

# ADEQUATE ZINC INTAKE HELPS IN THE PREVENTION AND MANAGEMENT OF CARDIOVASCULAR DISEASES

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## Introduction

The importance of Zn for cardiovascular health continuously gains recognition. Compromised Zn homeostasis and prolonged inflammation are common features in various cardiovascular diseases (CVDs). Zn biochemistry alters several vascular processes, and Zn status is an important feature of cardiovascular health.

## Aims

To present a concise, thorough overview of the most recent data on the relation between Zn homeostasis and CVDs. The importance and potential suitability of Zn status to be used as a biomarker of CV health are discussed, highlighting present controversies and research gaps that entail further research.

## Conclusions

The precise mechanisms of the role of Zn deficiency in the pathogenesis of CVDs are still not known. The biological properties of Zn, playing a role in the physiology and pathology of CVDs, should be examined further. Further community-based observational cohort studies may be useful for obtaining more precise and evidence-based conclusions. Additional long-term, well-designed studies, performed in various population groups, should be pursued to further clarify significant relationships between Zn and CVDs. Further research is necessary to examine the interaction between Zn intake and status data with present preventative schemes and currently employed treatment methods that could help in the prevention and management of many ensuing CVDs.

## Main findings

- ♥ Zn deficiency is a contributing factor to the development of cardiovascular diseases.
- ♥ Impaired Zn homeostasis is associated with common genomic and proteomic modifications that relate to CVDs.
- ♥ Perturbations in Zn homeostasis affect the vascular endothelium.
- ♥ Lower serum Zn levels are associated with a higher risk of CVDs.
- ♥ Higher serum Zn concentrations are related to a decline in relative risk of CVDs death.
- ♥ Zn interventions improve risk factors for CVDs.
- ♥ There is a direct association between serum Zn and metabolic risk factors for the development of CVDs, i.e., serum lipids, hypertension, T2DM, and obesity.
- ♥ The polymorphism of Zn transporters predisposes to CVDs.
- ♥ ZnT1, ZnT4, ZnT5, ZnT6, ZnT7, and ZnT9 polymorphisms are linked to T2DM, dyslipidemia, and insulin resistance.
- ♥ Zn supplementation could potentially increase the effectiveness of presently used therapeutic drugs for managing CVDs.

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