urinary tract. The urinary tract is devoid of any organisms except where

it is exposed to the atmosphere. Infections occur once the organisms ascend to the bladder and the kidneys.

- Urinary infection can be community-acquired or acquired in the hospital due to the use of instruments like bladder catheterisation. Community-acquired infections are bacterial and the commonest organism is called E.Coli. Hospital- acquired infections can be caused not only by multiple bacteria but by fungi, as well.

Symptoms of Urinary Tract Infection:

- Classical symptoms of urinary infections are painful urination (dysuria) and increased frequency of urination. Urinary infections should not be diagnosed in the absence of these symptoms. Discolouration and passing of blood in urine without pain does not indicate urinary infections. Fever, lower abdominal pain, and backache occur in upper urinary tract infection. Painful urination can also happen in the absence of urinary infection due to inflammation or injury to urethra. Thus differentiation between upper and lower urinary tract infection and urethral syndrome is important to decide the line of treatment.



Diagnosis:

- It is essentially by taking patient history. Sudden onset of dysuria with increased frequency is indicative of

urinary infection. Laboratory tests confirm it and help to decide the choice of drug.

Interpretation of urine reports:

- Presence of pus cells in the urine indicates an inflammation of the urinary tract. The commonest cause of this is infection. However, stones, tumours, nephritis can all produce pus cells in the urine. Presence of albumin is not a indicative of urinary tract infection. It usually indicates a disease of the kidneys.

Urine Culture:

- This test is fraught with errors due to poor collection. Urine should be collected in a clean/sterilized container. The initial few ml on urine should not be collected and a mid stream sample should be collected. It should be transported to the laboratory immediately.

- Beware of urine culture reports without colony counts. Colony counts > 10⁵ only are considered significant. Apart from the type of bacteria, a culture report should contain the list of drugs with antibacterial sensitivity. This will help to decide the drug to be given for treatment.

Other investigations :

Detailed investigation like ultrasound, x-rays, Cystoscopies are required in certain situations mentioned below.

- All males with urinary tract infection.
- Females in childhood or above the age of sixty.
- Sexually active females who have recurrent or repeated urinary tract infections.

In my own words

Treatment of urinary tract infection:

This depends upon whether it is community-acquired or hospital -acquired, upper or lower urinary tract infection. Lower urinary tract infections acquired in the community can be treated with simple drugs including single-dose antibiotics. Other infections require longer period of antibiotics.

Prevention of urinary infection in sexually active females :

- Good personal hygiene and passing of urine after sex.
- Low-dose antibiotic after sex.
- Pro-longed night time low-dose antibiotic.

Role of water in Urinary Tract Infection:

- Drinking a large quantity of water can reduce urinary tract irritation. However it can also dilute the antibiotic administered.

Diet:

- High animal protein in the diet leads to a highly acidic urine. This can increase urinary irritation. Vegetables reduce the acidity in urine and make it alkaline.

Highlights:

- Urinary infection is a CLINICAL DIAGNOSIS. The laboratory is used for only confirmation. In the absence of symptoms do not treat as urinary infection.
- Laboratory examination is fraught with errors.
- Differentiate upper and lower urinary tract infections.
- Investigate persons who are not vulnerable (other than sexually active females).
- Prevent urinary infections by simple measures.

Dr.RAJAN RAVICHANDRAN,
MD,MNAMS,FRCP(EDIN),FACP(USA)



Freedom from Dialysis: One man's story

"I thought I had to undergo dialysis for life... until I met one observant doctor."

I am an employee of a large Public Sector Company. At 54 years, I was almost on the verge of retirement when I received some very bad news. I had two children and a devoted wife. The only burden of my life was diabetes. 12 years ago I had been diagnosed as diabetic, a condition which I often neglected.

Suddenly in the month of March 2007, I developed breathlessness. This was accompanied by swelling all over the body. Tests were done and I was told that my kidneys were affected. I was subjected to haemodialysis for over 6 weeks in a hospital near my house. What's worse, I was told that I would have to be on dialysis for the rest of my life!

A big blow

This was a big blow to me. The cost was astronomical and unplanned for and I was finding it difficult to make ends meet. Meanwhile the medical officer in my company directed me for further investigation to their recognised hospital, MIOT.

"When I hear your history I suspect that it may not be a diabetes-related problem." said Dr. Ganesh Prasad of MIOT's Nephrology Department. "The onset of your illness is too rapid in its progression". Putting aside the old reports, Dr. Ganesh Prasad ordered a renal biopsy. The results were amazing. It showed that I had one of one of the rarest kidney diseases called Megalocystic Interstitial Nephropathy. As he suspected it was unrelated to diabetes.

A rare diagnosis

For the next two weeks I was admitted at MIOT and treated with a combination of steroids and antibiotics. My kidneys responded to the treatment and in 20 days I was discharged, completely cured. There was no need of further dialysis.

Today I'm absolutely fine except that I now take care to keep my diabetes under control. I'm happy to say the "ghost" of renal failure which was terrorizing me was driven away by the "angels" of MIOT!

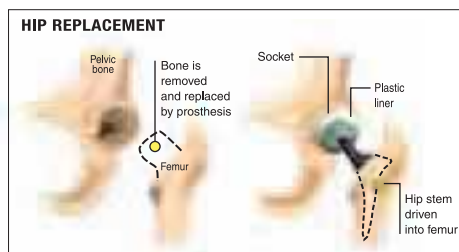
Every joint
has its
own story.



What's yours?

*A policeman's job that involves jumping in and out of jeeps;
a cinematographer who climbs ladders to get his shots;
a housewife who's had spondylitis from college days.
A bike accident at age 10.
A fracture in school... Who you are;
what you do; your genetic history;
the quality of your bone; the cause and severity of your illness ...
all of this shapes your joint.
As a result your hip or knee joint is as individual as your fingerprint.*

Therefore the key to a successful replacement surgery is matching the perfect implant to replace your joint. There are a wide range of implants in the market in all shapes, sizes and materials. But only one of them is perfect for you.



At MIOT we use our thirty five years' of experience in replacement surgery to evaluate your joint and find that match. Then, we use our state-of-the-art equipment and renowned surgical skills to fit it with zero-error precision.

The right implant fits smoothly and leaves you comfortable, active and fit for life. The wrong implant leads to discomfort, wear and tear and possibly, another surgery in a few years.

So where can you find Joint for Life?

At the Centre which offers the widest range of implants from over the world to enable a perfect match. At the Centre with the most experience, where 21,000 hip and knee replacements have been performed successfully.

At the only Center in India engaged in researching and developing the ideal joint for Indian anatomies and lifestyles.

The MIOT Global Centre for Ideal Joints.

So replace pain. Replace restrictions. Replace uncertainty - with confidence, hope and a new zest for life.

Walk tall.

Only MIOT brings together 35 years of experience - 21,000 hip and knee replacements, largest range of implants, minimally invasive surgery, computer navigation for zero-error, infection-free environment to give you a Joint for Life.



Hip and Knee Replacement Surgeries

