Whole Foods to Wholesome Ingredient based Holistic Health

Dr. B. Sesikeran
Chairman, Scientific Advisory Committee
Protein Foods & Nutrition Development Association of India (PFNDAI)

What is Health?

- In 1986, WHO clarified that health is:

"A resource for everyday life, not the objective of living. Health is a positive concept emphasizing social and personal resources, as well as physical capacities."

Mental & physical health are two most commonly discussed types of health. We also talk about "spiritual", "emotional" & "financial" health among others. These are also been linked to lower stress levels and mental & physical wellbeing.

Types of Health

- Physical Health

➢ Here bodily functions are working at peak performance, not only due to lack of disease but also to regular exercise, balanced nutrition and adequate rest. We receive treatment when necessary to maintain balance. Physical wellbeing involves pursuing healthy lifestyle to decrease the risk of disease. Physical fitness protects and develop endurance of breathing & heart function, muscular strength, flexibility and body composition. It also reduces risk of injury & health issue

- Mental Health

➢ This refers to a person's emotional, social & psychological wellbeing & is as important as physical health for full active lifestyle. It is not only absence of depression, anxiety or another disorder. It enables one to enjoy life, recover from difficult experience, achieve balance, adapt to adversity, feel safe & secure and achieve one's potential. Mental illness such as depression can affect body weight and function.

It is important to approach "health" as a whole

Preserving Health

- The best way to maintain health is to preserve it through a healthful lifestyle, rather than waiting until we are sick to put things right. This state of enhanced well-being is referred to as wellness. McKinley Health Center, Univ of Illinois defines wellness as:

"A state of optimal well-being that is oriented toward maximizing an individual's potential. This is a life-long process of moving towards enhancing your physical, intellectual, emotional, social, spiritual and environmental well-being"

Whole Food

- Plant foods- unprocessed, unrefined or minimally processed before consumption
- Eg Whole grains, tubers , Legumes, Fruits, Vegetables

Wholesome food ingredient

- Any substance that is added to food to obtain a desired effect- includes food additives

WHOLESOME FOOD COMPONENT

The energy components of food include:
carbohydrates (sugars and starches)
proteins. lipids (fats)
...
The non-energy components include:
vitamins.
minerals.
dietary fibre.
water.
BIOACTIVE SUBSTANCES

A comparison

Whole Food

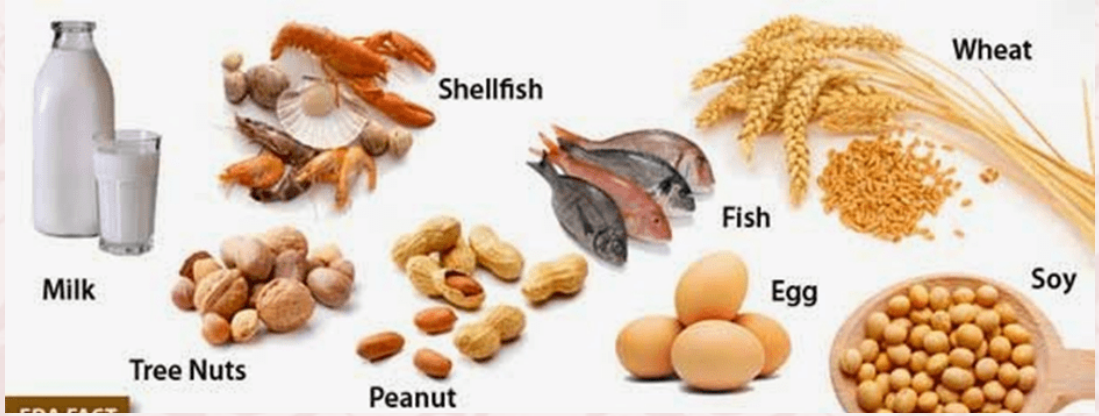
- Unprocessed or minimally processed
- Gives all components
- Benefits take a long time
- Benefits are a sum of the individual component benefits
- Bioavailability cannot be manipulated
- No dosage concerns
- Consumption capacity limits excess intakes
- Toxicity is rare

Component/ ingredients

- Processed
- Only the benefit of the component
- Benefits may be quiicker
- Minimal effective dose for the benefit should be known
- Bioavailability can be changed
- Dosage and kinetics should be known
- Risk of excess intake
- Upper safe limit should known

Disadvantage of a whole food due to a component

- When a component is undesirable eg Gluten in wheat, Fat in milk
- When a whole food is deficient in critical nutrients. Eg Lysine in rice
- When a component interferes with absorption of a critical nutrient eg Phytate in Wheat
- When a component can be toxic eg BOAA in Lathyrus , trypsin inhibitors in Soya



Characteristics of a wholesome ingredient/ component

- Should be from the natural , safe source
- Should be minimally processed
- Its bio-availability and kinetics should be known
- Its minimal effective quantity should be known
- The ADI and safe limits to be established
- Efficacy biomarkers should be accurately measurable
- Toxicological data and clinical data should be available

Milk

- Casein
- Whey Protein
- Lactose
- Calcium

- Colostrum
- Milk oligosaccharides
- Milk Fat globule membrane

Approximate Composition (% w/w) of Some Types of Powder

Constituent	Powder From: Whole Milk	Skim Milk	Whey	Sweet-Cream Buttermilk
•Fat	26	1	1	5
•Lactose	38	51	72-74	46
•Casein	19.5	27	0.6	26
•Other proteins	5.3	6.6	8.5	8
•'Ash'	6.3	8.5	8	8
•Lactic acid	—	—	0.2–2	—
•Water	2.5	3	3	3

Rice

- Bran
- Bran oil
- Arabinoxylans- prebiotic
- Amylose- increases GI
- Ferulic acid- anti cancer

Functional Component (bioactive molecules)	***Source***	***Health Benefit***
Alpha-carotene	carrots	
Beta-carotene	fruits, vegetables	neutralize free radicals,
Lutein	green vegetables	reduce risk of macular degeneration
Lycopene	tomato	reduce risk of prostate cancer
Insoluble Fibre	wheat bran	reduce risk of breast or colon cancer
Beta-Glucan	oats	reduce risk of CVD
Soluble Fibre	psyllium	,,

Bioactives	*Food Source*	*Health benefit*
Omega-3	Fish and fish oils	reduce risk of CVD improve mental, visual functions
Flavonoids		
Anthocyanidins	fruits	neutralize free radicals reduce cancer risk
Catechins	tea	,,
Flavanones	citrus	,,
Flavones	fruits/vegetables	,,

Functional component	Source	Health Benefit
stanol ester	corn, soy, wheat,	inhibit cholesterol absorption
Fructo-oligosaccharides (FOS)	onion	Pre biotics
Lactobacillus	yogurt, other dairy	Gut health
Isoflavones:		
Daidzein	soya- soy-based foods	menopause, CVD
Genistein		lower LDL
Lignans	flax, vegetables	,,
Proanthocyanidins	cranberries, cocoa,chocolate	improve urinary tract health reduce CVD ? Complications of DM

Thank You