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Urine insulin values to motivate weight loss

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Our lives are full of habits, good ones (example: exercise) and bad ones (example: eating unhealthy food). The imbalance in these habits is particularly evident in the world-wide prevalence of obesity. It is widely proven that many diseases such as cancer, diabetes, heart disease, and depression are strongly influenced by these habits. Shifting the balance between bad and good habits can therefore prevent disease and enhance well-being. Here, we propose to monitor urine insulin levels to provide people with weight loss intent with molecular feed-back on their metabolic state. The idea is to borrow the body's own molecules used in internal communicating to assist individuals externally in the conscious struggle to promote healthy life-style changes. Urine samples were collected, volumes measured and aliquots stored together with detailed exercise and food and drink intake information using DoForms via website interface and iPhone transmission. Insulin measurements were carried out using a MESO SECTOR S 600 instrument and the Mesoscale Human Insulin Kit based on immunosandwich electrochemiluminescence detection. Insulin was readily detectable in 47/50 samples with a replicate variation of 3.0±3.6% (range 0.0 to 12.8%) and excellent dilution linearity (113.3pg/ml initial concentration). Comparison of the insulin data with the food intake and exercise information indicated that unlike blood glucose, urine insulin levels are highly sensitive to changes in diet and activity and should therefore be suitable in providing individuals feedback on related behaviors. Such measurements could also be useful to health-care professionals in monitoring adherence to recommended life-style changes.

Biography

Shilpa Tejpal is a Research Assistant in the Division of Translational and Systems Medicine- Metabolic & Vascular Health, at the Medical School, University of Warwick. She holds an MSc in Biotechnology and Business Management (University of Warwick, 2014) and BEng Biotechnology (Jaypee University of Information Technology, 2013). Her bachelor's research project was on, "Growth Inhibition and Apoptosis Induction by Mushroom Extracts in Breast and Kidney Cancer Cells". She is the awardee of Warwick-India Scholarship from the University of Warwick. She has received a gold medal for being top student in Department of Biotechnology and Bioinformatics at Jaypee University of Information Technology, India. Her current research interests are in membrane proteins such as G protein coupled receptors, interferon gamma and insulin receptors.

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