

Dietary cholesterol and cardio-metabolic health

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Cholesterol metabolism is regulated by dietary intake and inheritable genetic factors. Indices of cholesterol metabolism has been considered as a classic biomarker of cardiovascular health. However, emerging evidence on dietary cholesterol and health biomarkers reported inconsistent data due to a marked between-individual variability in the response of cholesterol metabolism to similar dietary protocols, which can be explained by the phenomenon linked to genetic heterogeneity. Recently, the 2015 Dietary Guidelines Advisory Committee (DGAC) decided to remove the recommendation of dietary cholesterol restriction because of insufficient evidence on this issue. After the release of the 2015 DGAC report, there are different opinions among medical/nutrition experts on the removal of dietary cholesterol restriction. Current consensus is that there is insufficient evidence on dietary cholesterol restriction; however, a more cautious approach is needed 1) to apply this revised guideline to general population as well as high risk groups including subjects with the family history and medical diagnosis of cardiovascular diseases and diabetes (1,2), and 2) to revise our current dietary cholesterol recommendation. As gene-diet interaction has been suggested as one of major reasons to blur the clear relationship between dietary cholesterol and health biomarkers (3,4), current evidence on 1) dietary cholesterol and cardiovascular diseases, in part, relating to niacin and inflammation/NLRP3 inflammasome, and 2) nutritional genomics of cholesterol metabolism will be introduced and discussed.

References

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