



For all ages, from child to elder, it is important to never marginalize, for wellness and health, modifiable lifestyle factors like diet and physical activity → Preventive Medicine

To maintain health, to avoid tobacco use and harmful use of alcohol, to follow a **Mediterranean Diet** (1-6), to perform **physical activity** every day, better **OUTDOOR** but also **INDOOR**, and to maintain **ebiosis** (*gastrointestinal microbial ecosystem living in balance*)

The MEDITERRANEAN DIET is not a simple DIET BUT a Life style included correct hydration, food intake, physical activity and recovery, by choosing foods in the view of the environment's sustainability to preserve the planet, as described in the following pyramid, where the foods more recommended at the bottom are those with less impact on environment (less food industry, transfers, intensive breeding)



Regular physical activity
Adequate rest
Conviviality
Wine (and other alcoholic fermented beverages) in moderation and respecting social beliefs



Biodiversity and seasonality
Traditional, local and eco-friendly products
Culinary activities



International Foundation of Mediterranean Diet
A healthy and sustainable Future

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Author: Scientific Advisory Committee of IFMeD
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Mediterranean Diet emphasizes consumption of whole grain cereals, fruits, vegetables, legumes, unsaturated fats, and limited red and processed meat intake as well sweet and snacks. Numerous epidemiologic studies and clinical trials have demonstrated that the mediterranean diet reduces the risk of all-cause mortality and multiple chronic diseases (2-6)

Mediterranean Diet is important to ensure, also for other micronutrients (5), a sufficient daily intake of **Vitamin C and Vitamin D**, essential co-factors for homeostasis of immune, antioxidant and musculoskeletal system. Vitamin D is also synthesized upon skin exposure to solar ultraviolet radiation



Adapted from MEAL study (5)

Physical health and mental health are strongly linked, and physical activity is a key modulator of general health (WHO definition) (7-9)

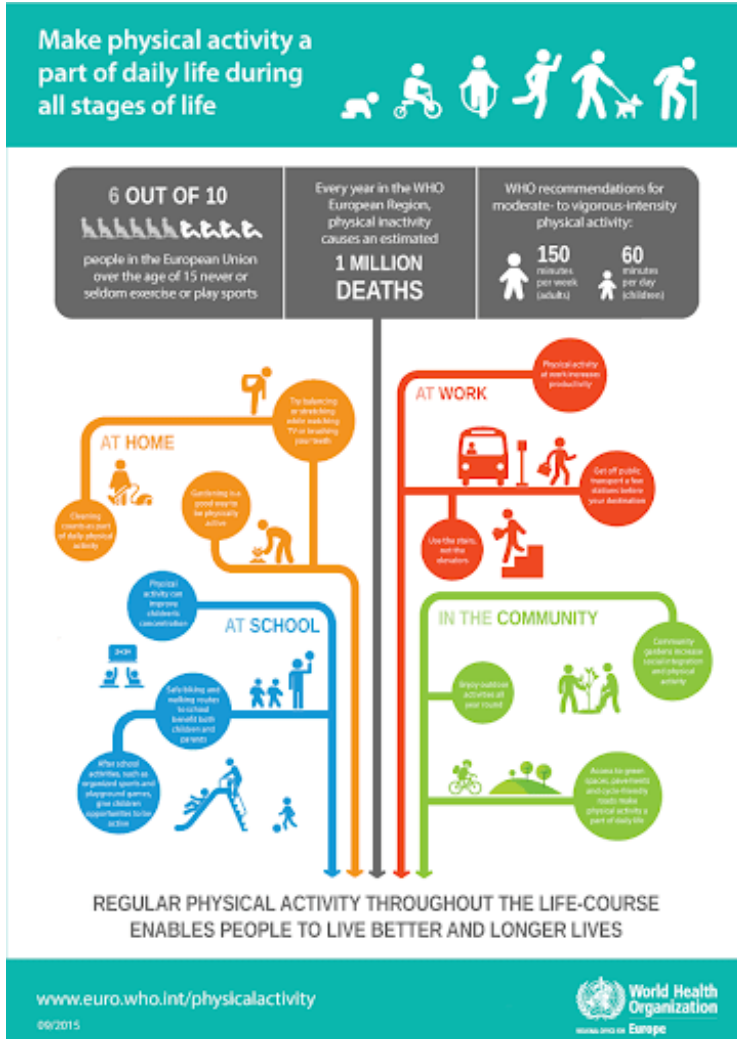


Exercise has been shown to have clear health benefits for healthy individuals and for patients with various diseases (10). In this respect, it is good to report: *“Some activity is better than none, and more is better than less”.*

TO BE ACTIVE, EVERY DAY, AT LEAST 30 MINUTES/DAY, TO

- improve muscular and cardiorespiratory fitness;
- improve bone and functional health;
- reduce the risk of hypertension, coronary heart disease, stroke, diabetes, various types of cancer (including breast cancer and colon cancer);
- reduce depression;
- reduce the risk of falls as well as hip or vertebral fractures

Physical activity is fundamental to energy balance and weight control

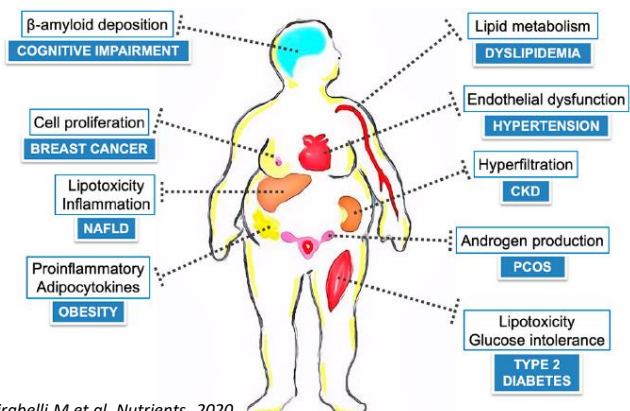


Insufficient physical activity is one of the leading risk factors for global mortality and is on the rise in many countries, adding to the burden of Noncommunicable diseases (NCDs) and affecting general health worldwide

People who are insufficiently active have a 20% to 30% increased risk of death compared to people who are sufficiently active

Nutrient needs should be met through a “food first” approach via consumption of whole foods rather than supplements, that could be detrimental (11, 12)

Mediterranean diet in the prevention of several diseases



Mirabelli M et al. *Nutrients*. 2020



There is strong evidence from randomized controlled trials that high-dose beta-carotene supplements may increase the risk of lung cancer in some people. There is **no** strong evidence that dietary supplements, apart from calcium for colorectal cancer, can reduce cancer risk (11)

Maintenance of Eubiosis

The gastrointestinal tract is composed of a complex association of epithelial cells, immune cells, food antigens **and microorganisms** (microbiota: diverse commensal microbial communities consisting mainly of bacteria, but also, methanogenic archaea, viruses, fungi, yeasts and protozoa)

Dysbiosis, meaning imbalances in the composition and function of the intestinal microbes, is **associated with various human diseases (13-20)**

MICROBIOTA has an immunoregulatory function

Approximately 70% of the immune system is localized in the gut: microbiota, have emerged as important regulators of metabolism and immune homeostasis and probiotics has been shown to promote a health immune response

Each person’s microbiome (microbiota’s genes) is unique. Variations in microbial composition can be influenced by both genetic and environmental factors, including diet, geographical location, stress, drug use, physical activity

Several studies (14-17) indicate that **Mediterranean Diet** elicits favourable microbiota profiles and metabolite production (postbiotics), with microbial diversity paralleling levels of dietary adherence.

Also, **exercise** can affect qualitative and quantitative changes in the gut microbial composition with benefit to the host (18)

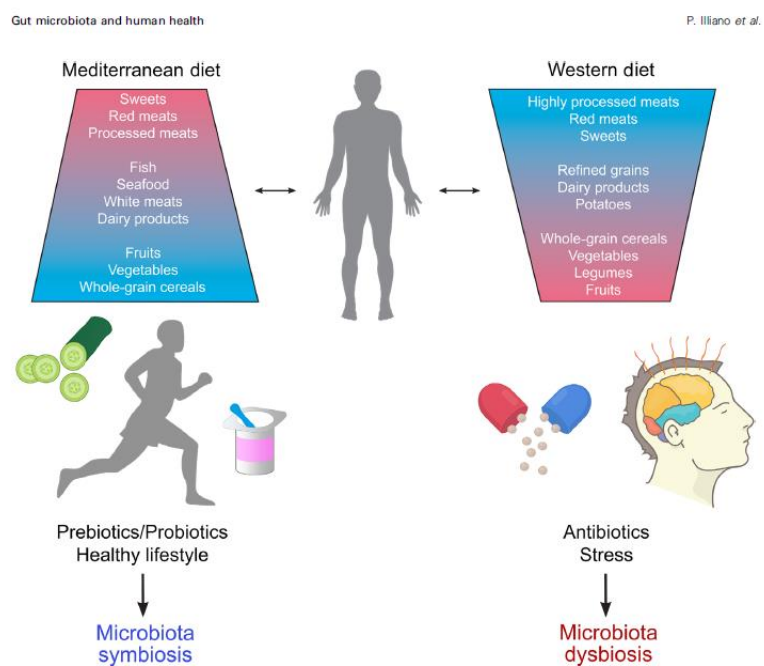
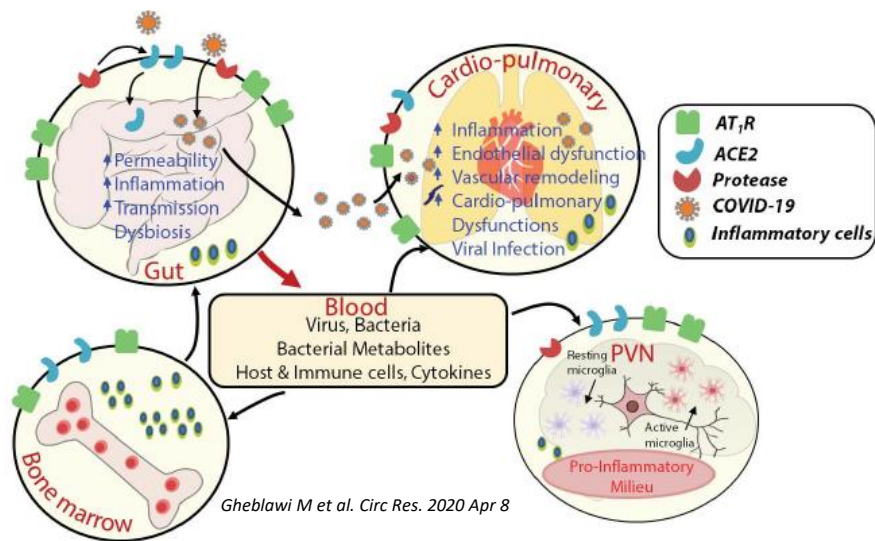


Fig. 2. Major mechanisms involved in the cross-talk between microbes and host. The balance between healthy and pathological conditions depends on different factors, including genes, food (Mediterranean vs. Western diet), prebiotic/probiotic intake, stress and antibiotic treatments.

Certain probiotic strains may reduce the severity of respiratory infection and gastrointestinal disturbance when they occur (13, 14, 19-24)

Obesity and diabetes interfere on immune system, affect the integrity of the gastrointestinal-blood barrier and result in gut dysbiosis, bacteremia and systemic inflammation (24, 25)



Obesity alters susceptibility to pulmonary infection. In turn, gut dysbiosis maybe linked to the onset of pulmonary disease through the gut-lung axis as well as viral infection and production by host enterocytes perpetuates this systemic inflammation and deteriorates conditions in the gut-lung axis (24)

Based on this context, despite the guidelines for a healthy nutrition and life style, to avoid tobacco use and harmful use of alcohol **each person is different and needs, sometimes, in physiological or pathological condition, also a personalized nutrition and training**

Regarding the **SUPPLEMENTS**, only if they are necessary and better via own family doctor or a specialist's prescription (personalized and tailored therapy) → Personalized Medicine

To maintain the homeostasis of immune system and the related gut eubiosis it is useful to consider the administration of (19-30):

Probiotics, different strains/species of *Lactobacillus*, *Bifidobacterium*, *Saccharomyces* (probiotic yeast)

Prebiotics, inulin, FOS, beta glucan, despite it is recommended the intake of fiber and whole grains by mediterranean diet

Micotherapy (Medicinal Mushrooms), *Ganoderma lucidum* (reishi), *Lentinus edodes* (shiitake), *Grifola frondosa* (maitake), *Cordyceps sinensis*, *Hericium Erinaceus*

Micronutrients, in primis Zinc, Vitamin C and Vitamin D. Magnesium, Lactoferrin, Bioflavonids, L-theanine L-cystine, Vitamin B1, B2, B3, B5, B6, Superoxido dismutase, specifically for airway homeostasis, *resveratrol* and *n-acetyl cysteine*.

Finally, should be taken in consideration that the **influenza and pneumococcal vaccines** are essential tools to maintain the efficiency of the immune system againts the related etiologic agents

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