



# Effect of Bariatric Surgery on Apolipoproteins: A Systematic Review

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## ABSTRACT

**Introduction:** Obesity is a global health issue linked to cardiovascular disease, diabetes, and dyslipidemia. Bariatric surgery is an effective intervention for severe obesity, inducing significant weight loss and metabolic improvements. Apolipoproteins, critical components of lipoproteins, play a crucial role in lipid transport and metabolism. This review maps the effects of bariatric surgery on apolipoproteins, highlighting existing research and identifying future research gaps.

**Search Strategy:** A systematic review method that complied with the Preferred Reporting Items for Systematic Review and Meta-Analysis Protocols (PRISMA-P) was used. The search engines PubMed, Scopus, and Web of Science were primarily used to yield relevant studies regarding the effects of bariatric surgery on the level of different apolipoproteins. Data extraction focused on study characteristics, types of surgery, changes in apolipoproteins, and main findings. The data were synthesized narratively.

**Results:** Bariatric surgery significantly impacts lipoprotein and apolipoprotein levels. Studies show reductions in apolipoprotein B (apoB), triglycerides (TGs), and low-density lipoprotein cholesterol (LDL-C) levels post-surgery, correlating with substantial weight loss. Apolipoprotein B-100 (apoB-100) levels decreased, improving lipid profiles and reducing cardiovascular risk. High-density lipoprotein cholesterol (HDL-C) enhanced functionality was observed, with improvements in HDL composition and anti-atherogenic properties. Reductions in apolipoprotein C-III (apoC-III) and glycated apolipoprotein B (glycApoB) further underscored the positive metabolic changes induced by bariatric surgery.

**Conclusion and Discussion:** Bariatric surgery significantly improves lipoprotein profiles and reduces levels of atherogenic apolipoproteins, lowering cardiovascular risk in obese patients. The reduction in apoB, apoC-III, and glycApoB levels highlights the surgery's role in reducing atherosclerosis risk. The mechanisms underlying these changes include decreased production of atherogenic lipoproteins and improved lipid clearance. Future research should focus on long-term cardiovascular outcomes and the variability in response to different bariatric procedures. Bariatric surgery significantly improves lipid profiles and reduces cardiovascular risk by modulating apolipoprotein levels. This underscores its importance as a therapeutic strategy for severe obesity and related comorbidities. Further studies are needed to explore the long-term benefits and optimize surgical approaches for individual patient needs.

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