Macadamia nut oil supplementation

The effect on metabolic health markers during an 8-week period

SAMAC
Macadamias South Africa NPC

Research question

Macadamia nuts are known to contain high levels of the monounsaturated fats, palmitoleic acid (omega-7) and Oleic acid (omega-9) which are known to reduce inflammation, improve heart function through lowering of low density lipoprotein (LDL) levels, and supporting overall wellness. It's been reported to have beneficial effects on certain human health markers.

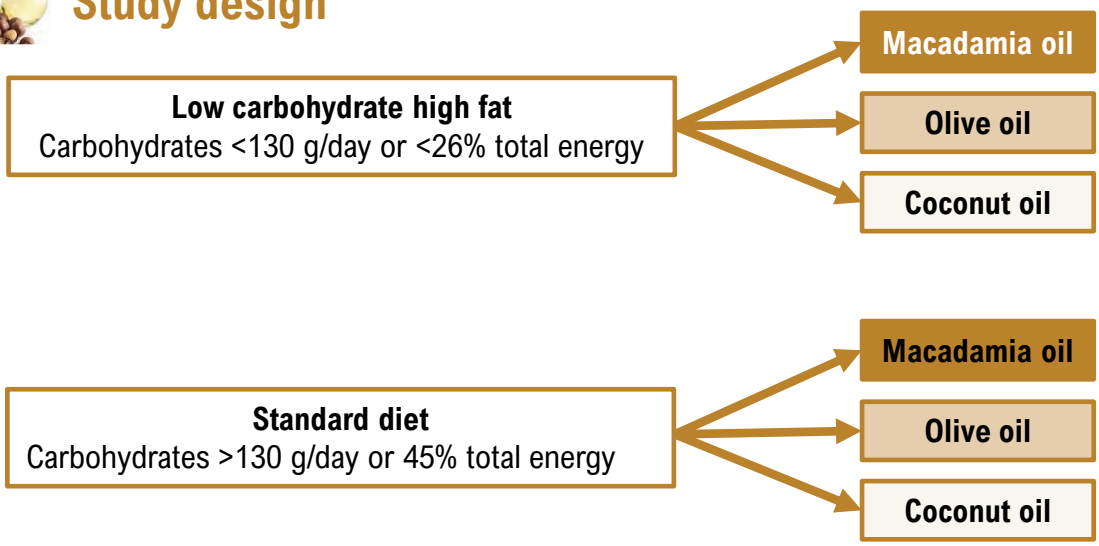
The effect of macadamia nut oil supplementation on human health has however never been quantified.

Aim of the study

A pilot study was conducted by the Noakes Foundation in which the health benefits of macadamia nut oil supplementation (45 ml per day) was determined over an 8 week period.

The study included 60 participants who either followed a low carbohydrate high fat or a standard diet. Their was diet supplementation by either macadamia, coconut or olive oil.

Study design



A blood assessment took place before the intervention to establish baseline levels for blood markers. At the end of the 8-week intervention, a second blood assessment took place.

Blood marker	Health indicator
HDL-C, low density lipoprotein (LDL)-C and triglycerides	Lipid profile
GGT	Hepatic (liver) health
Amylase and lipase	Pancreatic health
HbA1c and fasting glucose	Glycaemic profile
CRP and ESR	Inflammation

Macadamias: Indeed a super-food!!!

Outcome of the research

Macadamia nut oil supplementation lowered lipase (related to pancreatic health) and C-Reactive Protein (CRP) levels, which contributes to pancreatic health and reducing inflammation in the body, which has a cardioprotective effect. Research has shown that oleic acid and flavonoids reduces inflammation.

The beneficial effects of macadamia oil consumption were more pronounced in the standard diet.

Fewer health markers showed improvement from coconut and olive oil.

Coconut oil also decreased lipase levels, contributing to pancreatic health, but to a lesser degree when compared to macadamias. In the Low Carbohydrate High Fat (LCHF) diet supplemented with coconut oil, the overall lipid profile and inflammation markers showed improvement.

Olive oil might increase fasting glucose, but can also cause a rise in low density lipoprotein (low density lipoprotein (LDL)), in some cases referred to as bad fat.

From the results in this pilot study, macadamia nut oil supplementation showed more beneficial effects for human health when compared with coconut and olive oil.

Highlights of the results include:

Low Carbohydrate High Fat (LCHF) supplemented with macadamia oil: **lipase decreased significantly** (15.8%). Amylase (5.7%), fasting glucose (4.8%), GGT (9.7%), triglycerides (1.3%) and inflammation markers (CRP 9.6%, ESR 60.3%) decreased but not significantly. Total cholesterol increased by 7.4%, low density lipoprotein (LDL)-C by 8.2% and HDL-C by 5.8%.

Standard diet supplemented with macadamia oil: **CRP level decreased significantly** (37.7% change over the course of 8 weeks). HDL-C (9.3%), GGT (27.7%), amylase (6.6%), lipase (18.8%), fasting glucose (2.4%), low density lipoprotein (LDL) (3.4%) and triglycerides (9.2%) decreased, but not significantly. ESR increased by 20.9%.

LCHF supplemented with olive oil: **Fasting glucose increased significantly** (5.4%). HDL-C, LDL-C and total cholesterol remained unchanged. The pancreatic markers amylase and lipase reduced by 0.2% and 1.7% respectively, but not significantly. GGT increased by 9.5%.

Standard diet supplemented by olive oil: **LDL increased significantly** (15.1%). Total cholesterol increased by 17.7%, lipase showed a 3.9% increase, fasting glucose levels rose by 0.3% and GGT by 7.6%, but not significantly. CRP decreased by 4.2%, ESR by 38.5%, triglycerides by 13.6% and amylase by 8.1%, but not significantly.

LCHF supplemented with coconut oil: **Inflammation markers (ESR) showed a significant decrease** (47%), and **HDL-C levels increased significantly** (8.4%). LDL (15.3%), total cholesterol (8.3%), amylase (9.5%) and lipase concentrations (25.4%) decreased but not significantly. Fasting glucose increased slightly (1.1%).

Standard diet supplemented with coconut oil: **Lipase levels decreased significantly** (12.1%). Fasting glucose (1.4%), GGT (17.3%) and total cholesterol (4.7%) increased, but not significantly. Triglyceride levels remained constant, and amylase (1%), lipase (1.2%) and CRP levels (25%) were reduced, but not significantly.