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Injection could help to burn away the fat

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An injection that makes the body burn calories instead of storing them as fat could be used to treat obesity and diabetes, a study suggests.

Grossly overweight mice went through dramatic weight loss after being injected with a chemical that occurs naturally in brown-fat cells. Brown fat, unlike white fat, burns energy to produce heat.

The scientists who performed the experiment said the results were so impressive that the compound could help to combat human weight problems.

Rising obesity is one of the world's

most pressing public health concerns but medicine has so far made little headway against the dilemma.

The quest for weight-loss therapies has tended to concentrate on reducing the amount of food people eat.

The study, led by the Dana-Farber Cancer Institute in Boston, Massachusetts, and the University of California, Berkeley, attacks the opposite side of the equation — the amount of energy being consumed.

Researchers examining brown-fat cells to work out why they burn up so many more calories than white fat found an enzyme called PM20D1. This protein-slicing mechanism triggers

another set of molecules, known as N-acyl amino acids, that make the cells break up glucose to produce heat.

Eight days after they injected obese mice with the N-acyl amino acids, the animals had lost about a tenth of their body weight, shedding fat rather than muscle. They also ate slightly less than the other mice in the laboratory, according to results published yesterday in the journal *Cell*.

The scientists said this was strong evidence that obese people could be given doses of either the enzyme or the amino acid as a drug.

They will need to tread carefully, however. In one trial testing a similar

chemical on human patients five years ago, the side-effects turned out to be so severe that some patients died.

Nevertheless, Bruce Spiegelman, a director at the Dana-Farber institute who supervised the experiments, said the natural version of the drug appeared promising.

"These data suggest that either PM20D1 or N-acyl amino acids themselves might be used therapeutically for the treatment of obesity," Professor Spiegelman said.

The NHS has approved only one anti-obesity drug, orlistat, which stops the patient's gut from absorbing about a third of the fat consumed.