

## Abstract

### **Speaker**

Plat, Jogchum  
Nutrition and Movement Sciences  
Maastricht University  
Maastricht  
The Netherlands

### **Title**

Plant-based diets; a focus on fats and sterols

### **Abstract**

International guidelines increasingly advise the use of plant-based diets, which can be explained by the fact that people consuming these diets in general have a better health as compared to those consuming the opposite type of diets, i.e. high in calories, (red) meat, and refined carbohydrates, and generally nutrient-poor. Consuming these diets disturbs healthy metabolism, which translates in a wide variety of diseases such as cardiovascular diseases and type II diabetes but also cancer and dementia. Regarding the effects of plant-based diets, one can focus on the role of animal- versus plant-based proteins, fibre, or phytonutrient content, but also plant-based fats and sterols have different effects as compared to animal-based fats and cholesterol. Replacing saturated fats by (poly)unsaturated fats, one of the consequences of a plant-based diet naturally rich in unsaturated fats, translates in a reduction of LDL cholesterol concentrations. Undoubtedly, LDL cholesterol is a causal risk factor for the development of CVD so this is an important part of the atheroprotective effect. Interestingly, plant-based diets also lower HDL cholesterol concentrations. This may sound unhealthy since HDL cholesterol is thought to be atheroprotective, however via the concept of improved HDL functionality (for example via improving cholesterol efflux capacity) this may still hold true.

Besides fats, plant-based diets also contain plant sterols and stanols. These compounds are known to lower intestinal cholesterol absorption and this lower cholesterol bioavailability translates into a reduction in serum LDL cholesterol concentrations. This observation resulted also in the development of functional foods enriched in plant sterols or stanols. According to a recent consensus document written by the European Atherosclerosis Society (EAS), the target population for these compounds are individuals with elevated cholesterol concentrations that do not qualify for pharmacotherapy; it might be an adjunct to high CVD risk patients that do not reach LDL cholesterol goals with their medication, for those being statin-intolerant, or for adults and children with Familial Hypercholesterolemia (FH). An interesting recent development is the fact that plant sterols and stanols seem to have effects beyond lowering LDL cholesterol. These effects are lowering triacylglycerol concentrations, lowering liver inflammation, and a positive impact on the function of our immune system. Overlooking the effects of plant-based fats and sterols as such, but particularly in combination with effects of other characteristics of plant-based diets, it is easy to understand why plant-based diets are associated with low disease profiles.

### **Key messages**

1. Replacing saturated fats for unsaturated (plant based) fats lowers serum total and LDL cholesterol concentrations. Since LDL cholesterol is a causal risk factor for the development of atherosclerotic lesions, this means a reduction in CVD risk.
2. Plant sterols and stanols as present in plant based diets lower intestinal cholesterol absorption, which also translates into a reduction in serum total and LDL cholesterol concentrations.
3. Recent observations suggest that plant sterols and stanols also have effects beyond lowering LDL cholesterol. These effects on triacylglycerol concentrations and our immune system are currently evaluated in more detail