

## Are Overweight or Obese People at Greater Risk for Kidney Failure?

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The full report is titled “Body Mass Index and Risk for End-Stage Renal Disease.” It is in the 3 January 2006 issue of *Annals of Internal Medicine* (volume 144, pages 21-28). The authors are C.-Y. Hsu, C.E. McCulloch, C. Iribarren, J. Darbinian, and A.S. Go.

### What is the problem and what is known about it so far?

Kidney failure may be sudden (acute) or chronic. Chronic kidney failure develops when kidney function progressively diminishes over time. When the kidneys of patients with chronic kidney failure no longer function, the patients are said to have end-stage renal disease (ESRD). They are usually treated with dialysis or kidney transplantation. Risk factors for chronic kidney failure and ESRD include diabetes, high blood pressure, and smoking. Some research suggests that being overweight or obese may contribute to loss of kidney function. Being overweight or obese increases a person’s risk for diabetes and high blood pressure. Whether being overweight or obese increases risk for ESRD, independent of these other common risk factors, is unknown.

### Why did the researchers do this particular study?

To see whether being overweight or obese increases a person’s risk for ESRD.

### Who was studied?

350,252 adults who were enrolled in a large northern California health maintenance organization. All had annual health examinations between 1964 and 1985.

### How was the study done?

The researchers used weight (in kilograms) divided by height (in meters squared) to determine each patient’s body mass index (BMI). They considered people with BMIs of 25 kg/m<sup>2</sup> to 30 kg/m<sup>2</sup> to be overweight and people with BMIs of 30 kg/m<sup>2</sup> or greater to be obese. The researchers also assessed other factors in each patient, such as kidney function, blood sugar level or diabetes, blood pressure, and smoking. They then compared the time it took to develop ESRD in normal weight, overweight, and obese patients, taking into account these other factors.

### What did the researchers find?

About 30% of the patients were overweight, and about 10% of the patients were obese. A total of 1471 patients developed ESRD. Overweight and obese people developed ESRD 2 to 5 times faster than people with normal BMIs. The risk was increased even after accounting for diabetes, high blood pressure, and smoking.

### What are the limitations of the study?

All participants had health insurance and received regular health care. The findings might not apply to people without insurance or regular examinations. Researchers determined BMI, blood pressure, and other factors only once for many patients. These factors could have changed over the 21-year study period. Also, many overweight and obese patients were taking drugs for high blood pressure and diabetes. If these patients’ blood pressures and blood sugar levels were normal because of drugs, obesity could seem more important as a risk factor for ESRD than it really is.

### What are the implications of the study?

Being overweight or obese may be a risk factor for ESRD, independent of other common risk factors.

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