

# Abstract

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## **Magnesium metabolism in hypertension and type 2 diabetes mellitus.**

Barbagallo M, Dominguez LJ, Resnick LM.

Institute of Internal Medicine and Geriatrics, University of Palermo, Italy.

**BACKGROUND:** The increasing evidence for the clinical relevance of altered magnesium metabolism to states of altered insulin resistance confirms the role of magnesium deficit as a possible underlying common mechanism of the "insulin resistance" of hypertension and altered glucose tolerance.

**RESULTS AND DISCUSSION:** The pioneer work of Lawrence M. Resnick and his group using the cellular ion-based approach that we are only partially presenting here has consistently contributed to the progress of the field, demonstrating (a) the critical importance of magnesium metabolism in regulating insulin sensitivity as well as vascular tone, and blood-pressure homeostasis; (b) that magnesium deficiency, defined on the basis of intracellular free magnesium levels, and or serum ionized magnesium is a common feature of both diabetic and hypertensive states as well as various other cardiovascular and metabolic processes and aging; (c) the ability of environmental factors such as dietary nutrient-sugar and mineral content to alter the set point of steady-state cell ion activity; and (d) that magnesium supplementation is indicated in conditions associated with magnesium deficit.

**CONCLUSION:** Well-designed therapeutic trials of magnesium in essential hypertension and type 2 diabetes mellitus are needed in the near future.

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