

ORIGINAL RESEARCH COMMUNICATION

# Serum visfatin concentrations are positively correlated with serum triacylglycerols and down-regulated by overfeeding in healthy young men<sup>1, 2, 3</sup>

Guang Sun, Jessica Bishop, Sammy Khalili, Sudesh Vasdev, Vicki Gill, David Pace, Donald Fitzpatrick, Edward Randell, Ya-Gang Xie and Hongwei Zhang

<sup>1</sup> From the Discipline of Genetics (GS, JB, SK, Y-GX, and HZ), Medicine (SV, VG, DP, and DF), and Laboratory Medicine (ER and Y-GX), Faculty of Medicine, Memorial University of Newfoundland, St John's, NL, Canada

**Background:** Visfatin is an insulin-mimicking adipokine. Visfatin is elevated in obesity and type 2 diabetes. However, its role in glucose and lipid metabolism in healthy humans is unclear.

**Objective:** The objective was to investigate the correlations of visfatin with phenotypes of glucose, lipids, and body composition and the responses of visfatin to short-term overfeeding in healthy young men.

**Design:** Sixty-one healthy young men were recruited from the Newfoundland population. Serum visfatin, interleukin 6, glucose, insulin, total cholesterol, HDL cholesterol, LDL cholesterol, and triacylglycerol concentrations were measured with an autoanalyzer, and percentage body fat (%BF) and percentage trunk fat (%TF) were measured with dual-energy X-ray absorptiometry. Insulin resistance and  $\beta$  cell function were assessed with the homeostasis model. All measurements were completed at baseline and after a 7-d overfeeding protocol exceeding the baseline requirement by 70%. Subjects were classified on the basis of %BF as lean (<21%), overweight (21–25.9%), or obese ( $\geq$ 26%).

**Results:** Multiple regression analysis showed that triacylglycerols correlated with fasting serum visfatin ( $P < 0.001$ ). Moreover, serum visfatin decreased 19% overall—23% in lean, 9% in overweight, and 18% in obese subjects ( $P < 0.0001$ )—after the overfeeding protocol. None of the variables measured, including interleukin 6, were associated with the reduction in visfatin. In contrast with the findings in mice, visfatin concentrations before and after overfeeding did not correlate with glucose, insulin, insulin resistance,  $\beta$  cell function, %BF, or %TF.

**Conclusions:** Visfatin is down-regulated by overfeeding. Under physiologic conditions, visfatin does not appear to control glucose metabolism but may play a regulatory role in lipid metabolism.

**Key Words:** Visfatin • insulin resistance • lipids • body composition • nutritional regulation

This article has been cited by other articles:

**This Article**

- ▶ [Full Text](#)
- ▶ [Full Text \(PDF\)](#)
- ▶ [Purchase Article](#)
- ▶ [View Shopping Cart](#)
- ▶ [Alert me when this article is cited](#)
- ▶ [Alert me if a correction is posted](#)
- ▶ [Citation Map](#)

**Services**

- ▶ [Similar articles in this journal](#)
- ▶ [Similar articles in PubMed](#)
- ▶ [Alert me to new issues of the journal](#)
- ▶ [Download to citation manager](#)
- ▶ [Get Permissions](#)

**Citing Articles**

- ▶ [Citing Articles via HighWire](#)
- ▶ [Citing Articles via Google Scholar](#)

**Google Scholar**

- ▶ [Articles by Sun, G.](#)
- ▶ [Articles by Zhang, H.](#)
- ▶ [Search for Related Content](#)

**PubMed**

- ▶ [PubMed Citation](#)
- ▶ [Articles by Sun, G.](#)
- ▶ [Articles by Zhang, H.](#)

**Agricola**

- ▶ [Articles by Sun, G.](#)
- ▶ [Articles by Zhang, H.](#)



**ENDOCRINE REVIEWS**

▶ HOME

M. Prentki and S. R. M. Madiraju  
Glycerolipid Metabolism and Signaling in Health and Disease  
Endocr. Rev., October 1, 2008; 29(6): 647 - 676.

[\[Abstract\]](#) [\[Full Text\]](#) [\[PDF\]](#)



J. Shea, E. Randell, S. Vasdev, P. P. Wang, B. Roebathan, and G. Sun  
Serum retinol-binding protein 4 concentrations in response to short-term overfeeding in normal-weight, overweight, and obese men  
Am. J. Clinical Nutrition, November 1, 2007; 86(5): 1310 - 1315.

[\[Abstract\]](#) [\[Full Text\]](#) [\[PDF\]](#)