

Nutrition Leaflet for Haemodialysis Nurses

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The aim of this leaflet is to provide the necessary information to the nurses in order to be informed to answer the questions regarding nutrition of patients undergoing hemodialysis.

When kidneys do not function sufficiently the wastes from metabolism and the extra fluids of our body cannot be excreted and our body's normal function is disturbed. The role of nutrition in Chronic Kidney Disease (CKD) is crucial as it helps to maintain good nutritional status and to reduce common problems in hemodialysis of hyperkalaemia, hypophosphatemia and fluid overload.

Energy intake

Malnutrition is a common problem in patients on hemodialysis. Therefore they should be encouraged to eat sufficiently in order to maintain their body weight and function. In case of patients reporting anorexia or aversion to food, especially meat, measures should be taken in order to facilitate sufficient energy intake and coverage of their needs in nutrients, i.e. fortification of food or supplementation with oral nutritional supplements.

Protein intake

Protein needs are elevated for patients in hemodialysis. Therefore patients would be advised to:

- Increase foods rich in protein of “high biological value”, such as meat, poultry, soya and egg whites. Fish and dairy products, although they are also high in protein, they are also high in phosphorus and should be chosen with caution.
- Limit foods rich in protein of “low biological value” such as legumes, whole wheat bread and cereals, as they are also sources of potassium and phosphorus.

Fat intake

As cardiovascular diseases are highly prevalent in hemodialysis patients, they should be advised to:

- Limit saturated fat intake by avoiding the skin of poultry and the fatty pieces of veal and pork
- Avoid the use of butter, cream, bacon and use polyunsaturated fats (like canola oil, sunflower oil) and monounsaturated fat instead (olive oil).
- Avoid frying as a cooking method and use roasting and boiling.
- Choose low fat cheese and dairy products.

Carbohydrate intake

The main source of energy should be provided by carbohydrates. In case of the presence of diabetes mellitus patients should be advised to:

- Eat small and frequent meals, with carbohydrate content distributed throughout the day in order to achieve a better glucose control.
- In the event of hypoglycaemia, patients should choose honey, sweet candies, and grape or apple juice in order to correct it. They should avoid juices from fruits high in potassium, such as orange or banana.
- They should avoid alcohol intake on an empty stomach as this raises their danger of hypoglycaemia.

Hyperkalemia

It is common in patients undergoing hemodialysis to have elevated levels of potassium. Therefore they should be advised to choose fruits and vegetables low or medium in potassium and to avoid the rich sources of potassium as follows

Low potassium		Medium in potassium		High in potassium	
Fruits	Vegetables	Fruits	Vegetables	Fruits	Vegetables
Grape juice	Lettuce	Apple	Cabbage boiled	Banana	Celery
Lemon	Cucumber	Watermelon	Carrot	Kiwi	Okra
Lemonade	Pepper	Cherries	Artichoke	Nectarine	Potato
Pear boiled	Green beans	Pineapple	Mushrooms	Orange	Tomato
Plums boiled	Eggplant	Grape	Onions	Apricots	Spinach
	Mangel	Pear	Cauliflower	Melon	Zucchini
	Cardamom	Pear	Peas	Figs	Asparagus
		Raisins	Radishes		Beetroot
		Strawberry	Corn		
		Grapefruit	Broccoli		

Patients should also avoid:

- Chocolate
- Coffee
- Peanut butter
- Praline
- Whole wheat cereals
- Salt substitutes as they are rich in Potassium chloride

Practical ways to lower potassium content in fruits and vegetables

- Peel fruits and vegetables that can be peeled, for example potatoes, tomatoes, carrots, apples and pears.
- Cut fruits and vegetables in very small pieces before eating them
- Leave vegetables in plenty fresh water for at least two hours before cooking them. Rinse before cooking them.
- Boil vegetables for 5 minutes in a big pot and then change the water and continue cooking for the rest of the time needed.

Phosphorus control

Hyperphosphatemia, i.e. elevated levels of phosphorus in the blood, is common in patients on hemodialysis. In that case patients should be advised to:

- Follow the instructions of the medical team regarding phosphorus binders
- Avoid
 - consuming dairy products, cheese and deserts with milk in amounts beyond the advised ones by the dietitian
- small fish, sea food and offal as they are rich in phosphorus
- Cola beverages
- Legumes and whole wheat cereals

Fluid intake

Kidneys in CKD lose their ability to excrete extra fluids from our body. This is obvious in hemodialysis patients from their intradialytic weight gain. Poor control of fluid intake can cause the elevation of blood pressure and cardiac problems.

In order to help patients limit their fluid intake remind them that we consider liquid all drinks and foods that are liquids at room temperature such as:

- Milk and water
- coffee and tea
- beverages, juices and alcoholic drinks
- Ice cream and iced deserts
- Jelly, creams and ice cubes
- Soups, broth and sauces

In order to be able to follow the guidelines regarding fluid intake it is important to be able to control thirst. Some helpful hints are the following

- Drink water only when you feel really thirsty
- Rinse your mouth with water and spit it out.
- Use mouth wash for the prevention of bad breath smell
- Add some drops of lemon in your water to limit the sensation of thirst
- Drink your water very cold
- Use ice cubes instead of water as they last longer
- Use a water container with the permitted volume of liquids to have better control of your fluid intake
- Learn how you can estimate your fluid intake by the use of the following table

1 tsp	5ml
1 Tbs	15 ml
$\frac{1}{4}$ of a cup	60 ml
$\frac{1}{2}$ of a cup	120 ml
1 cup	240 ml
4 glasses	~ 1 lt

- Limit the use of sodium (salt) and salty foods:
- Avoid:
 - the use of salt in cooking
 - Using extra salt in cooked meals
 - the use of salt on the table
 - smoked, salted and processed foods, sausages, snacks such as potato chips, crisps
 - salty cheese
- Boost the flavor of dishes using spices and herbs such as basil, cinnamon, curry, garlic, mint, paprika
- Avoid eating salt substitutes because they are extremely rich in Potassium