Kidney stones can be prevented or controlled by dietary intervention or medication. The intent of this booklet is to provide information to people who have kidney stones.

The risk of forming kidney stones is related to factors such as inheritance, gender, age, occupation, metabolic disturbances within the body, urinary tract infections, eating habits, and fluid intake.

The most common stones are those composed of calcium and oxalate crystals. Foods in the diet, along with chemical reactions within the body, result in the release of chemical "salts" in the urine. The following risk factors increase one's chances of forming calcium oxalate stones:

- LOW urine output (less than 2L per day)
- LOW urine magnesium citrate
- HIGH urine calcium oxalate
- Sodium
- Uric acid

The 24-hour urine collection gives an indication of the risk factors present. The diet can be modified to change the chemical composition of the urine with the aim of reducing the risk of kidney stone formation.

Instructions might need to be modified by your physician or dietitian depending upon your individual requirements.

The following diet modifications are suggested:

- **FLUID INTAKE**
- **CALCIUM** (only if excessive)
- **OXALATE**
- **SODIUM / SALT**
- **ANIMAL PROTEIN**

**Recommended Reading:**

"No More Kidney Stones"
by John S. Rodman, MD.
Cynthia Seidman, RD
Rory Jones

**ACKNOWLEDGEMENTS**
Prepared by: Clinical Dietitians, Nephrologists, and Registered Nurses
Stone Prevention Clinic
The Kidney Stone Centre
Diabetes Comprehensive Care Program
St. Michael's Hospital

Artwork by: Denis Ouellette

Important telephone numbers

The risk of forming kidney stones is related to factors such as inheritance, gender, age, occupation, metabolic disturbances within the body, urinary tract infections, eating habits, and fluid intake.

Kidney stones can be prevented or controlled by dietary intervention or medication. The intent of this booklet is to provide information to people who have kidney stones.

The risk of forming kidney stones is related to factors such as inheritance, gender, age, occupation, metabolic disturbances within the body, urinary tract infections, eating habits, and fluid intake.

The most common stones are those composed of calcium and oxalate crystals. Foods in the diet, along with chemical reactions within the body, result in the release of chemical "salts" in the urine. The following risk factors increase one's chances of forming calcium oxalate stones:

- LOW urine output (less than 2L per day)
- LOW urine magnesium citrate
- HIGH urine calcium oxalate
- Sodium
- Uric acid

The 24-hour urine collection gives an indication of the risk factors present. The diet can be modified to change the chemical composition of the urine with the aim of reducing the risk of kidney stone formation.

Instructions might need to be modified by your physician or dietitian depending upon your individual requirements.

The following diet modifications are suggested:

- **FLUID INTAKE**
- **CALCIUM** (only if excessive)
- **OXALATE**
- **SODIUM / SALT**
- **ANIMAL PROTEIN**
Try using herbs, spices, fresh or powdered onion and garlic, "Mrs. Dash" or McCormick's "No salt added", and lemon juice as flavour enhancer instead of salt.

To control amount of salt in your diet, try to limit the use of the following foods which are rich in sodium/salt:

1. **SALT PRESERVED FOODS**
   - smoked, pickled, canned or seasoned meats, fish, and poultry e.g., bologna, bacon, ham, salami, sausage, pastrami, anchovies, caviar, herring

2. **HIGHLY SALTED FOODS**
   - canned vegetables / vegetable juices e.g., tomato juice
   - canned / powder soups
   - bouillon cubes
   - processed cheese products
   - salted crackers / salted snack foods, such as, chips, nuts, pretzels
   - most cheeses

Avoid using salt substitutes e.g., seasalt, "No Salt", "Half-salt", "Nu-salt", MSG, brine.

When preparing food REDUCE the amount of salt.

Most North Americans consume very generous portions of animal protein products, such as meat, fish, poultry, & eggs.

Eating large amounts of animal protein can increase the amount of uric acid, calcium and possibly oxalate in the urine.

- REDUCE portion sizes of animal protein products. (Daily serving of 4-6 oz. or 100-150 gm. cooked is ideal).
- Limit the use of the following foods, which readily produce uric acid:
  - Organ Meats - liver, kidneys, heart - tongue - brain - sweetbreads
  - Goose / Game Meats / Rabbit
  - Anchovies / Fish Roe
  - Sardines / Herring
  - Mussels / Scallops

Anchovies / Fish Roe
Sardines / Herring
Mussels / Scallops

Most North Americans consume very generous portions of animal protein products, such as meat, fish, poultry, & eggs.

Eating large amounts of animal protein can increase the amount of uric acid, calcium and possibly oxalate in the urine.

- REDUCE portion sizes of animal protein products. (Daily serving of 4-6 oz. or 100-150 gm. cooked is ideal).
- Limit the use of the following foods, which readily produce uric acid:
  - Organ Meats - liver, kidneys, heart - tongue - brain - sweetbreads
  - Goose / Game Meats / Rabbit
  - Anchovies / Fish Roe
  - Sardines / Herring
  - Mussels / Scallops

To control amount of salt in your diet, try to limit the use of the following foods which are rich in sodium/salt:

1. **SALT PRESERVED FOODS**
   - smoked, pickled, canned or seasoned meats, fish, and poultry e.g., bologna, bacon, ham, salami, sausage, pastrami, anchovies, caviar, herring

2. **HIGHLY SALTED FOODS**
   - canned vegetables / vegetable juices e.g., tomato juice
   - canned / powder soups
   - bouillon cubes
   - processed cheese products
   - salted crackers / salted snack foods, such as, chips, nuts, pretzels
   - most cheeses

Avoid using salt substitutes e.g., seasalt, "No Salt", "Half-salt", "Nu-salt", MSG, brine.

When preparing food REDUCE the amount of salt.

Try using herbs, spices, fresh or powdered onion and garlic, "Mrs. Dash" or McCormick’s "No salt added", and lemon juice as flavour enhancer instead of salt.