

NEWSLETTER

NUTRITION SOCIETY WAYAMBA UNIVERSITY OF SRI LANKA
N U T S O C

DO WE REALLY NEED
VITAMIN & MINERAL
SUPPLEMENTS?

WHY NUTRITION IS IMPORTANT
DURING
PREGNANCY?

FIGHT AGAINST
CANCER
THROUGH DIET

MANAGING
KIDNEY DISEASES
WITH DIET





Food and Agriculture Organization
of the United Nations

Enhance the nutritional value of your daily meal by adding colour to your plate!

The Food Based Dietary Guidelines will help you to maintain a diverse diet



MESSAGE FROM THE HEAD OF THE DEPARTMENT



Dr. Kumari Rathnayake

Head of the Department
Faculty of Livestock, Fisheries & Nutrition
Waymba University of Sri Lanka

The Nutrition Society of Waymaba University of Sri Lanka has a long rich history and a beloved reputation since its inception in 2002. As the Head of the Department of Applied Nutrition, I'd like to take this opportunity to express my appreciation to all of the students who worked meticulously and ardently to elevate the status of the society and I salute for your efforts to continue the legacy of the society.

I believe this newsletter as the first of its kind will pave the path to many young and exuberant minds and will give our students a platform to work together, bring together their ideas and disseminate them

to their fellow Contemporaries, University and the Community.

With the prevailing situation in the country and the world, where everyone's battling a pandemic, let us work together to serve our society with its myriad of nutritional and health issues through what we are good at. Last but not least, I thank again everyone who was involved in making this a success, and I hope this tradition will continue. Hoping to witness many more success stories from the NutSoc in the future.

MESSAGE FROM THE SENIOR TREASURER



Dr. Thushanthi Perera

Senior Lecturer
Faculty of Livestock, Fisheries & Nutrition
Waymba University of Sri Lanka

As the Senior Treasurer of the Nutrition Society of the Waymba University (NutSoc), I'd like to take this opportunity to express my deepest gratitude to all of you for your timely efforts in carrying out the legacy of the society and keep it moving in the correct direction amidst the unprecedented times ahead of us.

I believe this newsletter will provide many helpful pieces concerning a healthy and nutritious lifestyle and it will feature many articles compiled by the members of the NutSoc as well as the students who're specializing in the Department of Applied Nutrition. This will give our students a wonderful opportunity to express their ideas, thoughts, and scientific reasoning along with a chance to improve their creativity, innovation and teamwork.

Since, the world is moving to a digital era more than ever at present, we will be publishing our newsletter in the e-format as a Digital-Newsletter.

As challenging times lie ahead, I want to remind the role nutrition plays in our lives and the importance of healthy eating and physical activity in our everyday life.

Thank you again for your unwavering commitment and support.

TOGETHER WE MAKE A
DIFFERENCE...

MESSAGE FROM THE PRESIDENT



S.Induijaa

Undergraduate student
Faculty of Livestock, Fisheries & Nutrition
Waymba University of Sri Lanka

“

***Hard times may have held you down, but they will not last forever.
When all is said and done, you will be
increased.***

Joel Osteen

”

I'm starting my president's message with this quote, which is more suitable during the current situation of the nation.

It is an honor for me to serve as the president of the Nutrition Society (NutSoc), Waymba University of Sri Lanka and to give the president's message to the newsletter, which can be used as a communicating tool to convey the nutrition related information. It gives a good chance to share the nutrition knowledge with the outside world which we are learning through our degree.

My sincere thanks go to each and every person who worked hard to publish this newsletter. I would like to personally thank our Senior Treasure

Dr. Thushanthi Perera for her motivation and providing us with ideas to uplift the society through various activities. I use this chance to welcome our juniors to the Department of Applied Nutrition. We are unable to give you a proper welcome due to the prevailing situation, but, I warmly welcome you all to our Nutrition family. You'll be the future of the society.

Considering the situation in the country we go for an e-version rather than a hard copy to give access for everyone. Readers are most welcome to provide their suggestions about our newsletter for further improvements. We hope you enjoy reading the newsletter. Looking forward to see you at our next edition.

MESSAGE FROM THE SECRETARY



Shashya Savindya

Undergraduate student
Faculty of Livestock, Fisheries & Nutrition
Waymba University of Sri Lanka

The Nutrition Society of Waymba University of Sri Lanka (NutSoc) is the platform where the undergraduates of the Department of Applied Nutrition get the exposure to the community and the opportunity to practically utilize their knowledge for the improvement of the nutritional status of the community. The country pays us for learning our “food and nutrition” and we consider it as our responsibility to repay the country by utilizing our abilities to uplift the nutritional and health status of the community. We have started reaching out to the community

through smaller activities and we believe we will be able to strengthen and expand the NutSoc with the next generations of students, until we will be able to serve the whole country. We, as the office bearers of the year 2019-2020, are delighted to launch a newsletter through the NutSoc including the activities we have done during the year, the upcoming events and the articles written by the undergraduates on timely topics in food and nutrition.

Let the 'Habit' Lead to 'Good Health'



We have the habit of drinking a cup of tea, or coffee once or twice a day. We mainly use them as stimulant beverages. We believe that they can give us a relaxation, freshness and a stimulation to work actively. Do they really possess such abilities?

They can be considered as functional foods, meaning they have 'functional components' which are not 'nutrients', but are capable of providing health benefits. These beverages mainly provide antioxidant effects through the 'functional components' present in them.

What is an antioxidant effect? During the normal functioning mechanisms of the body, free radicals and other reactive species are produced inside the body. The mechanism which eliminates free radicals is mediated by 'antioxidants'. The body has its own antioxidant mechanism. But in some instances, the balance between the body's free radical generation and antioxidant functionality is lost due to the overproduction of reactive species in the body. Thus, the excess of reactive species damages the body's cells and tissues. This imbalance is called 'oxidative stress' and it leads to number of diseases including heart diseases, cancer, diabetes, high blood pressure and aging. Therefore, it is beneficial to obtain 'antioxidants' into the body from external sources and for which tea, herbal teas and coffee are good candidates.

Tea, is made out of the leaves of *Camellia sinensis*. Tea is the second mostly consumed beverage, while the first is water. There are different types of tea including black tea, green tea and oolong tea. The different types are due to the differences in fermentation and the manufacturing methods. Polyphenols like catechine, flavonols are the main groups of functional components in tea and their contents are different among the three types. Also, tea contains caffeine in certain amounts. Green tea is said to have the highest polyphenol level and black tea has the lowest. Research suggest that tea provides health benefits such as antioxidative, anti-inflammatory, antimicrobial, anticarcinogenic, antihypertensive, neuroprotective, and cholesterol-lowering effects. Thereby, tea helps to lower the risk of non-communicable diseases such as diabetes, cancer, heart attack and stroke. These beneficial effects of tea are due to their



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Coffee is another widely consumed stimulant beverage worldwide. Coffee contains caffeine and polyphenols like Chlorogenic acid, tannins as the most widely known bioactive compounds. Recent research suggests that polyphenols in coffee help to prevent type 2 diabetes mellitus and improve insulin sensitivity. Also, coffee helps to prevent liver diseases; both alcoholic and non-alcoholic fatty liver. But it is unclear whether caffeine or polyphenols give these liver protective effects. Some believe that coffee is bad for heart health. The relationship between caffeine in the coffee and cardiovascular diseases has been studied for years. But the recent theories show that there is no clinical basis to associate moderate coffee consumption to increased risk of heart diseases. Therefore, moderate coffee consumption up to 4 cups per day is fine by a normal person, however pregnant mothers are advised to limit the caffeine intake.

In both tea and coffee, the stimulant effect you get is due to caffeine. Caffeine gives the stimulation through 'brain reward mechanism', meaning it interacts with the nervous system and the brain; making you feel motivated, pleasurable and give out the feeling "good" sensation.

Herbal teas, though they are not very popular, are also rich in antioxidants. They are capable of protecting you from diabetes, heart diseases, cancers, allergies, and viral or bacterial diseases. Some of the common examples of herbal drinks used in Sri Lanka are; bael flower, bael fruit, Coriander, Hibiscus, Polpala, Ranawara, Iramusu, Aloe vera, Centella etc. Herbal teas can be consumed not only as a medication, but also as a part of day-to-day life or in replacement of normal tea, in order to maintain good health.

It is now clear that tea, herbal tea and coffee give protection against several diseases. However, they can be toxic too, if they are over-consumed. Use them daily, but in moderation, to obtain their benefits which will make your life healthier.

Shashya Diyapaththugama
Undergraduate Student (4th year)
Department of Applied Nutrition

Micro-nutrients & Immune Function



Vitamins A, D, C, E, and zinc are required to ensure the structural and functional integrity of external and internal surfaces of the body such as skin and mucus membranes, which provides the first line of defence against invading pathogens. Cell-mediated processes of innate immunity, such as cell proliferation, differentiation, function, movement etc. depends on adequate amounts of vitamins A, D, C, E, B6, and B12, folate, iron, zinc, copper, selenium, and magnesium. Similarly, several chemical responses such as activation of the complement system require certain vitamins and minerals (i.e. vitamins A, D, and C, zinc, iron, and selenium). The inflammatory response provides a link between innate and adaptive immunity. Such function is regulated by vitamins A, C, E, and B6, as well as iron, zinc, and copper. Adaptive immune responses depend on the presence of a variety of micro-nutrients at all stages such as lymphocyte proliferation, differentiation and etc. Micro-nutrients are also involved in self-protection of immune cells, (for an example the antioxidant actions of vitamin C, E, zinc, iron, copper and selenium), inhibitory actions which includes vitamin D, B6, E and also elimination of spent cells via apoptosis and clearance (vitamin C limits tissue damage).

The usual diet of an individual together with several environmental factors impacts on maintaining a healthy and optimally functioning immune system. An optimally functioning immune system allows its cells to initiate effective responses against pathogens, to resolve the response rapidly when necessary and to avoid any underlying chronic inflammation. Thus an optimally functioning immune system is crucial for a healthy life.

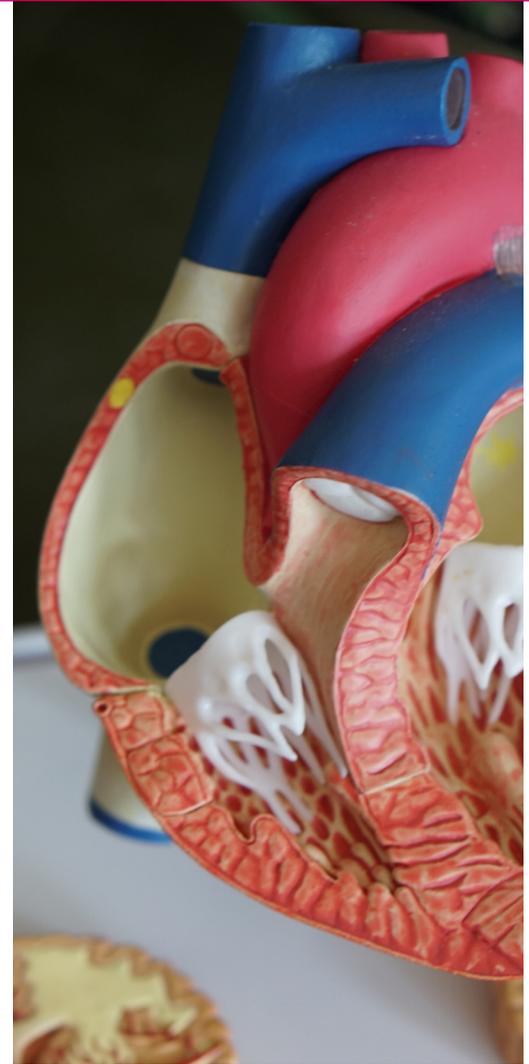
Nutrients impact both directly and indirectly upon immune function and micro-nutrients play specific roles. Micro-nutrients are integral parts of immune system and required in optimal levels to maintain optimum immune function. They are also involved in every stage of immune response and a single micro-nutrient may have more than one function on the immune response.

Micro-nutrient deficiencies often weaken the immune system leading the individual more susceptible for infections. Though, both major and minor micro-nutrient deficiencies are associated with increased risk of infections major deficiencies are more pronounced. The dietary intake of various micro-nutrients is inadequate worldwide which is the most probable cause for increased risk of infections. Evidence suggests that increased intake of some micro-nutrients above the RDA may help optimize immune function and improve resistance to infections.



Recent studies have suggested that vitamins A, D, C and zinc, iron, and multiple micro-nutrient (MMN) supplementations are beneficial in reducing the risk of infections. For an example, vitamin A is beneficial against diarrhoea and measles in children while, vitamin C is beneficial against pneumonia in adults and children and common cold in active people likewise, MMN supplementation is beneficial against helminthic infection in children and infection/reinfection in older adults. In treating the symptoms of infections, benefits have been reported for vitamin A, D, C and zinc. For an example vitamin A is beneficial for treating non-measles pneumonia, as well as measles-associated diarrhoea, vitamin D is beneficial in treating tuberculosis, influenza, vitamin C is beneficial in treating common cold in adults and children and pneumonia in adults and older adults, and zinc is beneficial in treating common cold in adults and children.

When considering clinical settings, sepsis is a major global cause of death. In sepsis, zinc plays an important role. Zinc is an important micro-nutrient for the immune system. It serves as a cofactor with both catalytic and structural roles in many proteins. Even a mild deficiency in zinc has found to be associated with widespread defects in both the adaptive and innate immune response. During sepsis, zinc homeostasis is majorly altered with zinc moving from the serum into the liver. Considering this phenomenon researchers suggest implications for therapeutic options to improve outcomes

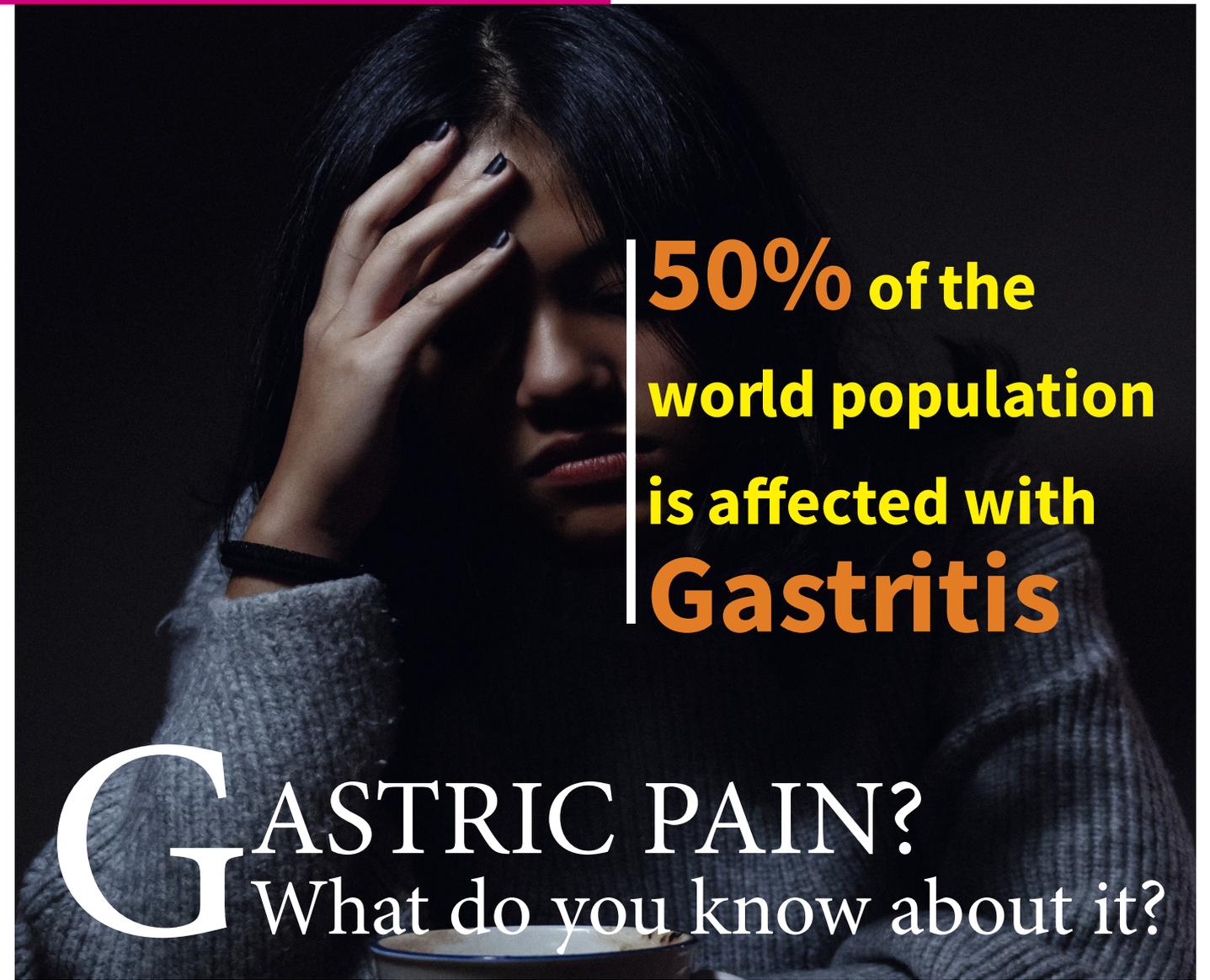


Vitamins A, D, C, E, and zinc are required to ensure the structural and functional integrity of external and internal surfaces of the body

Selenium is a trace element which has critical functional, structural, and enzymatic roles, in a range of proteins. Poor selenium status is associated with a higher risk for a range of chronic diseases including cancer and cardiovascular disease. In addition to critical roles in many non-immune tissues within the body, selenium is important for optimal immune function.

Evidence suggests that supplementing the diet with a combination of multiple, selected, immune-supportive micro-nutrients may help optimize the immune function and reduce the risk of infection. Thus, more research is needed to evaluate the efficacy of MMN supplements that contain immune-supporting micronutrients at doses higher than the RDA.

Michelle Sahabandu
Undergraduate Student (4th year)
Department of Applied Nutrition



**50% of the
world population
is affected with
Gastritis**

GASTRIC PAIN? What do you know about it?

From Every ten adults in the world, four suffer from functional gastrointestinal disorders of varying severity. According to the international statistics 50% of the world population is affected with gastritis, chronic gastritis is extremely frequent. Nowadays gastritis has become the world burden and also a common problem because of a busy lifestyle. In developing countries, gastritis is in high prevalence. Gastritis affects all age groups. Women are affected more often.

In general, gastritis is an inflammation, irritation of the lining of the stomach. It can be occurred suddenly (acute gastritis) or gradually (chronic gastritis). Acute gastritis involves sudden, severe inflammation. Chronic gastritis involves long term inflammation. If left untreated, gastritis may last form weeks to years.

Gastric acid is the digestive fluid formed from stomach cells. It is an acidic fluid. The mucosa is the innermost layer of the stomach and it is made from the mucous

membrane. It helps protect the lining of the stomach from acid. When that mucous membrane damaged, stomach lining becomes inflamed because tissues become damaged. That's the reason for inflammation. Infection of the stomach mucosa by *Helicobacter pylori* bacteria is another major cause of gastritis. The *Helicobacter pylori* can be infected with the lesions in the tissues. When the bacteria infect, it is difficult to cure gastric wounds. That's why discomfort is further increased

Previously most people identify gastritis as a non-communicable disease. According to the new findings, we cannot identify it as a non-communicable disease. It has some kind of communicable action. *Helicobacter pylori* bacteria is the major reason for that. It can be happened from bacteria-infected patient to non-infected person by small saliva droplets. If someone uses cups and plates of the infected person and also kissing lips may have a risk for transfer this bacteria through the mouth to stomach and infection can be happened.

Gastritis has many causes, but most of them show in similar symptoms. Abdominal pain, indigestion, abdominal bloating, nausea, vomiting, hiccups, cramps, and changes in bowel habits or abdominal upset are some of the most common symptoms of gastritis. But those symptoms vary among individuals, and for some people there are no symptoms.

Vomiting blood and chest pain are symptoms of more severe gastritis. Sometimes most of the patients identify that chest pain as a sign of the heart attack. So the best thing is to do is get checked by a doctor, if you have any of these symptoms.

Diagnosis of gastritis can be done by breath, physical, and chemical evaluation tests and review of personal and family medical history. Upper endoscopy test, immunological test, biopsy test, blood test, and stool test are some of the recommended tests.

When we eat foods less than the body requirements or skip the main meals, the stomach becomes empty for a long time. Tissues of the stomach can be damaged by gastric juice because of the acidity. Also if you get more than enough food, the digesting process inside the stomach is difficult and therefore excessive secretion of gastric juice damaged to tissues.

among people, the dairy containing foods can avoid gastritis. But now it has been discovered through modern tests, Calcium and Amino acids that found in milk can increase the secretion of gastric juice. The caffeine that contains in tea and coffee also stimulates the secretion of gastric juice. Some people might have some kind of relief for the inflammation from milk or tea. So it varies among individuals. Nowadays little children are accustomed to chewing gum. From that, a fake signal is given to the stomach to produce gastric juice. But in here it does not have foods to digest in the stomach. Therefore tissues can be damaged by acidity.

Acute gastritis can be cured by dieting and changing food habits. But instructions from doctors should be taken to control chronic gastritis. Stop smoking cigarettes, avoid drinking excessive amounts of alcohol, carbonated drinks, fruit juice that contain citric acid, and avoid eating high-fat food are practices that can

be reduced or stopped this cause. Spicy foods such as chili, hot peppers, black pepper should be avoided. By a diet rich in fiber and flavonoids containing foods like onions, garlic, lentils, and legumes can help stop the growth of the Helicobacter pylori. Probiotic containing yogurt can help reduce the growth of Helicobacter pylori. The concentration of gastric juice can be decreased by drinking water well. Meals and water are essential to avoid this condition. Mental healthiness also should maintain to beat the disease. Gastritis is not something to be feared. Acute gastritis can be managed by life modification with changing food habits. But the combination of good dietary practices and proper medication, chronic gastritis can also be cured. So we can avoid this disease through a good understanding and practice.

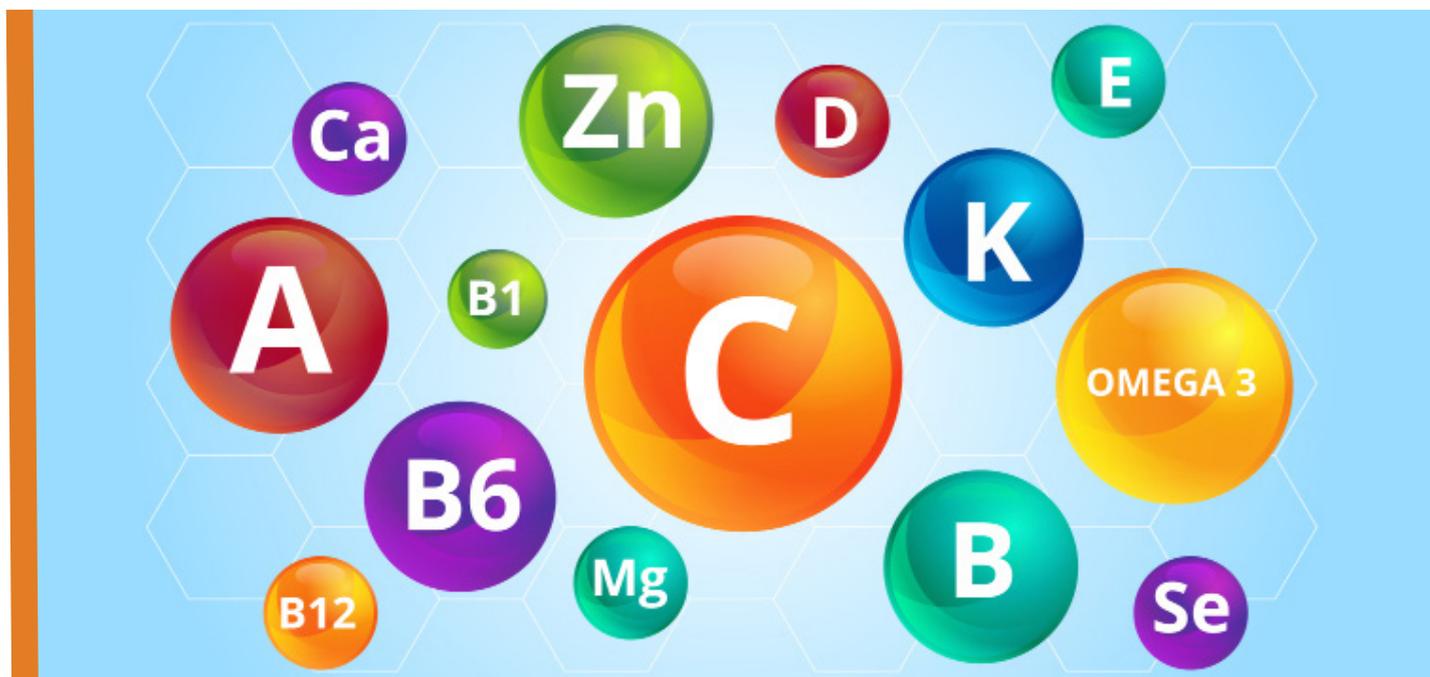
There is an opinion



Bawantha Bandara
Undergraduate Student (4th year)
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Vitamin and Minerals Supplements

Do we really need them?



An estimated 75000 supplements are currently on the market. Many take supplements as dietary insurance to meet their nutrient needs & others take supplements as health insurance to protect against certain diseases. Nowadays in Sri Lanka, the number of people who take multi-vitamin-mineral supplements is considerably increasing. Some take large doses of single nutrients, most commonly vitamin C, B vitamins, Vitamin D, and Calcium. For most of the country, people self-prescribe supplements, taking them on the advice of friends, family, websites or books that may or may not be reliable. Taking supplements based on a valid nutrition assessment by a registered dietitian is the best way.

Vitamins and mineral supplements may be appropriate in some circumstances. In some cases, they can prevent /correct deficiencies; in other, they can reduce the risk of diseases. Consumers should discuss supplement use with their health

care professional, who can help monitor the adverse effects or nutrition drug interactions. We, Sri Lankans, suffer nutrient deficiency diseases, and nutrient deficiencies do still occur. To correct an overt deficiency disease, a physician may prescribe therapeutic doses based on RDA or AI of a nutrient. At such high doses, the supplement is acting as a drug.

Nutrient needs increase during certain life stages; it is difficult to meet those needs without supplementation. For example, women who lose a lot of blood during menstruation each month may need an iron supplement. Women of childbearing age need folate supplements to reduce the risks of neural tube defects. Pregnant women and the women who are breastfeeding their infants have high needs special supplements. Newborns routinely receive a single dose of vitamin K at birth to prevent abnormal bleeding. infants may need other supplements based on whether they are breastfeeding or formula

feeding. Apart from these, people with specific nutrient deficiencies, people whose energy intakes are particularly low may need multi vitamin-mineral supplements. Vegetarians who eat plant-based diets only and adults with atrophic gastric condition may need vitamin B12. people who have lactose intolerance or milk allergies or those who do not consume enough milk or milk product may need calcium supplementation.

Food rarely causes nutrient imbalance or toxicity, but supplements can. For example, men and postmenopausal women should not take iron supplements because taking excess iron is harmful than inadequacies. Smokers should not take beta-carotene supplements given in high doses, it has been associated with increased lung cancer and mortality. The patients who are having surgery should not take vitamin E supplements during the week before surgery because vitamin E acts as a blood thinner. Pregnant women should concern about vitamin A supplement because high doses can produce teratogenic effects. These effects can result in a baby being born with a birth defect. In general, even mild overdose of supplements causes GI distress, nausea, diarrhea, and gastric bleeding. Severe overdoses result in bloody diarrhea, shock, liver damage, coma, and death.

Another issue is that when people who are ill, they come to believe that high doses of vitamins and minerals can be therapeutic. Some might eat irresponsibly using strange food patterns, thinking

supplements will ensure the needs are met. Such self- diagnoses are potentially dangerous. Apart from that people believe that food supply inadequate nutrients, while supplements provide energy, supplements can enhance athletic performance build lean body tissues without physical work, supplements will help a person cope with stress, and believes that supplements can prevent, treat or cure conditions from cold to cancer.

If all the nutrients we need can come from food, why not just eat food? Foods have so much more to offer than supplements. Nutrients in foods come with an infinite variety of combinations with a multitude of different carriers and absorption enhancers. Quite simply, food meets human health needs far better than dietary supplements. Whenever the diet is inadequate go with recommended dietary supplements by your dietitian.

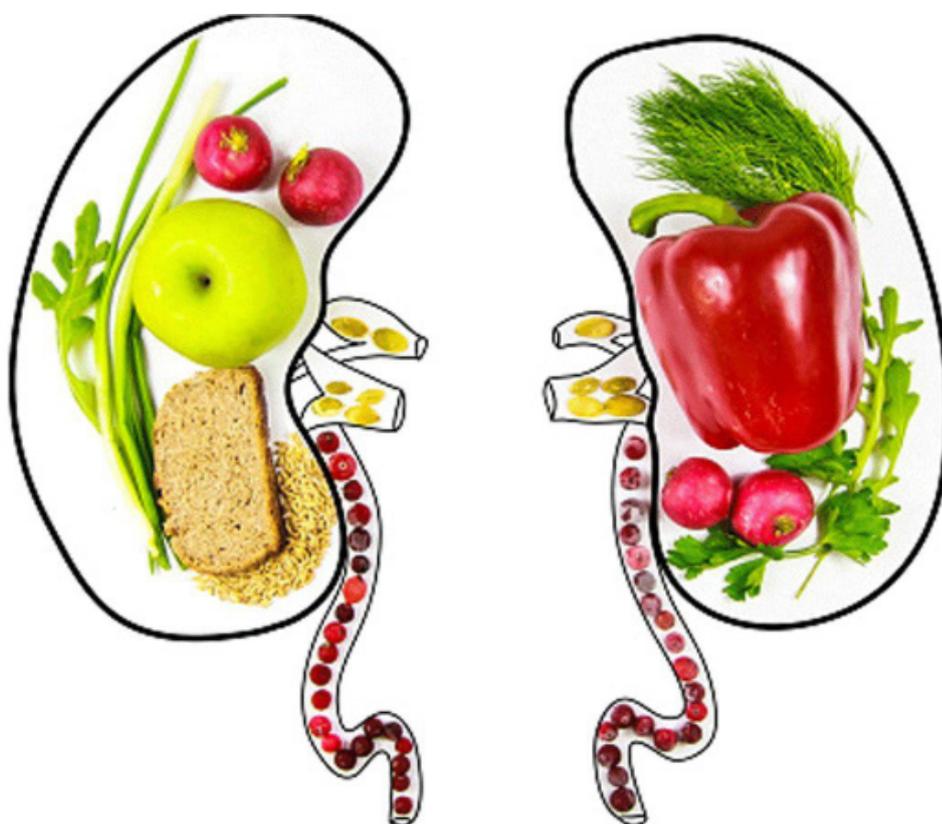
Dimalini Selvaratnam
Undergraduate Student (4th year)
Department of Applied Nutrition



“Supplements are not always a substitution”



Managing Kidney Diseases with Diet



“You need to make essential alterations to your diet when you’ve chronic kidney disease (CKD). These include limiting fluids, limiting salt/potassium / phosphorous and other electrolytes, eating a low protein diet, and further getting enough calories if you are losing weight.”

These days many health systems are focusing on mitigating the impact of Covid-19. With this pandemic, people may overlook many pandemics that already caused death. Among them, one of the highest risk diseases are ‘Kidney diseases’.

According to the Global Burden of Disease (GBD), it’s estimated that millions of people died from kidney failure. In 2017, about 1.2 million individuals died from kidney diseases. Also approximately, an estimated 2.3-7.1 million people with end-stage kidney disease died without access to chronic dialysis. Because of the acute kidney injury, around 1.7 million people die each year. Do you realize that you are being a victim to the dangerous killer unknowingly? If you’re already a kidney patient, you should follow a specific diet plan. I think you can get a clear idea about this from the following article.

You need to make essential alterations to your diet when you’ve chronic kidney disease (CKD). These include limiting fluids, limiting salt/potassium/

phosphorous and other electrolytes, eating a low-protein diet, and further getting enough calories if you are losing weight. These alterations are needed to keep the levels of electrolytes, minerals, and fluid in balance. Because the building-up of waste products (fluids) in the body should be limited. Most people on dialysis urinate very little. The fluid will accumulate in the body without urination, it causes mainly to the heart and lungs also it will lead to shortness of breath. Another factor is you need to take enough calories each day to keep you healthy. Therefore, you need to pay attention to your diet.

- What are the foods you should take as a good source of energy?
 - Fruits
 - Bread
 - Grains
 - Vegetables
- What food do you need to limit?

Desserts made with dairy, chocolate, nuts, or banana

- **How about the lipid and protein-containing food?**

When you eat fatty food make sure to use monounsaturated and polyunsaturated fats (olive oil, canola oil, safflower oil) to protect your heart health. Low-protein diets are helpful before you start dialysis. It should be based on your weight, stage of the disease, how much muscle you have, etc.. But after you start dialysis, you'll need to eat more protein. You can take a high-protein diet with fish, poultry, pork, or eggs. They're recommended for every meal.

- **What do you need to consider about the calcium and phosphorous intake?**

Calcium and phosphorous should be checked often. Phosphorous levels in the blood can get too high. This can cause low calcium levels in bones and it makes your bones weaker. There's more amount of phosphorous in dairy products, you need to limit them. Some dairy foods are low in phosphorous.

- **What are those?**

- Tub margarine
- Butter
- Non-dairy whipped toppings

You may need to take calcium supplements to prevent bone disease, and vitamin D to control the balance of calcium and phosphorous.

- **What about Fluid balance?**

When you're on dialysis, you'll need to consider more about the amount of liquid you take in. But in the early stages of kidney failure, you don't need to limit the fluid you intake. In more serious conditions or on the dialysis period, fluid can build up in the body. Always consider food that contains a lot of water, such as soups, fruit-flavored ice pops, ice cream, grapes, melons, lettuce, and tomatoes. You should try to reduce sodium in your diet. Because it helps you control high blood pressure & keeps you away from being thirsty. Try to consider factors that

given below before buying food. Low-sodium/ no salt added food. Check all labels to see how much salt or sodium content per serving. Also, avoid foods that contain a high amount of salt as an ingredient. Look for products with less than 100 milligrams (mg) of salt per serving.

- **What about the Potassium level?**

DO NOT use salt substitutes instead of salt because it contains high potassium. To keep a steady heartbeat, the potassium level of blood is important. With decreasing the kidney function as normal, too much potassium can build up. It leads to dangerous heart rhythms, which can cause death and muscle weakness, slow pulse and heart attacks. But the problem is fruits and vegetables contain large amounts of potassium. For this reason, you should avoid some fruits and vegetables to maintain a healthy heart.

- **What are the suitable fruits?**

- Peaches, grapes, pears, apples, berries, pineapple, plums, tangerines, and watermelon
- Limit or avoid oranges and orange juice, nectarines, kiwis, raisins or other dried fruit, bananas, honeydew, prunes

What are the suitable vegetables?

- Broccoli, cabbage, carrots, cauliflower, celery, cucumber, eggplant, green and wax beans, lettuce, onion, peppers, zucchini, and yellow squash
- Limit or avoid asparagus, avocado, potatoes, tomatoes or tomato sauce, pumpkin, avocado, cooked spinach

- **What about the intake of iron?**

With advanced kidney failure, people face anaemia condition and normally they need extra iron. Therefore, they should try to get iron contained food such as liver, beef, pork, chicken, lima and kidney beans & iron-fortified cereals.

Ahinsala Wanigasinghe
Undergraduate Student (3rd year)
Department of Applied Nutrition



Start Your Day with a Rainbow

Eat a rainbow every day to make your life colorful. Can you eat a rainbow?
Yes, you can. Eating a variety of fruits and vegetables every day helps color your day with a rainbow.

Plant-based food contain a plethora of not only vitamins and minerals, but perhaps, most importantly, phytonutrients. Phytonutrients are secondary metabolites synthesis by plants and the hidden secret of the edible rainbow.

Are eating colors beneficial?

Yes, the colors of phytonutrients has lots of health benefits. Phytonutrients have the potential to act at cellular level like modulation of protein kinases and epigenetic modification which resulting in reduced risk of chronic diseases.

Red

Lycopene and anthocyanin are the most dominant chromatic agents of red color fruits and vegetables.

Red fruits & vegetables contain:

- Antioxidants
- Anti-inflammatory activities
- Immune modulator effects

Chronic inflammation is closely associated with dysfunctional and dysregulated immune response, ultimately resulting in conditions such as cancers, neurological abnormalities, cardiovascular diseases, diabetes, obesity, pulmonary diseases, immunological diseases and other life-threatening conditions.

Red stops the dysfunctional immune response

Some examples:

Fruits: Red apple, cherries, red grapes, pomegranate, strawberry, watermelon

Vegetables: Beet, red capsicum, tomato, red pepper,





Orange

Carotenoids are associated with this color class of fruits and vegetables.

Orange food contains;

- Antioxidant for fat- soluble tissues
- Endocrine modulation
- Role in ovulation and fertility processes

Orange opposes the oxidative stress which may cause infertility in both men & women. Diet high in carotene reduces the likelihood of age- related muscle degradation and night blind.

Fruits in the orange spectrum; papaya, orange, mangoes, peach, passion fruit

Vegetables in the orange spectrum; sweet potato, pumpkin, carrot and etc.

Yellow

Bioflavonoids, zeaxanthin, lutein are some listed phytonutrients commonly found in yellow food.

Yellow spectrum is capable of;

- Modifying gastric microbial activities.
- Modifying enzymes that which can modify the hepatic or intestinal detoxification
- Lowering glycemic index
- Antioxidant activity
- Gastric motility and regulation

Yellow fruits; pineapple, banana, lemon, star fruit

Yellow vegetables; corn, potatoes, yellow bell pepper

Green

Green food have natural pigment called chlorophyll. Polyphenol and subclasses of polyphenol are abundant in green foods.

- Flavonoids of green foods show cardio protective and antioxidant effect
- Vitamin K, magnesium, potassium, naturally occurring nitrates, and folates are abundant in green foods, beneficial for heart health.

Green vegetables; bitter guard, bean, broccoli, cucumber, cabbage, spinach, asparagus

Green fruits; avocado, limes, green apple, pears

Blue/ Purple

Anthocyanin make some fruits and vegetables blue and purple. Plant food in this spectrum are rich in polyphenols, phenolic acid and derivatives of stilbenes.

These phytonutrients helps;

- Inhibit cancer cell proliferation
- Reduce platelet aggregation
- Lower cholesterol
- Healthy aging

Purple foods possess the strong antioxidant property and helpful for cognition and healthy mood balance.

Blue/ purple fruits; purple grapes, raisins, nil veralu (blue olive), embila (wild cherry), mangosteen

Blue/ purple vegetables; eggplant, purple cabbage and etc.

Keep counting colors in your day and set a goal to eat the rainbow every day.

Dulakshana Manohar
Undergraduate Student (4th year)
Department of Applied Nutrition





Fight Against Cancer Through Diet

While everyone is so busy concerning the covid-19, the burden of non-communicable diseases can be increased without anyone noticing. Every year so many people lose their lives due to Non Communicable Diseases (NCDs) and CANCER is on the top of that list. So, everyone must have a proper knowledge about cancer to save lives and to make the community healthier.

Cancer is the second leading cause of death globally which is responsible for approximately 9.6 million deaths annually. Globally, about 1 in 6 deaths occur due to cancer. Among those deaths, 70% is happening in low- and middle-income countries. So, we can say that we are at a higher risk of cancer. Rather than going for chemo and tons of drugs after being a patient, it would be better not to be a patient. To do that you need to have an understanding of cancer and its preventive measures. This article will help you to get that knowledge.

What is Cancer?

Cancer is a disease in which abnormal cells divide uncontrollably and destroy body tissue. Cancer occurs from the transformation of normal cells into tumor cells in a multistage process. It starts from a pre-cancerous lesion to a malignant tumor. These changes are the result of the interaction between genetic factors and external agents including

- physical carcinogens -ultraviolet and ionizing radiation
- chemical carcinogens - asbestos, tobacco, aflatoxin (a food contaminant), arsenic (water contaminant)
- Biological carcinogens - infections from viruses, bacteria, parasites.

Most common cancers in the world are Lung, Breast, Colorectal, Prostate, Skin and Stomach cancer. Most deaths occur due to lung, Colorectal, Stomach, Liver, and Breast cancers.

Does it occur only in adults?

No. Cancer can occur at any age. Cancer is a leading cause of death for children and adolescents and approximately 300,000 children below 19 years old get diagnosed with cancer every year. The most common childhood cancers include leukemias, brain cancers, lymphomas, and solid tumors such as neuroblastoma and Wilms tumor.

Risk Factors?

There are two types of risk factors. Type one can be changed or avoided and known as modifiable risk factors. The other type cannot be changed. Those



are called Non-modifiable risk factors. Modifiable;

- Tobacco use
- Being overweight or obese
- Unhealthy diet with low fruit and vegetable intake
- Lack of physical activity
- Alcohol use
- Sexually transmitted HPV-infection
- Infection by hepatitis or other carcinogenic infections
- Ionizing and ultraviolet radiation
- Urban air pollution
- Indoor smoke from household use of solid fuels
- Non-modifiable;
- Genetic factors (mutations)
- Family history
- Age
- Gender

Can you prevent cancer?

Yes. It's possible. About 70% of cancers can be prevented by avoiding risk factors and changing the diet and lifestyle. Cancer is deadly and very difficult to cure completely. So, the saying "prevention is better than cure" is applicable in the case of cancer. Diet plays a major role in preventing cancer. You must consider two things. You should be cautious about the food that increases the risk and should avoid/ replace/ minimize them. Other than that you should consume the food that reduces the risk more often.

The following will increase your risk of getting certain cancers.

- High red meat, processed meat intake - colorectal cancer
- High sugary (GI) foods- Endometrial cancer
- Alcoholic- Mouth, esophageal, liver, colorectal, breast, stomach cancers
- High-dose β -carotene supplements - Lung cancer
- Afflation-contaminated foods- Liver cancer
- Foods preserved by salting -Stomach cancer
- Salted fish -Nasopharyngeal cancer
- Refined carbs -88% greater risk of prostate cancer

Other than these, a high intake of trans fat, saturated fat increases the risk of many cancers. So those should be minimized. You should be careful when eating cookies, crackers, cakes, muffins, pie crusts, pizza, French fries, fried chicken, taco shells, and margarine because they contain trans-fat. Saturated fat from

red meat and dairy products should be reduced. Polyunsaturated fats (PUFA) have both beneficial and bad effects against cancer. Vegetable and seed oils have much higher levels of n-6 PUFA and lower levels of n-3 PUFA which promote carcinogenic effect. Fish oil has lower levels of n-6 and higher levels of n-3 which reduce cancer risk. So, when talking about PUFA you should consider the n-3 and n-6 balance. So, it is safe to decrease vegetable oils and soybean oils that have high levels of n-6.

Cancer-fighting food?

- These foods will help you prevent cancer by reducing the risk.
- Wholegrains - Colorectal cancer.
- Coffee - liver, endometrium cancer.
- Dairy products and Ca - Colorectal cancer.
- Diets high in fruit – stomach, lung cancer.
- Vegetables containing carotenoids (carrots, Brussels sprouts, squash) - lung, mouth, pharynx, and larynx cancers.
- Non-starchy vegetables (broccoli, spinach, beans) - stomach ,esophageal cancer.
- High Vitamin C (oranges, berries, peas, bell peppers, dark leafy greens-esophageal cancer.
- Foods high in lycopene (tomatoes, guava, watermelon) - prostate cancer.

Most of those are plant-based food. Antioxidants, Phytochemicals, Vitamins in them are reasons for them being cancer fighters. Other than the food, cooking practices like steaming only until tender when cooking vegetables, washing fruits and vegetables thoroughly, not cooking oils on high heat, not overcooking the meat when barbecuing, storing oils in a cool dark place in airtight containers, avoiding food that looks or smells moldy, using waxed paper rather than plastic wrap in the microwave can give you a better chance at preventing cancer.

At the end of the day, it's your responsibility to change your diet and prevent cancer.

Prabhavi Rathnasiri
Undergraduate Student (3rd year)
Department of Applied Nutrition

Nutrition During Pregnancy

Do you know what are the important nutrients needed during pregnancy and why these nutrients are important?

Pregnancy is one of the most dynamic stages of a woman's life. Nutrient needs vary during the time of pregnancy. Overall, nutrient needs can be met with well balanced, adequate, and healthy diets.

Why nutrition is important during pregnancy?

Eating a nutritious diet during the pregnancy is linked to good fetal brain development, healthy birth weight and it can reduce the risk of many birth defects. A balanced diet will also reduce the risks of anemia as well as other unpleasant pregnancy symptoms such as fatigue and morning sickness. Good nutrition helps to balance the mood swings and it may improve labour and delivery as well.

One of the simple way to ensure that all the pregnant women are getting all the necessary nutrients is to eat different foods from each food groups every day.

What are the nutrients needed during pregnancy?

Nutrients that need special attention during pregnancy include protein, folate, iron, zinc and calcium, iodine as well as vitamin A.

Energy requirements during pregnancy

Pregnant women need to consume an extra 300 calories per day. It is equivalent to only 2-3 biscuits. An average increase of only about 17% of maintenance calorie is recommended to support the metabolic demands of pregnancy and fetal development.



**Essential
nutrients
during
pregnancy**

**Protein
Folate
Iron
Zinc
Calcium
Iodine
Vitamin A**



Protein

Protein is vital for ensuring the proper growth of fetal tissue including the brain. It also helps in the growth of breast and uterine tissue during the time of pregnancy. Many women do not consume enough protein. They should eat three servings of protein per day. Some good sources of protein are chicken, lean beef, salmon, nuts, beans, peanut butter, etc.

Folic Acid

Folic acid is a 'B vitamin' which is very important for pregnant women. Folate deficiency leads to congenital abnormalities especially neural tube defects which are the malformation of the spinal cord and brain. Folate supplements given around the time of conception are known to reduce the occurrence of neural tube defects. Women are advised to get the recommended amounts of folate before becoming pregnant and during pregnancy. All women who are planning for a pregnancy are advised to take a 400 µg daily supplement of folic acid for 12 weeks before pregnancy and for the first 12 weeks of pregnancy. They can get folate from food such as asparagus, broccoli, spinach, dried beans, lentils, dark green leafy vegetables, Brussels sprout and cabbage, etc. Although the liver is high in folate it is not recommended for women who are pregnant as it is also high in vitamin A content.

Dietary vitamin A: Retinol and Carotenes

Excessive retinol may lead to higher risks for babies with birth defects including cleft lip, cleft palate, hydrocephalus (fluid on the brain) or major heart defects. The recommended intake of vitamin A for a pregnant woman is 600ug per day. Pregnant women are advised not to take vitamin A or other supplements containing retinol (e.g. cod liver oil) and not to eat liver because of its high content of vitamin A.

Iron

Iron requirements increase during the pregnancy because the developing fetus draws iron from the mother to last it through the first five or six months after birth. Iron losses are reduced during pregnancy because women is no longer menstruating. However this is not enough to offset the needs of developing fetus. Deficiency of iron leads to Iron-deficiency anemia in pregnancy. Iron deficiency in early pregnancy associated with the risk of preterm delivery and iron deficiency in late pregnancy leads to lower scores on intelligence, language, and gross motor and attention tests. Therefore, it is important to eat rich iron foods like meat, chicken, sea food and green leafy vegetables. Many women begin their pregnancy with diminished iron stores. Pregnancy women are given iron as iron supplement. Supplement with 30 mg iron is needed daily after the 12th week of pregnancy. It is important to discuss the need for supplements with the doctor as iron can be toxic in excess amounts.

Iodine

Iodine is required for thyroid function and energy production and fetal brain development. If a woman doesn't have enough iodine intakes during pregnancy, it increases the baby's risk of mental impairment and congenital hyperthyroidism. Foods that contain a good amount of iodine include seafood, meat and dairy products.

Calcium

Calcium is needed for fetal skeletal mineralization and for maintaining maternal bones. Low intakes of calcium are related to the increased release of lead which is harmful to the fetus. Calcium needs can be met with 3 cups of milk or calcium-fortified soymilk or other adequate sources of calcium. Intestinal absorption of calcium is doubled during early pregnancy and the mineral is stored in the mother's bones. Good sources of calcium include milk, yogurt, cheese, cabbage, and eggs.

Zinc

Getting enough zinc is especially important during pregnancy because there's so much rapid cell growth. This essential mineral also supports your immune system, maintain your senses of taste and smell and heal wounds. Meat, dairy, and legumes are some good sources of zinc.

World Health Organization has advised on recommendations during pregnancy. Counselling about healthy eating and keeping the body physically active during pregnancy is recommended for



pregnant women to stay healthy and to prevent excessive weight gain during pregnancy. In undernourished populations, nutrition education on increasing daily energy and protein intake is recommended for pregnant women to reduce the risk of low birth weight neonates. A healthy diet during pregnancy contains adequate energy, protein, vitamins and minerals obtained through the consumption of a variety of foods including green and orange vegetables, meat, fish, beans, nuts, pasteurized dairy products and fruit, etc.

Hurul Hareeza
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The Story of NutSoc Involvement

Linking with the Community



An intervention programme was held on the 8th of January 2020, by the Nutrition Society of Wayamba University with school children at the Nalawalana Maha Vidyalaya to promote their nutritional status. The event linked with a main subject as well. The course coordinator Dr. Janandani Nanayakkara and demonstrator Miss Dharshika participated at the event.

Initially, Anthropometric measurements (weight, height) of all the students were taken by the society members. Society members discussed with the students about their dietary patterns and lifestyle behaviours. Also, society members had a discussion with the school principal and teachers about the availability of food in the school canteen, and the general dietary behaviors of the students. Canteen was also visited by the members to observe the availability of nutritious foods. All the collected data were analyzed by using Anthroplus software and the data were compared to the World Health Organization (WHO) standards and the current

nutritional problems of the students were identified.

There were several educational materials designed by the members of the Nutrition Society and the students were provided with the bookmarks and stickers with several nutritional messages. Some interesting nutrition-related game boards were prepared by the members and students were asked to participate in the game to motivate the active participation of the students. Then the students were encouraged to ask questions and a discussion was carried out. A quiz programme was conducted for the students to identify their knowledge on their nutrition knowledge. Nutritional counseling for the parents was done by the Society members on the same day.

Finally, Feedback of the intervention programme was collected by the students and game boards and the posters were handed over to the principal for future use.

Battle of Promoting Nutrition Among Kids...



Along with the requirement of a main subject 'Public Health & Community Nutrition', NutSoc conducted a pre-school awareness programme and a session on assessing the nutritional status of pre-school children. This programme was held on 25th June 2019 from 8.00 am to 12.00 pm at "Ekamuthu model pre-school, Panwalakumbura. . The course coordinator Dr. Janandani Nanayakkara , Dr. Thushanthi Perera and two demonstrators Miss Chathurika and Miss Melani participated at the event as well. Initially, the measurements of height, weight, triceps, and biceps were taken from each student and BMI was calculated. Students, all the parents and staff members actively participated in

this event. Nutrition-related activities games were done with the students. They eagerly participated in the games.

Parents of the students were involved in a group discussion and the society members talked about the Nutrition-related problems and the solutions with them. According to their BMI and other measurements, parents were instructed to take care of their children's nutritional problems. Students were given fruit salad and tempered chickpeas for their lunch break by the society. Then the students engaged in programs like dance and songs. Students and all participants were very satisfied on the program.

Starting from Our own Place....

The World Health Organization (WHO) have projected that, by 2020, chronic diseases will account for almost three-quarters of all deaths worldwide and most of the deaths recorded in Sri Lanka is due NCDs. Recently, even during the Covid-19 pandemic, most of the death reported in Sri Lanka had history of NCDs. Physical inactivity, obesity' high cholesterol, raised blood glucose, high blood pressure, low fruit and vegetable intake, use of tobacco are some of the most common risk factors of NCDs. NCDs can be controlled by focusing on reducing the risk factors associated with these diseases. Regular medical check-up is an essential component to ensure the health status. Suwa Sewana is a health care approach, which was

initiated by Nutrition Society of the Wayamba University of Sri Lanka aimed at early detection of NCDs. It is free of charge and opened for the community of Wayamba University of Sri Lanka in Makandura premises. Body fat composition, blood cholesterol, blood glucose level, blood pressure, BMI and 24 hours recalls were collected and assessed and proper medical and nutritional advice were given afterwards. The program was carried out with the guidance and participation of Dr. Ananda Chandrasekare, a Senior Lecturer attached to the Department of Applied Nutrition. The program is planned to expand with the participation of the academic staff, non-academic staff and students in future.



Holding Hands with the Nutrition Sector...

A nutrition awareness session was held at Kuliypitiya teaching hospital on 21st November 2019 with a group of 3rd year undergraduate students from the Department of Applied Nutrition representing the Nutrition Society. Senior lecturer Mrs. AMN Takshila Adikari coordinated the program and two demonstrators, Miss Lukshana Rajanayagam and Miss Selani Dharshika participated as well. The session was conducted aiming the hospital staff. Anthropometric data of the participants

were taken initially and relevant dietary advices were given by trained dieticians and nutritionists. Several food models of healthy meals have been previously prepared and were used as aids to convey the knowledge on healthy food choices and serving sizes. The participants were actively engaged in and wanted to know more about the equipment used at the session especially with respect to measuring and understanding the body fat percentages.

Rise and Shine with Nutritious Beverages

When focusing on the Sri Lankan University students, most of them are young adults who belong to 20–25 age category. Therefore, their nutrition requirements are complex. Their nutrition status is critical for achieving educational goals and improvements in health status that contribute to improvements in academic outcomes & sport performances. But there are very few opportunities to get the proper nutrition needed in the university life. Therefore, Nutrition Society of the Department of Applied Nutrition organized several health & nutrition related programs at the university premises with a main goal of nutrition promotion among university students.

Our kolakada selling campaign was one such activity which was a success. This program received positive feedback from the community of the Makanduda University premises. The program was conducted on every Thursday morning by the 3rd year students of the Department of Applied Nutrition. Profits received were added to the society account to cater for the future needs of Health & Nutrition programs.

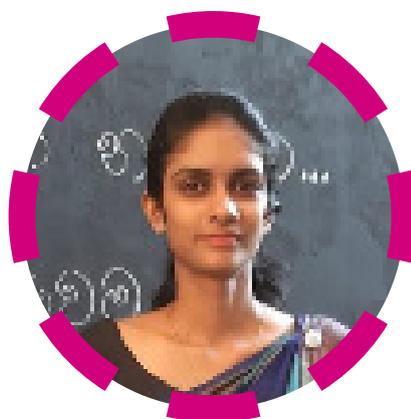


Acknowledgement

We are honoured to publish the initial volume of the Newsletter of the Nutrition Society this year. We would like to express our deepest appreciation to Dr. (Mrs) Thushanthi Perera, Senior Treasurer of the NutSoc for her constant support, encouragement, and guidance. Our sincere thank you should also go to the talented editors of the Society and the fellow members who contributed ardently for the Newsletter. Finally, we would like to thank everyone who supported us in various ways to make this Newsletter a success.

ARTICLES FROM

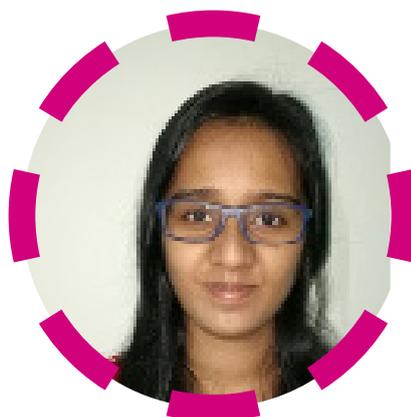
Micro-nutrients and Immune Function
Michelle Sahabandu
Undergraduate Student (4th year)



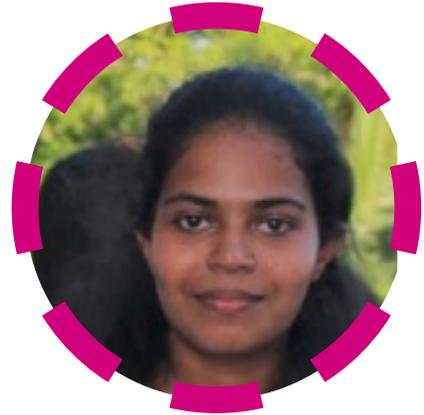
Gastric Pain? What Do You Know About It?
Bawantha Bandara
Undergraduate Student (4th year)



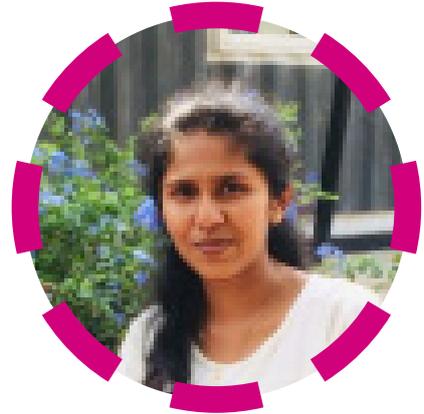
Let the 'Habit' Lead to 'Good Health'
Shashya Diyapattugama
Undergraduate Student (4th year)



Vitamin and Mineral Supplements
Dimalini Selvaratnam
Undergraduate Student (4th year)



Start Your Day with a Rainbow
Dulakshana Manohar
Undergraduate Student (4th year)



Managing Kidney Diseases with Diet
Ahinsala Wanigasinghe
Undergraduate Student (3rd year)



Fight Against Cancer through Diet
Prabhavi Rathnasiri
Undergraduate Student (3rd year)



Boost Your Immunity to Battle the Pandemic

The World Health Organization (WHO) declared Covid-19 as a pandemic on the 11th of March 2020. Since then, the world is still fighting to survive the pandemic. As the researchers are trying to find a cure, and the medical sector is busy treating the diseased, it is our responsibility to maintain the healthcare guidelines. In the meantime, we should strengthen our immune system by following a proper diet.

Food rich in protein, vitamins, and zinc is good choices. Proteins play a role in the immune system- in the antibodies, signaling proteins (cytokines), and complement proteins. Food such as lean meat, chicken, fish, seafood, milk, and milk products including cheese, yogurt, curd, etc. are good sources of proteins. Legumes including dhal, chickpea, cowpea, mung beans, beans, peanuts, soybeans, etc. are the possible protein sources for vegans. Vitamin A provides anti-inflammatory function thus strengthening the immune system. Vitamin A also regulates the cellular immune responses and humoral immune responses. Food rich in Vitamin A are; green leafy vegetables, yellow colour fruits and vegetables which provide beta carotene (pro-vitamin A), and animal food such as eggs, milk, chicken and fish. Vitamin C supports immunity by supporting various cellular functions. It acts as an antioxidant and supports epithelial barrier function against pathogens. It involves killing microbes by enhancing chemotaxis, phagocytosis, and generation



of reactive oxygen species. Food sources of vitamin C are; citrus fruits such as lemon, lime, oranges, and other food such as gooseberry, tomato, papaya, broccoli, and spinach, etc. Vitamin E acts as an antioxidant and provides an immunomodulatory effect. Food sources of vitamin E include vegetable oils such as sunflower, corn, soybean oils; nuts such as peanuts, almonds, cashews; seeds and avocado, etc. Zinc supports the immune system through antioxidant and anti-inflammatory functions. Food rich in zinc is lean meat, chicken, seafoods, whole grain products, nuts, lentils, etc. Other nutrients such as vitamin B6, B12, copper, folate, selenium, and iron also support the immune system. Therefore, you should eat a variety of food daily, to boost your immune system. Meanwhile, you should avoid excess salt, sugar, and fatty foods and must drink plenty of water.

Some herbs have anti-viral properties which will help you against COVID-19. Teas, herbal teas, condiments, and herbal gruels contain bioactive compounds that possess anti-viral effects and also immune-modulatory effects. You can consume them moderately. However, you should not overuse them.

Thus, add the immune-strengthening food into your diet and make sure you eat a balanced diet as well, while remembering to maintain the healthcare guidelines.

Prevent the Spread of **CORONAVIRUS**

1

WASH

Your hands often with soap and water for at least 20 seconds or use a 60% alcohol-based hand sanitizer.



2

AVOID

Close contact by staying 6 feet apart to reduce risk of exposure and avoid close contact with people who are sick.



COVER

Your cough or sneeze with a tissue or cough or sneeze into your elbow and not your hand.

3



4

CLEAN AND DISINFECT

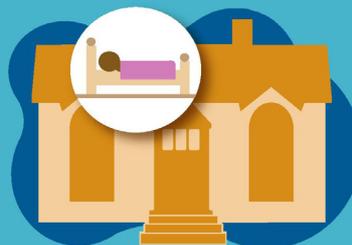
Frequently touched surfaces and objects at least daily such as doorknobs, light switches, phones and keyboards.



5

STAY HOME

And stay isolated if you are sick. If you develop COVID-19 symptoms at work, notify your supervisor and go home immediately .



Please contact Occupational Medical Service at <https://go.usa.gov/xvDRR> for screening and more information or guidance.



Food and Agriculture Organization
of the United Nations

Boost your immunity!

Eat traditional foods with medicinal value



Follow the Food Based Dietary Guidelines

1st Volume | 2020

NEWSLETTER

NUTRITION SOCIETY WAYAMBA UNIVERSITY OF SRI LANKA
N U T S O C

About the Nutrition Society

The Nutrition Society of Wayamba University (NutSoc) was established in 2002 with intentions to develop a linkage between the university and the community through disseminating nutrition knowledge and applying it to the community, and by conducting various outreach activities with the help of public and private sector organizations. Diverse activities are planned and carried out yearly, by NutSoc to develop the necessary skills and transform the attitudes & approaches of the undergraduates who're specializing in the field of Nutrition to bolster their professional development. NutSoc expects to strive towards building a healthier nation through the diffusion of nutrition knowledge and helping to produce more energetic, creative, and efficient professionals in different fields in Food and Nutrition locally and internationally.



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