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Prevention and Management of Preeclampsia by Magnesium Intake
Aging Impairs the Protective Effect of Magnesium Supplementation on
Hypertension in Spontaneously Hypertensive Rat

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Summary

Objectives: Preeclampsia is a hypertensive disorder that is unique to pregnancy. Magnesium (Mg$^{2+}$) supplementation is a potential new therapy to ameliorate development of hypertension. The aim of this work was to compare the effects of Mg$^{2+}$ supplementation on blood pressure in young and aged spontaneously hypertensive rats (SHR).

Methods: SHR were divided into young (6-week-old male, n = 10) and old (16-week-old male, n = 10) groups. Each group of rats comprised two subgroups made of a control subgroup feed with normal rat chow (0.2% Mg$^{2+}$, n=5) and a high Mg$^{2+}$ subgroup nourished with Mg$^{2+}$ rich diet (0.8% Mg$^{2+}$, n = 5). Age-matched Wistar–Kyoto rats (WKY) were also allocated into two groups. Systolic blood pressure (SBP) was assessed weekly for 12 weeks indirectly by the tail-cuff method.

Results: SBP increased progressively in SHR-young rats after 7 weeks. This increase was greater in the control subgroup compared to high Mg$^{2+}$ subgroup at 7 weeks (p<0.05). No difference in the SBP was registered between old SHR subgroups and the SBP did not varied in the WKY rats.

Conclusions: Mg$^{2+}$ could have beneficial effect in the developmental phase of hypertension but not in established hypertension.

Running title: Effects of Dietary Magnesium on Hypertension

Key words: Aging, Hypertension, Magnesium.