



SLMNA NEWSLETTER

SRI LANKA MEDICAL NUTRITION ASSOCIATION OFFICIAL NEWSLETTER

Linking nutrition research to practise...

Message from Editors..

"Drink water wise, Healthy kidneys are the price"

Knowingly or unknowingly, we are gifted to celebrate two wonderful days every year, which is of course fortunate serendipity. It is the 'world kidney day' and 'world water day' that fall on 11th and 22nd March respectively. The glorious synergy in celebrating these two commemorations definitely raises the awareness around the world of their utmost value for our own kind. So this is a perfect reason this time, for us to feature our second newsletter.

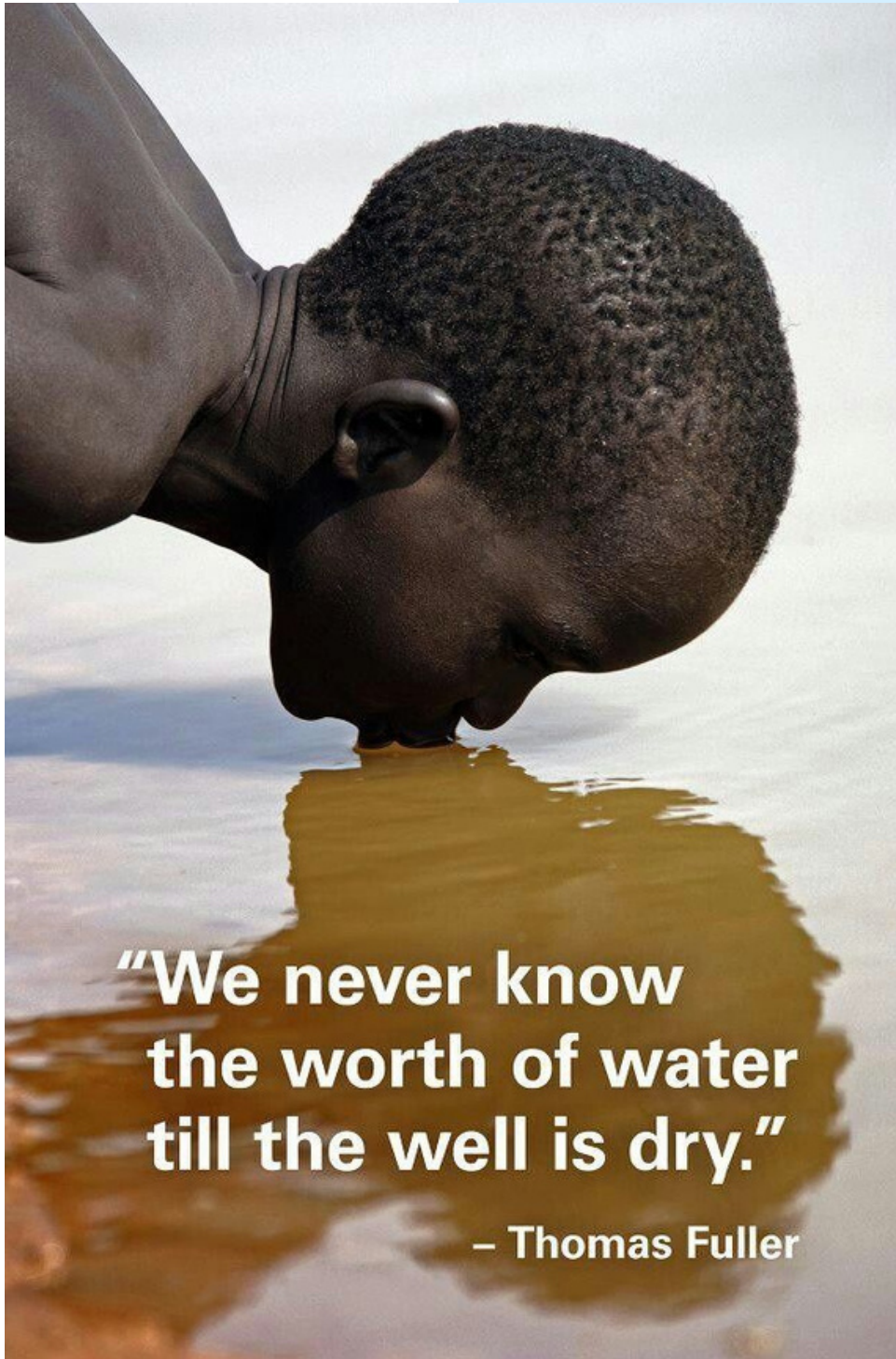
Your suggestions and comments are all that motivate us for a long way forward in this remarkable journey. We would humbly accept your genuine feedback and views in this regard, which certainly groom up our future efforts.

*Until next time,
Dr. Hasanthi & Dr. Udari*

THIS MONTH'S FEATURED ARTICLES

- Capture of the Month
- Eat Right with Kidney Stones
- Drinking Water
- Past Events And Publications
- Upcoming Events

CAPTURE OF THE MONTH

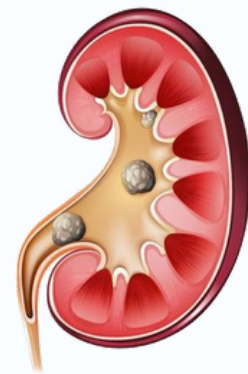


**"We never know
the worth of water
till the well is dry."**

– Thomas Fuller

EAT RIGHT WITH KIDNEY STONES

*YOUR DIET DIFFERS WITH THE
TYPE OF STONE YOU HAVE!*



By Dr. Dilanjani Pietersz

Types of Kidney Stones

- Calcium Oxalate
- Calcium Phosphate
- Uric acid
- Cystine
- Struvite

Drink Plenty of Water....

- Drink 2-3 L (8-12 glasses) of water per day
- Drink water until your urine is pale yellow in colour.
- Avoid fizzy drinks, colas, fruit juices, high sugar drinks.

Calcium Oxalate

- Consume a diet with normal calcium.
- Avoid taking calcium supplements.
- No added salt.
- Consume a normal protein diet (0.8-1g/kg body weight).
- Do not eat high oxalate foods.
- Substitute high oxalate foods with low oxalate alternatives.
- Consume foods with a moderate amount of oxalate in small quantities.
- Avoid excess intake of vitamin C supplements (less than 1000mg per day).
- Consume fresh fruits and vegetables liberally.
- lemon juice is beneficial.
- Add calcium-containing food to all three meals (milk, cheese, yogurt, butter)



Food high in oxalate (>100mg in 100g edible portion)	Moderate Oxalate (<100mg and >10mg per 100g edible portion)		Low oxalate alternatives (<10mg per 100g edible portion)
	99mg- 50mg	49mg-11mg	
Ata flour, Millet flour, Brown Rice flour	Ata flour	Wheat flour, Millet flour, Brown Rice flour	White rice, White rice flour, Spaghetti, oats , Maize
Red kidney beans, Soya bean		Cow-pea	Mung beans, Chick peas, dhal
lotus root	Beet-root	Carrots, Potato, sweet potato,	
Spinach, leaves, lettuce (salad leaves), Drumstick leaves, {parsley, curry leaves}	Mint leaves	Pak-choi leaves, Radish leaves, coriander leaves	Cabbage, spring onions
Olives, okra, rhubarb, drumstick, plantain flower, garlic, fresh ginger	celery stalk,	Bitter gourd, Brinjal, capsicum, beans, jack fruit seeds, pumpkin, snake gourd, ridge gourd, zucchini, radish	Mushroom, onion, cauliflower, Cucumber, peas, green pepper, jack fruit, kno-kol, raw mango, baby corn, tomato
Avocado, kiwi, rasp berries, pomegranate	Wood apple	Apple, grapes	Banana, blue berries, black berries, lime, cherry, pineapple, raisins, straw berries, Lemon, mango, papaya, watermelon, guava, ripe jackfruit, Jambu, pears, rambutan, soursop
Almonds, cashew nuts	Ground nuts	Pistachios, wall nuts	Pop corn, coconut
tea			coffee



Uric Acid Stones

- Restrict animal protein.
- Do not consume more than 0.8g protein/per kg body weight.
- Red meat, Shellfish, poultry <100g/day.
- Avoid high purine food (eg: Organ meat, sardine)
- No added salt.
- Consume fresh fruits and vegetables liberally.



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DRINKING WATER : THE GIVER OF LIFE

SOUL OF THE EARTH

By Dr. Charith Fernando

Nearly 70% of the Earth's surface is covered with water, where only 2.8% of it is fresh, and the rest 97.2% of it is saline. Potable water is available in the majority of populated areas of the Globe, although it may be expensive and the supply may not always be sustainable. The water sources include:

- Surface water such as rivers, streams, glaciers
- Ground sources such as groundwater, springs and aquifers
- Precipitation which includes rain, snow, hail, fog, etc.
- Desalinated seawater
- Biological sources such as plants

Threats to the availability of water resources include water pollution, water scarcity, climate change, and, water conflict. Water is a vital nutrient for all known forms of life on earth. While humans can live without food for about a month, they cannot survive without water for more than four or five days.

Water is our body's principal chemical component and makes up about 55% to 75% of our body weight depending on our age, gender, physiological states, body type, etc. In adults, about two-thirds of total body water is in the intracellular space, whereas one-third is extracellular water.

A 70-kg human has about 42 l of total body water, of which 28 l is intracellular water and 14 l is extracellular fluid (ECF). Of the latter, 3 l is in blood plasma, 1 l is the transcellular fluid (cerebrospinal fluid, ocular, pleural, peritoneal, and synovial fluids) and 10 l is the interstitial fluid, including lymph, which provides an aqueous medium surrounding cells.

Functions of water in the human body

- acts as a building material
- as a solvent
- a reaction medium, a reactant, and a reaction product
- as a carrier for nutrients and waste products
- for thermoregulation
- as a lubricant and a shock absorber

Water inputs to our body

Water intake includes that which is consumed as food and beverage, along with comparatively small volumes of metabolic water (water formed by oxidation of food) and catabolism of tissue. Metabolic water is about 350 to 400 ml/day.

Human studies have shown that various factors such as availability, flavor, temperature, flavor variety, beverage temperature, beverage container, the proximity of the beverage to the personal influence the fluid intake. Other than these, it has been found that cultural variation also has an impact.

Water loss from the body

Water is lost from the body via respiration, evaporation, urine, and feces in sedentary to moderately active individuals under temperate conditions. During increased physical activity up to moderate to vigorous levels, and in conditions other than in comfortable circumstances, losses via sweat significantly contribute to body water loss. The minimal amount of fluid loss that can occur is known as "obligatory water loss".

Consequences of inadequate intake of water

Inadequate water intake can lead to dehydration. The symptoms of acute dehydration vary with the degree of water deficit. The minimum requirement for water is the quantity that replaces losses and prevents adverse effects of insufficient water, such as dehydration.

It can increase in risk for urinary tract infections, kidney stones, dental disease, constipation, broncho-pulmonary disorders, and impaired cognitive function, all have been linked with dehydration. A relationship between a high fluid intake and decreased risk of a variety of conditions including urinary tract stones, colon, and urinary tract malignancies, and mitral valve prolapse has been shown by some studies. While some studies have shown that a low intake of fluid is associated with some chronic diseases, evidence is inadequate to define specific amounts needed to prevent numerous maladies.

Daily water requirement

Given the extreme variability in water requirements, which are not merely based on differences in metabolism, and also in environmental conditions and activity, there is not a particular level of daily water intake that would guarantee adequate hydration and optimal health for half of all healthy persons in all environmental conditions.

Water lost via sweating is usually minimum in sedentary & temperate conditions, but excessive sweating can be a major source of electrolyte and water loss for persons laboring or exercising in extreme humidity and/or heat conditions. In physically active individuals, the water loss from sweat is the most variable. Sweat rates can reach up to 3 to 4 l/hour, with variation depending on age, gender, training, exercise intensity and duration, heat acclimatization, humidity, air temperature, cloud cover, wind velocity, clothing, and personalized individual sweat rate.

So considering all these factors, total daily fluid requirements have been shown to range from as little as 2 liters to 16 liters per day.

Young children, pregnant and lactating women, the elderly, and people with certain illnesses may have increased fluid requirements.

Various studies have produced varying recommendations over the years. But our individual water needs depend on many factors, including our health, how active we are, and where we live.

Age and gender-specific Adequate Intakes (AI) for water were established in 2004 by the Food and Nutrition Board. The Dietary Reference Intakes (DRI) for water is shown in the below table.

AI for boys and girls birth to eight years of age

0 – 6 months.	0.7 L/day of water, assumed to be from human milk
7 – 12 months	0.8 L/day of water, assumed to be from human milk and complementary foods and beverages
1 – 3 years	1.3L/day
4 – 8 years	1.7 L/day

AI for ages nine and older

9 – 13 years	
Boys	2.4 L/day
Girls	2.1 L/day
14 – 18 years	
Boys	3.3 L/day
Girls	2.3 L/day
19 – 70+	
Men	3.7 L/day
Women	2.7 L/day

Below table shows the Dietary Reference Intakes (Adequate Intakes) for total water set by the European Food Safety Authority (EFSA) and the National Academy of Medicine USA. (Institute of Medicine – IOM)

Age	Adequate Intake (L/day)		Adequate Intake (L/day)	
	EFSA	IOM	EFSA	IOM
0-6 months	0.68 ^a	0.68 ^a	0.70	0.70
6-12 months (IOM 7-12 months)	0.80-1.00	0.64-0.80	0.80	0.80
1-2 years	1.10-1.20	0.88-0.90		
2-3 years	1.30	1.00		
3-4 years			1.30	0.90
4-8 years	1.60	1.20	1.70	1.20
9-13 years				
Boys	2.10	1.60	2.40	1.80
Girls	1.90	1.50	2.10	1.60
> 14 years as adults				
Boys	2.50	2.00	3.30	2.60
Girls	2.00	1.60	2.30	1.80
Adults				
Men	2.50	2.00	3.30	2.60
Women	2.00	1.60	2.30	1.80
Pregnant women	+0.30		+0.30	0.10
Lactation women	+0.60 to 0.70		+1.10	0.90
Elderly	As adults	As adults	As adults	As adults

According to Food-Based Dietary Guidelines for Sri Lankans (Third edition 2016), An adult should drink about six to eight 200 ml glasses (1.5–2l) of water per day.

It further provides a basic guide that an adult should follow to decide on the volume of liquid, one should drink each day.

Amount of liquid (L) = Body Weight (kg) / 30



Mineral water vs Treated Water

In Sri Lanka, the pre-treated mineral water contains many minerals & ions such as **calcium, magnesium, potassium, sodium, bicarbonate, iron, zinc, fluoride**, etc. The individual amounts of each component can be slightly variable depending on the source of water and the area of the island from where the water sample is taken. The National Water Supply and Drainage Board treats the water by a complicated series of processes. The treated water could have a different composition when compared to mineral water. Added ions of **Aluminium**, sometimes a minute increase in **Calcium & Magnesium** levels can be seen. The Sri Lanka Standards Institute (SLSI) has set some standards for drinking water in 2013. They are given in the Tables below.

Specifications for potable water by Sri Lanka Standards Institute (2013)

Parameter	Maximum permissible level
Physical requirements	
1. Colour	30 units
2. Odour	Unobjectionable
3. Taste	Unobjectionable
4. Turbidity	8 Jackson turbidity units
Chemical requirements (basic)	
1. pH	6.5 to 9.0
2. Total dissolved solids, (mg/L)	500 *
3. Chloride (Cl), (mg/L)	1200
4. Free residual chlorine (Cl ₂), (mg/L)	0.2
5. Alkalinity (CaCO ₃), (mg/L)	400
6. Free ammonia, (mg/L)	0.06l
7. Albuminoid ammonia (mg/L)	0.15
8. Nitrate (N) (mg/L)	10
9. Nitrite (N) (mg/L)	0.01
10. Fluoride (F), (mg/L)	1.5
11. Total phosphate (PO ₄), (mg/L)	2.0
12. Total residue (mg/L)	2000
13. Total hardness (CaCO ₃), (mg/L)	600
14. Total iron (Fe), (mg/L)	1.0
15. Sulphate (SO ₄), (mg/L)	400

Parameter	Maximum permissible level
Chemical requirements (optional)	
1. Anionic detergents (mg/L)	1.0
2. Phenolic compounds(as phenolic OH), (mg/L)	0.002
3. Grease and oil, (mg/L)	1.0
4. Calcium (Ca), (mg/L)	240
5. Magnesium (Mg), (mg/L)	140
6. Copper (Cu), (mg/L)	1.5
7. Manganese (Mn), (mg/L)	0.5
8. Zinc (Zn), (mg/L)	15
9. Aluminium (Al), (mg/L)	0.2
10. Chemical Oxygen Demand, (mg/L)	10
Toxic substances	
1. Arsenic(As), (mg/L)	0.05
2. Cadmium(Cd), (mg/L)	0.005
3. Cyanide (CN), (mg/L)	0.05
4. Lead (Pb), (mg/L)	0.05
5. Mercury (total Hg), (mg/L)	0.001
6. Selenium (Se). (mg/L)	0.01
7. Chromium hexavalent (Cr), (mg/L)	0.05

Parameter	Maximum permissible level
Bacteriological requirements	
1. Total coliforms/100	(a) Absent in 95% samples in a year
	(b) Absent in any two consecutive samples
	(c) Not more than 3 coliform organisms detectable
2. E.Coli/100ml	Absent
3. Microscopic organisms such as algae, zooplanktons, flagellates, parasites and toxin producing organisms	Free
4. Concentration of Antitoxin-a(S)	0.002 mg/L
5. Concentration of Microsystems (measured as MC-LR toxicity equivalents)	0.001 mg/L

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PAST EVENTS AND PUBLICATIONS

1. Workshop Parallel to the ASPEN Congress

An academic workshop was held virtually parallel to the ASPEN congress from 26th to 28th March 2021.

2. World Water Day - 2021 - E- poster



3. World Health Day - 2021 - E-poster

WORLD HEALTH DAY 2021
07TH APRIL

HEALTHY TIPS FOR A BETTER TOMORROW



FRUITS & VEGETABLES

- Always include vegetables in meals
- Eat at least 5 portions of fruits and vegetables per day
- Eat fresh fruits & vegetables as snacks
- Eat seasonal fruits and vegetables
- Eat with a variety



FATS

- Use steaming or boiling instead of frying
- Replace butter, lard, and ghee with oils rich in UFA (Soybean oil, Sunflower oil, Corn oil, Olive oil, Nuts, Avacardo etc..)
- Eat low-fat dairy, lean meat or trim the visible fat from meat
- Limit baked & fried foods, pre-packaged snacks, and foods that contain trans fat (Doughnuts, Cakes, Pies, Cookies, Biscuits, Wafers)



SALT

- Limit the amount of salts and high Sodium condiments (Soy sauce, fish sauce, etc) when cooking
- Daily salt consumption should be less than one teaspoon per person per day
- Do not keep salt or high Sodium sauces on the dining table
- Limit the consumption of salty snacks
- Don't add salt to your rice when cooking
- Add more spices for more taste



SUGAR

- Limit the consumption of sugary snacks, candies, and sugar-sweetened beverages
- Eat fresh fruits and raw vegetables as snacks instead of sugary snacks

Reference; WHO fact sheet on healthy diet



MESSAGE FROM SLMNA

UPCOMING EVENTS

1. Research Workshop

A research workshop organized by SLMNA will be held on 08.05.2021 and 05.06.2021.





HAPPY SINHALA & TAMIL NEW YEAR

SRI LANKA MEDICAL NUTRITION ASSOCIATION