CRRI SKILLS TRAINING

The University desires to improve the skills of the CRRIs and to make their training more comprehensive, it is proposed to include the following during their postings in the various departments. The proposed schedule of their training is given below. This training has to be commenced from February 2011 onwards. Every CRRI has to undergo this training compulsorily. The CRRIs who are not attending the training programmes will not get their CRRI Completion Certificate. Provisional Pass Certificate II will not be issued if the skill training certificate is not produced. (Skill Training Certificate Format attached)

The duration of each training programme is one day

Sl.No.	Special Training	Department postings
1.	Basic Life Support (BLS)	Anaesthetic
2.	Trauma Life Support (TLS)	Surgery
3.	Paediatric Emergency Medicine	Paediatric
4.	Palliative Medicine	Psychiatry
5.	Soft skills and communication skills	Community Medicine
6.	Computers and their Application	Community Medicine
7.	Research Methodology	Community Medicine
8.	Medical Ethics and Legal Issues	Community Medicine
9.	Prevention of Life Style Diseases	General Medicine

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Name of the Candidate: Reg. No.

Institution Name :

Year of CRRI Skill Training:

Sl.No.	Special Training	Date	HOD Signature
1.	Basic Life Support (BLS)		
2.	Trauma Life Support (TLS)		
3.	Paediatric Emergency Medicine		
4.	Palliative Medicine		
5.	Soft skills and communication skills		
6.	Computers and their Application		
7.	Research Methodology		
8.	Medical Ethics and Legal Issues		
9.	Prevention of Life Style Diseases		

Signature of Dean/Principal

Office Seal & Date

LIFE STYLE DISEASES, PREVENTIVE HEALTH, & STRESS MANAGEMENT

BY

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****

SOFT SKILLS FOR CRRI

BY

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LIFE STYLE DISEASES AND PREVENTIVE HEALTH

LIFE STYLE DISEASES – WHAT ARE THEY ?

Lifestyle diseases (also called as diseases of longevity or diseases of civilization interchangeably) are diseases that appear to increase in frequency as countries become more industrialized and people live longer. Human body requires balance in diet, physical exercise and mental relaxation including sleep. When there is imbalance in these three parameters, body reacts by developing these so called life style diseases. This is applicable for both sexes and all ages. They include heart diseases, metabolic syndrome, Type 2 diabetes, atherosclerosis, asthma ,chronic obstructive pulmonary disease, cancer, chronic liver disease or cirrhosis, Crohn's disease, nephritis , chronic renal failure, osteoporosis, acne, many other skin diseases ,stroke, Alzheimer's disease, depression , drug addiction , alcoholism and obesity.

Some commentators maintain a distinction between diseases of longevity and diseases of civilization. Certain diseases, such as diabetes or asthma appear at greater rates in young populations living in the 'Western" way; their increased incidence is not related to age, so the terms cannot accurately be used interchangeably for all diseases.

Primarily, conditions like certain forms of cancers and most types of heart diseases, high blood pressure, obesity & Type 2 diabetes and other growing number of lifestyle diseases and disorders are "contracted" from the dramatic shift in the way people live today. Unhealthy diet, lack of exercise, stress, smoking, excess alcohol, drug abuse and even inadequate sleep may attribute to these illnesses or be their primary cause.

Childhood obesity is the growing epidemic and can lead to many other types of lifestyle diseases.

In any country that becomes "developed", the non-communicable diseases are replacing the infectious diseases.

FACTS AND FIGURES:-

Life style diseases emerge as silent killers. The World Health Organization has warned that more than 270 million people are susceptible of falling victim to diseases linked to unhealthy life styles and most of them are thought to be from India, China, Pakistan and Indonesia.

In a decade from now, chronic diseases like cardiovascular disease, diabetes, hypertension, cancer & AIDS accounted for over 65% of deaths in India compared to 53% in 2005. According to the study, by 2020, chronic diseases are expected to claim 7.63 million lives in India compared to 3.78 million in 1990.

A study conducted jointly by the All India Institute of Medical Sciences and Max Hospital shows the incidence of hypertension, obesity and heart disease is increasing at an alarming rate, especially in the young, urban population. According to doctors say, a sedentary lifestyle combined with an increase in the consumption of fatty food and alcohol is to blame for cases of obesity, diabetes, hypertension etc.

While two-third of working women suffer from life-style diseases, 53% of them skip meals and go for junk food due to work pressure and deadlines. According to survey, conducted by the Associated Chamber of Commerce and Industry (Assocham), 68% of working women in the age bracket of 21-52 years were found to be afflicted with lifestyle ailments such as obesity, depression, chronic backache, diabetes and hypertension.

The World Health Organization (WHO) has cautioned that India could emerge as the diabetes capital of the world. There are around 42 million diabetics in the country currently and it is estimated that this figure will almost double and rise to 80 million by 2030.

The Cardiological Society of India has estimated that the country is likely to have a 100 million heart patients or nearly 60 % of the world's total heart patients by 2020.

100 million people in India have high blood pressure. Over 40% of urban Indians have abnormal lipid levels (high Cholesterol, triglycerides and with low HDL) that are the major risk factors for heart disease.

Two out of three employees in India are victim of stress.

A report jointly prepared by WHO and World Economic Forum says India will incur an accumulated loss of $ 236.6 billion by 2015 on account of unhealthy lifestyle and faulty diet.

The resultant chronic diseases – heart disease, stroke, cancer, diabetes and respiratory infection – which are ailments of long duration and slow progression will severely affect people's earnings and thereby economy of the country.

According to the report, released at the World Health Assembly in Geneva, 60 % of all deaths worldwide in 2005 - that is 35 million – resulted from Non-communicable disease and accounted for 44% of premature deaths. The worst thing to be noted is that around 80% of these deaths occurred in low and middle – income countries like India, Brazil, Indonesia, Egypt & Turkey, who are also crippled by an ever increasing burden of infectious diseases, poor maternal & perinatal conditions and also nutritional deficiencies.

Almost half of those who die from chronic diseases are in their productive years. Report also points to the fact that countries like India, Brazil, China and Russia, currently lose more than 20 million productive lives – years annually to chronic diseases. The number is expected to grow by 65% by 2030.

Life style diseases of millennium are replacing the infectious diseases. Industrialization with modernization and the necessity for both parents to work to meet the ends had made children of future generation to opt for fast foods and readymade meals. Moreover the less time spent by the parents with the children , have worsened the food habits of the children , as well as their mental status and it has surfaced as Metabolic syndrome in the present era.

It is high time that the Health officials should join their hands to fight out this creeping weed in the community. It will definitely yield the fruits, if the younger generation is motivated, educated and cautioned to keep a watch on life style disorders.

Health is not a commodity to be purchased in the market. It has to be earned the hard way, by trying to get every cell in our body under our control. Many of us give up the struggle half way through and take recourse to drugs including sedatives. There is no magical elixir to maintain health, nor is it needed.
What is important is to tone up the blood flow, maintain flexibility and maintain the internal organs. Movement and change of posture alters the spatial relationship of the organs inside the body, leading to a healthy neuro-circulatory and metabolic state.

Lifestyle diseases include the long list of :-

- Obesity
- Coronary artery disease
- Systemic Hypertension
- Diabetes mellitus type 2
- Dyslipidaemia / atherosclerosis
- Stroke
- Cancer
- Gastro-oesophageal reflux
- Polycystic ovarian disease
- Chronic liver disease
- Chronic obstructive pulmonary disease
- Nephritis and chronic renal failure
- Osteoporosis
- Acne
- Stress disorders
- Alzheimer's disease

LIFESTYLE MANAGEMENT:-NEED OF THE HOUR – WHY?

Presently, no specific drugs are available to manage the Life style diseases and the best options available for preventing and managing them are only the lifestyle changes or modifications. Life style changes not only offer the best universal beneficial options for the life style diseases but they can target the major risk factors contributing for the disease including the dreadful Atherosclerotic cardiovascular diseases (ASCVD).

Although the presence of these risk factors may need additional specific drug therapies, life style changes still continue to be the mainline of treatment.

Life style recommendations should not be given as lip service but instituted and instilled with an adequate , periodic reinforced expert support .

MANAGEMENT TARGETS:-

Physical changes	–	Diet – Food and method of preparation Cigarette smoking and alcohol consumption Drug abuse Physical activity - exercises – motivation-Initiation- consistence Reduction of weight –Maintenance of Ideal body weight
Mental changes	_	Relaxation / meditation - techniques Adequate sleep at night
Environmental changes	–	Clean Home and its surroundings- Better understanding among the family members Stress free environment
Socio economic changes	–	At Home - Organizing and planning At Office - Intelligent stress-free approach Social gatherings – sharing views and opinions

DIET:-

Worldwide, there is a wide variation in food habits depending on racial characteristics, geographical location, customs and traditions. Animals eat in order to satisfy their hunger and to grow, but man is the only animal who eats for pleasure too. This is responsible for a number of diseases, if carried beyond limits.

The prescribed, balanced diet must be realistic, flexible, and taking into consideration the patient's likes and dislikes , to a large an extent as possible, and must suit the patient's life style.

Food is of great medicinal value provided, if you are sure who has to take it, how, how much, when and in what quantity.

In two prospective randomized, controlled trials, 50 patients who were subjected to comprehensive life style changes (low fat, vegetarian diet, stopped smoking, stress management training and moderate exercise) for 1 year showed significant overall regression of coronary atherosclerosis as measured by quantitative coronary arteriography. Degree of adherence was directly correlated with changes in percentage diameter of stenosis. In contrast, patients in the usual-care control group showed significant overall progression of coronary atherosclerosis.

There were also reductions in the frequency (91%), duration (42%) and severity (28%) of angina in the experimental group. In contrast, control group patients reported a rise in frequency (165%), duration (95%) and severity (39%) of angina.

WESTERN DIET VS PRUDENT DIET

The traditional **"Western diet"** is characterized by a high intake of high-fat dairy products, high- fat meat, processed meat, refined grains, sweets, desserts, and French fries.

In sharp contrast, a **"Prudent Diet"** is rich in fruits, vegetables, nuts, whole grains, and legumes, low –fat dairy products, fish and lean cuts of meat can prevent Cardiovascular disease (CVD) and its complications to a similar magnitude as that observed with statins. Such a prudent diet should begin at age 2 and continued indefinitely.

Extreme dietary modifications involving carbohydrates, protein and fat are injurious to health and impossible to maintain on a long – term basis.
The results of the past 50 years of intensive worldwide research support the conclusion that diet is the major environmental cause of atherosclerosis and Cardiovascular Disease (CVD), especially in genetically susceptible individuals.

The Prudent diet - A practical modification of Mediterranean Diet:-

The traditional Mediterranean diet is characterized by:-

- ✓ Abundant plant foods (vegetables, breads, pastas, beans, nuts and seeds).

- ✓ Fresh fruit is the typical daily dessert
- ✓ Olive oil is used as the principal source of fat.
- ✓ Dairy products (principally cheese and yogurt) , fish and poultry are consumed in low to moderate amounts.
- ✓ Red meat and egg are consumed in low amounts.
- ✓ Wine is consumed in low to moderate amounts usually with meals.

This diet is typically:-

High in total fat (35-45% of energy)
High in monounsaturated fat (20-25% of energy)
Low in saturated fat (7-8% of energy)

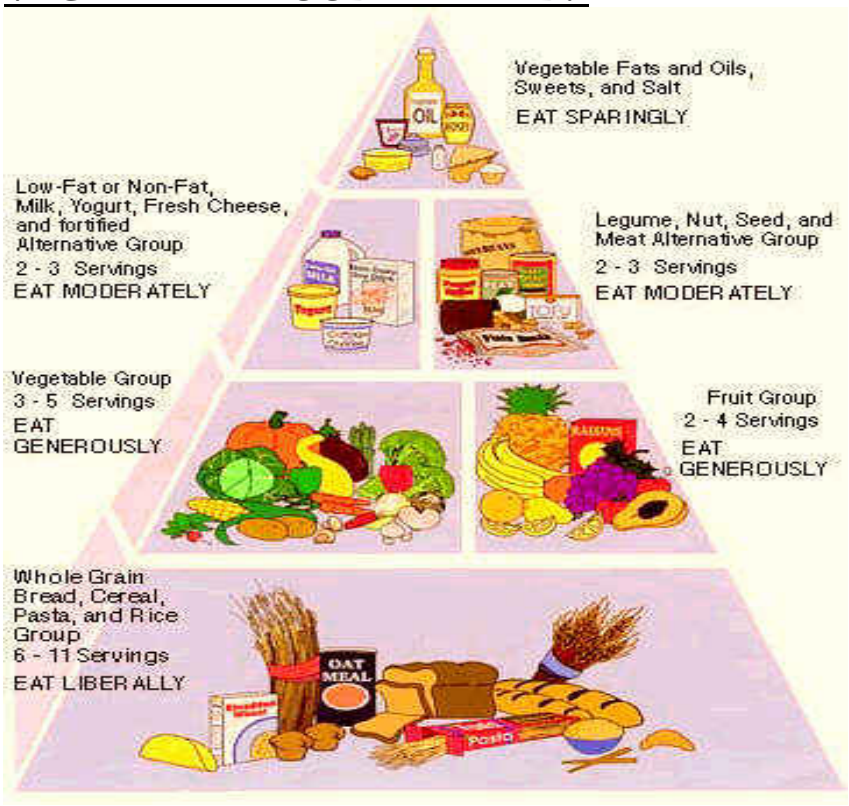
Greater adherence to the traditional Mediterranean diet is associated with a significant reduction in total mortality.
The 6 beneficial basic components of this prudent diet that have been elucidated are:-

- ❖ Vegetables
- ❖ Fruit
- ❖ Nuts
- ❖ Fish
- ❖ Legumes
- ❖ Whole grain cereal

The prudent diet is associated with a 24% decreased risk of CVD compared to a 46% increased risk with Western diet.

NON-VEGETARIAN FOOD PYRAMID:-

VEGETARIAN FOOD PYRAMID:-



The quantities of food needed to meet the nutritional requirements vary with age, gender, physical activity and physiological status.

CALORIES:-

A total calorie required per person per day depends on ideal body weight and amount of physical activity.

Rough estimate can be made from the following formula:-

25 x Ideal body weight in Kgs – for sedentary life style

15-20 x Ideal body weight in Kgs – for obese individuals planning for weight reduction

35-40 x Ideal body weight in Kgs – for physically very active or moderate to heavy exercising individuals

The Harris –Benedict Formula will give a **more accurate calorie calculation**.

STEP I: - To calculate BMR (Basal metabolic rate):-

FOR MEN:-

BMR = 66.5 + (13.75 x Weight in Kg) + (5.003 x height in cm)-
(6.775 x age in years)

FOR WOMEN:-

BMR= 655.1 + (9.563 X Weight in Kg) + (1.850 x height in cm)-
(4.676 x age in years)

STEP 2:- Applying the Harris – Benedict Principle:-

Little to no exercise = Daily calories needed = BMR x 1.2
Light exercises (1-3 days/week) = Daily calories needed = BMR x 1.375
Moderate exercises (3-5 days/week) = Daily calories needed = BMR x 1.55
Heavy exercises (6-7 days/week) = Daily calories needed = BMR x 1.725
Very heavy exercises (twice/day, extra heavy work outs) =
Daily calories needed = BMR x 1.9

Heat of Combustion of Various Macronutrients

Macronutrient	Heat of Combustion[a] (kcal/g)	kcal[b]/L O_2	RQ[c] (CO_2/O_2)	Atwater Factor[d] (kcal/g)
Starch	4.18	5.05	1.0	4.0
Sucrose	3.94	5.01	1.0	4.0
Glucose	3.72	4.98	1.0	4.0
Fat	9.44	4.69	0.71	9.0
Protein by combustion[a]	5.6			
Protein through metabolism[a]	4.70	4.66	0.835	4.0
Alcohol[e]	7.09	4.86	0.67	—

[a] The energy derived by protein oxidation in living organisms is less than the heat of combustion of protein, because the nitrogen-containing end product of metabolism in mammals is urea (or uric acid in birds and reptiles), whereas nitrogen is converted into nitrous oxide when protein is combusted. The heat liberated by biological oxidation of proteins was long thought to be 4.3 kcal/g (Merrill and Watt, 1973), but a more recent demonstration showed that the actual value is 4.7 kcal/g (Livesey and Elia, 1988).

[b] One calorie is the amount of energy needed to increase the temperature of 1 g of water from 14.5° to 15.5°C. In the context of foods and nutrition, “large calorie” (i.e., Calories, with a capital C), which is more properly referred to as “kilocalorie” (kcal), has been traditionally used. In the International System of Units, the basic energy unit is the Joule (J). One J = 0.239 calories, so that 1 kcal = to 4.186 kJ. A daily energy expenditure of 2,400 kcal corresponds to the expenditure of 10,000 kJ, or 10 MJ (Mega Joules)/d.

[c] RQ = respiratory quotient, which is defined as the ratio of CO_2 produced divided by O_2 consumed (in terms of mols, or in terms of volumes of CO_2 and O_2).

[d] Atwater, a pioneer in the study and characterization of nutrients and metabolism, proposed to use the values of 4, 9, and 4 kcal/g of carbohydrate, fat, and protein, respectively (Merrill and Watt, 1973). This equivalent is now uniformly used in nutrient labeling and diet formulation. Nutrition Labeling of Food. 21 C.F.R. §101.9 (1991).

[e] Alcohol (ethanol) content of beverages is usually described in terms of percent by volume. The heat of combustion of alcohol is 5.6 kcal/mL. (One mL of alcohol weighs 0.789 g.)

DIETARY REFERENCE INTAKE (DRI) OF MACRONUTRIENTS:-

Carbohydrates :-

The Institute of Medicine and Dietary Reference Intake (DRI) recommends 130 gms (520 Kilocalories) of carbohydrates per day which is the average minimal usage of glucose by the brain. Desirable range is 45 to 65% of the total calorie intake (also referred as the Acceptable Macronutrient Distribution Range or AMDR) and the Daily Value (DV) for carbohydrate on food labels is based on a recommendation intake of 60% of total calorie consumption.
These recommendations also advise that no more than 25% of carbohydrate intake be derived from sugars (mono and disaccharides)

Protein ;-

The Recommended Dietary Allowance (RDA) for both men and women is 0.80 – 1.2 gm of good quality protein /Kg body weight/day and is based on careful analyses of available nitrogen balance studies.
Protein intake may be restricted in renal diseases

Fat:-

Neither an adequate intake nor Recommended Dietary Allowance (RDA) is set for total fat because there are insufficient data to determine a definite level of fat intake at which risk of inadequacy or prevention of chronic disease occurs. An Acceptable Macronutrient Distribution Range (AMDR) has been estimated for total fat – that is 20-35% of energy.

For people 4 years or older, eating 2000 calories per day, the DRV (Daily Reference Values) are:-

Total Carbohydrate - 300 g
Protein - 50 g
Total fat - 65 g
Saturated fatty acids - 20 g
Cholesterol - 300 mg
Fiber - 25 g
Sodium - 2300 mg
Potassium - 4700 mg

CARBOHYDRATES :-

The widespread misconception that carbohydrates (in any form) should not be eaten by people with diabetes should be removed. Complex polysaccharide (Starch) in limited quantity with adequate amount of fibers is preferred and there should be restriction in taking simple sugars.

Ample intake of fruits with low glycemic index, vegetables and whole grains, rich in fiber, vitamins and minerals are added to increase the volume of food ingested, thereby to avoid feelings of deprivation and restriction.

CEREALS – 1 SERVING = 100GM

FOOD	CALORIE CONTENT IN KCals
Cooked rice	111
Brown rice	112
Brown bread	85
White bread	260
Potato	70-100
French fries	270
Chips	500
All breakfast cereals	350-380
Oats	366.6

THE GLYCEMIC INDEX:-

The Glycemic index is a scientific measure of the glycemic response to various foods and is obtained from published food tables.
It ranks carbohydrate rich foods and how they affect the blood sugar levels.
It largely depends on the rate of digestion and speed of absorption of carbohydrate, but physical form is also important.
Foods with high levels of soluble fiber such as rye, barley and oats are digested at a lower rate and have lower glycemic index.
Foods containing the same amount of carbohydrate (carbohydrate exchange) may have up to a 5- fold difference in glycemic impact depending on the differences in the digestion and absorption.
The hierarchy of the glycemic index begins with beans, lentils, rice, spaghetti, potatoes, white bread (with refined flour) and refined grain cereals.
A high glycemic index indicates a lower quality of carbohydrates associated with low HDL levels and low rates of satiety.
Fruits, non-starchy vegetables, parboiled rice and legumes have a low glycemic index.
Glycemia observed after consuming dried peas is only one-third that of an equivalent amount of potatoes. Since peas are also high in fiber, its consumption needs to be encouraged, especially in patients with diabetes and metabolic syndrome.
Prolonged cooking of vegetables, as is commonly practiced in India, virtually destroys every nutrient before it is consumed as well as increases the glycemic index.
Combining high GI foods with low GI foods will give a medium GI meal, resulting in slower rise in blood sugar level.

GLYCEMIC LOAD:-

The glycemic load is the product of the glycemic value of the food and its carbohydrate content (per serving) divided by 100.
Carrot has a high glycemic index but a low glycemic load.
The overall dietary glycemic load is calculated by adding the glycemic loads of all different foods consumed in a given day.
Accordingly the glycemic load can be decreased by reducing the amount of carbohydrate intake and/or by consuming foods with low glycemic index.

In addition to the quality and quantity of carbohydrates consumed, the glycemic load also represents diet-induced insulin demand.

Asian Indians consume large quantities of carbohydrates in the form of rice and Indian bread (high GI food- refer table below) which predisposes them for atherogenic dyslipidaemia. Carbohydrate source, nature and amount have profound influence on post-prandial glycemia and post-prandial lipaemia which in turn are directly associated with risk of CAD in patients with diabetes. Both glycemic index and glycemic load are inversely associated with HDL and directly associated with triglycerides. The time has come to shift the diet-heart paradigm away from restricted fat intake towards reduced glycemic load.

GL/GI INDEX OF VARIOUS FOODS:-

1st value refers to glycemic load ; 2nd value refers to glycemic index

VEGETABLES		
LOW GI	MEDIUM	HIGH
Greens - / 10	Sweet potatoes 17/61	Mashed potatoes 14/74
Soya bean 1/18		French fries 22/75
Kidney beans 7/28		Baked potatoes 26/85
Bengal gram 8/28		
Lentils 5/29		
Butter beans 3/31		
Baked beans 3/31		
Cooked carrots 3/47		
Green peas 3/48		
Sweet corn 9/54		
GRAINS		
Whole wheat Spaghetti 15/37	White rice 23/64	White bread 10/70
Barley 11/25	Instant rice 28/69	Corn flakes /rice crispies/cheerios
Brown rice 18/55	White spaghetti 27/61	Waffle 10/76
All bran 9/38	Oats 17/66	Bagel 25/72
Macaroni /pasta -/32 to 45	Digestive biscuits	Whole wheat bread 10/70
Lentil soup -/44	Croissant -/67	Steamed rice -/98
Noodles -/40	Muesli / shredded wheat / weetabix	
DAIRY & OTHERS		

Skimmed milk 4/32	Sweetened yoghurt 3/66	Rice cakes 17/78
Milk chocolate 12/43	Ice cream 8/61	Microwave popcorn 8/72
Full fat milk 3/27	Mars bar	Gatorade 12/78
Low fat yogurt -/14	Angel cake 19/67	
Banana cake 18/47	Wheat crackers 9/67	
Ground nuts 1/14	Sugar 7/68	
Potato chips 11/54	Coca cola 15/58	
Honey 10/55		
Apple juice 12/40		

GLYCEMIC LOAD AND DIABETES:- Glycemic load promotes diabetes, especially in those with insulin resistance. This is particularly true for refined carbohydrates, sweets, white bread and potatoes. Thus high glycemic load may be considered as a risk factor of equal importance as high saturated fat diet in precipitating diabetes.

A low glycemic load can:-

- reduce insulin secretion in patients with type 2 diabetes
- decrease insulin requirements in type 1 diabetes
- improve glycemic control in both types of diabetes.

The incremental benefit from low glycemic load is similar to that offered by pharmacological agents that also target postprandial hyperglycemia, such as (Acarbose) alpha-glycosidase inhibitors. The benefit of low glycemic load on the development of diabetes is similar to monounsaturated fat, polyunsaturated fat, whole grains, fiber, fruits and vegetables.

A diet with the high glycemic load, resulting in high triglycerides and low HDL levels is a major overlooked factor for atherogenic dyslipidaemia, metabolic syndrome and diabetes among Asian Indians. There appears to be a threshold for carbohydrate consumption with intake > 280 g/d often resulting in atherogenic dyslipidaemia. Replacing high glycemic with low glycemic index foods and reducing the glycemic load can reduce the risk of diabetes and CVD. Interestingly, our traditional Indian diets, with slight modification, are close to what is now considered ideal diet!

- **SUMMARY OF BENEFITS OF LOW GI FOOD INTAKE**
- Helps lose and maintain weight

- Reduces hunger and induces satiety
- Helps refuel more effectively after exercise
- Prolongs physical endurance
- Improves blood cholesterol and reduces CVD risks
- Improves diabetic management and increases sensitivity to insulin
- Helps manage symptoms of PCOD
- Long term use may reduce diabetic risk

Patients do not have to make any "major changes to their usual dietary habits, with the exception of avoiding simple sugars, cutting down on the salt and adjusting the fat intake"
This allows increasing compliance with the diet advice!

PROTEINS :-

Soya bean – Vegetable protein - Miracle Bean

Benefits of soya bean are as follows :-

- **Obesity and diabetes** :- its low carbohydrate content makes it as an ideal substitute for cereals in the prevention and treatment of obesity and diabetes
- **Cardiovascular disease: -** Soya protein and oil have a direct effect on lowering LDL cholesterol and triglyceride levels.
  - It was estimated that ingestion of 25 or 50 g of soy protein per day could decrease serum cholesterol by 8.9%. An intake of 30 g soy protein can be obtained by drinking two cups of soy milk and consuming one serving of meat analogue.
  - Estrogens present in the Soya bean protect against the CAD.
  - Vitamin E present in Soya is an antioxidant and it helps to lower cholesterol levels and prevents heart disease

- **Cancer:-** Soy beans contain several classes of potentially important chemoprevention agents such as phytosterols, sitosterols, phytoestrogens, saponins, Bowman Birk Inhibitor and chymostatin.

They protect against breast cancer and prostate cancer. Geistein plays a role in suppressing the growth of tumor cells.

- **Osteoporosis:-** its significant calcium content protects against osteoporosis
- **Immune System**:- Vitamin E is an antioxidant and strengthens the immune system
- **Menopausal Symptoms:-** Estrogens present in the Soya Bean relieve menopausal symptoms
- **Lactose intolerance:-** Babies and young children who are lactose intolerant may be fed Soya milk instead of ordinary milk
- **Gluten sensitivity:** - Soya does not contain gluten and may be substituted for wheat, for those who are sensitive to gluten.

CALORIE CONTENT OF MILK PRODUCTS:-

MILK PRODUCT	SERVING SIZE	CALORIES in KCals
Normal fat cheese	25	90-130
Single Cream	100 ml	250
Double Cream	100 ml	430
Custard	100 ml	100
Ice Cream	100 ml	180
Whole milk	100 ml	150
Yogurt	100 ml	36
Soya Milk	100 ml	60
Butter Milk	100 ml	15

NON-VEGETARIAN FOOD – 1 SERVING = 100 GMS

Food	Calories	Fats in gms
Any beef	410	10.3
Mutton	194	13.3
Pork	114	4.4
Chicken	109	12
Duck	130	4.8
Fish	80-150	1
Egg	181	13.5

FATS:-

If the total fat content exceeds 35%, it is difficult to sustain the low intakes of saturated fat required to maintain a low LDL-C.
If the total fat content falls below 25%, triglycerides can rise and HDL –C levels can decline.
When estimating the total fat intake, 'invisible fat' containing in many foods should be taken into account. Invisible fat in a typical Indian diet amounts to 40%.
Intake of fat should be modified in dyslipidaemics.

SATURATED FATS:-
Food should be cooked in the least amount of oil and it should be preferably grilled, steamed or boiled rather than fried.
High cholesterol content is present in egg yolks, organ meats, sea foods like crabs, shrimps and lobster. Saturated fat intake raises Serum Cholesterol.

ANIMAL AND VEGETABLE GHEE:- Ghee or clarified butter is one of the common sources of dietary fat and cooking medium among South Asians. Ghee is more harmful than butter due to the presence of cholesterol oxides, which are generated during its preparation by prolonged heating of butter. Liberal dietary exposure to cholesterol oxides from ghee is a likely contributor to the high frequency of CAD among the Asian Indians. Similarly, vegetable ghee (vanaspathi) also exerts adverse effects through its high saturated fat content and possibly Tran's fat content, which needs to be widely publicized. Animal fats include Tallow and Lard.

TROPICAL OILS:- Tropical oils refer to coconut, palm kernel, palm oil and Cottonseed oil. These oils contain a very high percentage of saturated fat, in sharp contrast to other cooking oils such as mustard oil, canola oil, sesame oil and rice bran oil, which are low in saturated fat and high in monounsaturated fat.

Tropical oils are more atherogenic and thrombogenic than mutton and beef fat, the latter contains < 5% myristic acid compared to 18% in coconut and palm kernel oils.

These oils contain more total cholesterol-raising saturated fat than animal fats – coconut oil – 89%, palm kernel oil – 71% and palm oil – 46%, compared to < 30% for butter fat, beef fat, pork fat and chicken fat. Tropical oils are also found in commercially baked cakes, biscuits, cookies and "snack foods". In Mauritius, a regulated change in the saturated fat content by substituting soybean oil for palm oil resulted in a dramatic 32 mg/dl fall in total cholesterol among the general population.

COCONUT OIL:- Coconut oil contains mostly cholesterol-raising saturated fat. Rabbits fed on a commercial Chow diet containing 0.5% cholesterol and 14 % coconut oil developed more severe dyslipidaemia and atherosclerosis than rabbits fed the same diet containing olive oil instead of coconut oil.

Average plasma total cholesterol was 2-fold and triglycerides 20- fold higher in the coconut oil – fed rabbits than in the olive oil-fed rabbits.
When 22% of the energy intake in a Malaysian diet high in palm oil was substituted with coconut oil, there was an increase of 40 mg/dl in total cholesterol, 29 mg/dl in LDL, 36 mg/dl in triglycerides and 4 mg/dl in HDL.
Kerala, renowned for the universal and liberal consumption of coconut meal, milk and oil, not only has the highest level of total cholesterol in India, but also the highest rate of CAD, diabetes and metabolic syndrome.
In Sri Lanka which also has a very high rate of CAD about 80% of the fat in the habitual diet comes from coconut.
Since the coconut milk and oil have the highest proportion of saturated fat, the use of these products should be limited to < 1 tablespoon a day even when the diet contains no other sources of saturated fat.
There is little awareness and even controversy about the atherogenic effects of certain foods and oils, especially in regions where production, sale and consumption of such oils have a profound impact on the regional economy. Unless and until the beneficial effect is clearly demonstrated by
Well-designed scientific studies, the liberal use of butter, ghee, palm oil and coconut should be discouraged. However, in diets with negligible intake of fish, meat, milk and dairy fat, modest use (< 7% of energy) of such oils may
be preferable to no fat at all. The medical community and the public are need to be educated about the atherogenic and anti-atherogenic effects of various cooking oils, as well as animal and vegetable ghee.

In India, percapita consumption of major fats and oils has increased during the last 30 years. Increased fat consumption is mainly among the urban middle and upper classes where CHD is rampant.

The consumption of oil was:-

2.5 Kg/person/year in 1956
3.2 in 1961
2.7 in 1966
3.5 in 1971
3.5 in 1976
3.8 in 1981
5.0 in 1986
5.5 in 1991
6.0 in 1994
12.6 in 2010 …….More alarming is the consumption of the hydrogenated oil , trans fats unknowingly through snacks and Indian sweets.

UNSATURATED FATS:-

TRANS FAT :

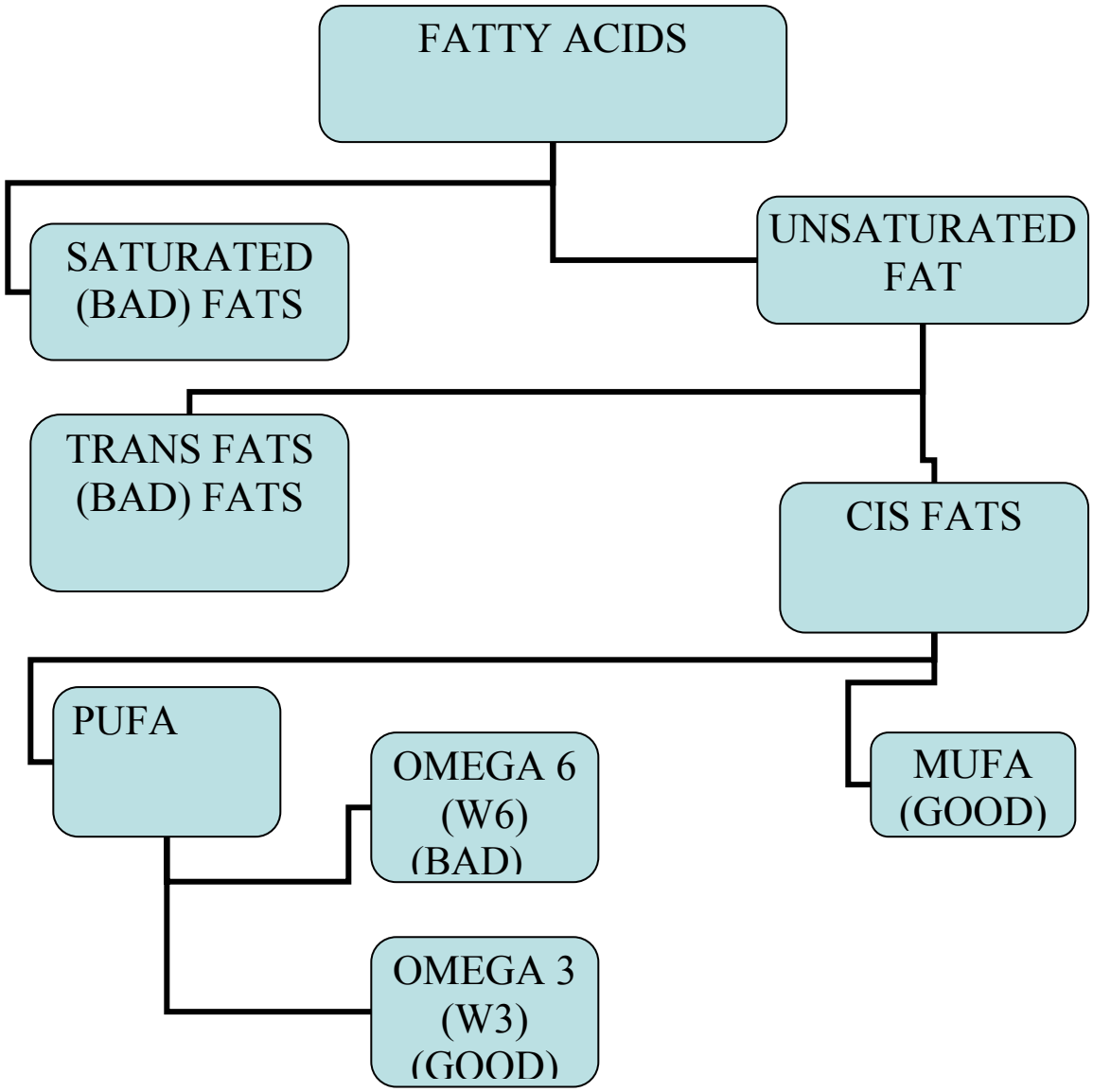
Trans fats produced by partial hydrogenation of unsaturated fat increases the LDL and lipoprotein (a) and decrease the HDL and markedly increases the risk of CAD. On a per-calorie basis, trans fats appear to increase the risk of CHD more than any other macronutrient, conferring a substantially increased risk at low levels of consumption (1 to 3 % of total energy intake).

A 2% increase in energy intake from trans fats is associated with a 23% increase in the incidence of CAD. Health care providers should advise public about how to minimize the intake of trans fats.

Food manufacturers should choose to use alternative fats in food production and preparation.

Many commonly consumed Indian foods contain more trans fat than French fries.

For example the trans fat content of 100 g of French fries is 4.2g-6.1g, compared to 9.5 g in bhatura, 7.8 g in paratha and 7.6 g each in puri and tikkis made in vanaspathi. Asian Indians consume more fried foods and high-fat dairy products such as full-fat milk than white in Canada and the UK.



DEEP- FRYING AND REUSE OF FRYING OIL:- Deep frying is a favorite form of food preparation among Asian Indians and results in increased consumption of trans fat and saturated fat.

Deep-frying is associated with spontaneous hydrogenation and formation of trans fat.

Reuse of oil used for deep-frying has been shown to produce endothelial dysfunction and reduces paraxonase activity and thus, reducing the ability of HDL to prevent LDL oxidation.

Fats that have been heated for prolonged periods in air contain many dangerous products from oxidation and breakdown of lipids. These compounds include

hydroxy peroxidases, aldehydes, polymers, hydroxy fatty acids, hydroperoxy epoxides and hydroperoxy alkenals.

In one study, fast food restaurant cooking oil, just before the weekly change, was compared to unused oil. The repeatedly used oil had:-

4 times higher peroxide levels,
7 times higher carbonyl levels and
17 times higher levels of acids.

CIS FATS :-

This includes the monounsaturated fatty acids (MUFA) and polyunsaturated fatty acids (PUFA- the essential fatty acids ALA, EPA and DHA).
Essential fatty acids are Omega – 6 (w6) and Omega -3 (w3) fatty acids and the relative ratio between them is normally (w6/w3) 5- 10.1.

Indian diets usually contain too much of w6 fatty acids because of increased use of vegetable oils and little w3 fatty acids mostly found in fish. Indian diets have w6:w3 ratio of around 40:1. The disproportionate ratio is due to the use of the so called 'safe' cooking oils such as safflower oil and sunflower oil, in which the ratio is around 150:1! The preferred w6:w3 ratio is 4:1.

RELATIVE COMPOSITIONS OF COMMONLY USED OILS/FATS :-

FAT	SATURATED FATTY ACID %	MUFA	PUFA	SMOKE POINT- °C	NOTES
Butter	66	30	4	150	
Ghee	65	32	3	190-250	
Dalda	80	14	6	150	
Coconut Oil	92	6	2	177	
Gingelly Oil	14	43	43	232	
Mustard oil	13	60	21	254	
Ground nut oil	18	49	33	231	Has no w3
Corn oil	13	25	62	236	
Sunflower Oil	11	20	69	246	Has no w3

Safflower Oil	10	13	77	265	W6:W3 = 150: 1
Olive oil	14	73	11	190	W6:w3 = 3-13:1
Canola oil	4	62	32	242	W6:w3 = 2:1
Rice bran Oil	20	47	33	254	

Although traditional cooking media like mustard oil, coconut oil and ghee may be relatively high in their saturated fat content, their poor content of w6 fatty acids allow a more optimal w6/w3 intake, especially when associated with increased w3 intake in the form of fish or w3 supplements.

The saturated fat content of these cooking media are offset by the benefits of the more optimal w6/w3 intake, especially if the total use of the cooking media is minimized or by home scale blending of traditional cooking media with oils rich in w6 to lower the ratios; e.g. Simple blending of sunflower and mustard oil in 1:1 will bring down the ratio to approximately 7 as against 163 for sunflower alone.
Cooking oils should be a judicious mix of PUFAs MUFAs and saturated fats; no one particular oil is beneficial; Foods rich in saturated fats and high in omega 6 fatty acids should be reduced.

w3 PUFA – the good PUFA

- ALA (short chain), EPA and DHA (long chain)
- 5% of ALA is converted to EPA/DHA in men and a little more in women.
- Vegetable sources have 6 times the ALA content and very minimal EPA and DHA compared to animal sources.
- Vegetable sources – Flaxseed and canola oils, Walnut, Hazelnut and Soybean
- Animal sources – cold water fatty fish- Salmon, Herring, Mackerel, Anchovies and Sardines.
- 90% of Humans are deficient in w3FAs.

w6 PUFA- the bad PUFA

- Linoleic acid (LA) and Arachidonic Acid (AA)
- Sources of LA- most vegetable oils- Soybean, corn, safflower,

sunflower, Peanut oil
- Sources of AA- peanut oil, Meat, eggs, dairy products
- Humans are never deficient in w6FA

W9FA- MUFA(Good)- Oleic Acid (OA)
- Sources – Canola, /sunflower, Olive and Almond oils
- MUFA intake – reduces Serum cholesterol

Effects of w3FA and w6FA intake

w3PUFA	W6PUFA
• Reduces Heart rate and BP • Reduces triglycerides, cholesterol and atherosclerosis • Decreases Clotting – Increases BT, Decreases Platelet aggregation, Plasma viscosity and Fibrinogen • Reduces Cardiovascular disease risk and Ischemic CVA risk and Varicose veins • Reduces Depression and anxiety • Anticancer effects-reduced Breast and colon cancers • Immune modulator and improved Rheumatoid Arthritis	• Increased Cardiovascular Disease risk • Increased Cancer, Asthma, Arthritis and Depression

INFERENCES FROM THE TRIALS AND STUDIES:-

Randomized controlled clinical trials, meta-analysis, and systematic reviews are considered the ultimate tests of benefits of therapeutic interventions. Such reviews have shown a 24% reduction in major coronary events in dietary trials lasting > 2 years.

A diet incorporating lean beef, skinless chicken and fatty fish has been shown to improve the lipid profile by 5-10%.

The total cholesterol to HDL ratio is the single best lipid predictor of CVD (Coronary vascular disease)

This ratio is determined by 3 partly opposing dietary factors:-

- the proportion of energy from saturated fat, which raises total cholesterol,
- the proportion of energy from total fat , which raises the HDL
- the excess in total energy intake , which produces obesity and secondarily lowers HDL (High density lipoprotein)

A high intake of fat (more than one-third of the calories) generally increases the intake of saturated fat and is associated with consumption of excess calories and weight gain. Conversely a low intake of fat (less than one-fifth of the calories) increases the risk of inadequate intakes of essential fatty acids and vitamin E and unfavorable changes in HDL and triglycerides.

There are strong, consistent and graded relationships between saturated fat intake, blood cholesterol levels and mass occurrence of CVD.
Saturated fats as a whole increase the LDL but the LDL raising properties of saturated fats are limited to lauric, myristic and palmitic acids. The cholesterol raising ability of myristic acid is 50% higher and lauric acid is 33% less than palmitic acid.

Stearic acid (higher in meat and chocolate) does not raise LDL. The greatest reduction in CVD risk is achieved by LDL- lowering by reducing saturated fat intake, which is best accomplished by reducing the intake of high-fat dairy and replacing it by low fat dairy and fiber-rich foods.

The preferred substitution for saturated fat is monounsaturated fat (abundant in olive oil and canola oil) or polyunsaturated fat (abundant in soybean and sunflower oil) and both results in decrease in LDL and triglycerides. Such substitution is more effective in preventing CAD than reducing overall fat intake. Substituting saturated fat with carbohydrates decreases LDL but with monounsaturated fats increase insulin sensitivity and decrease the risk of type 2 diabetes.

Current guidelines recommend a diet that provides:-
< 30% calories from dietary fat
< 10% saturated fat
< 10% polyunsaturated fat and
Remaining as monounsaturated fat.

NUTS:-Extensive studies during the past decade have transformed the image of nuts from fattening snacks to a wholesome and heart-healthy food to be consumed daily but in small quantities.
Nuts are rich sources of proteins (12-25%), antioxidants, fiber (10%), vitamins and minerals (especially potassium and magnesium). Although nuts contain 45-80% fat, most of the fats are the highly beneficial mono and polyunsaturated fats.
It has been suggested that daily nut consumption should not exceed
30-60 gms.
1% reduction in LDL occurs for every 7 g/d of almonds.

NUTS – 100 GMS CONTAINS:-

NUT	KCAL	FATS IN Gms	SATURATED FATS AS %	W6 :W3 RATIO	PROTEINS IN Gms
Walnut	687	64.5	5-8	4-16:1	15.6
Pistachio	626	53.5	8.5	37:1	19.8
Cashew	596	46.9	12.5	117:1	21.2
Almond	655	58.9	6	1800:1	20.8
Ground nuts	567	40.1	7		25.3
Pea nut butter	589	49.7			25.07
Coconut	444/662	41.6	29.7		4.5

FRUITS :-

Can be taken by the diabetics in moderate amounts.
Ripe and very sweet fruits are better avoided.
Raw and partially ripened fruits and citrus fruits are preferable

FRUITS AND JUICES

FRUIT	WEIGHT /QUANTITY	KCals
Apple	1	59
Apple juice	100 ml	60-80
Medium banana with skin	130	89.2
Large banana with skin	170	197.2
Orange medium	200	48
Orange juice –sugar free	100 ml	40-55
Dates	1	9
Grapes	100	71
Guava	100 gm	38
Mango	100 gm	74
Papaya	100 gm	32

SALT INTAKE :-

Population studies have shown that high salt intake is associated with increased risk of hypertension and stroke.
Most of the world's population consumes 2300-4600 mg of sodium (Na+)
(or 1-2 teaspoon of salt)

In 2005, the National Academy of Sciences,
established adequate intake of sodium(Na+) as : -
1500 mg/d for 9-50 year olds
1300 mg/d for 51 -70 years
1200 mg/d for 71 and over years.

Tolerable upper intake was set at 2300 mg/day for all ages.

The WHO recommends a salt (NaCl) intake of < 5 g/day
In US -77% of sodium comes from processed foods
12% from natural foods
6% added on the table
5% added during cooking.

In India- 90% of the salt is added during cooking.

Many restaurant meals, especially fast food meals contain 2300-4600 mg sodium.
2 tablespoon of soy sauce contains 1840-2520 mg sodium.

THE DASH DIET (DIETARY APPROACHES TO STOP HYPERTENSION) AND BLOOD PRESSURE REDUCTION:-

The DASH diet with a low sodium level (1500 mg /day) led to a mean systolic blood pressure that was 7.1 mm Hg lower in participants without hypertension and 11.5 mm Hg lower in participants with hypertension. Thus, the reduction of sodium intake to levels below the current recommendation of 100mmol per day and the DASH diet, both lower blood pressures substantially. The results of this study clearly demonstrate that reducing sodium intake may allow many people taking hypertensive medications to reduce or stop such medication.

HEALTHIER DIET AND ITS PRACTICE :-

- Gain knowledge regarding the relationship between the diet and health.
- Always eat less than your appetite. Simply prepared foods are preferable.
- Have Sattvic diet which includes green leafy vegetables –spinach, methi and salad.
- Eat on time. Do not keep your stomach empty for a long time. The acidity formed will predispose to ulcers of the stomach
- All types of cereals are good – soya, oat bran, wheat, rice, maize, bajara, sprouted grains.
- All pulses with cover gram, beans etc can be included.
- All types of coloured fruits added in the diet daily – as such in the natural form as they are rich in flavinoids and antioxidants.
- Use animal products like a condiment.
- Healthy and positive food concepts and cooking practices should be adopted
- Drink plenty of water, 6 to 8 glasses a day. Try herb teas, or just water.
- Use 5 ml of mustard oil, soybean, olive oil or rich bran oil in your diet.
- Use skimmed milk (250-300 ml /day) and whey
- Vegetarian diet plays a main role in preventing and reversing the heart disease.
- Silence should be observed while eating the food. Avoid watching TV or reading the newspaper thereby keeping mindfulness while eating.
- Do not walk or exercise after meals.

- All foods taken should be fresh. “FARM TO PLATE”
- Eat less salt , sugar, khatai (imli, amchur) and other spices
- Remember: -The scientific way of winning the ‘losing ‘game is – fats make fat, and unrefined starchy and natural foods make you slim.

Beware of weak moments:-

If one cookie leads to ten, don’t eat the first one
Don’t buy problem foods. If they are not around, you won’t eat them.
If you are bored, frustrated, or lonely, don’t snack; go for a walk, drink a glass of water , call a supportive friend, or ‘feast’ on natural foods like chilled grapes, melon or some juicy carrot sticks.

FOODS TO BE AVOIDED:-

- Avoid saturated fats – ghee,butter,coconut oil , which become thick in the room Temperature
- Fried things – kachauri, samosa, pakuri, bhujiya , bajji, bonda, pokada etc.
- Avoid all types of refined, processed, tinned products and snacks.
- Modern food technology, extract the little natural fats present in the plant food by adding chemicals and subjecting them to different processing, increase the caloric density of the diet.

  Example: - A potato with the calorie content of 100,
  is transformed into 870 calories in 20 potato chips.
- Animal products are calorie – dense foods, a preferred fuel for the body with no fiber and very few carbohydrate calories. They are now loaded with fat and protein.
- Keep the sweet carbonated drinks for special occasions.
- Non-veg –egg and all types of meat and fish etc.,
- Alcoholic drinks and intoxicants – heroin and cocaine etc.
- Softdrinks, biscuits, pastries, chocolates and sweets have caused irreversible damage to the health of children.

FAST FOODS AND FAST PLAQUES:- The fast food is the most extreme example of typical Western Diet. The fast foods are high in calories, glycemic index, saturated fat and salt and low in nutrients and therefore highly correlated with obesity, dyslipidaemia, metabolic syndrome and cardiovascular risk. Many new fast – food menu choices are delivering double the recommended number of calories from fat. Several new burger options offered by fast-food restaurants when consumed with French fries and a large soda exceed the 1500-2000 calories per day, recommended for total food consumption.

SOFT DRINKS AND OBESITY :- The weight of epidemiologic and experimental evidence indicates that a greater consumption of sugar sweetened beverages is associated with weight gain, obesity, elevated uric acid and gout , the latter has been implicated in cardiovascular risk.
Sugar sweetened beverages account for 8% of caloric intake in the US.

High fructose corn syrup (HFCS) represents > 40% of caloric sweeteners added to foods and beverages. The use of HFCS mirrors the rapid increase in obesity with an average consumption of 136 calories / day. Furthermore calorically sweetened beverages may enhance caloric overconsumption.

DIET CHANGES AND ITS EFFECTS ON DISEASES:-

Soy-bean- protein diet , legumes, nuts, soluble fiber	Decreases total Cholesterol, LDL (C), Triglycerides
Fiber, complex carbohydrates and restricted fat	Improve control of blood glucose concentration, delay glucose absorption, lower insulin requirements, increase peripheral tissue insulin sensitivity, decrease serum cholesterol and triglycerides values , aid in weight control and lower blood pressure in diabetics.
Nut, fruit , vegetable, fiber	Reduces the risk of coronary artery disease
Fruits and vegetables	Reduces the risk of stroke
Fruits , vegetables, especially spinach	Lower risk of age- related ocular macular degeneration
Dietary fiber	Reduces the incidence of colon and breast cancer , colonic diverticula and gall stones
High intake of soy bean product	Decreased breast cancer risk
High- complex carbohydrate and high-fiber diet	40% reduction of insulin doses 6-27% reduction in fasting serum glucose values 10-32% reduction in serum cholesterol values
Vegetarian diet – fruits , vegetables, complex carbohydrates,soy bean, legumes , nuts & soluble fiber	Lowers cardiovascular disease through multiple mechanisms such as lowering of cholesterol and the beneficial effect of antioxidant vitamins, folic acid, linolenic acid and fiber. Reduced weight and blood pressure.
Leguminous seeds	Lowers serum cholesterol

Substitution of chick peas for wheat flour	Decreases serum cholesterol levels by 22% by the end of 55 weeks.
Walnuts, macadamia, almonds, hazelnuts	Cholesterol-lowering properties and a beneficial effect on lipoprotein profile.
Soluble fibers abundant in fruits , dried beans, legumes, barley and oat cereals	Lower the blood lipid levels.
Low-energy diet	Modulate blood lipids , reduce atherosclerosis , & coronary deaths, weight reduction & reduction in coronary artery disease and its risk factors
Vitamin E , C, beta-carotene , flavanoids	Prevent the oxidation of LDL cholesterol- an important step in the pathogenesis of atherosclerosis
Folic acid supplementation	Highly effective in reducing plasma homocysteine levels
Green leafy vegetables, soybean products, grapeseed oil , canola oil, walnuts , hazelnuts and flax seed – rich in alpha linolenic acid	Reduces the incidence of coronary disease – e.g. Japan – CAD low due to diet rich in linolenic acid. Cardioprotective effects are due to beneficial effects on platelet reactivity and arrhythmia.
Fiber- cereal , fruits (apples, bananas and oranges) and vegetables (peas, cooked carrots and tomato sauces)	Reduces morbidity and mortality from coronary artery diseases in middle aged men who smoke
Increased consumption of antioxidants like Vitamins C and E	Delay cognitive impairment
Higher dietary levels of fruits and vegetables	Low risk of cancers like breast, lung , oral , pancreas, larynx, oesophagus, bladder and stomach

CIGARETTE SMOKING :-

- Smoking is the horrible habit that invites premature death!
- Tobacco - all types of cigarettes, tobacco, panmasala and gutkha etc. are harmful
- Roughly about 20 mg of smoke –tar / nicotine passes inside the body of the smoker when one smokes only one cigarette.
- Tobacco has hundreds of organic and inorganic elements.
- Smokers are prone for developing ischemic heart disease, lung infection & cancers. 90% of the people who develop heart attack under the age of 40 years are smokers.
- Aged smokers suffer from multi-system disease in a sub clinical state and it can lead to acute illness at any time endangering the life.

Quit Smoking:-

A few suggestions as far as cutting down and quitting are:-

1. Never smoke more than half the cigarette
2. Break a cigarette in half and then smoke it
3. Make it a practice never to smoke in office or at home
4. Never smoke in a public place, it is unhealthy for others
5. Smoke the 1st cigarette of the day half an hour later everyday
6. Take a decision to stop immediately
7. Seek expert advice on how to quit
8. Enlist the support of family and friends to prevent restarting
9. If you fail keep trying till you quit.

The temptation to smoke often arises from tension. The patient can be taught to self-induce deep relaxation. When relaxed, he or she imagines an occasion of great temptation and goes through it mentally, first smoking and then not smoking. Subsequently, patients find it easier to re-enact the second fantasy.

What happens in your body after putting out that last cigarette, here are some significant statistics from the American Cancer society:-

Within twenty minutes of your last cigarette:

- the blood pressure drops to normal;
- the pulse drops to its normal rate
- the body temperature of your hands and feet increases to normal

Within eight hours:-

- the carbon monoxide level in your blood drops to normal
- the oxygen level in your blood increases to normal

Within twenty four hours

- the chance of heart attack decreases

Within forty –eight hours:

-nerve endings start re-growing

-your abilities to smell and taste things are enhanced

Within seventy – two hours

- the bronchial tubes relax, making breathing easier

Within two weeks to three months

- the circulation improves and walking becomes easier
- lung function increases by up to 30 percent

ALCOHOL CONSUMPTION:- A DOUBLE EDGED RAZOR – SHARP SWORD:-

Alcohol is always injurious to health.
An extensive body of data shows associations between alcohol intake and a variety of adverse health outcomes, including CAD, diabetes, hypertension - (pressor effect), congestive heart failure, stroke, sudden death, dementia, Raynaud's phenomenon, and all-cause mortality.

The ethanol itself, rather than specific components of various alcoholic beverages, appears to be the major factor in conferring health benefits. The health benefit is similar for beer, wine, whiskey, brandy, vodka, rum and drinks in equivalent amounts. Low- dose daily alcohol is associated with better health than less frequent consumption.

The amount of alcohol associated with the lowest mortality rates was between 10 and 30 g (1-3 units) per day for men and half these quantities for women (1 unit is equivalent to 150 ml of wine, 250 ml of beer or 30-50 ml of spirits). Various mechanisms are proposed for the protective effect of modest alcohol consumption. These include the beneficial effects on lipid profile, particularly an increase in HDL, insulin sensitivity, thrombolytic profile and platelet aggregation.

Binge drinking and other dangers of alcohol:- The benefit of alcohol is limited to those who consume small quantities regularly, but the harm outweighs the benefit among binge drinkers. Alcohol consumption has been found **NOT PROTECTIVE** among Indians, because of an unhealthy pattern of consumptions- usually in relatively large quantities on an irregular basis (Binge drinking) compared with other populations (consumption of relatively small quantities on a regular basis).

It is also important to note that alcohol consumption is associated with a wide range of medical and social problems, including alcohol dependence, liver disease, high blood pressure, obesity, stroke, raised triglycerides, traffic accidents, spousal abuse, suicide, fetal alcohol syndrome, breast and large bowel cancers. Some individuals are also at risk of progression to problem drinking. Consequently, from both the public health and clinical viewpoints, there is no merit in promoting alcohol consumption as a preventive strategy.

ALCOHOL MANAGEMENT:-

- Limit alcohol intake to no more than 1 oz (30 ml) of ethanol , 24 oz (720ml) of beer, 10oz (300 ml) of wine, or 2 oz (60 ml) of 100- proof whiskey) per day or 0.5 oz (15 ml) of ethanol per day for women and lighter weight people.
- Avoid alcohol in all obese diabetics on hypo caloric diet, and in those with high triglycerides levels.
- Drink slowly at the rate of one drink an hour
- Always dilute your alcohol with water (Soda or any other bicarbonate drink speeds up the absorption)
- Eat before dinking. Best of all drink during your meal
- Avoid drinking daily and under pressure (anger, depression)
- Avoid drinking alone
- The best cure for hangover is to sleep it off and drink lots of water
- Take a decision to stop, if you can't follow above rules enlist the support of your family and counselor to stop
- If you fail to stop, try again.

PHYSICAL ACTIVITY AND EXERCISE :-

Physical inactivity is positively associated with:-

- Coronary artery disease
- Hypertension
- High triglycerides
- Low HDL cholesterol
- Obesity

Prospective studies clearly indicate that regular, moderate exercise is safer and more beneficial for those on an inactive lifestyle when compared to occasional or vigorous exercise.

Benefits of regular physical activity are :-

- Halves risk of CHD
- Improves survival in recent acute coronary events
- Reduces risk of death following a heart attack
- Reduces angina and early return to work following a heart attack
- Prevents and manages high blood pressure
- Reduces risk of developing type 2 diabetes
- Helps to control established type 2 diabetes

- ❖ Reduces triglycerides and LDL- C
- ❖ Raises HDL cholesterol levels
- ❖ Reduces stroke risk
- ❖ Strengthens the immune system ; hence less susceptibility to flu, common cold and repeated infections and fast recovery if affected.
- ❖ Reduces obesity and keeps weight under control
- ❖ Prevents bone loss
- ❖ Helps to manage stress and releases tension
- ❖ Boosts energy levels and improves self image
- ❖ Counters anxiety and depression and increases enthusiasm and optimism
- ❖ Increases muscle strength and physical stamina
- ❖ Provides a way to share activity with family and friends
- ❖ Establishes good, heart-healthy habits in children
- ❖ In older people it helps in delaying age related diseases and maintains the quality of life and independence for longer period.

Aerobic exercise:-

Aerobic activity is any repetitive, rhythmic exercise involving large muscle groups such as the legs, shoulders and arms.

Aerobic activities include brisk walking, cycling, and swimming, jogging, dancing or aerobic exercise programs.

Aerobic activity maximizes oxygen uptake and associated cardiopulmonary variables and modifies cardiovascular risk factors.

Resistance exercise :-

This form of exercise, involving muscle stretching and lifting is beneficial for promoting muscle strength:-

eg. As in aiding rehabilitation in the elderly.

General advice :-

- ✓ Start from where you are. No particular level of activity is needed before a patient can benefit. Even a little activity is better than none at all.
- ✓ Elaborate equipment, programs, and gym visits are not necessary.
- ✓ Beneficial physical activity can be incorporated into a patient's
- ✓ daily life, eg. Gardening and walking to the shops instead of driving.
- ✓ Stop 2 bus stops before reaching home and start walking.

- ✓ It is very important to increase physical activity gradually.
  This applies both to the time spent on the activity
  and the intensity.
  A sudden increase in physical activity is hazardous in:-
    - ❖ Older people
    - ❖ Those at high CVD risk.

  Vigorous physical activity accompanies mental stress
  (e.g. rushing to catch a bus or train) is
  particularly associated with acute MI. Let the bus go.
- ✓ Forget about calorie counting, pills, shots and latest fat diet.

Recommendation:- For most healthy people, to achieve benefits to the heart, lungs and circulation, performing any vigorous activity for at least 3-4 days each week at 50-75 percent of maximum heart rate
(Target Heart Rate) is required.

Moderate physical activities for 30 minutes on most days provide some benefits. Physical activity need not be strenuous to bring health benefits.
What is important is to make it a part of regular routine.
What is essential is that the physical activity is performed at a sufficient pace and frequency that 'training' effect is imparted to circulatory systems and heart. Such a physically trained heart has a fewer chance to develop heart attacks and even when heart attacks occur they will be tolerated better.

Scientific evidence also supports the notion that even moderate and low intensity activity when performed daily can have some long-term health benefits. They help lower the risk of cardiovascular diseases. Such activities include – walking for pleasure, gardening, yard work, housework, limited exercise, recreational activities etc.,

People who successfully maintain weight loss sustain high levels of exercise, follow low-fat /low-calorie diet, eat breakfast regularly, and frequently self-monitor their intake and weight.

Walking

If when walking you can talk easily, you are not walking briskly enough
If you can talk but feel warm and are breathing more heavily than usual,
You are walking at about the right pace
If you can't talk, you are walking too briskly.

The risks can be minimized with pre-exercise screening, individualized exercise programme prescription, careful monitoring and patient education.

Pre-exercise Evaluation :-

All patients should undergo a complete history and examination to identify cardiac, macro/microvascular and neurologic complications. The extent of investigations dependent on the risk level of the patient and it is individualized.

Patients in evaluation category are :-

High blood glucose, and with ketosis
Retinopathy and renal dysfunction
Foot infections - have to be treated adequately, before subjected to exercise.

Exercise

Aerobic and Isotonic exercises
Walking is the most appropriate and safe exercise for most patients
Brisk walk everyday - Begin with 5 to 10 minutes at a time and progress until you can do at least 30 minutes without fatigue.
The average healthy adult should aim to take 30 minutes of moderate physical activity on most days and on a minimum of 5 days/week.
Moderate physical activity (brisk walking, gardening) makes you feel warm and slightly out of breath The 30 minutes can be divided into shorter intervals.
Increase 'everyday' activities such as taking the stairs instead of the elevator Before more strenuous exercise, a warm–up period of 5 minutes of stretching and other gentle activity is advised, as is a final cool-down period of progressively decreasing vigor.
Ten minutes a day of stretching ending with 2 minutes spot jogging,
50 jumps (not for those with back problem) and a brisk 20 minutes walk is sufficient to keep the body subtle and healthy. Don't exercise with the intention to lose or maintain your weight loss. Your ideal weight will be achieved and maintained by putting the right food into your mouth. Remember, there is no such thing as spot reduction.
So doesn't get carried away by misleading advertisements that promise spot reduction.

Do exercises regularly every day before your bath. It should become a part of your daily routine like brushing your teeth. Don't say "I don't have time!" Everyone can find 15 minutes in 24 hours to keep the body fit and flexible. The spot jogging is important to increase your cardiopulmonary capacity and to build up the collateral circulation in the heart to protect you against the ill effects of blocks in the coronary blood vessels as you grow older.

Do five minutes of deep breathing everyday.
Breathe in slowly through one nostril, closing the other nostril with your middle finger. Now breathe out slowly through the other nostril closing the first nostril with your thumb. Now breathe in through the same nostril and breathe out through the other nostril. Do this for two minutes.
Next, breathe in fully through both nostrils with the mouth closed. Breathe out slowly through the mouth ending with a forceful expiration by contracting the abdominal muscles.

OBESITY :-

- Aim is to attain ideal body weight with a special emphasis on desired waist measurement.
- Initially at slow reduction of 7% to 10% from baseline weight during the first year and continue the weight loss thereafter to attain the desirable weight.
- Even small amounts of weight loss are associated with significant health benefits.

Ideal weight loss program starts with an appropriate diet that is individually and carefully planned taking into account the patient's overweight status in order to create a deficit of 500 to 1000 Kcal/day .

- For overweight ,a decrease of 300 to 500 Kcal/day will result in weight losses of about ½ to 1 lb/week (2.2 lbs = 1 Kilogram) and a 10 % loss in 6 months.
- For more severely obese, deficits of up to 500 to 1000 Kcal/ day will lead to weight losses of 1 to 2 lb/Week (2.2 lbs= 1 Kilogram) and a 10% weight loss in 6 months.
- Effective weight loss with the weight stabilization , requires a combination of caloric restriction, physical activity and motivation that has to be continued indefinitely.

Abdominal obesity, due to intra-abdominal adiposity, drives the progression of multiple cardio metabolic risk factors, independent of body Mass Indices. This occurs both through altered secretion of adipocyte –derived biologically active substances (adipokines), including free fatty acids, adiponectin, interleukin-6, tumour necrosis factor alpha, and plasminogen activator inhibitor – I and through exacerbation of insulin resistance and associated cardiometabolic risk factors.

People's decisions, actions and health outcomes depend not only on their characteristics but also on the social forces that shape the way they live.
Efforts should be made to sensitize the entire population to the importance of healthy lifestyle modifications – a goal that could be achieved through media messages that target many aspects of the environment (like home, workplace, and community).

Most people believe that obesity is related more with the personal behaviour than to the broader society, so educating the public about the obesogenic environment is also critical. Another important theme is increasing people's awareness of healthy life-style in a manner that considers weight related stigma.
Creating public health campaigns focused on the entire population rather than only on overweight or obese individuals is one possibility.
Working with the popular press and television industry to diminish negative stereotyping of obese people is another.
Partnerships with the food, beverage, or television industries – promoting healthy lifestyles or positive body images – may help facilitate these activities.
In addition to recommending that children with a positive family history of lipid disorders or premature cardiovascular disease should be screened, the report also recommends that all overweight children aged 8 years and older should be screened for hypercholesterolemia, regardless of family history or other risk factors. If indicated, such children should be treated by a combination of diet, physical activity and possibly, cholesterol lowering drugs.

Metabolic and Cardiovascular risk factors associated with visceral obesity

- Increased systolic and diastolic blood pressure
- Hyperinsulinemia /insulin resistance
- Endothelial dysfunction
- Low high-density lipoprotein cholesterol levels
- High triglyceride levels
- Increased apolipoprotein B levels
- Small, dense low – density lipoprotein cholesterol particles
- Increased fibrinogen levels
- Increased plasminogen activator inhibitor – I levels
- Increases in C- reactive protein and other inflammatory markers
- Increased blood viscosity

- Microalbuminuria - an integral component of cardio metabolic syndrome
- Absent nocturnal decreases in blood pressure and heart rate
- Increased uric acid
- Increased left ventricular hypertrophy
- Premature atherosclerosis
- Stroke
- Risk for the development of type 2 diabetes.

Optimal Weight:-

Generalized obesity is best measured by Body Mass Index (BMI).
Body Mass Index (BMI)

$$BMI = \frac{\text{Weight in Kg}}{\text{Height in meters}^2}$$

BMI values less than 18.5 are considered underweight
BMI values from 18.5 to 24.9 are normal
Overweight is defined as a BMI of 25-29.9.
A BMI of 25 corresponds to about 10 percent over ideal body weight
Obesity is defined as a BMI of 30 or greater.
Extreme obesity is defined as a BMI of **40** or greater.

Waist measurements :-

Central or visceral obesity is best measured by waist circumference
Measurement of the Waist circumference:-
A waist measurement of < 90 cm for men and < 80 cm of women is optimal.

Management:-

Effective weight loss requires a combination of caloric restriction, physical activity and motivation and consistence.
Healthcare professionals have a role in correcting misconceptions about weight. Doctors, who under diagnose and under manage obesity, should be better trained and given incentives to manage overweight patients, who are more likely to try to lose weight when advised to do so.

DYSLIPIDAEMIA:-

Major dyslipidaemias are :-

Increased levels of low density lipoprotein cholesterol (LDL-C)

Atherogenic dyslipidaemia describes a combination of:-

a. Increased serum triglycerides (TG)
b. Increased VLDL particle number
c. Increased levels of small dense LDL-C particles.
d. Increased levels of apolipoprotein B (apo B)

Target levels

The latest recommendations state that in adults with diabetes:-

The optimal LDL-C is less than 100 mg/dl (in additional risks – 70 mg/dl)

Optimal HDL –C is > 40 mg/dl in men and 50 mg/dl in women

Triglycerides levels - < 150 mg /dl

Management :-

Atherogenic dyslipidaemia is a target for lipid-lowering therapy after the goal for LDL-C has been attained. As long as LDL-C remains above goal level, it is the primary target of therapy even in the metabolic syndrome. Other lipid risk factors are secondary. The LDL- C goals depend on estimates of absolute risk.

In patients with atherogenic dyslipidemia in whom serum triglyceride levels are > 200 mg/dl, non-HDL –C becomes the next target of treatment after the LDL-C goal is reached.

Raising HDL- C becomes a tertiary aim

In practice, all the lipid abnormalities are managed together rather than in sequence.

Diet and lifestyle modifications should be given an adequate trial before commencing lipid lowering drug therapy unless there are definite indications which necessitate immediate starting of the drugs.

HYPERTENSION :-

Hypertension is a risk parameter in the diagnosis of metabolic syndrome. A raised systolic blood pressure of > /= 135 mm of Hg and or a raised diastolic blood pressure >/= 85 mm of Hg are the criteria leading to the diagnosis of hypertension.

It is clear that obesity – related hypertension is a multifactor disorder. At this time it is not possible to identify one single mechanism as the dominant etiological factor. Genesis and evolution of obesity –related co-morbidity presumably depend on several genetic and environmental factors. It is likely that obesity, hypertension and metabolic abnormalities interact and potentiate their individual impact on cardiovascular risk.

Management :

Mild elevations of blood pressure often can be effectively controlled with lifestyle therapies:- weight control, increased physical activity, alcohol moderation, sodium reduction and increased consumption of fresh fruits and vegetables and low – fat dairy products.

- Stop smoking
- There is good evidence that losing weight lowers blood pressure. For example, a 3 Kg weight loss in an obese hypertensive patient can produce a 7 mm Hg fall in systolic and 4 mm Hg fall in diastolic pressure.
- Increase aerobic physical activity (30 to 45 min most days of the week)
- Reduce sodium intake to no more than 100meq /day (2.4 g of sodium or 6 g of sodium chloride)
- Consumption of an overall healthy diet such as:-
  - carbohydrate – rich diet that emphasizes, fruits, vegetables,
  - low –fat dairy products
  - includes whole grains, poultry, fish, and nuts
  - reduced in fats, red meat ,sweets and sugar – containing beverages.
  - Replacement of some carbohydrates with either protein from plant sources or with monounsaturated fat can further lower BP.
- Reduce intake of dietary saturated fat and cholesterol
- Maintain adequate intake of dietary potassium (approximately 90meq /day). Increase intake of fruit and vegetables (which provides a substantial intake of potassium) unless there are contraindications.
- Maintain adequate intake of dietary calcium and magnesium for general health

- Limit alcohol intake to no more than 1 oz (30ml) of ethanol of wine or 2 oz per day or 0.5 oz of ethanol per day for women and lighter – weight people.

The high incidence of heart disease among Indians are contributed by six key features like, prematurity, severity, equally high rates among women , high rates of heart disease despite low rates of the traditional risk factors, predilection for diabetes and a combination of genetic susceptibility and life style factors.

THE FUTURE:-

American Heart Association's Council on Epidemiology and Prevention has summarized the need for new knowledge and future priorities for research in cardiovascular epidemiology.

- Prevention of adverse lifestyles and related risk factors. This goal of prevention of initial elevated risk, called primordial prevention by the WHO is recognized as the prime challenge to cardiovascular disease epidemiology and prevention research and public policy.
- Control of high blood pressure and other established risk factors. This was considered the necessary medical preventive strategy focused on the individual patient to complement a public health, population strategy
- Reduction of cardiovascular events, disability and death associated with socioeconomic differences. Reducing the risk among groups at a socioeconomic disadvantage is regarded as essential to the larger goal of effective CHD prevention.
- Prevention of hypertension, dyslipidaemia, smoking and atherosclerosis beginning in youth.
- Improvement of population – wide prevention strategies
- Clarification of the association among insulin, glucose and atherosclerosis
- Development of technical resources and improved measurement techniques
- Expansion of research training programs in disciplines relevant to cardiovascular disease prevention and epidemiology.

Whether these priorities are applicable to Indian situation needs careful consideration. Preventive medicine in India is as old as history. The ancient Indian Science of Ayurveda, Hippocrates, Aristotle and Galen a couplet from the "Bhagwad Gita" emphasized importance of balanced food, exercise and other life style variables in disease prevention. " one who observes control over his diet , takes regular exercise, has time to relax, does the right toil in discharge of his duties, observes proper hours of sleep and awakening and is balanced in his actions and reactions, emotions and reason, duties and rewards, conquers disease".
(Bhagwad Gita 6.17).

PREVENTION :-

Prevention of cardiovascular diseases calls for correction of modifiable risk factors by either correction of lipid blood disorders or on the lowering of blood pressure, giving up smoking, improving eating habits, more physical exercise and care of psychosocial factors.
Studies show that risk factors which are greater in urban subjects and associated with more coronary risk are: hypertension, diabetes, obesity, truncal obesity and greater total and LDL cholesterol. These factors need modification to decrease the prevalence of CHD in India.
Rose initially suggested that a population approach to prevention is important. He identified that population means reflect deviant individuals. Higher the mean, greater would be the prevalence of that condition.
Mean blood pressure of a population accurately predicts the number of hypertensive individuals; mean body weight predicts the number of obese subjects and the prevalence of heavy drinking precisely reflect average consumption of alcohol. He also identified that the prevalence of a high–risk state (hypercholesterolemia, hypertension, obesity, excessive alcohol) is largely a reflection of the life styles and attitudes of the masses.

Population – wide approach corrects the underlying cause of the epidemic and is safer , cheaper and more cost – effective than the high-risk approach which is directed to the individual with risk-factors.

Studies in India have identified that most of the traditional coronary risk factors are important. Most of these can be changed by adopting healthier life styles. Preventing heart disease calls for establishing these as norms for the entire population.

Control of hypertension can be achieved by reduction of salt, alcohol and calorie intake, exercise, stress management land greater intake of calcium, potassium, magnesium and fiber.

Control of hypercholesterolemia and decrease in mean LDL cholesterol levels can be achieved by reduced intake of saturated fats, meat and dairy products and greater intake of polyunsaturated fats and fiber. Low HDL cholesterol levels can be influenced by greater intake of monounsaturated fats, fruits and green vegetables, and exercise.

Truncal obesity and peripheral insulin resistance can be reduced by regular exercise.

In summary , coronary heart disease is already a major public health problem in India. It can be prevented by controlling intake of tobacco, salt, saturated fats, alcohol and calories; by increasing both work –related and leisure –time physical activity; increasing consumption of heart healthy foods such as fruits and vegetables, high fiber cereals, oils containing balanced amounts of polyunsaturated and monounsaturated fats (e.g. canola oil, soybean oil) and spices and cereals with flavanoid content.

Stress management techniques especially yoga are also important.
Reverting to traditional Indian Social life styles (Joint families, small families, good education) and, hopefully, by setting good personal examples,
Governments, the food and agriculture industries, the mass media, educators, and many other community groups and agencies constitute an even greater force than physicians in implementing the prevention guidelines.

CONCLUSION :-

All the data on the subject of coronary artery disease in South Asians available in the United Kingdom and from all over the world suggests that South Asians as a group tend to have a higher incidence, prevalence, morbidity and mortality due to coronary artery disease than any other ethnic group in the world.
The relative risk of coronary artery disease is higher in South Asian women as compared to men. Smoking continues to be a risk factor for coronary artery disease though its prevalence does not differ significantly as compared to other populations.

Serum cholesterol though lower than in Whites, is higher than other Asians.
Levels of blood pressure are lower among South Asians than Whites and as such do not explain the paradox of increased rates of coronary artery disease among South Asians .
Levels of Lp(a) are raised among South Asians and suggests a genetic predisposition to coronary artery disease .
What is certain though is that South Asians in particular seem to prone to the development of the Insulin Resistance Syndrome characterised by an increased waist /hip ratio, increased prevalence of impaired glucose tolerance and frank diabetes, hyperinsulinemia, and deranged metabolic parameters in the form of hypertriglyceridemia and low high density lipoprotein cholesterol. This constellation of findings result in manifestation of symptomatic coronary artery disease at a younger age and with more severe and extensive coronary artery stenosis in smaller size vessels as demonstrated by coronary angiography with its consequent therapeutic implications.
A prudent diet is an integral part of healthy lifestyle which also includes regular physical activity, avoidance of smoking and maintenance of a healthy body weight. Compared with medical or surgical interventions, nutritional intervention is low risk, low cost and readily available. The best way to counter the perils of contaminated vegetarianism is by substituting full-fat dairy products and avoiding fried foods. Cooking oil containing high saturated fat should be replaced with those containing high monounsaturated fat. Deep-frying especially with oils previously used should be discouraged. Nuts are healthy wholesome foods and their use should be encouraged as a replacement to unhealthy calories. A diet rich in fish has multiple benefits including raising HDL, lowering triglycerides levels and preventing sudden death.
There is increasing evidence that dietary and lifestyle modification begun in childhood are likely to have benefits later in life. Therefore, these dietary guidelines are applicable to all Asian Indians > 2 years of age and not just those with diabetes or heart diseases.
Ever since the car has replaced the man or woman on foot, there has been increased speed with which we human perceive, communicate and react, increasing the day to day stress. This along with other life style changes bears responsibility for the modern non-communicable diseases like heart diseases, cancer, strokes, and other cardiovascular diseases.

SUMMARY OF HEALTH RISKS AND BENEFITS OF MAJOR FOOD COMPONENTS

The four goals of a diet to reduce risk of Cardiovascular, Systemic hypertension, Stroke , diabetes and Cancer Risk are

- A healthy overall diet
- A healthy body weight
- A desirable lipid profile
- A desirable blood pressure

Diet

Fats

- A total fat intake of 25-35% of energy is preferred to very high carbohydrate diet (>60%)
- Reducing intake of total fat (to < 35% of calories) is preferred.
- Even Vegetarian diet is unhealthy if it contains excess of Saturated Fats (Tropical oils, butter, milk etc) and Trans fats (Reused oil and Fried/Fast foods)
- Eat a variety of foods including whole grain, nuts, legumes, fruits and vegetables of different colours to get an adequate supply of antioxidants, flavonoids, fibre and phytonutrients

Saturated and Trans fats

- Saturated fats are the principle determinates of elevated LDL. Dairy products provide more saturated fats than meat
- Reduce saturated fat intake (to <7% of calories) by limiting the following foods: Beef, Pork, Bacon, Sausage, Ribs, Poultry with butter, Ghee, Vanaspathi, Desserts, Bakery products (cakes, biscuits, cookies, donuts), cheese, Ice cream, full fat milk and tropical oils (coconut, Palm Kernel and Palm oils)
- The atherogenecity and thrombogenecity of Tropical Oils are several times higher than meat
- Increase of LDL from lean (and not fatty) meat is similar to that of chicken and need not be eliminated from diet
- The adverse effects of trans-fats consumption are greater than from Saturated Fats because of the increase in LDL and Lipoprotein (a) and decrease in HDL

- Reduced intake of Trans-Fats by limiting the following foods: Margarine, Vegetable shortening, frying fats (especially those re-used frequently), bakery products, French Fries, Fried chicken, Peanut Butter, non-diary creamer, tortillas, pizzas and virtually all "crisp and crunchy foods."
- Reduce cholesterol intake of < 200mg/D by limiting the following foods. Egg yolk, Brain, Organ meat, beef, lamb, Pork, Poultry (thigh and skin), shellfish, shrimp, prawn, full fat milk (especially Buffalo milk) and high fat products (cream, ice cream, milk shakes, cheese and curds)

Unsaturated Fats

- MUFA and PUFA consumption can significant reduced LDL. Replacement of 10% of energy from Saturated Fats with MUFA or PUFA decreases Total Cholesterol by 20 mg/dL
- W3-PUFA found in fatty fish is antithrombotic, antiarrythmic and prevents sudden death and even Myocardial Infarction.
- Moderately increase the intake of foods high in MUFA such as Olive Oil, Canola Oil, Mustard oil, Peanut oil and Nuts (Macadamia, hazelnuts, pecans, peanut, almond, cashew nuts, pistachio nuts) Avocado
- The recommended dose of EPA / DHA is 1gm/D for a person with heart disease and 250mg/D of those without.
- 4gms/D of EPA/DHA is required for those with high triglycerides

To dos-Regarding Fats

- Substitute excess saturated fats and carbohydrates with monounsaturated fats and polyunsaturated fats.
- Substitute full fat with low fat milk and dairy products. Avoid buffalo milk.
- Choose lean meat or skinless poultry and limit the amount to <150gm/D
- Consume 2-3 fatty fish meals (200-300gms) per week (salmon, herring, mackerel, avoid frying of fish which destroys the w3FA)
- If unable to consume fish take the equivalent of 250mg/D of EPA/DHA to meet the daily requirements
- Use cooking oils with beneficial effects on lipids such as mustard oil, Canola oil, Olive oil, Sesame oil, Groundnut oil or a combination of Gingellly and Rice Bran oil instead of palm oil and coconut oil
- Avoid deep frying and discard left over oil immediately

Carbohydrates

- A minimum intake of carbohydrate of 130gm/D is necessary but should not exceed more than 300gm/D
- Indians predisposed to or having Metabolic Syndrome and Diabetes should limit Carbohydrate intake to 40-50% daily of energy intake

- Most Carbohydrate calories should be from whole grains and low Glycaemic Index Foods
- For carbohydrates, both quality (Glycaemic Index) and quantity (Glycaemic Load) are important determinants of Insulin resistance and Metabolic Syndrome
- A high Glycaemic Load or Index portends inferior quality of Carbohydrates.
- Although Carbohydrates do not increase LDL, a high Glycaemic Load is a major determinate of Postprandial Lipaemia

Proteins

- Protein intake of up to 25% of calorie intake per day is permissible if most of the protein is from plant source.

Nuts, Fruits and Vegetables

- Nuts, Fruit, Vegetables and whole grain are very healthy and each reduces the risk of cardiovascular disease by 15/45%
- Nuts and Wholesome nutritious food and may be used as snacks / salads.
- Consume a variety of nuts upto 60gm/D as a substitute for unhealthy foods and snacks
- Increase consumption of fruits to > 5 servings/D (100gms/serving) and avoid fruit juices and soft drinks
- Increase intake of vegetables to >5 servings/D (500gm/D) and avoid prolonged cooking of vegetables

Obesity, Physical Activity and Weight loss

- Obesity is a reflection of over nutrition and is a major cause of Dyslipidemia
- Calorie excess, irresponsive of the composition of food can raise LDL and lower HDL as a secondary effect of obesity
- A healthy weight loss is 1-2lbs/Week and this requires a Calorie Deficit of 3500-7000 Kcals/Week
- A Healthy Weight Loss is best achieved by reducing 250-500 Kcals in food intake and increasing 250-500 Kcals in physical activity producing a net Calorie Deficit of 500-1000 Kcals/Day.
- Increase physical activity to 30-90 min/D. More physical activity is required for those with undesirable waist size (>90cm for men and >80cm for women) or body weight or BMI (>25)

Alcohol and Drinks

- The alcohol risks outweights the benefits in men under 45 years and women under 55 years of age and therefore Alcohol should not be advised solely for cardiac protection

- Alcohol content should not exceed 2 drinks for men and 1 drink for women/Day
- Large amounts of Unfiltered Coffee may increase Cholesterol levels but has not been shown to increase risk of Heart Disease
- Tea contains Flavonoids and antioxidants that reduce risk of Heart disease but very often these benefits are neutralized by the addition of high fat milk or cream

Salt

- Reduced salt intake (to <5gms) is considered to be very beneficial

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STRESS MANAGEMENT

STRESS:-

Stress is not always something out there waiting to make your life a misery. It is what happens during every significant change in our lives. A life without stress would not be life at all. It would be boring to lead a stressless life. It is the spark that pushes us to study, further our careers, demand better conditions for us and our children, move house, go on a holiday. Stress can be the tiny irritant in the oyster that makes the pearl-valuable or it can be the pinch of salt in the fruit salad.

Chronic stresses too can take their toll. E.g. Job dissatisfaction, crowding, commuting, unemployment, job role conflict, job pressures, pressure for advancement, unsatisfactory work conditions, repetitive boring work, rotating shifts etc.

Psychological stress is an often neglected but very potential risk factor for coronary artery disease. In most of the circumstances stress cannot be avoided and certain amount of stress is also inevitable in daily life.

“Handling stress is like tuning a violin. If the strings are too loose, the sound is out of tune. If the strings are too tight, they may snap. Only when the strings are adjusted some where in between can beautiful music be made”.

What is Stress:

From medical perspective, Selye who is renowned as Father of Stress, defined stress as ‘Non-specific response of the body to any demand made upon it”. It should be noted that this response is natural and desirable for meaningful existence.

Stress is defined as a pattern of physiological, behavioural and emotional responses to real or imagined stimuli which are perceived as threatening to our well being.

But the problem arises when it is excessive, persistent and frequent. When the stress response exceeds the boundary of optimum zone, due to more demands it leads to distress (negative stress). At the same time lack of demand (deprivation) also evokes distress. Due to the complex nature of modern lifestyle, more people are exposed to distress on many occasions.

Stress has existed from the time of Early Man but has now become an omnipresent phenomenon in the life as 'Modern Man'. It has pervaded all layers of life.

Type 'A' personality.

Scientifically it is proven that particular traits in the personality like aggressiveness, excessive competitive drive, impatience and sense of time urgency may cause coronary heart diseases.

The existence of psychological and physical distress symptoms and behavioural distress signs is the only way to diagnose the stress problem at an early stage.

Research indicated that women manifest less biochemical reactivity than men in response to stressful and challenging situations and also tend to unwind more quickly.

Identifying a person in Distress :-

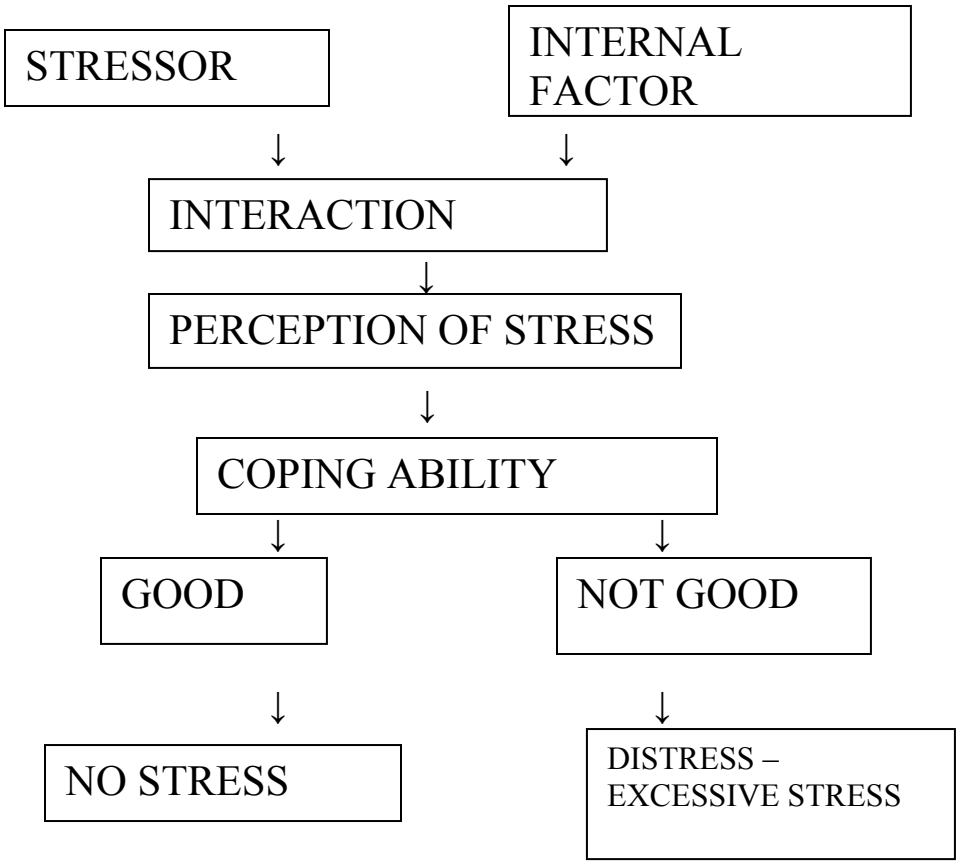
Emotional	Physical	Behavioural
Depression, sadness	Rapid heart rate	Indecisiveness
Anxiety	Muscle tightness	Difficulty coping with Job
Irritability, argumentative	Fatigue that is persistent	Frequent urination
Hostility	Indigestion	Accident proneness
Feeling of loss of control	Headaches	Inability to prioritize effectively

If distress is left uncontrolled without effective management, it may lead on to other illnesses that could further affect performance such as:-

- Hypertension,
  Diabetes,
  High cholesterol and
  Overweight due to overeating and
  Coronary artery disease
  Headaches
  Chronic Anxiety state, Depression and Insomnia
  Chronic Fatigue
  Irritable Bowel Syndrome
  Allergies etc

Stress is proven risk factor in the absence of other risk factors for the above illnesses. City dwellers have three times more chances of heart diseases than those in small villages due to excessive stress in city life.

Mechanisms of Stress Production



Examples of External Stressors:

- Financial problems
- Work pressures – deadlines, overload, poor team work, loss of work
  Uncooperative colleagues, poor administration, poor communication
  No holidays,
- Noise, overcrowding, water shortages, lack of cleanliness
- Discrimination, violence, isolation, lack of morality, uncomfortable clothes etc

Internal Factors: these include our previous experiences, training, values and expectations. Our belief, hopes, attitudes, aspirations alter the internal factor. These values keep on changing over the years to adjust to the changing surroundings. Any stagnation or fast change in internal factors make a person more susceptible to stress.

Perception of stress: An interaction between the above two leads to a perception of Stress. Understanding of this perception is of utmost importance in Stress management. Once this is done, the stressor can be avoided or the one could adjust the internal feeling or belief in order to process it. It is helpful to introspect and write down the stressor and then analyze the stressful condition.

Coping Ability: This follows stress perception and is an innate ability of the mind-body combination. Stress is a fact of everyday like, regardless of one's life style. Having locked the car with a key inside, having a quarrel with a friend, being late for duty are all examples of everyday stress. Coping refers to the responses made by the individuals who encounter a stressful situation.

Good coping / bad coping:-

Each of us has a breaking point. Each of us is vulnerable under the right conditions. What distinguishes the good from the poor coping is the frequency, intensity or the duration of the coping breakdown and the time needed to recover. The ability to rebound from stressful events is an important feature of the coping process. Training can significantly alter the ability to cope with the stress. If coping is good then the stress is minimized and eliminated. If coping is inadequate, distress occurs with all its other manifestations.

Basic types of coping :-

1. Problem focused coping – analyzing and getting rid of the causes of stress.

Find out more about the situation. Take immediate action 'Set Priorities".

Taking action to avoid or decrease panic (try to reassure yourself, take a break and come back later, see the humor in the situation, try not to worry)

Taking action to prevent subsequent repercussion (let people know where you stand, follow proper channels to cover yourself)

2. Emotion focused coping:-

Directed towards one's personal reaction to the stressor
(Relax; get social support, asserting feelings etc.)

What influences the coping processes :-

Feeling in control reduces the level of stress
Faith and fear – religion and prayer
Information as ammunition: Forewarned is forearmed.

Approach to coping.

1. Personal support –get advice
2. Cognitive re-appraisal-alter perception of threat and reduce stress
3. Alter emotional reactions
4. Self help approach
5. Relaxation
6. Aerobic exercises
7. Hypnosis.

Stress management:-

Screening :-

Detailed history is taken to know about the status of external demands, cognitive /affective profile. Neurological activation, distress symptoms and coping mechanism is very essential for scientific stress management strategies /interventions.

Some important strategies / interventions:-

Utilizing the excessive stress response in classical way
Aerobic exercises E.g. Brisk walk, jogging, cycling etc.

Reducing stress reactivity

Relaxation techniques that can be instilled and instituted are:-

E.g. Yoga
Neuromuscular relaxation
Breathing
Mental imagery
Meditation etc.

Modifying stressors- by opting for Psychological counseling.

Avoiding the stressors:-

1. Become knowledgeable about stress -
   - Understand the process and effects of stress
   - Anticipate stressful periods and plan for them
   - Develop a repertoire of successful stress management techniques and practice them.
2. Take a systematic approach to problem solving
   - Define problem
   - Gather sufficient information
   - Review experience,
   - Develop set of alternatives
   - Select a course of action and proceed with it.
3. Develop effective behavioural skills like:-
   - Time management
   - Assertiveness,
   - Interpersonal relations etc.
4. Establish and maintain a strong support network
   - Ask for direct help
   - Develop empathy for others
   - Maintain high quality relationships.
5. Concentrate on positive spiritual development.

Stress defence mechanisms and optimize your stress :- practical suggestions

When angry

1. Do not act in haste. Let anger simmer down.
2. Thing of the positive side of criticism.
3. Use anger creatively – perform some job that needs your participation only.
4. Talk to a close associate or friend.
5. Learn to forgive.

When anger has passed and chronic stress is present.

- Try to reach the root cause for the problem and find a honest solution
- Train yourself to understand non-verbal cues.
- Changing your own dialogue once you know you are wrong.
- Assertive social conversation- assert your needs.
- Understand your critic and respond appropriately.
- Make workable compromises

General suggestions for avoiding stress

1.Communication is the key to relationship building and stress resolution.
Listen well , do not insult or criticize directly and your conflicts will slowly dissolve. Speak softly but come to the point.
2.Develop a sense of humor. Learn to laugh at life, its paradoxes and at yourself.
3.Make plans for a little idleness and quietness each day. You will be able to recharge.
4.One of the best gifts of nature is sleep, Daily sleep of 6 to 8 hours helps in relaxation and repair of the body and mind. It provides sufficient time for deep-NREM and dream – REM sleep restoring physical and mental health.
Sleep well and you will have renewed energy to face the next day's stresses.
5.Exercise is arousal and relaxation is the opposite.Yet both are necessary on a daily basis. Practice both.
6.Quality time for family will ensure that you have a retreat called home.
7.Plan your career well; it will give you challenge, satisfaction and security
An assertive personality is responsible to self and others. Learn this skill.

HOURS	ACTIVITY
7-8	Sleep
8-10	Work , occupation, study
1	Exercise
1	3 big & 2 small meals / Quality family time
6	Relaxation, personal hygiene, social time, Quiet personal time, others .etc.
24	TOTAL TIME IN A DAY

How much sleep do we need ?

The National Sleep Foundation suggests that school –age children (5 -10 years) need 10-11 hours of sleep daily, teens (10-17 years) need 8.5 – 9 hours and adults need 7-8 hours.

Sleep Hygiene Tips:-

The promotion of good sleep habits and regular sleep is known as sleep hygiene.

The following sleep hygiene tips can be used to improve sleep.

- Go to bed at the same time each night and rise at the same time each morning
- Moderate physical activity may help promote sleep, but avoid vigorous exercise in the few hours before going to bed
- Avoid large meals before bedtime
- Avoid caffeine and alcohol close to bedtime
- Avoid nicotine.

MEDITATION / YOGA :-

Meditation can be defined as total relaxation of the body-mind complex. It is difficult to separate the mind from the body. Mental health will lead to physical well being and vice versa.

Meditation can be defined as the art of living in the present moment. The mind almost always dwells in the past or future. Is not it strange that all our

stress of today arises either from the past or the future? Relaxation can be achieved by living in the present moment.

The experience of deep relaxation or the art of living in the present moment creates the required deep silent mind to understand the spiritual dimension, the dimension which is beyond the body mind, the real self.

WHO defines health as the well being of physical, mental, social and spiritual dimensions.

Health is the balance, harmony, rhythm and natural flow of life energy, through every part of the body. Diseases occur when this joyful flow is interrupted. Poor lifestyle, emotional conflict, mental tension, inherited predispositions with consequent energy depletion is the main causes of poor health.

A number of physical diseases are often related to these subtle problems. Meditation is very helpful in overcoming these problems. Medication heals the body from outside, where as meditation heals it from inside.

YOGA:-

The great science of yoga is India's unequalled gift to mankind. If mankind is to evolve further, and if it is to save itself from its own aggressive tendencies, the only path open is through the science of Yoga.

Though the ultimate goal of the Science is the realization of the absolute; in day to day life it is useful and necessary to maintain mental and bodily health. Bodily exercises (Asanas), breath control (Pranayama) and mind control (Dhyana) are all helpful to conquer bodily and mental ills. The role of the mind in the creation of health and ill health has been well emphasized by Ayurvedic physicians. In praising Dhanvanthiri , the first sloga begins by emphasizing that diseases arise in the body due to problems of the mind like raga (excessive desire).

The great influence of the mind over the body, its health and functioning, was well understood by our ancients, hence, throughout our glorious history, control of the mind was given prime importance for achieving health of the body, happiness of the mind and harmony with society and the universe.

The Human body and mind are gifts of God: the capital given to us without any interest payable. For anything in life to be fulfilled, the body should be healthy and this means constant looking after. Just as a car needs constant care, the body and the mind need the same. This is best done by regular exercise. Awareness of this is certainly better now than many years ago, but exercise oriented persons still form a minority in our vast world. In today's fast world,

with the easy availability of different types of cuisines, both vegetarian and non-vegetarian, junk food, alcohol and cigarettes, and the constant bombarding of our consciousness with the advertisement of such foods through different media, we succumb with resultant health problems.
Today, we are slaves of our tongue and our senses. Yoga teaches us to transcend the senses and to realize the true value of health. Food is not a means to health, it is health itself!

Research evidences showed that after yoga intervention, the stressful life events remained the same but the individual's perception of control and management had shown a positive change.

Picture yourself successfully; tie into supportive and spiritual resources.
God didn't make a nobody. He created you for success. So, push on!

Let's stay healthy

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Stress and the Doctor

Modern life is stressful. Overcrowding, work culture, poor health, avariciousness and the fast pace of life add to the stress. Doctors are particularly prone to stress. In the past, Doctors social status, prestige and income compensated for the stress. Today, the daily struggle to attract patients, rampant malpractices, decreased income and increased competition has brought many physicians to the brink of breakdown, often referred to as "burnout". In the US, Physician suicide rates are three times that of the general population and it is predicted that ten percent of all Physicians will develop a drug addiction during their lifetimes. The figure in India may be worse as we continue to be blissfully unaware of what the actual facts are.

Causes for stress for doctors

1. Work related:

- Competition and comparison with Peers
- Demanding patients and inclusion of Doctors under the Consumer Protection act
- Hospital Administrators, Difficult colleagues and patients and third party payers
- Medical Insurance Cover and its documentation required
- Patient and disease related.

2. Doctor's Psychological conditioning:

- To be hard working always in sickness as in health
- To be high achieving and competitive.
- To be able to save all patients (inability to accept treatment failure)
- Family related: to fulfil the demands of family and keep commitments

3. **Lifestyle Stress**:
   - ❖ To work in the city with the overcrowding, pollution and traffic jams.
   - ❖ Poor weather conditions
   - ❖ Noise at work
   - ❖ Time pressure – too much or too little
   - ❖ Financial difficulties
4. **Body stress:**
   - ▪ Poor physical fitness and body neglect
   - ▪ Recent illness and accidents
   - ▪ Poor sleep and addictions (smoking and Alcohol)
   - ▪ Drug addictions
5. **Mind stress:**
   - ✓ Feelings of self worth related to saving lives and patient's adulation.

These varied factors cause Burnout amongst doctors.

Warning signs of "Burnout"

1. Change in personality – becomes angry easily over trivial matters
2. Reduced performance -Missing a common diagnosis or making a wrong diagnosis.
3. Tendency to blame others or external factors.
4. To become introverted and isolated or even overtly depressed.
5. Sleep deprivation
6. To start to abuse substances – Nicotine, alcohol and even recreational drugs
7. Physical illnesses such as High BP, chronic illnesses and frequent headaches
8. Dissatisfaction over career.

Factors that contribute to Burnout

Inability to balance Work and family life – the physician may promise his family to slow down as soon as his medical practice improves but then finds it impossible to do so and keep postponing the matter until either he burns out or his family life suffers.

Living in a litigious society – one of the most potent stressor today is the prospect of having a claim filed that may go to court. Statistics from the USA suggest that very few claims ever go to court and when they do 75-80% of all times the verdict is in the Physician's favour.

Suggestion to avoid Burnout

- **Look after yourself** – eat right, sleep right and adequately, and exercise routinely. Join a gym or learn a new outdoor game. Pay attention to body's signals of stress. Practice stress reducing strategies such as progressive relaxation techniques, breathing exercise and meditation
- **Balanced lifestyle** should be your goal: the best way to arm yourself against burnout is to have rich fulfilling life outside your work.
- Develop a strong **support system** for yourself: surround yourself with friends both at work and off it. A support system, confidante, a non-judgemental protected environment will be very helpful.
- Acknowledge **priorities** and concentrate on the urgent rather than the emergency. Plan your day and your priorities. Running from one emergency to another leads to feelings of dissatisfaction and helplessness.
- Develop your hobbies and interests especially those things that you would like to do.
- Meet with your friends and social contact regularly.
- Accept change and acknowledge that it may actually be for your own good.
- Assert yourself but don't forget to be friendly and open to others.

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SOFT SKILLS FOR CRRI

The scientific knowledge which we acquire in medical colleges in our under graduation is the basis for our hard skills. This is very important to diagnose the problems which our patients have and to treat them scientifically as we practice evidence based medicine. This is an important assest to every newly graduated doctor.

But, more than this how we handle our patients are they happy being treated by us and how we deliver our hard skills in a presentable manner is called **soft skills.** This is equally important since success in practice largely depends on how the patient relates to you. If a doctor cannot impress a patient, even if he is highly learned professional, he cannot make a mark in practice.

Many of us have this soft skill inbuilt in us. For those who are deficient in the art, this skill can be developed in the course of time.

This chapter will give an insight on how to develop soft skills in practice after your graduation.

Presentation;-

How does a patient perceive you? Mainly by your attire, posture, body language and a positive outlook. The first impression is a lasting one. Your dress code should be pleasant and should match your profession. A well groomed Doctor, with a pleasant smile, good pleasing dress will certainly increase his or her face value.

Maintaining a clean work place:-

Just as you are looking trim & neat the place where you work should be spick and neat. A Doctor is assessed by the hygiene he maintains at his work spot. A patient will never develop confidence in you if your attire is shabby and the place is untidy. Hygiene & Health are closely linked subjects from a patient's angle; keep a clean atmosphere in your workplace to boost your image.

Courtesy & Manners:-

Patients expect Doctor to be an ideal person. The way you greet them, enquire about their health matters a lot to them. Thanking a patient for his excellent co-operation, appreciating him for obeying your commands on advice are all a hallmark of good manners. Be pleasant and courteous on all occasions with your patient irrespective of your moods.

Communication skills:-

Very important for a successful doctor. The moment the patient enters your chamber if you can call him by his name he will be flattered. If you can remember his last visit, diagnosis and enquire about it he feels you are really concerned about him.

There are many ways to remember a patient's name. One, if you are genuinely interested in his welfare you will automatically remember him. Otherwise, ask your secretary to send a profile of the patient before he enters your chamber. If he has a booklet of his medical treatment, review the book before you see the patient. This technique will make life simple for you.

You should communicate properly with your patient and their relatives and family members before you examine the patient. This develops a rapport with people around the patient and your treatment will be easily accepted. Impress upon them that you are genuinely interested in knowing all details regarding the patient and his problems.

Listening to a patient is a special art. Every patient enjoys saying his complaints to his doctor and if you do not have the patient to listen, you lose his trust. You could always ask leading questions on and off if the patient is going off track. Make sure the patient feels happy that he has been properly listened to.

Examine the patient professionally and every time you are examining a patient please remember that you are being examined closely by the patient and his relatives.

Communication is an art and needs to be developed. Have a good sense of humour which will bring you close to the patient and his relatives.

Never develop a barrier between you and the patient. If your communication skills are good he will develop a lot of confidence in you and is less likely to sue you for minor mismanagements. Communication forms the basis for Doctor-patient relationship, so take care how you speak to your patient.

Good Handwriting :-

Many Doctors have awful handwriting. Hence it is generally felt by all patients that a Doctor's prescription can be read only by a nearby chemist.
Your prescription is a valuable document. Be legible and clear. Take your time to write down a neat prescription. If you had a awful handwriting get a computer and printer to do the job. Convey clearly and symbolically your drug dosage and when to take the drug before or after food. Recheck with your patient whether they have understood what you have written.
Your prescription is an important medicolegal document which can save you in consumer protection case.

Your Staff and patients:-

Patient always judge a Doctor by the front office staff and the document assistant. They have to be very courteous to all patients. Do not let down your staff infront of the patient. Your staff should be neatly dressed and presentable. A name badge gives them a professional look.

Time Management :-

Plan your next day well in advance like surgeries, investigations etc., and adhere to the schedule. You will look very professional infront of your patient.
Give and keep appointments for treatment or review. If you maintain your time schedule , the patient not only show his respect by keeping his appointment but also comply with your instructions and will be satisfied with the care provided.

Case finding and Case holding :-

To be a successful practitioner you should have new patients regularly. You could find new patient by treating the patient who comes to you properly and he will be your marketing executive in bringing many more patients. A satisfied patient is your best marketing agent. Apart from this you could talk to public in various forms like corporate, club etc., on health matters to find new cases.

After you find the case holding the patient with you for his lifetime depends on how you impress this patient. Be professional with every patient in your practice so that he stays with you permanently and also brings in more patients for you.

Be Humane:-

Have empathy for your patient but don't get emotionally involved with them. It could get you into trouble later. Accept your limitation. You should have the courage to say no if the situation warrants. If you cannot diagnose a problem case, it is humble enough to refer the case to a specialist so that you do the best to the patient. He will appreciate you for this rather than messing up the case for a long time because of your professional incompetence. Enjoy your work. Never feel a patient is troubling you in odd hours. He is your bread and butter. What you are today is because of him. Be proud of serving him, this will give you a lasting name.

Be flexible in adopting new changes for improvement in your practice. Remember, what is true today may not be so tomorrow. Update yourself lest you will be left behind. Be humble as you raise more and more.

Never look sickly infront of your patients. Patients always want their doctor to be healthy. Hence take care of your physical health by regular exercise, yoga and meditation, etc., Be calorie conscious to avoid life style disorders. Doctors are pampered a lot by the pharmaceutical companies and you will be forced to eat out very often. Take care.

Have periodical health check-up to rule out hidden disorders, because statistics say Doctors are the worst patients.

Relax. Don't be a workaholic. Balance your family life and practice. Many doctors are so committed to the practice; they forget the family and children for which they regret later. A proper balance will make life worth living and will give you mental peace to work better. Work can never tire you as long as you enjoy doing it.

Medical profession is very noble. You are chosen by the Lord to do this job. Do this job effectively by being professionally competent (Hard Skills) and be humane Doctor by improving your soft skill and make a mark in this field.

Conclusion:-

To be successful in life, you need to handle human beings effectively. This can be done only by developing your soft skills.

Have a successful and purposeful life.

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APPENDIX

Table of glycemic index and load values
The average GI of 62 common foods derived from multiple studies by different laboratories

High-carbohydrate foods	**GI**
White wheat bread*	75±2
Whole wheat/whole meal bread	74±2
Speciality grain bread	53±2
Unleavened wheat bread*	70±5
Wheat roti	62±3
Chapatti	52±4
Corn tortilla	46±4
White rice, boiled*	73±4
Brown rice, boiled	68±4
Barley	28±2
Sweet corn	52±5
Spaghetti, white	49±2
Spaghetti, whole meal	48±5
Rice noodles†	53±7
Udon noodles	55±7
Couscous†	65±4
Breakfast Cereals	
Cornflakes	81±6
Wheat flake biscuits	69±2
Porridge, rolled oats	55±2

Instant oat porridge	79±3
Rice porridge/congee	78±9
Millet porridge	67±5
Muesli	57±2
Fruit and fruit products	
Apple, raw†	36±2
Orange, raw†	43±3
Banana, raw†	51±3
Pineapple, raw	59±8
Mango, raw†	51±5
Watermelon, raw	76±4
Dates, raw	42±4
Peaches, canned†	43±5
Strawberry jam/jelly	49±3
Apple juice	41±2
Orange juice	50±2
Vegetables	
Potato, boiled	78±4
Potato, instant mashed	87±3
Potato, french fries	63±5
Carrots, boiled	39±4
Sweet potato, boiled	63±6
Pumpkin, boiled	64±7
Plantain/green banana	55±6
Taro, boiled	53±2
Vegetable soup	48±5
Dairy products and alternatives	
Milk, full fat	39±3
Milk, skim	37±4
Ice cream	51±3
Yogurt, fruit	41±2

Soy milk	34±4
Rice milk	86±7
Legumes	
Chickpeas	28±9
Kidney beans	24±4
Lentils	32±5
Soya beans	16±1
Snack products	
Chocolate	40±3
Popcorn	65±5
Potato crisps	56±3
Soft drink/soda	59±3
Rice crackers/crisps	87±2
Sugars	
Fructose	15±4
Sucrose	65±4
Glucose	103±3
Honey	61±3

Data are means. *Low-GI varities were also identified.

†Average of all available data.