



THE CHRONIC KIDNEY DISEASE NUTRITION MANUAL



This is the first edition of the Chronic Kidney Disease Nutrition Manual of the Philippine Society of Nephrology. Should there be any comments, feedbacks or recommendations, please contact the Secretariat through psnmanila@gmail.com.

PSN Secretariat

Rm. 2406 One San Miguel Avenue Building
San Miguel Avenue cor. Shaw Boulevard, Ortigas Center, Pasig City
Telefax: (02) 687-1187 • Tel. No.: (02) 687-1198
Email: psnmanila@gmail.com | Website: www.psn.ph

Expert Champions for Kidney Health

THE
**CHRONIC KIDNEY DISEASE
NUTRITION
MANUAL**

DISCLAIMER

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Philippine Society of Nephrology, Inc.
Rm. 2406 One San Miguel Avenue Building
San Miguel Avenue, cor. Shaw Boulevard, Ortigas Center, Pasig City, Philippines

Authored by the Committees on Chronic Kidney Disease Nutrition Manual and the Continuing Medical Education: Dr. Marissa Elizabeth Lim, Dr. Roberto Tanchanco, Dr. Marianna Sioson, Dr. Maria Christina Reyes, Dr. Rene Francisco, Dr. Gingerlita Samonte

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MESSAGE

On behalf of the Philippine Society of Nephrology, I would like to thank Dr. Marissa Elizabeth Lim and her team - Dr. Raissa Espera, Dr. Rene H. Francisco, Dr. Ivy Kathryn Ilagan, Dr. Janice Jill Lao, Dr. Rudi Joy Manipol-Larano, Dr. Jennifer Rubio-Bicol, Dr. Maria Christina Reyes, Dr. Marianna Sioson, Dr. Gingerlita Samonte and the PSN Committee of Continuing Medical Education - for taking on this task of developing the first edition of the PSN CKD Nutrition Manual. It is a testament to their dedication to the mission of PSN to help curb the rising incidence and burden of kidney disease among Filipinos that they were able to produce this guide within a year of raising the idea.

Nutrition is a basic and crucial requirement of maintaining good health, of improving the chances of good recovery from illness, and of optimising the over-all health status and quality of life in the presence of chronic conditions such as chronic kidney disease. The importance of maintaining a good balance, not just of nutrient intake and energy expenditure, but also of the right composition and proportion of the various nutrients necessary for healthy living, cannot be overemphasised.

This guide is our modest attempt to help us help our patients by providing the basic framework to understand and appreciate the nutritional requirements to cope well with chronic kidney disease and still maintain good health. It is not meant to be a complete guide, nor a cook book, but rather a primer on CKD nutrition. It assumes that the conversation and interaction of the patients and their health care providers - nephrologists, attending physicians, nurses, nutritionists, and caregivers - continues, adjusting constantly to the particular circumstances of the patient.

We also thank Fresenius Kabi for sharing this mission and supporting this modest cause with their unrestricted educational grant, making it possible for us to distribute print copies of this guide to give to our patients.

We are hopeful that you will find this guide useful and informative.

ROBERTO C. TANCHANCO, MD, MBA, FPCP, FPSN
President, PSN, FY 2017-2018

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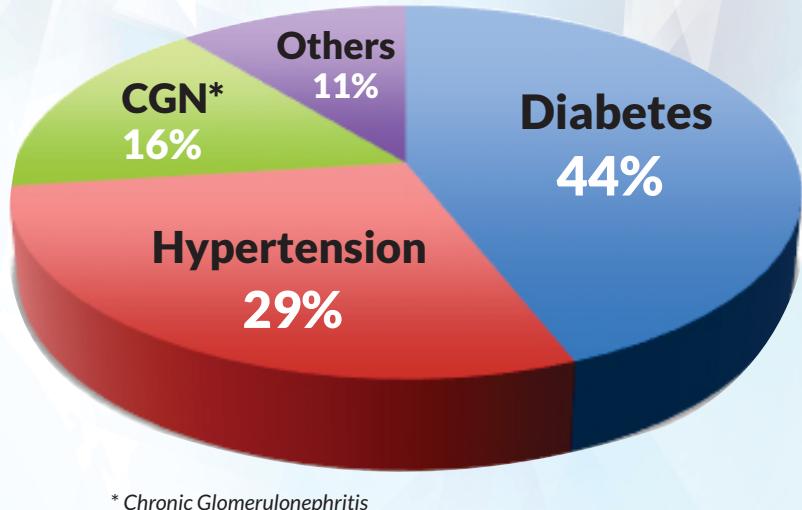
1. INTRODUCTION

A. Background

KIDNEY DISEASE is the 8th leading cause of death in the Philippines.

In 2015, diabetic patients account for almost 40% of dialysis patients. Hypertensive patients account for almost 30% of dialysis patients (Philippine Renal Disease Registry, 2015).

Kidney disease is an epidemic.



World Kidney Day is a joint initiative of
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International Federation
of Kidney Foundations
improving kidney health worldwide

Chronic Kidney Disease... A Silent Killer

WHO IS AFFECTED?

1 in 10

CHRONIC KIDNEY DISEASE
AFFECTS 10% OF THE
POPULATION



- 10% of the population worldwide is affected by CKD
- Kidney disease can affect people of all ages and races
- Half of people aged 75 or more have some degree of CKD
- 1 in 5 MEN and 1 in 4 WOMEN between the ages of 65 & 74 have CKD

High blood pressure & diabetes are the most common CKD causes in adults

HOW TO DETECT CKD?

- Early CKD often has no sign or symptoms. A person can lose up to 90% of their kidney function before experiencing any signs
- But it can be detected by simple tests:
 - a urine test to check if there is any protein in your urine, or
 - a blood test to measure the level of creatinine in your blood
- Signs of advancing CKD include: swollen ankles, fatigue, difficulty concentrating, decreased appetite and foamy urine

ARE YOU AT RISK?

- Do you have high blood pressure?
- Do you suffer from diabetes?
- Do you have family history of kidney disease?
- Are you overweight?
- Do you smoke?
- Are you over 50 years?
- Are you African, Hispanic, Aboriginal or Asian origin?

IF YOU HAVE ANSWERED YES TO ONE OR MORE OF THESE QUESTIONS, TALK TO YOUR DOCTOR!

THE 8 GOLDEN RULES TO REDUCE THE RISK

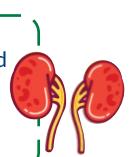
- Keep fit and active
- Keep regular control of your blood sugar levels
- Monitor your blood pressure
- Eat healthy and keep your weight in check
- Maintain a healthy fluid intake
- Do not smoke
- Do not take-over-the-counter pills on a regular basis
- Get your kidney function checked if you have one or more of the "high risk" factors

- you have diabetes
- you have hypertension
- you are obese
- one of your parents or other family members suffers from kidney disease
- you are African, Hispanic, Aboriginal or Asian origin

Kidney diseases are silent killers, which will largely affect your quality of life. There are however, several easy ways to reduce the risk of developing kidney disease.

**Did you know
that your
kidneys:**

- Make urine
- Remove wastes and extra fluid from your blood
- Control your body's chemical balance
- Help control your blood pressure
- Help keep your bones healthy
- Help you make red blood cells



Chronic Kidney Disease

BY THE NUMBERS



Since kidney disease can sneak up without symptoms, the disease has been labeled a

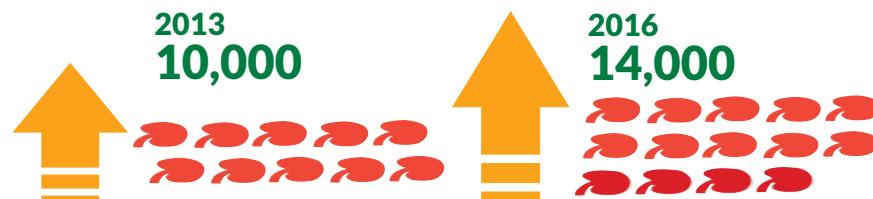
“SILENT KILLER.”

But simple urine tests can detect kidney disease when there is still time to slow or stop damage. *Ask your doctor if a test is appropriate.*



Renal Diseases in the Philippines

CASES OF RENAL DISEASES IN THE PHILIPPINES



FILIPINOS UNDERGOING DIALYSIS



The Philippine Department of Health estimated an increase in the number of kidney disease cases between **10 to 15% per year**

Source: Statistics-National Kidney Foundation

Renal Disease

BY THE NUMBERS



KIDNEY DISEASES

ARE AMONG THE TOP CAUSES OF MORBIDITY (7th) & MORTALITY (8th)

Unhealthy Lifestyle: A Big Factor



DIABETES and HYPERTENSION

THE LEADING PRECURSORS IN THE DEVELOPMENT OF KIDNEY DISEASES IN THE COUNTRY

A COMBINATION OF:



POOR DIET



SMOKING



LACK OF EXERCISE

INCREASES
THE RISK OF KIDNEY DISEASE BY 300%

PRESENTLY, **3 OUT OF 10 FILIPINOS ARE OBESE**



17.7 MILLION FILIPINO ADULTS ARE SMOKERS

THESE SMOKERS LIGHT AN AVERAGE OF 7 TO 11 STICKS PER DAY

SOURCES:

- 1.) <http://www.manilatimes.net/kidney-disease-ph-7th-leading-cause-of-death/77716>
- 2.) <http://www.philstar.com/headlines/2014/02/25/1294271/doh-causes-kidney-failures-rise>
- 3.) <http://www.news.phl.gov.ph/articles/view/1971467191344/diabetes-hypertension-leading-causes-of-kidney-failure>
- 4.) <http://www.interaksyon.com/article/33699/rise-in-kidney-failure-causes-alarms-health-experts>
- 5.) <http://www.nkki.gov.ph/patients-and-visitors/kidney-health-plus>
- 6.) <http://www.sunstar.com.ph/bacolod/local-news/2016/06/23/kidney-disease-6th-leading-cause-death-negros-occidental-401151>

Hypertension and Diabetes are both classified as lifestyle diseases that are affected by nutrition. As such, the Philippine Society of Nephrology created this manual for patients to increase their knowledge regarding our food.

Kidney function is affected by the food that we eat. It is important to eat healthily and maintain a balanced diet.

Always remember that you can always ask for help. Monitor your weight, blood chemistries and sugar levels. Always consult with your partners in health: **doctors, nurses and nutritionists.**

You are NEVER alone.



The Management of CKD is a Team Effort!

Your Partners in Health



Nephrologist

This is your kidney doctor who watches over your kidney function and is the leader of the team.



Other Specialists

Depending on your conditions, your nephrologist will work closely with other doctors like your diabetes and heart doctors.



Patient

YOU ARE THE MOST IMPORTANT MEMBER OF THE TEAM! You will need to work with your team.



Nutrition Specialist

Your nutritionists will guide you regarding food choices and portions.

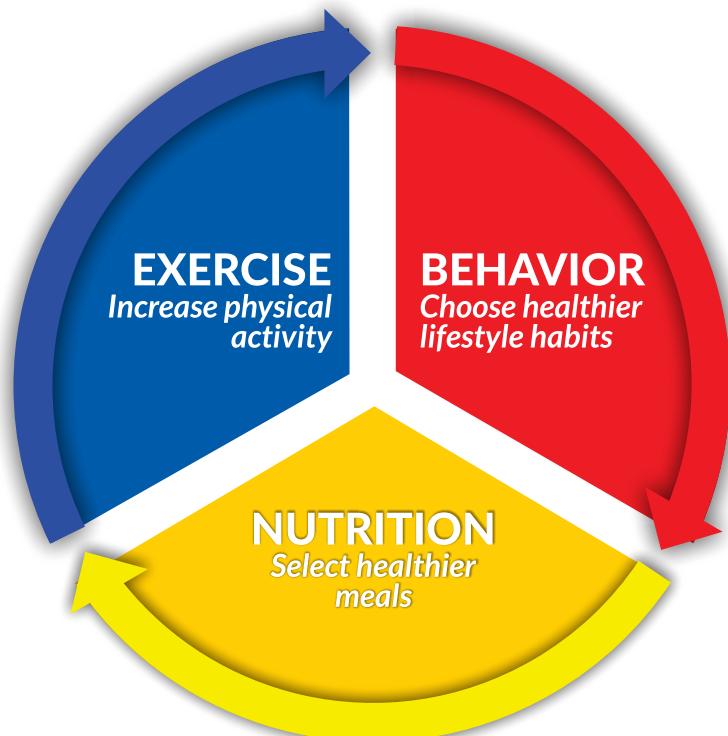


Nurse

You may have different nurses helping you such as dialysis and diabetes nurses.

B. Triad of Health

OPTIMAL HEALTH is achieved by a combination of the following factors:



2. HEALTHY EATING

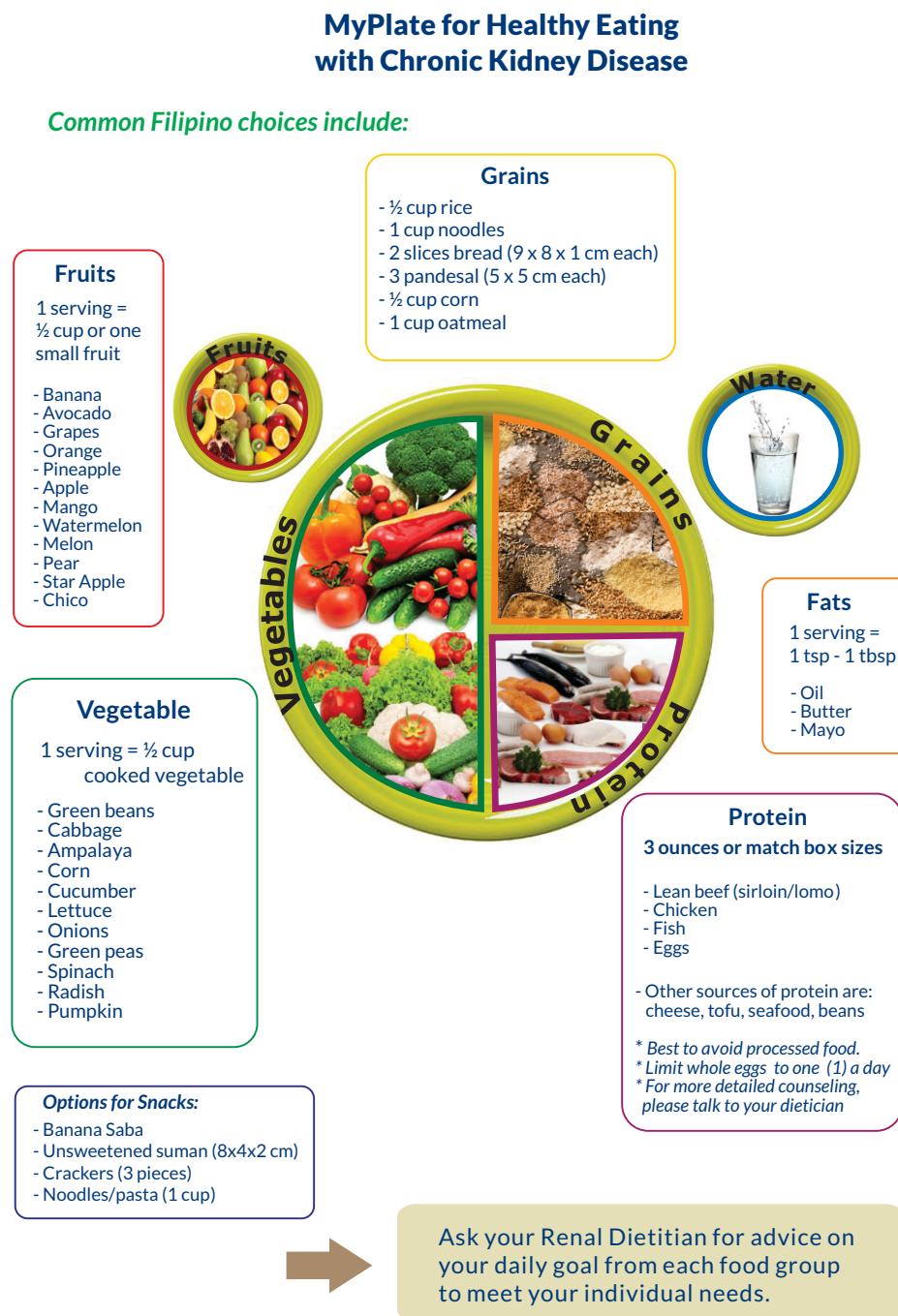
A. Healthy eating consists of 3 basic things:

1. Food Options - which type of food to put on your plate
2. Food Portions - how much food to put on your plate
3. Meal Timing - what time to eat

B. The General Plate Method

All basic food groups should be represented in every meal to make sure that you will not miss out any nutrient in your diet. This includes vitamins and minerals which are essential to health.

B. The General Plate Method



% OF YOUR PLATE: Vegetables

Select vegetables that are acceptable to you and your team. Vegetables are a source of nutrients which you may need to control depending on your laboratory results. (See Appendix for the Food Lists)

% OF YOUR PLATE: Protein

Proteins are important for muscle and tissue building. They are also essential in keeping your immune system healthy. Animal sources are: beef, pork chicken, fish, egg, cheese Plant sources are: tofu, beans, nuts These may need to be controlled depending on your kidney disease stage.

% OF YOUR PLATE: Carbohydrates/Starches

Although carbohydrates may have effects on sugar and weight, they are still important sources of energy. Examples are: rice, grains, pasta & noodles, corn, potatoes and other root crops, cereals

SIDE PLATTER: Fruits

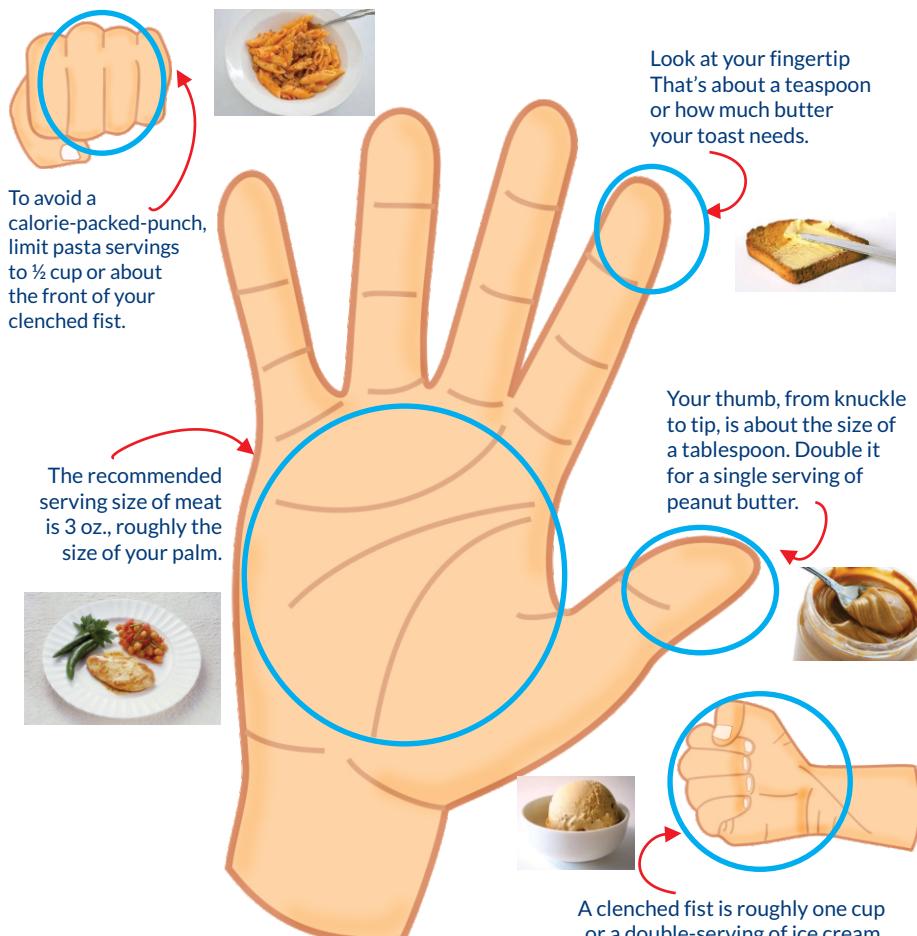
Fruits are a good source of vitamins and minerals, as well as fibers. However, they may also contribute to increase in sugars. Fruit portioning is important.

Beverages

The most important and safest beverage is clean water. However, you may be allowed other beverages such as coffee, tea, milk & some fresh juices. Take note that these drinks may contain some nutrients like phosphorus, calcium and sugar that may need to be controlled.

Food Portions: It's All in the Hand!

HAND GUIDE TO PORTION CONTROL



HAND MEASURES

Use this "handy" chart to visualize approximately sized portions for meals, snacks and recipes (examples are provided for each corresponding measurement).

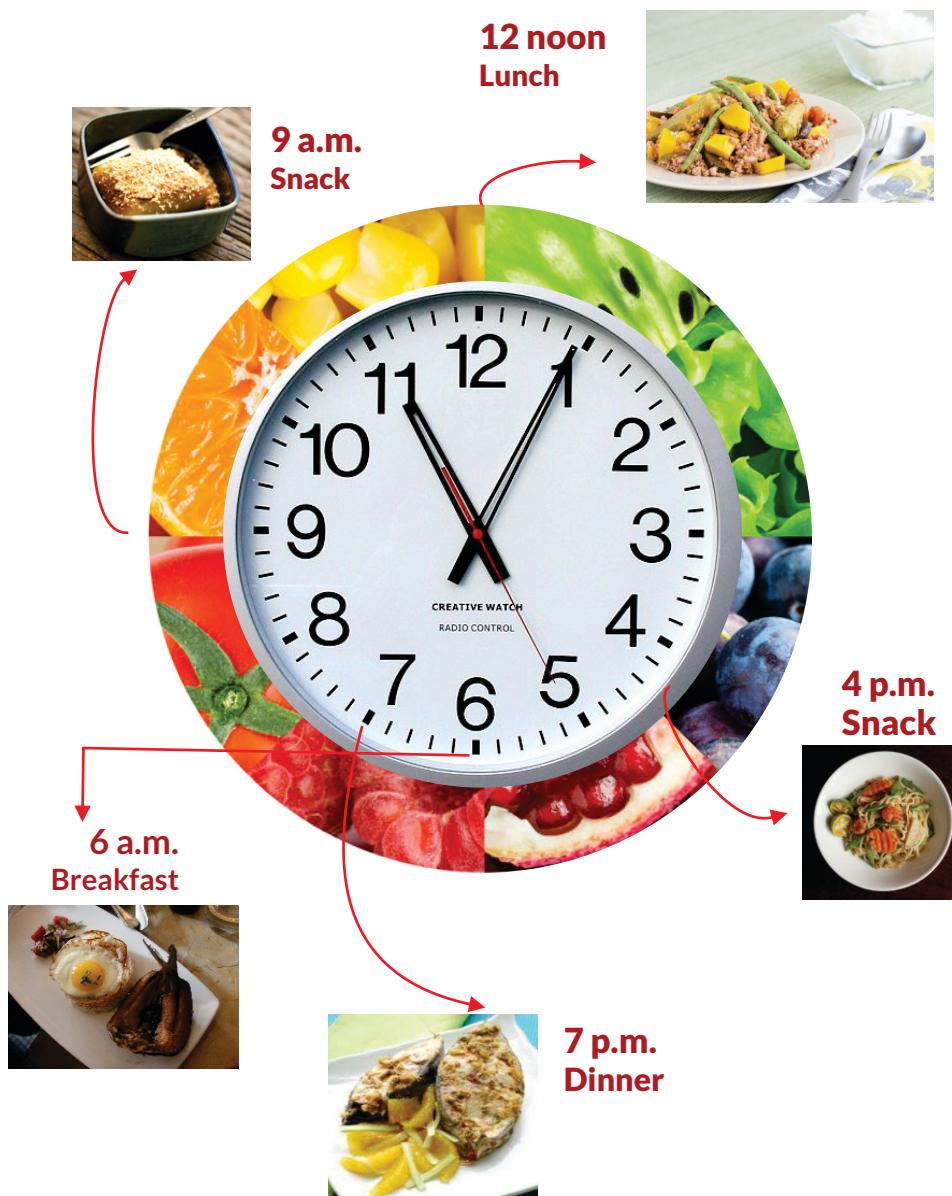


SOURCES:

1. <http://www.cnop.usda.gov/Publications/DietaryGuidelines/2000DGBrochureHowMuch.pdf>
2. <http://222.healthykansas.gov/programsServices/chronicDisease/Nutrition/Pages/ServingSizes.aspx>

www.GuardYourHealth.com

Timing of our Eating: Have three regular meals and optional snacks in between, eating every 3-4 hours.



If you are overweight, you can limit your carbohydrates. If you need to gain more weight, be more liberal with your food portions, especially your carbohydrates.

Capillary blood glucose monitoring or **prick testing** may help determine whether fruits or carbohydrates may be added or subtracted from the diet.

How will I know if I am eating right to keep me healthy?

Ask yourself the following questions. If the answer to any of these is yes, consult your physician.

- Have you noticed a change in the kind or amount of food you eat each day?
- Have you had any problems eating your usual or recommended diet?
- Have you lost weight without trying?
- Have you noticed any changes in your strength or ability to take care of yourself?

3. GENERAL RENAL CONDITIONS

A. Pre-Dialysis Chronic Kidney Disease

Objective: Delay the progression of kidney disease through proper diet

Trivia:

Did you know that pre-dialytic chronic kidney disease is the only disease entity that warrants a low protein diet?

Protein allowance is 0.6-0.8 gram per kilo per day (KDIGO, 2012). If the average weight of a Filipino is 55 kilograms, protein allowance would be 1 – 1.5 ounces OR 1 – 1 ½ match box sizes OR 8 – 12 grams of protein per meal (*breakfast, lunch, or dinner*).

Vegetable choices may be modified depending on your serum potassium level. If your potassium is low, choose vegetables that are rich in potassium. If it is high, choose vegetables that are low in potassium and make sure that they are cooked. (See Appendix)

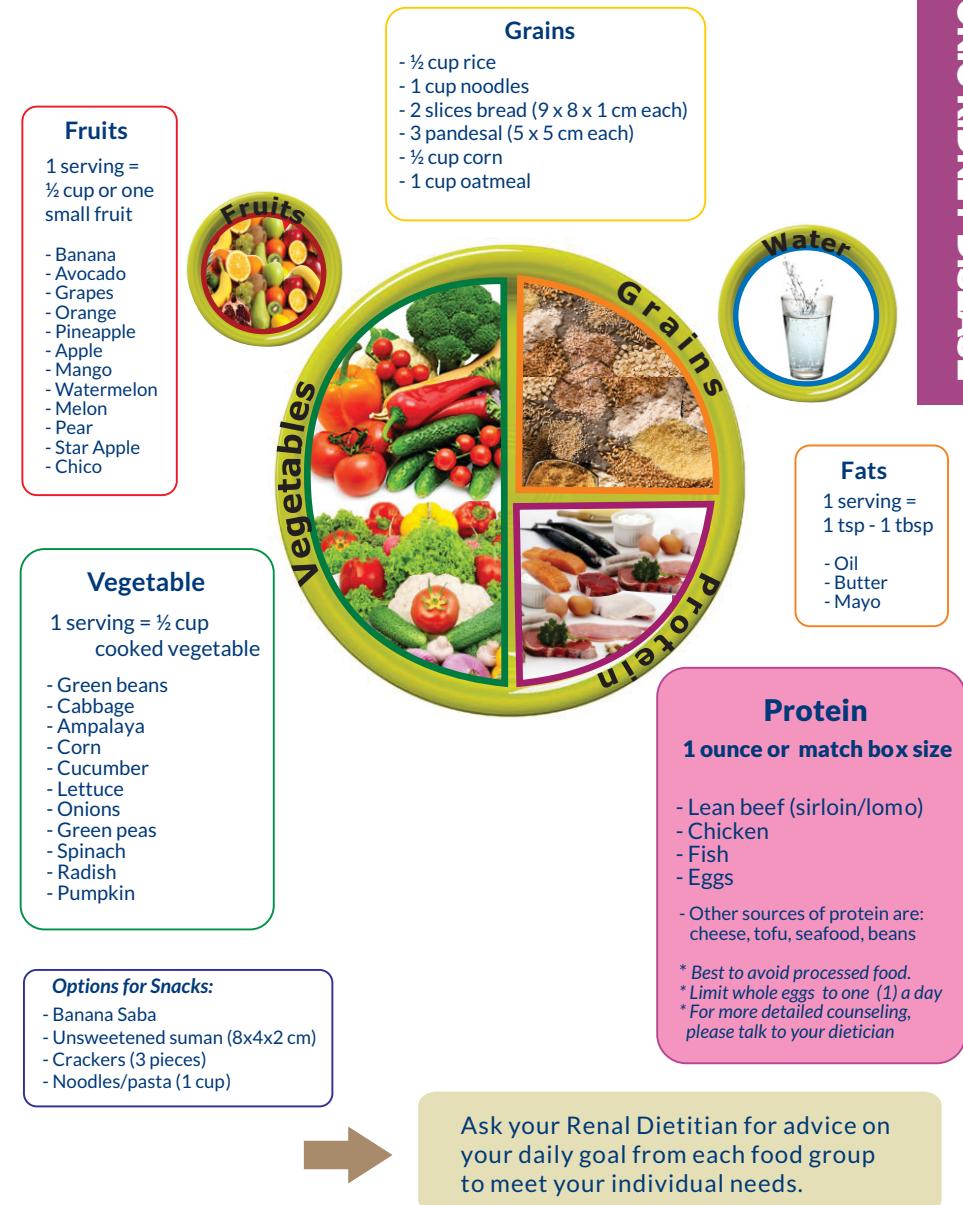
The sodium allowance is less than 1 teaspoon or less than 2 grams per day. Try to avoid having sauces and condiments on the side during your meals. These may have hidden salt, potassium and even sugars.

See the list of foods high in particular electrolytes in the Appendix.

Dietary Advice

MyPlate for Healthy Eating with Chronic Kidney Disease

Common Filipino choices include:



B. CKD Stage 5 Requiring RRT

Objective: Avoid malnutrition in patients undergoing renal replacement therapy

Fluid intake is dependent on the residual kidney function or the amount that you are still able to urinate. Talk to your doctor about your fluid allowance.

If on renal replacement therapy, protein allowance is at 1.2 gram per kilo per day. For a 55 kilogram patient, this amounts to 2-3 ounces / 2-3 matchbox sizes / 16-24 grams of protein.

Vegetable choices may be modified depending on your serum potassium level. If your potassium is low, choose vegetables that are rich in potassium. If it is high, choose vegetables that are low in potassium and make sure that they are cooked. (See Appendix)

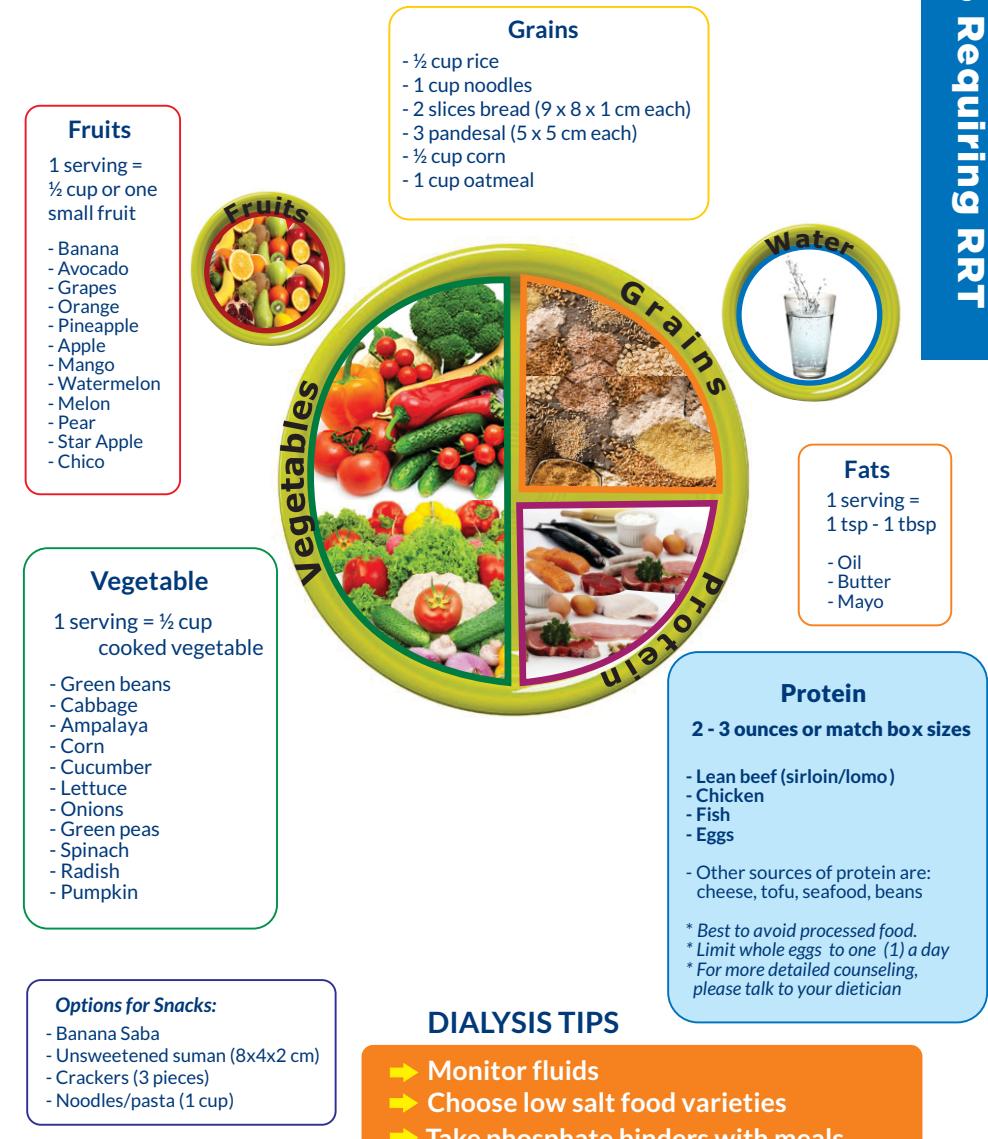
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Dietary Advice

MyPlate for Healthy Eating with Chronic Kidney Disease

Common Filipino choices include:



C. Kidney Stone

Objectives:

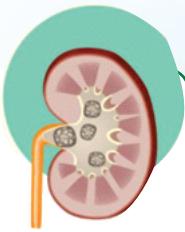
- Delay progression of Kidney Disease by proper diet
- Prevent stone recurrence

ALL ABOUT KIDNEY STONE!

Trivia:

What is a kidney stone?

A kidney stone is a hard mass that forms from crystals in the urine. In most people, natural chemicals in the urine stop stones from forming.



SYMPTOMS

- Sudden pain in the side of the abdomen
- Nausea and vomiting
- Difficulty and pain on urination

CAUSES

- Too much of:
 - Sodium or salt
 - Uric acid
 - Animal protein
- Less water intake



PREVENTION

- Drink enough water & fluids to urinate at least 2 - 2.5 liters daily
- Limit sodium/salt intake in diet
- Follow a healthy diet
- Exercise regularly
- Get enough sleep
- Quit smoking and alcohol



Dietary Advice

For kidney stones, the kind of food is also as important as the food distribution.

MyPlate for Healthy Eating with Chronic Kidney Disease

Common Filipino choices include:

Fruits

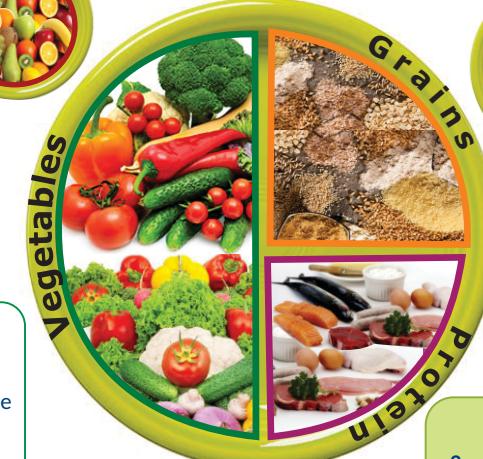
1 serving =
½ cup or one small fruit

- Banana
- Avocado
- Grapes
- Orange
- Pineapple
- Apple
- Mango
- Watermelon
- Melon
- Pear
- Star Apple
- Chico



Grains

- ½ cup rice
- 1 cup noodles
- 2 slices bread (9 x 8 x 1 cm each)
- 3 pandesal (5 x 5 cm each)
- ½ cup corn
- 1 cup oatmeal



Vegetable

1 serving = ½ cup cooked vegetable

- Green beans
- Cabbage
- Ampalaya
- Corn
- Cucumber
- Lettuce
- Onions
- Green peas
- Spinach
- Radish
- Pumpkin

Options for Snacks:

- Banana Saba
- Unsweetened suman (8x4x2 cm)
- Crackers (3 pieces)
- Noodles/pasta (1 cup)

Fats

- 1 serving = 1 tsp - 1 tbsp
- Oil
- Butter
- Mayo

Protein

3 ounces or match box sizes

- Lean beef (sirloin/lomo)
- Chicken
- Fish
- Eggs
- Other sources of protein are: cheese, tofu, seafood, beans

* Best to avoid processed food.
* Limit whole eggs to one (1) a day
* For more detailed counseling, please talk to your dietitian

TIPS TO HELP KEEP YOUR KIDNEYS HEALTHY

- Only take medications that are prescribed by your doctor in the time and way instructed
- Be careful with over-the-counter medications, herbal concoctions & supplements that claim to promote, prevent or cure kidney disease
- Keep your diabetes, hypertension and cholesterol controlled
- Get at least 7 hours of sleep

SOURCE: www.psn.ph/patients&visitors/kidneyhealth

REMINDERS:

- Drink enough water and fluids to urinate at least 2 to 2.5 liters daily
- Low purine diet
 - Foods high in purine: alcohol, nuts, red meat, organ meat, shell fish, fish sauces, small fish
- Increase citrus fruits like calamansi or lemon in diet
- Decrease food rich in oxalate
 - Foods high in oxalate: spinach, potato, okra, nuts, cashew, seeds, grains, legumes, tea
- DO NOT go on a low calcium diet. Enough calcium is needed in the intestines to bind any oxalate ingested
- Stone formers should not take vitamin C supplements, as it would be an oxalate source of Calcium Oxalate (CaOx) stone formation
- Low salt diet: limit salt intake to less than 1 teaspoon per day
- Consult your doctor for proper medication and monitoring

SOURCE: <http://my.clevelandclinic.org/health/articles/11066-kidney-stones-oxalate-controlled-diet>

4. SPECIALIZED NUTRITION

If despite all of these, you still cannot eat, talk to your doctor about other means to be fed.



Appendix I: POTASSIUM

Ask your doctor or dietitian about your monthly blood potassium level and enter it here:

If it is 3.5-5.0.....You are in the **SAFE** zone

If it is 5.1-6.0.....You are in the **CAUTION** zone

If it is higher than 6.0.....You are in the **DANGER** zone

POTASSIUM					
Low		Medium		High	
VEGETABLE CHOICES					
Vegetables	Amount per serving	Vegetables	Amount per serving	Vegetables	Amount per serving
Bamboo shoots, canned	½ cup	Broccoli	½ cup	Asparagus	5 spears
Beans	½ cup	Cabbage	½ cup	Avocado	¼ whole
Cabbage, raw	½ cup	Carrots, raw	1 small	Beets	½ cup
Chinese Cabbage, raw	½ cup	Cauliflower	½ cup	Celery	½ cup
Cucumber, peeled	½ cup	Celery, raw	1 stalk	Okra	½ cup
Lettuce, all varieties	1 cup	Corn	½ cup	Pepper, chili	½ cup
Watercress	½ cup	Eggplant	½ cup	Potato	½ cup
		Mushrooms, canned	½ cup	Pumpkin	½ cup
		Mushrooms, raw	½ cup	Tomato	1 medium
		Onion	½ cup	Tomato puree	2 tbsp
		Peas, green	½ cup	Tomato sauce	¼ cup
		Radish	½ cup	Bamboo shoots	½ cup
		Spinach, raw	½ cup	Potato, baked	½ medium
		Squash	½ cup	Potato	½ cup
				Potato chips	1 oz/14 chips
				Spinach	½ cup
				Sweet potato	½ cup
				Tomato paste	2 tbsp

* Leach or boil vegetables to lessen potassium content

POTASSIUM					
Low		Medium		High	
FRUIT CHOICES					
Fruit	Amount per serving	Fruit	Amount per serving	Fruit	Amount per serving
Apple sauce	½ cup	Apple	1 small, 2 ½-inch diameter	Avocado	½ small
Grape juice	½ cup	Apple juice	½ cup	Banana	½ medium
Lemon	½ cup	Calamansi juice	½ cup	Buko juice	1 glass
		Fruit cocktail	½ cup	Melon	1 small
		Grapes	15 small	Kiwi fruit	½ medium
		Lemon juice	½ cup	Orange juice	½ cup
		Mango	½ cup	Orange	1 small, 2 ½-inch diameter
		Papaya	½ cup	Pear, fresh	1 medium
		Peach, canned	½ cup	Prune juice	½ cup
		Pineapple, canned or fresh	½ cup	Prunes, dried or canned	5 pieces
		Raisins	2 tbsp		
		Strawberries	½ cup		

SOURCE: Manual of Clinical Nutrition Management
2002 Morrison Management Specialists, Inc.

* Leach or boil vegetables to lessen potassium content

Appendix II: PHOSPHORUS

PHOSPHORUS					
Low		Medium		High	
Food	Amount per serving	Food	Amount per serving	Food	Amount per serving
Green peas	½ cup	Lentils, cooked	1 cup	Dark colas	1 glass
Red tomato, cooked	1 cup	Soybeans	1 cup	Pumpkin & squash	1 oz
Sweet potato, baked	1 medium	Cashew nuts, raw	1 oz	Sunflower seeds, toasted	1 oz
White mushrooms, raw	1 cup	Mushrooms	1 cup	American cheese	1 oz
Spinach	½ cup	portobello		Beans, cooked	1 cup
Asparagus	½ cup	Swiss cheese	1 oz	Romano cheese	1 oz
Mashed potatoes	½ cup	Dry, roasted almonds	1 oz		
Bamboo shoots	½ cup	Pistachio nuts, dry & roasted	1 oz		
Broccoli	½ cup	Baked potato	1 medium		
Tomato, raw	1 cup	Mozzarella cheese	1 oz		
Bell pepper, raw	1 cup, chopped	Peanut butter	2 tbsp		
Parmesan cheese	1 tbsp				
Pumpkin, cooked & mashed	½ cup				
Beets, cooked	½ cup				
French fries	10 strips				
Raisins, seedless	1 oz				
Cucumber, chopped	1 cup				
Banana	1 medium				
Okra, cooked	½ cup				
Cabbage, cooked	½ cup				
Carrots, cooked	½ cup				
Mango	1 piece				
Shitake mushroom	1 piece				
Cauliflower	½ cup				
Orange	1 medium				
Watermelon	1 cup				
Eggplant, cooked	1 cup				
Papaya	1 cup				
Apple	1 medium				
Radish, raw	½ cup				
Celery, raw	½ cup				
Grapes	1 cup				
Ketchup	1 tbsp				
Onion, chopped	1 tbsp				

Appendix III: ELECTROLYTES AND URIC ACID IN FOOD

Electrolyte	Sodium	Calcium	Magnesium	Phosphorus	Uric Acid
Common food	Salt Soy sauce Fish sauce Bagoong Additives Fast food	Milk Dairy Nuts Whole grains Small fish	Beans Nuts Green leafy vegetables	Milk Dairy Cola Processed food Organ meats	Alcohol Fatty meat Organ meat Small Fish Shellfish Sauces / Sarsa Processed food
Choose instead	Spices Herbs				

REFERENCE: US Dept of Agriculture, Agricultural Research Service, National Agricultural Library. USDA National Nutrient Database for Standard Reference. Available at: <http://www.nal.usda.gov/fnic/foodcomp/search/index.html>. Accessed December 10, 2012.

PATIENT MONITORING SHEET

MONITORING SHEET

Date																
Dry Weight																
Pre-dialysis Weight																
Post-dialysis Weight																
Blood Sugar																
HbA1c																
Blood Urea Nitrogen (BUN)																
Creatinine, serum																
Sodium (Na), serum																
Potassium (K), serum																
Calcium (Ca), serum																
Magnesium (Mg), serum																
Albumin																
Phosphorus																
Uric Acid																
Total Cholesterol																
LDL																
HDL																
Triglycerides																

Notes