

Aula Magna Istituto Superiore Antincendi

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

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# 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

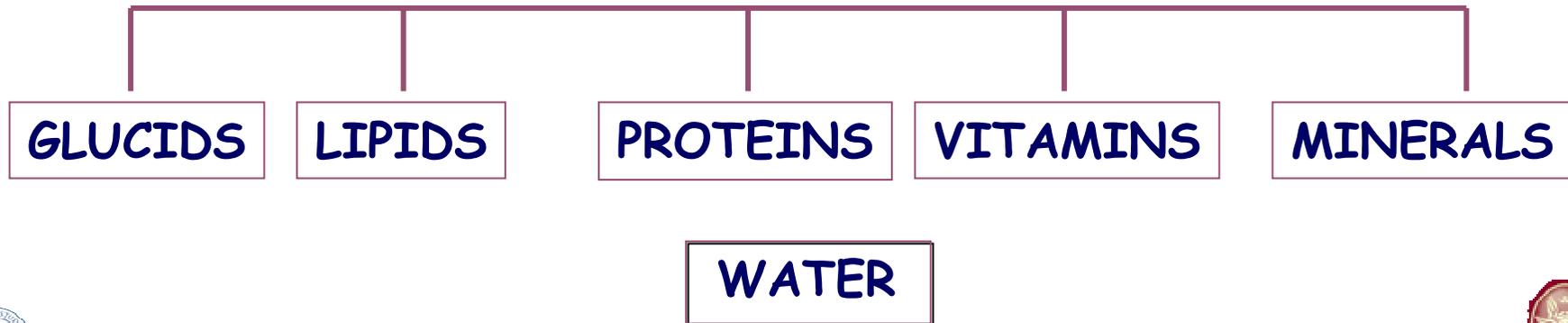


**FOOD**



**NUTRIENTS**

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



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





# 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 $\alpha$  directly following work.



# Fundamental food groups

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

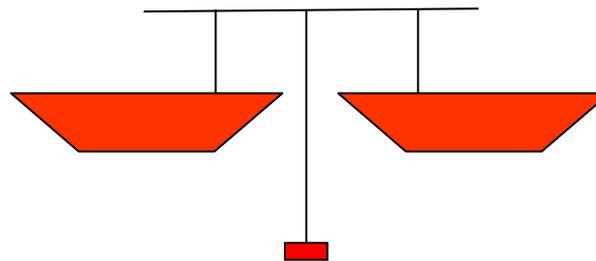


# WATER BALANCE

## Intake

food	1000 ml
liquids	1200 ml
met	300 ml
<u>Tot</u>	<u>2500 ml</u>

## NORMAL CLIMATE

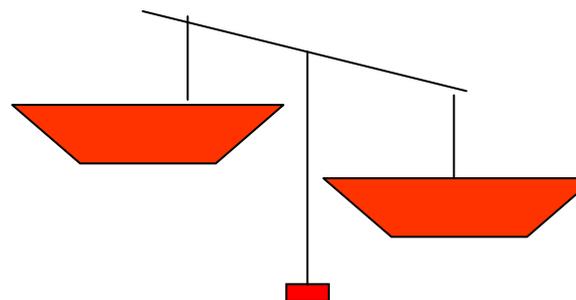


## Loss

urine	1200 ml
faeces	100 ml
sweat	850 ml
breath	350 ml
<u>Tot</u>	<u>2500 ml</u>

food	1000 ml
liquids	1200 ml
met.	300 ml
<u>Tot</u>	<u>2500 ml</u>

## HOT CLIMATE



urine	500 ml
faeces	100 ml
sweat	5000 ml
breath	700 ml
<u>Tot</u>	<u>6300 ml</u>



# FOOD PYRAMID

