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The effect of food-based soy protein consumption on the lipid profile of women in South Africa

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The objective of this study was to compare the effect of 25 g soy protein consumption on blood lipid levels of women of childbearing age and elderly women.

An experimental intervention study design was followed. A power calculation showed that a representative sample required 60 subjects per group of women and 90 women of child bearing age in Qwa-Qwa and 70 elderly women in Sharpeville were randomly selected, with both groups divided into a hypercholesterolemic (HC) and normo-cholesterolemic (NC) group. An 18 month intervention with a daily 25 g soy protein consumption was implemented in both groups of women. Measurements included dietary intake (24-hour recall) and biochemical lipid parameters with venous blood samples. Data analyses included descriptive statistics and paired and independent t-tests.

40% of the women from Qwa-Qwa and 72.5% from Sharpeville were hypercholesterolemic. Compliance showed a mean 15 g and 10 g of daily soy protein consumption by the Qwa-Qwa and Sharpeville groups respectively. After the intervention, the HC women from both Qwa-Qwa and Sharpeville had significantly improved high density lipoprotein cholesterol (HDL-C) ($p < 0.05$) and low density lipoprotein cholesterol (LDL-C) ($p < 0.05$) levels, but total cholesterol (TC) ($p < 0.05$) levels increased significantly. A similar trend was observed in the NC group in Qwa-Qwa, however, no significantly improved HDL-C and LDL-C values were observed. The Sharpeville NC group showed a significant increase in TC, HDL-C and LDL-C levels after the intervention.

Dyslipidemia were prevalent amongst both these groups of women. The daily consumption of soy protein, had no significant positive effect on TC, but had a beneficial effect on HDL-C of all the women. The HDL: LDL ratio was also improved in the hypercholesterolemic groups, thus reducing the risk for CVD. The daily consumption of even as low as 10g soy protein thus had a beneficial effect on the lipid profile of the women of child-bearing age and elderly women. Therefore, soy awareness programs and nutrition education focusing on the importance of soy consumption for cardiovascular health should be promoted as part of the national health strategy for South Africa.