

Specific kidney cell could be key in the treatment of kidney failure in diabetes

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Diabetes is the leading reason for kidney failure in the world, resulting in patients requiring dialysis or kidney transplantation. New research has found a cell in the kidney called the podocyte could be the key to understanding why this happens.

The study led by Dr Richard Coward, in the School of Clinical Sciences at the University of Bristol, is published in [Cell Metabolism](#) and funded by the Medical Research Council (MRC).

Diabetes related kidney disease has previously been thought to be mainly due to the high levels of sugar in the blood damaging the small blood vessels in the kidney.

The researchers now have evidence that a cell in the kidney called the podocyte is important in the development of [kidney failure](#) in diabetes. This is not due to the effects of high glucose on this cell but rather a lack of sensitivity to the hormone that is important in also controlling the blood sugar levels called insulin.

Dr Richard Coward, MRC Clinician Scientist and Consultant Senior Lecturer in the Academic Renal Unit based at Southmead Hospital, said: "The number of people diagnosed with diabetes is predicted to increase greatly in the future due to the global epidemic of type-2 diabetes.

"Treatments that improve the sensitivity of this cell to insulin may be of great benefit in treating this major global healthcare problem."

To find out whether insulin signalling in podocytes affects [kidney function](#) the researchers used mice that genetically had the insulin receptor removed from their podocytes, thereby making only this cell unresponsive to insulin in the body. They found that the mice developed [kidney disease](#) with many similarities to that seen in diabetic patients, except that the mice all had normal [blood sugar levels](#).

Provided by University of Bristol

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