
# How **Korean Red Ginseng** could have blood pressure-lowering effect in prehypertensive subjects

## Background

### Theory

**The effect of Korean red ginseng (KRG) on hypertension:**

Although hypertension is a known risk factor for atherosclerosis and cardiovascular disease the mechanisms underlying this relationship are unclear. Previous studies evaluating the physiological effects of ginseng suggest that red ginseng is more beneficial than other types of ginseng on circulating metabolic profiles. We evaluated the effects of KRG consumption on blood pressure and the fasting plasma metabolome.

### Method

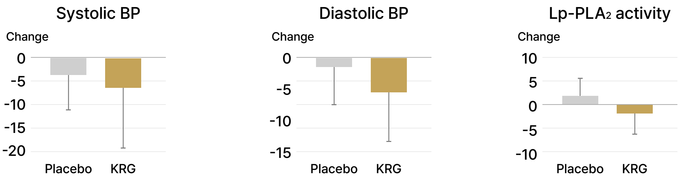
**A 12-week, randomized, double-blind, placebo-controlled study:**

The participants were divided into two groups according to treatment: KRG (n=35) or placebo (n=35). KRG treatment consisted of daily consumption of 10 capsules containing KRG and placebo consisted of daily consumption of KRG-flavored capsules containing corn starch. Then, we compared the plasma metabolome profiles of participants before and after KRG supplementation.

## Outcome

**With 70 pre-hypertensive individuals {KRG (n=35), placebo (n=35)}**

### Clinical & Biochemical characteristics



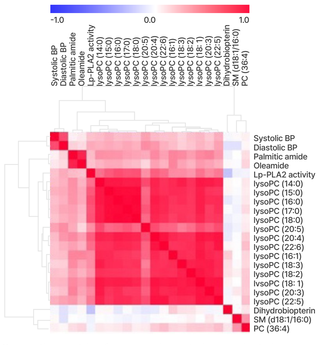

Results are presented as mean±sd. Groups were compared using logarithmically transformed data.

A group comparison of changes from baseline revealed that individuals consuming KRG had greater reductions in systolic BP ($P$=0.042), diastolic BP ($P$=0.005) and Lp-PLA$_2$ activity ($P$=0.010) after adjusting for baseline values.

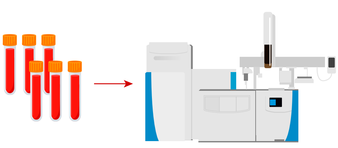
Prehypertension was found to be associated with increased Lp-PLA$_2$ (lipoprotein-associated phospholipase A2) activity and elevated levels of circulating lysoPCs and ox-LDL; a positive correlation between lysoPCs and BP (blood pressure) was also reported.

**In KRG group, total NO (nitric oxide) levels were significantly increased and ox-LDL (low-density lipoprotein) concentrations were significantly decreased at 12-week follow-up compared with baseline**

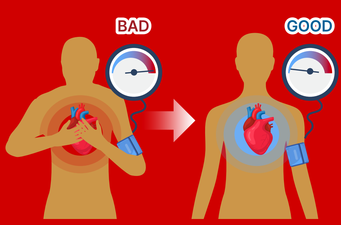
### Plasma metabolic profiles




Correlation matrix of changes in systolic and diastolic blood pressure, plasma Lp-PLA$_2$ activity and levels of major plasma metabolites in all subjects. Red represents a positive correlation, and blue represents a negative correlation.



- KRG group showed a greater increase indihydrobiopterin and greater reductions in palmitic amide, lysoPC (14:0), lysoPC (15:0), lysoPC (16:1), lysoPC (16:0), lysoPC (17:0), lysoPC (18:3), lysoPC (18:2), lysoPC (18:1), lysoPC (18:0), lysoPC (20:4), lysoPC (20:3) and lysoPC (22:6).
- The change in diastolic BP positively correlated with changes in lysoPCs and Lp-PLA$_2$ activity.




## Impact

### Effect of Korean Red Ginseng on hypertension

This study provides evidence for a **beneficial role of Korean red ginseng supplementation against pre-hypertension-related increases in specific metabolites, especially lysoPCs and palmitic amide.**

## Conclusion

**The Effect of Korean Red Ginseng for reducing systolic and diastolic blood pressure in prehypertensive individuals**

This study results indicate that the **blood pressure-lowering effect of Korean red ginseng is associated with decreased Lp-PLA$_2$ and lysoPCs and increased dihydrobiopterin levels in prehypertensive subjects.**

**Source:** Cha TW et al. "Blood pressure-lowering effect of Korean red ginseng associated with decreased circulating Lp-PLA2 activity and lysophosphatidylcholines and increased dihydrobiopterin level in prehypertensive subjects" *Hypertension Res.* 2016;*39*:449-456.