

# Maitake Mushroom Extracts Ameliorate Progressive Hypertension and Other Chronic Metabolic Perturbations in Aging Female Rats

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### Abstract :

**Objective:** We assessed the ability of two commercially-available fractions labeled SX and D derived from the edible maitake mushroom to overcome many age-associated metabolic perturbations such as progressive, age-related elevation of blood pressure, over activity of the renin-angiotensin system (RAS), decreased insulin sensitivity, and inflammation in an *in vivo* laboratory model.

**Design and Method:** We divided forty mature, female Sprague-Dawley rats (SD) into five groups of eight. SD ingested regular rat chow containing added sucrose (20% w/w). The groups received baseline diet alone (control) or baseline diet containing captopril, niacin-bound chromium, maitake fraction SX, or maitake fraction D. In addition to blood pressure readings, the following procedures were implemented: losartan and insulin challenges, evaluation of serum ACE activity, glucose tolerance testing, blood chemistries, LNAME challenge, and measurement of various circulating cytokines.

**Results:** We found that implementation of all test conditions stopped the gradual elevation of systolic blood pressure (SBP) in the SD over the four months of study, even reversing some of the previous elevation that occurred over time. In general, the treatment groups showed decreased activity of the RAS estimated by less lowering of SBP after losartan challenge and decreased serum ACE activity and were more sensitive to exogenous insulin challenge. TNF $\alpha$  levels decreased in all four test groups suggesting a lessening of the inflammatory state.

**Conclusions:** We believe our data suggest that maitake mushroom fractions lessen age-related hypertension, at least in part, via effects on the RAS; enhance insulin sensitivity; and reduce some aspects of inflammation -- actions that should lead to a longer, healthier life span.

### Key Word :

Age-related hypertension, Sugar-induced hypertension, Maitake mushroom, age-related hypertension, Maitake, insulin sensitivity, inflammation

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