

Possible Alleviation of Salt-sensitivity by Soy Intake in Humans as well as in SHRSP

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Background: Soy protein diets containing isoflavones (I) extended the life-expectancy of salt-loaded SHRSP to twice longer (1989). In WHO-CARDIAC Study, 24-hour urinary (24U) sodium (Na) excretion was significantly positively associated with blood pressure (BP) in males and post-menopausal females, but not premenopausal females, and significant menopausal BP rise was observed in populations excreting lower but not higher 24 U I (\geq mean)

Design: Population strategy for eating well-balanced diets with low salt and high soy intake was started for 5.6 million inhabitants of Hyogo Prefecture and health examination including BP measurement, blood and 24U sampling from 894-1241 males and females aged 40-80, living in 6-9 cities was carried out for 3 years to compare epidemiologically the BP effect of higher Na intake in lower and higher 24U I excreters.

Results: Salt intake estimated from 24U Na excretion shifted from 12.0 to 10.1g and systolic BP also shifted lower from 131.9 ± 18.7 to 128.4 ± 19.1 mmHg ($p < 0.05$) concomitantly with diastolic BP, 24U I was increased 1.7 times from 22.2 ± 1.6 to 37.1 ± 2.5 mg. BP in higher 24U Na excreters (≥ 10 g salt) was significantly higher than in lower 24U Na excreters (< 10 g) in the individuals taking less than 25mg I daily. However, there were no significant BP differences between higher and lower Na excreters in those taking enough I (≥ 25 mg) daily.

Conclusion: Enough soy I intake alleviates the adverse BP effect of high Na intake also in humans as well, indicating possible alleviation of salt sensitivity by dietary soy I.

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5 Keywords: Salt-sensitivity, Soy isoflavones, Blood pressure, Population strategy, 24-hour urine

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