

## Vascular disorder

# How Korean Red Ginseng could have beneficial effects on coronary artery disease



## Background



## Theory

### The effect of Korean red ginseng (KRG) on coronary artery disease (CAD):

Endothelial dysfunction is regarded as not only the earliest manifestation of atherosclerosis but also as a prognostic factor for adverse cardiovascular events. KRG has diverse effects on the vasculature, improving endothelial function. The aim of this study was to determine whether KRG has an effect on arterial stiffness and cardiovascular risk factors in patients with CAD.



## Method

### A randomized, double-blind, placebo-controlled cross over trial:

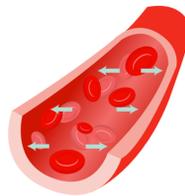
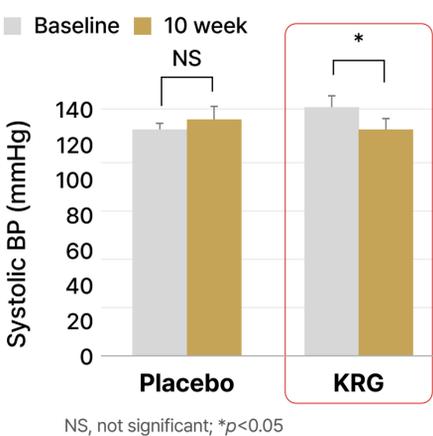
This trial was carried out to determine whether KRG has beneficial effects on arterial stiffness, cardiovascular risk factors such as plasma lipid profiles and blood pressure (BP), and Rho-associated kinase (ROCK) activity. Twenty patients (mean age, 62.5 years) with stable angina pectoris were given KRG (2.7 g/day) and a placebo alternatively for 10 weeks.



## Outcome

With 20 CAD patients either taking KRG (2.7 g/day) or placebo (2.7 g/day)

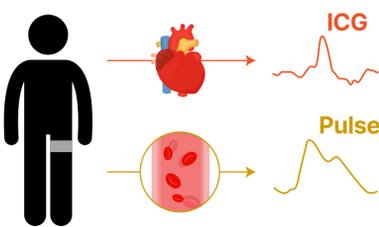
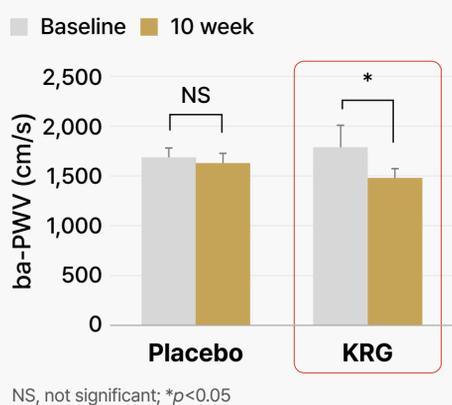
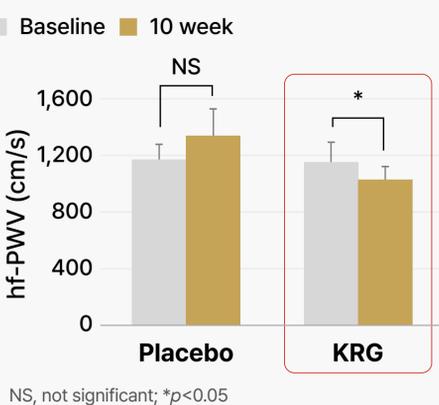
### Blood pressure



10-week treatment with KRG significantly decreased the systolic blood pressure in the patients, and the placebo had no significant effect on either systolic or diastolic blood pressure.

Association between High cholesterol and high blood pressure: The excess cholesterol in the bloodstream could deposit along artery walls, making the arteries stiff and narrow. Then, the heart is overloaded by pumping the blood, causing the blood pressure to go up.

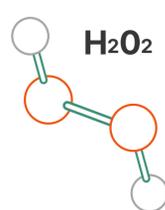
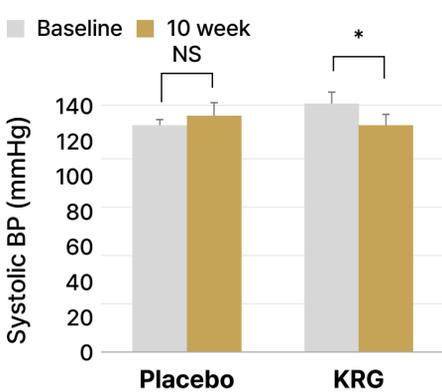
### Vascular stiffness



KRG significantly decreased both heart femora (hf)-PWV and brachial (ba)-PWV. In contrast, the placebo did not significantly change either PWV.

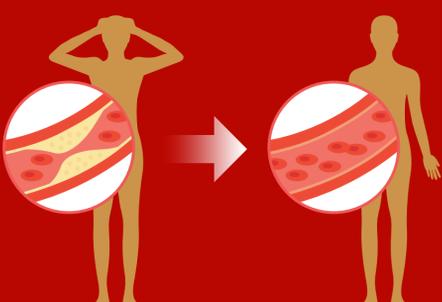
PWV (pulse wave velocity): A measure of arterial stiffness, or the rate at which pressure waves move down the vessel, rating the performance of the arteries as a highly reliable prognostic parameter for cardiovascular morbidity and mortality in a variety of adult populations.

### ROCK activity



KRG treatment markedly decreased ROCK activity to 22% of the baseline activity.

ROCK (Rho-associated kinase): ROCK plays a significant role in the production of reactive oxygen species and in the regulation of endothelial nitric oxide synthase, thereby mediating oxidative stress signaling.



## Impact



### Effect of Korean Red Ginseng on coronary artery disease

Korean red ginseng treatment for 10 weeks reduced the systolic blood pressure and the vascular stiffness in the central aorta and peripheral muscular arteries, probably via the inhibition of ROCK activity in patients with coronary artery disease.

## Conclusion

### The pharmacological effect of Korean Red Ginseng in patients with coronary artery disease

The Korean red ginseng-induced effects in this study suggest the need of further study for understanding the pharmacological effects of Korean red ginseng on the progression of atherosclerotic plaque formation and the prevention of acute coronary syndrome in patients with coronary artery disease.