

THE ANTI-CHOLESTEROL DIET

HYPCHOLESTEROLEMIC FOODS AND THEIR MEANS OF ACTION

Functional foods providing plant sterols (called **phytosterols**) or plant stanols (called **phytostanols**) have literally invaded our supermarkets. Multiple studies have demonstrated their capacity to lower LDL cholesterol levels by 10 to 15% within 2 months [1-3]. To be efficient, daily intake must reach 2 g/day, but higher dosages don't give further cholesterol reductions [4].

A **dietary portfolio** combining the benefits of plant sterols, soy proteins and viscous fibers may be as effective as taking 20 mg per day of a statin such as lovastatin, enabling a 29% drop of LDL cholesterol level [5]. However, the beneficial impact of this portfolio seems to result mainly from the synergic action of phytosterols (see above) and of **fibers** (e.g. provided by **psyllium**) [6] rather than profitable effects of **soy proteins**, which have recently become more and more controversial [7, 8].

Further randomized controlled trials have confirmed the huge hypocholesterolemic effect of sensible dietary portfolios that were including **almonds** [9], leading to the concept of Miocene-like diet high in **leafy vegetables, fruits and nuts** [10, 11]. *"We conclude that reintroduction of plant food components, which would have been present in large quantities in the plant based diets eaten throughout most of human evolution into modern diets can correct the lipid abnormalities associated with contemporary eating patterns and reduce the need for pharmacological interventions"*, i.e. the **Garden of Eden diet** [10].

Different studies and publications have emphasized the hypocholesterolemic action of specific fruits or nuts. The dietary supplementation of lycopene from **tomato** may reduce plasma LDL cholesterol concentration by 14% [12]. Eating **apple** polyphenols exerts hypocholesterolemic effects through promoting cholesterol catabolism and through inhibiting cholesterol intestinal absorption [13]. Consuming two or three **kiwi** fruits per day for 4 weeks lowers triglycerides levels by 15% [14].

A diet rich in **walnut** significantly reduces levels of both total cholesterol and LDL cholesterol by approximately 5% [15]. In rats, **flaxseed** meal provides significant decreases of plasma total cholesterol (20%) and triglycerides (35%) compared to a casein-based diet [16]. Finally, consuming **green tea** or catechins inhibits the absorption of dietary lipids and *"may be used as safe and effective lipid-lowering therapeutic agents"* tackling cholesterol levels as well as triglycerides levels [17].

Our views on animal fats-based diets have thoroughly changed since the publication of an article about Greenland Eskimos in 1976: *"The essentially lower serum cholesterol level found in Greenland Eskimos was not explained by our findings. It is suggested instead to be a special metabolic effect of the long chain polyunsaturated fatty acids from marine mammals"* [18]. Very interestingly, coronary heart disease appears extremely limited in those populations despite the lack of vegetable foods, therefore providing an additional means to improve cardiovascular health through abundant consumption of **oily fish** [18].

According the medical literature [19], fish species containing the higher amounts of long chain omega 3s (EPA & DHA) are the following: **salmon, sardine, herring, mackerel, tuna, rainbow trout, and halibut**, to which we can add **anchovy** and **eel**. To finish with, we cannot omit the impressive results obtained by a Cretan diet high in alpha-linolenic acid essentially from **rape seed oil** and other typical **Mediterranean diet** foods, far superior to the classic low fat diet for patients having suffered from a first myocardial infarction [20, 21]. Moderate fat consumption (25-35% of energy) appears far better than extremes [22]...

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