Scientists find "master switch" gene for obesity

 *Reuters – Subway commuters walk through the turnstiles while leaving the U.S. Open in New York September 4, 2007. …* – Sun May 15, 1:12 pm ET

LONDON (Reuters) – Scientists have found that a gene linked to diabetes and cholesterol is a "master switch" that controls other genes found in fat in the body, and say it should help in the search for treatments for obesity-related diseases.

In a study published in the journal Nature Genetics, the British researchers said that since fat plays an important role in peoples' susceptibility to metabolic diseases like obesity, heart disease and diabetes, the regulating gene could be target for drugs to treat such illnesses.

"This is the first major study that shows how small changes in one master regulator gene can cause a cascade of other metabolic effects in other genes," said Tim Spector of King's College London, who led the study.

More than half a billion people, or one in 10 adults worldwide, are obese and the numbers have doubled since the 1980s as the obesity epidemic has spilled over from wealthy into poorer nations.

In the United States, obesity-related diseases already account for nearly 10 percent of medical spending -- an estimated $147 billion a year.

Type 2 diabetes, which is often linked to poor diet and lack of exercise, is also reaching epidemic levels worldwide as rates of obesity rise.

Scientists have already identified a gene called KLF14 as being linked to type 2 diabetes and cholesterol levels, but until now they did know what role it played.

Spector's team analyzed more than 20,000 genes in fat samples taken from under the skin of 800 British female twin volunteers. They found a link between the KLF14 gene and the levels of many other distant genes found in fat tissue, showing that KLF14 acts as a master switch to control these genes.

They then confirmed their findings in 600 fat samples from a separate group of people from Iceland.

In a report of their study, the researchers explained that other genes found to be controlled by KLF14 are linked to a range of metabolic traits, including body mass index, obesity, cholesterol, insulin and glucose levels.

"KLF14 seems to act as a master switch controlling processes that connect changes in the behavior of subcutaneous fat to disturbances in muscle and liver that contribute to diabetes and other conditions," said Mark McCarthy from Britain's Oxford University, who also worked on the study.

"We are working hard...to understand these processes and how we can use this information to improve treatment of these conditions."

(Reporting by Kate Kelland, editing by Mark Heinrich)