
The effects of allicin on weight in fructose-induced hyperinsulinemic, hyperlipidemic, hypertensive rats.


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Abstract

BACKGROUND: Commercially available garlic preparations in the form of garlic oil, garlic powder and pills are widely used for certain therapeutic purposes, including lowering blood pressure and improving lipid profile. Despite the impressive effects of garlic most studies are limited by lack of controlled methods and suitable double-blinding, and by the use of preparations with unknown amounts and chemical identification of the active ingredient. Allicin, a synthetic preparation of an active constituent of garlic, was found to lower blood pressure, insulin, and triglycerides levels in fructose-fed rats. Thus, it was considered important to assess its effect on the weight of the animals.

METHODS: Male Sprague-Dawley rats weighing 240 to 250 g were fed a fructose-enriched diet consisting of 21% protein, 5% fat, 60% carbohydrate, 0.49% sodium and 0.49% potassium for 5 weeks, which produced hyperinsulinemia, hypertension, and hypertriglyceridemia. Group I (controls) rats were fed a diet enriched by fructose only; group II was given allicin the last 2 weeks, and group III was given allicin the first 3 weeks. The three groups consumed the same amount of food. Weight was measured at the beginning of the experiment and after 3 and 5 weeks on the diet.

RESULTS: Weight in the control group rose from 249.4 +/- 10.04 g to 274.5 +/- 15.5 g after 3 weeks and to 306.9 +/- 22.2 g after 5 weeks. Weight in group II rose from baseline 259.1 +/- 12.1 g to 306.9 +/- 22.2 g after 3 weeks on fructose alone, and declined slightly to 282.4 +/- 17.4 g after 2 weeks of allicin (P <.02). In group III, in which the protocol was reversed, the baseline weight of 260.4 +/- 13.25 g rose only to 269.8 +/-15.3 g (P <.431) after 3 weeks on fructose and allicin.

CONCLUSIONS: The control group that was fed a diet enriched by fructose alone continued to gain weight, whereas the groups fed allicin did not. The difficulty of preventing weight gain after reaching the nadir of weight loss underscores the practical value of allicin for weight control.

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MeSH Terms, Substances