

High-protein diets may increase risk of kidney disease

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High-protein diets, such as the Dukan diet, are currently a popular alternative to the traditional calorie-counting forms of dieting. But scientists at the University of Granada in Spain have shown through tests in rats that a high-protein diet increases the risk of kidney stones and other renal diseases.

Dr. Pierre Dukan's high-protein diet has received a boost in popularity in recent years, due to reports that the diet helped the Duchess of Cambridge get thin enough to fit into her wedding dress and allegedly restored the postpartum figure of Jennifer Lopez.

In Dukan's native France, approximately 2 million people are believed to follow the diet.

But the diet has been controversial. The British Dietary Association ranked the diet at number 1 in their annual rundown of diets to avoid in [2010](#), [2011](#) and [2012](#).

They point out that even Dr. Dukan himself - who was banned from practicing as a GP in France in 2013 - has warned of health issues associated with the diet, including lack of energy, [constipation](#), [vitamin](#) and mineral deficiencies and [bad breath](#).

In 2012, Medical News Today [reported on a study](#) finding that four-fifths of Dukan followers had put all their lost weight back on within 36 months. This kind of [body weight](#) fluctuation can put dieters at increased risk of [hypertension](#), [diabetes](#) and [heart disease](#).

What did the new study find?

In the new study, the scientists fed 10 rats a diet with a 45% protein level, while a control group of another 10 rats were fed a diet of normal protein levels. The rats were placed on their respective diets for 12 weeks - the equivalent of 9 years in human terms.

Anyone on a high-protein diet should exercise regularly and make sure to eat enough fruit and vegetables.



Over the 12 weeks, rats on the high-protein diet lost 10% of their body weight. But the weight of the kidneys in these rats increased by 22%, the capillaries filtering blood to the kidneys increased in size by 13%, and the collagen around the capillaries by 32%.



The citrate levels in the rats' urine was 88% lower and their urinary pH was 15% more acidic.

A low amount of citrate in the urine and swollen kidneys are risk factors for [kidney stone](#) formation. High urinary pH is also a symptom of kidney failure and kidney tubular acidosis, [among other conditions](#).

What does this mean for humans?

Medical News Today spoke to Dr. Virginia A. Aparicio, one of the study's authors. Dr. Aparicio said that "when experimental designs are done in rats, despite their great physiological and metabolic similarity to humans, all results should be taken with caution."

"Studies developed in humans have also observed very similar results in plasma and urine to what we observed in rats. However, the important thing is not to alarm the population. We just showed a less favorable renal profile, which could bring long-term renal complications in some individuals most prone to or at increased risk of renal disease."

"Eating large amounts of fruit and vegetables reduces the risk of kidney stones forming," advises Dr. Aparicio. "Probably due to their high potassium and magnesium content, which compensates for the acidity of the high-protein diet."

Aparicio also recommends that anyone on a high-protein diet should exercise regularly to increase active tissue, which will reduce the "rebound" effect of putting on weight once the diet is completed.

Written by David McNamee

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