Principles of a healthy diet
Assessment of nutritional status
Nutritional and eating disorders
Alternative diets
Food intoxications, food infections.

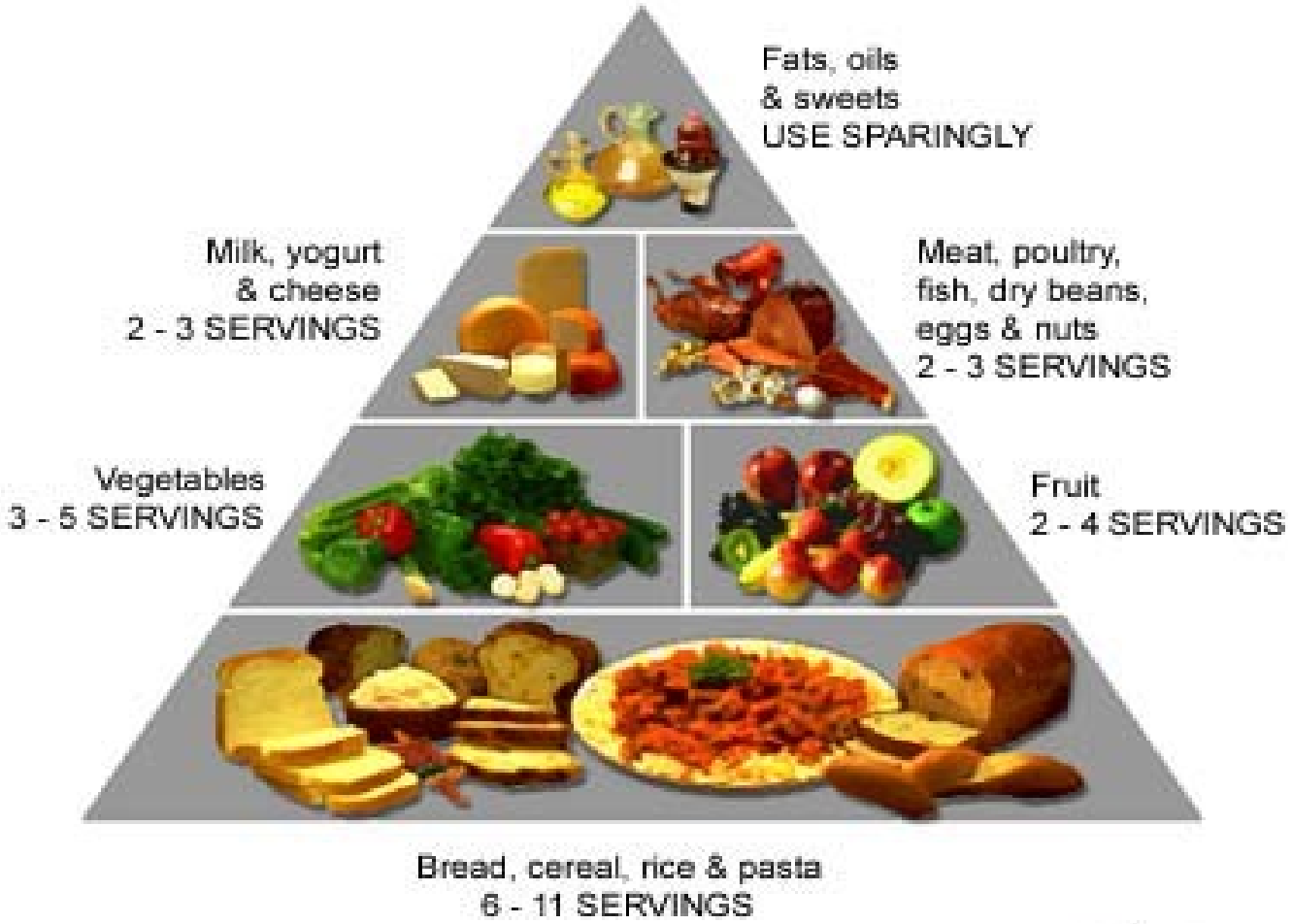
ED 2009

Recommended intake levels of various micro- and macronutrients

Food Component	Proportion of total daily calorie intake	Daily reference value
Fat(TF)	15-30%	
saturated	< 10%	
cholesterol		< 300 milligrams (mg)
PUFA	6-10	
n-6 PUFA	5-8	
N-3 PUFA	1-2	
MUFA	TF- (SFA + PUFA)	
total carbohydrate	55-75	
sugar	< 10%	
fiber		>400g
salt		< 5g
protein	10-15	

WHO:Diet, Nutrition and prevention of Chroic Diseases, 2003)

Food guide pyramid

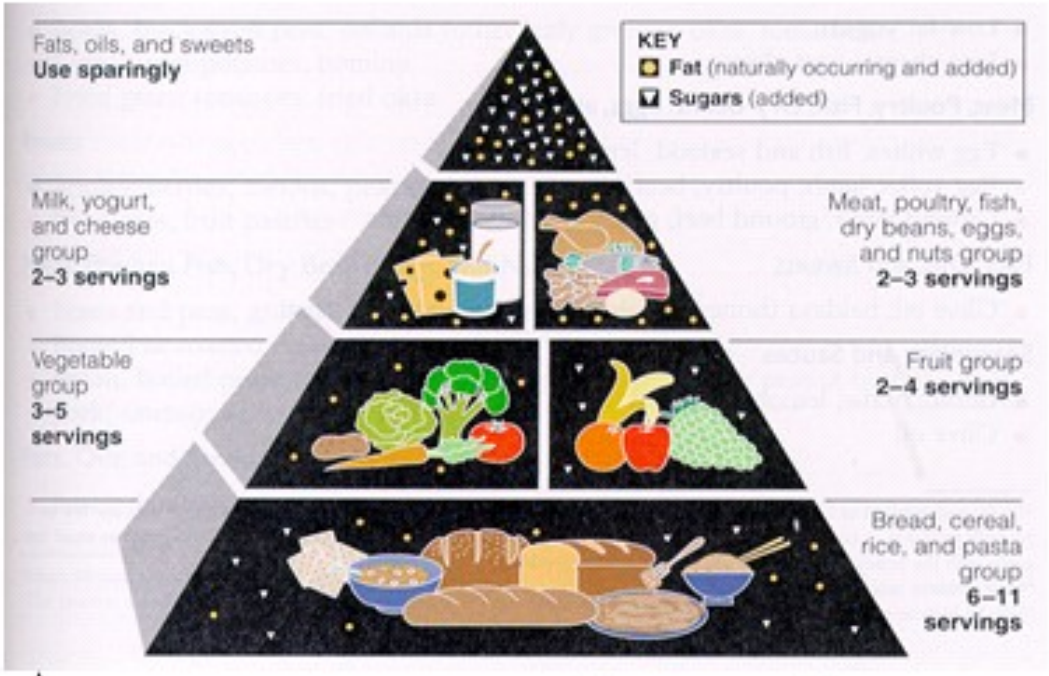


A.D.A.M.

CINDI dietary guide

http://www.euro.who.int/Docu

USDA Dietary Guidelines – The Food Pyramid



Old

USDA

New →

MyPyramid.gov

STEPS TO A HEALTHIER YOU

Public Health

http://www.mypyramid.gov/global_nav/media

http://www.mypyramid.gov/

Dietary Guidelines for Americans

http://www.health.gov/dietaryguidelines/dga2005/document/pdf/brochure.pdf

www.healthierus.gov/dietaryguidelines

WHO CINDI's Twelve steps to healthy eating

1. Eat a nutritious diet based on a variety of foods originating mainly from plants, rather than animals.
2. Eat bread, grains, pasta, rice or potatoes several times per day.
3. Eat a variety of vegetables and fruits, preferably fresh and local, several times per day (at least 400 g per day).
4. Maintain body weight between the recommended limits (a BMI of 20–25) by taking moderate levels of physical activity, preferably daily.
5. Control fat intake (not more than 30% of daily energy) and replace most saturated fats with unsaturated vegetable oils or soft margarines.
6. Replace fatty meat and meat products with beans, legumes, lentils, fish, poultry or lean meat.
7. Use milk and dairy products (kefir, sour milk, yoghurt and cheese) that are low in both fat and salt.
8. Select foods that are low in sugar, and eat refined sugar sparingly, limiting the frequency of sugary drinks and sweets.
9. Choose a low-salt diet. Total salt intake should not be more than one teaspoon (6 g) per day, including the salt in bread and processed, cured and preserved foods. (Salt iodization should be universal where iodine deficiency is endemic.)
10. If alcohol is consumed, limit intake to no more than 2 drinks (each containing 10 g of alcohol) per day.
11. Prepare food in a safe and hygienic way. Steam, bake, boil or microwave to help reduce the amount of added fat.
12. Promote exclusive breastfeeding and the introduction of safe and adequate complementary foods from the age of about 6 months, but not before 4 months, while breastfeeding continues during the first year of life.

Dietary fats and coronary heart disease (CHD) risk

Dietary factor	Dietary source	Effects on CHD risk
Saturated fatty acids (SFA)	Butter, lard, milk fat, cheese, meat, sausages, coconut oil	Strong association between a high intake of certain SFA (notably myristic, lauric and palmitic) with elevated levels of total and LDL cholesterol
		Increased risk of thrombosis from several SFA, such as stearic
Polyunsaturated fatty acids		
Omega-6	Corn, sunflower and safflower oil	Reduced blood levels of total and LDL cholesterol but, in large amounts, possible lowering of protective HDL
Omega-3	Fish oils and fats in vegetables and nuts (such as walnuts)	Reduced blood levels of LDL cholesterol (but only if initial levels high) and possible increase in HDL
		Powerful antithrombotic and antiarrhythmic action
Monounsaturated fatty acids	Olive oil, canola oil, rapeseed oil	Reduced blood levels of LDL cholesterol (perhaps an independent effect or due to displacement of SFAs)
		Protection of HDL
Trans fatty acids	Hydrogenated fat in margarines, biscuits, cakes, fast foods	Raised blood levels of total and LDL cholesterol, lowered HDL cholesterol, and increased lipoprotein(a)
		Possibly more harmful than SFAs
Total fat		No strong association with blood cholesterol levels, but contribution to other risk factors such as obesity and Factor VII clotting activation. A high fat intake is often associated with a high SFA intake.
Dietary cholesterol	Eggs, meat, butter, milk	Raised blood levels of total cholesterol, but principal effect by amplifying the impact of SFAs
		Less effect when diet low in total fat (individuals vary greatly in their response)

Alcohol content of beverages

Beverage (and alcohol content – % volume/volume)	Standard drink (ml)	Alcohol content (g)
Beer (5%)	250	9.8
Wine (11%)	120	10.4
Spirits (40%)	30	9.4

Source: *British journal of addiction*, **85**: 1171–1175 (1990).

Mix up your choices within each food group. I.

Focus on fruits. Eat a variety of fruits—whether fresh, frozen, canned, or dried—rather than fruit juice for most of your fruit choices. For a 2,000-calorie diet, you will need 2 cups of fruit each day (for example, 1 small banana, 1 large orange, and 1/4 cup of dried apricots or peaches)

Vary your veggies. Eat more dark green veggies, such as broccoli, kale, and other dark leafy greens; orange veggies, such as carrots, sweetpotatoes, pumpkin, and winter squash; and beans and peas, such as pinto beans, kidney beans, black beans, garbanzo beans, split peas, and lentils.

http://www.health.gov/dietaryguidelines/dga2005/document/html/brochure.htm

Mix up your choices within each food group II.

- **Get your calcium-rich foods.** Get 3 cups of low-fat or fat-free milk—or an equivalent amount of low-fat yogurt and/or low-fat cheese (1˝ ounces of cheese equals 1 cup of milk)—every day. For kids aged 2 to 8, it's 2 cups of milk. If you don't or can't consume milk, choose lactose-free milk products and/or calcium-fortified foods and beverages.

- **Make half your grains whole.** Eat at least 3 ounces of whole-grain cereals, breads, crackers, rice, or pasta every day. One ounce is about 1 slice of bread, 1 cup of breakfast cereal, or ˝ cup of cooked rice or pasta. Look to see that grains such as wheat, rice, oats, or corn are referred to as "whole" in the list of ingredients.

- **Go lean with protein.** Choose lean meats and poultry. Bake it, broil it, or grill it. And vary your protein choices—with more fish, beans, peas, nuts, and seeds.

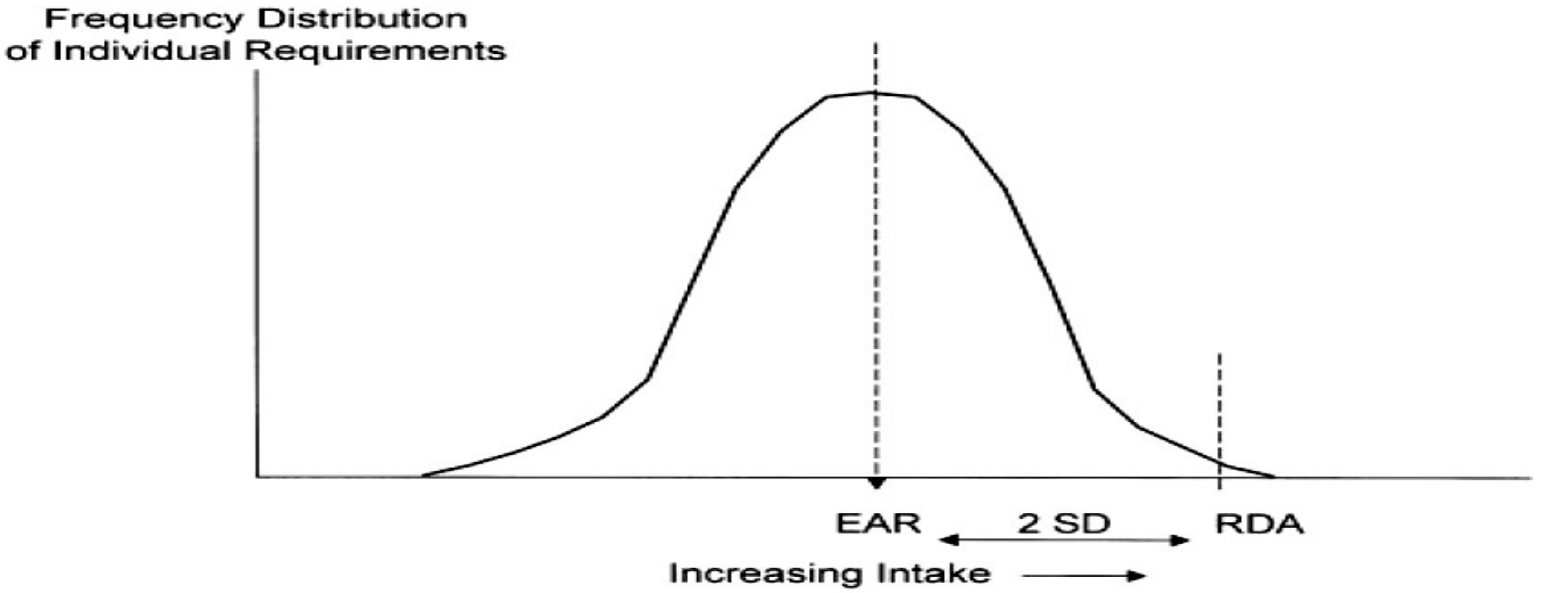
- **Know the limits on fats, salt, and sugars.** Read the Nutrition Facts label on foods. Look for foods low in saturated fats and *trans* fats. Choose and prepare foods and beverages with little salt (sodium) and/or added sugars (caloric sweeteners).

http://www.health.gov/dietaryguidelines/dga2005/document/html/brochure.htm

Nutritional requirements of populations

- ***Estimated average requirement (EAR):*** "the nutrient intake value that is estimated to meet the requirement defined by a specific indicator of adequacy in 50 percent of the individuals in a life-stage and gender group." Note that this actually describes the median requirement, but if the requirement distribution is symmetric, mean and median are the same (they can be expected to differ for iron requirements of menstruating women).

- ***Recommended dietary allowance (RDA):*** "the daily intake level that is sufficient to meet the nutrient requirements of nearly all (97 or 98 percent) individuals in the life-stage and gender group. The RDA applies to individuals and not to groups. The EAR serves as the foundation for setting the RDA."



Source: Murphy SP. Journal of Nutrition, 2001; 131: 361S-365S.

Nutritional status I.

1. Evaluation in *adulthood*:
   with various indices

2. Evaluation in *childhood* (development):
   with percentile charts or percentile curves

Indices:

$$\text{BMI: Body Mass Index (BMI) (Quetelet index)} = \frac{\text{body weight (kg)}}{\text{body height}^2\text{ (m)}}$$

BMI calculator

- http://www.cdc.gov/nccdphp/dnpa/bmi/adul

Nutritional status I

Waist circumference (cm) Normal: men: < 94 cm
women: < 80 cm

$$\text{Waist / Hip ratio (WHR):} \quad \frac{\text{waist circumference (cm)}}{\text{hip circumference (cm)}} \quad \text{(Normal: men: < 1.0 women: < 0.8)}$$

Body Composition

Body weight (G) = Lean Body Mass (LBM) + Body Fat (BF)

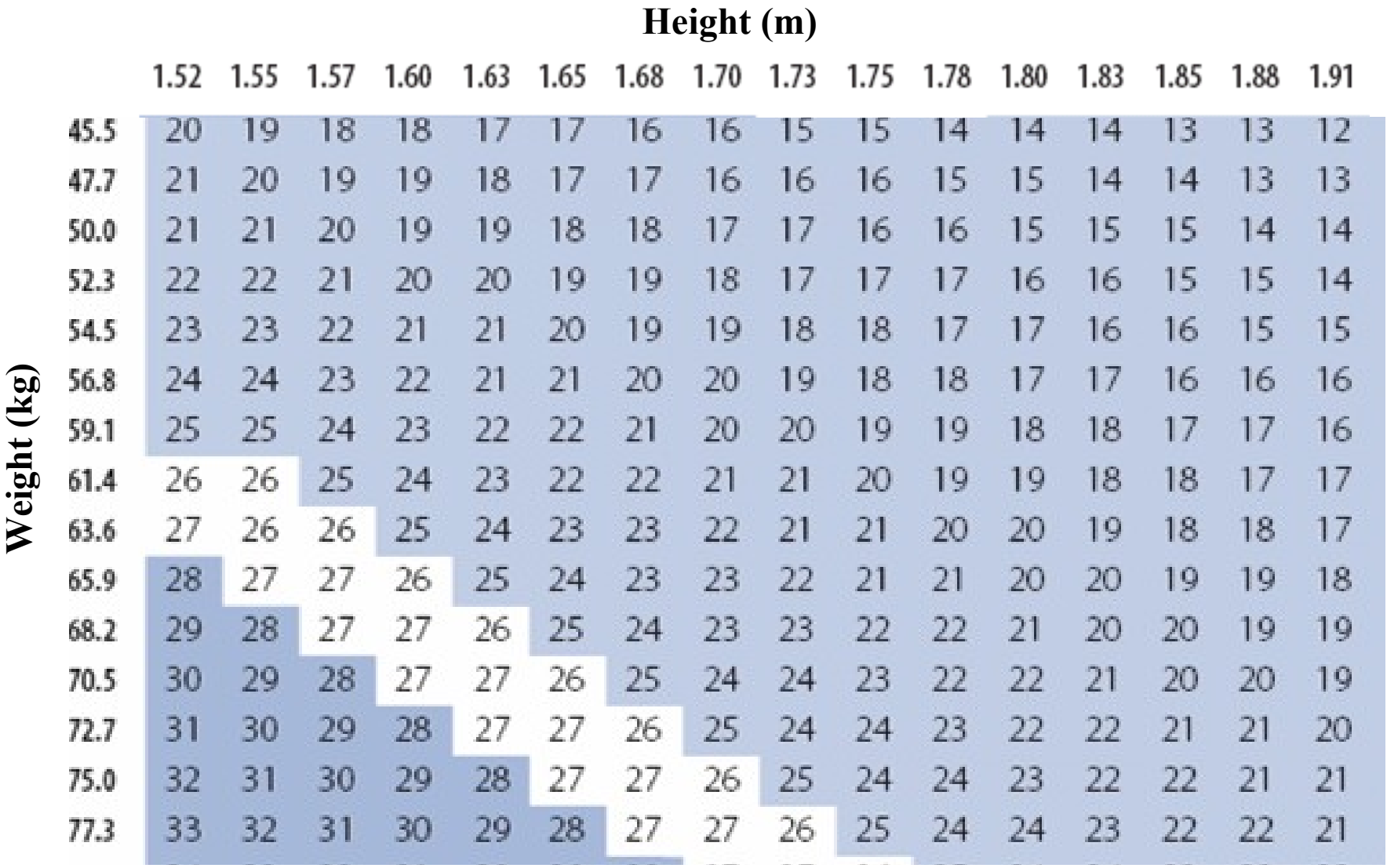
$$\text{Body fat (\%)} = \frac{\text{Body fat}}{\text{Body mass}} \times 100$$

Body fat % = triceps skinfold (mm) + biceps skinfold (mm)+ subscapular skinfold (mm) + suprailiac skinfold (mm)

Equipment for measurement: caliper

Evaluation from a chart: normal = under 25% (male); under 30% (female)

Calculating BMI



18SU Dept. of Public Health

Weight (Kilograms)	1.52	1.55	1.57	1.60	1.63	1.65	1.68	1.70	1.73	1.75	1.78	1.80	1.83	1.85	1.88	1.91	1.93
81.8	35	34	33	32	31	30	29	28	27	27	26	25	24	24	23	22	22
84.1	36	35	34	33	32	31	30	29	28	27	27	26	25	24	24	23	23
86.4	37	36	35	34	33	32	31	30	29	28	27	26	26	25	24	24	23
88.6	38	37	36	35	33	32	31	31	30	29	28	27	26	26	25	24	24
90.9	39	38	37	35	34	33	32	31	30	30	29	28	27	26	26	25	24
93.2	40	39	37	36	35	34	33	32	31	30	29	29	28	27	26	26	25
95.5	41	40	38	37	36	35	34	33	32	31	30	29	28	28	27	26	26
97.7	42	41	39	38	37	36	35	34	33	32	31	30	29	28	28	27	26
100.0	43	42	40	39	38	37	36	34	33	32	32	31	30	29	28	27	27
102.3	44	43	41	40	39	37	36	35	34	33	32	31	31	30	29	28	27
104.5	45	43	42	41	39	38	37	36	35	34	33	32	31	30	30	29	28
106.8	46	44	43	42	40	39	38	37	36	35	34	33	32	31	30	29	29
109.1	47	45	44	43	41	40	39	38	36	35	34	33	33	32	31	30	29
111.4	48	46	45	43	42	41	40	38	37	36	35	34	33	32	31	31	30
113.6	49	47	46	44	43	42	40	39	38	37	36	35	34	33	32	31	30

For individuals not covered by this chart, calculate BMI by using the following equation: weight (in kilograms) divided by height (in metres) squared (kg/m^2).
Source: Shape Up America!, 6707 Democracy Blvd., Suite 306, Bethesda, MD 20817; www.shapeup.com

You can use this chart to determine BMI and to assess amount of weight to lose. For example, a person 1.70 metres high and weighing 77.3 kilograms, has a BMI of 27. To reach a BMI of 25 would mean a weight loss of approximately 4.5 kilograms.

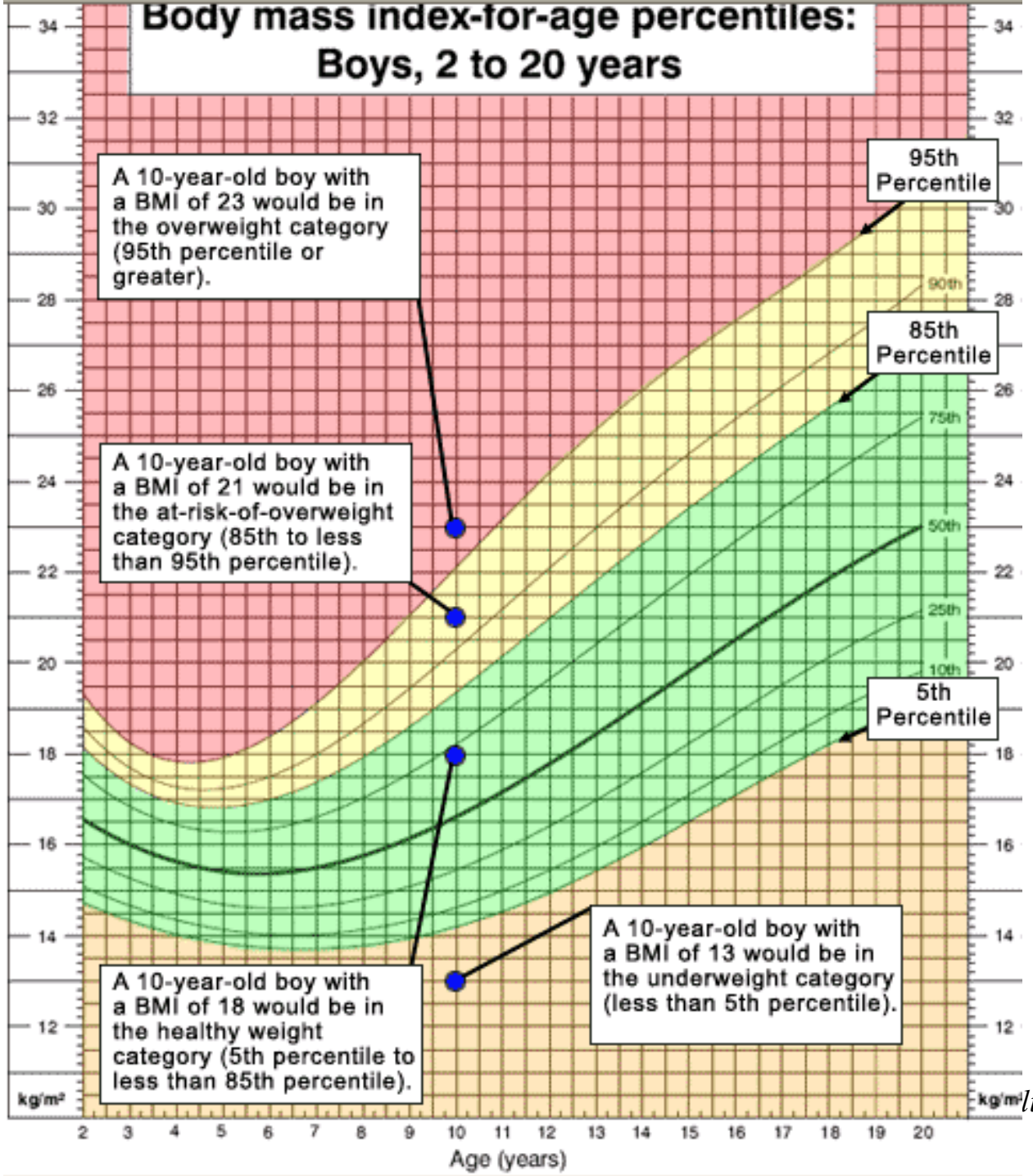
Nutritional status III.

- Nutritional status in childhood can usually be judged based on the child's development.
- Normal development is defined using the distribution of the characteristics of same-aged children in the population.
- Distribution of such characteristics as height, weight, head-, or chest circumference etc…. at various ages are presented in the form of ***percentile charts*** or ***percentile curves***.
- Percentiles: The percentage of a given population of children at a certain age below a given value of usually height or weight.
- Values are usually ***considered to indicate developmental anomaly below the 3^{d} percentile and above the 97th percentile***.
- Percentile values are always time and region specific (country, year).

http://www.cdc.gov/growthcharts/ http://www.cdc.gov/nccdphp/dnpa/growthcharts/training.htm

What is BMI percentile?

Weight status category	Percentile range
Underweight	Less than the 5th percentile
Healthy weight	5th percentile to less than the 85th percentile
At risk of overweight	85th to less than the 95th percentile
Overweight	Equal to or greater than the 95th percentile


Body mass index-for-age percentiles:
Boys, 2 to 20 years
A 10-year-old boy with a BMI of 23 would be in the overweight category (95th percentile or greater).
A 10-year-old boy with a BMI of 21 would be in the at-risk-of-overweight category (85th to less than 95th percentile).
A 10-year-old boy with a BMI of 18 would be in the healthy weight category (5th percentile to less than 85th percentile).
A 10-year-old boy with a BMI of 13 would be in the underweight category (less than 5th percentile).
95th Percentile
90th
85th Percentile
75th
50th
25th
10th
5th Percentile
kg/m²
Age (years)

BMI Percentile Calculator for Child and Teen

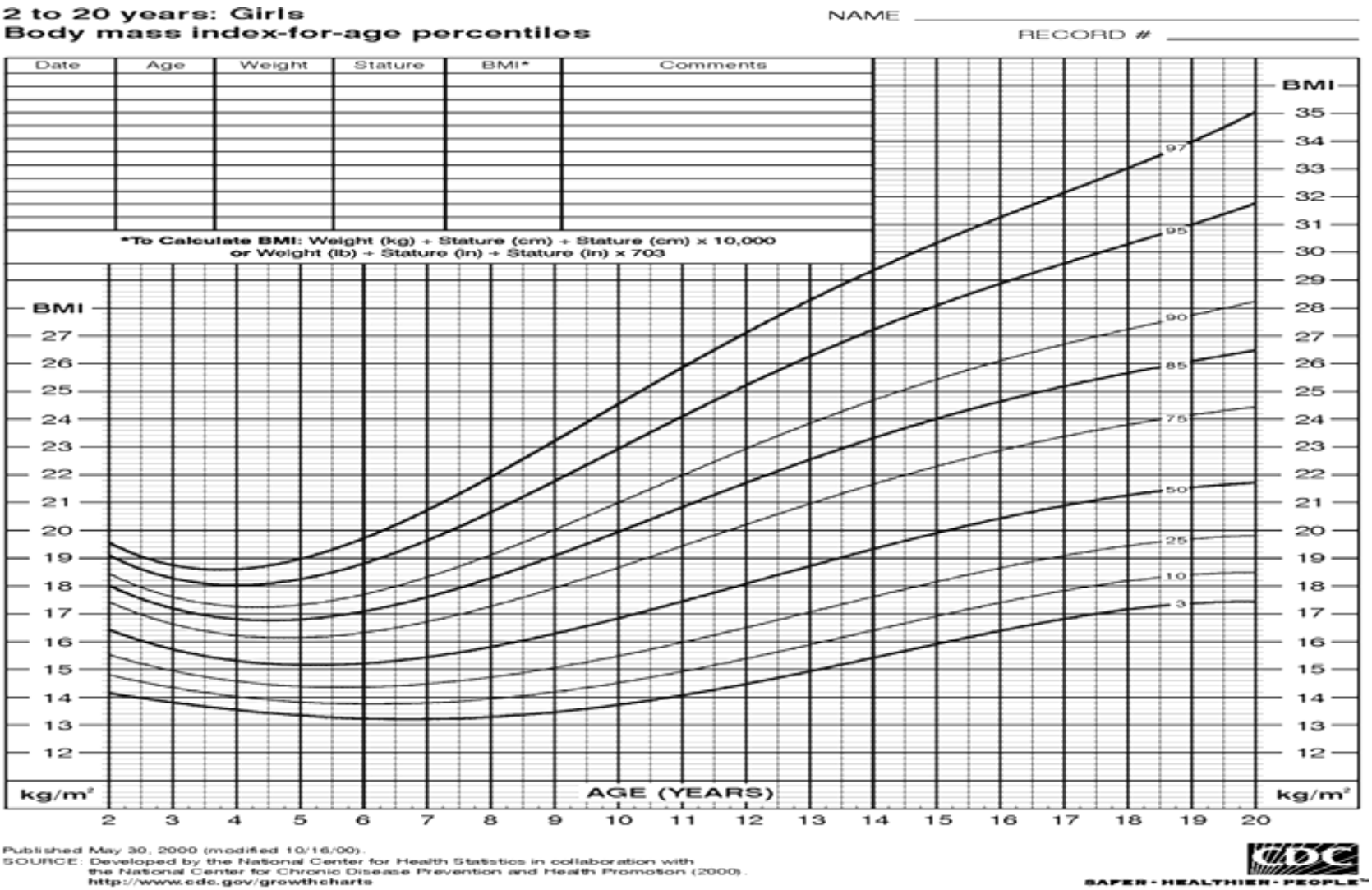
aged 2 through 19 years old

http://apps.nccd.cdc.gov/dnpabmi/Calculatc

Indicators of nutritional status in children

- **Stunting / shortness**
  height–for- age — < 5th percentile
- **Wasting**
  weight- for- height — < 5th percentile
- **Underweight**
  weight-for-height — < 5th percentile
  BMI-for- age
- **Risk of overweight** — 85th to 95th percentile
  BMI-for- age
- **Overweight**
  weight –for- height — > 95 percentile
  BMI-for- age

Body mass index for - age- percentiles 2-20 years: females



Hungarian bodyweight percentiles (kg) by age for males between ages 3-18 years

Age			Percentiles				
(years)	3	10	25	50	75	90	97
Males							
3	12.0	12.7	13.6	14.7	16.0	17.0	18.6
4	13.2	14.2	15.2	16.5	18.0	19.3	21.5
5	14.9	16.0	17.0	18.5	20.0	22.0	24.6
6	16.5	17.7	19.0	20.6	23.0	25.2	28.8
7	17.4	18.6	20.0	21.9	24.3	26.9	30.7
8	19.4	20.8	22.3	24.5	27.3	30.4	36.3
9	20.7	22.1	24.6	27.6	30.8	34.9	41.2
10	23.0	25.4	27.8	30.7	34.8	41.1	48.2
11	25.4	27.7	29.8	33.6	38.7	45.1	53.7
12	28.0	30.1	32.6	37.3	43.3	52.4	61.8
13	30.4	33.0	37.1	42.8	49.9	58.6	67.5
14	34.7	39.0	44.4	50.1	56.4	64.1	74.9
15	39.3	45.0	50.7	56.6	63.8	71.1	80.5
16	45.5	50.0	55.1	61.2	67.3	75.6	86.0
17	49.5	54.0	59.1	64.7	70.5	77.5	87.6
18	50.5	56.7	60.7	66.9	73.4	80.1	89.0

Hungarian bodyweight percentiles by age for females between ages 3-18 years

Age			Percentiles				
(years)	3	10	25	50	75	90	97
Females							
3	11.2	12.2	13.0	14.2	15.5	16.7	18.0
4	12.9	14.0	15.0	16.0	17.5	19.0	21.0
5	14.5	15.4	16.5	18.0	20.0	21.8	24.2
6	16.0	17.0	18.5	20.3	22.5	25.0	28.5
7	17.0	18.3	19.7	21.5	24.1	27.4	32.3
8	18.3	19.9	21.7	24.2	27.2	30.5	36.1
9	20.1	22.1	24.5	27.0	30.7	35.7	41.6
10	22.8	24.5	26.9	29.8	34.3	39.8	46.2
11	24.7	27.5	30.5	34.8	40.6	46.5	53.8
12	27.5	30.3	34.2	39.7	45.7	52.8	61.8
13	31.8	36.1	39.6	45.3	51.7	58.6	67.8
14	35.9	39.7	43.4	49.1	54.8	61.9	70.0
15	39.7	43.2	47.0	51.7	57.8	64.3	72.5
16	40.9	44.9	48.7	52.9	58.2	64.6	73.3
17	42.2	45.1	48.9	53.3	58.9	64.8	73.7
18	42.5	45.6	49.6	54.6	60.0	66.6	73.8

NUTRITIONAL DISORDERS

MALNUTRITION

OBESITY

EATING DISORDERS

DEFINITION

Malnutrition is a state that can result from insufficient or excessive or unbalanced diet

Seconder malnutrition can occur when nutrients are adequately consumed in the diet, but one or more nutrients are not digested or absorbed properly

MALNUTRITION

- starvation
- undernutrition
  - nutrients are undersupplied,
    - inadequate intake; malabsorption; abnormal systemic loss of nutrients due to diarrhea, hemorrhage, renal failure, or excessive sweating; infection; or addiction to drugs.
- overnutrition
  - nutrients are oversupplied.

FORMS

- Macronutrient deficiency
  - Protein-energy deficiency (PEM)
    - Kwashiorkor
    - marasmus
  - Starvation
  - Underweight
- Micronutrient deficiency
  - vitamins
  - minerals

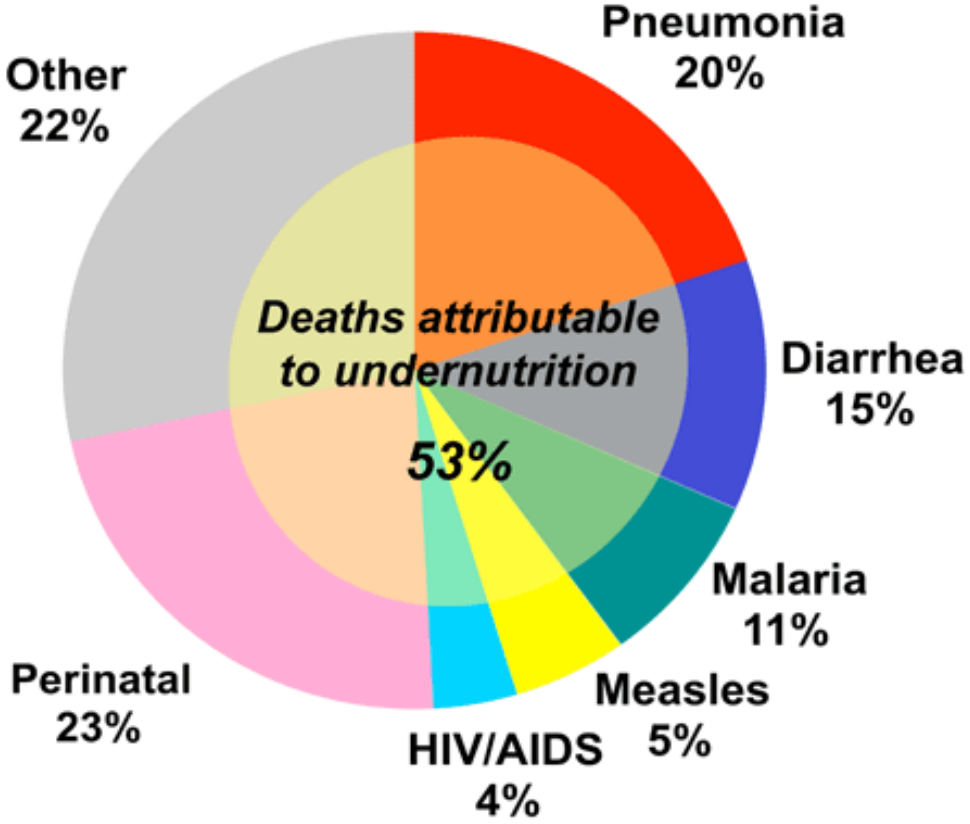
Protein-energy malnutrition (PEM) - definition

A deficiency syndrome mainly in infants and children due to

Inadequate intake of energy and protein.

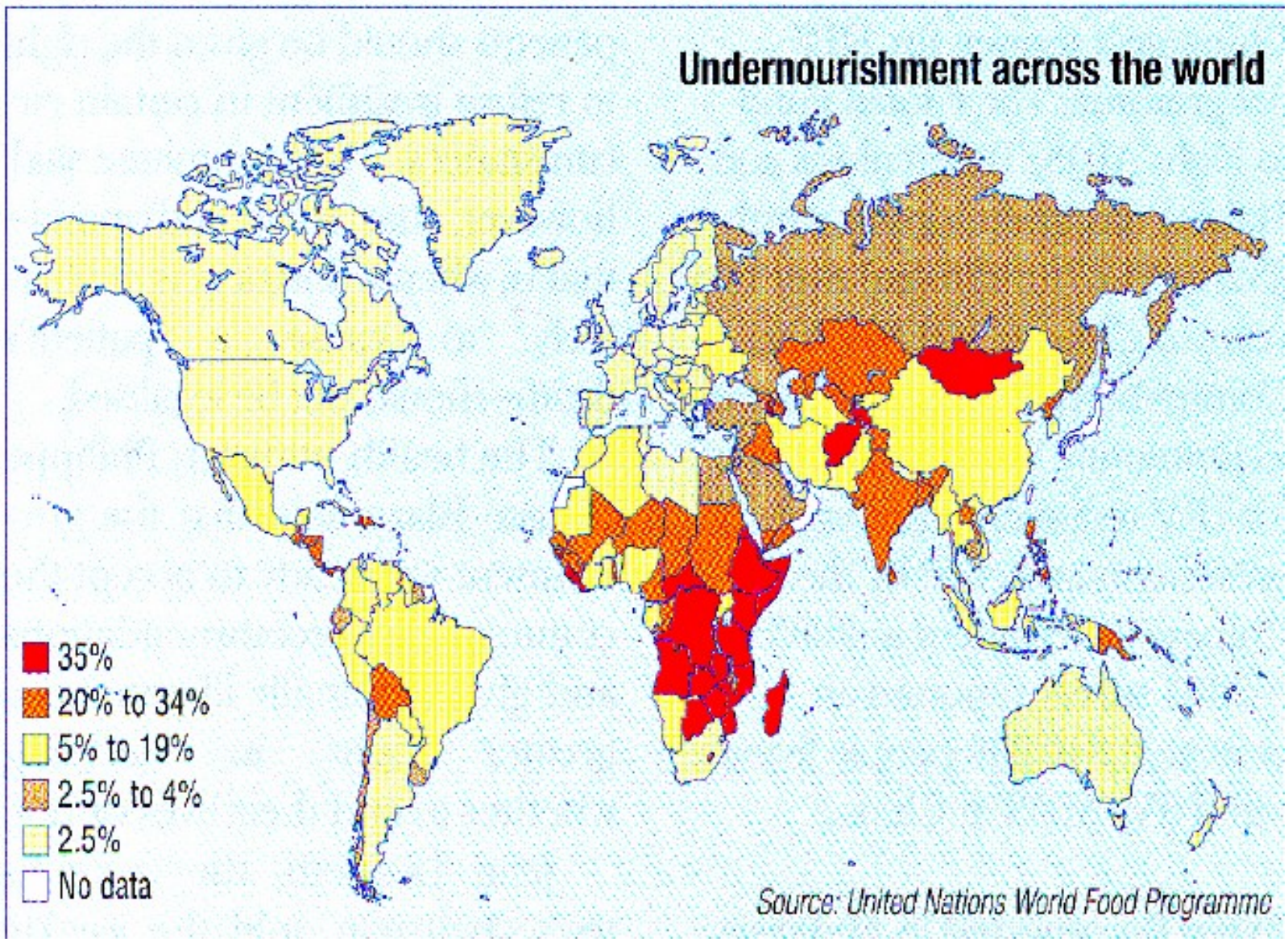
- **<u>Forms:</u>**
  - ***PEM with low weight***
  - ***nutritional dwarfism (stunting)***
  - ***kwashiorkor***
  - ***marasmus***
  - ***combined kwashiorkor and marasmus***

Leading Causes of Death in Children Under Five in Developing Countries and the Contribution of Undernutrition



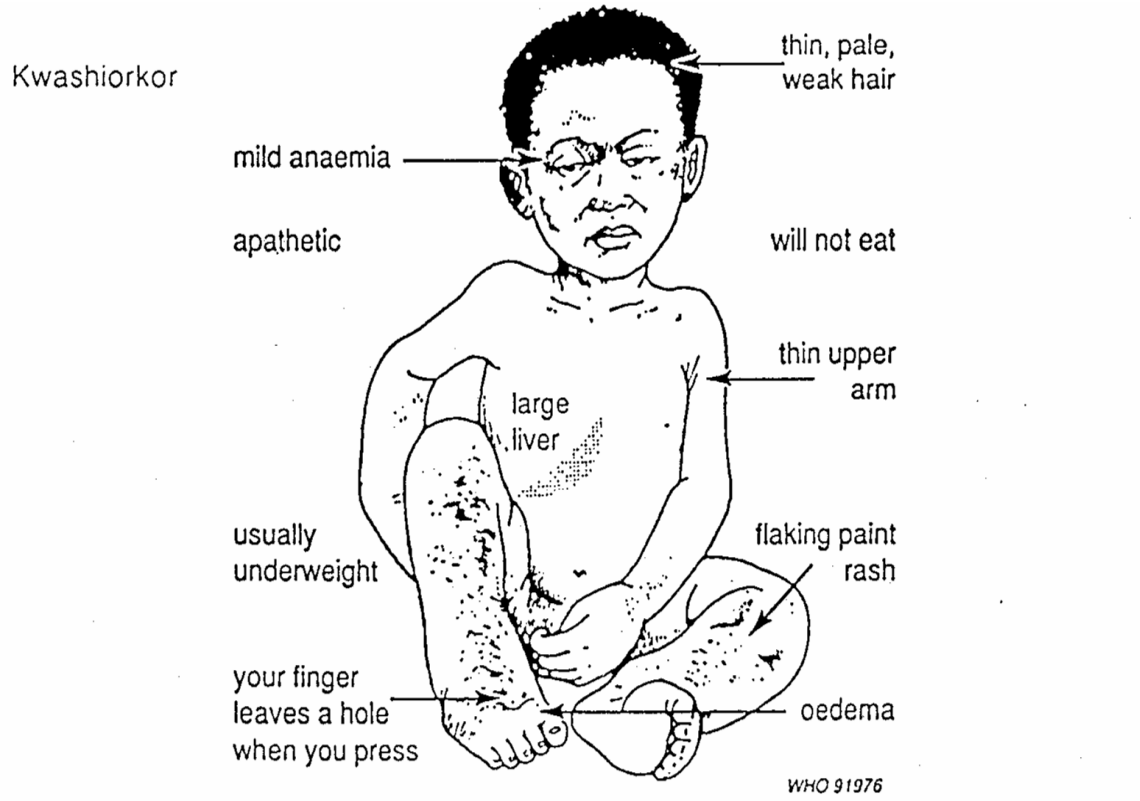
SOURCES: *For cause-specific mortality:* World Health Report 2003. *For deaths attributable to undernutrition:* Caulfield et al. Undernutrition as an underlying cause of child deaths associated with diarrhea, pneumonia, malaria, and measles. American J. Clinical Nutrition 2004;80:193-8 **http://www.usaid.gov/our_work/global_health/nut/techareas/malnutrition_chart.html**

Distribution of Malnutrition



http://www.oxfordjournals.org/tropej/online/mcnts_chap7_ppt.pdf

Kwashiorkor



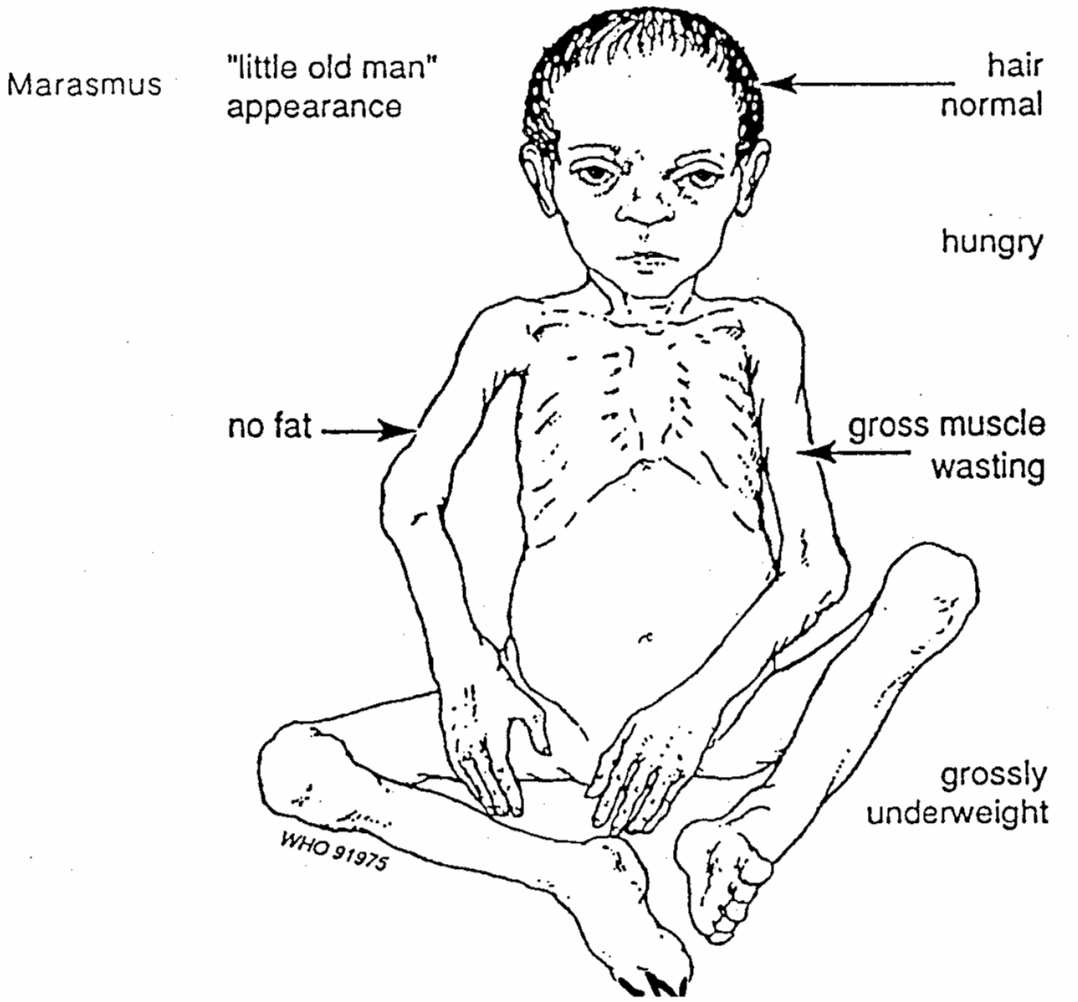
Source: King M. et al. *Primary child care. A manual for health workers. Book one.* Oxford, Oxford University Press, 1978.

- **Protein- > Energy-Deficiency**

<u>Symptoms:</u>

- **Oedema of legs and arms**
- **moon face**
- **enlarged liver**
- **pale, thin skin and hair**

Marasmus



- **Protein- +Energy deficiency**

<u>Symptoms:</u>

- **extremly low weight,**
- **extremly wasting,**
- **pot belly,**
- **old person ‘s face**

Considerations involving energy intake

ENERGY INTAKE < REQUIREMENT

↓

ENERGY IMBALANCE

↓

UNDERNUTRITION

Protein-Energy/Calorie Malnutrition (PEM /PCM)

ENERGY INTAKE > REQUIREMENT

↓

ENERGY IMBALANCE

↓

OVERNUTRITION

Obesity

Etiological factors contributing to deaths among children under 5 years of age in developing countries:

Malnutrition: 54%

Perinatal conditions: 23%

Pneumoia: 20%

Diarrhea: 15%

Malaria: 11%

Measles: 5%

Other: 22%

Nutritional disorders

Malnutrition (quantitative overnutrition type) - obesity

- Excess adipose tissue resulting in a body weight at least 20% higher than desirable / optimal.
- Body Mass Index (BMI)
- Waist-to-hip ratio: (>1.0 in men; >0.8 in women)
- Upper body obesity (abdominal type) carries greater health risks than lower body obesity (buttocks and thighs)
- Visceral fat build-up carries greater health hazards than an increase in subcutaneous fatty tissue

Risk of health problems according to BMI category

Classification	BMI Category (kg/m^2)	Risk of developing health problems
Underweight	< 18.5	Increased
Normal Weight	18.5 - 24.9	Least
Overweight	25.0 - 29.9	Increased
Obese class I	30.0 - 34.9	High
Obese class II	35.0 - 39.9	Very high
Obese class III	>= 40.0	Extremely high

MICRONUTRIENT DEFICIENCY I.

VITAMINS	DEFICIENCY
„A” (retinol)	XEROPHTHALMIA
„D” (calciferol)	RICKETS
„E” (tocopherol)	NEUROLOGICAL SYMPTOMS
„K” (naphthoqinone)	HEMORRHAGIC DISEASE OF THE NEWBORNE

MICRONUTRIENT DEFICIENCY II.

VITAMINS	DEFICENCY
„C”(ascorbic acid)	SCURVY
„B1” (thiamine)	BERI-BERI, POLYNEURITIS
„B2” (riboflavine)	GLOSSITIS, DERMATITIS
„B 3” (nicotinic acid)	PELLAGRA
„B6”(piridoxin)	DERMATITIS, GLOSSITIS, IMPAIRED IMMUNITY
„B9” (folate)	SPINA BIFIDA, ANENCEPHALIA
„B12” (cyanocobalamine)	PERNICIOUS ANAEMIA

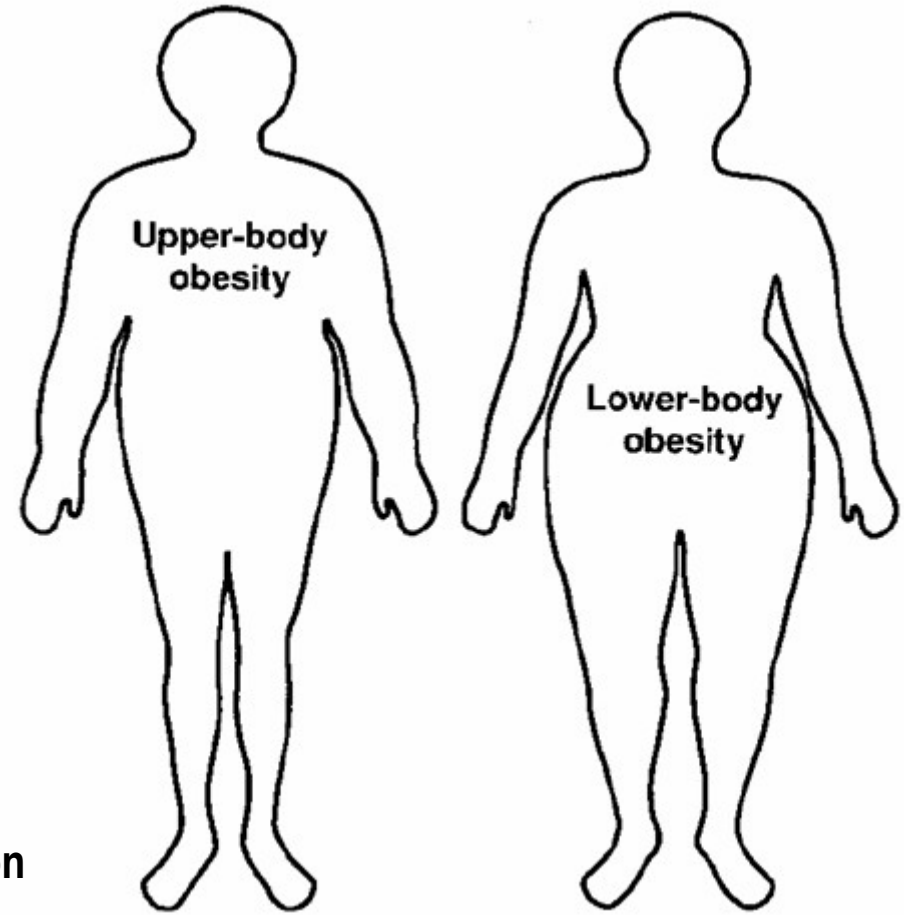
MICRONUTRIENT DEFICIENCY III.

MINERALS	DEFICIENCY
IRON	ANAEMIA
IODIDE	GOITRE
FLUORID	CARIES

Nutritional disorders

***Greater frequency of disease*:**

- Hypertension
- type II. diabetes mellitus
- Hyperlipidemia
- coronary heart disease
- degenerative joint disease
- psychological disabilities
- certain cancers
- thromboembolic disorders
- digestive tract diseases
- skin disorders
- pulmonary functional impairment
- endocrine abnormalities
- Proteinuria
- increased hemoglobin concentration



***Death rate increases* in proportion to the degree of obesity:**

- Moderate obesity: *two-fold* death rate increase
- Severe obesity: *ten-fold* death rate increase!

Eating disorders

Anorexia nervosa

- Extreme fasting due to a severe disturbance of the corporal self-image and intense fear of becoming fat.
- Weight loss at least 15% of the original bodyweight.
- Absence of three consecutive menstrual cycles (in females) without pregnancy.
- Probably fairly widespread phenomena in the general population, usually affects females.
- Usually manifests in adolescence or early adulthood and more frequently among upper-middle or higher social classes.

Bulimia nervosa

- Similar to the above condition with uncontrolled episodes of binge eating (at least 2/week for at least 3 months).
- Recurrent inappropriate attempts to reduce weight (self-induced vomiting, laxative abuse, diuretic abuse, fasting, excessive exercise).
- Also primarily affects young, middle-, and upper class women

Nutritional disorders

Treatment of obesity

- There is no single, most effective method to treat obesity.
- IMPORTANT: Close provider - patient contact.
- Some methods used to achieve weight loss: ***HYPOCALORIC DIETS*** (But: very low caloric diets 600-800 kcal/day: metabolic complications, gallbladder disease, cardiac arrhythmias)
- Other: ***BEHAVIOR MODIFICATION, AEROBIC EXERCISE, SOCIAL SUPPORT, MEDICATIONS*** (appetite suppressant drugs contraindicated during pregnancy and lactation, renal hepatic or cardiac failure, severe hypertension, glaucoma & substance abuse), ***SURGICAL THERAPY***.
- **Dietary therapy + exercise program: best results.**
- EMPHASIS MUST BE ON MAINTAINANCE OF WEIGHT LOSS - PLANNING AND RECORD KEEPING, AVOIDING THE "YO-YO DIET" (REPEATED CYCLES OF WEIGHT LOSS AND GAIN).

FASHIONS AND TRENDS IN NUTRITION

- **TRADITIONS AND RELIGIOUS RULES IN NUTRITION**
- **WESTERN DIET**
- **VEGETARIANISM**
- **DIETS BASED ON ANECDOTAL EVIDENCE AND SPECULATION**
- **SLIMMING DIETS**
- **CRITICAL REWIEW OF USUAL HUNGARIAN NUTRITION**

FASHIONS AND TRENDS IN NUTRITION

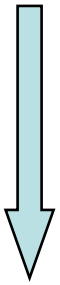
TRADITIONS AND RELIGIOUS RULES IN NUTRITION I.

<u>NUTRITION HYSTORY</u>

- VEGETARIAN, CANNIBAL, MIXED DIET
- ASIA: - MILLIONS VEGETARIAN
- ESKIMOS: - ANIMAL FOOD, - VEGETABLES
- PHYSICAL WORK for foods.

TRADITIONS AND RELIGIOUS RULES IN NUTRITION II.

- RECENTLY:
  "PURIFIED" FOOD



(SUGAR, WHITE FLOOR)
less essential nutrients

THE BASIC OF NUTRITIONAL RELATED DISEASES

WESTERN DIET

ORIGIN: 1970 ENGLAND

- **REFINED FOODS**
- **EXCESS FAT**
- **LESS DIETARY FIBRE**
- **RISK OF DISEASES**

Alternative diets

Vegetarian diet

- Strict vegetarian – vegan
  - Frutarians
  - Raw –food vegans
- Ovo - vegetarian
- Lacto - vegetarian
- Ovo-lacto-vegetarian
- Semi-vegetarian

Macrobiotic diet

Reform diet

Alternative diets – pro

Lower prevalence of

- CV diseases
- Obesity
- Gallstone
- Hypertension
- Diabetes (NIDDM)
- High level of serum cholesterol (ovo, ovo-lacto vegetarians!)
- Constipation
- Certain forms of cancer
- Arthritis

Healthyer lifestyle

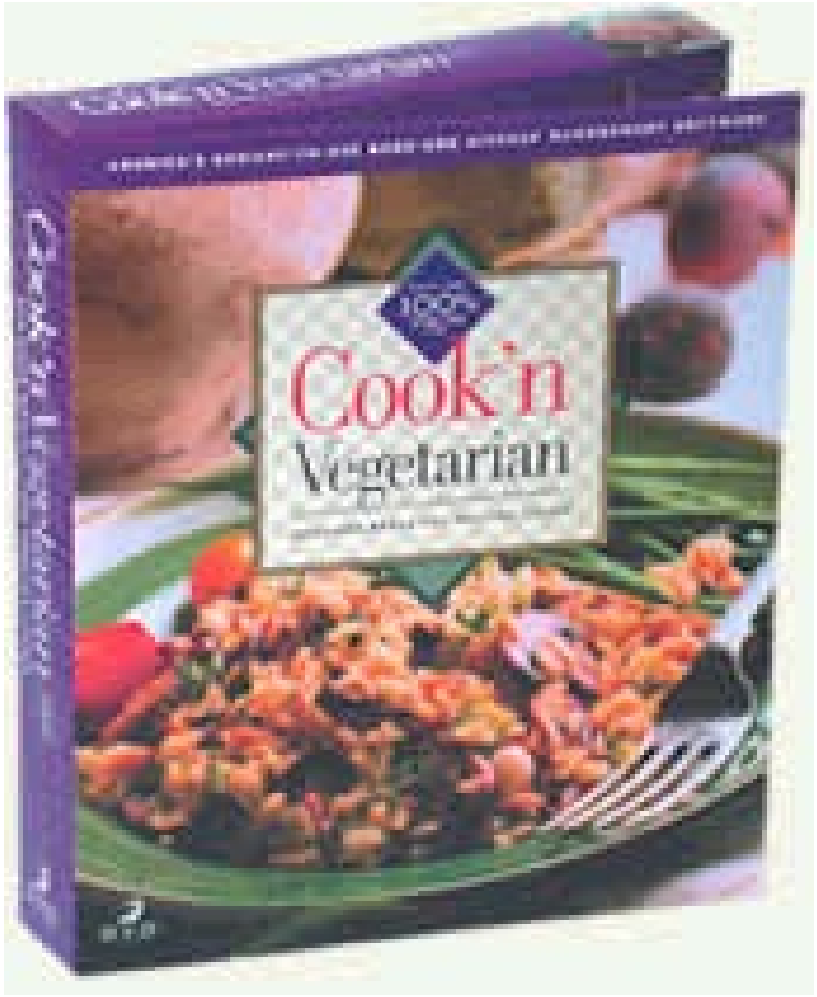
Alternative diets – contra

Not sufficient intake of ….

- Energy
- Protein
- Vitamins (B_2, B_6, B_{12}, D)
- Minerals (Fe, Zn, Ca)
- Natural toxins and extrinsic chemical toxins

  pesticides, detergents, oxalic acids, cyanide….
- Excess intake of dietary fibres

VEGETARIAN DIET



http://www.dvo.com/cooknvegetarian.html

DIETS BASED ON ANECDOTAL EVIDENCE AND SPECULATION

- „BODY CONTROL”
  (problem: iron absorption)
- OTHERS (beliefs in sg. important -

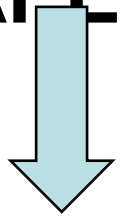
  correction)

REBOUND EFFECT OF THE SLIMMING DIET

"JO-JO" DIET

BIGGER PROBLEM, THAN OVERNUTRITION

PEAR SHAPED



APPLE SHAPED

DIET IN CASE OF STRESS

FOOD-BORNE DISEASES CLASSIFICATION

INTOXICATION

caused by organic or inorganic material

no person to person spread

prohibition of consumption of the contaminated food.

INFECTION

caused by infective agent

person to person spread

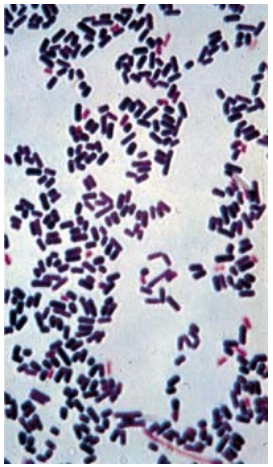
control of communicable diseases

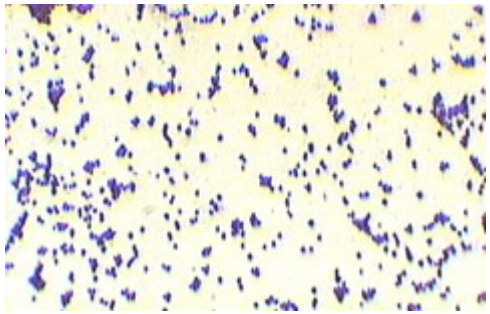
Therapy

FOOD-BORNE diseases
Intoxication

Toxins produced by microorganisms

1. Clostridiums
   - Cl. botulinum
   - Cl. Perfringens
2. Staphylococcus aureus
3. B. cereus





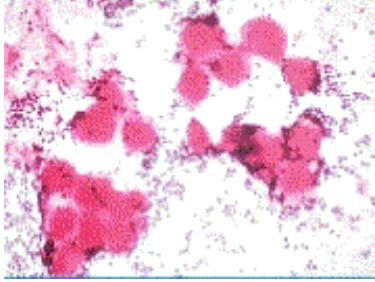
Clostridium botulinum

- spores are very heat resistant
- produces a heat labile neurotoxin (Inactivation: 80 ^{0}C 15-20 minutes)

- ***Source:*** intestinal tract of animals → a) soil (marine sediment) → food (vegetables)
  intestinal tract of animals → b) intestine tract (sausages)
- ***Transmission:*** ingestion of toxin (in food; USA: home made vegetables, in Europe: sausages, smoked or preserved meats)
- ***Incubation*:** 12-48 hours
- ***Symptoms:*** blurred vision, dry mouth, difficulty in swallowing, paralysis of respirator muscles
- **Control by:** proper heating, reheating, proper refrigeration of cooked foods, proper temperature control/ (> 60^{0}C), severe illness, recovery may take months or years.
- **Therapy**: antitoxin

Infant botulism!

Staphylococcus aureus



- killed by mild heating, produces a **heat stable enterotoxin**
- ***Source:*** primarily humans
- (oral and nasal cavities, skin ~~food)~~→
- ***Transmission:*** ingestion of food containing enterotoxin. Bacteria multiply in food, produce toxin, heating may kill bacteria, but leave toxin (milk and milk products, ice-cream)
- ***Incubation:*** 1 to 6 hours
- **Symptoms:** severe nausea, abdominal cramps, vomiting, diarrhea
- **Control by:** proper hygiene, refrigeration, temperature control (> 60^0C), exclusion of food handlers with boils, sores, abscesses

FOOD-BORNE DISEASES INFECTIONS

- BACTERIA
  Salmonella sp., Campylobacter sp., Yersinia, Shigella, Listeria monocytogenes, E. coli, Brucella, Strr faecalis, Mycobact. Tub.

- VIRUS:
  Hepatitis A and E, Rotavirus, Norwalk-virus, certain adenoviruses and astroviruses.

- PROTOZOON
  Entamoeba, Giardia, Toxoplasma, Cyclospora, Cryptosporidium

- HELMINTH Taenia, Trichinella, Fasciola, Ascaris

- UNCONVENTIONAL AGENTS
  Prion-BSE

Salmonella

- More than 2000 serovars. Cold resistant: deepfreased poultry
  Resistant of drying: pulver of eggs, pulver of milk, cereals
  Serotypes: S. Enteritidis, S. Típhimurium, S. Infantis, S. Senftenberg

- ***Source:*** intestinal tract of domestic and wild -animals- humans.

- ***Transmission*****:** ingestion of viable organism from food from infected animals, food contaminated with feces (human or animal). Primarily foods of animal origin: **eggs,** poultry, meat, milk.

- ***Incubation:*** 6-72 hours (typically 12-36), acute gastroenteritis.

- ***Symptoms:*** sudden onset of headache, abdominal pain, mild fever, diarrhea, nausea and vomiting.

- ***Control* by**: thorough cooking, avoid recontamination, low pH, and proper hygiene of food handlers.