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Intake of Dark Chocolate on Lipid Profile

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Description

Dyslipidaemia is a condition characterized by abnormal lipid profile concentrations, such as elevated triglycerides, total cholesterol, and Low-Density Lipoprotein (LDL) cholesterol or decreased HDL cholesterol concentrations or their combination in the blood. It continues to be a significant risk factor for cardiovascular diseases like ischaemic heart disease and ischaemic stroke, which were ranked among the top 10 global causes of death in 2019.

Although the prevalence of hypercholesterolaemia, also known as elevated total cholesterol, has generally decreased in developed nations as a result of increased adherence to and use of cholesterol-lowering medications, such as statins, and a general improvement in lifestyle factors, the situation is significantly different in developing nations, including sub-Saharan African nations like Ghana. For instance, in a recent systematic review and meta-analysis of cross-sectional studies involving adult Africans, the authors found that dyslipidaemia was prevalent in 17.0% of adults with hypertriglyceridaemia, 25.5% of adults with hypercholesterolaemia, 37.4% of adults with low HDL cholesterol concentrations, and 28.6% of adults with elevated LDL cholesterol concentrations. The prevalence of dyslipidaemia has increased as a result of a number of factors, including the prevalence of poor-quality diets and urbanization, which comes with an increase in physical inactivity. Saturated fat, polyphenols, sterols, di- and triterpenes, aliphatic alcohols, and methylxanthines are just a few of the many compounds found in chocolate. Polyphenols, particularly flavan-3-ols like epicatechins, catechins, and procyanidins, are abundant in cocoa, the main ingredient in chocolate. The majority of people consume polyphenols on a daily basis because they are abundant in fruits, vegetables, and beverages like tea.

Epidemiological research suggests that a diet high in flavonoids—a type of polyphenol—may lower the risk of Coronary Heart Disease (CHD). The protective effect may be partially due to flavonoids' antioxidant properties. Atherogenesis relies heavily on LDL's oxidative modification, and agents that prevent LDL oxidation in the arterial wall may delay the onset of atherosclerosis. Platelet adhesion, a risk factor for atherosclerosis, decreases and vascular function improves as a result. In a recent systematic review of clinical studies, similar findings regarding the role of polyphenols in regulating dyslipidaemia were presented. The results of dyslipidaemia were found to be positively correlated with eating foods high in polyphenols, according to the authors. It has been suggested that HDL play a cardio protective role by transporting cholesterol from extrahepatic tissues to the liver for excretion through the formation of bile acids from the digestive tract. Chocolate is often speculated to have a hypercholesterolemia effect due to its high saturated fat content. However, chocolate consumption has been shown in clinical trials to have no effect on serum total and LDL cholesterol. This is probably because there is a lot of stearic acid (less than 30% of all fatty acids), which is thought to be neutral for total and LDL cholesterol. Dark chocolate or cocoa may actually have a positive effect on serum lipids when consumed. Dark chocolate and cocoa were found to increase HDL cholesterol levels in the blood by 4% in a recent study.

Although there are a few published long-term studies of the effects of chocolate consumption

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on lipid peroxidation in vivo, both the serum HDL concentration and lipid peroxidation ex vivo may benefit from chocolate consumption. Additionally, the question of whether the changes in HDL concentration and lipid peroxidation are caused by chocolate's fatty acids or the cocoa mass itself has not been addressed by previous research. In a clinical trial, we looked at how long-term chocolate consumption affected serum lipids and lipid peroxidation both *ex vivo* and in vivo. The administered chocolates had identical fatty acid content but differed in the amount of polyphenols they contained, allowing researchers to differentiate between the effects of polyphenols and fatty acids on lipid peroxidation. Consumption of dark chocolate and cocoa beverages did not differ between populations with normal and elevated LDL cholesterol at baseline. Consuming cocoa as part of a healthy diet could be suggested to improve cardiovascular health. In a general population with LDL cholesterol that is normal but high. It is suggested that weight-adjusted doses of epicatechin and the long-term effects of cocoa consumption on lipid profile parameters be the subject of future research.