



*Linking Nutrition Research to Practice*

## MESSAGE FROM EDITORS

Dear Members,

We thought it is beneficial to share about the Life Long Learning (LLL) programme conducted by the European Society of Enteral and Parenteral Nutrition (ESPEN) with our members.

ESPEN LLL programme consists of online and live training, both of which award you credits. Each topic taken online offers up to 4 - 6 CME credits after successful completion of the corresponding grading quizzes. A live course will be held in Sri Lanka organized by SLMNA in September 2018. Credit accumulation gives the opportunity for you to apply for the final examination of the ESPEN Diploma in Clinical Nutrition. It provides access to module contents, clinical cases, self-training tests, and grading quizzes as well.

Log on to ESPEN website and get your user name and proceed .....

If you are already an ESPEN member, register for the course under the member category...  
To upgrade your knowledge... Start it today itself.....!!!



Wishing you a  
**Happy & Healthy New year...**



*As the new year arrives, it brings us new hopes and new thoughts to make our lives better, healthier and happier..*

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## PAST EVENTS

### 01. Work Site Wellness Programme

SLMNA has successfully conducted two WSW programmes in the Ministry of Land and Parliamentary Reforms and in the Ministry of Developmental Strategies and International Trade during the month of March 2018.



### 02. Opening of the new Medical Nutrition Unit at NHSL



The very first completed nutrition care unit in the country was first established with the collaboration of Ministry of Health. It was ceremonially declared open by the Honourable Minister of Health Dr. Rajitha Senarathne with the presence of Dr. W.K. Wickramasinghe, the Acting Deputy Director General, NHSL along with the ministry officials.

### 03. Annual get together

Annual get together of members of SLMNA in celebration of the new year was held on 8<sup>th</sup> of April at Ingiriya Base Hospital premises.

## UPCOMING EVENTS

### 01. Dietetic Course

Dr. Seema Puri (PhD), the Associate Professor of the Department of Nutrition, Institute of Home Economics, University of Delhi will be conducting the dietetic course for the 5th Batch of the MSc. Human Nutrition trainees at the Post Graduate Institute of Medicine.

### 02. Market Fair

This is an excellent opportunity for the members of SLMNA to get themselves familiarized with the currently available nutrition related products in the country.



## CAPTURE OF THE MONTH



Our elders are the people who deserve to be respected for the experience that they have gained over many years.

They deserve to be honoured and cared adequately.

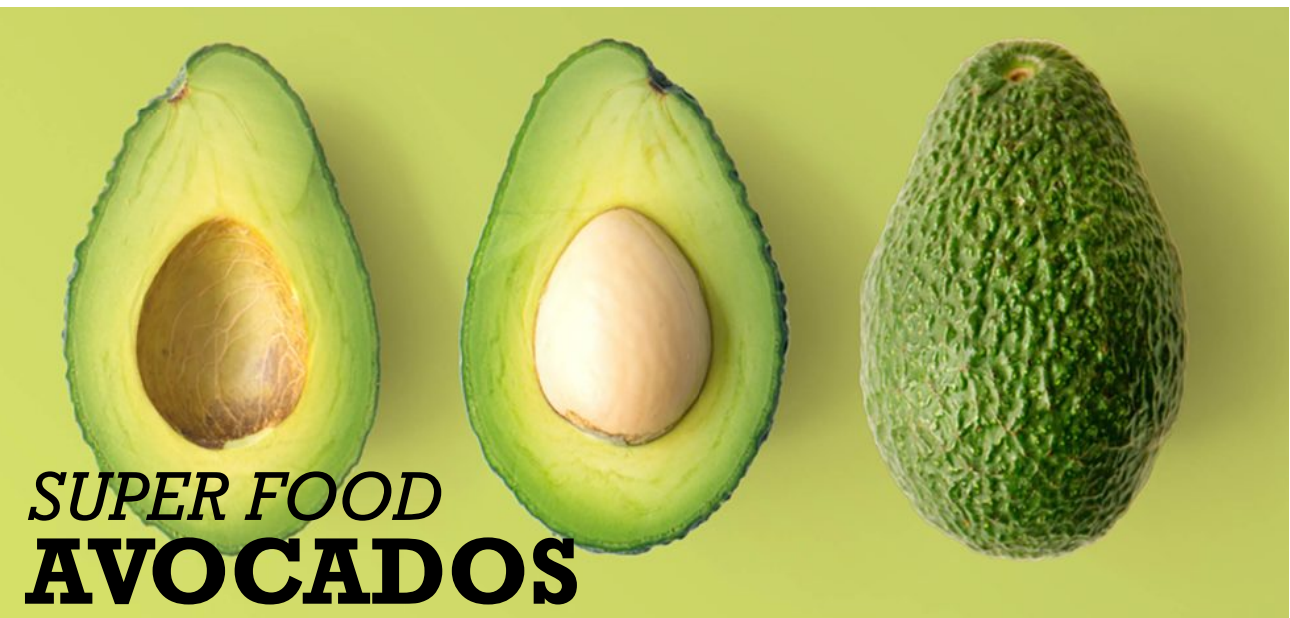
We shall not neglect them physically and psychologically.

Treat them  
**equally..**

Feed them  
**properly..**

Love them  
**immensely..**

## FOOD OF THE MONTH



### *SUPER FOOD* **AVOCADOS**

**A** vocado is a flavorful pear shaped fruit. It is among the fruits containing considerable amount of calories and fat. Avocado tree is evergreen which reaches around 20 - 30 feet in height. Avocados mature

on the trees but ripen upon harvest. Once it is ripen, its colour changes to dark green or to purple. On average a mature avocado weighs around 300 - 700g. Its scientific name is *Persea americana*.

The American Heart Association concur that a diet rich in vegetables and fruits with unsaturated fat as the predominant form of fat can help to meet their dietary guidelines. Avocados help in reducing the saturated fat in the diet, when they are consumed in the place of saturated fat.



Avocado is an excellent source of monounsaturated fatty acids like oleic acid and also rich in omega 6 polyunsaturated fatty acids especially linoleic acid.

It is an excellent source of soluble and insoluble dietary fiber. 100 grams of the fruit provides around 6.7 grams of fiber which is about 18% of the recommended dietary allowance of fiber. Dietary fiber lowers cholesterol level in blood and helps to prevent constipation.

It has high concentrations of polyphenolic antioxidants like cryptoxanthine, lutein, zeaxanthine, beta and alpha carotenes. These compounds work together to protect the body against free radical damage by reactive oxygen species (ROS), that play a role in ageing and various disease processes.

Avocado contains vitamins such as vitamin A, E, K, primarily concentrated in pulp. It is also a rich source of minerals such as iron, copper, magnesium and manganese. Magnesium is essential as a bone-strengthening and cardioprotective mineral. Manganese is used by the human body as a cofactor for the enzyme superoxide dismutase. Iron and copper is required for the red cell production.

Fresh avocado is also a rich source of potassium. 100 g of fruit provides 480 mg or about 10% of daily required amounts of potassium which is an important component of cells and fluids and helps regulate the heart rate.

## Selection and Storage

Buy completely ripened fruit. Avoid buying excessively ripen fruits as they may be too soft and tend to be out of flavour.

Once at home, keep it in a cool, dry place. Unripe fruit is usually wrapped in a paper and kept closer to a banana or an apple to speed up ripening.

## Serving tips

01. Raw fruit as cuttings or cubes.
02. Cubes can be added to fresh fruit or vegetable salads.
03. Prepare fresh fruit juice.
04. Puree can be used with cream, ice cream or with treacle in patients with increased calory needs.
05. Avocado dressing can be used for sandwiches.





## Avocado (*Persea americana*)

Nutritional Value of 100 grams without the seed and skin

Source : USDA National Nutrient Database

Principle	Nutrient value	Percentage of RDA
Energy	160 kcal	8%
Carbohydrate	8.53g	6.5%
Protein	2.0g	3.5%
Total Fat	14.66 g	48%
Cholesterol	0 mg	0%
Dietary Fiber	6.7 g	18%
<b>Vitamins</b>		
Folate	81 microgram	20%
Niacin	1.738 mg	11%
Pantothenic acid	1.389 mg	28%
Pyridoxine	0.257 mg	20%
Riboflavin	0.130 mg	10 %
Vitamin A	140 IU	5%
Vitamin C	10 mg	17 %
Vitamin E	2.07 mg	14 %
Vitamin K	21 microgram	17.5 %
<b>Electrolytes</b>		
Sodium	7 mg	0.5 %
Potassium	485 mg	10%
<b>Minerals</b>		
Calcium	12 mg	1%
Copper	0.190 mg	21%
Iron	0.55 mg	7%
Magnesium	29 mg	7%

### A Heart Healthy Nutrient Dense Food

Nutrient dense food provide substantial amounts of vitamins and minerals with relatively fewer calories. 1/3 of a medium avocado (50g) contains about 80 calories and contributes nearly for 20 vitamins and minerals. Avocado is a part of DASH diet, which may help to control blood pressure.

### Contains Good Fats

Avocado is the only fruit contains heart healthy monounsaturated fat (MUFA)

### Naturally sodium, sugar and cholesterol free

### A Nutrient Booster

Avocado increases absorption of fat soluble vitamins (Vitamin A, D, E K) in foods eaten with the fruit.



# Fertility Diet

By Dr. U.D.T. Monanjali (MBBS, MSc Human Nutrition)

Fertility, according to the oxford dictionary refers to an “ability to produce children or young” which is due to fantastic miracle of meeting an egg and a sperm. Even though it seems to be more realistic, there are physiological, physical and hormonal barriers which will prevent conception.

According to the American College of Obstetricians and Gynecologists, “subfertility is defined as not becoming pregnant after one year of having regular sexual intercourse without the use of birth control”. Either male factors or female factors may contribute to that.

American Pregnancy Association states that, infertility affects 1 out of 6 couples. They further say that female infertility accounts for one third of the all infertility cases. Ovulation problems, physical barriers such as damaged fallopian tubes, uterus and thick cervical mucus are the key leading factors for female infertility. Out of the above mentioned female factors, ovulatory disorders is the most prevalent cause for infertility, (Razzak et al., 2002) and can be prevented by modifications in the life style and diet. (Chavarro et al., 2007)

Even though medical treatments are successful, it is not so all the time and the treatment modalities seem to be more invasive and expensive. Dietary measures to improve female fertility account for low cost, non-expensive therapeutic approach but remain underutilized. (Chavarro et al., 2008)

Due to urbanization and industrialization, especially in developing countries both lifestyles and diet are becoming modernized. While unhealthy preconception diet and lifestyle greatly affect women’s reproduction, a healthy, varied diet positively influences the female reproductive performance. (Homan et al., 2007)

High intake of food that contain trans-fat (eg: fast foods, bakery products, fried foods), high intake of animal proteins, low fat dairy products, soft drinks and foods with high glycemic load will increase the risk of female subfertility specially ovulatory infertility. (Chavarro et al., 2016)

Those foods with high glycemic index such as refined cereals and foods containing trans-fat will increase insulin resistance thereby causing problems in ovulation. (Chavarro et al., 2007)

There are studies which show the consumption of fish and sea food, rich in mercury (methyl mercury) will have adverse effects on female fertility and developing fetus. Methyl mercury, a potent neurotoxin tends to accumulate through food chains and tend to be concentrated in large game fish like shark, sword fish, tile fish, king mackerel and tuna. It is advisable to minimize consumption of above mentioned fish (large game fish) by subfertile women in reproductive age. (Melissa et al., 2008)

Caffeine consumption produces undesirable outcomes for conception especially for assisted reproductive techniques. It has been found to prolong the conception and may affect the ovulation and corpus luteal function through alterations in the estrogen levels. (Klonoff et al., 2002)

Although it is not a common practice in our country among females, high alcohol consumption (>140g/week) has negative effects on female fertility. It has direct adverse effects on ovulation and implantation. In addition, it causes alcohol induced rise in estrogen levels which in turn affects folliculogenesis. For subfertile women it is advisable to limit or stop alcohol consumption. (Homan et al., 2007, Eggert et al., 2004)

Low fat dairy products will increase the risk of subfertility. Composition of the whole milk changes while producing low fat milk. During the fat extraction process, addition of some proteins like  $\alpha$ -lactalbumin occurs. Those chemicals have androgenic effects mediated through increased IGF-1, resulting irregularities in ovarian function contributing to ovarian factor infertility. On the other hand, high fat dairy products have fat soluble estrogens which will improve ovarian functions by lowering IGF-1 levels, which decrease the risk of infertility. (Chavarro et al., 2007)

Weight reduction (at least 5%) through a low calorie diet will improve folliculogenesis and ovulation in obese, anovulatory patients with poly cystic ovarian diseases. A low-calorie diet (1200Kcal)



composed of 55% carbohydrates (Normal diet - 60%) 20% protein (Normal diet - 10%) and 15% fat (normal 15% - 30%). It seems that calory reduction through reduction of carbohydrate and fat composition and subsequent weight reduction will improve ovulatory factor infertility in females. (Crosignani et al., 2003)

Some studies show that adherence to Dutch dietary guidelines will increase the fertility in subjects undergoing advance fertility interventions. Current recommendations on the above guidelines state “consumption of four slices of whole wheat bread daily (or comparable servings of cereals), the use of monounsaturated or polyunsaturated oils,  $\geq 200$  g of vegetables daily,  $\geq 2$  pieces of fruit daily,  $\geq 3$  servings of meat or meat replacers weekly and  $\geq 1$  servings of fish weekly”. This statement hinders the fact that consumption of more vegetables and fruits, whole grain cereals and relatively low consumption of animal products will improve fertility among subfertile women. (Twigt et al., 2012)

Adherence to Mediterranean type diet may also enhance fertility. Mediterranean diet is comprised of,

- Eating more plant based foods such as fruits and vegetables, whole grains, nuts and legumes.
- Replacing animal fat with healthy vegetable fat such as olive oil.
- Low intake of red meat, limited to no more than few times a month.
- More fish consumption at least twice a week.
- Moderate intake of alcohol. (Red wine)

Studies state that this type of diet will increase the probability of achieving pregnancy by 40% in subfertile couples who undergo assisted reproduction techniques. This is mainly due to few factors. Mediterranean diet consists of more plant oils especially containing linoleic acid, an essential fatty acid which is the precursor of prostaglandins. Those prostaglandins are essential for integrity of the menstrual cycle, ovulation and follicular generation. This diet also contains higher vitamin B6 levels which in turn increases reproductive performance, chance of conception and reduces miscarriage risk in subfertile women. (Twigt et al., 2011, Mayo clinic. 2017, Vujkovic et al., 2010)

Not only conception but also pregnancy complications and outcome will depend on the maternal dietary factors. According to Norwegian Mother and Child Cohort Study (MoBa study), Mediterranean diet will lower the preterm birth prevalence and high vegetable consumption and low fast food consumption was associated with decreased prevalence in preeclampsia. (Meltzer et al., 2011)

Consumption of soy foods increases the fertility in females. Phytoestrogens in soy products will increase endometrial thickness and thereby increase the chance of implantation. This factor is more significant in women who have problems in fecundity. It has been observed that there is a high success rate in soy food consuming women undergoing assisted reproductive techniques. (Vanegas et al., 2014)

## **Considering all these factors, isn't it interesting to know what fertility diet really means?**

Some studies state that fertility diet refers to increased intake of vegetable proteins, use of multivitamins, intake of low glycemic foods, consuming whole fat dairy products and limited intake of food containing trans-fat. This type of diet will decrease ovarian factor infertility and whole cause infertility as well. (Chavarro et al., 2007)

There are few recommendations based on Nurses' Health Study II.

To optimize a woman's fertility through her diet, she should

- Avoid fast foods and foods containing trans fats such as fried foods, margarine and bakery products.
- Use more vegetable fat (especially monounsaturated fat) in the form of oils such as olive oil and canola oil.
- Limit animal proteins especially red meat and eat more vegetable proteins.
- Use whole grains rather than refined cereals which have low glycemic index since high glycemic foods will boost serum insulin levels and increase insulin resistance thereby causing issues in menstrual cycle.

- Consume milk, yoghurt or curd everyday. Choose whole milk products over low fat or non fat dairy products.
- Consume iron from vegetables, fruits and nuts (non-heme iron) more than iron from red meat (heme iron)
- Avoid taking sugar sodas, limit coffee and alcohol intake. Water is the best drink to consume.
- Take folic acid and vitamin B supplements.
- Maintain a target healthy weight (BMI = 25). If overweight, lose 5% to 10% of body weight. (Chavarro et al., 2008)

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