

Aula Magna Istituto Superiore Antincendi

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L'importanza di una corretta alimentazione per il Vigile del Fuoco

Silvia Migliaccio

Department of Movement, Human and Health Sciences

Section of Endocrinology

University "Foro Italico", Rome

and

Department of Experimental Medicine

Section Medical Pathophysiology, Endocrinology, Nutrition

University "Sapienza", Rome



BODY COMPOSITION MODELS

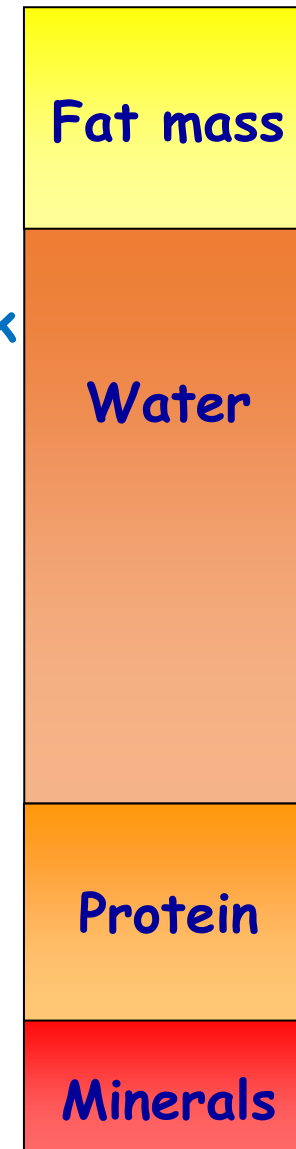
BICOMPARTMENTAL

Adolph
Magnus-Levy



TETRACOMPARTMENTAL

Keys e Brozek



BODY COMPOSITION

FM (FAT MASS): body fat that includes the body lipids is anhydrous, does not contain potassium and has a density of about 0.9 g / ml distributed in subcutaneous adipose tissue and in visceral tissue

FFM (FAT FREE MASS): includes the rest of the body with a density almost constant from 1.099 to 1.1 g/ml (comprising the bone density 3 g/ml, protein 1.34 g/ml of water and 0.993 g/ml), a potassium content of 69 meq/kg in males (10% less in females) and 72-73% of water



PERCENTAGE OF WATER BODY ON THE BASIS OF AGE AND GENDER

AGE	MALES	FEMALES
BABY	80 %	75%
1-5 YEARS	65%	65%
10-16 YEARS	60%	60%
17-39 YEARS	60%	50%
40-59 YEARS	55%	47%
> 60 YEARS	50%	45%



WATER

Essential substance for:

- maintenance of the volume of blood
- transport and dilution of the substances in the body
- control of body temperature
- elimination of waste
- lubrication of the cavities
- sustain bowel regularity



THE CONCEPT OF "DIET"

Diet concept was introduced in
IV BC by Hippocrates of Kos

"diaita" = way of living



FOOD



NUTRIENTS

Substances with specific tasks in the body.
Contribute to the maintenance of health.



GLUCIDS

LIPIDS

PROTEINS

VITAMINS

MINERALS

WATER



MEDITERRANEAN DIET FIRST STUDIED IN ITALY IN THE 50's BY ANCEL KEYS



THE MEDITERRANEAN FOOD MODEL

<u>FOODS</u>	<u>Kcal/1g</u>	<u>Balanced diet</u>	
GLUCIDS or CARBOHYDRATES or HYDRATES OF CARBON	3,75	45-60 %	% of total daily Kcalories
LIPIDS or FATS	9	<30 %	
PROTEINS ↗ animals ↘ vegetables	4	12-18 %	
VITAMINS AND MINERALS			
WATER			
		ALCOHOL: 7 Kcal/1g	



Immune and inflammatory responses of Australian firefighters after repeated exposures to the heat.

Walker A, Keene T, Argus C, Driller M,
Guy JH, Rattray B.

Ergonomics. 2015;58(12):2032-9.

When firefighters work in hot conditions, altered immune and inflammatory responses may increase the risk of a cardiac event.....omissis... Increases in core temperatures were associated with significant increases in leukocytes, platelets and TNF α directly following work.



Fundamental food groups

GROUP 1	Meat, fish, eggs, legumes	Proteins of high biological quality B-complex vitamins Trace elements (zinc, copper, iron ...)
GROUP 2	Milk, yoghurt, cheese	Calcium Proteins of high biological quality Vitamins (including A and B2)
GROUP 3	Bread, pasta, rice, corn potatoes	carbohydrates Protein medium biological quality B-complex vitamins
GROUP 4	Vegetable fats (extra virgin olive oil) and animal (butter, cream, lard)	Essential Fatty Acids Vitamins fat-soluble (vitamin A, D, E and K)
GROUP 5	Fruits, vegetables	fiber Vitamins (provitamin A, vitamin C, etc.). Minerals, Antioxidants

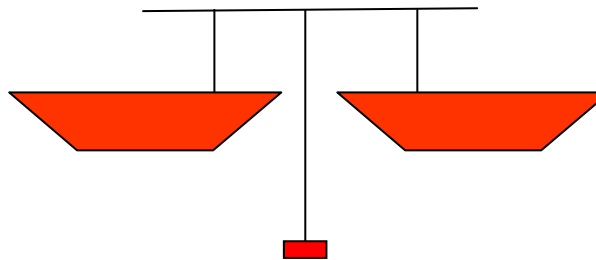


WATER BALANCE

Intake

food	1000 ml
liquids	1200 ml
met	300 ml
Tot	2500 ml

NORMAL CLIMATE

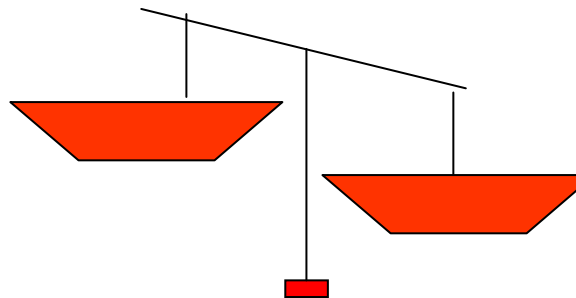


Loss

urine	1200 ml
faeces	100 ml
sweat	850 ml
breath	350 ml
Tot	2500 ml

food	1000 ml
liquids	1200 ml
met.	300 ml
Tot	2500 ml

HOT CLIMATE



urine	500 ml
faeces	100 ml
sweat	5000 ml
breath	700 ml
Tot	6300 ml

FOOD PYRAMID

