Nutritional Therapy and Eastern Nutrition Year 1

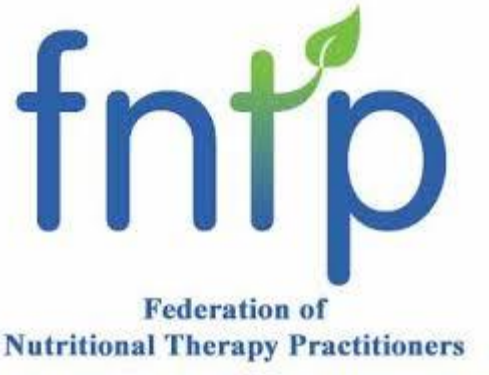
Lecture 2

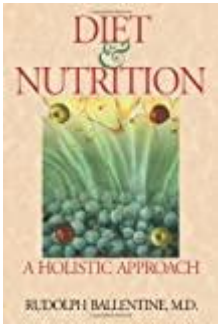
Objectives

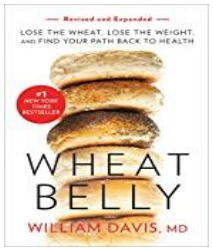
- To have an appreciation of the evolution of human nutrition
- To have an understanding of the history of nutritional medicine
- To be aware of the politics of nutritional therapy
- To understand the changing nutritional needs during various life stages
- To have an appreciation of organic v non-organic food
- To understand the effects of food processing
- To appreciate the importance of a holistic lifestyle: diet, light, water, sleep, exercise
- To have an understanding of the environmental effects of various diets
- To understand the benefits and drawbacks of various diets including Paleo, Mediterranean diet, vegetarian, vegan, raw, keto and blood type

History of Nutritional organisations

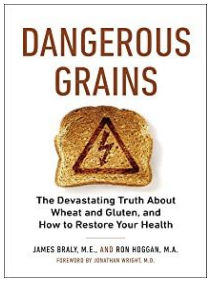
- Dieticians are not Nutritional Therapists!
- 1980's: Nutrition consultants association
- 1992: Society for Promotion of Nutritional Therapy
- 1997: SPNT becomes BANT
- 2003: NOS
- 2008: FNTP
- 2010: NNA



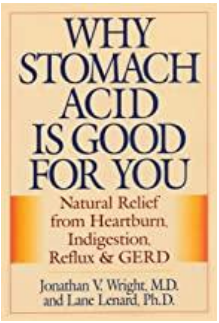


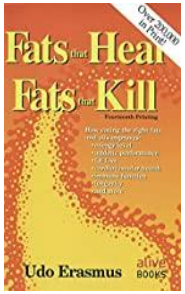


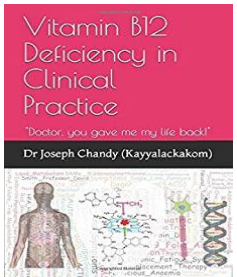
Essential reading

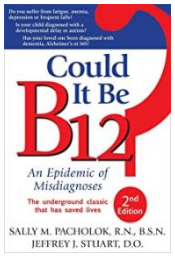


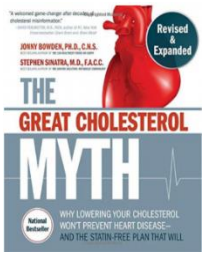
- 1:**Human Nutrition**: Rudolph Ballantine
- 2:**Dangerous Grains**, OR Wheat Belly OR Grain Brain
- 3:**Why Stomach Acid is good for you**
- 4:The Great Cholesterol Con
- Fats that Heal Fats that Kill
- 5:**Could it be B12?** OR **Vitamin B12 deficiency in clinical practice**

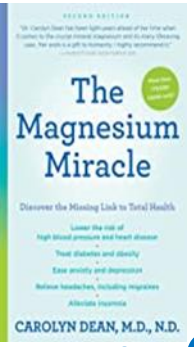


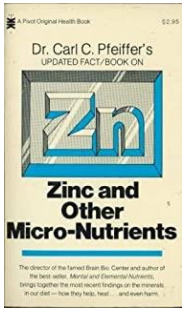




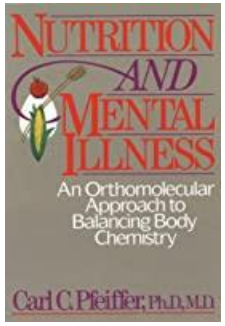


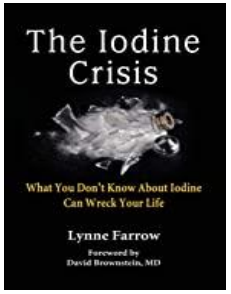




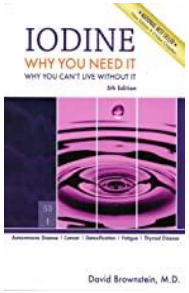


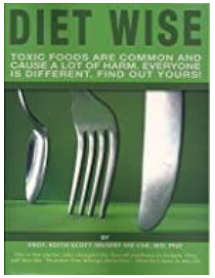
Essential Reading

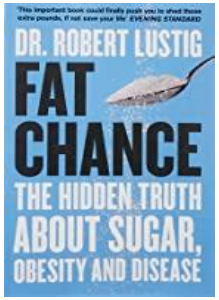


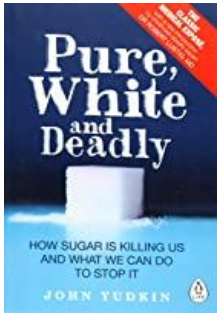


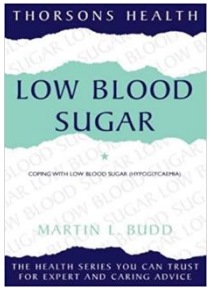
- 6:The Magnesium Miracle
- **Zinc and other micronutrients**
- **Nutrition and Mental Illness**
- Iodine and why you need it OR The Iodine Crisis
- 7:Diet Wise
- **Fat Chance**
- Pure White and Deadly OR **Low Blood Sugar**











Year 1 assignments

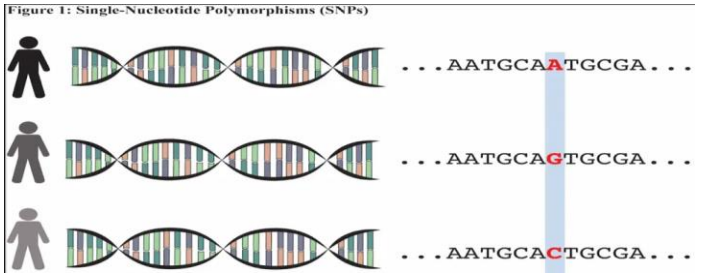
- Vitamin and mineral chart/table
- Oxalic acid
- Biochemistry questions
- SNP questions
- 3 essays: nutrition through life stages, organic V inorganic food and evolution of human nutrition
- Case study
- Live case study
- Exam

Vitamin and mineral tables

Mineral or vitamins	Action in body	Interactions with other nutrients	RDA	Food source	Deficiency signs
Zinc	Over 200 processes including stomach acid production Immune system Puberty Pregnancy for foetal growth Mental functioning DNA gene regulation Alkaline phosphatase	Copper, Manganese Iron Essential fatty acids B6	8mg: women 11mg men Source: https://www.ncbi.nlm.nih.gov/books/NBK222317	Oysters Seeds Red meat Beans Nuts	White marks on nails Mental health issues Low appetite Low immune system Digestive disturbances Low birth weight babies

SNP's assignment

- **Single nucleotide polymorphisms:**
- **The following questions require only 1-2 sentences as an answer.**
- **1: What is COMT and what is the significance of having a SNP on the gene that codes for COMT?**
- **2: Which genes affect liver phase 1 detoxification?**
- **3: Which gene will give information about the absorption and metabolism of fats? What imbalances will genetic variants result in?**
- **4: Which gene SNP's will affect the breakdown of omega 3?**
- **5: What symptoms could a SNP on FADS2 result in?**
- **6: What are the implications of SNP's for GTSM1 & GSTT1?**
- **7: Which gene is associated with an increased susceptibility to asthma?**
- **8: Which SNP can give you information about a person's ability to quench free radicals**
- **9: Which gene will give you information about a persons need for additional B6 and B12?**
- **10: Which 5 genes would you check if you were looking to see if someone was susceptible to more inflammation?**
- **11: Which gene gives information about a person's utilisation of vitamin D?**
- **12: What is the significance of the BCO1: Beta carotene oxygenase1 gene? What would a SNP suggest?**
- **13: What does the CLOCK gene do?**



Nutritional Biochemistry:

The following questions require 1-2 paragraphs of explanation per question:

Describe the chemical structure of carbohydrates, lipids and proteins. How are they similar and how do they differ? Explain bonding of molecules within your answer.

Describe the structure of nucleic acids?

What are enzymes and what is their role and purpose in the body?

Describe the various functions of carbohydrates in the body

Describe the various functions of lipids in the body

What are essential fatty acids?

How could you include both omega 3 and omega 6 into the diet of one of your clients?

How could you include omega 3 into the diet of a vegan?

Describe the various functions of proteins in the body

What is the protein score?

What does the term 'complimentary proteins' mean? How would you explain the importance of complimentary proteins to a vegetarian or vegan?

Explain the digestion and breakdown of carbohydrates into simple sugars

Explain how the cell produces energy via the citric acid cycle. Be sure to explain how proteins, fats and carbohydrates 'feed' into the cycle and which nutrients are required for the 'cycle' to work.

Explain the digestion and breakdown of proteins into amino acids

Explain the digestion and breakdown of fats into fatty acids

Explain the 4 stages of water

Explain the role of buffers in the maintenance of an alkaline pH

Case study 2

- Symptoms: Premenstrual tension (irritability, tender breasts); low energy, eczema, hair loss, frequent infections, excess thirst. Client is 35 year old vegan
  - Breakfast: toast and jam or conflakes and rice milk, coffee
  - Lunch: may miss, slice of pizza with vegan cheese, sandwich with peanut butter; coffee
  - Evening: vegan ready meal with chips, baked potatoes, cola

Why do you think she has these symptoms?

What is contributing to the symptoms?

What dietary changes would you make?

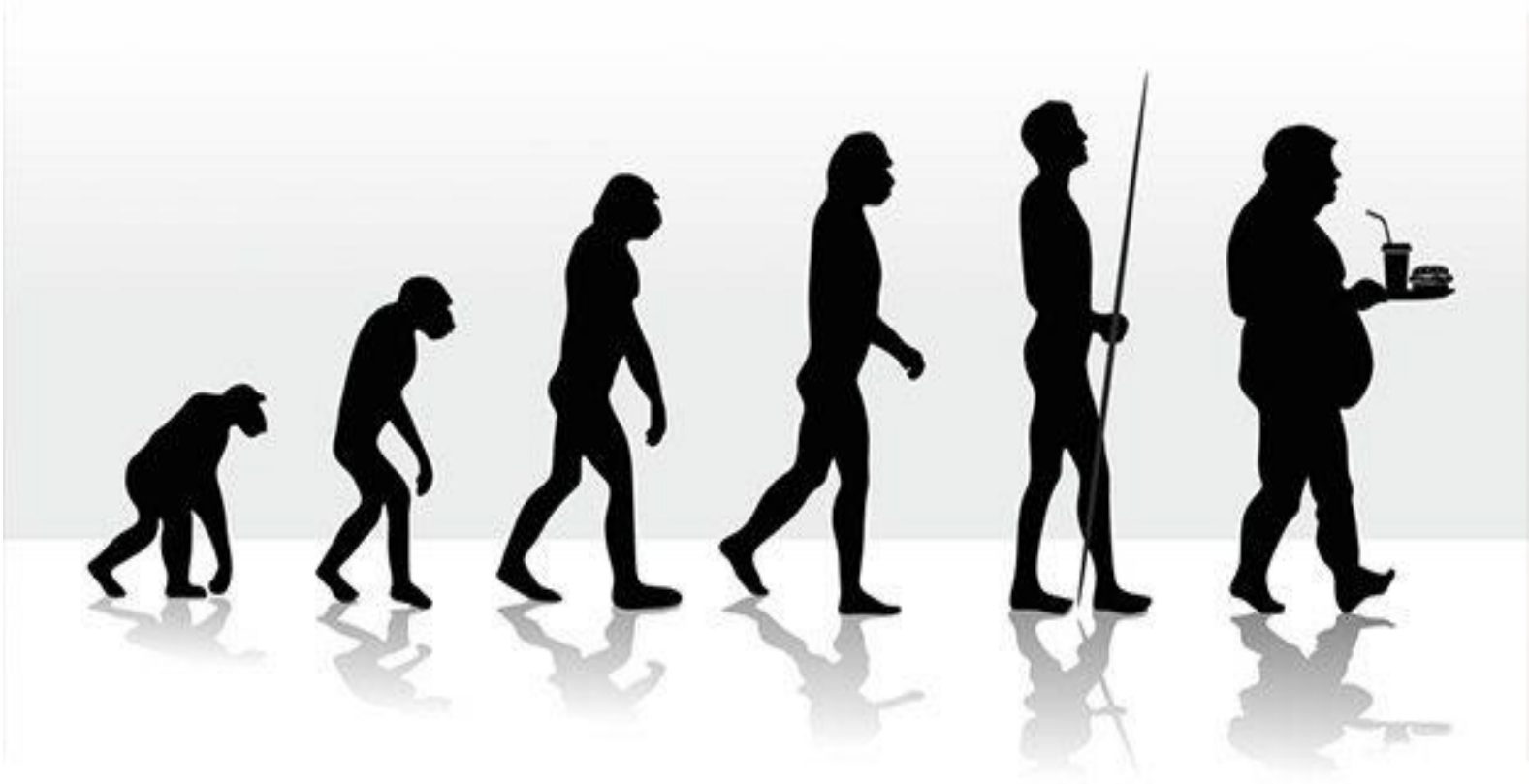
Essays

- Essay 1:
- “Explain the evolution of human nutrition and why a ‘one diet approach to all’ would cause disharmony and eventual ill-health”

- Essay 2:
- “Explain the benefits and drawbacks of organic and non-organic food both from a health perspective and from an environmental sustainability perspective”

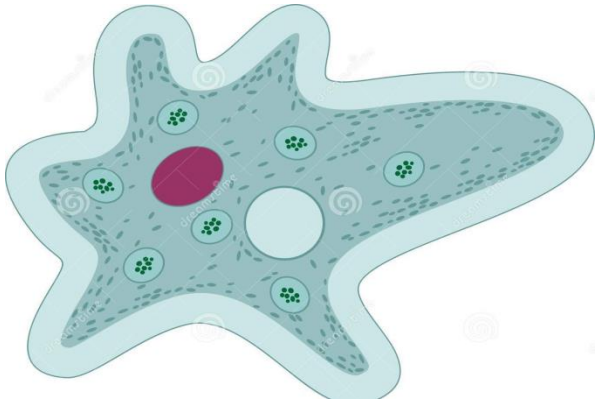
- Essay 3:
- “Describe how dietary requirements can vary according to individual requirements and throughout the life cycle”

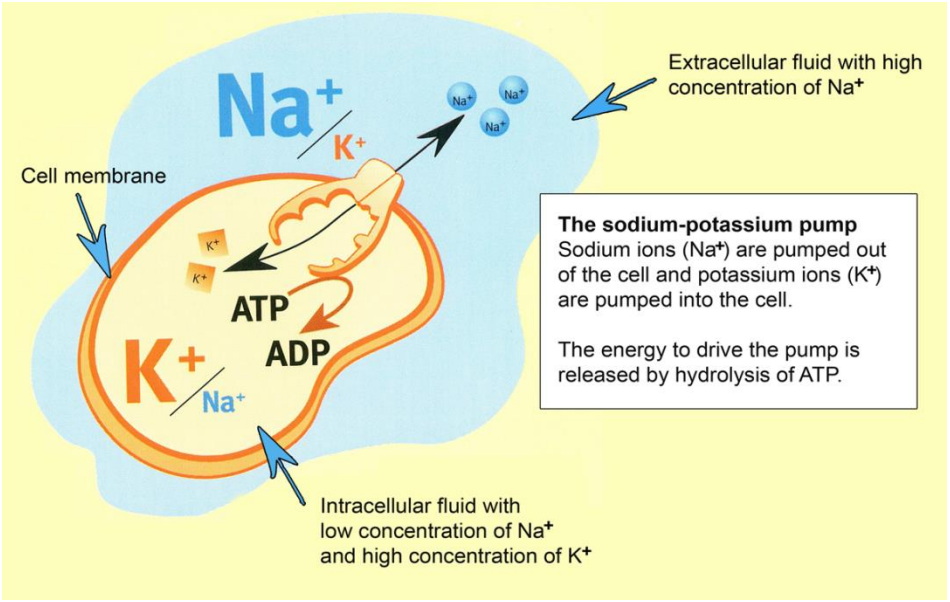
Evolution of Human Nutrition



Evolution of Human Nutrition

- Amoeba and Na/K balance





Comparative Anatomy and Physiology

Carnivores

Incisor Teeth: Short pointed
Molar Teeth: Sharp
Nails: Sharp claws
Saliva: No digestive enzymes
Stomach acid: Ph 1 with food in stomach
Small Intestine: 3-6X body length
Urine: Extremely concentrated
Perspires through skin pores: No

Omnivores

Incisor Teeth: Short pointed
Molar Teeth: Sharp
Nails: Sharp claws
Saliva: No digestive enzymes
Stomach acid: Ph 1 with food in stomach
Small Intestine: 4 -6X body length
Urine: Extremely concentrated
Perspires through skin pores: No

Herbivores

Incisor Teeth: Broad and flattened
Molar Teeth: Flattened
Nails: Flattened nails, hooves
Saliva: Carbohydrate digesting enzymes
Stomach acid: Ph4-5 with food
Small Intestine: 10-12X body length
Urine: Moderately concentrated
Perspires through skin pores: Yes

Humans

Incisor Teeth: Broad and flattened
Molar Teeth: Flattened
Nails: Flattened nails
Saliva: Carbohydrate digesting enzymes
Stomach acid: Ph4-5 with food
Small Intestine: 10-11X body length
Urine: Moderately concentrated
Perspires through skin pores: Yes

Microbiome Comparisons

- The Human microbiome was compared to the microbiome of various **herbivores** including sheep, cows, giraffe, gorilla, horse, rhinoceros
- Various **omnivores** including lemurs, baboons, chimpanzees, bonobos and spider monkeys and to
- Various **carnivores**: polar bears, dogs, hyenas and lions
- **Human samples cluster most closely with other omnivores but most closely to bonobos**

Bonobo Diet

57% of their diet is fruit

The **bonobo's diet** is largely vegetarian. Foraging in small groups, **bonobos** feast primarily on fruit, but they also eat leaves, flowers, bark, stems, roots, insect larvae, worms, crustaceans, honey, eggs, and soil. Occasionally they hunt small mammals like flying squirrels or duikers (small antelopes).

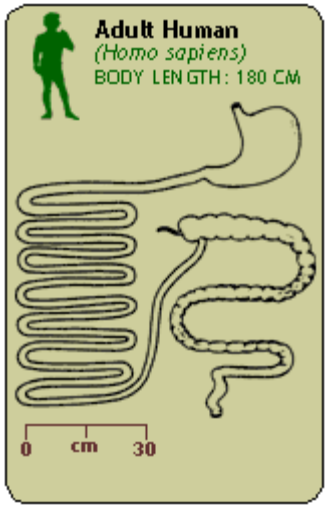
- Bonobos forage for fruit, nuts, seeds, sprouts, vegetation, and mushrooms.
- They eat various parts of plants, including the leaves, flowers, bark, stems, pith, and roots.

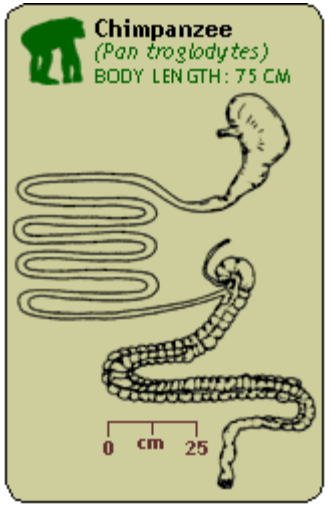
Evolution of Human Nutrition considerations

- Evidence suggests we should be eating a predominantly herbivore diet with some meat
- Humans have blunt teeth suitable for vegetarian diet
- Humans have salivary amylase suggesting we evolved to eat vegetables, fruit and starch based foods

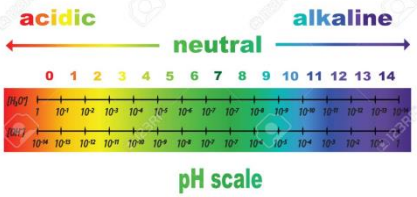
Evolution of Human Nutrition considerations

- Humans have long small intestine suitable for vegetarian and starch based diet
- Compared to other primates, human SI longer and LI shorter: evolutionary adaptation?





Evolution of Human Nutrition considerations



- Need to be alkaline: fruit and vegetables
- Compared to other primates we eat up to 40% more meat in some hunter gatherer groups
- Need for B12: suggests adaptation to needing meat/dairy in diet
- Too much meat: affects kidneys: uric acid

Evolution of Human Nutrition considerations

- Adapted to large amounts of starch (tubers, rhizomes and seeds)
- Adapted to increased starch with duplication of genes for amylase enzymes
- Starch (grain) eating: only 50,000 years (10,000 years cultivated)
- No starch in Greenland: blubber/protein and fat; therefore don't *need* starch

Evolution of Human Nutrition considerations

- Healthy vegetarians: therefore don't *need* meat
- Cooking and fermentation of food required to break down lectins, phytates and oxalates
- Cooking allowed for meat in the diet

Evolution of Human Nutrition considerations

- Fish wasn't part of original diet; would have occurred as humans migrated to lakes and sea
- Available food sources
- Genetic polymorphisms developed to adapt to environment
- ADAPTATION
- Genes and blood types

Evolution of Human Nutrition

- Hunter gatherers: some meat, lots of vegetables and fruit
- Grains introduced 10,000 years ago
- Reduced physical exercise
- Hadza's of Tanzania: World's last hunter gatherers:

A SHOCKING AND POWERFUL TESTAMENT TO THE ADVERSE EFFECTS OF MODERN PROCESSED DIETS UPON HEALTH

PUBLISHED BY
PRICE-POTTENGER NUTRITION FOUNDATION™

Nutrition and Physical Degeneration

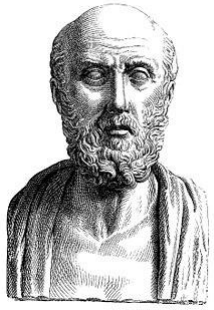
Dr. Price traveled worldwide to discover the secrets of healthy people.

Weston A. Price, DDS

"DR. WESTON PRICE was one of the most prominent health researchers of the 20th century... This extraordinary masterpiece of nutritional science belongs in the library of anyone who is serious about learning how to use foods to improve their health."
– Dr. Joseph Mercola

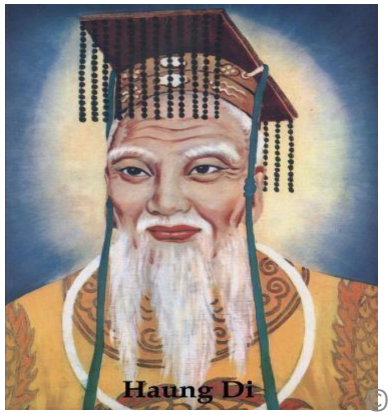
EXPANDED EDITION WITH NEW PHOTOS AND TEXT

History of Nutritional Medicine



History of Nutritional Medicine

- Eastern Medicine
  - Ayurveda: hot, cold, sweet, sour, salty, spicy, bitter, astringent , 3 Dosha
  - Chinese: 5 tastes, cold, damp, hot, dry
  - Tibetan: as Ayurveda, 3 Humours
  - Unani/Greek: 4 temperaments and humours



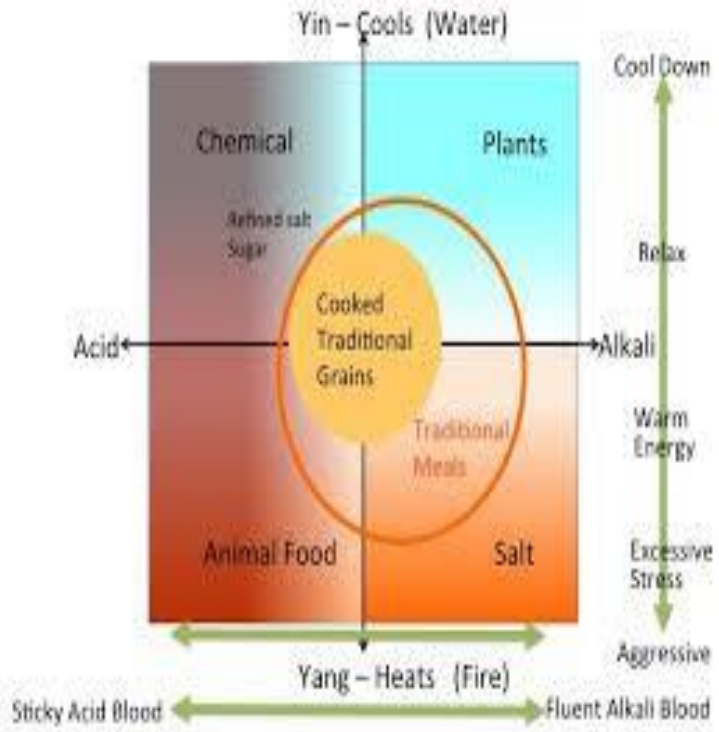
History of Nutritional Medicine
18th and 19th Century influences

- Hydrotherapy 'hydropaths': fresh air, sunlight, exercise, water "clean living" and vegetarian diet

History of Nutritional Medicine Macrobiotic diet

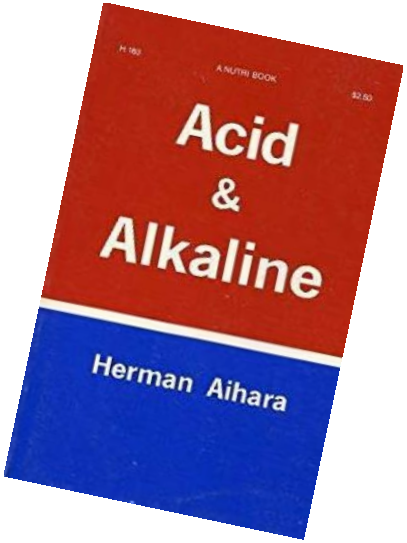
- 1897 *A Chemical Nutritional Theory of Long life':* Sagen Ishizuka
- George Ohsawa bought macrobiotics to West
- Health defined of seven criteria:

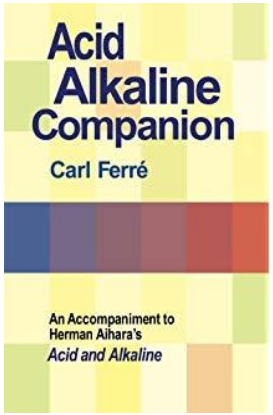
1. lack of fatigue,
2. good appetite,
3. good sleep,
4. good memory,
5. good humour,
6. precision of thought and action,
7. gratitude

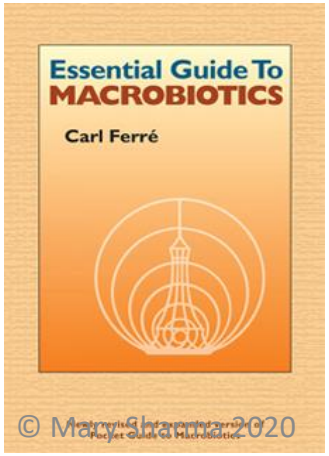


Macrobiotic Diet

- High in whole grains/carbohydrates
- Sodium potassium balance crucial to health
- Eat seasonally locally grown food
- Sea vegetables
- Based on balance: yin yang foods

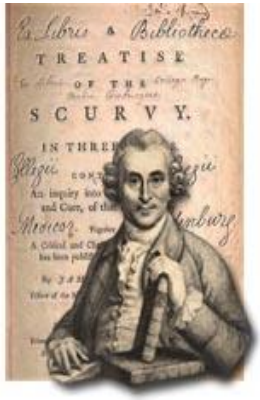


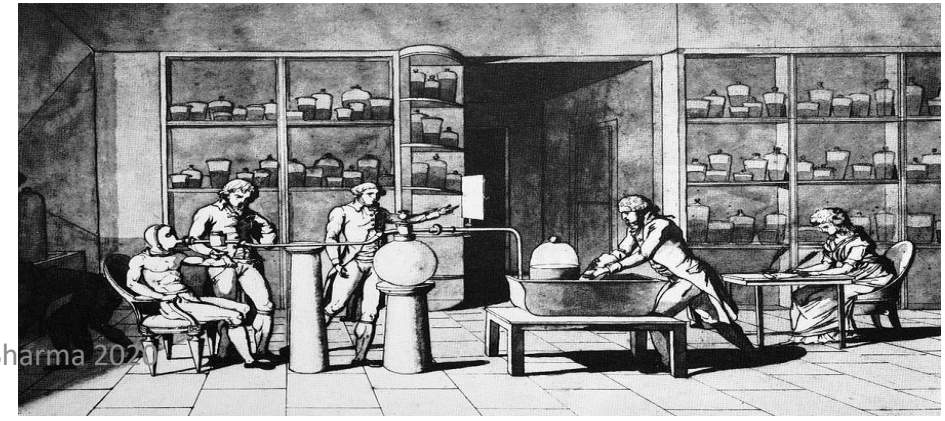




History of Nutritional Medicine

- 1700's Dr James Lind and scurvy: citrus fruit
- 18th Century: Lavoisier: metabolism and transfer of food and oxygen into heat and water
- 19th century: discovery of elements: carbon, hydrogen, nitrogen, oxygen (earth air fire and water)



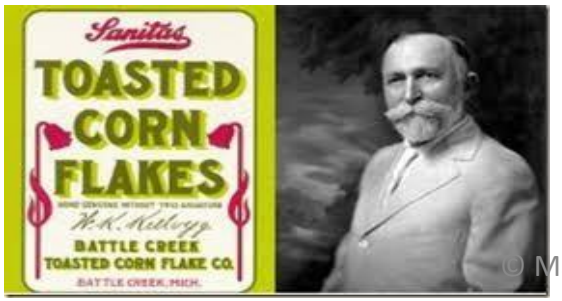


History of Nutritional Medicine 19th century

- 19th century: Justus Von Liebig: researched chemical nature of foods: carbohydrates, proteins and fats
- Use of diet in hospitals popularised by Florence Nightingale

History of Nutritional Medicine

- 1878: JH Kellogg invented cornflakes
- 19th early 20th century: Naturopaths advocated fresh air, exercise and vegetarian diet
- Thomas Allinson: wholemeal bread
- 1924: first dietetic department in Edinburgh royal infirmary hospital
- 1934: first diploma dietetic courses

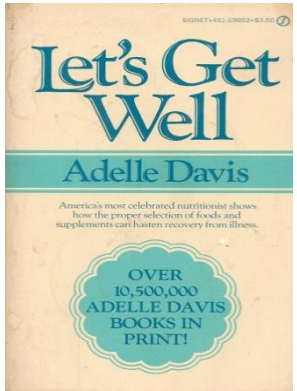


History of Nutritional Medicine

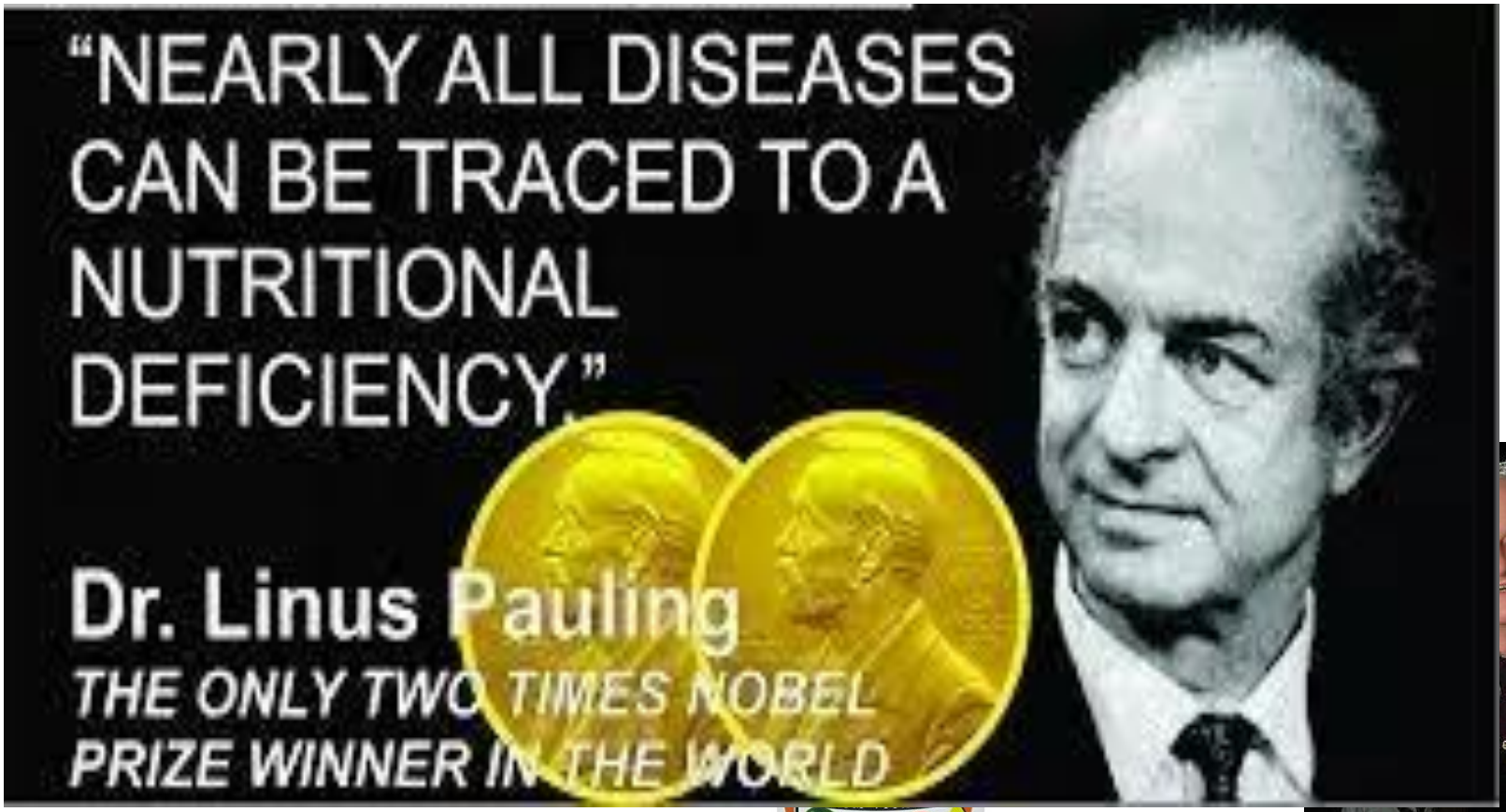
- Casimir Funk: vitamins ‘vital amines’
- 1912: vitamin A discovered in butter
- Vitamin B and beri beri and polished white rice
- Vitamin C: discovered 1912, isolated in 1928, first chemically produced vitamin in 1933
- Vitamin D and Rickets

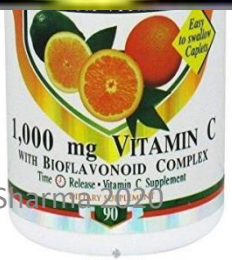
History of Nutritional Medicine

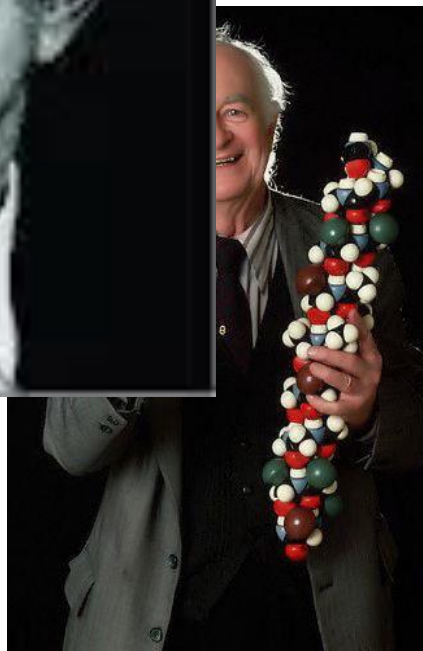
- World War 2 and discovery of gluten causing coeliac disease
- First RDA's set 1941: US National Academy of Sciences (later Food and Nutrition Board): 8 nutrients deemed important to health
- RDA's revised every 5-10 years
- 1950's: guidelines for number of servings of each food group
- 1997: RDA's changed to DRI

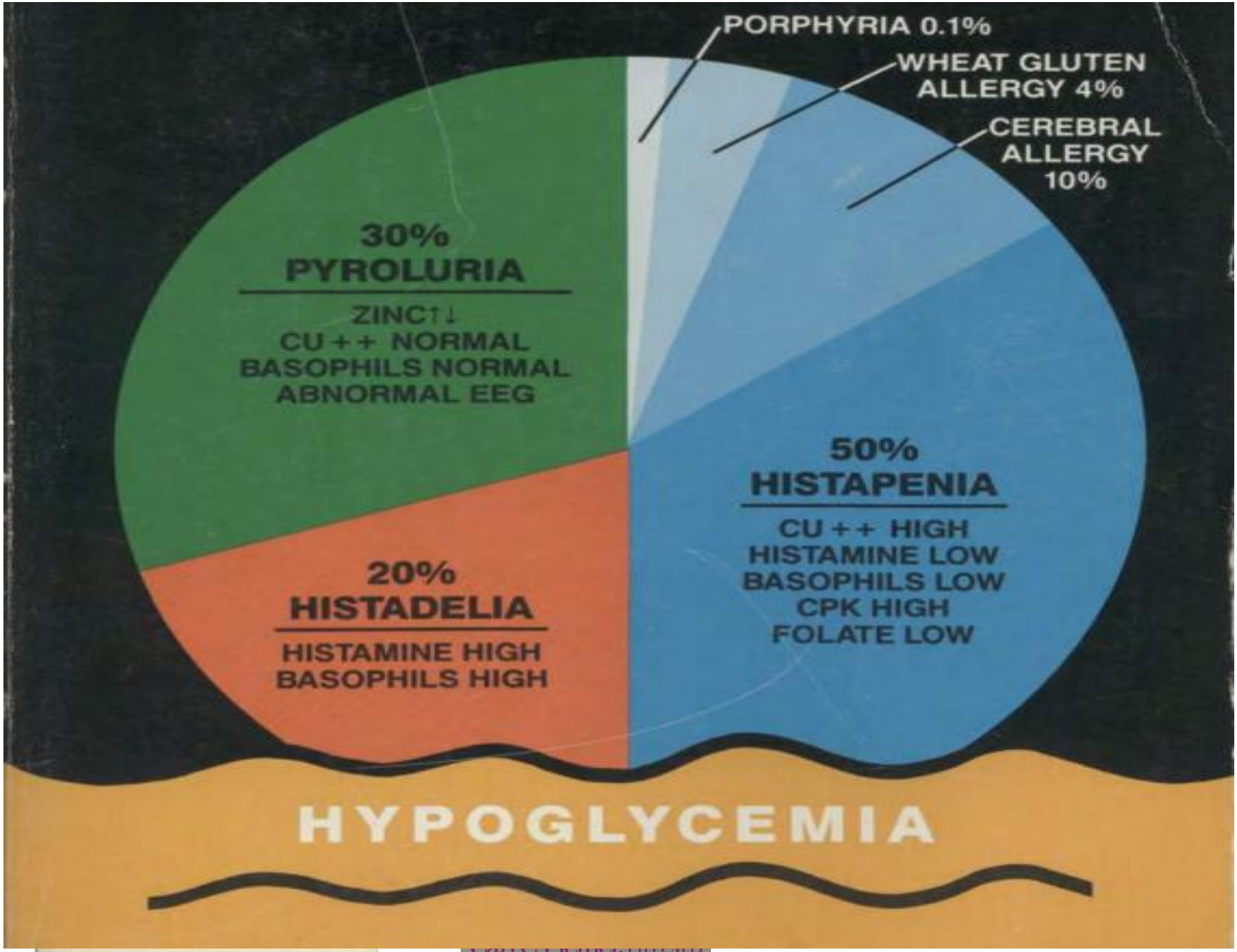


History of Nutritional Medicine



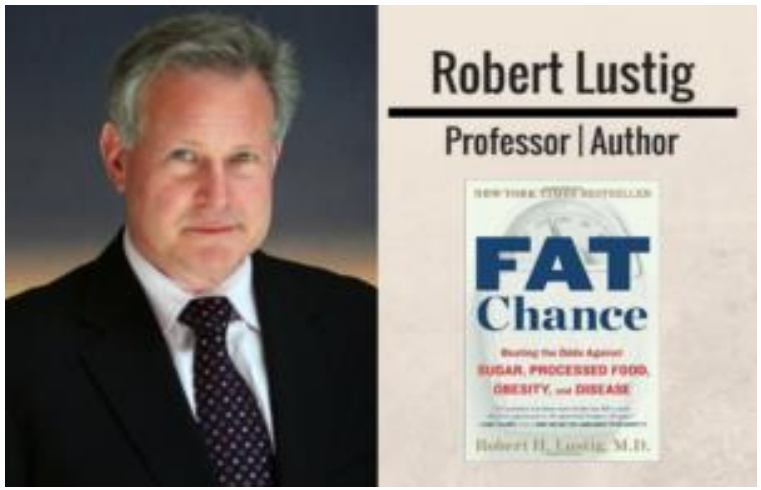


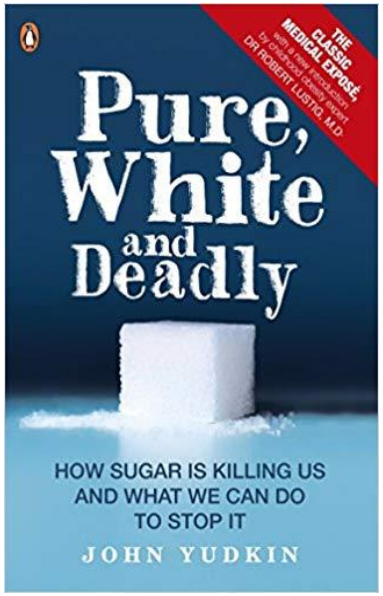



PORPHYRIA 0.1%
WHEAT GLUTEN ALLERGY 4%
CEREBRAL ALLERGY 10%
30% PYROLURIA
ZINC↑↓
CU ++ NORMAL
BASOPHILS NORMAL
ABNORMAL EEG
50% HISTAPENIA
CU ++ HIGH
HISTAMINE LOW
BASOPHILS LOW
CPK HIGH
FOLATE LOW
20% HISTADELIA
HISTAMINE HIGH
BASOPHILS HIGH
HYPOGLYCEMIA

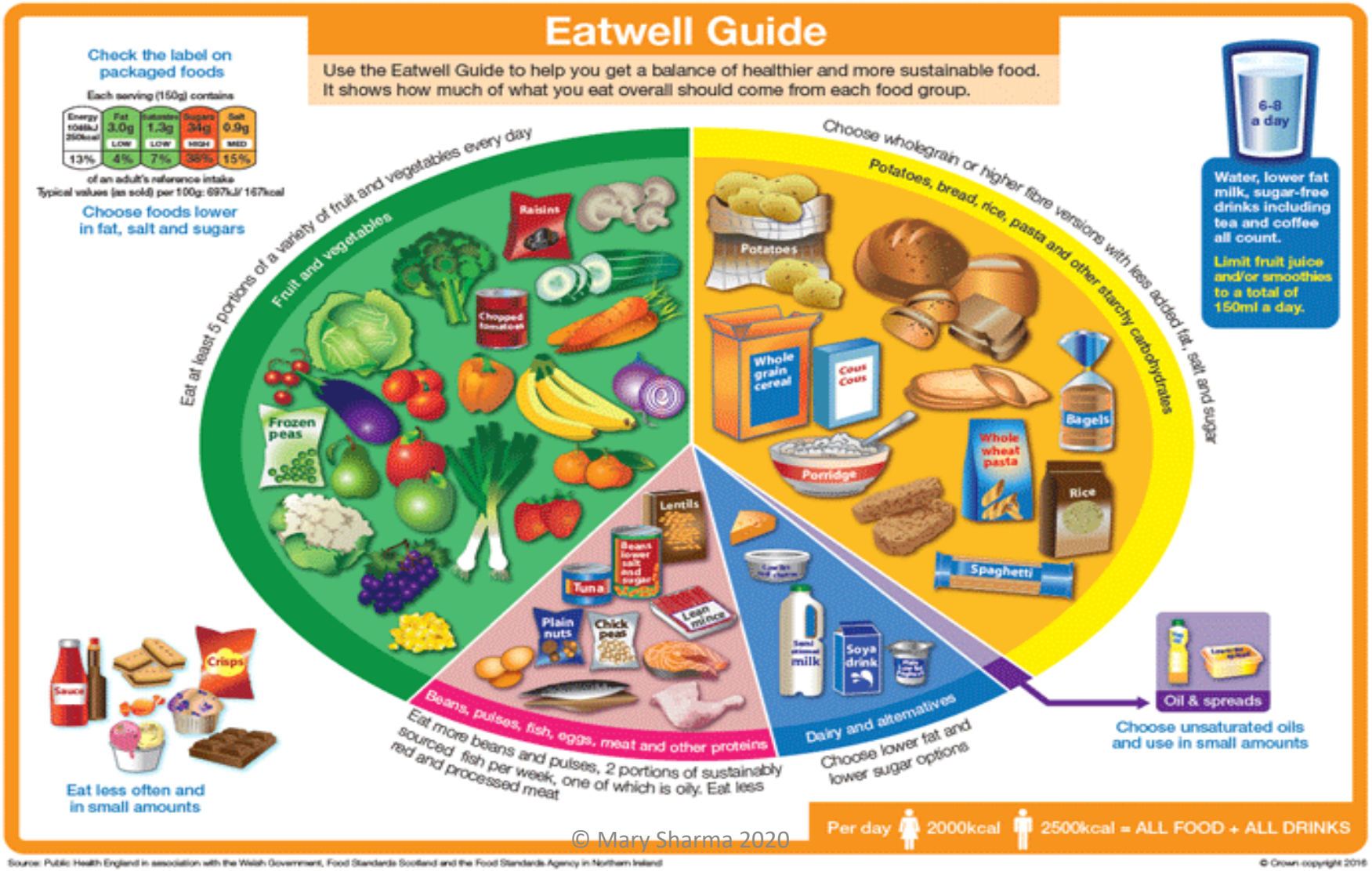
History of Nutritional Medicine

- Professor John Yudkin
- Ancel keys and cholesterol
- Professor Robert Lustig



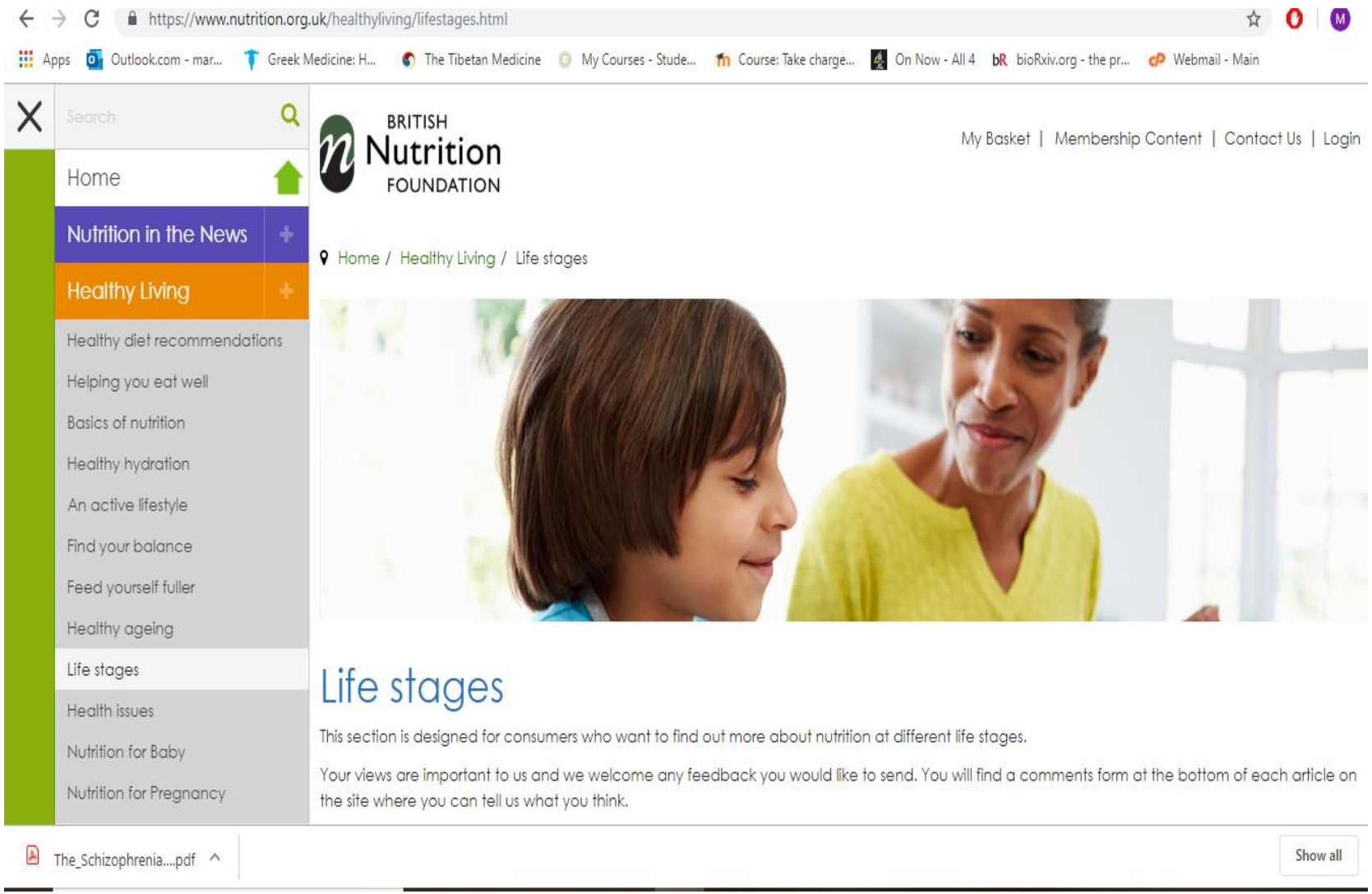


History of Nutritional Medicine
Food plates



Nutrition through Life Stages

Nutrition through Life Stages



Nutrition through Life Stages
Infancy and weaning

- WHO: breast feed for 6 months
- No solid food before 4 months
- Baby led weaning or introduction of one food at a time
- Iron stores deplete after 6 months
- Requirements for B vitamins, Zinc and magnesium increase from 6 months
- Vitamin D supplements advised to 12 months

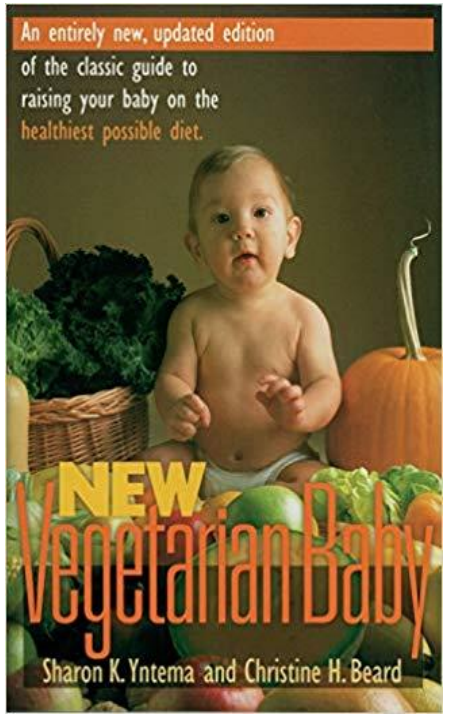
Nutrition through Life Stages
Infancy and weaning

- Avoid high fibre foods until minimum 1 ½ -2 years old
- Small intestine porous for 2 years
- Avoid low fat foods
- Avoid salt and sugar
- Boys to avoid soya until at least 4 years old (estrogenic)
- Avoid allergenic foods until 1 year old:
  - Fish
  - Eggs
  - Wheat
  - Milk

Nutrition through Life Stages
Infancy and weaning

Vegetarian Baby

- Start with vegetables and baby rice
- Introduce red lentils 7-8 months
- Millet contains good levels of iron
- Leave larger pulses until older
- Introduce goats yoghurt 7-8 months
- Monitor after each food introduced



Nutrition through Life Stages
Childhood

- Energy requirements are high→ carbohydrates
- Growth→ protein
- Calories needed for fat
- Smaller, more frequent meals

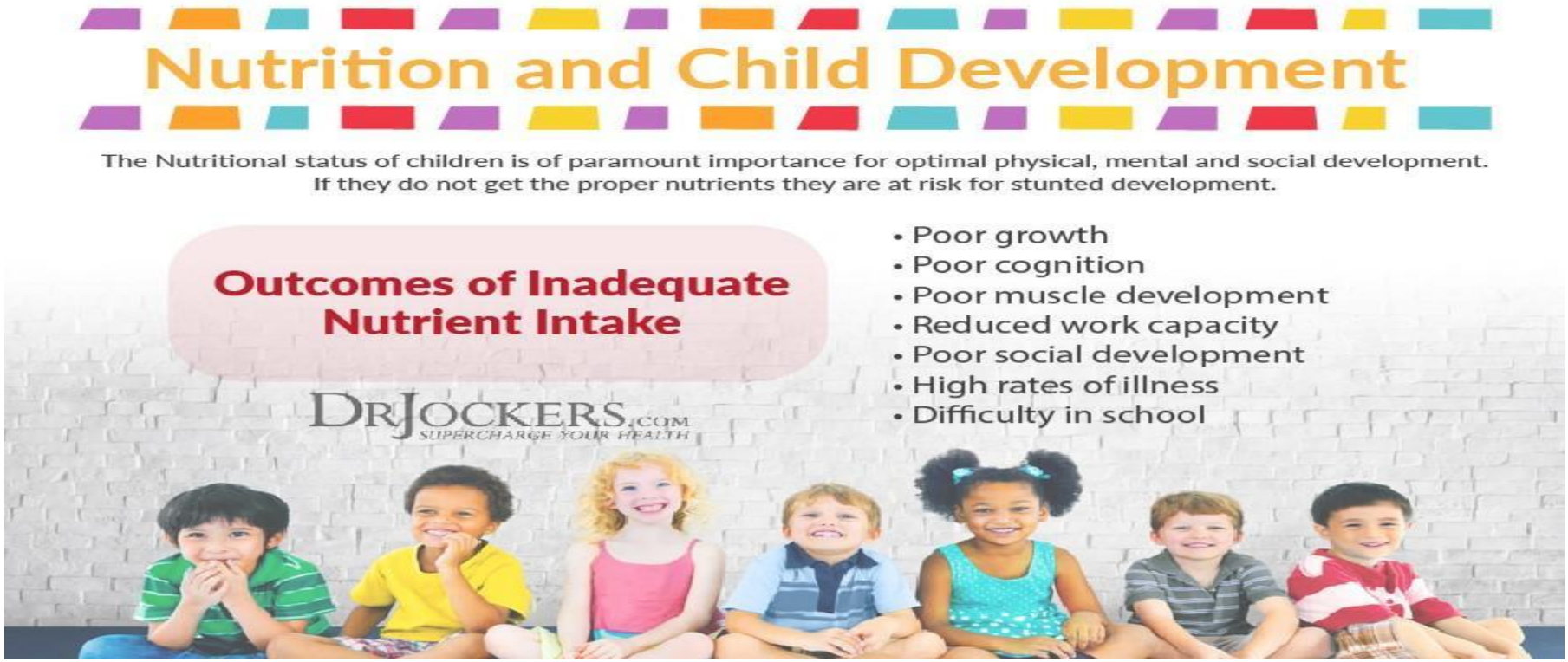
- Check for allergies: milk, wheat, eggs, soya, sugar etc.
- Fibre in moderation 5g + age (4 y/o=9g)
- Limit salt: 3-4g daily

Nutrition through Life Stages
Childhood

- Increased need for nutrients
- Calcium and vitamin D for bone growth
- 11 years old many nutrients required at adult levels
- Common deficiencies in folate, zinc, < 11 and after 11 iron, magnesium and calcium at risk

Nutrition through Life Stages
Childhood

- Lots of infections, poor growth, iron deficient anaemia, behavioural problems: suspect too much milk



Nutrition through Life Stages Teenagers

- Energy and protein requirements increase
- Increased need for zinc
- Increased need for magnesium and calcium for bones
- Girls need more iron for menstruation
- Most likely to be deficient in Zinc, magnesium, iron, calcium, folic acid, vitamin D and potassium

Nutrition through Life Stages Teenagers

- Poor eating habits
- Hormonal changes: insulin rises=always hungry and irritable

- Body image issues
- Skipping meals, junk food, social pressure, vegetarianism/veganism
- Can result in anaemia, poor academic performance, anxiety, irritability, hormone disturbances

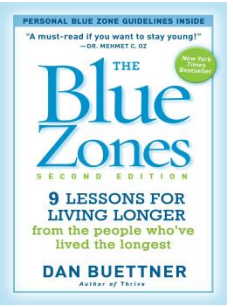
Nutrition through Life Stages pregnancy and Lactation

- Lactation: stores built up during pregnancy
- Nutritional status
- Increased need for energy, protein and most vitamins and minerals
- Continue with multi pregnancy formula
- Post natal depression: B6 and Zinc deficiency
- Keep hydrated
- Only feed baby after mother has eaten
- Avoid salty, sugary foods and caffeine

Nutrition through Life Stages
Older Adults

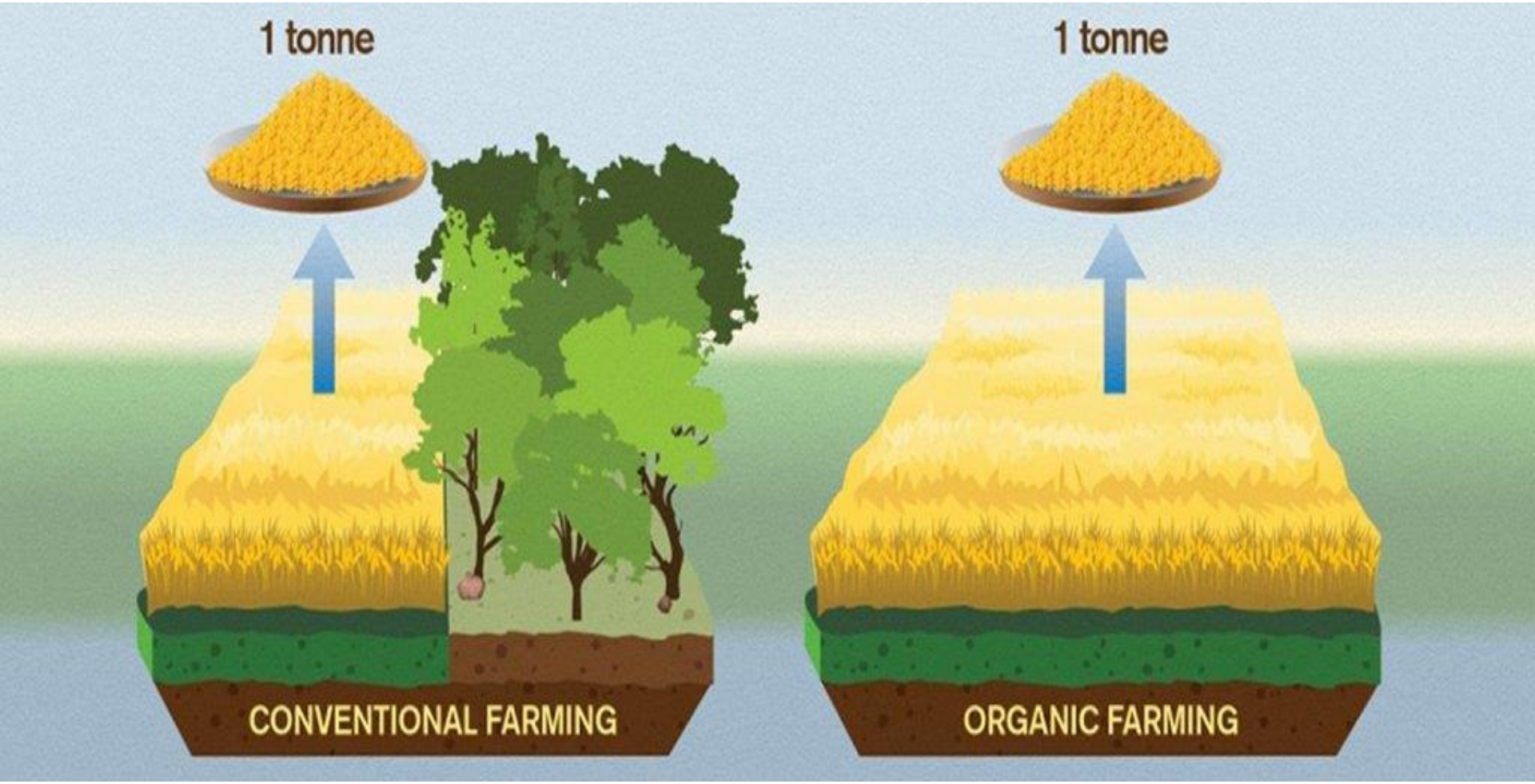
- Energy requirements decrease after 50 in women; 60 in men due to less activity
- Vitamin and mineral requirements remain unchanged except for iron
- Calcium controversy: affected by less estrogen, supplementation linked to increased heart attacks
- Essential fatty acids and vitamin D

Nutrition through Life Stages
Older Adults



- Poorly fitting dentures=difficulty chewing=gut disturbances, heart burn
- Impaired mobility
- Isolation and loneliness: eating less; poor quality food
- Drinking less re mobility and weak bladder
- Drug interactions with foods (and supplements)

Organic farming



Vitalistic Food

- Nutrients in soil
- Lack of fertilisers, pesticides, chemicals
- Better nutrient balance
- Biodynamic Farming

Seasonal Eating

- Local seasonal food:
  - Retains more nutrients: vitamin C, folate and beta carotene
  - farmers markets
  - Organic box schemes

Seasonal Eating

- Spring: green leafy vegetables to support liver detoxification
- Summer: salads, light meals, cooling foods, more light available therefore less food needed
- Autumn: Harvest, fruits high in fructose to lay down reserves for winter
- Winter: root vegetables, soups, stews, warming foods

Organic Farming

- Minimum damage to environment and wildlife
- No agricultural chemicals
- No antibiotics to increase size of animals
- No hormones
- Maintenance of soil health:
  - crop rotation
  - Manure
  - Compost

Organic Farming

- Registered and approved by organic certification bodies overseen by DEFRA in UK
- Regular checks that no chemicals are used
- Some organisations set higher standards than required minimum

Benefits of organic food

- Up to 60% higher in nutrients
- Higher levels of vitamin C
- Higher mineral content
- Better protein content
- Organic meat: better nutritional content re different diet and lack of antibiotics; grass fed=higher omega 3 content
- Lower levels of pesticides

Soil Quality

- Over farming has led to mineral losses over last 50-100 years
- Soil mineral quality in 1940's higher than organic soil today
- Fertilisers contain nitrate, phosphate and potassium: disturbs natural balance of minerals
- Phosphate can bind to zinc
- Low selenium → thyroid issues
- Magnesium particularly low in soil
- Chemicals affect food chain, natural habitats and pollute rivers

Nutrient value of foods

- Seasonal local food v world food available all year round
- Up to 2 weeks for foods to reach our shelves
- Pineapples, bananas etc. picked unripe and artificially ripened
- Nutrient losses
- Irradiation
- Waxes and preservatives

NCBI Resources How To Sign in to NCBI

PMC US National Library of Medicine National Institutes of Health

PMC Search Help

Journal List › Interdiscip Toxicol › v.6(4); 2

About

| PDF (479K) | Citation

Interdiscip Toxicol. 2013 De

Published online 2013 Dec

Glyphosat
intolerance

Anthony Samse

Author inform

This article ha

Abstract

Celiac disease,
North America
include nausea, diarrhea, skin rashes, macrocytic anemia and depression. It is a multifactorial disease associated with numerous nutritional deficiencies as well as reproductive issues and increased risk to

Interdiscip Toxicol

te Toxicity.
Public Health. 2017]

celiac disease.
l Endocrinol. 2000]

eliac disease.
ndosc Clin N Am....]

strointest Dis. 2002]

ease resistance
viron Sci Eur. 2018]

See reviews...

See all...

Celiac disease, and, more generally, gluten intolerance, is a growing problem worldwide, but especially in North America and Europe, where **an estimated 5% of the population now suffers from it**. Symptoms include **nausea, diarrhea, skin rashes, macrocytic anemia and depression**. It is a multifactorial disease associated with numerous nutritional deficiencies as well as **reproductive issues and increased risk to thyroid disease, kidney failure and cancer.** Here, **we propose that glyphosate,** the active ingredient in the

We argue that the practice of “ripening” sugar cane with glyphosate may explain the recent surge in kidney failure among agricultural workers in Central America. **We conclude with a plea to governments to reconsider policies regarding the safety of glyphosate residues in foods.**

Dirty Dozen v Clean Fifteen

2018

Dirty Dozen
(always buy Organic)

1. Strawberries
2. Spinach
3. Nectarines
4. Apples
5. Peaches
6. Pears
7. Cherries
8. Grapes
9. Celery
10. Tomatoes
11. Sweet Bell Peppers
12. Potatoes

Clean 15
(OK to buy Regular)

1. Avocados
2. Sweet Corn
3. Pineapples
4. Cabbage
5. Onions
6. Sweet Peas
7. Papayas
8. Asparagus
9. Mangos
10. Eggplant
11. Honeydew
12. Kiwi
13. Cantaloupe
14. Cauliflower
15. Broccoli

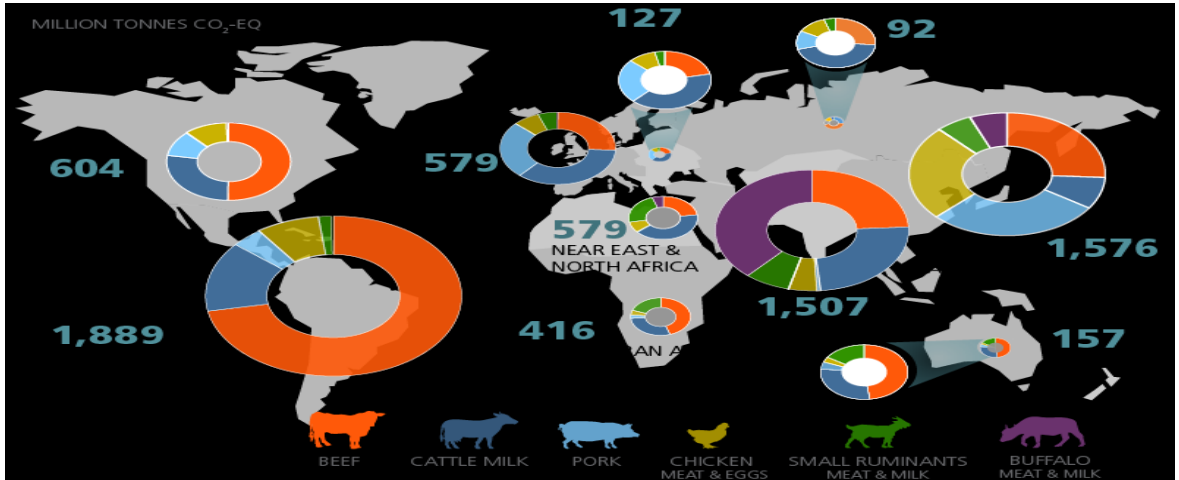
Nested Blissfully

Meat production and Water

- Approximately 15,000 litres of water to produce 1kg of meat – 10 times the amount required to grow wheat
- 1,000 litres of water to produce just 1 litre of milk
- 190 litres of water for just one egg
- Agriculture responsible for almost 90% of the entire water consumption of the USA

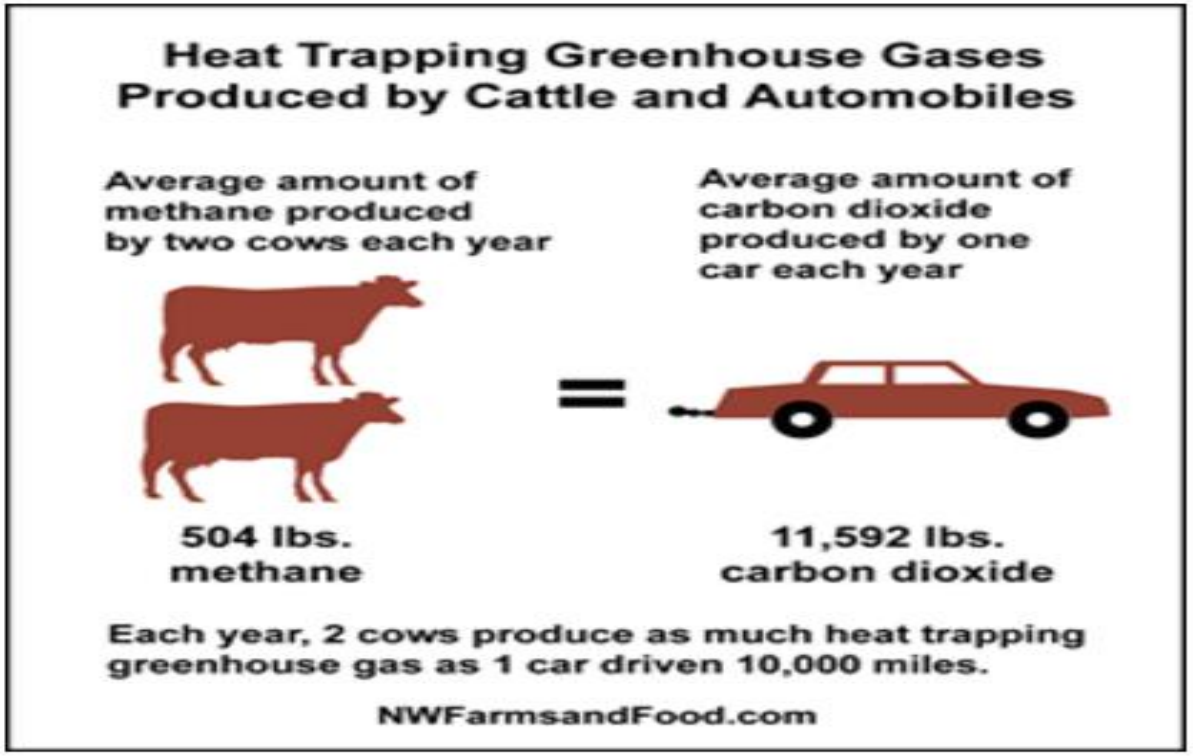
Environmental Impact

- Greenhouse gas emissions
  - Emissions for agriculture are projected to increase by 80% by the year 2050
  - Animal agriculture is responsible for more greenhouse gas emissions than the entire transportation industry put together



Cows and Methane

- Cows produce 150 billion gallons of methane per day, and methane has a global warming potential 86 times greater than CO2. This means reducing methane emissions would have a far greater benefit than reducing CO2 emissions



Vegan diet?

- The average omnivorous diet uses 18 times the amount of land as a vegan diet
- Animal agriculture is responsible for destruction of over 90% of Amazon rainforest, with 1-2 acres being cleared every second to make way for grazing
- The use of seafood and fish as a protein source is unsustainable

Vegan diet?

- Soya: uses significantly less water and land than dairy milk but increase in demand=deforestation to grow crop each year
- Almond: requires also as much water to produce as dairy milk (900 litres of water per litre of almond milk
- Quinoa and Avocados: soaring prices for locals due to worldwide demand

Dietary Confusion

- Low carbohydrate: Paleo/caveman diet/Atkins
- High carbohydrate
- Low fat
- High fat: ketogenic
- High protein/low protein
- Pescartarian
- Vegetarian
- Vegan
- Raw
- Gluten free
- Dairy free
- Fermented foods?

Impact Journals: AGING Open-Access Impact Journal on Aging

Aging (Albany NY). 2014 Sep; 6(9): 707–717. PMCID: PMC4221920
Published online 2014 Sep 27. doi: 10.18632/aging.100690

Reversal of cognitive decline: A novel therapeutic program

Dale E. Bredesen[1,2]

Author information ▶ Article notes ▶ Copyright and

Protocol: lab assessment, healing the gut, supplements, ketoflex 12/3 diet (low carb, MCT fatty acids, gluten and dairy free, fasting 12 hours)

Abstract

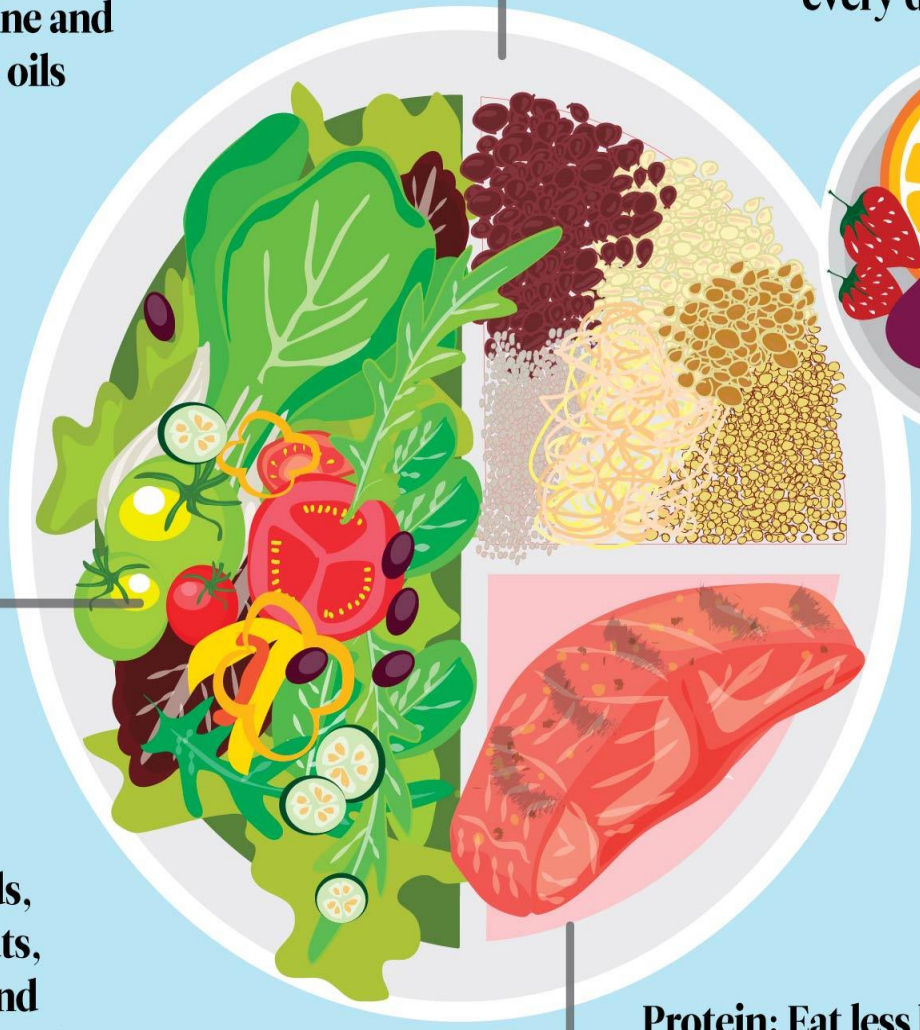
This report describes a novel, comprehe
underlying pathogenesis of Alzheimer's
achieve metabolic enhancement for neurodegeneration (MEND). The first 10 patients who have utilized this program include patients with memory loss associated with Alzheimer's disease (AD), amnestic mild cognitive impairment (aMCI), or subjective cognitive impairment (SCI). Nine of the 10 displayed subjective or objective improvement in cognition beginning within 3-6 months, with the one failure being a patient with very late stage AD. Six of the patients had had to discontinue working or were struggling with their jobs at the time of presentation, and all were able to return to work or continue working with improved performance. Improvements have been sustained, and at this time the longest patient follow-up is two and one-half years from initial treatment, with sustained and marked improvement. These results suggest that a larger, more extensive trial of this therapeutic program is warranted. The results also suggest that, at least early in the course, cognitive decline may be driven in large part by metabolic processes. Furthermore, given the failure of monotherapeutics in AD to date, the results raise the possibility that such a therapeutic system may be useful as a platform on which drugs that would fail as monotherapeutics may succeed as key components of a therapeutic system.

Mediterranean diet

Fats: Choose olive oil and nuts. Avoid butter, margarine and other vegetable oils

Grain/starch:Eat whole grains and legumes every day.

Fruit: Eat three to four servings a day.



Veggies: Eat three to four servings a day.

A little of these: wine and nuts.

Don't forget: water, herbs and spices, and daily exercise.

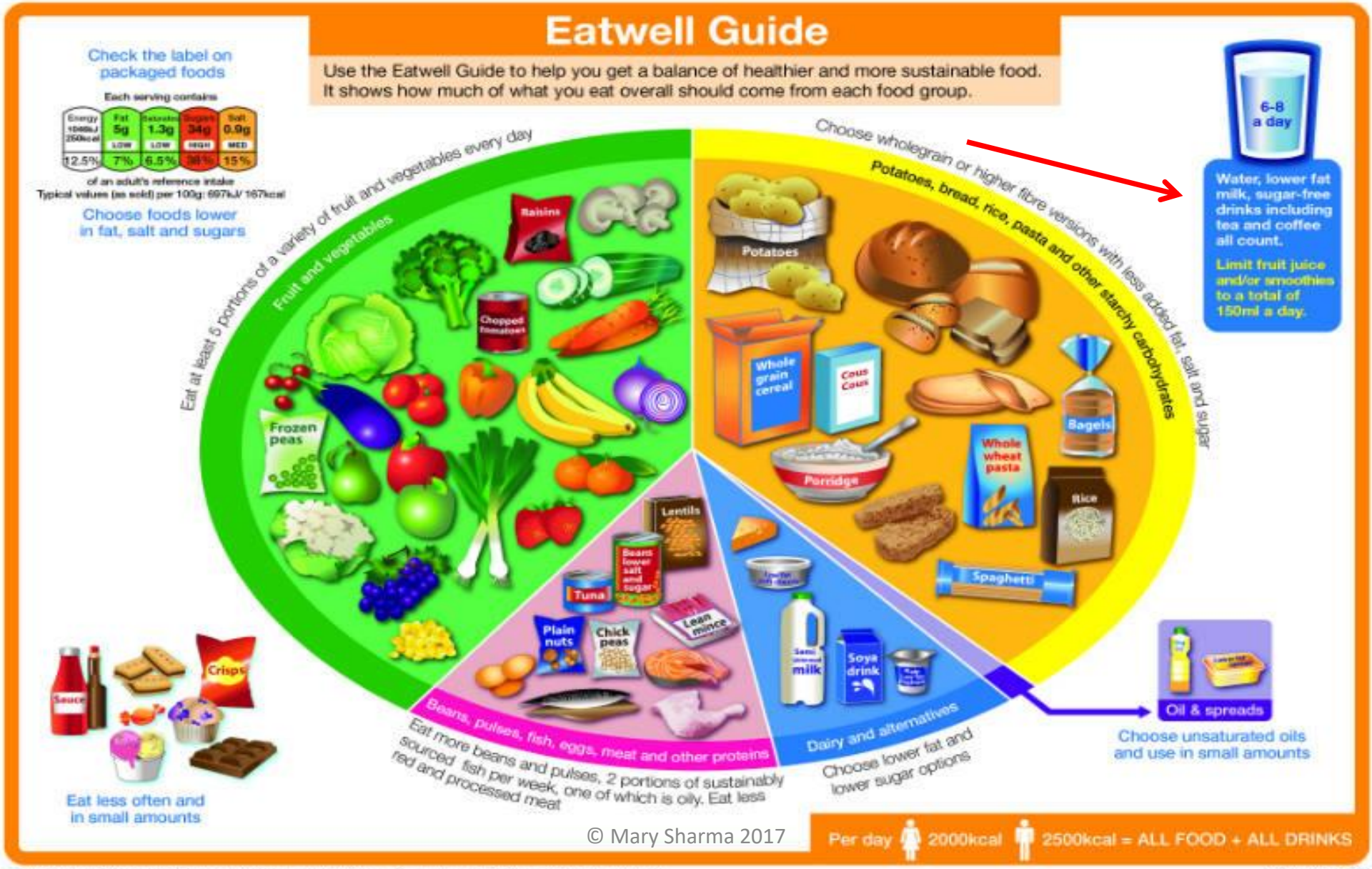
Skip these: processed foods, processed meats, sugary foods and beverages, salt, salty foods and salty seasonings.

Protein: Eat less beef and pork and eggs and cheese in moderation. Opt for fish and shellfish often.

Diet discussion

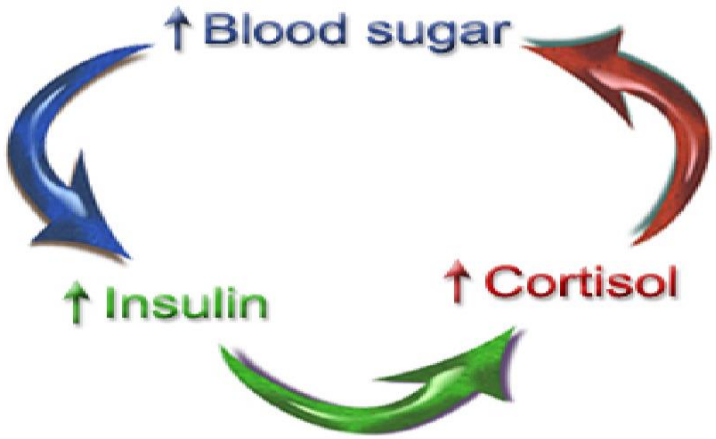
- **Group 1:** consider benefits and drawbacks of Paleo and Mediterranean diets (high protein low carbohydrate v low protein/high carbohydrate)
- **Group 2:** consider benefits and drawbacks of low fat/high carbohydrate v high fat/low carbohydrate diet
- **Group 3:** consider benefits and drawbacks of vegetarian/vegan diet v meat diet
- **Group 4**: analyse the Eat well plate for benefits and drawbacks

New Eatwell Plate 2016



Paleo Diet?

- No gluten= better blood glucose control
- High protein=better blood glucose control
- Raised stress levels: leading to a need for less carbohydrates?
- Raised protein=raised uric acid



Paleo diet?

Digestion of Proteins?

Comparative Anatomy and Physiology

Carnivores	Omnivores
	
Incisor Teeth: Short pointed Molar Teeth: Sharp Nails: Sharp claws Saliva: No digestive enzymes Stomach acid: Ph 1 with food in stomach Small Intestine: 3-6X body length Urine: Extremely concentrated Perspires through skin pores: No	Incisor Teeth: Short pointed Molar Teeth: Sharp Nails: Sharp claws Saliva: No digestive enzymes Stomach acid: Ph 1 with food in stomach Small Intestine: 4 -6X body length Urine: Extremely concentrated Perspires through skin pores: No

Food combining

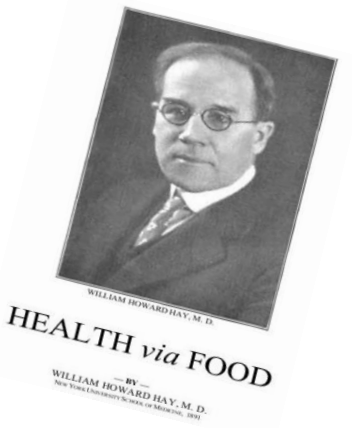
"Future did not look overlong or very bright"

William Hay MD

Food combining

The Hay diet

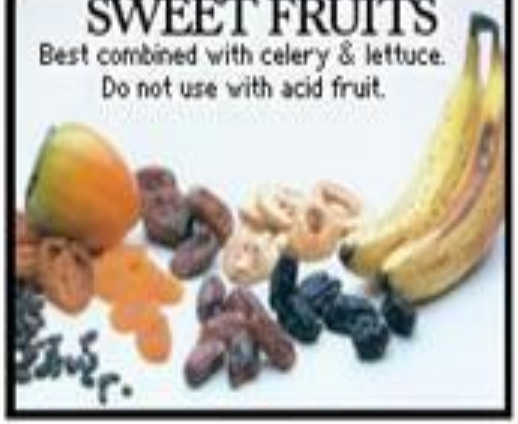
1. Starches and sugars away from protein
2. Vegetables, salad and fruit major part of diet
3. Proteins, starches, fats in small quantities
4. Only whole foods
5. Interval of 4-5 hours between eating



Food Combining for Health

SWEET FRUITS

Best combined with celery & lettuce.
Do not use with acid fruit.

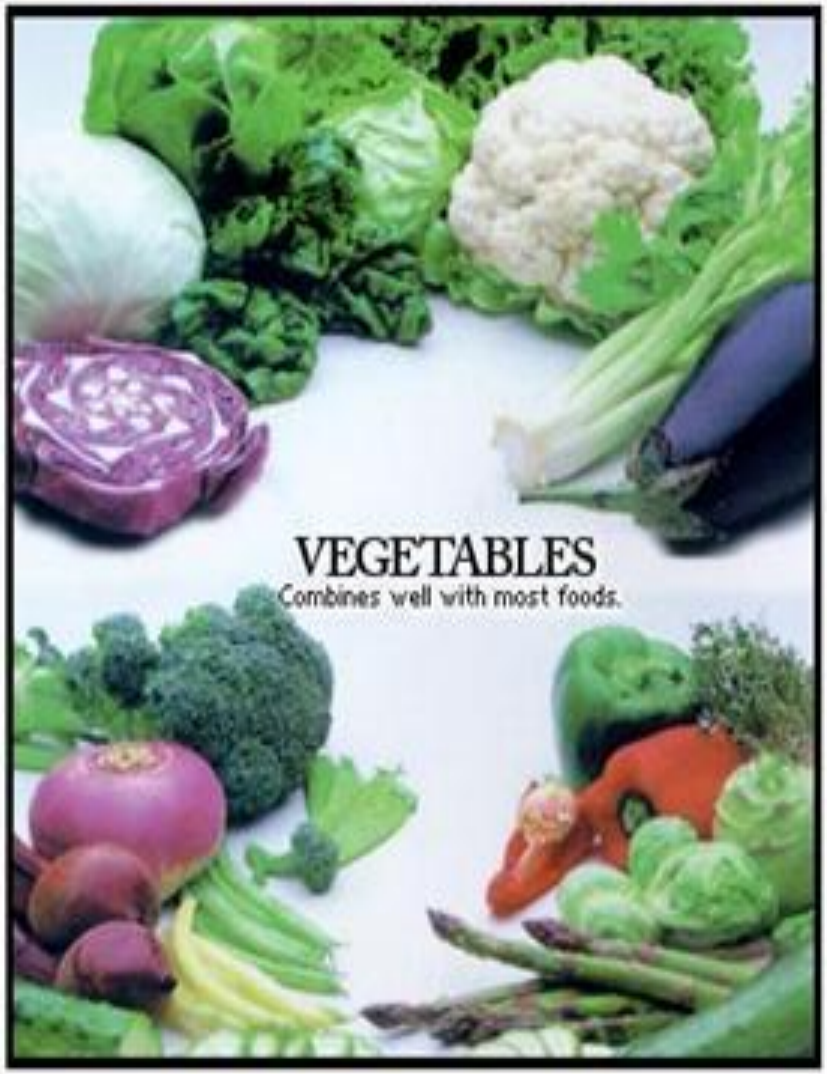


SUB-ACID FRUITS

Combined with acid or sweet fruits, but not both. Good with lettuce or celery.

ACID FRUITS

Best combined with sub-acid but not sweet fruits. Good with lettuce & celery.

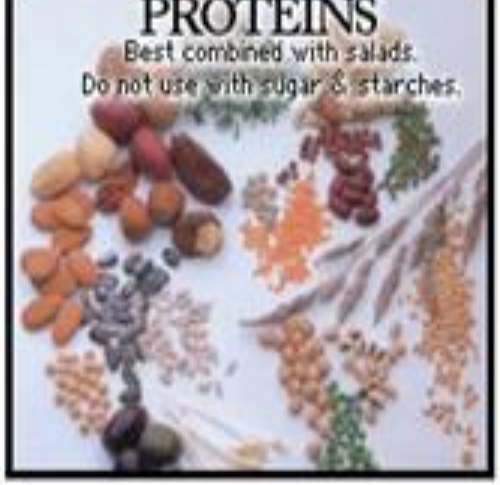


VEGETABLES

Combines well with most foods.

PROTEINS

Best combined with salads.
Do not use with sugar & starches.



STARCHES

Best combined with green salads (no tomatoes). Do not use with protein & fruit.

MELONS

Best combined alone.
Does not combine well with other foods.

Vegetarian and vegan diets

- Importance of complementary proteins
- B12 deficiency= problems with methylation
- Zinc deficiency-vegetarian foods high in copper
- Iron deficiency

Quorn

- Made from fungus, called Fusarium Venenatum, with oxygenated water and glucose and then fermented.
- Mycoprotein is a mould, but one that is considered safe for human consumption.
- (venenatum is Latin for venomous)

Quorn

- Study in 2003 co author: Nevin Scrimshaw told the U.S. Food and Drug Administration that *"I have no doubt from the evidence currently available that the fungal product being marketed as Quorn, and that is causing an alarmingly high frequency of allergic reactions, some of them quite serious, is not the same product we tested. He added: "I am appalled that this material is allowed to stay on the market."*

Practical Discussion

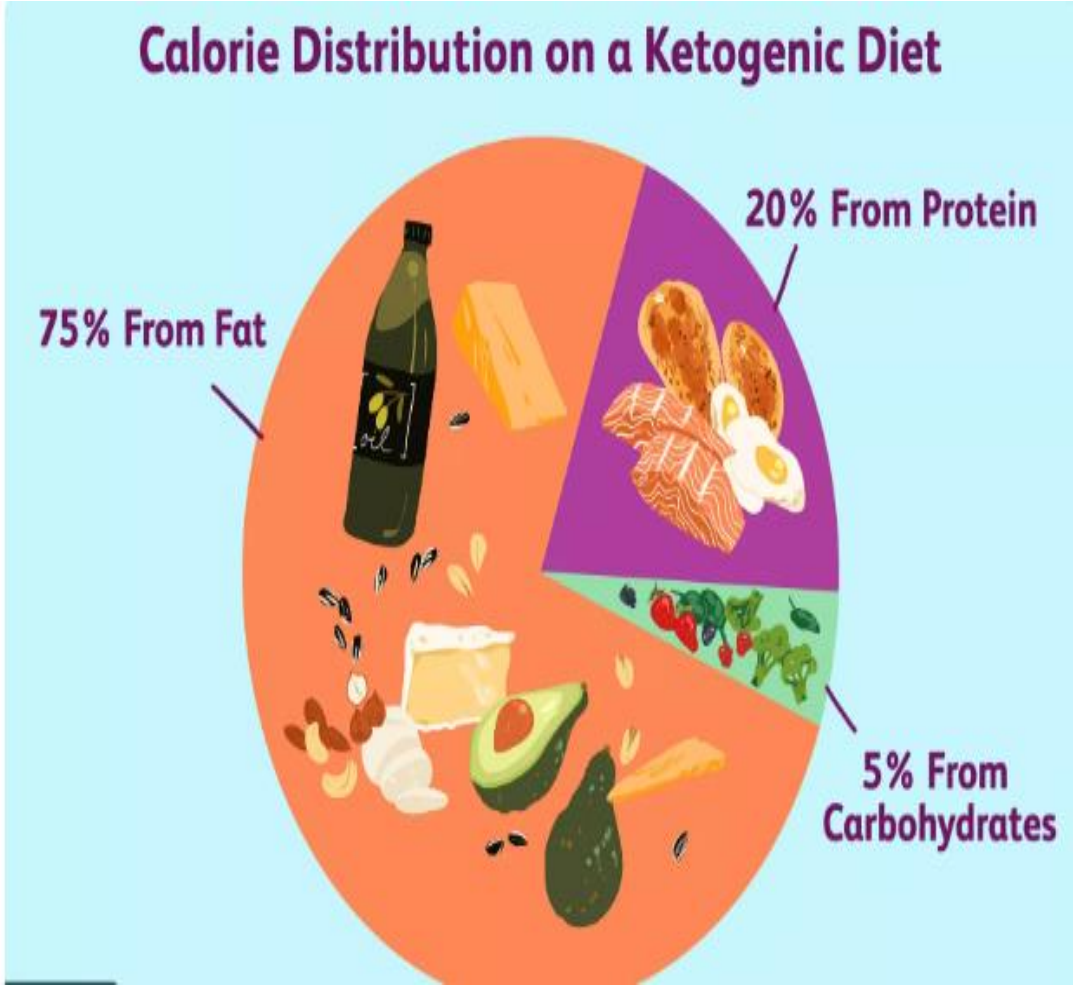
Vegan Diet: healthy or not?

Discussion

Coconut: How Healthy?

Discussion Ketogenic diet

- High fat
- Moderate protein
- Low carb
- Good or bad??



J Physiol. 2018 Oct;596(19):4597-4609. doi: 10.1113/JP275173. Epub 2018 Aug 8.

Short-term feeding of a ketogenic diet induces more severe hepatic insulin resistance than an obesogenic high-fat diet.

Grandl G[1], Straub L[1], Rudigier C[1], Arnold M[2],

Author information

Abstract

KEY POINTS: A ketogenic diet is known t ports on its effect on hepatic insulin sensitivity. ge, whereas obesogenic high-fat diet (HFD) t ed animals are glucose intolerant. Glucose i); however, all animals respond to glucose i show that the effect of KD is a result of hepatic insulin resistance and increased glucose output but not impaired glucose clearance of tissue glucose uptake in other tissues.

ABSTRACT: Despite being a relevant healthcar incompletely understood. It is well established that increased cose levels, causing insulin resistance and eventual loss of n style diet (HFD) is linked to the development of T2D and iet (KD) is considered healthy. However, several days of c . In the present study, we compare the effects of short-term HF h KD fed animals appear to be healthy in the fasted state, they exhibit decreased glucose tolerance to a greater extent than HFD fed animals.

The consumption of high carbohydrate, high-fat, western style diet (HFD) is linked to the development of T2D and obesity, whereas the consumption of a low carbohydrate, high-fat, ketogenic diet (KD) is considered healthy. However, several days of carbohydrate restriction are known to cause selective hepatic insulin resistance

We show that, even though KD fed animals appear to be healthy in the fasted state, they exhibit decreased glucose tolerance to a greater extent than HFD fed animals.

The ANH Food4Health Plate

January 2015

Percentages refer to amounts by weight of each food category

alliance for natural health INTERNATIONAL

Herbs, spices, supplements 5%

Grains (gluten-free, whole) 10%
e.g. Brown rice, quinoa, gluten-free oats

Vegetables (unprocessed) 40%

High 'healthy fat' foods 10%
e.g. unfiltered extra virgin olive oil, organic extra virgin coconut oil, nuts, seeds, avocadoes, butter, cheese, organic eggs
Include some fermented foods e.g. kefir, yoghurt

Consume daily vegetables and fruits belonging to all 6 colour groups: Green, Orange, Blue/Purple, Red, Yellow, White/Tan

High protein foods 25%
e.g. grass-fed meat, wild-caught fish, low-lectin or lectin-free legumes

Include consumption of at least some fermented vegetables e.g. sauerkraut, kimchi

Fruit (unprocessed) 10%

General guidelines

- Minimise consumption of any highly processed foods
- Do not use high-temperature cooking methods (frying, grilling), unless brief
- Minimise heat-damage to proteins, fats and vegetables by consuming plenty of raw foods and/or using slow cooking methods
- Use organic extra virgin coconut oil as your 'go to' fat for stir-frying or other cooking
- Consume plenty of fresh herbs and non-irradiated, organic spices
- Leave at least 5 hours between meals (avoid snacking between meals)
- Consume at least 1.5 litres of spring or filtered water daily, between meals
- Avoid all foods which trigger intolerance or allergy
- Seek advice from a qualified and experienced health processional on the most appropriate supplements (concentrated sources of nutrients)

follow us on twitter

Find us on: facebook

Influence of diet and supplements on health

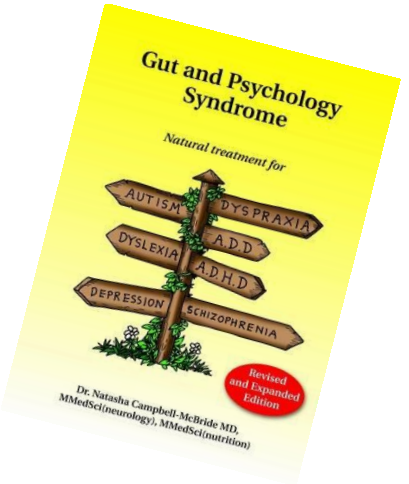
- Paleo diet: increased protein=increased uric acid: kidneys
- High carbohydrate diet: blood sugar dysregulation, fatty liver
- High fat diet: fatty liver, gall bladder issues, microbiome
- Refined foods: disturbance of electrolyte balance, nutrient deficient, blood sugar dysregulation
- Vegan diets: B12, iron

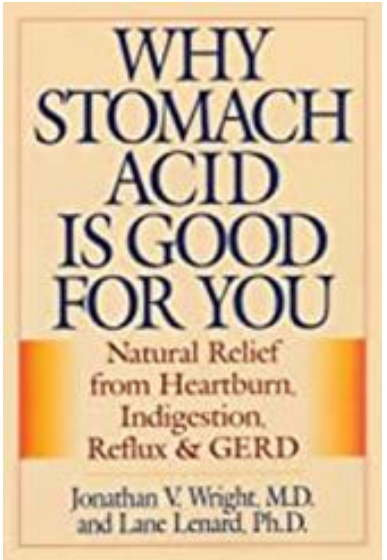
Factors to consider

- Ability to digest and absorb nutrients
- Are nutrients in the food source?
- Are nutrients in the soil?
- Which nutrients do we need anyway?

Digestion

- Fermentation helps digestion of food
- Sour foods aid digestion
- Spicy foods aid digestion





Basic dietary guidelines

- Keep it simple!
- Rehydrate: water, oil
- Eliminate diuretics: tea, coffee, alcohol, sugar, stress
- Increase vegetables: hydration and K, Mg and other minerals, alkalising
- Protein in moderation: depends on symptoms (especially blood sugar) and blood type
- Address digestion
- Support gut
- Support liver detoxification
- Balance blood sugar levels

Naturopathy

- Do the least possible to make a change
- Put the body in to a situation where it can heal
- Plenty of clean water daily
- Reduce/avoid diuretics
- Increase vegetables
- Support the gut
- Stabilise blood sugar

Practical work

- **Group 1**: Vegetable lasagne: healthy or not?
- **Group 2**: Green Smoothie: healthy or not?
- **Group 3**: “Healthy smoothie”: healthy or not?
- **Group 4**: Compare Eat Natural bar and Date ball: which do you consider most healthy?

Healthy or not? Vegetable Lasagne

- 1 tbsp rapeseed oil
- 2 onions, sliced
- 2 large garlic cloves, chopped
- 2 large courgettes, diced (400g)
- 1 red and 1 yellow pepper, deseeded and roughly sliced
- 400g can chopped tomatoes
- 2 tbsp tomato purée
- 2 tsp vegetable bouillon
- 15g fresh basil, chopped plus a few leaves
- 1 large aubergine, sliced across length or width for maximum surface area
- 6 wholewheat lasagne sheets (105g)
- 125g vegetarian buffalo mozzarella, chopped

Discussion
Green smoothie

- Half avocado
- Small mini pepper
- Spinach leaves
- Large spring onion
- 2 inches cucumber
- Inch fresh ginger
- 1 tsp spirulina
- 1-2 tsp Garm masala

Discussion
‘Healthy’ Smoothie?

- Deconstructed Black Forest Gateau (Serves 1, as a meal)
- 20 whole almonds (preferably soaked overnight)
- 10 cherries
- 100 ml coconut cream
- 100 ml filtered water
- 2 teaspoons of cacao powder

Eat Natural Bar

	per 100g	per 45g bar
Energy	2126kJ 510kcal	957kJ 229kcal
Fat	30.5g	13.7g
of which saturates	9.1g	4.1g
Carbohydrate	32.4g	14.6g
of which sugars	18.8g	8.4g
Fibre	7.3g	3.3g
Protein	22.8g	10.2g
Salt	0.32g	0.14g

Date Balls

Calories in Date Nut Balls

View the full Date Nut Balls Recipe & Instructions
Submitted by: SCRAPPYHEALTH

TAGS: Desserts | Vegetarian | Vegetarian Desserts | Dessert | Desserts Dessert |

Calories per Ingredient

Here are the foods from our food nutrition database that were used for the nutrition calculations of this recipe.

Calories per serving of Date Nut Balls

39 calories of Medjool dates, (0.59 date, pitted)

31 calories of Walnuts, (0.04 cup pieces or chips)

22 calories of Almonds, (0.04 cup, ground)

3 calories of Apricots, dried, (0.01 cup, halves)

1 calories of Cocoa, dry powder, unsweetened, (0.11 tbsp)

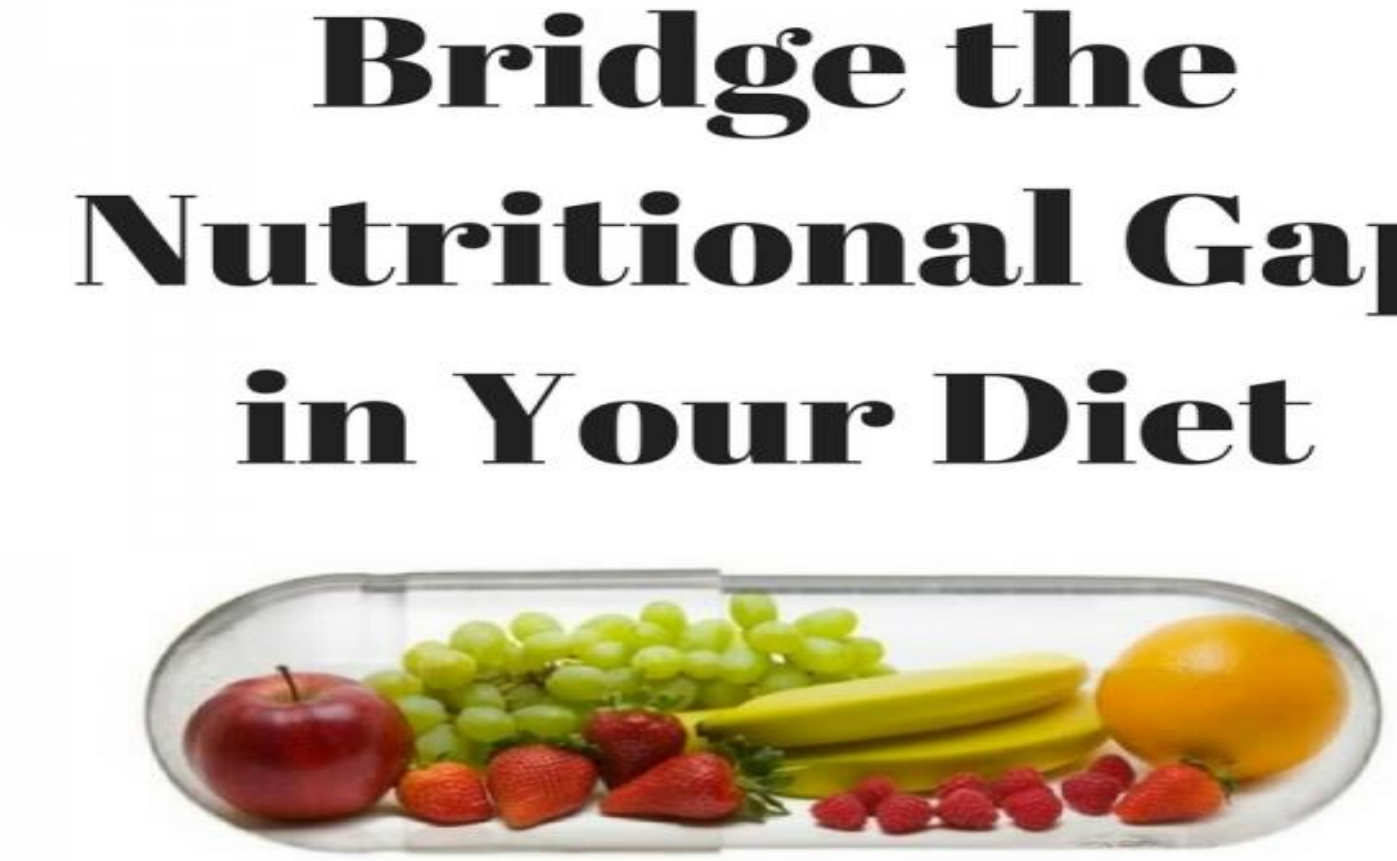
Nutrition Facts

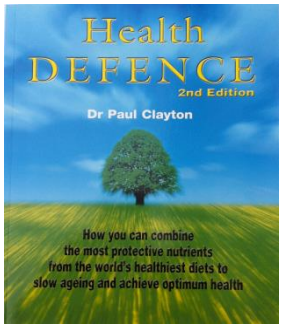
Servings Per Recipe: 37

Serving Size: 1 serving

Amount Per Serving	
Calories	99.1
Total Fat	5.3 g
Saturated Fat	0.5 g
Polyunsaturated Fat	2.8 g
Monounsaturated Fat	1.7 g
Cholesterol	0.0 mg
Sodium	0.6 mg
Potassium	177.0 mg
Total Carbohydrate	13.5 g
Dietary Fiber	2.0 g
Sugars	10.7 g
Protein	2.0 g

Influence of diet and supplements on health





Paul Clayton

- *"Underpinning all my research and advice is this simple fact. Given the right nutrition and lifestyle, our bodies have amazing powers of self-healing and regeneration.*
- *They have to – because almost every cell and tissue in your body breaks down and is replaced on a regular basis. Bone is re-absorbed into the body and then renewed, cartilage in joints experiences wear and tear but is renewed, membranes of nerve and other cells are broken down and replaced."*

JRSM JOURNAL OF THE ROYAL SOCIETY OF MEDICINE

J R Soc Med. 2008 Sep 1; 101(9): 454–462. PMCID: PMC2587384

doi: 10.1258/jrsm.

An unsuitab
patterns an

Judith Rowbothan

Author informat

Principal findings

Where our previous two papers documented the volume and variety of the mid-Victorian diet, this final paper reveals that the mid-Victorian diet conferred extremely significant protection against the major degenerative diseases, even amongst those who, because of their extremely limited incomes, might be considered to be significantly under-nourished and so vulnerable to such afflictions.

Introduction to part three

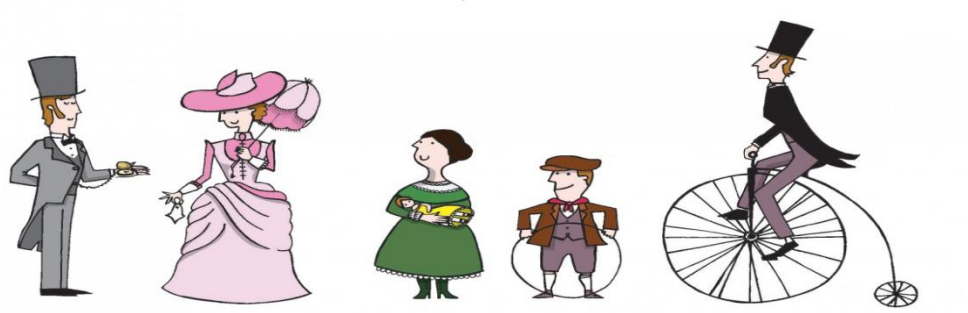
Go to:

Principal findings

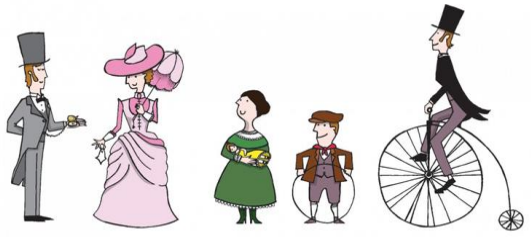
Where our previous two papers documented the volume and variety of the mid-Victorian diet, this final

Victorian Life

- Very active: walking minimum of 8 miles a day
- Life expectancy at 5 years of age was 75 men and 73 for women (modern day: men=76/72 and women 81/76)
- Many worked until the last days of their life
- No chronic disease



Victorian diet



- Large amounts of potatoes, bread, baked goods
- Lots of plant based foods: comparable to Mediterranean diet
- High levels of flavonoids (vasoprotective), omega 3, B vitamins
- Glycaemic load similar to modern diet but high physical activity so T2D uncommon
- High levels of beta glucans in foods

Nutrition Gap

Nutrient	We obtain	Overall needs	Nutrient debt or gap
Calcium mg	917	950-980	33-63
Magnesium mg	308	350	42
Iron mg	13.2	20	6.6
Zinc mg	11	20	9
Copper mg	1.5	2.3	0.5-1.5
Iodine mcg	180	280	100
Selenium mcg	35	85	150
Chromium mcg	30	110-150	80-120
EPA/DHA mg	100-200	750	550-650
Flavonoids mg	145	450-800	305-655
Carotenoids mg	2-6	20	14-18

Nutrition Gap

Nutrient	We obtain	Overall needs	Nutrient debt or gap
Vitamin A	1012	1800	788
B1 mg	1.7	8-12	6.3-10.3
B2 mg	2	8-12	6-10
B3 mg	39	50-60	11-21
B6 mg	2.4	6-12	3.6-9.6
B12 mcg	7.2	8-16	0.8-8.8
Folic Acid mcg	252	450	198
Vitamin C mg	58-90	300-500	210-442
Vitamin D mcg	2.9	15-25	12.1-22.9
Vitamin E mg	9.3	100-200	90.7-190.7

To supplement or not to supplement?

- Nutrition gap
- Lack of nutrients in soil: fertilisers, over farming
- Modern cooking methods: microwave, higher temperatures
- Medications suppress nutrients
- SNP’s
- Lab test results
- Current symptoms
- Overall vitality
- Alcohol consumption

Supplementation

- Individual requirements
- Competing minerals
- 4-6 weeks and then review
- Consider suggesting 1 day supplement free a week
- Not too many supplements at once
- Low vital energy=very few supplements
- Make changes through diet

Supplementation

CHECK DRUG INTERACTIONS!

- Support digestion
- Address gut health
- Liver support
- Essential fatty acids
- Vitamins and minerals
  - Vitamin C & E
  - Vitamin B complex
  - Magnesium
  - Multi mineral

Supplementation
Nutrition Advisor level

- Multi vitamin and Mineral
- B Complex
- Vitamin C
- Probiotics
- Essential fatty acids

If in doubt: DON'T!

Superfoods (not a complete list!)

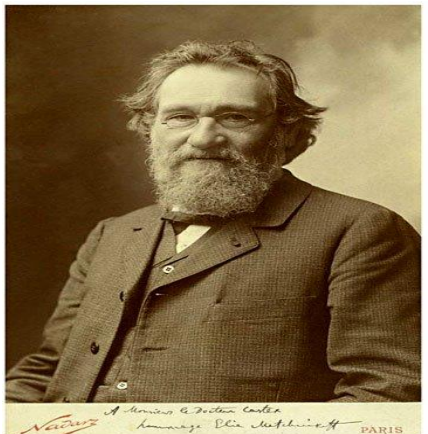
- Vegetables
- Broccoli
- Chlorella
- Spirulina
- Maca
- Pomegranate
- Kelp
- Bee pollen

Bowel flora

Bowel bacteria

"Death begins in the colon": Hippocrates

Elie Metchnikoff: theorised about beneficial bacteria and the process of ageing and the possible link to intestinal auto-intoxication, giving rise to the current interest in the microbiome of the gut and the use of probiotics to promote health and longevity



frontiers in Public Health

Front Public Health. 2013; 1: 52.
Published online 2013 Nov 13. Prepublished online 2013 May 30.
doi: 10.3389/fpubh.2013.00052

PMCID: PMC3859987
PMID: 24350221

Recycling Metchnikoff: Probiotics, the Intestinal Microbiome and the Quest for Long Life

Philip A. Mackowiak[1,2,*]

Author information ▶ Article notes ▶ Copyright a

"The promise of microbiome research results largely on the future of probiotics…. Eventually, it may become possible to restore the health of a depleted microbiome simply by swallowing a capsule crammed with billions of bacterial cells, or by eating yogurt"

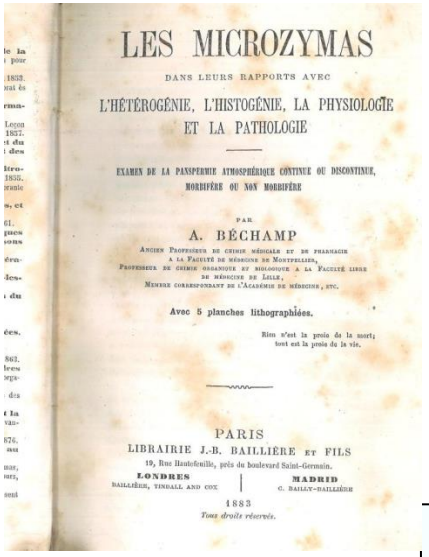
Abstract

Over a century ago, Elie Metchnikoff
manipulating the intestinal microbiome with host-friendly bacteria found in yogurt. His theory flourished for a time, then drifted to the fringe of medical practice before re-emerging in the mid-1990s as a concept worthy of mainstream medical attention. Metchnikoff also predicted the existence of bacterial translocation and anticipated theories linking chronic inflammation with the pathogenesis of atherosclerosis and other disorders of the aged.

Keywords: Metchnikoff, microbiome, Lactobacilli, phagocytes, senility

"The promise of microbiome research results largely on the future of probiotics…. Eventually, it may become possible to restore the health of a depleted microbiome simply by swallowing a capsule crammed with billions of bacterial cells, or by eating yogurt (1)."

Although Michael Specter implied otherwise in his article in *The New Yorker* (1), neither microbiome research nor the use of probiotics to promote health is new. Over a century ago, Ilya Ilyich (Élie) Metchnikoff (Figure 1) theorized that health could be enhanced, and also that senility could be delayed, by



LES MICROZYMAS

DANS LEURS RAPPORTS AVEC

L'HÉTÉROGÉNIE, L'HISTOGÉNIE, LA PHYSIOLOGIE ET LA PATHOLOGIE

EXAMEN DE LA PANSPERMIE ATMOSPHÉRIQUE CONTINUE OU DISCONTINUE, MORBIFÈRE OU NON MORBIFÈRE

PAR

A. BÉCHAMP

Avec 5 planches lithographiées.

Rien n'est la proie de la mort; tout est la proie de la vie.

PARIS

LIBRAIRIE J.-B. BAILLIÈRE ET FILS

19, Rue Hautefeuille, près du boulevard Saint-Germain.

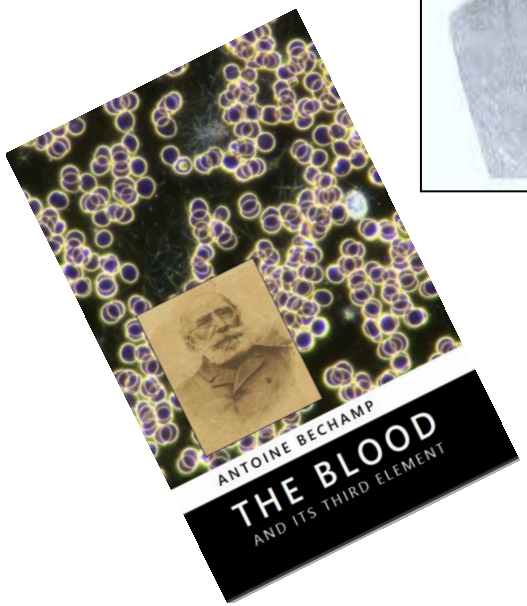
LONDRES — BAILLIÈRE, TINDALL AND COX | MADRID — C. BAILLY-BAILLIÈRE

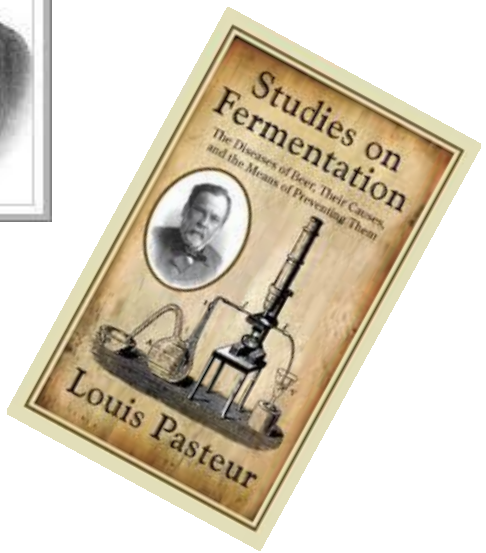
1883

Tous droits réservés.

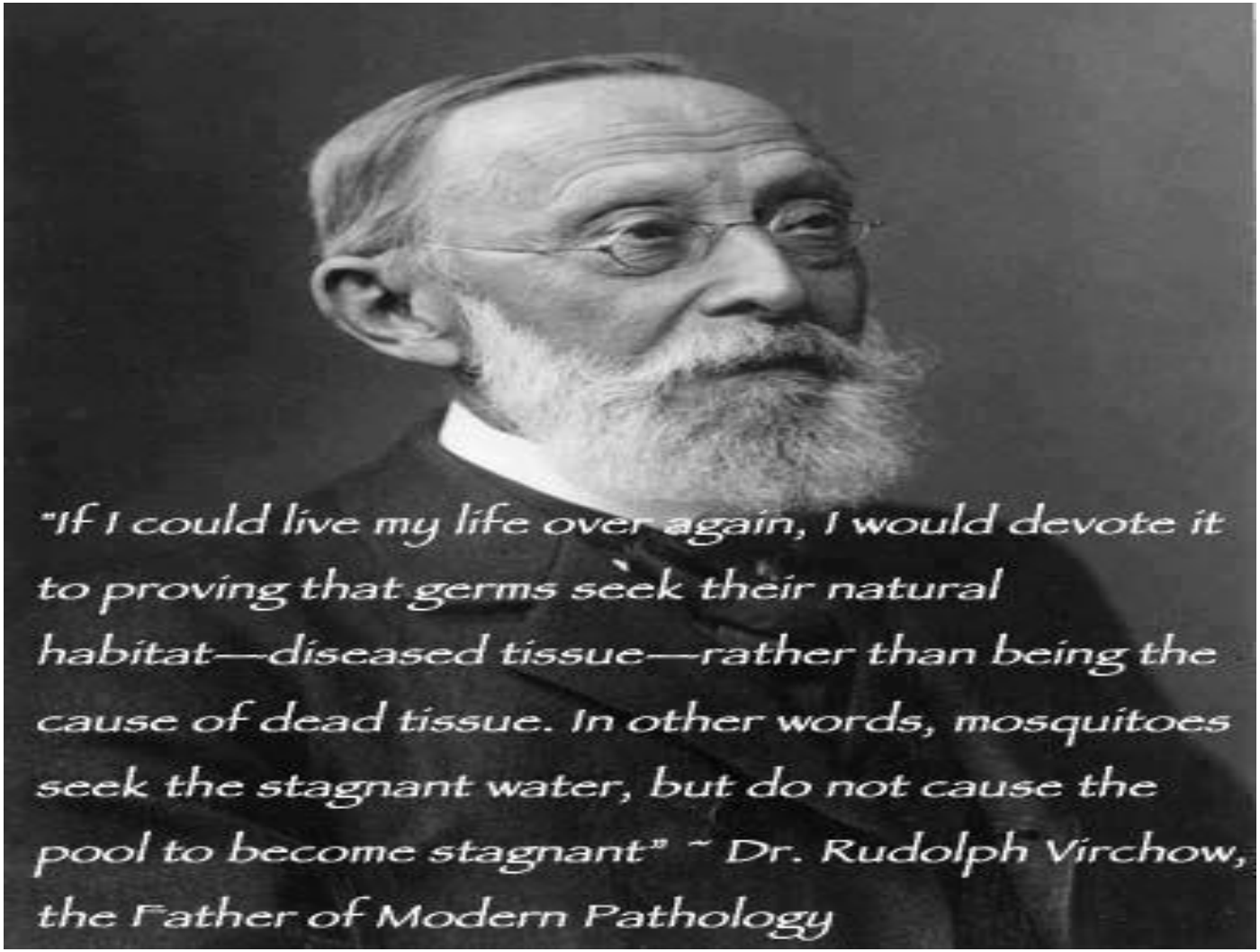
Terrain

Beauchamp v Pasteur

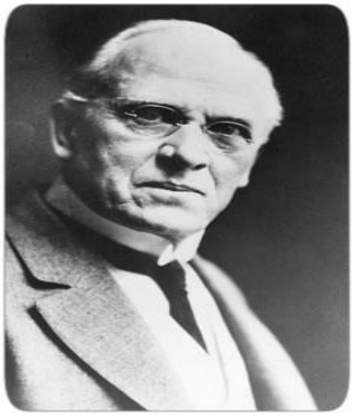




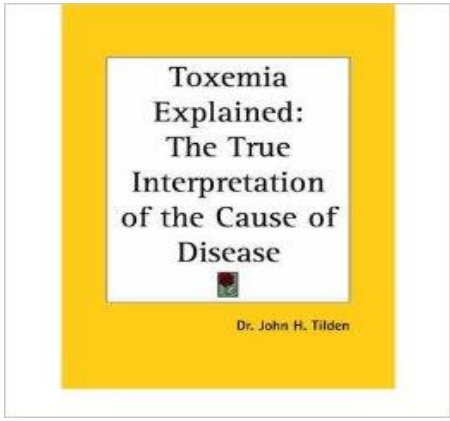
Western Medicine

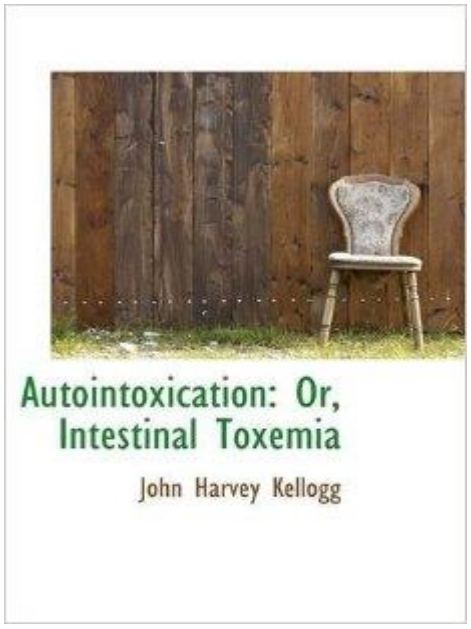


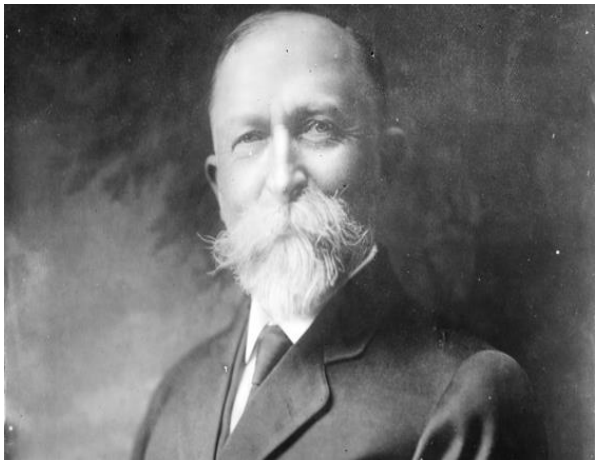
Autointoxication

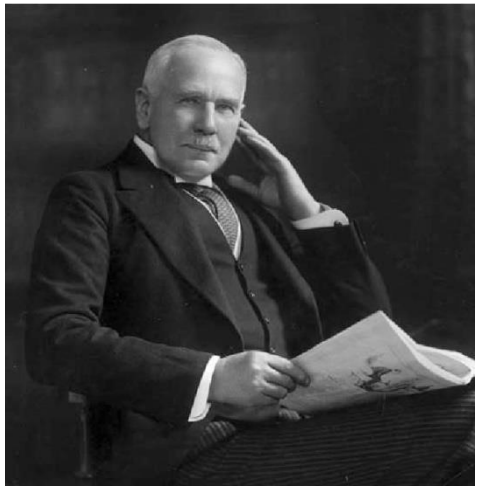


- Importance of elimination
- Autointoxication
- JH Tilden MD, JH Kellogg MD



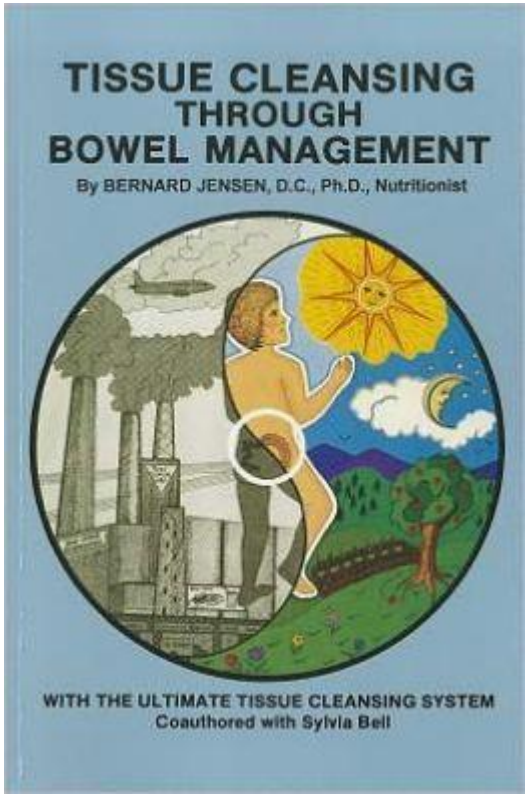




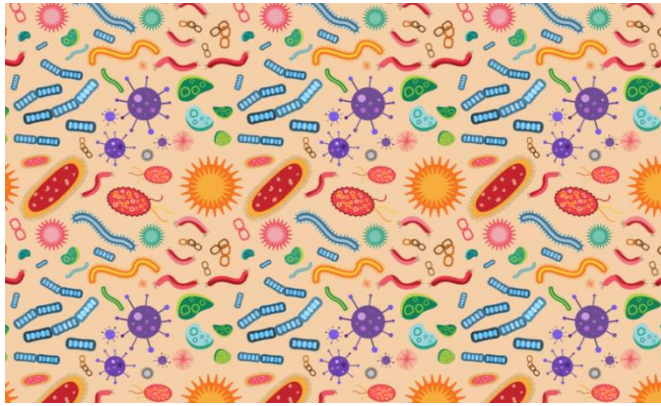


Autointoxication

Bernard Jensen



Bowel flora



- Predominantly in large intestine
- Diet determines type of bacteria
- Stomach acid should kill microbes in food
- Low stomach acid results in pH changes in the bowel→ SIBO
- Alkaline bowel encourages parasites, yeasts and unfriendly bacteria
- Produce short chain fatty acids which keep bowel wall healthy

The multiple benefits of butyrate cannot be overestimated

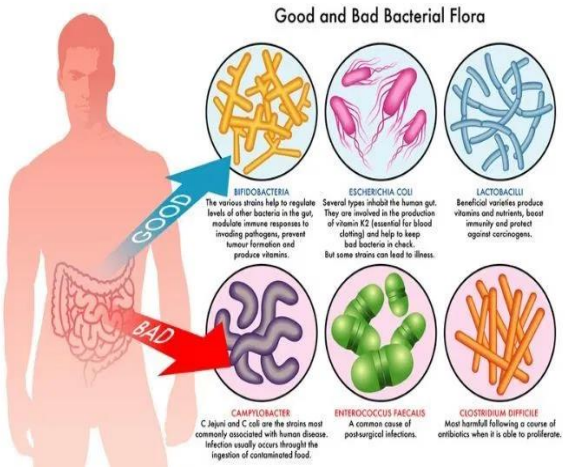
- Regulates colonic mucosa homeostasis
- Tight junction health
- Prevention and inhibition of colonic carcinogenesis
- Improvement of inflammation,
- Oxidative status,
- Epithelial defence barrier
- Modulation of visceral sensitivity and intestinal motility (IBS as an example)
- Antibiotic associated diarrhoea/electrolyte balance
- At the extra-intestinal level, hypercholesterolemia, obesity, insulin resistance, and ischemic stroke.

Canani RB, Costanzo MD, Leone L, Pedata M, Meli R, Calignano A. Potential beneficial effects of butyrate in intestinal and extraintestinal diseases. *World Journal of Gastroenterology : WJG*. 2011;17(12):1519-1528

Bowel bacteria

Beneficial bacteria

- Keep cholesterol levels stable
- Manufacture of B vitamins
- Keep yeast colonies controlled
- Break down toxic chemicals
- Production of lactase
- Help elimination of estrogen
- 70%+ of immune system!
- Mitochondria are bacteria

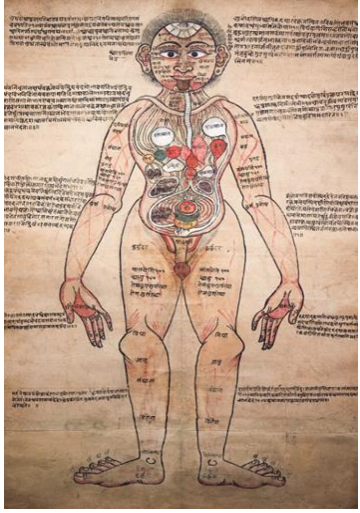


Tibetan Medicine

- Micro vitae (micro organisms)
- Influence the body/mind by causing arousal of negative and positive emotions
- Sustain and influence the function of the (three) humours
- Born in the body from the beginning of life and dwell in and sustain blood, channels, organs and body tissues
- Varied lifespan: from 1 minute+
- Their energy is increased or decreased by the host diet, behaviour and psychological state

Micro organisms

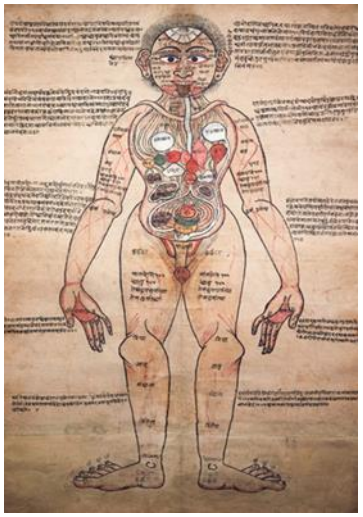
"Luekyi –trasin" (body micro-beings)



- Sustain the body
- Disturb natural functioning of the body
- Drive the body into delusion and disease when diseased
- 84,000 groups are described of which 1080 are 'obstacle-making spirits' (bgegs)
- Bgegs can influence the persons mind more aggressively or lead to depression
- Bgegs produce the 3 humours of Wind, Bile and Phlegm,

Tibetan Micro-organisms

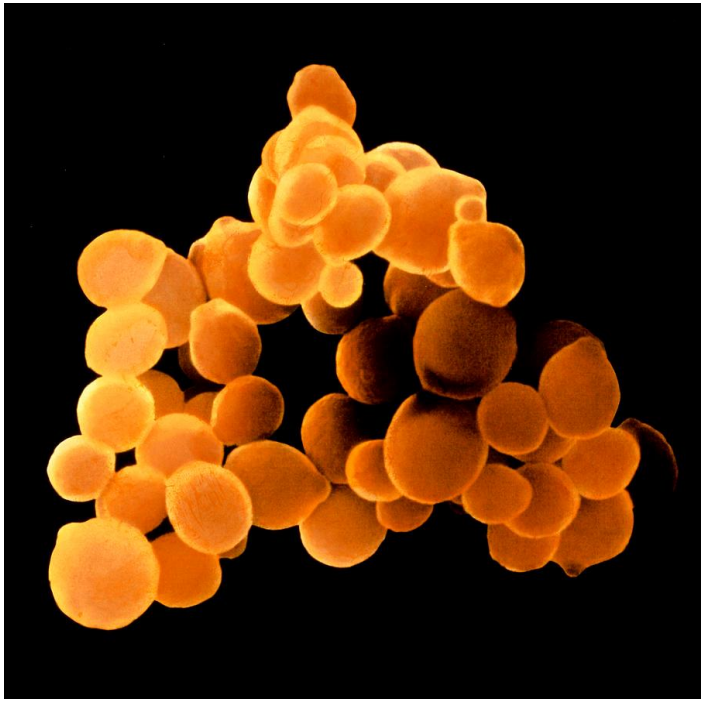
Dr Pasang Yonten Arya

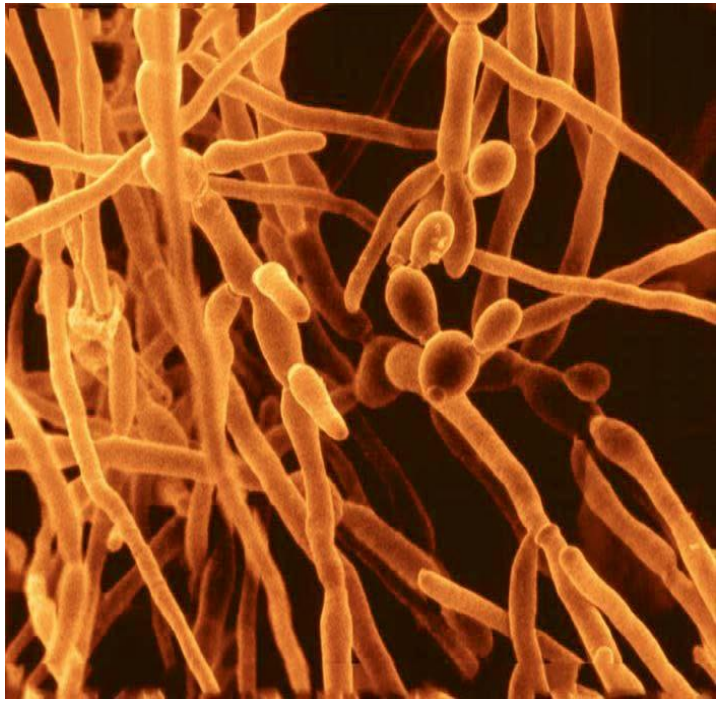


5. These micro-organisms seem to be very similar to the body cells but it is too early to identify them as the body cells described in modern medicine because they seem to be much subtler than the physical body cells. However, from the tantric point of view, they are tiny psychic energy beings, which could be the pre-substances of the basic cause of the body/mind transformation.

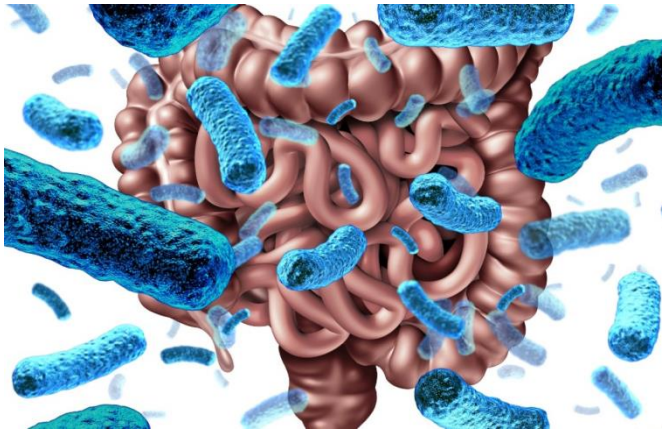
Candida Albicans

Many strains of candida



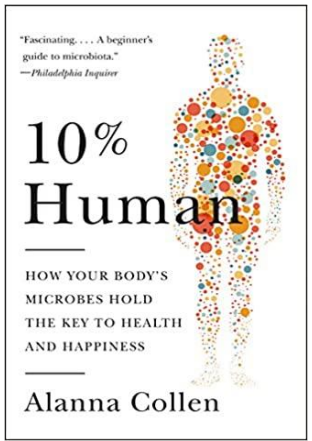


Probiotics



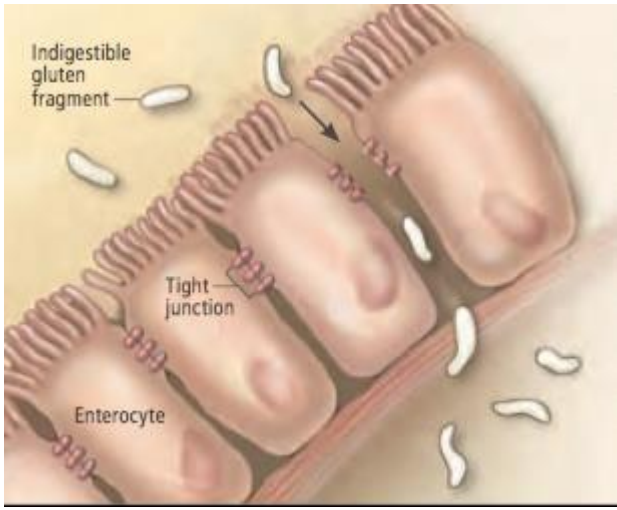
- Many varieties
- FOS (can cause flatulence in some)
- Allopathic approach developing
- Klebsiella: AS (HLA B27 genes) and RA
- L Reuteri and oral health
- Akkermansia and low levels in obesity
- Firmicutes: linked to high fat diets
- Bacteroidetes: high in American gut, low in Hadzas
- Bifido Infantis and breast feeding

Change the environment



Leaky gut causes

- Gluten and zonulin
- SIBO
- Allergies, lectins
- Candida infestation
- NSAID's
- Antibiotics
- Alcohol
- Formaldehyde



Ann N Y Acad Sci. Author manuscript; available in PMC 2013 Jul 1.
Published in final edited form as:
Ann N Y Acad Sci. 2012 Jul; 1258(1): 25–33.
doi: 10.1111/j.1749-6632.2012.06538.x

PMCID: PMC3384703
NIHMSID: NIHMS366557
PMID: 22731712

Zonulin, regulation of tight junctions, and autoimmune diseases

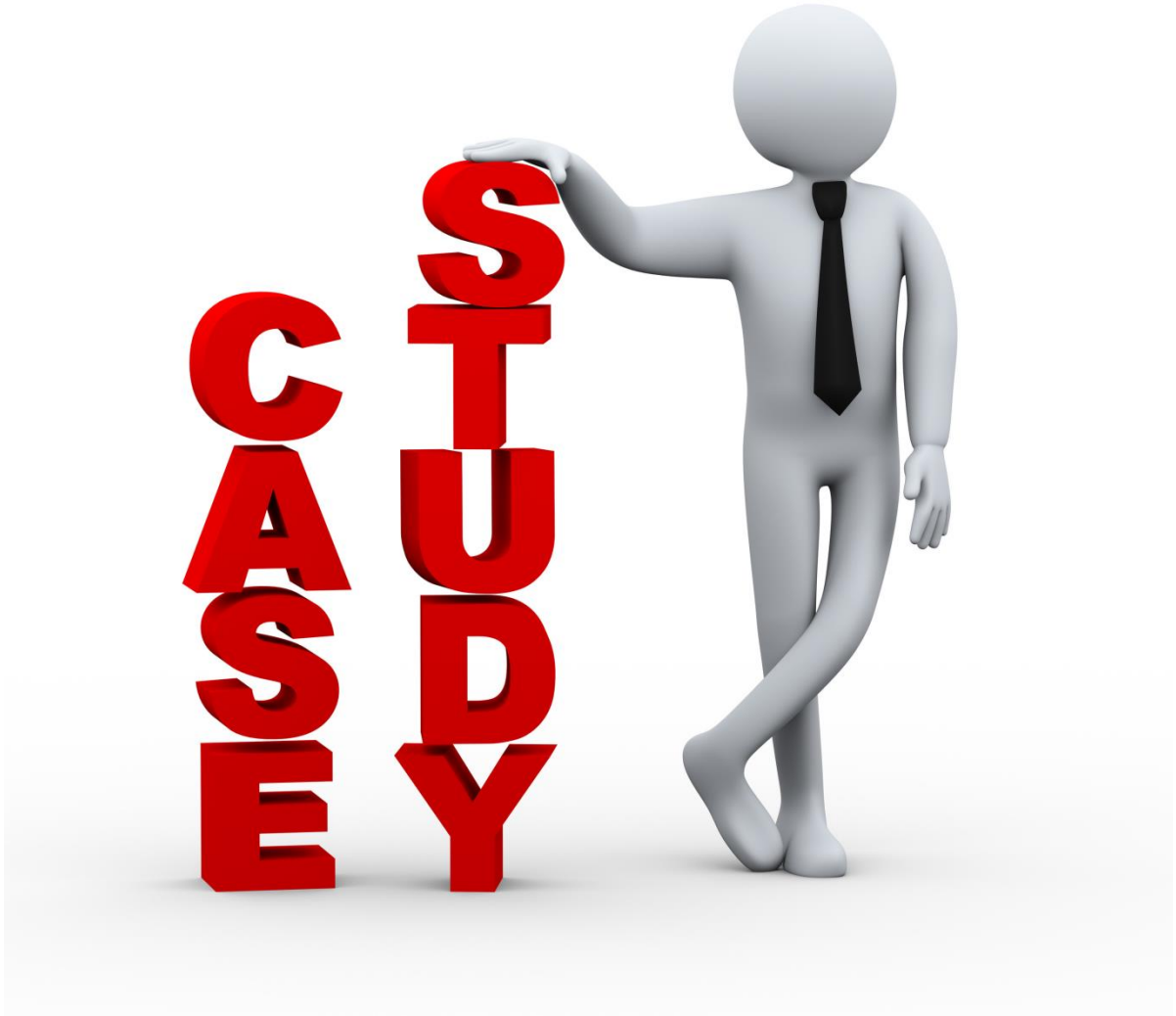
Alessio Fasano

▸ Author information ▸ Copyright and License information Disclaimer

Abstract

Go to:

Recent studies indicate that beside digestion and absorption of nutrients and water and electrolytes homeostasis, another key function of the intestine is to regulate the trafficking of environmental antigens across the host mucosal barrier. Intestinal tight junctions (TJ) create gradients for the optimal absorption and transport of nutrients and control the balance between tolerance and immunity to non-self antigens. To meet diverse physiological challenges, intestinal epithelial TJ must be modified rapidly and in a coordinated fashion by regulatory systems that orchestrate the state of assembly of the TJ multi-protein network. While considerable knowledge exists about TJ ultrastructure, relatively little is known about their


CASE
STUDY

Food preservation and Processing

Food preservation and Processing

- Natural spoilage of foods
- Fruit and vegetables: yeast and mould
- Meat and fish discolour (grey or brown): bacteria
- Affected by:
  - Temperature
  - Moisture
  - Acidity
  - Oxygen
  - Naturally occurring enzymes: speed up reaction between food and oxygen. Heat (cooking)inactivates enzymes

Food Irradiation

One Process:

Multiple Uses

Sprout Inhibition

Onion, Potato, Ginger, Garlic

Quarantine

Fruits

Insect Disinfestation

Cereals, Pulses, Dry Fruits

Shelf-life Extension

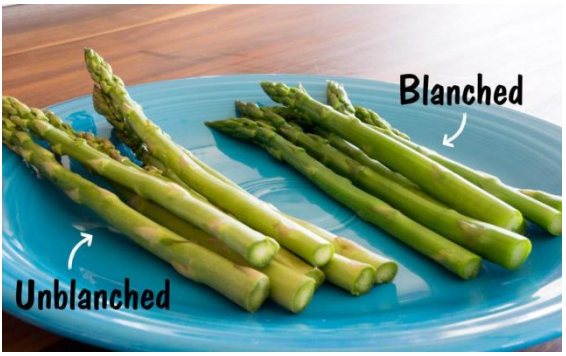
Chicken, Meat, Fish

Pathogen Reduction

Spices, Flesh Foods

Traditional Food Preservation

- Salting: bacon, sausage: micro organisms unable to live in high salt environment. Results in high sodium: 1000-2000mg per 100g
- Smoking: produces polycyclic hydrocarbons (carcinogen)
- Pickling: vinegar highly acidic: stops growth of microorganisms
- Preserves with sugar: microorganisms cant grown in high sugar concentrations



Food Processing

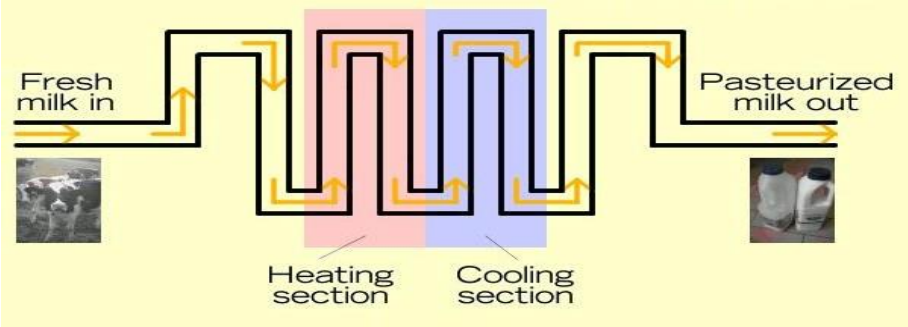
- **Blanching:** boiling water→freezing water prior to canning or freezing process =loss of water soluble vitamins; neutralises bacteria
- **Canning:** blanching, sterilised→loss of heat sensitive vitamins. Water, Brine, vegetable oil or syrup used. Nutrients leach into liquid. Losses of folate, potassium, magnesium, vitamin C and Vitamin B1. Added sodium

Food Processing

- **Freezing:** if blanched losses of potassium, vitamin C and B vitamins.
- **Drying:** air passed over food at regulated temperature and humidity. water content removed=microorganisms cant grow. Dried food can be kept for 1-2 years
- **Freeze drying**: drying food from frozen
- **Home dehydrators**

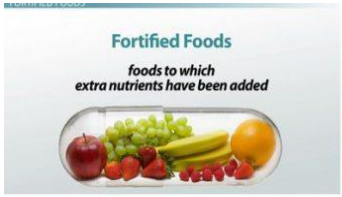
Food Processing

- **Pasteurisation:** reduces B1 and vitamin C by 20%
- **Sterilisation:** more intense heat: increased losses of B1 (30%) and Vitamin C (50%)
- **Homogenisation:** breaking down milk particles so that they don't separate into cream. Fat and protein molecules reorganised. Milk mixed from different herds, longer shelf life



Food Refining and Fortification

- Loss of nutrients in refining process
- Refortified with nutrients whether initially contain them or not
- B vitamins, calcium, B12, iron
- UK law:
  - Refined wheat: B1, B3 and iron
  - Calcium: all flour except wholemeal
  - vitamins A&D to margarine



A1 and A2 Milk

- **A1 beta-casein.** Milk from breeds of cows that originated in northern Europe is generally high in A1 beta-casein. These breeds include Holstein, Friesian, Ayrshire, and British Shorthorn.
- **A2 beta-casein.** Milk that is high in A2 beta-casein is mainly found in breeds that originated in the Channel Islands and southern France. These include Guernsey, Jersey, Charolais, and Limousin cow

Convenience Foods

- High in sugar
- High is salt
- Often high in saturated fat/trans fats
- If low fat then contain more sugar and salt
- More recently contain chemical sweeteners instead of sugar
- Long shelf life: contain pre processed and dehydrated foods
- Stripped on nutrients via processing and refining
- Chemical nutrients added back in

Food Additives

- Preservatives E200-285
- Antioxidants E300-321
- Colours E100-180
- Sweeteners E420, 421, 950's
- Flavour enhancers
- Emulsifiers E322-495
- Thickeners
- Gelling agents
- Bulking agents
- Bleaching agents
- Anti caking agent

(Apparently)

Without food additives food will be

- Taste less
- Colourless
- No texture
- No shape
- No flavour
- No freshness
- No alkalinity
- No acidity
- No proper ph value
- Dried
- Spoil
- Infected with bacteria

https://www.worldofchemicals.com/401/chemistry-articles/food-additives.html

Food Storage and Packaging
FSA

- **Aluminium:** not to use with acidic foods

- **Bisphenol-A (BPA):** coats inside of cans to protect when can is heated, plastic water bottles: endocrine disruptor. Use permitted within specified limits

Cling Film

- Plastic wrap linked to cancers, infertility and impaired foetal development
- Plasticizers used to make it stretchy are fat soluble and should not be used next to fatty food: pastries, cheese, cakes with butter icing, fired or fatty meats
- Should not touch food when microwaving

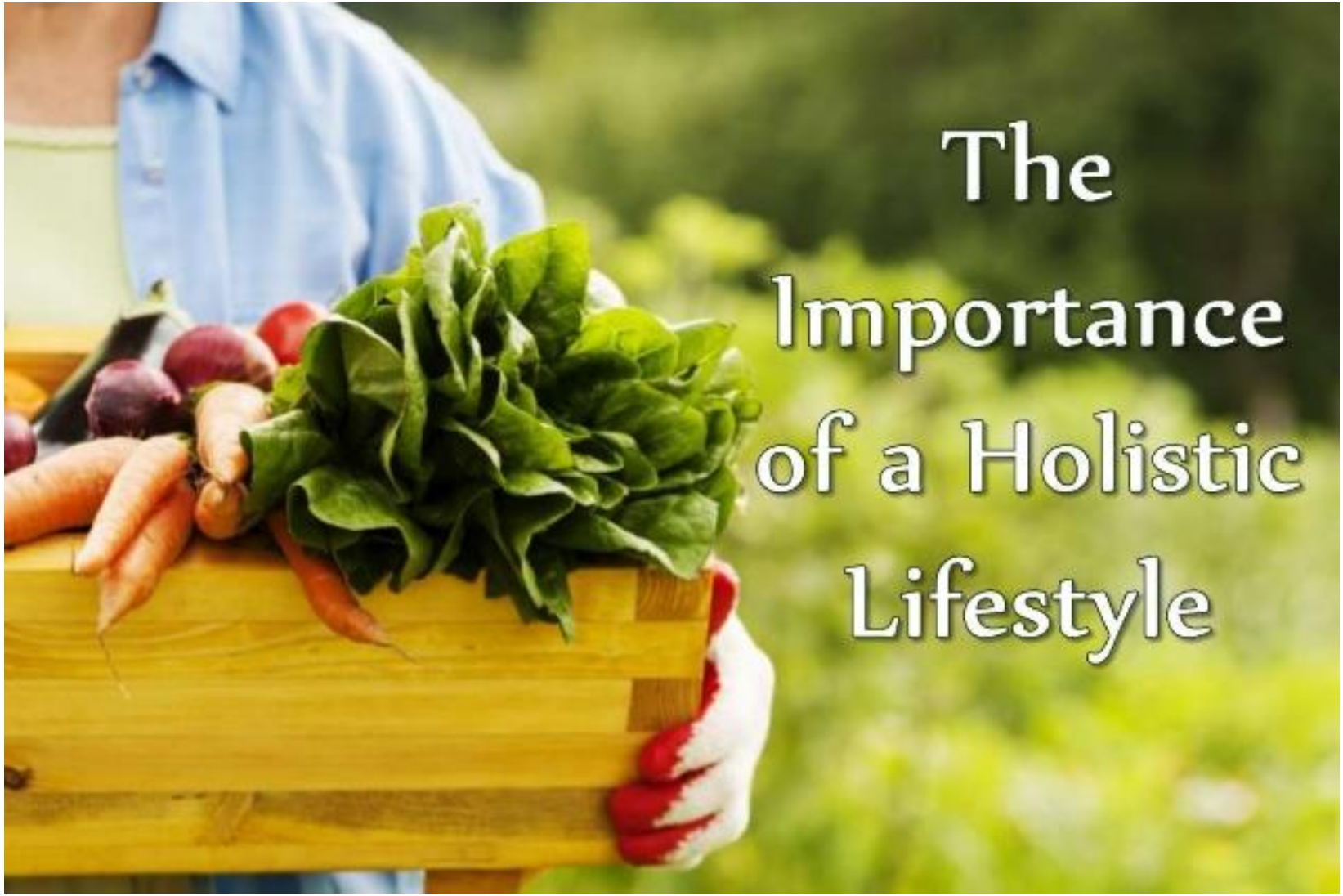
Cooking

- Nutrient losses with peeling and boiling
- Can make some nutrients more bioavailable: e.g. lycopene
- Best to lightly steam vegetables
- Some foods must be cooked unless sprouted: pulses and grains
- Kills bacteria (meat)
- Breaks down proteins and fats thus assisting digestion and absorption
- Reduces effects of phytic and oxalic acids

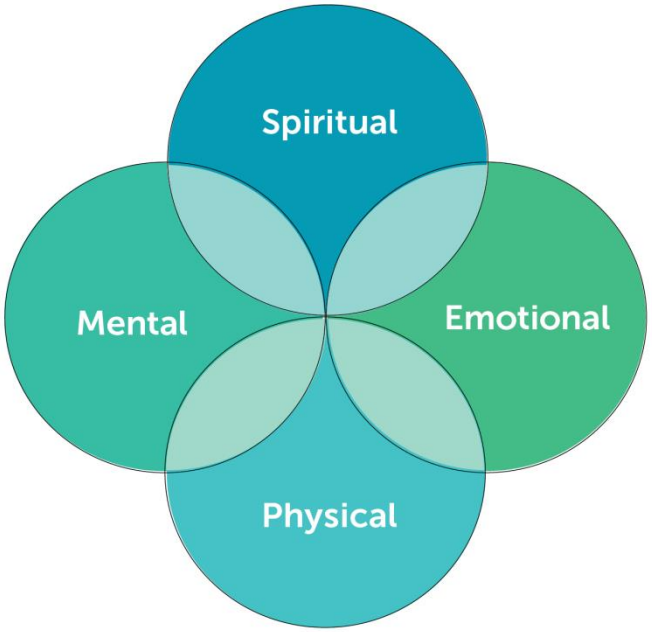
Cooking drawbacks

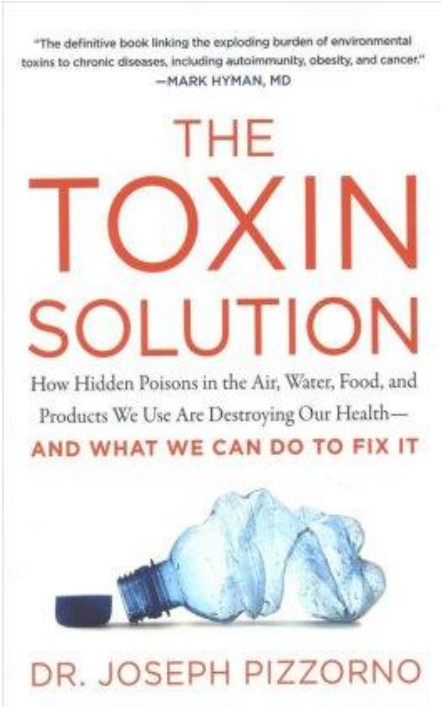
- Heat can damage proteins hindering absorption
- Natural enzymes in food which aid digestion are destroyed by heat
- Heating fats creates trans fats/damaged fats
- Meat cooked at high temperatures can produce free radicals and damage DNA
- Nutrient losses: vitamin C, vitamin B, magnesium, potassium

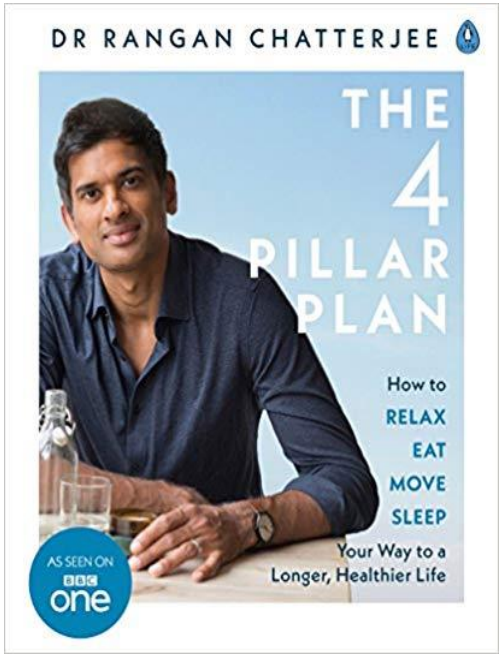
Holistic Lifestyle

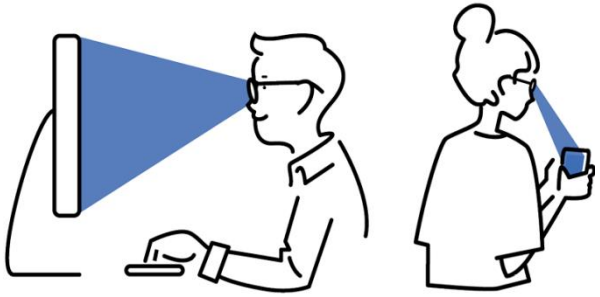


Recommended Reading







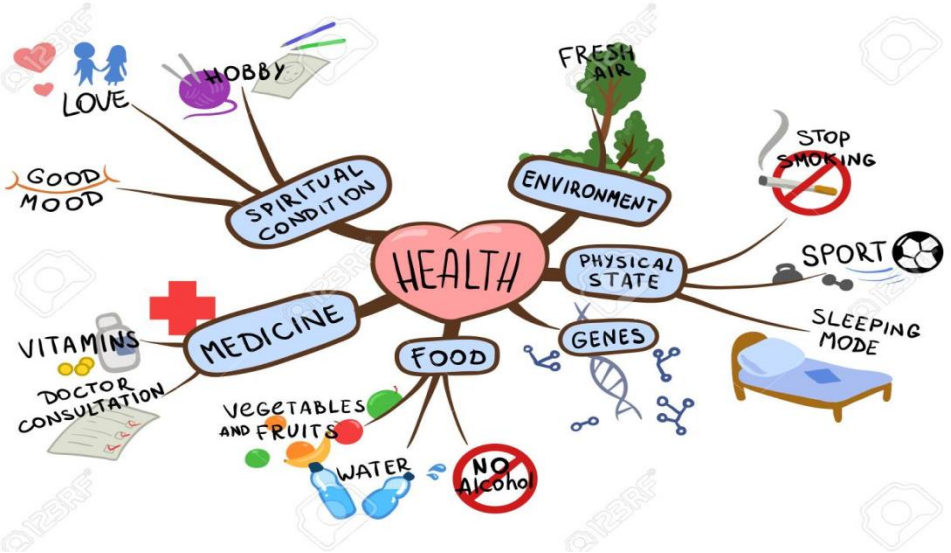


Reasons for Making Changes

- Exposure to chemical and environmental pollutants
- High intake of processed and convenience foods
- Lack of good quality sleep
- Long working hours: Lack of fresh air and sunshine
- Long commutes to work
- Lack of exercise
- Use of stimulants to keep going
- Excessive screen use: blue light

Making Changes

- Good nutrition
- Clean air and water
- Avoidance of toxins and pollutants
- Natural daylight
- Regular exercise, rest and relaxation



Enhancing Nutrition

- Juicers
  - Centrifugal
  - Masticating cold press juicers
- Bullet smoothie makers
- Liquidisers
- Dehydrators

Water

Tap Water

- Contains chlorine, heavy metals (lead, aluminium?), hormone residues, pesticides, herbicides and possibly fluoride
- boiling water destroys bacteria and evaporates chlorine

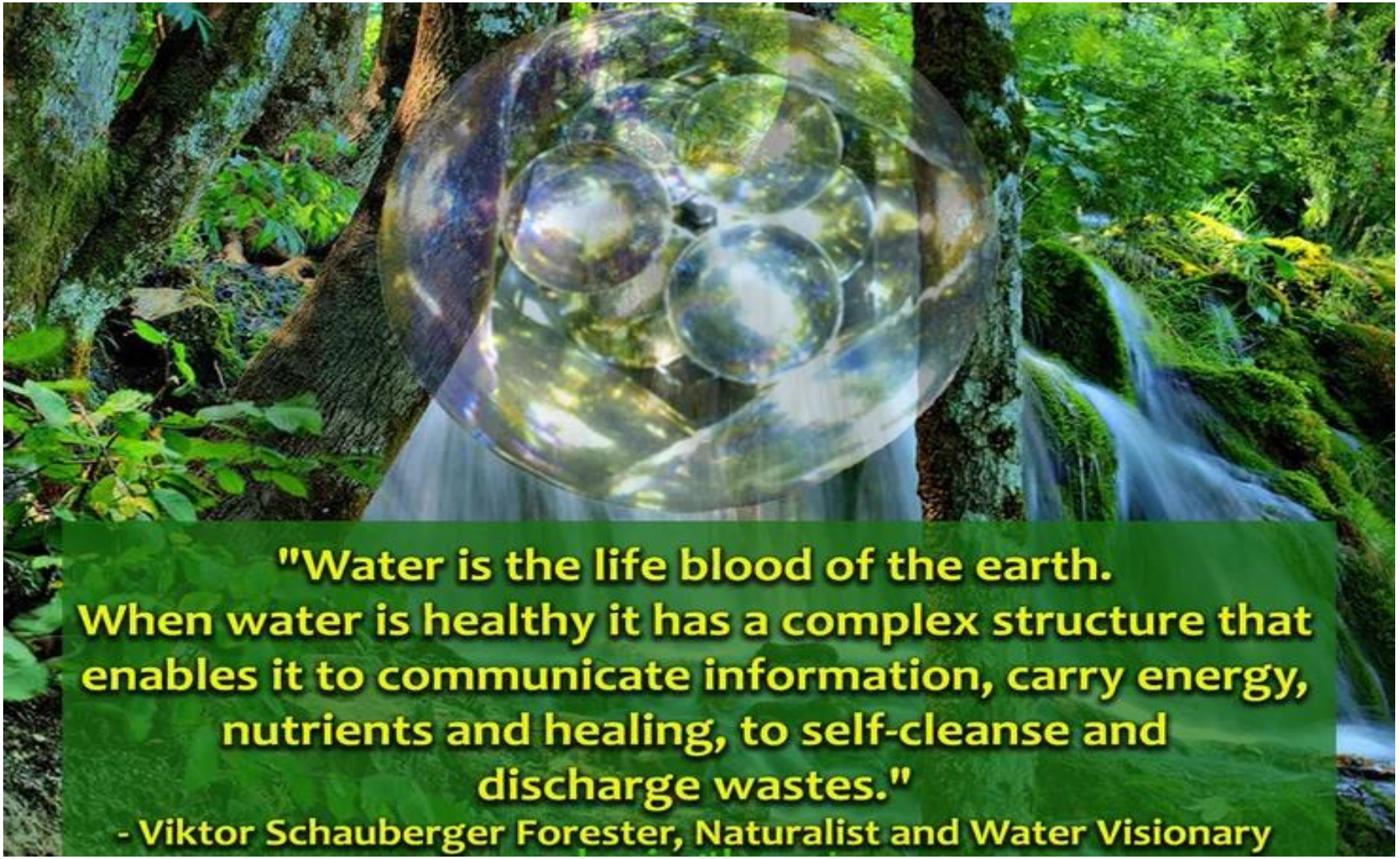
Water Filters

- Jug filters
- Activated charcoal sticks
- Under sink filters
- Reverse osmosis
- Distillation
- Berkefeld filter

Water Filters

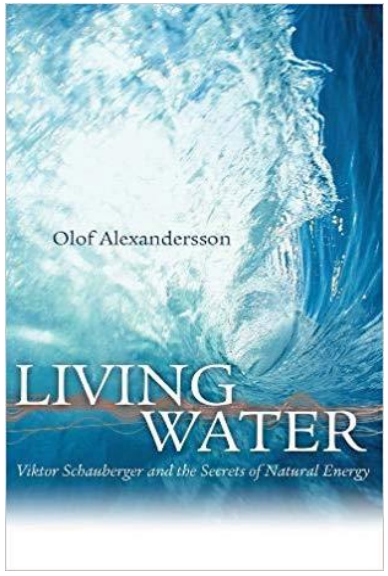
- Berkefeld water filter
  - Drip method
  - Removes parasites, protozoa,
  - Cysts, bacteria
  - Lead
  - Does not remove:
    - Dissolved aluminium
    - Nitrates
    - Fluoride

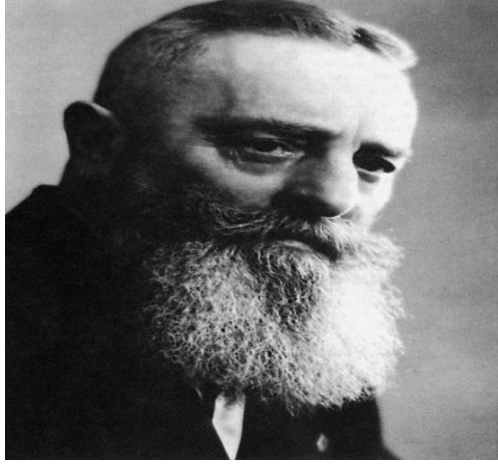
Viktor Schauberger

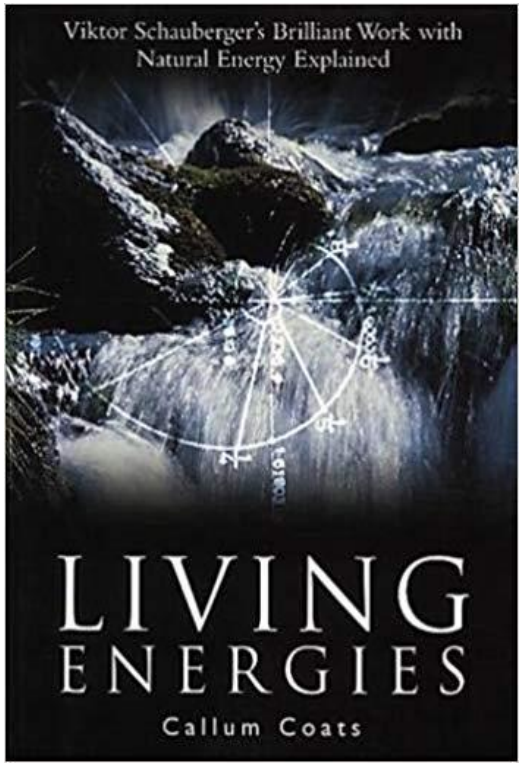


Living Water

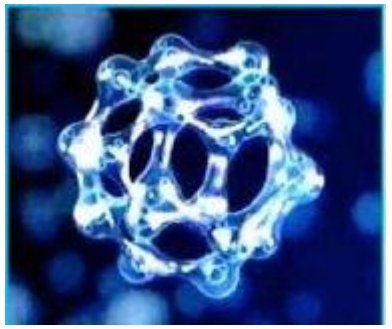
Victor Schauberger

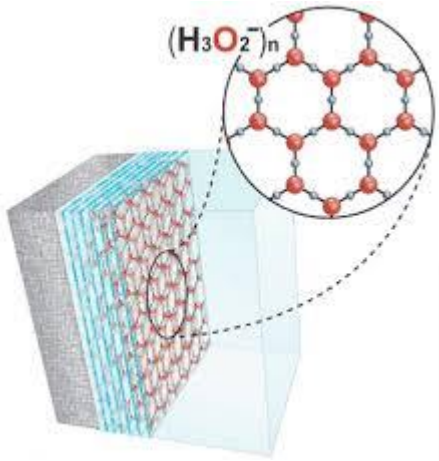


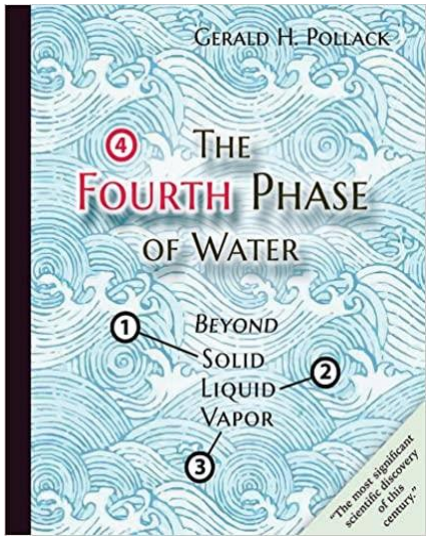


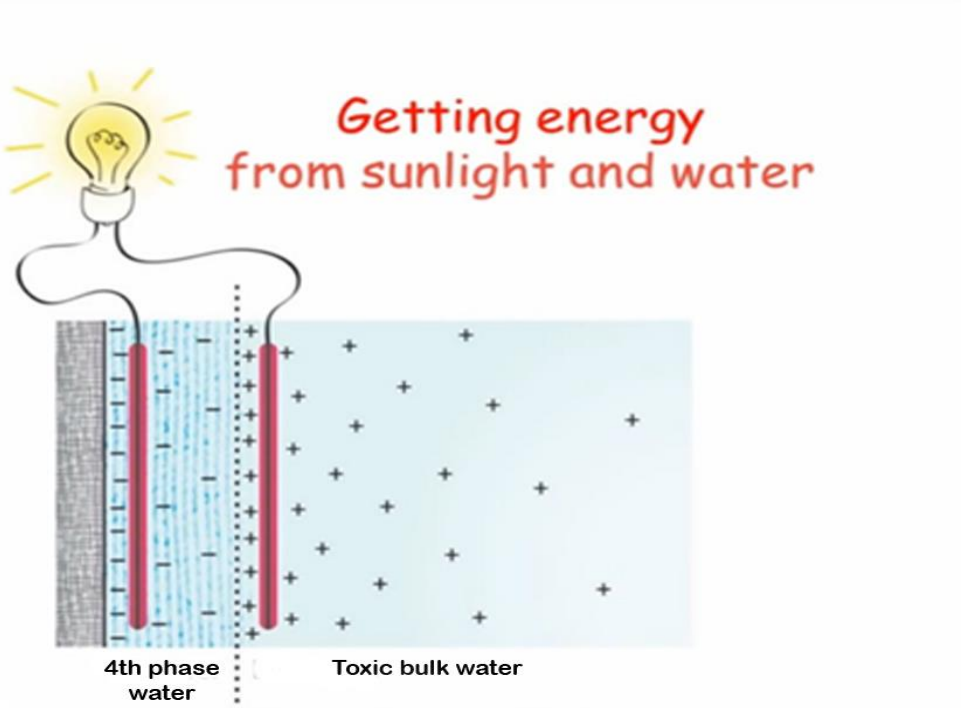


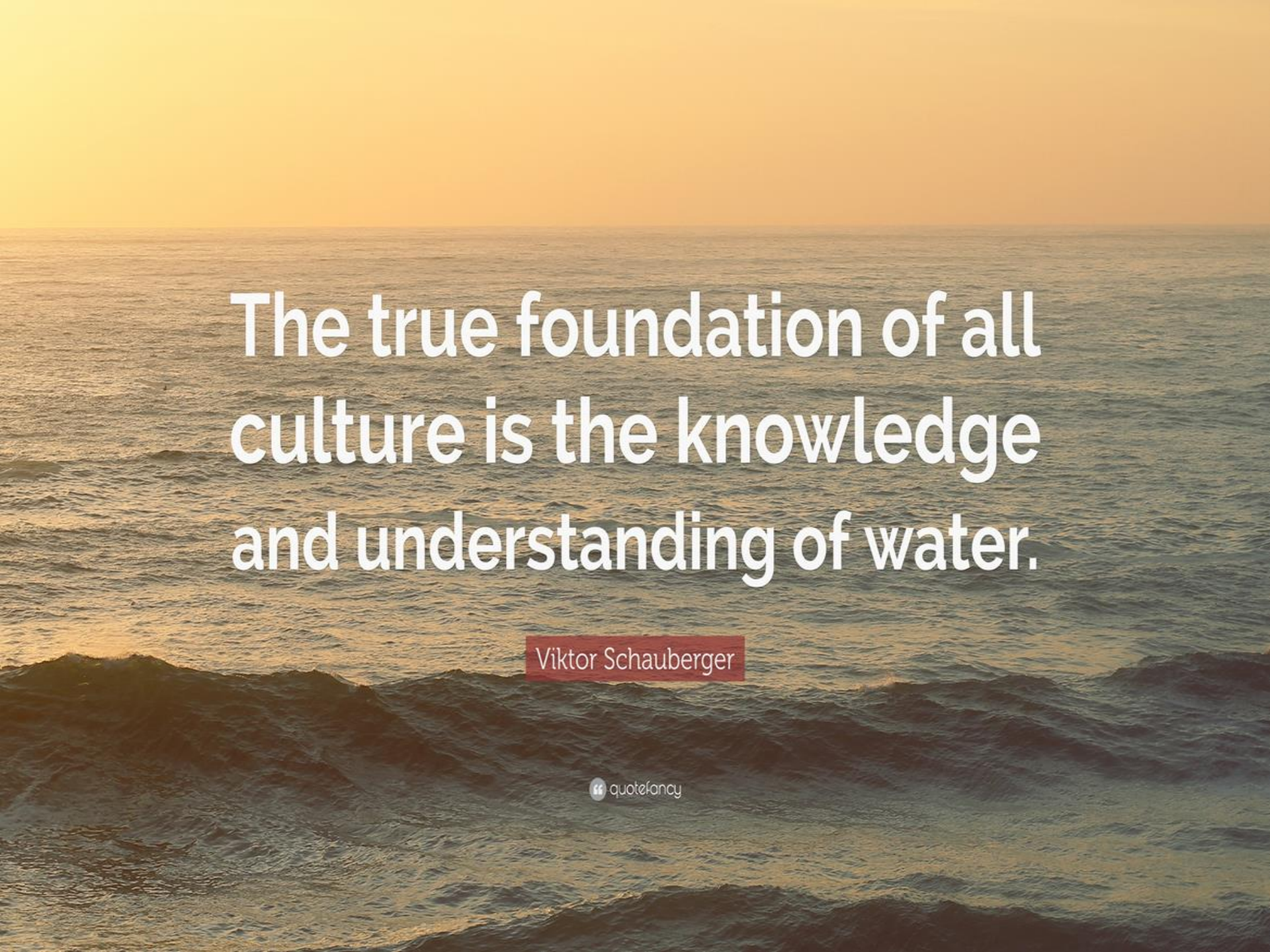
Gerald Pollock structured water 4th Phase water










The true foundation of all culture is the knowledge and understanding of water.
Viktor Schauberger
quotefancy

“Fresh Air”

- **Air purifiers**
  - Filters
  - Ionisers

- **Dehumidifiers**
- **Humidifiers**

Reducing Toxins

- Buy organic
- Use ‘natural’ soaps, shampoos, makeup
- Use natural household cleaners such as lemon juice
- Change to less toxic paints
- Change toothpaste to fluoride free
- Avoid using pesticides when gardening
- Reduce unnecessary OTC medications

Natural Light

- Vitamin D synthesis: 30 minutes=50,000IU
- Blood pressure: release of nitric oxide in sunlight reduces BP
- Skin conditions such as psoriasis, eczema, acne all helped by sunlight (UV treatment for psoriasis)
- Release of serotonin
- Depression: unable to utilise light

Exercise

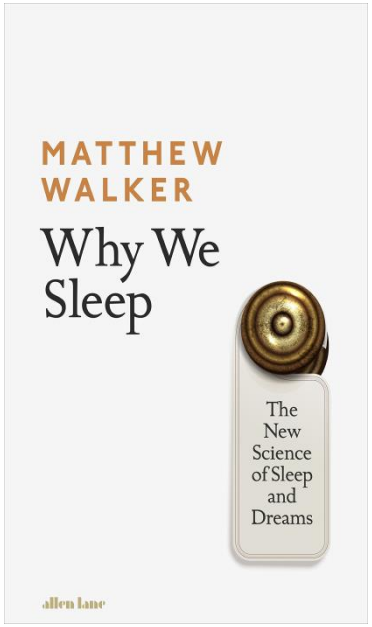
- 150 minutes a week
- 75 minutes of vigorous activity plus strength exercises twice a week
- HIIT: High Intensity Interval Training

Sleep and Light

- How we sleep affected by light and melatonin balance
- Blue light from laptops, iphones, ipads, TV etc decreases melatonin production by 2 hours

Sleep

- 1940's: 8 hours a night
- Now: 6 hours and 'catch up' at weekends
- 7.5 minimum needed
- Night time routines:
  - No TV, laptop, iphone etc. before bed
  - Relaxation time
  - Warm bath
  - Darkened room



Positive Outlook

- Perception
- Mindfulness
- Counselling

Phytonutrients and Superfoods

Phytonutrients and Superfoods

- Quercetin (flavonoid): onions, broccoli, green tea, grapes, apples: hay fever
- Phytosterols: plant sterols: cholesterol
- Isoflavones: Lignans: linseeds menopause

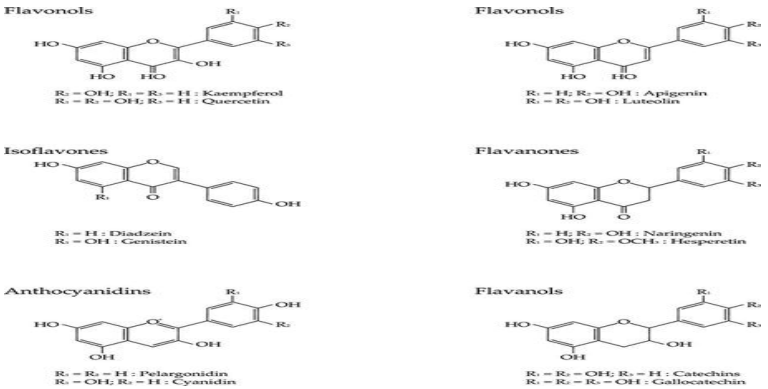
Phytonutrients and Superfoods

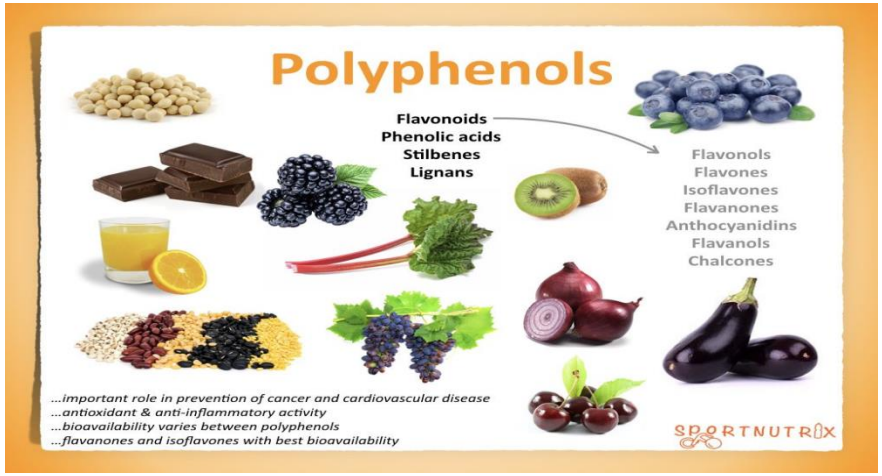
- Catechins: Epigallocatechin gallate EGCG Green tea
- Isoflavonoids: soya: contain phyto-estrogens, genistein and Lignans

- Carotenoids:
  - Lycopene red/pink: tomatoes and prostate cancer,
  - Lutein and Zeaxanthin : green leafy vegetables, eggs: macular degeneration

Polyphenols

- 8000 classes
- Phenolic acids: vanillic acid, caffeic acid
- Flavonoids: flavonols, Flavones, flavanones, anthocyanidins
- Resveratrol (polyphenol and non flavonoid stilbene): activates nrf2





Polyphenols

- Polyphenols possess antioxidant, anti-inflammatory, anti-microbial, cardioprotective properties
- Red, blue and purple
- Courmarins and tannins
- Proanthocyanidins: Tannins and catechins: tea
- Anthocyanins
- Flavones
- Isoflavones
- Resveratrol
  - Grapes
  - Red wine
  - Pomegranate
- Ellagic acid: blackberries, raspberries, strawberries, cranberries, pomegranate

Functions of Phytonutrients

https://www.sciencedirect.com/topics/food-science/phytonutrients

Phytonutrients	Functions
Anthocyanins/Anthocyanidins	Antimicrobial activities, neutralizes free radicals
Carotenoids	Neutralizes free radicals, repairs DNA
Catechins	Neutralizes free radicals
Flavonols	Anticancer activities, neutralizes free radicals
Isoflavones	Anticancer activities, blocks estrogen while produces estrogen-like effects (protects bones, lowers LDL cholesterol)
Lignins	Anticancer activities
Limonoids	Detoxes liver enzymes
Organo or allylic sulfides	Antitumor activities, detoxes liver enzymes, lowers cholesterol
Phytosterols	Reduces tumor growth, lowers cholesterol
Saponins	Anticancer activities, lowers cholesterol
Stilbenes	Anticancer and inflammatory activities, lowers cholesterol

Foods high in Phytonutrients

Foods and Beverages	Phytonutrients
Acaí berries	Anthocyanins, dietary fiber, omega-3 and omega-6 fatty acids, phytosterols and polyphenols
Alfalfa	Saponins
Apples	Catechins, flavonols and tartaric acid
Artichoke	Carotenoids
Asparagus	Lignins
Beets	Carotenoids
Bell peppers	Carotenoids and vitamin C
Blackberries and blueberries	Anthocyanins and anthocyanidins, lignans and tannic acid
Black tea	Flavonols
Broccoli (also Brussels sprouts, cabbage, cauliflower and kale)	Allylic sulfides, carotenoids, lignans and vitamin C

Foods high in Phytonutrients

Cantaloupe	Carotenoids
Carrots	Carotenoids and lignins
Chili peppers	Capsaicin
Citrus fruits	Carotenoids, flavonols and vitamin C
Citrus peel	Limonoids
Cocoa	Flavonols
Cranberries	Anthocyanins and ellagic acid
Dark chocolate	Catechins, procyanidins
Eggplant	Anthosyanins and anthocyanidins
Flaxseeds and oil seeds	Lignans
Garlic	Limonene, flavonols and allylic sulfides

Foods high in Phytonutrients

https://www.sciencedirect.com/topics/food-science/phytonutrients

Goji (wolfberry)	Carotenoids, ellagic acid, vitamin C and selenium
Grapefruit	Flavonols
Grapes	Stilbenes and resveratrol
Green tea	Catechins, flavonols and oxalic acid,
Legumes	Catechins, carotenoids, flavonols, lignans, omega fatty acids and saponins
Mangos	Cryptoxanthin
Mangosteen	Xanthones
Nuts and seeds	Phytic acid, phytosterols and stilbenes (resveratrol)
Oats	Soluble fiber
Okra	Carotenoids
Olive oil	Hydroxytyrosol, oleuropein and oleocanthal

Foods high in Phytonutrients

Onions	Flavonols and allylic sulfides
Papaya	Cyptoxanthin
Peanuts	Phytosterols and stilbenes
Pomegranate	Tannins and vitamin C
Pumpkin	Carotenoids and lignans
Purple corn	Anthocyanins
Quinoa	Dietary fiber
Red cabbage	Anthocyanins and anthocyanidins
Red grapes and wine	Catechins, ellagic acid, flavonols and stilbenes (resveratrol)
Red wine	Catechins and stilbenes (resveratrol)
Rice bran	Phytosterols

Foods high in Phytonutrients

Sesame	Lignans
Shiitake mushrooms	Lentinan
Soy	Isoflavones, phytic acid, phytosterols and saponins
Spinach	Carotenoids and lignins
Spirulina	Beta-carotene
Squash	Carotenoids
Sweet potatoes	Carotenoids
Tea (green or black)	Catechins
Tomato	Carotenoids and vitamin C
Watercress	Organo or allylic sulfides
Watermelon	Carotenoids
Whole grains	Lignins, organo or allylic sulfides and saponins

Phytonutrients and Superfoods

- Polyphenols: pomegranate, Haritaki, green tea, pine bark extract (Pycnogenol) nrf2
- Nrf2 clears free radicals