

In an economic crash, public health improves

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The economic crash in Cuba following the fall of the Soviet Union has provided researchers with a unique natural experiment on obesity, diabetes and heart disease.

In the early 1990s, shortages of food and gasoline forced Cubans to eat less and do more walking and cycling. Adults lost, on average, 9 to 11 pounds, and type 2 diabetes and cardiovascular disease dropped sharply.

But after the economy began a slow but steady recovery, adults gradually gained back the weight they had lost, and then some. This weight gain was accompanied by a 116 percent increase in the prevalence of type 2 diabetes. And while heart disease deaths continued to decline, the rate of decrease slowed markedly, according to a study published in the *British Medical Journal*.

"There was a serendipitous positive outcome that resulted from a negative experience," said Richard S. Cooper, MD, senior author of the study, which involved researchers from the United States, Spain and Cuba. Cooper is chair of the Department of [Public Health](#) Sciences of Loyola University Chicago Stritch School of Medicine.

Researchers said the Cuba experience provides a "unique, 30-year [natural experiment](#)," which for the first time documents the impact that a population-wide cycle of weight loss and weight gain has on diabetes and cardiovascular diseases.

From 1991 to 1995, Cuba experienced a profound [economic crisis](#) due

to the loss of Soviet subsidies and a tightening of the U.S. trade embargo. There were severe shortages of food and gasoline. Motorized transport virtually shut down, and more than one million bicycles were distributed. Energy intake from food dropped from about 3,000 [calories per day](#) to fewer than 2,400 calories per day. But by 2002, energy intake rebounded to above pre-crisis levels.

Researchers conducted four population surveys of Cubans aged 15 to 72. The surveys, conducted in the city of Cienfuegos on the southern coast of Cuba, were conducted in 1991 (1,657 participants) 1995 (1,351 participants), 2001 (1,667 participants) and 2011 (1,492 participants).

During the economic crisis years, 80 percent of the population was classified as physically active. That has since dropped to the current rate of 55 percent. The percentage of the population that was overweight or obese increased from 33.5 percent in 1995 to 52.9 percent in 2011.

Following the economic crisis years, mortality from coronary [heart disease](#) decreased sharply, at a rate of 6.5 percent per year. But after 2002, the rate of decline slowed to 1.4 percent per year, similar to pre-crisis years.

"The Cuban experience demonstrates that within a relatively short period, modest weight loss in the whole population can have a profound effect on the overall burden of diabetes," researchers wrote. "In Cuba, [weight loss](#) also had a major effect on trends in cardiovascular diseases and all-cause of mortality."

Researchers conclude that their findings provide a "dramatic illustration of the potential health benefits of reversing the global obesity epidemic."

In an accompanying editorial, Walter C. Willett of the Harvard School of Public Health writes that the findings "add powerful evidence that a

reduction in overweight and obesity would have major population-wide benefits. To achieve this is perhaps the major public health and societal challenge of the century."

Provided by Loyola University Health System

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