

RENAL DIET

The guidelines below have been developed as a quick reference to help you guide your patients in regards to any queries regarding their renal diet.

Goals of the Renal Diet

- Help prevent nutritional deficiencies
- Help prevent fluid retention
- Keep blood level within normal limits, by controlling potassium, phosphorous and sodium intake
- Maintain and protect bone strength
- Maintain a healthy body weight

1) Protein Intake:

An adequate protein intake is important for growth and repair of body tissues. It helps fight infections and prevents muscle loss. The amount of protein required depends on individual requirements and form of renal replacement therapy. Most protein foods are high in phosphate. During dialysis patients lose some of their good protein, Albumin. Here are some ideas to help boost protein intake while maintaining a normal phosphate level.

Protein is found in plant and animal foods. The protein from animal origin is more readily absorbed by the body. The plant sources tend to be high in phosphate or potassium so the animal sources are better for the body.

ANIMAL SOURCES

Red meat (lamb/beef)
Chicken
Fish
Cottage Cheese
Egg white
Fish paste
Tuna

PLANT SOURCES (limit)

Lentils
Beans
Dried peas
Soya
Peanuts
Peanut butter

Try to include a low phosphate protein with 2 meals every day. Although dairy products like milk and cheese are good sources of protein, they are high in phosphate. One can include a ½ cup of milk or yoghurt + either 1 egg or a small amount of cheese in the diet daily.

HIGH PROTEIN BOOSTERS

Try and include 1 – 2 of these high protein boosters in the diet every week to help boost your Albumin level.

Egg-white Omelette:

Use 1 egg and add 3 – 4 egg whites to make a tasty omelette. You can eat it plain or add one of the following low potassium fillings:

- a) onion and baby marrow (**pan fried in very little oil with garlic added**)
- b) chicken and cottage cheese (**grill and cube the chicken and add the cottage cheese**)
- c) tuna

Booster Drink:

100ml milk or yoghurt (**choose a smooth fruit flavoured yoghurt**)

1 egg white

1 scoop of vanilla ice cream

Mix the above to make a tasty shake

INCREASING PROTEIN CONTENT USING COMMERCIAL SUPPLEMENTS

There are several commercial supplements available from pharmacies or supermarkets.

These may be useful for:

- 1) Adding extra protein to meals: Whey Powder, Egg White Powder, Albumax, New Life Proplex or Protifar
- 2) Replacements for meals when you do not feel like eating: Nova Source Renal, Renilon, Nepro, Provide Xtra

Standard supplements like Ensure or Replace may not be the best choice, Please check with your dietitian first before starting these supplements.

(Patient's should remember to take phosphate binders with any meal containing protein)

2) Phosphate:

Phosphate is a mineral found in food and is essential for healthy bone formation. An excess can cause the calcium to leak from the bones resulting in weakened bones that break more easily. High calcium levels in turn can damage soft tissue which can result in calcification of the heart and blood vessels. Patients normally experience itching when their phosphate levels are raised.

Low Phosphate Meat and Meat Alternatives (the daily serving is calculated according to the patient's protein requirements.)

Beef or Mutton Stew with vegetables	¼ cup
Beef patty	1 small portion
Chicken cooked without bones	1 small drumstick
Red meat, chicken or fish, cooked	Small matchbox size
Calamari	8 medium rings
Cottage Cheese	2 heaped tablespoons
Lasagne	1 heaped large spoon
Minced meat	3 level desert spoons
Mussels	10 mussels
Mutton or pork leg, roasted	1 thin slice
Pork loin	Small matchbox size
Tuna, canned	¼ cup
Fish paste	1 teaspoon

High Phosphate Meat and Meat Alternatives (1 serving per day)

Bacon	3 rashes
Baked beans	2 heaped tablespoons
Dried beans and peas, cooked	¾ cup
Lentils, cooked	2/3 cup
Soya beans, cooked	4 level tablespoons
Cheddar, Gouda, Cheshire	Small matchbox size
Mozzarella, grated	2 heaped tablespoons
Parmesan, grated	2 heaped dessertspoons
Egg, boiled or poached	1 extra large
Peanut Butter	2 level dessertspoons
Liver, mutton or beef	Small matchbox size
Pilchards, canned in brine	1 heaped dessertspoon
Sardines, canned in oil	2 small

The highlighted foods are also high in potassium and should be used carefully when the potassium level is raised

High Phosphate Milk and Dairy Products (1 serving per day)

Milk, full cream, low fat or fat free	½ cup
Soya milk or sour milk	½ cup
Yoghurt, custard or milkshake	½ cup
Condensed milk	2 levels tablespoons
Maas	½ cup
Milk powder, low fat	1 heaped dessertspoon
Ice cream	2 scoops

Starches

Good	Bad
Mielie Pap	All Bran
Maltabella	Weetbix
Oats	Pronutro
Rice Crispies	High Fibre Bran
Cornflakes	Wheat Bran Muffins
Samp	Bread: whole-wheat
Rice	
Pasta	
Bread: white, brown, rye or seeded	

Drinks

Good	Bad
Sprite, Sprite Zero	Coke, Coke Light, Coke Zero
Fanta, Fanta Zero	Pepsi, Pepsi Max
Ginger Beer, Stoney, Stoney Sugar Free	Tab
	Beer

Other High Phosphate Foods

- Meat and Vegetable Extracts: Marmite, Bovril
 - Chocolate, Toffee and Caramel

Phosphate Binders

The doctor may prescribe phosphate binders together with a low phosphate diet. Phosphate binders attach to the phosphate in the digestive tract and it is then excreted. In this way the body absorbs less phosphate.

Guidelines for the use of phosphate binders:

- Use with a meal
- ENO Tums and B Cal D should be chewed with each meal. Phosphosorb and Renogel must be swallowed whole with each meal
- Phosphate binders should always be taken if a meal or snack or drink contains protein and/or dairy products
- More tablets may need to be taken with a bigger meal and less with a smaller meal
- Phosphate binders should be kept close at hand (Stored in a container in a handbag or pocket and in every room where one is bound to eat a meal.)

3) Potassium:

Potassium is closely involved with nerve and muscle function. This may lead to muscle weakness and is dangerous if it affects the heart muscle. All fruits and vegetables contain potassium, but some have more than others. There are other foods that also contain considerable amounts of potassium e.g. legumes, nuts, coffee, ciders and wine.

Low Potassium Fruits and Vegetables

Fruit	Serving Size	Vegetable	Serving Size
Apple	1 small	Baby Marrow	½ cup
Cherry	2 heaped tablespoons	Broccoli	½ cup
Granadilla	1 medium	Cabbage	½ cup
Lemon	½ medium	Frozen Mixed Veg	½ cup
Litchi	6 litchis	Onion	2 slices
Pear	1 small	Peas	2 heaped tablespoons
Plum	1 medium	Sweetcorn, canned	½ cup
Pineapple	2 medium slice	Coleslaw	½ cup
Strawberry	4 medium	Lettuce	½ cup
Fruit salad, canned	½ cup	Cucumber	5 medium slices
Peach, canned	½ cup	Pepper, red, yellow, green	4 medium slices
Pineapple, canned	½ cup		

Moderate Potassium Fruits and Vegetables

Fruit	Serving Size	Vegetable	Serving Size
Apricot	2 small	Beetroot	½ medium
Gooseberries	10 berries	Brinjal	½ cup
Grapefruit	½	Brussel Sprouts	½ cup
Guava	1 small	Carrots	½ cup
Green Melon	1 slice	Cauliflower	½ cup
Minneola	1 medium	Green beans	½ cup
Naartjie	1 medium	Pumpkin	½ cup
Paw paw	4 heaped tablespoons	Patty pans	3 heaped tablespoons
		Sweetcorn, fresh	¼ cup
		Spinach, cooked	½ cup
		Tomato	1 small

High Potassium Fruit and Vegetable

Fruit	Serving Size	Vegetable	Serving Size
Avocado	¼	Butternut	½ cup
Fig	2 large	Gem squash	½ large
Grapes	1 small bunch	Mushroom, cooked	½ cup
Kiwi	1	Tomato & Onion stew	1 heaped large spoon
Spanspek	3cm wedge	Okra	½ cup
Orange	1 small	Canned Tomato	1 tablespoon
Peach	1 small		
Banana	1 large		
Watermelon	1 small wedge		
Mango	½		

The number of daily servings allowed depends on the patient's potassium levels. Please refer patient to a dietitian to determine how many servings are appropriate per day

Other High Potassium Foods

- Dried fruit or fresh fruit juice
- Potato chips
- Nuts and peanuts

- Brown sugar
- Wine and Sherry
- Coffee: Enjoy 1 small cup per day
- Salt replacements containing potassium

How to Reduce Potassium Content of Vegetables (Leaching)

- This process is especially important for potato and sweet potato
- Peel and cut into smaller pieces
- Soak in warm water for at least 2 hours and drain
- Boil in fresh water until cooked
- Drain before serving

4) Salt

The amount of sodium in the diet should be limited. A high sodium intake may increase blood pressure as well as increase the sensation of thirst.

Ways to reduce salt intake:

- Do not add additional salt at the table
- Limit salty foods such as canned, prepared or fast food
- Limit foods in brine such as olive, pickles
- Limit smoked and cured foods such as ham, bacon and cold meats

5) Fluid

Fluid management in dialysis patients is important to prevent excessive fluid retention in the body. ***Every patient has a different daily allowance for fluid.***

Fluid can build up between dialysis sessions, causing:

Rapid weight gain

Swelling in the legs

Fluid in the lungs (Pulmonary oedema)

Increased work load on the heart (Congestive cardiac failure)

Dizziness or cramps during dialysis

Raised blood pressure

Shortness of breath

Sources of Fluid

Fluid is found in all foods. Foods that are liquid at room temperature should be counted as part of daily fluid intake.

Examples: water, tea, coffee, cold drink, alcohol, soup, gravy, sauces, custard, jelly, milk pudding, ice cream, ice, suckers, cream, yoghurt. Some fruit such as watermelon, oranges, grapes, apples and tomatoes also have a high fluid content.

Helpful Hints for Fluid Control

- Measure out the day's ration of fluid, so that you can see how much is left.
- Distribute the intake over the whole day.
- Another reason not to overdo fluids is that they may contain sodium, potassium, phosphorus, excess fat or sugar.
- Think before you drink – are you really thirsty? If you drink to be sociable, then cut back before and after the occasion.
- Try eating allowed fruits and vegetables ice cold between meals.
- Use sour hard candies (like lemon drops) and chewing gum to moisten your mouth.
- Suck on a lime or lemon.
- Rinse your mouth with cold water, but do not swallow it.
- Brush your teeth regularly.
- Keep a bottle of mouthwash in your refrigerator and instead of drinking something, rinse your mouth to feel refreshed.
- Take medication with mealtime liquids if at all possible.
- You may be less thirsty the day after dialysis. Try taking less fluid then and save some for the following day.
- Measure ice allotment for the day and store in a special container in your freezer. Most people find ice more satisfying than the same amount of water. When making ice cubes, add some lemon juice or mint. Drink cold liquids in place of hot liquids. Stay cool.
- Freeze allowed fruit juices in ice cube trays to reduce amount taken. They make nice treats.
- Use very small cups and glasses for beverages and other liquids. *Sip, do not gulp.*
- When thirsty, try eating something like bread with margarine & jam, before taking liquids. Often the sense of thirst is really the sensation of having a dry mouth. Food may also alleviate the dry mouth instead of liquid.
- Try to keep yourself as active as possible. When you are idle, you may become preoccupied with a desire for liquids.
- If you are diabetic, high blood sugars will increase your desire for liquids. Once your urine volume has decreased, it will no longer give a true picture of your blood sugar.
- The less salt (sodium) you eat, the less thirsty you will be. Too much salt causes fluid retention, heart failure and pulmonary oedema.
- If your doctor has approved alcohol (e.g. special occasions) avoid high potassium cocktails such as Bloody Mary's, screwdrivers, Pina coladas, wine and beer. Cocktails should rather be mixed with club soda, ginger ale, tonic or cola free soft drinks.
- When eating out, order a small beverage and remember to count it as part of the fluid

allowance. Push your glass or cup away from your plate when you are finished to avoid refills.

- Beverages that are high in sugar and caffeine can make you extremely thirsty and lead to excess fluid intake. Don't have more than 2 cups of coffee daily and rather have sodas low in calories and caffeine.

(Please note that the recommended daily servings for both potassium and phosphate are an average and may not be appropriate for all patients.)

Sonja Stevens
Dietitian
National Renal Care
Sonja.Stevens@nrc.co.za
082 994 6551