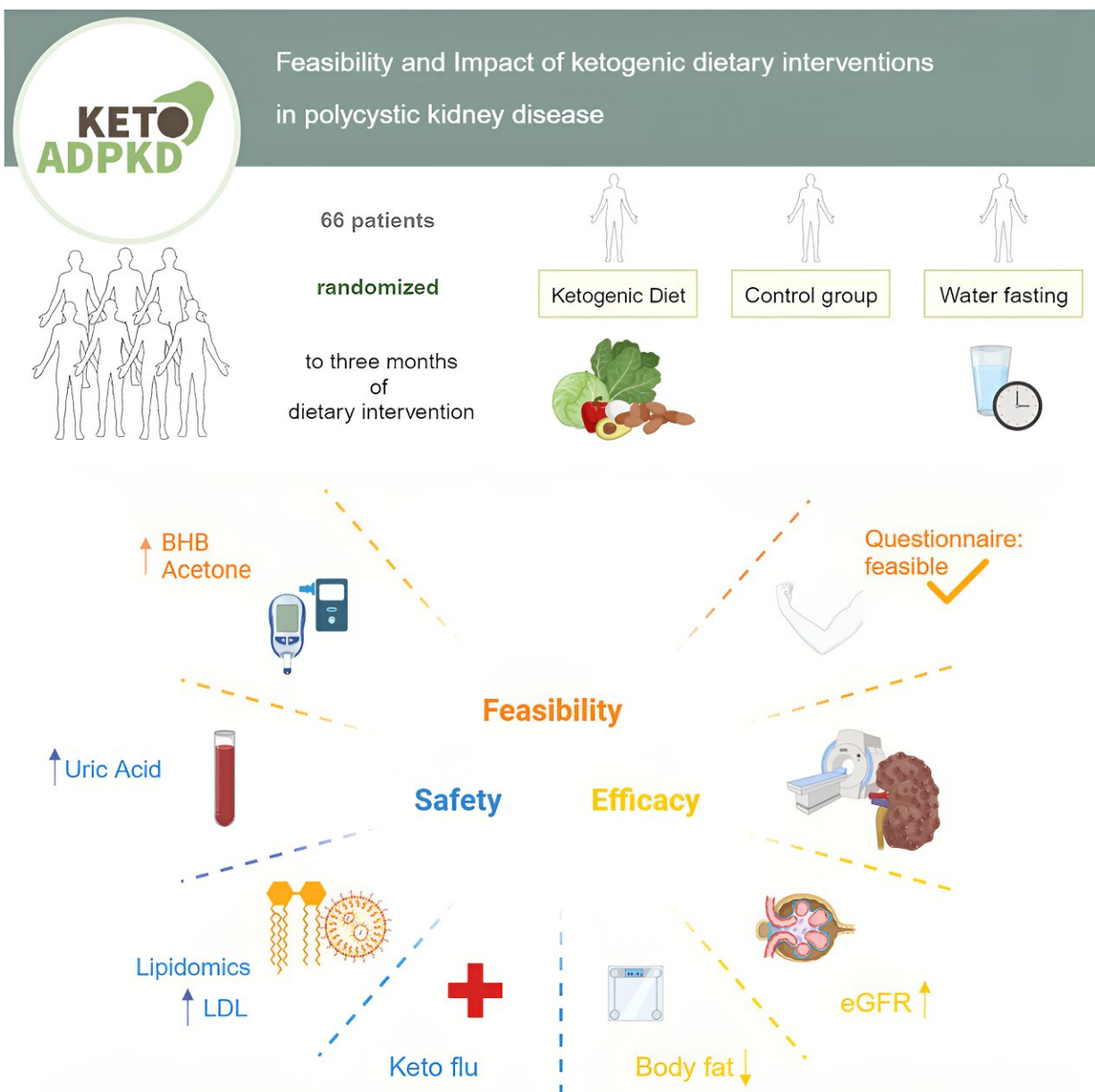


# When nutrition becomes a treatment: Study investigates ketogenic dietary interventions in polycystic kidney disease

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A clinical study on special diets at the University of Cologne shows promising results on the use of a ketogenic diet as a possible treatment for hereditary polycystic kidney disease (ADPKD). This disease causes about 10% of all cases of kidney failure and is the most common hereditary kidney disease worldwide.

The study, called Keto-ADPKD, was conducted by Professor Dr. Roman-Ulrich Müller and his team at the University Hospital Cologne and the Aging Research Excellence Cluster CECAD of the University of Cologne. The translational nephrology unit led by Professor Müller at CECAD focuses on dietary interventions that prolong lifespan and combat diseases.

In the KETO-ADPKD study, one of these dietary regimens—the ketogenic [diet](#)—was investigated as a treatment for polycystic [kidney](#) disease. The study, "Feasibility and impact of ketogenic dietary interventions in polycystic kidney disease: KETO-ADPKD—a [randomized controlled trial](#)," has now been [published](#) as a cover story in the journal *Cell Reports Medicine*.

Müller presented the topline results of the study at the Kidney Week of the American Society of Nephrology in November 2022. The final results of the phase II-like study, which are now available, also showed that a switch to a ketogenic diet can have a positive effect on kidney function of ADPKD patients.

A total of 66 patients participated in the study and were divided into

three groups: One group followed a ketogenic diet for three months, a second group did three days of water fasting once a month—a kind of zero diet that only allows drinking water—and a third control group followed the standard dietary recommendations.

One of the most important findings was that 95% of patients in the ketogenic group and 85% in the water fasting group reported the diet to be feasible. Many critics were initially quite skeptical that it would be possible to change the diet accordingly in [everyday life](#). However, the participants had a different view on this.

In addition, the researchers were able to use biomarkers—ketone bodies—measured in blood samples that showed that the participants had indeed adhered to the prescribed diet. In contrast to many other dietary studies, the design of this study corresponds to that of a common drug trial (randomized controlled), and thus meets the highest standards.

The ketogenic diet is a diet that seems unusual at first glance as it avoids carbohydrates such as sugar or flour whereas more fat is consumed. This form of diet has also been studied with regard to its general life-prolonging effect. Apparently, it can indeed be implemented by the patients in everyday life, which is an important finding in KETO-ADPKD, says research group leader Müller. "You have to skip bread and sweets, and, for example, you use more olive oil—fatty fish such as salmon are also a great food in this regard."

The study was able to demonstrate that after only three months, [positive changes](#) in important parameters such as kidney function were seen, and there were no unexpected side effects. The positive changes in kidney function were statistically significant and exceeded the expectations of the researchers.

Professor Müller is convinced that the results of the study are an

important step for the development of a possible new treatment for polycystic kidney disease. However, he also stresses that these data from a phase II-like design study were not yet sufficient to generally recommend the [ketogenic diet](#) for patients with [polycystic kidney disease](#). Further larger studies at multiple sites are needed to confirm the results and to clarify whether sustained improvements in [kidney function](#) can be achieved in the long term without any side effects.

In general, however, the present study is already very important because, thanks to its design in analogy to a drug trial, it proves that food can be as effective as a drug. Müller is convinced that "this could be the starting point for many dietary treatment strategies."

**More information:** Sadrija Cukoski et al, Feasibility and impact of ketogenic dietary interventions in polycystic kidney disease: KETO-ADPKD—a randomized controlled trial, *Cell Reports Medicine* (2023). [DOI: 10.1016/j.xcrm.2023.101283](https://doi.org/10.1016/j.xcrm.2023.101283)

Provided by University of Cologne

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