MUNI
MED

Lifestyle-oriented counselling in prevention

Assessment methods and recommendations

Department of Public Health, Faculty of Medicine, Masaryk University

Basic points - outline

- **Introduction** (goals, determinants of health, importance of lifestyle)
- **System of general preventive examinations** in the Czech Republic
- **Examination methods** (Examination = the basis for individualized recommendations)
  - General personal and medical history
  - Lifestyle assessment (retrospective)
    - Smoking - active, passive – SHS (Second Hand Smoke), ETS (Environmental Tobacco Smoke)
    - Dietary habits
    - Alcohol
    - Physical activity
  - Objective examination a measurements
    - Nutritional status - anthropometry
    - Physical condition (fitness)
    - Blood pressure
    - Selected biochemical examination
- **Generally valid recommendations** based on EBD principles
  - **Dietary** guidelines
  - **Physical activity** guidelines
  - Guidelines on the primary prevention of **Cardiovascular Disease**
  - Primary prevention of **Cancer**
- **Intervention methods, work with motivation, counseling techniques**

Preventive examinations by law (in the Czech Republic)

- Decree No. 70/2012 Coll. "**Decree on preventive examinations**"
  - + DECREE of 21 September 2016 amending Decree No. 70/2012 Coll
    - § 1 -**Types of preventive examinations** and **providers** performing them
    - § 2 - **Contents** and **timetable** of the general preventive examination
    - § 3 - Content and timetable of general preventive examination **in children**

- §1 - Types of preventive examinations and providers performing them
  - a) General medical practice - „**General preventive examination**"
  - b) GP for children and adolescents - „**General preventive examination of children**"),
  - c) Dentistry - „**Dental preventive check-up**"),
  - d) Gynecology and obstetrics - („**Gynecological preventive examination**").

§ 2 - Content and scheduling of the general preventive examination

A general preventive examination is performed **every 2 years**, usually after 23 months after the last general preventive examination. The content of the general preventive examination is:

a) History

- Completing including social history, focusing on changes, risk factors and professional risks
- In FH (family history) emphasis on: CVD, pulmonary, hypertension, DM, lipid metabolism disorders, cancer, addictions

b) Checking of vaccination

c) Complete physical examination

- BP, BMI, eyesight
- Oncological prevention
  - Risk assessment in terms of history (family, personal, occupational), skin examination, in case of suspicion, per rectum examination, in men with a positive family history or other signs, testicular examination
  - Women from 25 years with positive FH or other risk factors - clinical breast examinations, breast self-examination instruction

d) Urine examination with diagnostic paper

e) Checking and evaluating the results of ordered preventions. examination

1) Chol, HDL, LDL, TGA - in 18, 30, 40, 50 a 60 years of age
2) Glycaemia – At 18, and then at 30, and from 40 at 2-year intervals since the last one
3) ECG - at 40, then four-year intervals
4) FOBT (Fecal Occult Blood Test) from 50 yrs., from 55 can be replaced by colonoscopy once every 10 yrs.
5) Women over 45y. - mammography result not older than 2 years
6) Serum creatinine and glomerular filtration rate estimation in patients with DM, hypertension or HF complications over 50 years at 4-year intervals

Objectives of counseling (not by law, generally)

- **To Reduce the risk of disease** (primary prevention)
- **To Improve** present physical condition (body composition - obesity, BP, cholesterol, glycaemia, fitness, immunity…)
- To address any pre-pathological phases **non-pharmacologically** (non-pharmacological intervention – therapy)
- For existing diseases, to **reduce the need for drugs** and improve the condition, preventing progression

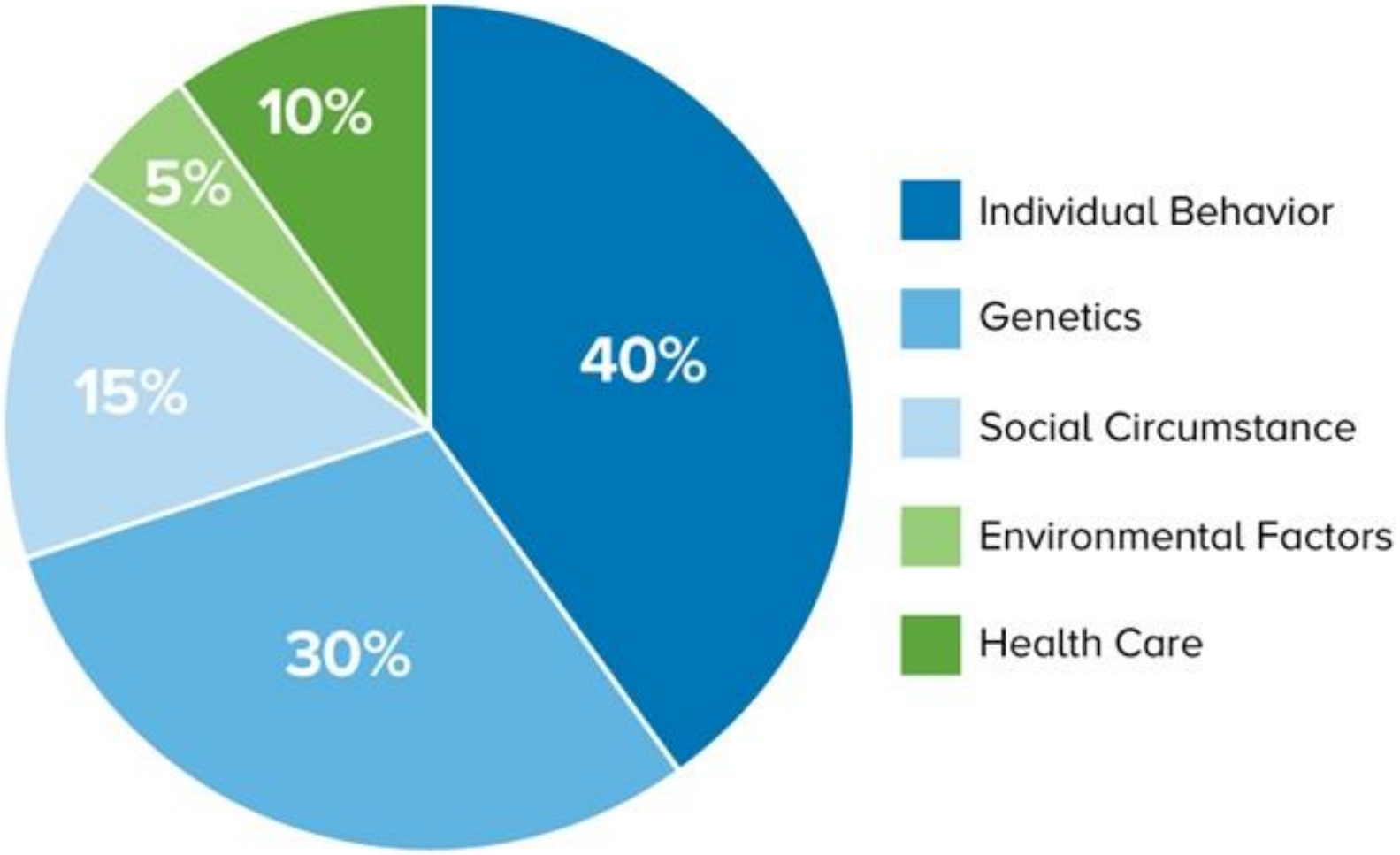
Who and when provides the counselling:

- General practitioner
  - As part of the general preventive examination
  - In any therapeutic contact with the patient
- Any specialist
  - Within treatment (and prevention - primary, secondary, tertiary)

How to proceed - steps:

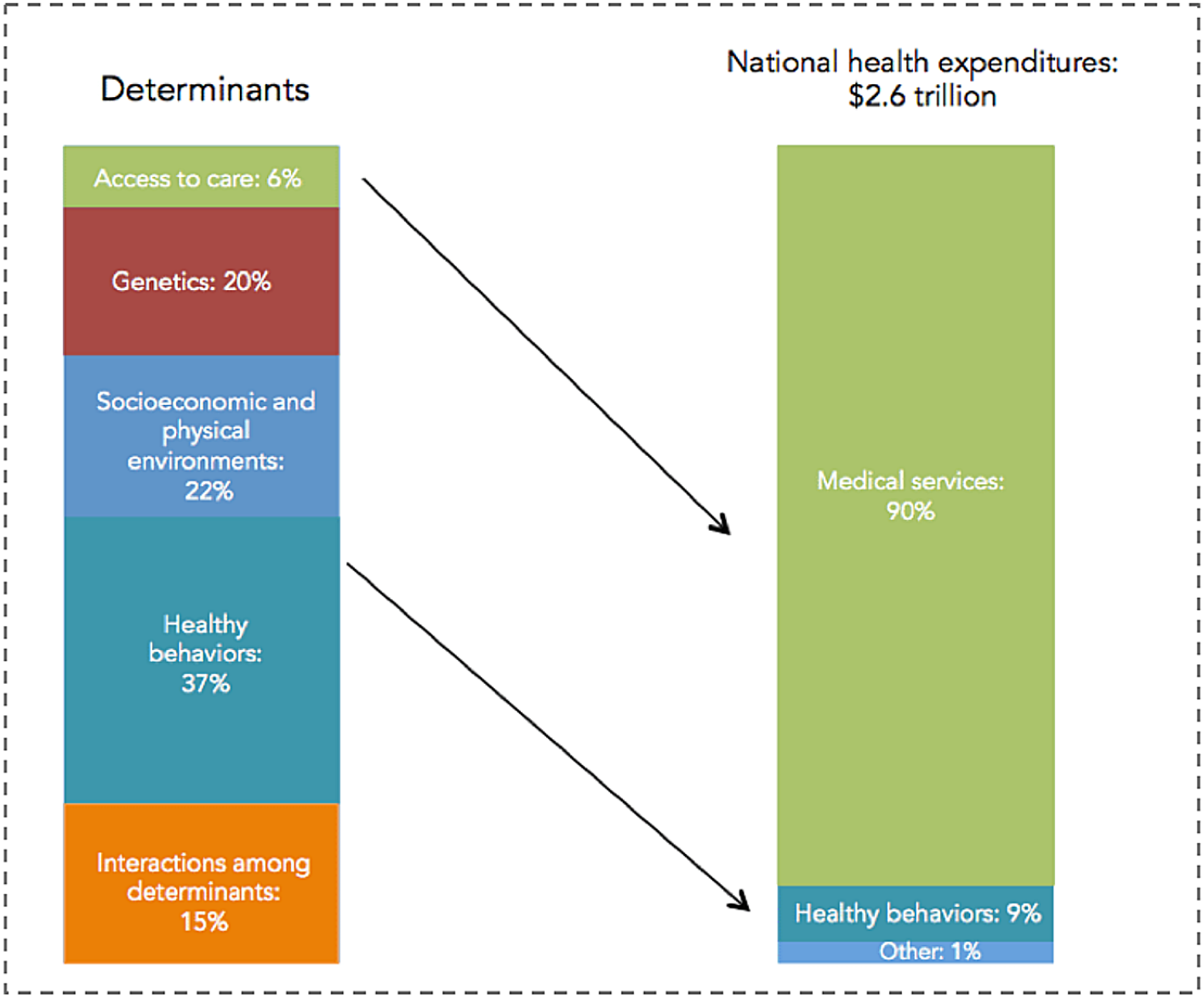
- **Asses**
  - To obtain the patient's individual risk profile (based on examination, both lifestyle and objective)
- **Inform**
  - To inform the patient about the result
  - To explain impact and importance of lifestyle as a health determinant
- **Advise (recommend) and motivate, set goals**
  - General population recommendations - guidelines (on nutrition, physical activity, alcohol)
  - Individualized recommendations according to health status and current lifestyle
  - Motivational techniques
- **Monitor, control, assist** (progress and effect monitoring, compliance support)

Determinants of overall health



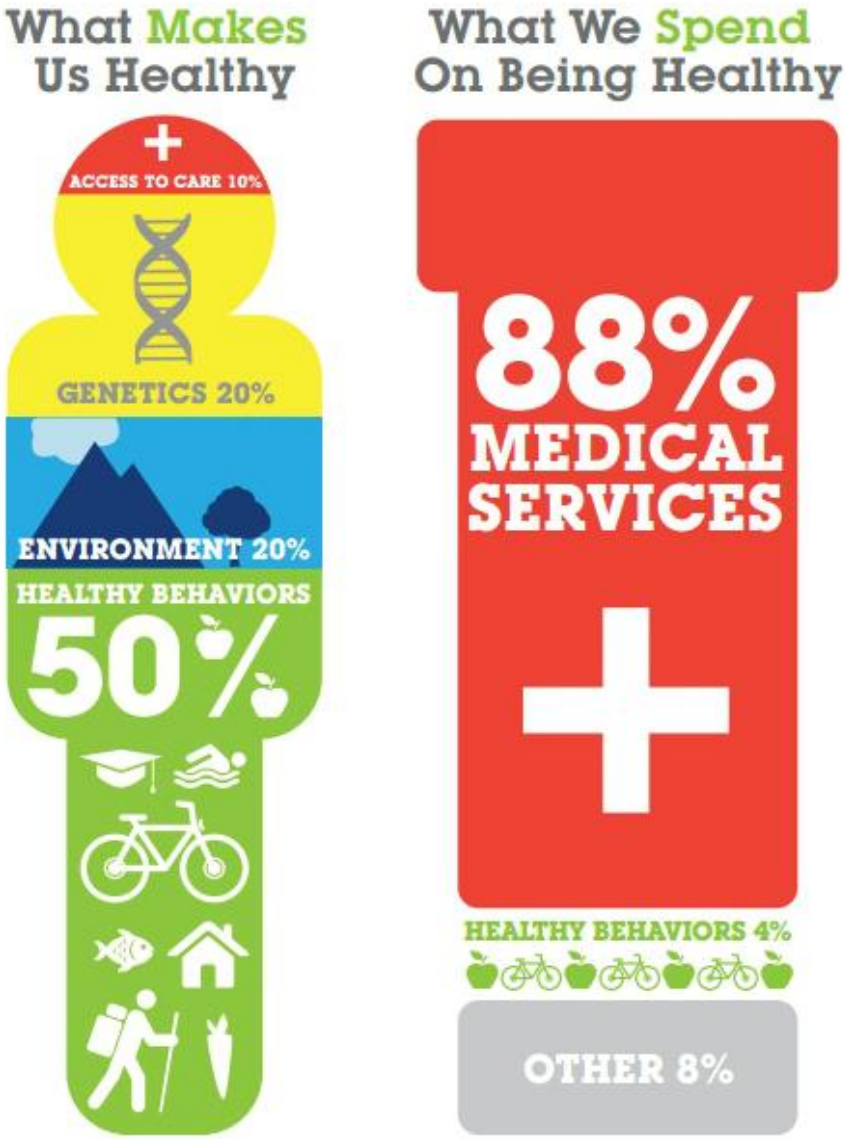
Source: *We Can Do Better—Improving the Health of the American People*, The New England Journal of Medicine, September 2007

Determinants of health vs expenditure



https://www.publichealthpost.org/databyte/public-health-spending-mismatch/

Determinants of health vs expenditure



Lifestyle factors – behavioral determinants of health

Attitudes, Beliefs, Lifestyle

- **Smoking**
- **Nutrition** – dietary behavior
- **Physical activity**
- **Alcohol**
- Illicit drug use
- Personal hygiene, washing hands
- Social contacts
- Work/Occupation
- Stress coping
- Sexual activity
- Sleep patterns
- Sun exposure behavior
- Motor vehicle behavior

History (anamnesis)

FH (Family history)

- Family history of premature CVD (defined as fatal or non-fatal CVD event./diagnosis of CVD in first degree relatives – male <55 yrs., female <65 yrs.
- DM (type 2)
- Obesity
- Cancer

Not only genetic predispositions are inherited, but also lifestyle

PH (Personal/medical history)

- All present diseases
- Medications
- Health restrictions/limitations (incl. diets, mobility restrictions, etc.)

SH (Social history)

OH (Occupational history

Smoking

Smoking - the impact of smoking on health

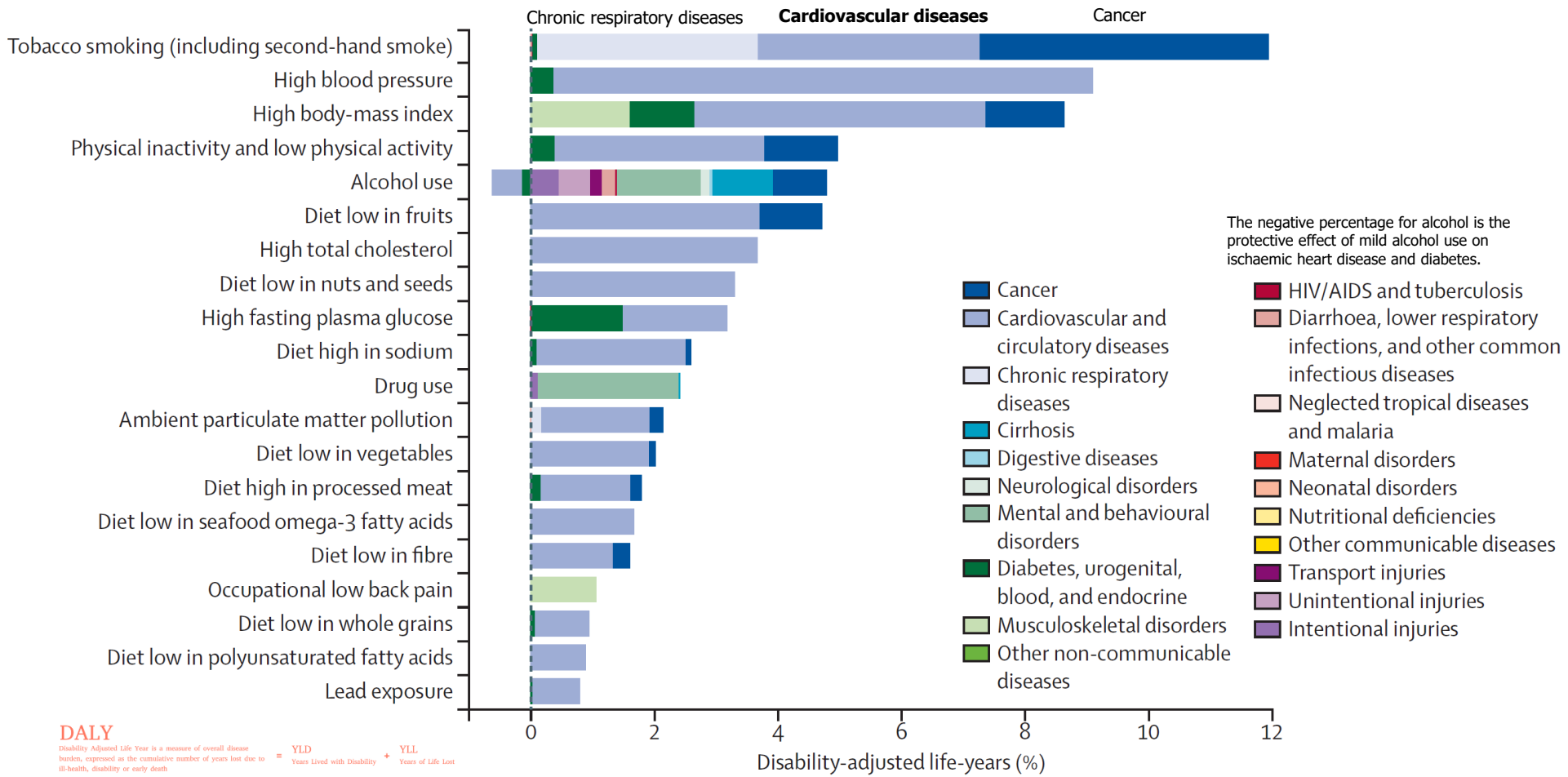
Smoking is the strongest risk factor for:
- Cancer
- Cardiovascular diseases
- Chronic respiratory diseases

Smoking is the strongest influenceable determinant of health

Smoking is responsible for 50% of all avoidable deaths in smokers
A smoker on average will lose 10 years of life

Burden of disease attributable to 20 leading risk factors for both sexes in 2010, expressed as a percentage of UK disability-adjusted life-years

Lancet 2013; 381: 997–1020



Examination of smoking status, categorization

- Ask: To detect patient's smoking status and passive exposure
  - **Active smoking** (first-hand smoke, main stream)
    - How many cigarettes do you smoke on average during the day? *
    - How old did you start smoking regularly
    - Have you ever tried to quit smoking?
    - What was the longest time you lasted not to smoke one cigarette a day

*Table: Smoking status:

Category	*Criterion*
Current smoker: **Everyday smoker** (previously called „Regular smoker")	≥1 cigarette /day
Current smoker: **Someday smoker** (previously called „Occasional smoker")	<1 cigarette /day
Former smoker (Ex-smoker)	• Currently, he/she doesn't smoke for at least 6 months • He/she has smoked at least 100 cigarettes in his or her lifetime, but had quit smoking at the time of interview. • Has been a regular smoker for more than 6 months
Never smoker	An adult who: • Has never smoked, or • Who has smoked less than 100 cigarettes in his or her lifetime

  - **Passive smoking** (exposure), ETS – Environmental Tobacco Smoke
    - SHS (Second Hand Smoke, side stream)
      - At work - occupational
      - Family members
      - Elsewhere (friends, acquaintances…)
    - THS (Third Hand Smoke)
      - From materials in the indoor environment - furniture, plasters, fabrics, carpets, plastics

Smoking - recommended intervention in contact with a smoker

The "**Five As**" for a smoking cessation strategy for routine practice:

A-ASK:	Systematically inquire about smoking status at every opportunity.
A-ADVISE:	Unequivocally urge all smokers to quit.
A-ASSES:	Determine the person's degree of addiction and readiness to quit.
A-ASSIST:	Agree on a smoking cessation strategy, including setting a quit date, behavioural counselling, and pharmacological support.
A-ARRANGE:	Arrange a schedule of follow-up.

Smoking - Fagerström Test of Nicotine Dependence, FTND

	PLEASE TICK {✓) ONE BOX FOR EACH QUESTION		
How soon after waking do you smoke your first cigarette?	Within 5 minutes	☐	3
	6-30 minutes	☐	2
	31-60 minutes	☐	1
	After 60 minutes	☐	0
Do you find it difficult to refrain from smoking in places where it is forbidden? e.g. Church, Library, etc.	Yes	☐	1
	No	☐	0
Which cigarette would you hate to give up?	The first in the morning	☐	1
	Any other	☐	0
How many cigarettes a day do you smoke?	10 or less	☐	0
	11 -20	☐	1
	21 -30	☐	2
	31 or more	☐	3
Do you smoke more frequently in the morning?	Yes	☐	1
	No	☐	0
Do you smoke even if you are sick in bed most of the day?	Yes	☐	1
	No	☐	0
	Total Score		

SCORE		
	1- 2 = low dependence	5 - 7= moderate dependence
	3-4 = low to mod dependence	8 + = high dependence

Pharmacological assistance in smoking cessation

Following the failure of advice, encouragement and motivational interventions, or in addition to them

- There is a strong evidence base for brief interventions with advice to stop smoking, all types of nicotine replacement therapy (NRT), bupropion, varenicline and greater effectiveness of drugs in combination, except for NRT plus varenicline.
- The most effective are brief interventions plus assistance with stopping using drug therapy and follow-up support.
- Electronic cigarettes (e-cigarettes) may help in smoking cessation but should be covered by the same marketing restrictions as cigarettes.

– NRT - Nicotine Replacement Therapy

- Nicotine substitution to alleviate withdrawal symptoms
- Various forms of NRT: chewing gum, transdermal nicotine patches, nasal spray, inhaler, sublingual tablets

– Bupropion (**antidepresant**, brand name *Zyban*)

- Noradrenaline and dopamine reuptake inhibitor (NDRI), which has antidepressant activity and reduces withdrawal symptoms during smoking cessation.
- Bupropion suppresses craving and withdrawal symptoms after nicotine withdrawal due to increased levels of dopamine and noradrenaline

– Vareniclin (**partial nicotine receptor agonist**, *Champix*)

- Partial agonist of acetylcholine-nicotinic receptors, which decreases craving for a cigarette and other withdrawal symptoms from nicotine deficiency (agonist effect) while blocking the nicotine effect on the brain (antagonist effect)
- Agonist activity of Vareniclin alleviates the withdrawal symptoms of nicotine deficiency and its antagonistic function reduces the sense of satisfaction from smoking and thus the smoker's attachment to the cigarette

– Combination

- Combining more types increases effectiveness and chance of quitting
- The most common combination is a nicotine patch with one of the oral forms of nicotine, bupropion and nicotine, or bupropion and varenicline.
- Varenicline with nicotine can also be combined, especially in heavily dependent patients, but they compete for the same receptors.

– Other forms

- Both individual and group **behavioural interventions** are effective in helping smokers quit. Support from the individual's partner and family is important.
- There are **no reliable data** that acupuncture, acupressure, laser therapy, hypnotherapy or electrostimulation are effective for smoking cessation.

http://www.kardio-cz.cz/data/upload/Doporuceni_pro_lecbu_zavislosti_na_tabaku.pdf

Nutrition

Nutrition - dietary assessment (dietary habits, d. consumption)

Taught earlier in Public Health II subject, topic "Evaluation of nutritional habits"

Retrospective methods:

- Dietary (nutritional) history
- 24-hours diet recall (with computerized evaluation)
- FFQ – Food Frequency Questionnaire
- Brief methods, scoring (e.g. WHO nutritional score)

.

Prospective methods:

- Usually not applicable - too demanding (Dietary records, Double portions etc.)

Nutritional history

Gender:
Age:
Height (cm):
Weight (kg):

	Indicator	Description	Evaluation
1	**BMI**: kg/m^2		
2	**Weight change history**		
3	**Food allergies** **Food intolerance**		
4	**Usual eating habits,** incl. alternative diets such as vegetarianism, veganism etc.		
4	**Therapeutic diet** - according to the Dietary System of the Czech Republic, e.g. diabetic, gluten-free, sparing etc.		
6	**Appetite** **Current dietary intake** **Dyspeptic problems**	Distaste 0.....5.....10 normal 0 - 100% of usual intake:_____ %	
7	**Drug interactions**		
8	**Dietary supplements**		

A brief dietary assessment

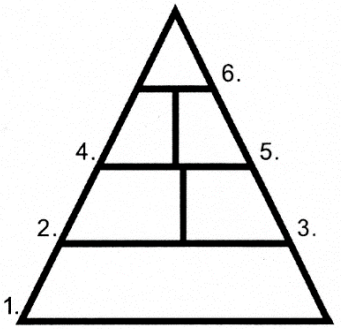
– **A Form for 24 hours recall and quick manual assessment**:

Identification ..... Age ..... Gender: Male 0 Female 1 Date .....

Examination 1 2

Record of the dietary consumption over the last 24 hours

Food / drink (please specify each item)	Amount
Breakfast	
Snack	
Lunch	
Snack	
Dinner	



Number of portions in food groups

1.	
2.	
3.	
4.	
5.	
6.	

What is one serving for each food group (aid for counting the number of servings):

1. **Cereals:** 1 slice of bread (60g) or 1 roll or 1 bowl of oatmeal or 1 scoop of cooked pasta or rice about 125 g
2. **Vegetables**: 100g piece of pepper or carrot or about 2 tomatoes or bowl of salad
3. **Fruit**: 1 apple, orange or banana approx. 100 g or 1 bowl of strawberries, currant or blueberry or glass of fruit juice undiluted with water
4. **Milk and dairy products:** 1 glass of milk or 1 cup of yoghurt about 200 ml or 55 g of average cheese
5. **Meat, poultry, fish**…: 80 g of fish, poultry or other meat or 2 cooked egg whites or 1 bowl of soybeans or lentils
6. **Other:** 10 g sugar or fat (caution - even hidden)

Nutritional score (by WHO)

Nutritional score by WHO

Evaluate your diet within the last 1 day (give 1 POINT for each YES answer

		Points
1.	**Were there at least 3 servings of cereals, pasta, bread or rice in the diet?**	
2.	**Were there at least 3 servings of vegetables (total 300g) in the diet?**	
3.	**Were there at least 2 servings raw?**	
4.	**Were there at least 2 servings of fruit (total 200g) in the diet?**	
5.	**Was at least 1 serving raw?**	
6.	**Have different (i.e. not just the same) foods been consumed within each food group?**	
7.	**Did the snacks and meals consumed outside main meals have, besides energy, some other nutritional value?** (e.g. vitamins, minerals, proteins, etc.)?	
8.	**Have at least 2 servings of milk, dairy products been consumed / day?**	
9.	**Have at least 1 portion of fish, poultry, meat or legumes, etc. been consumed?**	
10.	**Were mostly non-fat, lean or low-fat food alternatives chosen?**	

Rating:

10 points: Your nutrition is excellent, perfectly fine! It will be very appropriate to eat according to the same principles as before.

9 to 7 points: There are still reserves in the quality of the diet, but it will not be too difficult to make positive changes to make the nutrition completely error-free.

6 to 4 points: Nutrition is not sufficient in terms of quality. Major changes are needed in order to assess it at least as sufficient.

3 to 0 points: Absolutely inadequate nutritional quality, immediate and vigorous remedy required.

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NutriPro – An example of computerized dietary assessment

- Input of data from 24hod recall/record is required
- Meals/foods and their quantities are entered
- The procedure is relatively demanding
- Software is not free (quite costly)

Datum 11.7.2018
Klient klient 2

nutripro

Základní přehled

	Energie	Sacharidy	Cukry	Tuky	Sat. tuky	Bílkoviny	Vláknina	Cholest.	Vápník	Vit. C
Průměr	3120 kcal	376,9 g	53,8 g	72,1 g	16,7 g	236,8 g	33,9 g	841,7 mg	762,1 mg	201,7 mg
DDD / Cíl	167 %	164 %	65 %	115 %	OK	504 %	OK	281 %	76 %	202 %

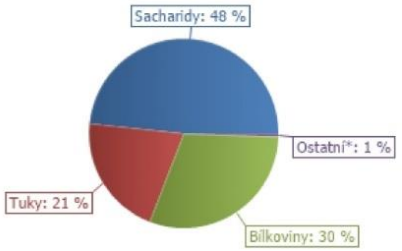
	Železo	Sodík	Draslík	Fosfor	Hořčík
Průměr	20 mg	1758 mg	5960 mg	2980 mg	589 mg
DDD / Cíl	132 %	OK	298 %	426 %	196 %

Hodnoty na kilogram hmotnosti

	Hodnoty	Referenční
Bílkoviny na kg	-	0,8 - 1,5 g/kg
Energie na kg	-	25 - 35 kcal/kg

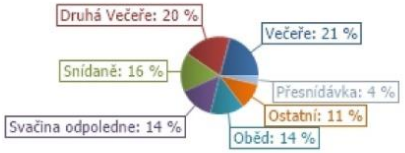
Rozložení energie

1g S/4 kcal, 1g T/9 kcal, 1g B/4 kcal



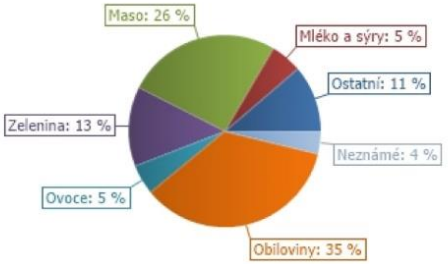
* Ostatní zahrnuje alkohol, polyoly, vlákninu a organické kyseliny

Rozložení energie v jídlech



Kategorie podle hmotnosti

Kategorie podle energie



Department of Public Health,
Faculty of Medicine,
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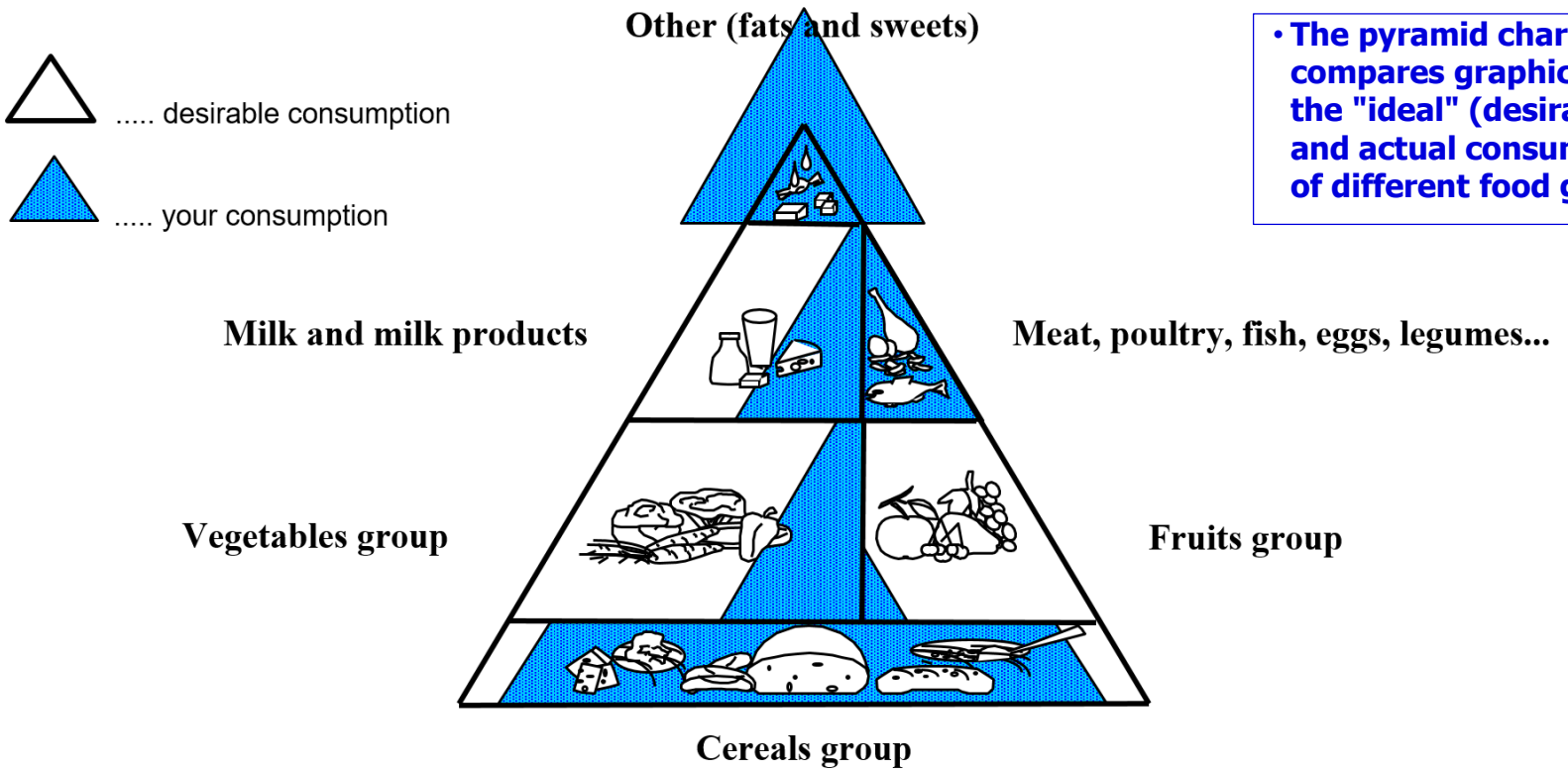
Older software used at our dept. for dietary assessment

The food pyramid expresses the principles of everyday well-balanced diet.



- **The pyramid chart compares graphically the "ideal" (desirable) and actual consumption of different food groups.**

Food group	*Servings consumed*	*Servings recommended*	*Percentage reached*
Breads, cereals, pasta, rice, cakes	3.9	4.5	87
Vegetables	1.4	5.0	28
Fruits	0.1	3.0	5
Milk and milk products	1.1	3.0	38
Meat, poultry, fish, eggs, legumes	1.0	1.0	105
Other (fats and sweets)	2.4	0.5	476

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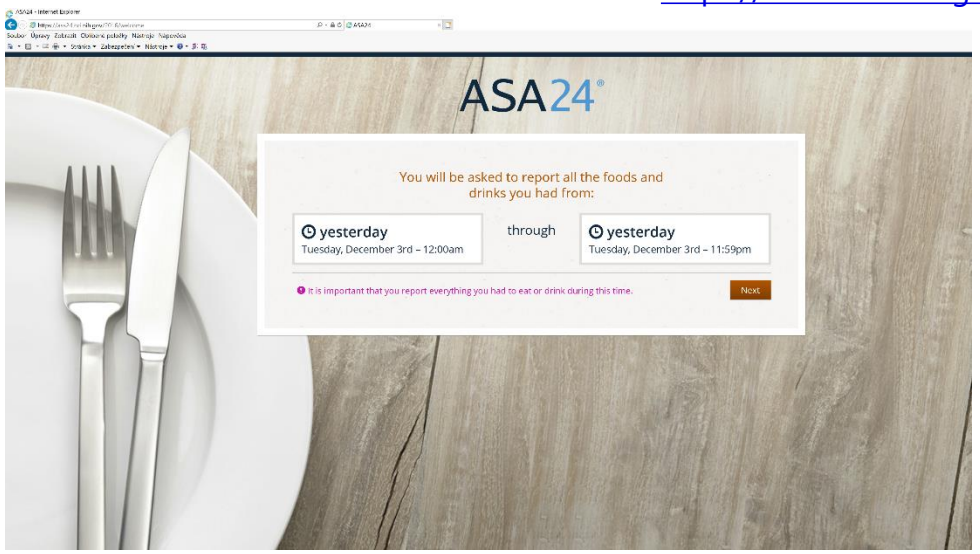
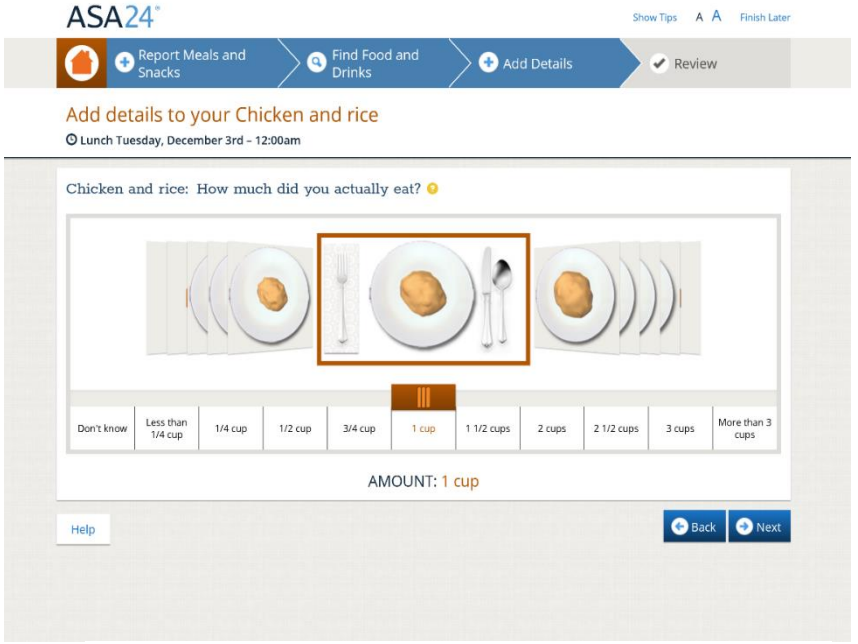
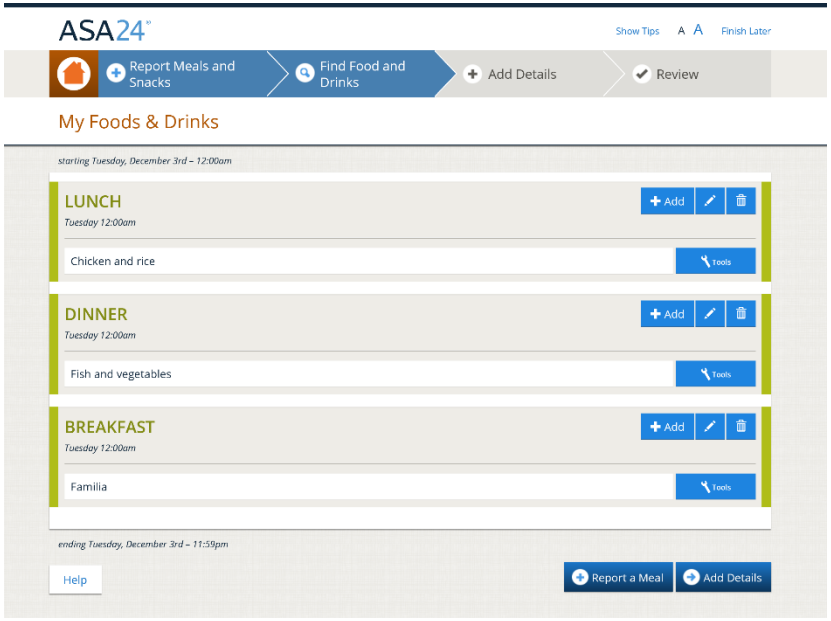
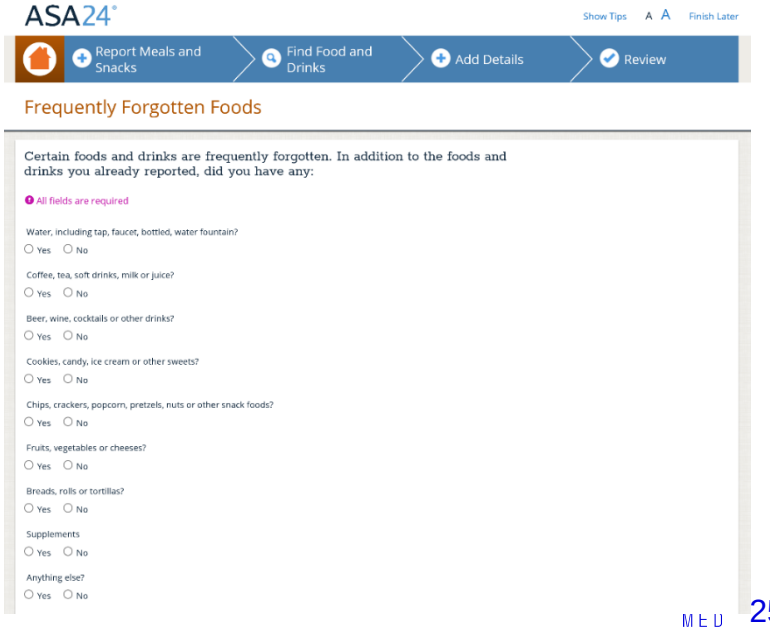
ASA24 – Computerized dietary assessment of 24hr recalls

https://asa24.nci.nih.gov/demo







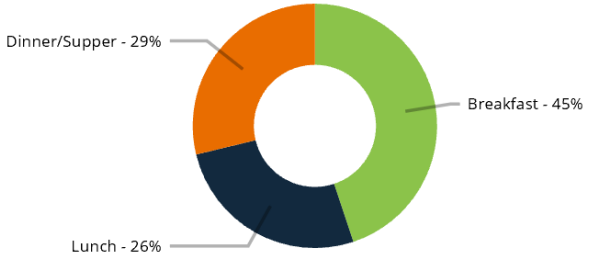


ASA24 – An example of computerized dietary assessment

ASA24®

Nutrition Profile

Caloric Intake By Meal



Day(s)

From: Dec 3, 2019 12:00:00 AM

To: Dec 3, 2019 11:59:59 PM

Daily Calories More Info

Allowance	2,000
Eaten	659

Daily Food Group Targets More Info

	Grains	Vegetables	Fruits	Dairy	Protein Foods
Target	6.0 ounces	2.5 cups	2.0 cups	3.0 cups	5.5 ounces
Eaten	2.1 ounces	1.0 cups	0.6 cups	0.9 cups	3.0 ounces
Status	Under	Under	Under	Under	Under

ASA24 – An example of computerized dietary assessment

Daily Food Group Targets

Data | Chart

Grains

Total target	6.0 ounces
Total eaten	2.1 ounces
Total status	Under

Grains Subgroups	Amount Eaten
Whole grains	1.3 ounces
Refined grains	0.8 ounces

Fruits

Total target	2.0 cups
Total eaten	0.6 cups
Total status	Under

Fruits Subgroups	Amount Eaten
Whole fruits	0.3 cups
Juice	0.0 cups

Dairy

Total target	3.0 cups
Total eaten	0.9 cups
Total status	Under

Dairy Subgroups	Amount Eaten
Milk	0.9 cups
Yogurt	0.0 cups
Cheese	0.0 cups

Protein Foods

Total target	5.5 ounces
Total eaten	3.0 ounces
Total status	Under

Protein Foods Subgroups	Amount Eaten
Meat, Poultry and Eggs	3.0 ounces
Seafood	0.0 ounces
Nuts, Seeds and Soy	0.0 ounces

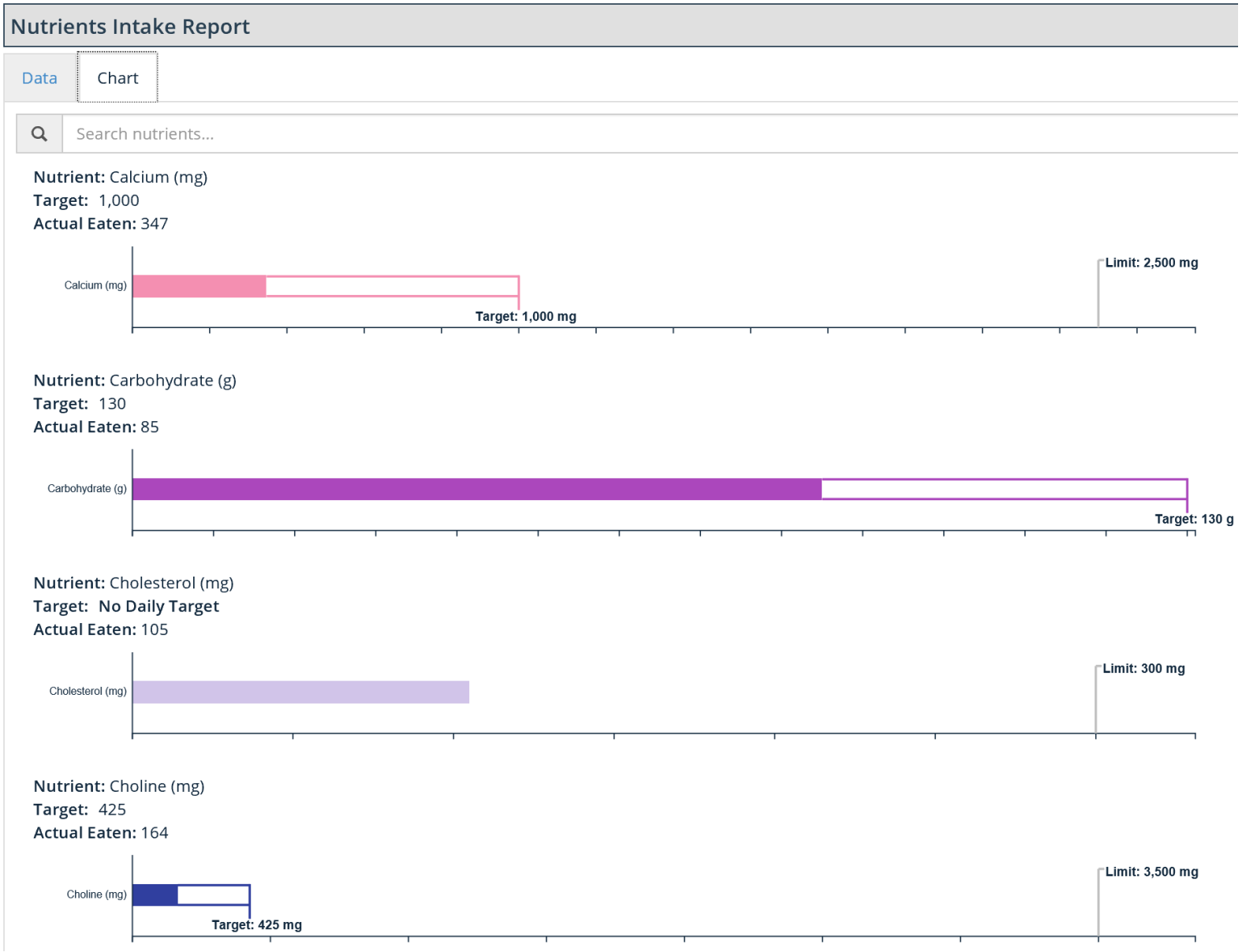
*The Protein Foods Group consists of meat, poultry, seafood, eggs, nuts and seeds, soy products (other than soymilk), and legumes.

Vegetables

Total target	2.5 cups
Total eaten	1.0 cups
Total status	Under

Vegetables Subgroups	Amount Eaten
Dark Green vegetables	0.1 cups
Red and Orange vegetables	0.2 cups
Legumes (beans and peas)	0.0 cups
Starchy vegetables	0.4 cups
Other vegetables	0.3 cups

ASA24 – An example of computerized dietary assessment



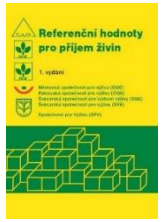
Dietary guidelines

Dietary guidelines

Basic forms of reference values and nutritional recommendations

Dietary Reference Values (DRV)

- Numerical reference values for daily intake of **individual nutrients** (by sex, age, pregnancy, lactation). Multiple options (lowest, average, recommended, tolerable income). They are intended for experts.
- Other possible terms:
  - RDI – Recommended Dietary Intake
  - RDA – Recommended Dietary Allowances
  - GDA* - Guideline Daily Amount * Food labeling



- *Current valid documents:*
  - **DACH Reference values for nutrient intake** *(D= Germany, A= Austria, CH = Confœderatio Helvetica (Switzerland). Therefore, it refers to German-speaking Europe.*
  - **European DRV – EFSA** (European Food Safety Authority)

General nutritional recommendations (dietary guidelines)

- Verbal nutrition recommendations - guidelines that are not primarily quantitative, but rather guidelines for changing consumption. They can be both for professionals and public.
- *Specific examples:*
  - Nutritional recommendations for the population of the Czech Republic (Nutrition Society, 2012)

FBDG – Food Based Dietary Guidelines

- Transformation into a practically applicable verbal (or graphic) form, working with whole foods and food groups. It is „translation" for ordinary people, based on DRV and scientific knowledge.
- An attempt to translate the evidence base on the relationship between food, eating habits and health into concrete, culturally appropriate and applicable recommendations.

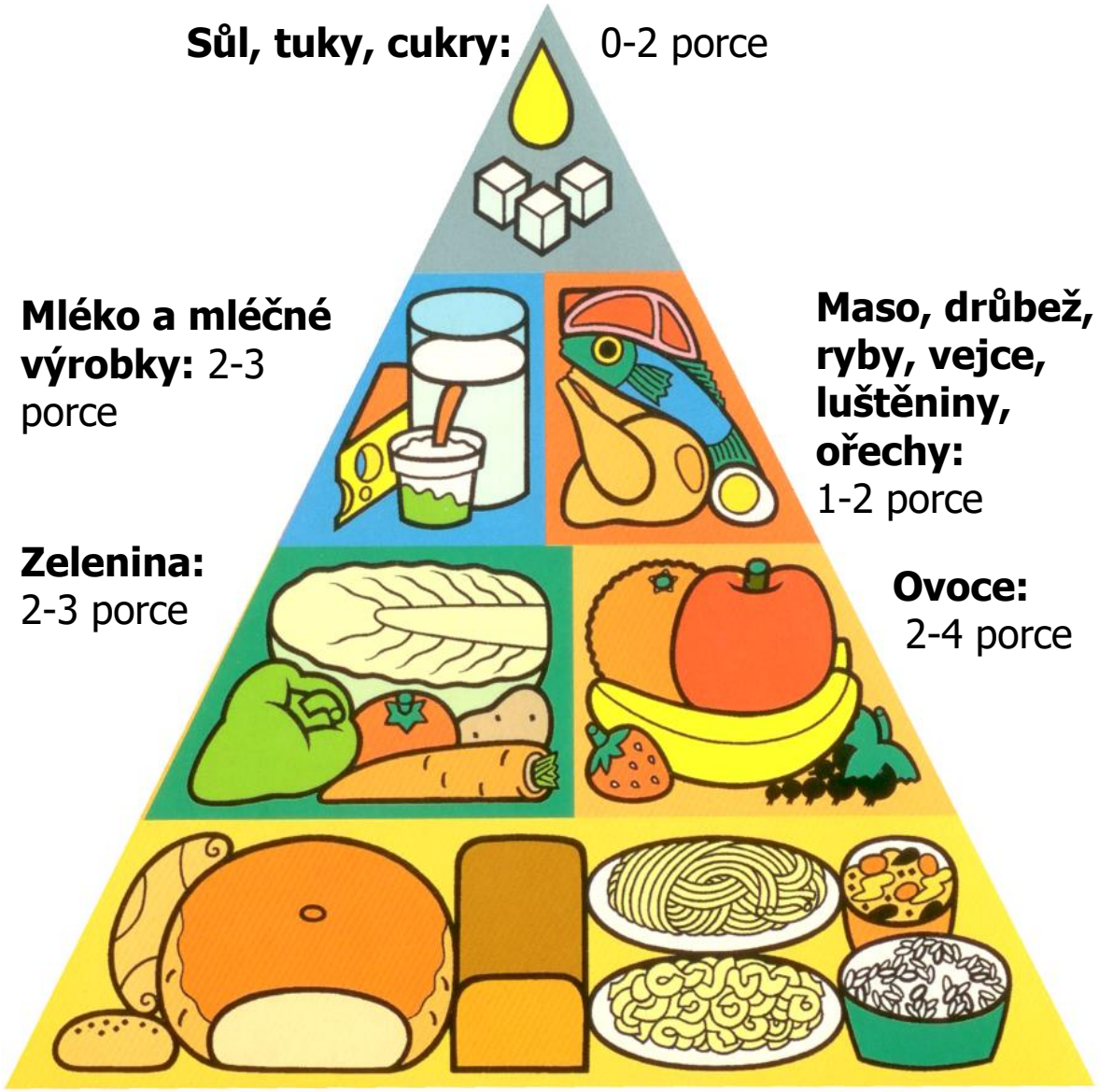
Food Based Dietary Guidelines (FBDG)

- Simple messages on healthy eating, **aimed at the general public**
- Nutrition education tool translating scientific knowledge and dietary standards and recommendations into an **understandable and practical form** for use by those who have little or no training in nutrition.
- FBDG are generally **based upon scientific evidence on the relationship between diet and chronic disease risk**, taking into account nutrient recommendations.
- They give an indication of what a person should be eating **in terms of foods rather than nutrients**, and provide a basic framework to use when planning meals or daily menus.
- Foods are **classified into basic groups** according to **similarity of nutrient content** or some other criteria.

WHY? BALANCED, ADEQUATE AND VARIED DIET

- To help consumers in planning an overall healthy diet, while achieving an adequate nutrient intake

Czech Food Pyramid



Definice porce pro jednotlivé potravinové skupiny:

1. **Obiloviny, těstoviny, rýže, pečivo:** 1 krajíc chleba (60g) nebo 1 rohlík či 1 miska ovesných vloček nebo 1 kopeček vařených těstovin či rýže cca 125 g

2. **Zelenina:** 100g kus papriky nebo mrkve nebo cca 2 rajčata nebo miska salátu

3. **Ovoce:** 1 jablko, pomeranč nebo banán cca 100 g nebo 1 miska jahod, rybízu nebo borůvek nebo sklenice ovocné šťávy neředěné vodou

4. **Mléko a mléčné výrobky:** 1 sklenice mléka nebo 1 kelímek jogurtu cca 200 ml nebo 55 g průměrného sýra

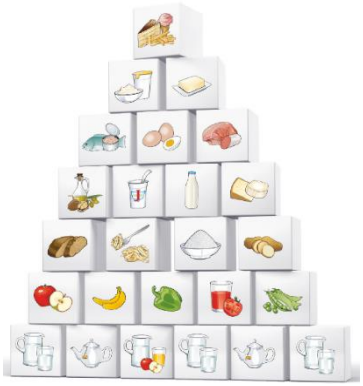
5. **Maso, drůbež, ryby**…: 80 g rybího, drůbežího či jiného masa nebo 2 vařené bílky nebo 1 miska sójových bobů nebo čočky

6. **Ostatní:** 10 g cukru nebo tuku (pozor – i skrytých)

FBDG - Graphic formats

Germany
DGE-Ernährungskreis (nutrition circle)

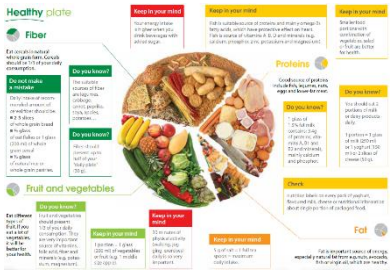
Austria
Die österreichische Ernährungspyramide



Swiss Food Pyramid

Czech Food Pyramid

Slovakia

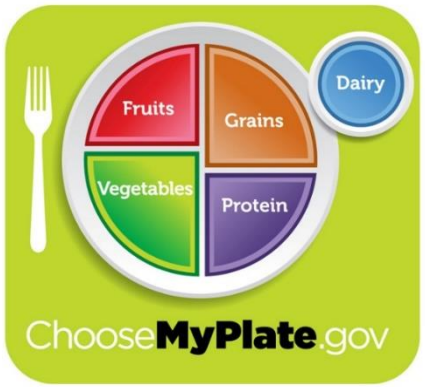


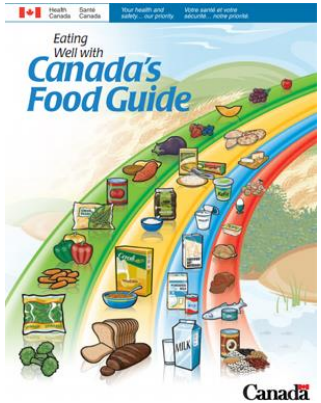
Slovenia

Portugal
Roda dos alimentos

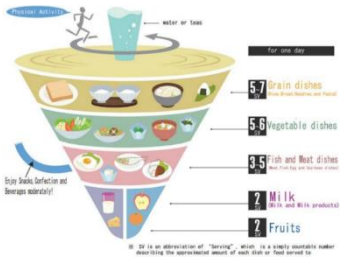
UK – Eatwell guide (2016)

US My Plate



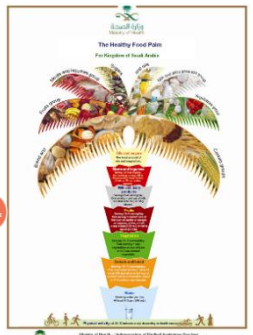


Japan – spinning top



Belgium
inverted pyramid

Saudi Arabia



https://ec.europa.eu/jrc/en/health-knowledge-gateway/promotion-prevention/nutrition/food-based-dietary-guidelines

UK - 2016

Eatwell Guide

Use the Eatwell Guide to help you get a balance of healthier and more sustainable food. It shows how much of what you eat overall should come from each food group.

Check the label on packaged foods

Each serving (150g) contains

Energy	Fat	Saturates	Sugars	Salt
1046kJ 250kcal	3.0g LOW	1.3g LOW	34g HIGH	0.9g MED
13%	4%	7%	38%	15%

of an adult's reference intake
Typical values (as sold) per 100g: 697kJ/ 167kcal

Choose foods lower in fat, salt and sugars

Eat at least 5 portions of a variety of fruit and vegetables every day

Fruit and vegetables

Choose wholegrain or higher fibre versions with less added fat, salt and sugar

Potatoes, bread, rice, pasta and other starchy carbohydrates

Beans, pulses, fish, eggs, meat and other proteins

Eat more beans and pulses, 2 portions of sustainably sourced fish per week, one of which is oily. Eat less red and processed meat

Dairy and alternatives

Choose lower fat and lower sugar options

Oil & spreads

Choose unsaturated oils and use in small amounts

Eat less often and in small amounts

6-8 a day

Water, lower fat milk, sugar-free drinks including tea and coffee all count.

Limit fruit juice and/or smoothies to a total of 150ml a day.

Per day 2000kcal 2500kcal = ALL FOOD + ALL DRINKS

Source: Public Health England in association with the Welsh government, Food Standards Scotland and the Food Standards Agency in Northern Ireland

Norwegian dietary guidelines

Nutrition information - Food labelling

Nutrition declaration

- The mandatory nutrition declaration shall include:
  - Energy value
  - The amounts of fat, saturates, carbohydrate, sugars, protein and salt

Nutrition claim

- Any claim which states, suggests or implies that a food has particular beneficial nutritional properties due to:
  - The energy (caloric value) - provides in reduced or increased rate
  - The nutrients - provides in reduced or increased rate

Permitted nutrition claims:

- Low sugars
- Low fat
- High fibre
- High omega-3 FA

Health claim

- Any statement about a relationship between food and health
  - The Commission authorises different health claims provided they are based on scientific evidence and can be easily understood by consumers. The European Food Safety Authority (EFSA) is responsible for evaluating the scientific evidence supporting health claims
  - Regulation (EC) No 1924/2006

Permitted health claims:

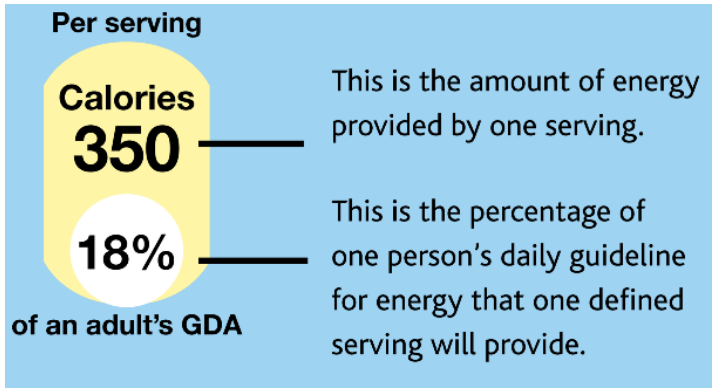
- "Vitamin D is needed for the normal growth and development of bone in children."
- „Iodine contributes to normal functioning of the nervous system."

GDA - Guideline Daily Amounts

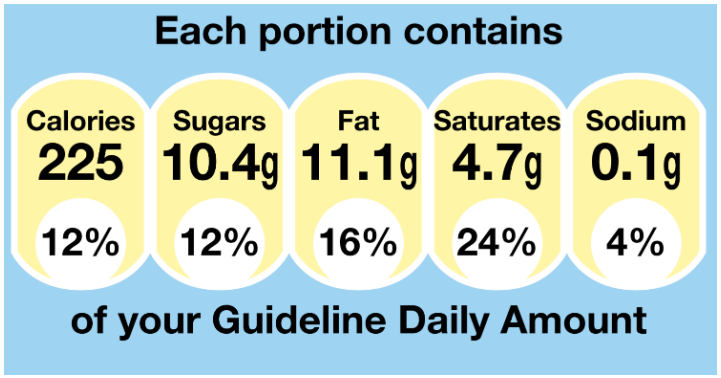
To help consumers make sense of the nutrition information provided on food labels, they translate science into consumer friendly information, providing guidelines on pack that help consumers put the nutrition information they read **on a food label** into the context of their overall diet.

- GDAs are guidelines for healthy adults and children about the approximate amount of calories, fat, saturated fat, total sugars, and sodium/salt.
- The GDA labels have the **percentage of daily value per serving** and the **absolute amount per serving** of these categories.
- **The front-of-packages (FOP)** GDAs must at least have **calories** listed
- **The back-of-package (BOP)** GDAs must list, at a minimum, these five key nutrients: **Energy**, **Fat**, **Saturates**, **Sugar** and **Salt**

FOP - Front-of package:



BOP – Back-of-package:



Mediterranean diet, alternative diets

Mediterranean diet

https://www.medicalnewstoday.com/articles/149090.php#diet

The Mediterranean diet is not a single diet but rather an **eating pattern** that takes inspiration from the diet of **southern European countries**. There is an emphasis on **plant foods**, **olive oil**, **fish**, **poultry**, **beans**, and **grains**

The diet draws together the common food types and healthful habits from the traditions of several different regions, including Greece, Spain, southern France, Portugal, and Italy.

Studies suggest that people who live in the Mediterranean area or follow the Mediterranean diet have a lower risk of various diseases, including **obesity**, **diabetes**, **cancer**, and **cardiovascular disease**. They are also more likely to enjoy a longer life than people in other regions.

Key ingredients of the diet include **fresh fruits** and **vegetables**, **unsaturated fats**, **oily fish**, a **moderate** intake of **dairy**, and a **low consumption** of **meat** and **added sugar**. Studies have linked these factors with positive health outcomes.

There is no single definition of the Mediterranean diet

The main components of Mediterranean diet include:

- Daily consumption of vegetables, fruits, whole grains and healthy fats.
- Weekly intake of fish, poultry, beans and eggs.
- Moderate portions of dairy products.
- Limited intake of red meat
- Along with food, the mediterranean diet emphasizes the need to spend time eating with family and physical activity.

Typical ingredients in Mediterranean diet:

Vegetables: Tomatoes, peppers, onions, eggplant, zucchini, cucumber, leafy green vegetables, plus others.

Fruits: Melon, apples, apricots, peaches, oranges, and lemons, and so on.

Legumes: Beans, lentils, and chickpeas.

Nuts and seeds: Almonds, walnuts, sunflower seeds, and cashews.

Unsaturated fat: Olive oil, sunflower oil, olives, and avocados.

Dairy products: Cheese and yogurt are the main dairy foods.

Cereals: These are mostly whole grain and include wheat and rice with bread accompanying many meals.

Fish: Sardines and other oily fish, as well as oysters and other shellfish.

Poultry: Chicken or turkey.

Eggs: Chicken, quail, and duck eggs.

Drinks: A person can drink red wine in moderation.

Definition of the Mediterranean Diet: A Literature Review. Nutrients 2015 7(11):9139-9153 https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4663587

Mediterranean diet

It is not only food but an outlook on life that contributes to the success of the Mediterranean diet. As well as a focus on plant-based foods, a philosophy that emphasizes the following is essential:

- Moderation and variety
- Living in harmony with nature
- Valuing relationships with others, including sharing meals and enjoying a chat around the table
- Having an active lifestyle, but relaxing after a meal

Vegetables: Include 3 to 9 servings a day.

Fresh fruit: Up to 2 servings a day.

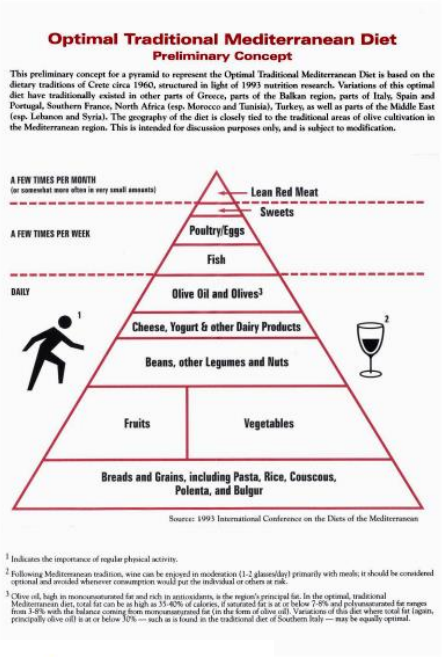
Cereals: Mostly whole grain from 1 to 13 servings a day.

Oil: Up to 8 servings of extra virgin (cold pressed) olive oil a day.

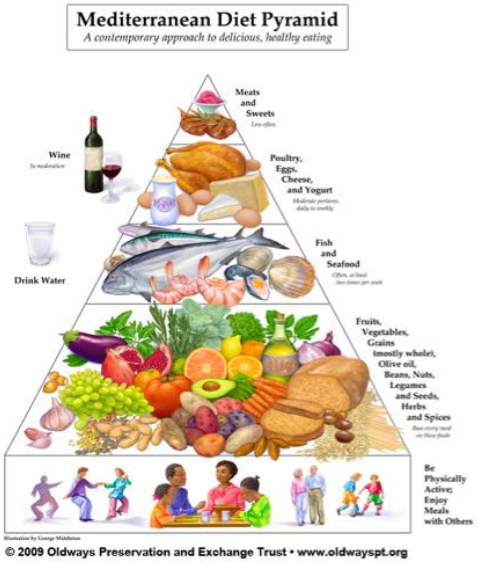
Fat — mostly unsaturated — made up 37% of the total calories. Unsaturated fat comes from plant sources, such as olives and avocado. The Mediterranean diet also provided 33 grams (g) of fiber a day.

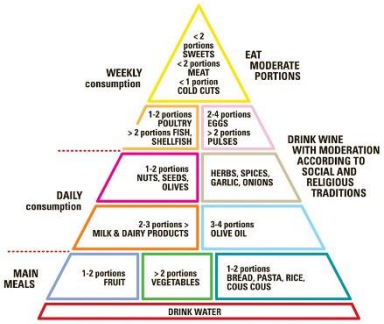
Definition of the Mediterranean Diet: A Literature Review: Nutrients 2015 7(11):9139-9153 https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4663587

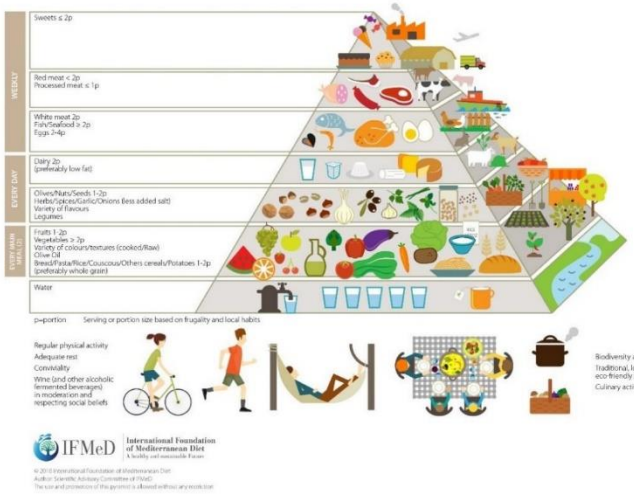
1993

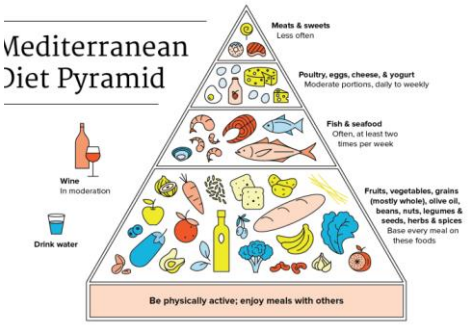


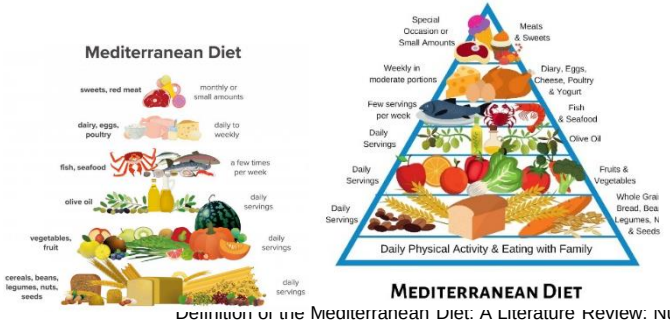
2018











Definition of the Mediterranean Diet: A Literature Review. Nutrients 2015 7(11):9139-9153 https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4663587

Alcohol

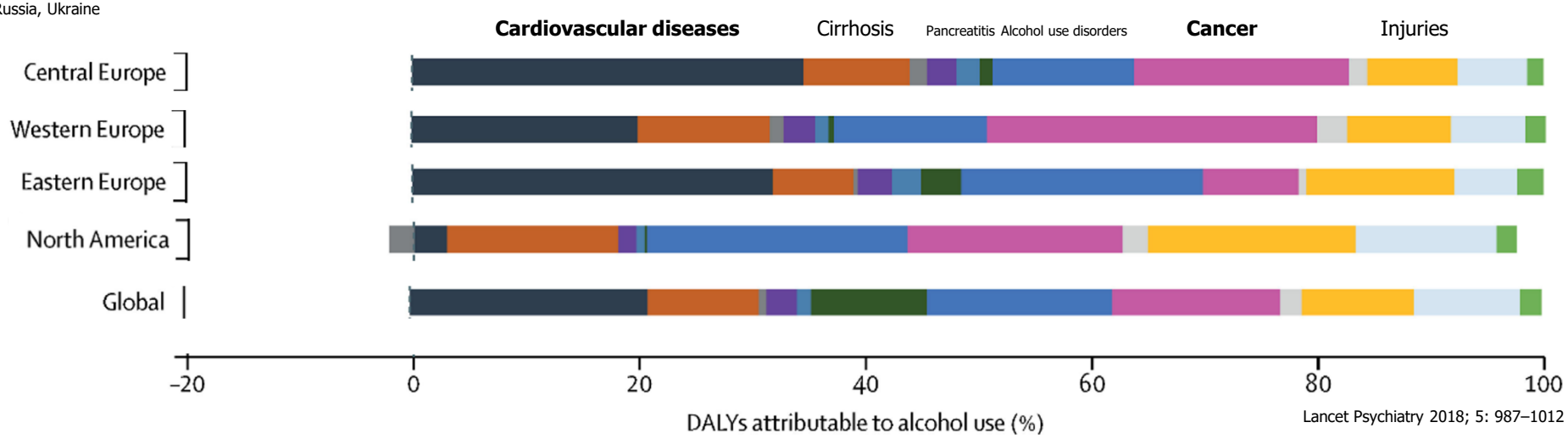
Impact of alcohol consumption on health

DALYs (Disability-Adjusted Life-Years) attributable to alcohol use in 2016:

Central Europe :
Albania, Bosnia and Herzegovina, Bulgaria, Croatia, **Czech Republic**, Hungary, Macedonia, Montenegro, Poland, Romania, Serbia, Slovakia, Slovenia

Western Europe:
Andorra, Austria, Belgium, Cyprus, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Israel, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Stockholm, Sweden, Switzerland, United Kingdom

Eastern Europe:
Belarus, Estonia, Latvia, Lithuania, Moldova, Russia, Ukraine



Lancet Psychiatry 2018; 5: 987–1012

The main diseases caused by alcohol use:

1) **Cardiovascular (CHD, Hypertension, Stroke, Arrytmias, Cardiomyopathy)**
2) **Cancer (Mouth, Pharynx and Larynx, Oesophagus, Stomach, Liver, Colorectum, Breast)**
3) **Cirrhosis**
4) **Alcohol use disorders**
5) **Pancreatitis**

Age-standardised DALYs per 100 000 people attributable to alcohol:

Russia	4 942
Ukraine	4 488
Romania	3 244
Hungary	2 797
Croatia	2 135
Poland	2 065
Slovakia	1 991
Bulgaria	1 906
Slovenia	1 636
Czech Republic	**1 633**

***Mediterranean*:**

France	1 528
Spain	1 185
Greece	1 004
Italy	823

Nordic:

Finland	1 567
Denmark	1 531
Sweden	951
Norway	698

Germany	1 362
Austria	1 357
Switzerland	755
UK	965
USA	1 179

Health problems associated with alcohol use

ICD-10:
F10 – Alcohol related disorders
F10.2 - Alcohol dependence
F10.1 - Harmful alcohol use (alcohol abuse)

A) Alcohol dependence

Alcohol dependence syndrome is a cluster of cognitive, behavioural, and physiological symptoms. A diagnosis of dependence should only be made if **three or more** of the following have been experienced or exhibited at some time in the previous twelve months:

- A strong desire or sense of compulsion to drink;
- Difficulties in controlling drinking in terms of onset, termination, or levels of use;
- A physiological withdrawal state when alcohol use has ceased or been reduced, or use of alcohol to relieve or avoid withdrawal symptoms;
- Evidence of tolerance, such that increased doses of alcohol are required to achieve effects originally produced by lower doses;
- Progressive neglect of alternative pleasures or interests because of alcohol use;
- ·Continued use despite clear evidence of harmful consequences.

B) Health harm

Because alcohol misuse can produce **medical harm without the presence of dependence**, ICD-10 introduced the term **harmful use** into the nomenclature. This category is concerned with medical or related types of harm, since the purpose of ICD is to classify diseases, injuries, and causes of death. Harmful use is defined as a pattern of drinking that is already **causing damage to health**. The damage may be either physical (e.g., liver damage from chronic drinking) or mental (e.g., depressive episodes secondary to drinking).

Note: In fact, somatic damage is much more common (and caused by lower doses) than the damage reported as dg. F10.1 - due to the attributable contribution to diseases such as cancer, cardiovascular diseases, etc.!

What is hazardous - harmful drinking

According to WHO:

Hazardous (heavy) drinking: Alcohol consumption that is likely cause adverse health effects if these habits continue (*20-40 g/day for women, 40-60 g/ day for men – but currently the limits getting stricter!)

Harmful drinking: Alcohol consumption that results in physical or psychological harm. (*regularly >40 g per day for women,>60 g for men – but currently the limits getting stricter!)

Heavy episodic (binge) drinkig :>60 g on one occasion

**Most authorities and recommendations currently set stricter limits, see below*

Risky patterns of drinking

- Heavy single occasion drinking
- Episodic heavy drinking (binge drinking)
- Regular (daily) heavy drinking (exceeding weeklyy thresholds)

Setting criteria for riskiness:

- For single dose size (= on one occasion)
- For total weekly consumption
- For drinking pattern

Riskiness threshold for 1 dose:

- Generally defined as a dose that raises blood concentration (BAC) to a level of intoxication
- This also corresponds to the definition of "binge drinking"
- **0.08 BAC** (0.8 ‰) is considered the limit of intoxication
- This corresponds to drinking about 4-5 units of alcohol.
- Example:
- For 80kg men 5 units (á10g = 50g) leads to BAC 0.87 ‰
- For 70 kg women 4 units (á10g = 40g) leads to 0.98 ‰)
- In fact, the BAC depends on a number of factors (body weight, gender, body water content, etc.)
- In grams, the most commonly reported value is 60 g (this is also taken as a criterion for binge drinking)
- In the UK 6-8 units (but have 1 unit = 8g), in the US 3 and 4 units

Risk of regular long-term consumption:

- WHO:
  - *Hazardous drinking*: 20-40 g / day for women, 40-60 g/day for men
  - *Harmful drinking*:> 40 g per day for women,> 60 g for men
- Cancer risk: limit of **30** g/day for men and **20** g/day for women - but in fact a **threshold-free** risk!
- Most frequently cited weekly limits:
  - Previously: men 21 units/week, women 14 units/week
  - Currently: **men 14 units/week**, **women 7 units/week**
- NIAA (The National Institute on Alcohol Abuse and Alcoholism):
  - No more than 4 drinks per day and no more than **14 drinks per week** - men age 65 and younger
  - Not more than 3 drinks / day and not more than **7 drinks/week** - women and men +65
- Germany: **12g/day** women and **24g/day** men, at least 2 days a week without alcohol

Alcohol consumption screening

A) Identification of alcohol-related problems (problem drinking, addiction, alcohol-related disorders)

- CAGE
  - **C**ut down, **A**ngry, **G**uilty, **E**ye opener
  - (Short test using 4 questions)
- AUDIT
  - **A**lcohol **U**se **D**isorder **I**dentification **T**est
  - (Test to identify alcohol-related disorders)
- SASQ
  - **S**ingle **A**lcohol **S**creening **Q**uestion

Output for A:

- Scoring showing the risk or degree of dependence or alcohol-related problems (to detect „alcoholics", or potential alcoholics]

B) Quantification of consumption (of any, even moderate)

- SF, QF
  - Simple Frequency, Quantified Frequency
- BSQF
  - Beverage Specific Quantified Frequency
- GF
  - Graduated Frequency
- WR
  - Weekly Recall

Output for B:

- Amount of alcohol consumed, in units or grams/week;
- Frequency of exceeding 5/4 units / day

CAGE Questionnaire

Cut down, Angry, Guilty, Eye opener

CAGE Questionnaire for Detecting Alcoholism		
Question	**Yes**	**No**
C: Have you ever felt you should **C**ut down on your drinking?	1	0
A: Have people **A**nnoyed you by criticizing your drinking?	1	0
G: Have you ever felt **G**uilty about your drinking?	1	0
E: Have you ever had a drink first thing in the morning (**E**ye opener)?	1	0
A total score of 0 or 1 suggests low risk of problem drinking A total score of 2 or 3 indicates high suspicion for alcoholism A total score of 4 is virtually diagnostic for alcoholism		

References

Ewing, John A. "Detecting Alcoholism: The CAGE Questionnaire" JAMA 252: 1905-1907, 1984 PMID 6471323 "CAGE Substance Abuse Screening Tool" (PDF). Johns Hopkins Medicine. Retrieved 30 July 2014. Kitchens JM (1994). "Does this patient have an alcohol problem?". JAMA 272 (22): 1782–7. doi:10.1001/jama.1994.03520220076034. PMID 7966928. Bernadt, MW; Mumford, J; Taylor, C; Smith, B; Murray, RM (1982). "Comparison of questionnaire and laboratory tests in the detection of excessive drinking and alcoholism". Lancet 6 (8267): 325–8. doi:10.1016/S0140-6736(82)91579-3. PMID 6120322.

Developed by Dr. John Ewing, founding Director of the Bowles Center for Alcohol Studies, University of North Carolina at Cahpel Hill, CAGE is an internationally used assessment instrument for identifying alcoholics. It is particularly popular with primary care givers. CAGE has been translated into several languages.
The CAGE questions can be used in the clinical setting using informal phrasing. It has been demonstrated that they are most effective when used as part of a general health history and should NOT be preceded by questions about how much or how frequently the patient drinks (see "Alcoholism: The Keys to the CAGE" by DL Steinweg and H Worth; American Journal of Medicine 94: 520-523, May 1993.
The exact wording that can be used in research studies can be found in: JA Ewing "Detecting Alcoholism: The CAGE Questionaire" JAMA 252: 1905-1907, 1984. Researchers and clinicians who are publishing studies using the CAGE Questionaire should cite the above reference. No other permission is necessary unless it is used in any profit-making endeavor in which case this Center would require to negotiate a payment.

AUDIT- Alcohol Use Disorders Identification Test

The following questions are validated as screening tools for alcohol use

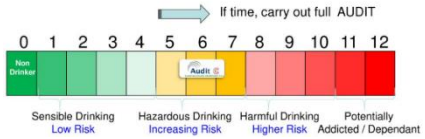
AUDIT- C Questions	Scoring system					Your score
	0	1	2	3	4	
How often do you have a drink containing alcohol?	Never	Monthly or less	2-4 times per month	2-3 times per week	4+ times per week	
How many units of alcohol do you drink on a typical day when you are drinking?	1 -2	3-4	5-6	7-9	10+	
How often have you had 6 or more units if female, or 8 or more if male, on a single occasion in the last year?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily	
					TOTAL :	

A score of **less than 5** indicates *lower risk drinking* (see overleaf)

Scores of 5+ requires the following 7 questions to be completed:

AUDIT Questions (after completing 3 AUDIT-C questions above)	Scoring system					Your score
	0	1	2	3	4	
How often during the last year have you found that you were not able to stop drinking once you had started?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily	
How often during the last year have you failed to do what was normally expected from you because of your drinking?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily	
How often during the last year have you needed an alcoholic drink in the morning to get yourself going after a heavy drinking session?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily	
How often during the last year have you had a feeling of guilt or remorse after drinking?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily	
How often during the last year have you been unable to remember what happened the night before because you had been drinking?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily	
Have you or somebody else been injured as a result of your drinking?	No		Yes, but not in the last year		Yes, during the last year	
Has a relative or friend, doctor or other health worker been concerned about your drinking or suggested that you cut down?	No		Yes, but not in the last year		Yes, during the last year	
					TOTAL	

The **AUDIT-C** Score **(0-12)**



AUDIT-C + AUDIT = Total score:

AUDIT SCORE	RISK CATEGORY		DESIRED ACTION
0 –7	Lower risk	=	No intervention required
8 –15	Increasing risk	=	Brief Advice
16-19	Higher risk	=	Brief Advice and/or extended BA
20+	Possible dependence	=	Referral to services (see below)

SASQ, M SASQ

Single Alcohol Screening Question

SASQ:

When was the last time you had more then x* drinks in 1 day?

***X = 4 units for women and 5 units for men (in UK 6 and 8)**

In the past month (in some versions less than 3 months) is a positive result

M SASQ (= Modified SASQ):

M SASQ is an alcohol harm assessment tool consists of one question from the full alcohol use disorders identification test (AUDIT). This single question test was developed for use in emergency departments.

Questions	Scoring system					Your score
	0	1	2	3	4	
How often have you had 6 or more units if female, or 8 or more if male, on a single occasion in the last year?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily	

M SASQ scoring:

- A total of 0 to 1 indicates lower risk drinkers
- A total of 2 to 4 indicates increasing or higher risk drinkers
- An overall total score of 2 or above is M SASQ positive

Alcohol quantification - concept of alcohol unit

The term "alcohol unit" (one drink):

- It is a simple way to express the amount of alcohol - the equivalent of a certain amount
- It corresponds to the **alcohol content in g in the usually served volume** for each type of alcoholic beverage
- There is no international agreement - see tab. on right

- Australia: 8 – 10 g
- USA: 12 g, 14 g
- Japan 23.5 g
- CZ: **10 g**, 12g, 16g

Expression of alcohol content in beverages:

- ABV - Alcohol by Volume (in %)
- ABW - Alcohol by Weight -% alcohol content by weight
- Proof - spec. for spirits - 100° Proof = 57.15% ABV (Gunpowder soaked in rum does not burn if ABV of rum <57.15%)

Conversion of ABV to ABW: ABW (g) = ABV (ml) x 0.789
E.g. 330 ml 5% beer = 3.3 x 5 x 0.789 = 13 g

1 glass of beer (0,3 L) **≈ 1 glass of wine** (1 dcl) **≈ 1 glass of spirit** (30ml) **≈ 1 unit (10g), 1 „drink"**

Beer:

Type of bier	An example of a particular beer	ABV (%)	Alcohol (g) in 0,5 L	Alcohol (g) in 0,4 L	Alcohol (g) in 0,3 L
Draft ("Výčepní" 10°)	10° Braník, Bernard…	3.8	15.0	12.0	9.0
	Starobrno – výčepní	4.0	16.0	12.6	**9.6**
	Gambrinus - výčepní	4.1	16.2	12.9	**9.7**
Lager 11° ("Jedenáctka")	Starobrno11° Medium světlý ležák	4.7	18.5	14.8	**11.1**
		4.8	18.9	15.1	**11.4**
Lager 12° ("Dvanáctka")	Pilsner Urquell – světlý ležák	4.4	17.4	13.9	**10.4**
	Most of "12 degree" lagers	5.0	19.5	15.6	**11.7**
	Gambrinus - patron	5.2	20.5	16.4	12.3
		6.0	23.5	18.9	14.0

Wine:

	ABV (%)	Alcohol (g) in 1 dcl	Alcohol (g) in 2 dcl
White, Red	11	8.7	17.4
	12	9.5	19.0
	13	10.3	20.6
	14	11.0	22.0

Spirits:

ABV (%)	Alcohol (g) in 25 ml	Alcohol (g) in 40 ml	Alcohol (g) in 50 ml
30	5.9	9.5	11.8
35	6.9	11.0	13.8
38	7.5	**12.0**	**15.0**
40	7.9	**12.6**	**15.8**
42	8.3	13.2	16.6
45	8.9	14.2	17.8
50	9.9	15.8	19.8
70	13.8	22.1	27.6

Definition of alcohol unit (in grams) by country:

Country	Number of grams
Austria	20g
Croatia	10g, 14g
Czech Republic	16g
Denmark	12g
Estonia	10g
Finland	12g
France	10g
Germany	10g, 12g
Greece	10g, 16g
Hungary	10g, 14g
Iceland	8g, 12g
Ireland	10g
Italy	12g
Latvia	12g
Lithuania	10g
Luxembourg	12g
Malta	8g, 10g
Netherlands	10g
Norway	12g, 15g
Poland	10g
Portugal	10g
Romania	12g
Slovenia	10g
Spain	10g
Sweden	12g
Switzerland	10g, 12g
United Kingdom	8g

Biochemical markers of high alcohol consumption

Blood examination:

- **CDT** - carbo-hydrate-deficient transferrin

  Currently the most appropriate indicator - the highest dg validity:
  - High specifity (80-95 %)
  - It responds flexibly to current changes in alcohol intake

Liver enzymes (serum transaminases):

- **GGT** (GMT) – gama glutamyl transferase
- **AST** - aspartate aminotransferase
- **ALT** – alamino transferase

Another:

- **MCV** – mean corpuscular volume
- **HDL-C**
- **Acetaldehyd adducts**

Time intervals of laboratory markers during chronic abuse and in the period of abstinence:

Marker	Increase after abuse	Normalization at abstinence
CDT	2 weeks	2-3 weeks
GGT	5 weeks	5 weeks
MCV	6 weeks	2-3 months

Screening of alcohol abuse:

	Alcohol abuse		Alcohol addiction	
	Sensitivity %	Specifity %	Sensitivity %	Specifity %
AST	10-30	>90	33 -55	>90
GGT	20–50	55-100	60-90	55-100
MCV	20–30	64-100	40-50	64-100
CDT	26-62	>90	65-69	>90

Biochemical markers of high alcohol consumption

Biomarker	Remarks	Sensitivity	Specificity	Possible or current use
State markers (recent drinking activity)				
GGT (gamma-glutamyltransferase)	Early indicator of chronic heavy drinkers, liver disease	61	n/a	Chronic alcohol abuse
ALT (alanine aminotransferase)	More useful for liver disease; AST/ALT ratio: heavy alcohol consumption	n/a	n/a	Chronic alcohol abuse
AST (aspartate aminotransferase)		56	n/a	Chronic alcohol abuse
MCV (mean corpuscular volume)	Less useful, but high level is maintained for several months after stop drinking	47	n/a	Heavy alcohol use
Beta-Hex (*N*-acetyl-b-hexosaminidase)	Elevated in heavy drinkers; difficult to assay	94	91	Heavy alcohol use
CDT (carbohydrate-deficient transferrin)	Higher amounts of CDT in heavy drinkers; highly specific to alcohol consumption; difficult to measure	26–83	92	Heavy alcohol use
SIJ (plasma sialic acid index of apoJ)	Sialilated ApoJ decrease after alcohol consumption	n/a	n/a	
TSA (total serum sialic acid)	Elevated in alcoholics; long-term elevation even during abstinent	n/a	n/a	
5-HTOL (5-hyderoxytryptophol)	24-h biomarker; useful in forensic toxicology	n/a	n/a	Monitoring sobriety
FAEE (fatty acid ethyl esters)	24-h biomarker; distinguishable social drinkers from heavy drinker or alcoholics	100	90	Recent heavy alcohol use
EtG (ethyl glucuronide)	24-h (blood) or 36-hour (urine) biomarker; detectable in other body fluids tissue or hair	n/a	n/a	Monitoring sobriety; forensics
WBAA (whole blood-associated acetaldehyde)	Alcohol specific biomarker; Hb-bound acetaldehyde accumulate in RBC over 120 days	100	95	Recent alcohol consumption at all levels; monitoring abstinence
Salsolinol	Better marker for chronic alcohol consumption (blood); no difference between alcoholics and nonalcoholics (brain)	n/a	n/a	Chronic alcohol consumption
CPK (creatine phosphokinase)	Elevated in alcoholics(hallucination, delirium)	n/a	n/a	
Fisher ratio (BCAA/AAA)	Low level in alcohol dependence	n/a	n/a	
MAO-B (monoamine oxidase B)	Low level in hazardous/harmful alcohol use	n/a	n/a	Recent alcohol consumption; monitoring success of treatment

Physical activity

Physical activity assessment

*Taught also earlier in "Public Health II" subject (6th semester) topic "**Assessment of physical activity**"*

- Self-Report **Questionnaires**
  - These questionnaires are the most common method of PA assessment and rely on participants' recall ability
- Self-Report Activity **Diaries/Logs**
- Direct **Observation**

Devices:

- Pedometers
- Accelerometers
- Heart-Rate Monitors
- Multiple sensors, e.g. Armbands

More complex – scientific measurements:

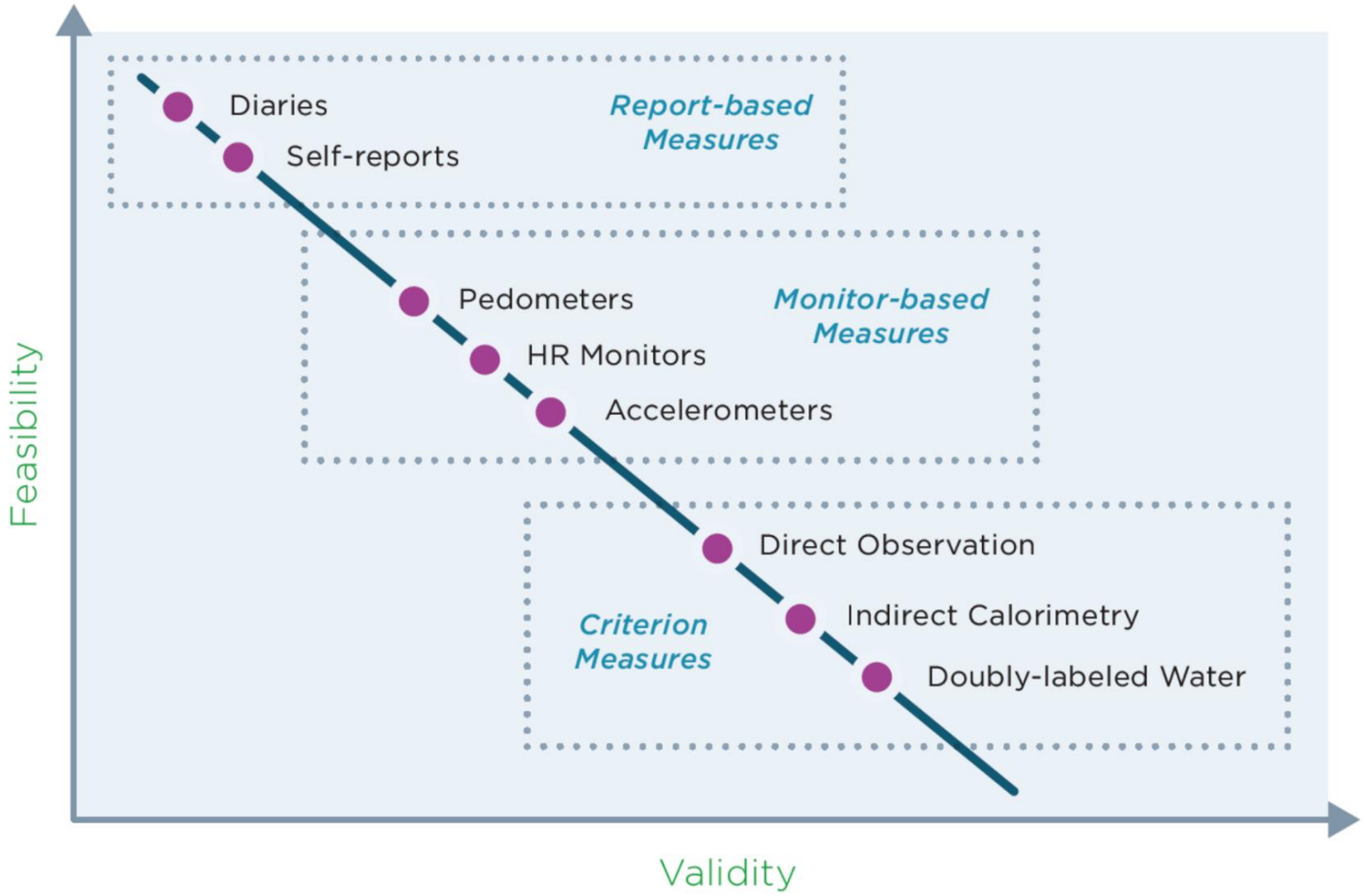
- *Indirect calorimetry*
- *Double labelled water*

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3915355/

Physical Activity: The Secret—Not So Secret—to Prevent and Revert Metabolic Dysregulation in People of All Sizes. November 2019, Mayo Clinic Proceedings 94(11):2164-2165, DOI:10.1016/j.mayocp.2019.09.018

Physical activity assessment

Physical Activity Assessment Tools and Their Relative Positions on the Feasibility/Validity Continuum:



https://www.nccor.org/tools-mruserguides/individual-physical-activity/overview-of-physical-activity-assessment-tools/

IPAQ short - International Physical Activity Questionnaire

IPAQ – short

Questionnaire on physical activity in the last 7 days

Vigorous activity:

1. During the last 7 days, on how many days did you do **vigorous** physical activities like heavy lifting, digging, aerobics, or fast bicycling?

Think about only those physical activities that you did for at least 10 minutes at a time.

_____ **days per week**

2. How much time in total did you usually spend on one of those days doing vigorous physical activities?

_____ **hours** _____ **minutes**

Moderate:

3. During the last 7 days, on how many days did you do **moderate** physical activities like carrying light loads, bicycling at a regular pace, or doubles tennis? Do not include walking.

Think about only those physical activities that you did for at least 10 minutes at a time. _____ **days per week**

4. How much time in total did you usually spend on one of those days doing moderate physical activities?

_____ **hours** _____ **minutes**

Walking:

5. During the last 7 days, on how many days did you **walk** for at least 10 minutes at a time? This includes walking at work and at home, walking to travel from place to place, and any other walking that you did solely for recreation, sport, exercise or leisure

_____ **days per week**

6. How much time in total did you usually spend walking on one of those days?

_____ **hours** _____ **minutes**

Sitting:

The last question is about the time you spent sitting on weekdays while at work, at home, while doing course work and during leisure time. This includes time spent sitting at a desk, visiting friends, reading traveling on a bus or sitting or lying down to watch television.

7. During the last 7 days, how much time in total did you usually spend **sitting** on a week day?

_____ **hours** _____ **minutes**

IPAQ-short scoring

A) Continuous score

Expressed as MET-min per week: **MET level** x **days/week** x **minutes/day**
Total MET-min/week = **sum** of walking, moderate and vigorous PA

MET is a multiple of estimated resting energy expenditure.

MET levels:
- Walking = **3.3** METs
- Moderate intensity = **4.0** METs
- Vigorous intensity = **8.0** METs

An example of calculation - each activity 5 days a week, 30 min / day:

Activity	*MET*		*Days*		*Min /week*		*MET-min/week*
Walking	3.3	x	5	x	30	=	495
Moderate	4.0	x	5	x	30	=	600
Vigorous	8.0	x	5	x	30	=	1 200
					TOTAL	**=**	2 295

B) Categorical score

Bouts of activity lasting **less than 10 minutes** duration are **not counted!**

1) High = active, HEPA-level (Health-Enhancing Physical Activity)

Either of the following 2 criteria:

- **Vigorous**-intensity activity on **at least 3 days** and accumulating at least **1500** MET-minutes/week

OR

- 7 or more days of **any combination** of walking, moderate- or vigorous-intensity activities accumulating at least **3000** MET-minutes/week

2) Moderate = minimally (sufficiently) active, achieving the minimum recommended

Either of the following 3 criteria:

- **3 or more days** of **vigorous** activity of at least **20 minutes** per day (=480)

OR

- **5 or more days** of **moderate**-intensity activity and/or **walking** of at least **30 minutes** per day (=495)

OR

- **5 or more days** of **any combination** of walking, moderate-intensity or vigorous intensity activities achieving a minimum of at least **600** MET-minutes/week.

3) Low = insufficiently active, inactive

- No activity is reported

OR

- Some activity is reported but not enough to meet Categories 2 or 3.

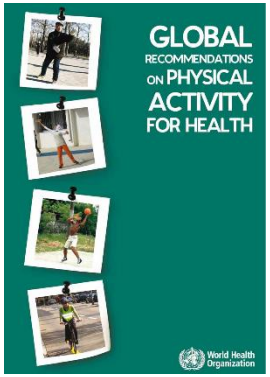
What can fulfill "High" category:
- Walking: 130 min/day (3,3 x 7 x130 = 3003)
- Moderate a.: 110 min/day (4 x 7 y 110 = 3 080)
- Equivalent in steps: at least **12 500 steps/day**

HEPA level (Health-Enhancing Physical Activity), which is a more active category: People who
- **exceed the minimum** public health physical activity recommendations, and
- **are accumulating enough activity for a healthy lifestyle**.

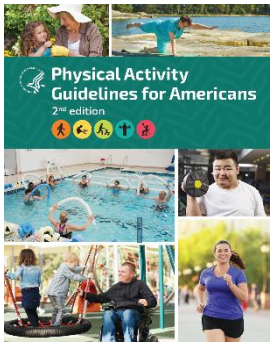
Cut-off for Moderate (basal) category in steps:
at least **5 000 steps/day**

Physical activity recommendations

- Global recommendations on physical activity for health
  - WHO 2011
  - https://www.who.int/dietphysicalactivity/factsheet_recommendations/en/



- Physical Activity Guidelines for Americans - 2nd edition
  - U.S. Department of Health and Human Services, 2018, 118 pp.
  - https://health.gov/paguidelines/second-edition/pdf/Physical_Activity_Guidelines_2nd_edition.pdf



- EU physical aktivity guidelines (Doporučená politická opatření na podporu zdraví upevňujících pohybových aktivit)
  - EU 2008
  - x

Global recommendations on Physical Activity for Health (2011)

World Health Organization

18-64 years old

These guidelines are relevant to all healthy adults aged 18–64 years, unless specific medical conditions indicate to the contrary, irrespective of gender, race, ethnicity or income level. They also apply to individuals in this age range with chronic noncommunicable conditions not related to mobility such as hypertension or diabetes. These recommendations can be applied to adults with disabilities.

Recommendations:

1. At least **150 min** of **moderate**-intensity aerobic physical activity throughout the **week**
   or
   At least **75 min** of **vigorous**-intensity aerobic physical activity throughout the week
   or
   An equivalent combination of moderate - and vigorous-intensity activity.

2. Aerobic activity should be performed **in bouts of at least 10 min** duration.

3. For additional health benefits, adults should increase
   moderate intensity aerobic physical activity to **300 minutes per week**,
   or
   engage in **150 minutes** of **vigorous**-intensity aerobic physical activity per week,
   or
   an equivalent combination of moderate - and vigorous-intensity activity

4. Muscle-strengthening activities should be done involving major muscle groups on **2 or more days a week**.

Physical Activity Guidelines for Americans - 2nd edition

U.S. Department of Health and Human Services, 2018, 118 pp.

What‘s new in th second edition 2018 vs 1st ed 2008:

This second edition of the Physical Activity Guidelines for Americans provides science-based guidance to help people ages 3 years and older improve their health through participation in regular physical activity. It reflects the extensive amount of new knowledge gained since the publication of the first Physical Activity Guidelines for Americans, released in 2008. This edition of the Guidelines discusses the proven benefits of physical activity and outlines the amounts and types of physical activity recommended for different ages and populations. For example, new aspects include discussions of:

- Additional health benefits related to brain health, additional cancer sites, and fall-related injuries;
- Immediate and longer term benefits for how people feel, function, and sleep;
- Further benefits among older adults and people with additional chronic conditions;
- Risks of sedentary behavior and their relationship with physical activity;
- Guidance for preschool children (ages 3 through 5 years);
- Elimination of the requirement for physical activity of adults to occur in bouts of at least 10 minutes;
- Tested strategies that can be used to get the population more active.

https://health.gov/paguidelines/second-edition/pdf/Physical_Activity_Guidelines_2nd_edition.pdf

Physical Activity Guidelines for Americans - 2nd edition

U.S. Department of Health and Human Services, 2018, 118 pp.

Key guidelines for adults:

- Adults should move more and sit less throughout the day. Some physical activity is better than none. Adults who sit less and do any amount of moderate-to-vigorous physical activity gain some health benefits.

- For substantial health benefits, adults should do at least:
  - 150 minutes (2 hours and 30 minutes) to 300 minutes (5 hours) a week of moderate-intensity, or
  - 75 minutes (1 hour and 15 minutes) to 150 minutes (2 hours and 30 minutes) a week of vigorous-intensity aerobic physical activity, or
  - an equivalent combination of moderate- and vigorous-intensity aerobic activity.

  Preferably, aerobic activity should be spread throughout the week.

- Additional health benefits are gained by engaging in physical activity beyond the equivalent of 300 minutes (5 hours) of moderate-intensity physical activity a week.

- Adults should also do muscle-strengthening activities of moderate or greater intensity and that involve all major muscle groups on 2 or more days a week, as these activities provide additional health benefits.

https://health.gov/paguidelines/second-edition/pdf/Physical_Activity_Guidelines_2nd_edition.pdf

Physical Activity Guidelines for Americans - 2nd edition

Therefore, its translation into actionable consumer messages and resources helps individuals, families, and communities achieve the recommendations in the Guidelines. The Move Your Way campaign was created by the Office of Disease Prevention and Health Promotion within the US Department of Health and Human Services to be used by communities, health professionals, educators, and others to communicate to consumers in plain language about the recommendations from the Guidelines, promote the health benefits of meeting the recommendations, and provide tips for how consumers can meet the recommendations

Implementation of the Physical Activity Guidelines Through **Move Your Way**

The Physical Activity Guidelines is written for professional audiences. Therefore, its translation into actionable consumer messages and resources helps individuals, families, and communities achieve the recommendations in the Guidelines. The *Move Your Way* campaign was created by the Office of Disease Prevention and Health Promotion within the U.S. Department of Health and Human Services to be used by communities, health professionals, educators, and others to communicate to consumers in plain language about the recommendations from the Guidelines, promote the health benefits of meeting the recommendations, and provide tips for how consumers can meet the recommendations.

Campaign resources, including interactive tools, fact sheets, videos, and graphics, are available at https://www.health.gov/PAGuidelines/.

Figure A-1. Move Your Way Adult Dosage

Implementation of Physical Activity Guidelines thru Move Your Way

Older adults

How much activity do adults need?

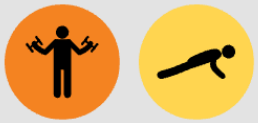
Moderate-intensity aerobic activity *

Anything that gets your heart beating faster counts.

AND

Muscle-strengthening activity

Do activities that make your muscles work harder than usual.



* If you prefer vigorous-intensity aerobic activity (like running), aim for at least **75 minutes a week**.

https://health.gov/MoveYourWay/Activity-Planner/

https://health.gov/paguidelines/moveyourway/

Implementation of Physical Activity Guidelines thru Move Your Way

How much activity do kids need?

Kids and teens ages 6 to 17 need 60 minutes of activity every day.

Most of their 60 minutes can be **moderate-intensity aerobic activity** — anything that gets their heart beating faster counts.

And at least 3 days a week, encourage them to step it up to **vigorous-intensity aerobic activity**, so they're breathing fast and their heart is pounding.

As part of their daily 60 minutes, kids and teens also need:

Muscle-strengthening activity
at least 3 days a week

Anything that makes their muscles work harder counts — like climbing or swinging on the monkey bars.

AND

Bone-strengthening activity
at least 3 days a week

Bones need **pressure** to get stronger. Running, jumping, and other weight-bearing activities all count.

Anthropometry

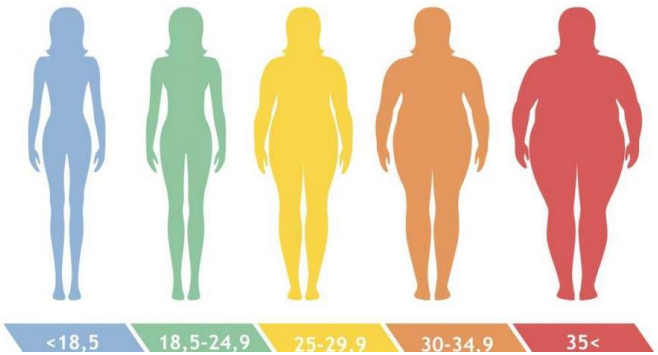
Recommended anthropometric methods

- Weight, Height → BMI
- Abdominal circumference
- BFP – body fat percentage (by impedance)

BMI = weight (kg) / height^2 (m^2)

BMI classification

Classification	BMI (kg/m2)	
	Principal cut-off points	Additional cut-off points
Underweight	**< 18,50**	**< 18,50**
Severe thinness	< 16,00	< 16,00
Moderate thinness	16,00 -16,99	16,00 -16,99
Mild thinness	17,00 – 18,49	17,00 – 18,49
Normal range	**18,50 – 24,99**	**18,50 – 22,99**
		23,00 – 24,99
Overweight	**≥ 25,00**	**≥ 25,00**
Pre-obese	25,00 – 29,99	25,00 – 27,49
		27,50 – 29,99
Obese	**≥ 30,00**	**≥ 30,00**
Obese class I	30,00 – 34,99	30,00 – 32,49
		32,50 – 34,99
Obese class II	35,00 – 39,99	35,00 – 37,99
		37,50 – 39,99
Obese class II	≥ 40,00	≥ 40,00



Source: WHO 1995, 2000, 2009

BFP – Body Fat Percentage – diagnostic criteria (cut-offs)

	Men	Women
Healthy	< 20	< 30
Overfat	20 - 25	30 - 35
Obese	> 25	> 35

Oliveros E, Somers V, Sochor O, Goel K, Lopez-Jimenez F: The concept of normal weight obesity. Progress in cardiovascular diseases, 2014, 56, 426-433

Biospace: Standard body fat percent is 15 % (range 10 - 20) for men and 23 % (range 18 - 28) for women

Measured PBF corresponding to BMI cut-offs: (Galagher et al.)

Category	OK	Overweight	Obesity
BMI	< 25	25 – 30	> 30
% fat men	< 20 %	20 – 25 %	> 25 %
% fat women	< 32 %	32 – 38 %	> 38 %

Human Kinetics: http://www.humankinetics.com/excerpts/excerpts/normal-ranges-of-body-weight-and-body-fat
This is an excerpt from Sport Nutrition, Second Edition, by Asker Jeukendrup, PhD, and Michael Gleeson, PhD

Table 13.1 Body fat percentages for males and females and their classification

Males	Females	Rating
5-10	8-15	Athletic
11-14	16-23	Good
15-20	24-30	Acceptable
21-24	31-36	Overweight
>24	>37	Obese

Table 13.2A Body fat percentage for the average population

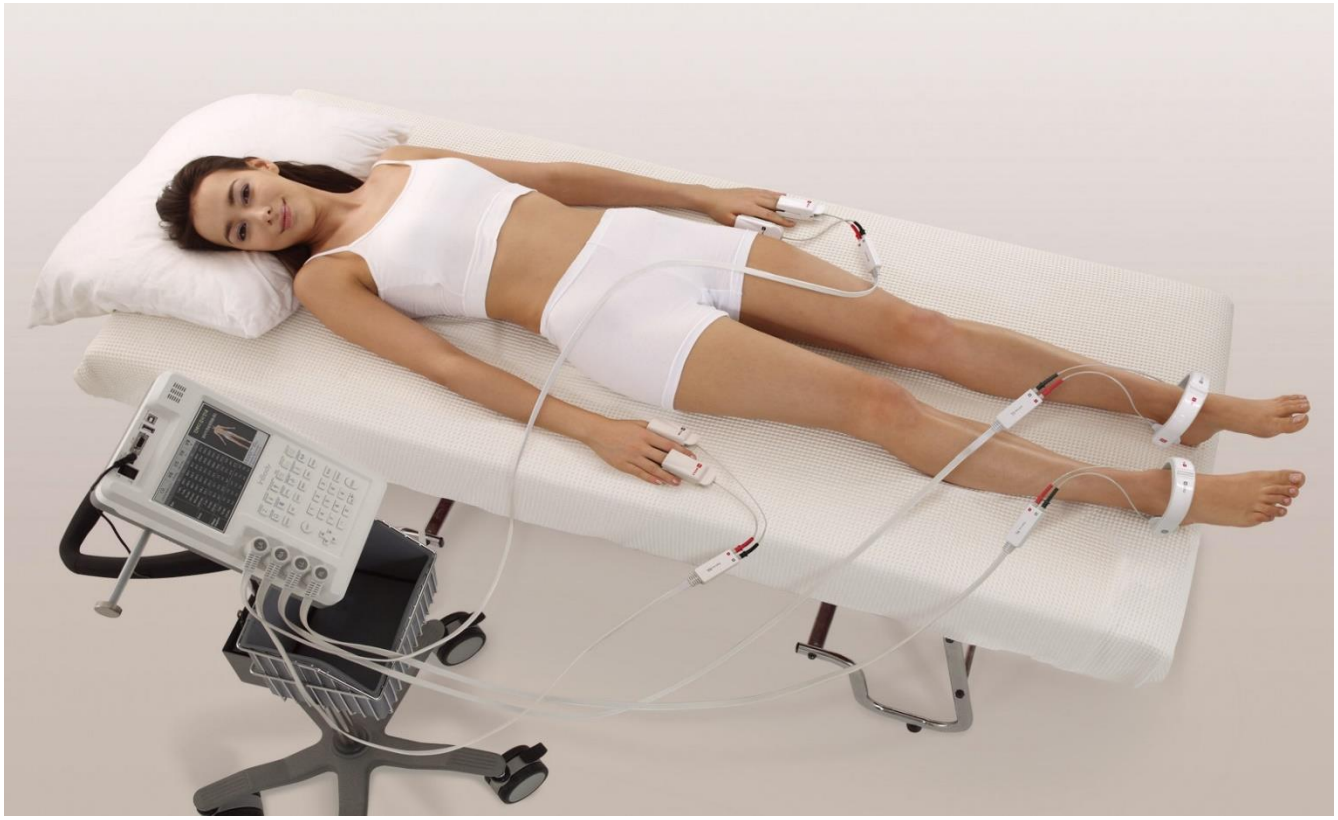
Age	Up to 30	30-50	50+
Females	14-21%	15-23%	16-25%
Males	9-15%	11-17%	12-19%

ACE -(American Council on Exercise - ACE (2009) What are the guidelines for percentage of body fat loss? American Council on Exercise (ACE). Ask the Expert Blog. December 2, 2009.

	Men	Women
Essential fat	2–5%	10–13%
Athletes	6–13%	14–20%
Fitness	14–17%	21–24%
Average	18–24%	25–31%
Obese	25%+	32%+

MUNI MED

Bioimpedance Measurement of Body Composition with Inbody S10 (Biospace)



- Body fat - %, kg
- Skeletal muscles (lean mass) - %, kg
- Water - %, L (total, extracellular, intracellular)
- Mineral mass (osseus, non-osseus fraction)
- Abdominal visceral fat
- Segmental analysis

Inbody S10 – result report

Body Composition Analysis

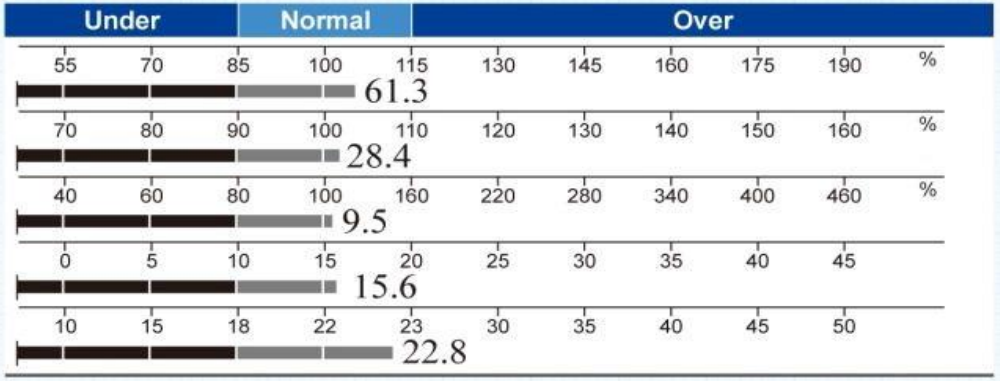
Compartments	Unit	Measured	Normal Range
Intracellular Water	ℓ	23.3	20.6 ~ 25.2
Extracellular Water	ℓ	15.1	12.6 ~ 15.4
Protein Mass	kg	10.1	8.9 ~ 10.9
Mineral Mass	kg	3.29	3.10 ~ 3.80
Body Fat Mass	kg	9.5	7.1 ~ 14.2

※Mineral Mass is estimated.

Values	Total Body Water	Soft Lean Mass	Fat Free Mass	Weight
23.3	38.4	49.1	51.8	61.3
15.1				
10.1				
3.29	non-osseous osseous : 2.67			
9.5				

Muscle-Fat Analysis

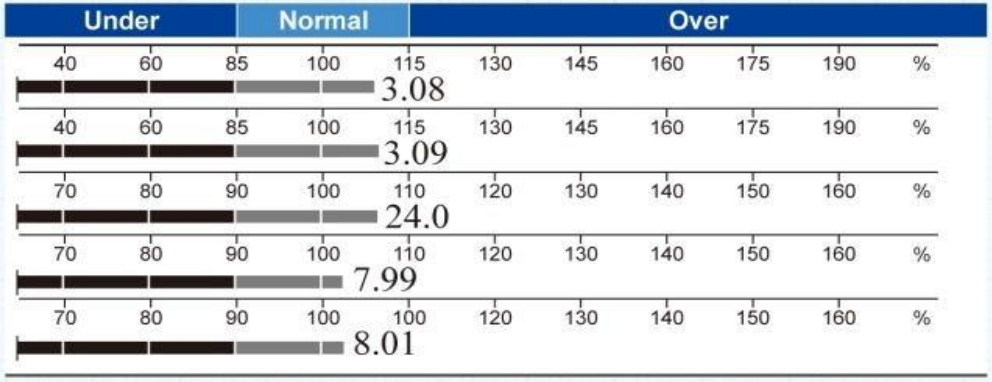
Index	Unit	Measured	Normal Range
Weight	kg	61.3	50.3 ~ 68.1
Skeletal Muscle Mass	kg	28.4	25.1 ~ 30.7
Body Fat Mass	kg	9.5	7.1 ~ 14.2
Percent Body Fat	%	15.6	10.0 ~ 20.0
BMI	kg/m²	22.8	18.5 ~ 23.0



Segmental Lean Analysis

★ : Access Location
• : Location of Paralysis

Segment	Unit	Measured	Normal Range
Right Arm	kg	3.08	2.38 ~ 3.22
Left Arm★	kg	3.09	2.38 ~ 3.22
Trunk	kg	24.0	20.3 ~ 24.8
Right Leg•	kg	7.99	7.02 ~ 8.58
Left Leg	kg	8.01	7.02 ~ 8.58

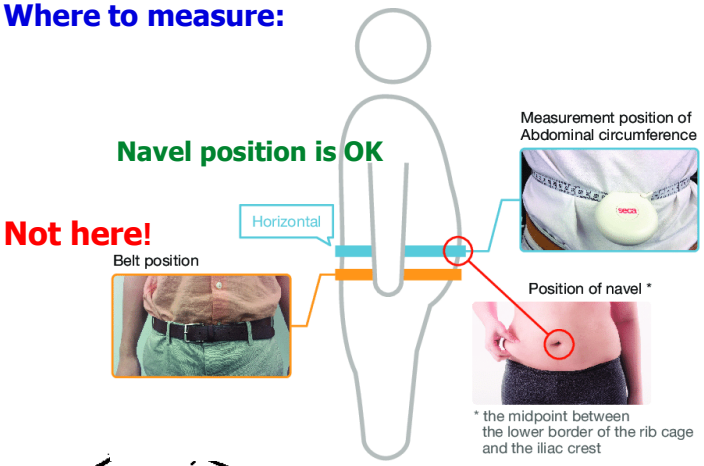


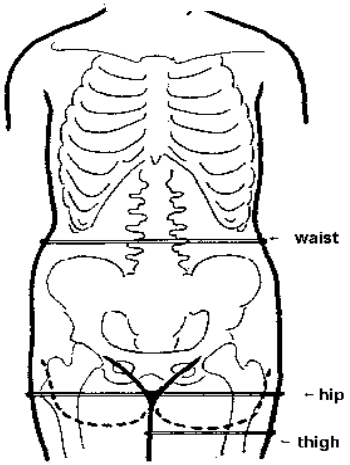
MUNI MED

Abdominal circumference

Risk:	OK	Increased	Substantially increased
Men	< 94	94 - 102	> 102
Women	< 80	80 - 88	> 88

Where to measure:





Where to measure:

Waist – taken in level of the umbilicus (navel)

WHO: Midpoint between the last palpable rib and top of the iliac crest

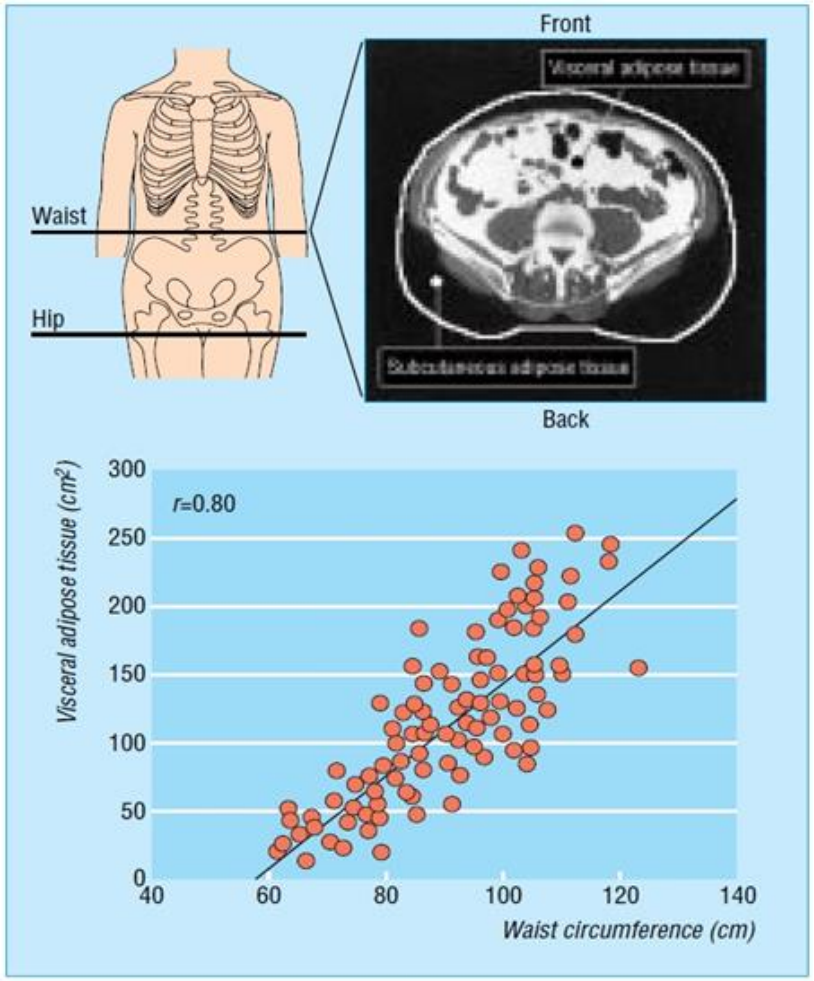
Ethnic specific values for waist circumference

Country / Ethnic group		Waist circumference
Europids* In the **USA**, the ATP III values (**102** cm male; **88** cm female) are likely to continue to be used for clinical purposes	**Male** **Female**	**94 cm** **80 cm**
South Asians Based on a Chinese , Malay and Asian-Indian population	**Male** **Female**	**90 cm** **80 cm**
Chinese	**Male** **Female**	90 cm 80 cm
Japanese**	**Male** **Female**	90 cm 80 cm
Ethnic South and Central Americans	Use South Asian recommendations until more specific data are available	
Sub-Saharan Africans	Use European data until more specific data are available	
EMME (Arab) populations	**Use South Asian recommendations until more specific data are available**	

Examination

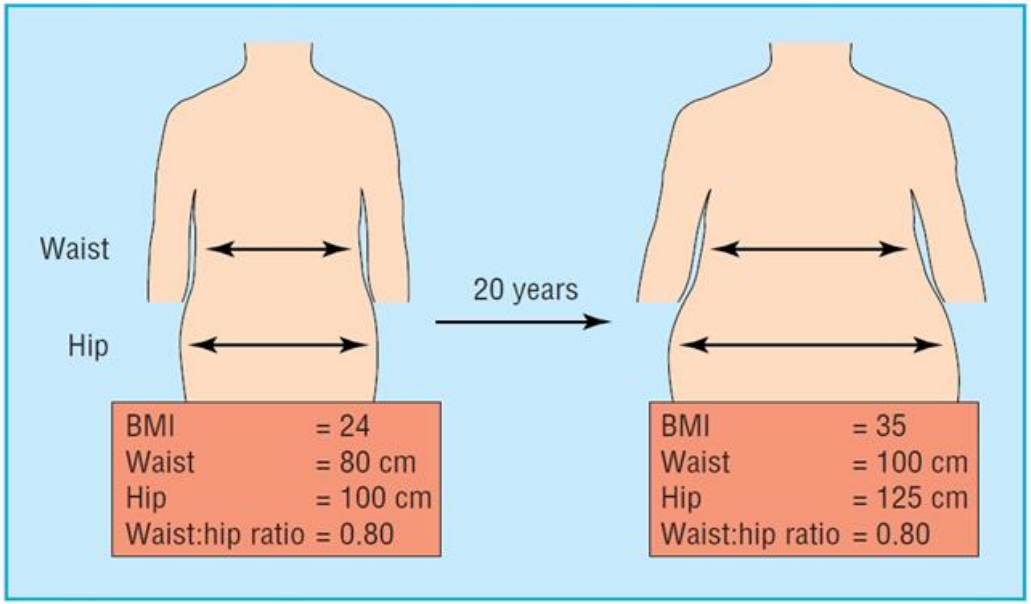
Abdominal circumference

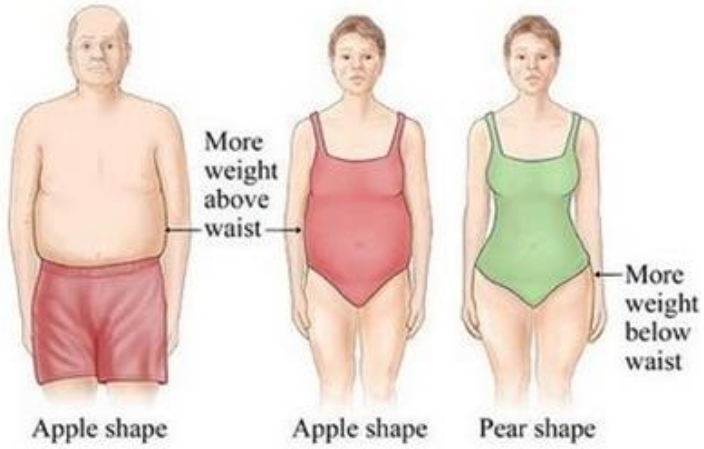
AC correlation with abdominal fat (and metabolic risk):



WHR interpretation pitfalls

Misleading information provided by follow up of changes in waist hip in women followed over 20 years.





Després J P, Lemieux I, Prud'homme D: Treatment of obesity: need to focus on high risk abdominally obese patients. BMJ. 2001 Mar 24;322(7288):716-20

Metabolic syndrome

- Metabolic syndrome is a clustering of at least three of the five following medical conditions: abdominal obesity, high blood pressure, high blood sugar, high serum triglycerides and low high-density lipoprotein (HDL) levels.
- Metabolic syndrome is associated with the risk of developing cardiovascular disease and type 2 diabetes.

The new International Diabetes Federation (IDF) definition

According to the new IDF definition, for a person to be defined as having the metabolic syndrome they must have:

Central obesity (defined as waist circumference* with ethnicity specific values)

> 80 / 94 cm (88/102)

plus any two of the following four factors:

Raised triglycerides	≥ 150 mg/dL (1.7 mmol/L) **or specific treatment for this lipid abnormality**
Reduced HDL cholesterol	< 40 mg/dL (1.03 mmol/L) in males < 50 mg/dL (1.29 mmol/L) in females **or specific treatment for this lipid abnormality**
Raised blood pressure	systolic BP ≥ 130 or diastolic BP ≥ 85 mm Hg **or treatment of previously diagnosed hypertension**
Raised fasting plasma glucose	(FPG) ≥ 100 mg/dL (5.6 mmol/L), **or previously diagnosed type 2 diabetes** If above 5.6 mmol/L or 100 mg/dL, OGTT is strongly recommended but is not necessary to define presence of the syndrome.

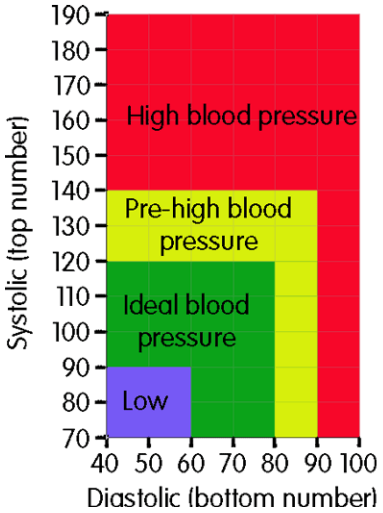
If BMI is >30 kg/m^2, central obesity can be assumed and waist circumference does not need to be measured

Blood pressure

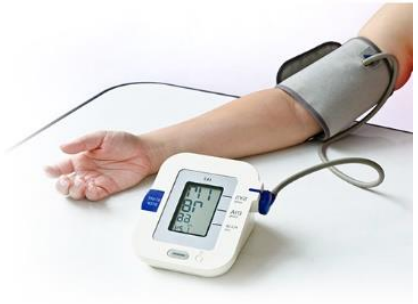
Blood Pressure

Definition and classification of blood pressure levels:

Category	Systolic BP (mmHg)		Diastolic BP (mmHg)
Optimal	<120	and	<80
Normal	120–129	and/or	80–84
High-normal	130–139	and/or	85–89
Grade 1 hypertension	140–159	and/or	90–99
Grade 2 hypertension	160–179	and/or	100–109
Grade 3 hypertension	≥180	and/or	≥110
Isolated systolic hypertension	≥140	and	<90



BP thresholds for definition of hypertension with different types of BP measurement



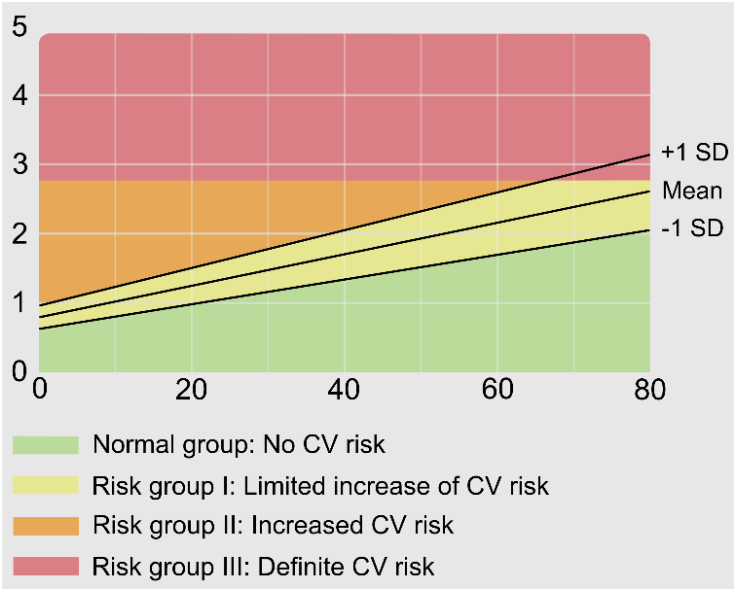
	SBP (mmHg)	DBP (mmHg)
Office or clinic	140	90
24-hour	125–130	80
Day	130–135	85
Night	120	70
Home	130–135	85

Age reader

Principle:
The AGE Reader is a non-invasive monitoring device that uses ultra-violet light to excite autofluorescence in human skin tissue. The autofluorescence is from the level of **Advanced Glycation End products** (AGEs). The measurement of AGEs provides an immediate cardiovascular risk prediction in 12 seconds

Age Reader Identifies:

- Individuals with increased CV risk
- individuals with an increased risk of diabetes and additionally the metabolic syndrome
- early detection of (diabetes) patients at risk of developing cardiovascular complications
- identify people with increased levels of AGEs to improve skin care and reduce aging



Age reader report

Name: Josef Novák
Date of birth: 01.01.1959
Age: 60

Patient ID: 001

AGE READER mu
Know their risk.

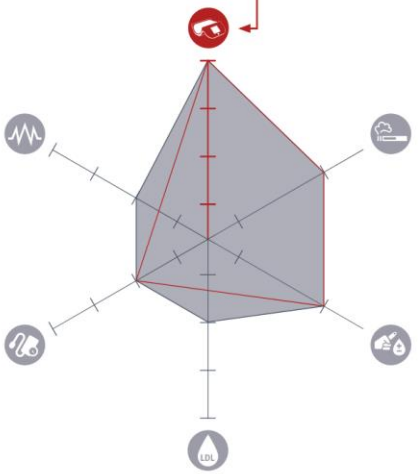
Exam date: 23.10.2019

Cardiovascular Risk Report

Cardiovascular Risk Report

Cardiovascular risk factors are conditions or habits that raise your risk of cardiovascular disease and events. There are traditional and innovative cardiovascular risk factors known. This cardiovascular risk report provides an overview of selected cardiovascular risk factors with special attention for the AGE Reader measurement result.

Risk Factor	Measurement results	
	Previous 23.10.2019	Current 23.10.2019
AGE	3,1	3,1
Smoker	Yes	Yes
Diabetes	Yes	Yes
LDL cholesterol	-	4,0
Systolic blood pressure	140	140
Pulse wave velocity	-	9,1



Excellent | Very good | Good | Fair | Poor

Previous results | Current results

AGE Reader result

The AGE Reader measurement result is 2,9 or above. This indicates a definitely high cardiovascular risk. It is recommended that other cardiovascular risk factors should be assessed and treated, with low threshold and target values for starting or intensifying treatment.

Notes

-

Cholesterol

Biochemical markers

Reflotron™:

- Possibility of immediate evaluation of plasmatic parameters directly medical office during examination and counselling
  - Total Chol
  - HDL-chol
  - Triglycerides
  - Glycaemia

MNA

Validated Nutritional Assessment Tests for Malnutrition (Elderly, Hospitalized Patients)

- **MNA** – Mini Nutritional Assessment
- **SGA** – Subjective Global Assessment
- **NRS** (resp. NRS 2002) – Nutritional Risk Screening
- **MUST** – Malnutrition Universal Screening Tool

MNA

Screening

A Has food intake declined over the past 3 months due to loss of appetite, digestive problems, chewing or swallowing difficulties?
0 = severe decrease in food intake
1 = moderate decrease in food intake
2 = no decrease in food intake

B Weight loss during the last 3 months
0 = weight loss greater than 3kg (6.6lbs)
1 = does not know
2 = weight loss between 1 and 3kg (2.2 and 6.6 lbs)
3 = no weight loss

C Mobility
0 = bed or chair bound
1 = able to get out of bed / chair but does not go out
2 = goes out

D Has suffered psychological stress or acute disease in the past 3 months?
0 = yes 2 = no

E Neuropsychological problems
0 = severe dementia or depression
1 = mild dementia
2 = no psychological problems

F Body Mass Index (BMI) = weight in kg / (height in m)²
0 = BMI less than 19
1 = BMI 19 to less than 21
2 = BMI 21 to less than 23
3 = BMI 23 or greater

Screening score (subtotal max. 14 points)
12-14 points: Normal nutritional status
8-11 points: At risk of malnutrition
0-7 points: Malnourished
For a more in-depth assessment, continue with questions G-R

Assessment

G Lives independently (not in nursing home or hospital)
1 = yes 0 = no

H Takes more than 3 prescription drugs per day
0 = yes 1 = no

I Pressure sores or skin ulcers
0 = yes 1 = no

J How many full meals does the patient eat daily?
0 = 1 meal
1 = 2 meals
2 = 3 meals

K Selected consumption markers for protein intake
- At least one serving of dairy products (milk, cheese, yoghurt) per day — yes / no
- Two or more servings of legumes or eggs per week — yes / no
- Meat, fish or poultry every day — yes / no

0.0 = if 0 or 1 yes
0.5 = if 2 yes
1.0 = if 3 yes

L Consumes two or more servings of fruit or vegetables per day?
0 = no 1 = yes

M How much fluid (water, juice, coffee, tea, milk...) is consumed per day?
0.0 = less than 3 cups
0.5 = 3 to 5 cups
1.0 = more than 5 cups

N Mode of feeding
0 = unable to eat without assistance
1 = self-fed with some difficulty
2 = self-fed without any problem

O Self view of nutritional status
0 = views self as being malnourished
1 = is uncertain of nutritional state
2 = views self as having no nutritional problem

P In comparison with other people of the same age, how does the patient consider his / her health status?
0.0 = not as good
0.5 = does not know
1.0 = as good
2.0 = better

Q Mid-arm circumference (MAC) in cm
0.0 = MAC less than 21
0.5 = MAC 21 to 22
1.0 = MAC greater than 22

R Calf circumference (CC) in cm
0 = CC less than 31
1 = CC 31 or greater

Assessment (max. 16 points)
Screening score
Total Assessment (max. 30 points)

Malnutrition Indicator Score

24 to 30 points	Normal nutritional status
17 to 23.5 points	At risk of malnutrition
Less than 17 points	Malnourished

References
1. Vellas B, Villars H, Abellan G, *et al.* Overview of the MNA® - Its History and Challenges. *J Nutr Health Aging.* 2006; 10:456-465.
2. Rubenstein LZ, Harker JO, Salva A, Guigoz Y, Vellas B. Screening for Undernutrition in Geriatric Practice: Developing the Short-Form Mini Nutritional Assessment (MNA-SF). *J. Geront.* 2001; 56A: M366-377
3. Guigoz Y. The Mini-Nutritional Assessment (MNA®) Review of the Literature - What

MUNI MED

Intervence

2016 European guidelines on CD prevention in clinical practice

How to intervene at the individual level: risk factor intervention - behaviour change

Recommendations for facilitating changes in behaviour:

Recommendations	Class[a]	Level[b]	Ref[c]
Established cognitive-behavioural strategies (e.g. motivational interviewing) to facilitate lifestyle change are recommended.	I	A	231
Involvement of multidisciplinary healthcare professionals (e.g. nurses, dieticians, psychologists) is recommended.	I	A	232, 233
In individuals at very high CVD risk, multimodal interventions integrating medical resources with education on healthy lifestyle, physical activity, stress management and counselling on psychosocial risk factors, are recommended.	I	A	233, 234

Principles of effective communication to facilitate behavioural change:

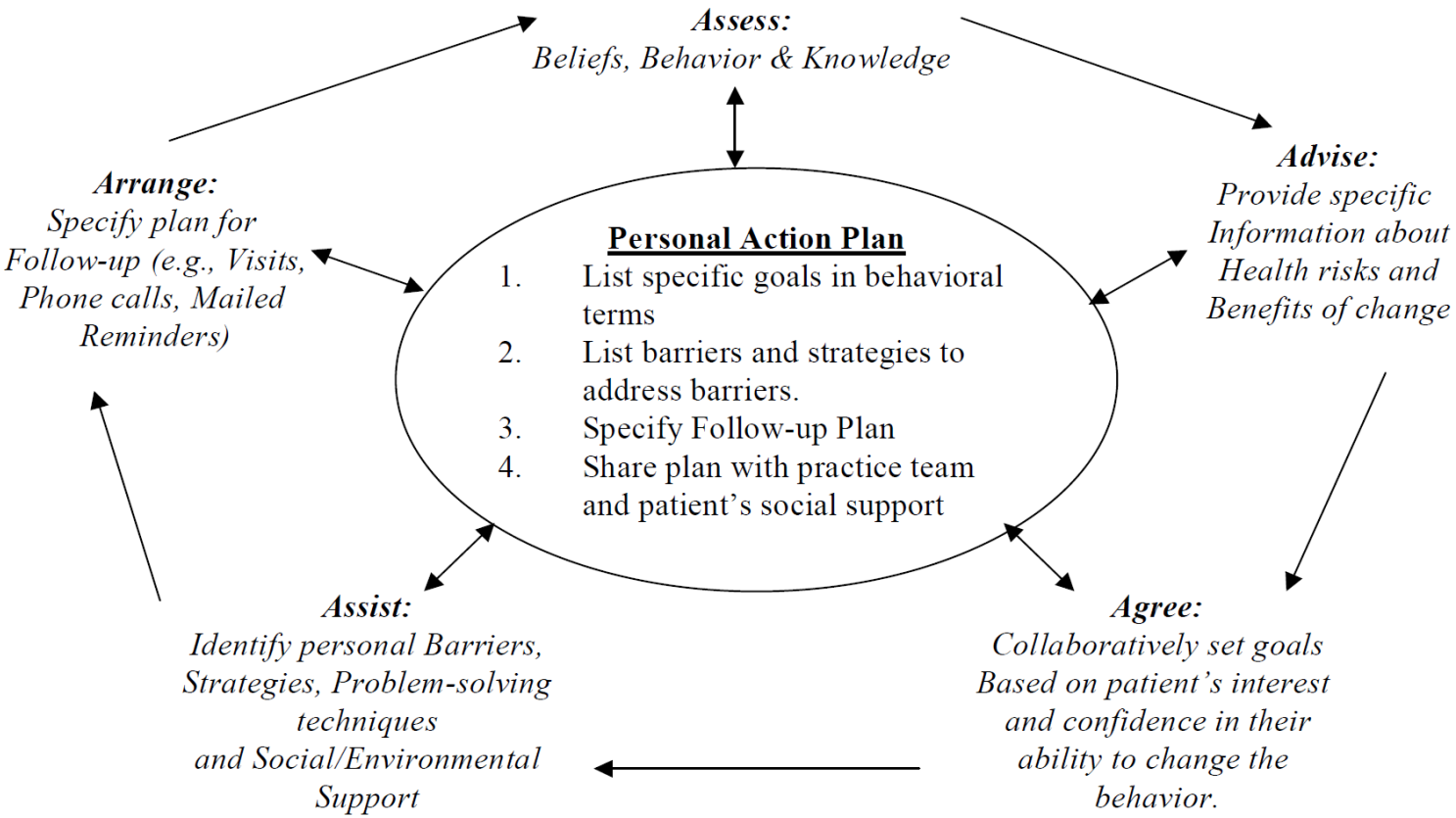
- Spend enough time with the individual to create a therapeutic relationship – even a few more minutes can make a difference.
- Acknowledge the individual's personal view of his/her disease and contributing factors.
- Encourage expression of worries and anxieties, concerns and self-evaluation of motivation for behaviour change and chances of success.
- Speak to the individual in his/her own language and be supportive of every improvement in lifestyle.
- Ask questions to check that the individual has understood the advice and has any support he or she requires to follow it.
- Acknowledge that changing life-long habits can be difficult and that sustained gradual change is often more permanent than a rapid change.
- Accept that individuals may need support for a long time and that repeated efforts to encourage and maintain lifestyle change may be necessary in many individuals.
- Make sure that all health professionals involved provide consistent information.

Ten strategic steps to facilitate behaviour change:

1. Develop a therapeutic alliance.
2. Counsel all individuals at risk of or with manifest cardiovascular disease..
3. Assist individuals to understand the relationship between their behaviour and health.
4. Help individuals assess the barriers to behaviour change.
5. Gain commitments from individuals to own their behaviour change.
6. Involve individuals in identifying and selecting the risk factors to change.
7. Use a combination of strategies including reinforcement of the individual's capacity for change.
8. Design a lifestyle-modification plan.
9. Involve other healthcare staff whenever possible.
10. Monitor progress through follow-up contact.

Intervention

Self-Management Model with 5 A's (Glasgow, et al, 2002; Whitlock, et al, 2002)



Improvement Goal: All chronic illness patients will have a Self-Management (SM) Action Plan informed by and including all the 5 A's elements (Assess, Advise, Agree, Assist, Arrange). The 5 A's Behavior Change Model is intended for use with the Improving Chronic Illness Care Chronic Care Model (CCM).