Yale study reveals origins of body fat

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Yale School of Medicine researchers have answered a question millions regularly and plaintively ask themselves: Where did all that fat come from?

The research paper, published online Feb. 24 in the journal Nature Cell Biology, identifies specific cell types that eventually morph into white adipocytes — the cells most people recognize as fat.

“Now we can go back into the lab and ask how these cells are activated to actually make the fat,’ said co-author Matthew Rodeheffer [1], assistant professor of comparative medicine and molecular, cellular, and developmental biology, and a researcher at the Yale Stem Cell Center.

The increase of fat cells in obesity is particularly problematic because once established the cells are difficult to eliminate. However, surprising little is known about how fat cells first form. Rodeheffer and co-author Ryan Berry of Yale attacked the problem by isolating cells from fat and studying which cells could turn into fat cells, via a process known as differentiation. They successfully identified cells with certain types of receptors that could in fact become fat cells. The new study in mice confirmed that cells with these specific receptors on their surface are the precursors that create fat cells in the body.

Rodeheffer said it is now possible to study how these cells behave under different conditions, such as exercise, dieting, or overeating. The researchers hope to discover what causes the precursors to make new fat cells in obesity — and one day potentially block their creation.

“And that will keep us busy for the next 20 years,” he said.

The study was funded by the National Institutes of Health.

Links:
[1] http://bbs.yale.edu/people/matthew_rodeheffer.profile