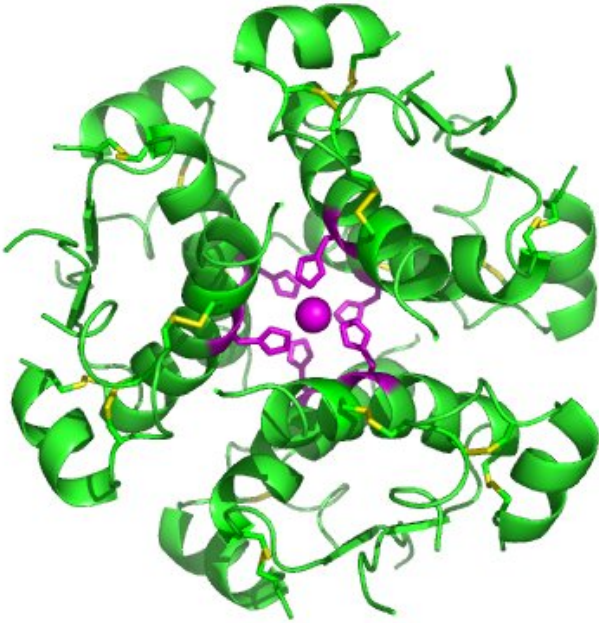


# Women retain insulin sensitivity better than men

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High-resolution model of six insulin molecules assembled in a hexamer. Credit: Isaac Yonemoto/Wikipedia

It's long been known that obese men are more likely to develop type two diabetes than obese women, but researchers at McMaster University have discovered it may be related to a difference between the sexes in the activity of a protein in the muscle.

As people become overweight, their [skeletal muscle](#) develops insulin resistance that can lead to type two diabetes. In a paper published by *Scientific Reports* today, the research team found the activity of this protein, called PTEN (for Phosphatase and tensin homolog deleted on chromosome 10), is different between men and women.

When PTEN is active, it prevents insulin from signaling properly in muscle, which reduces the amount of sugar a muscle takes. This 'muscle [insulin resistance](#)' increases the chance of developing type two diabetes.

"In our study, women's muscle appeared more efficient in neutralizing this protein, and this allows insulin to work better to move sugar from circulation to muscle," said lead author Dr. M. Constantine Samaan, assistant professor of pediatrics at the Michael G. DeGroote School of Medicine and pediatric endocrinologist at the McMaster Children's Hospital

"This protein is one explanation of why women are relatively protected from type two diabetes, despite having more body fat content compared to men at a given weight," said Samaan, adding that this is important as it provides a therapeutic target to improve [muscle](#) responses to insulin to treat and prevent diabetes. The team is now working on finding out how PTEN is regulated in different cells.

**More information:** The paper, entitled "Sex differences in skeletal muscle Phosphatase and tensin homolog deleted on chromosome 10 (PTEN) levels: A cross-sectional study" is freely available online at [www.nature.com/scientificreports](http://www.nature.com/scientificreports)

Provided by McMaster University

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