



## GASTROINTESTINAL MICROBIOME MODULATOR IMPROVES GLUCOSE TOLERANCE IN OVERWEIGHT AND OBESE SUBJECTS: A RANDOMIZED CONTROLLED PILOT TRIAL.

Rebello, CJ ; Burton, J ; Heiman, M ; Greenway, FL  
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There is an increasing need for nutraceuticals that promote satiety and address the adverse health consequences obesity. Recent evidence suggests that the gut microbiome may play an important role in regulating metabolic pathways involved in obesity, particularly those involved in insulin resistance.

This study used a gastrointestinal microbiome modulator (GIMM) containing inulin, oat beta-glucan, blueberry anthocyanins and blueberry polyphenols to examine its effects on metabolic parameters, faecal markers of gut microbiota and satiety. Thirty overweight or obese individuals were randomised to either consume the GIMM or placebo tablet for four weeks. Stool and blood samples were collected at the baseline and end of the trial, and satiety was assessed weekly.

This study showed that GIMM consumption significantly improved blood glucose tolerance and increased satiety in overweight and obese participants. Further cellular studies are warranted to identify the specific pathways by which GIMM improves glucose control.

## DIET-INDUCED WEIGHT LOSS ALTERS HEPATIC GLUCOCORTICOID METABOLISM IN TYPE 2 DIABETES MELLITUS.

Stomby, A ; Otten, J ; Ryberg, M ; Andrew, R ; Walker, BR ; Olsson, T  
European journal of endocrinology. 2020;(4):447-457

This RCT measured the effects of a diet intervention with added exercise on glucocorticoid metabolism, to test the theory described in uncomplicated obesity and type 2 diabetes that diet and exercise alters tissue-specific glucocorticoid metabolism.

28 participants, divided into two groups followed a Paleolithic diet (PD) for 12 weeks with added 180 min of structured aerobic and resistance exercise per week in one randomized group (PDEX). They measured body composition, insulin sensitivity, urine levels of glucocorticoid metabolite and expression of HSD11B1 mRNA in s.c. adipose tissue.

Both groups lost weight and improved insulin sensitivity. This suggests that dysregulation of liver glucocorticoid metabolism in these patients is a consequence rather than a cause of metabolic dysfunction.



## A 2 YEAR PHYSICAL ACTIVITY AND DIETARY INTERVENTION ATTENUATES THE INCREASE IN INSULIN RESISTANCE IN A GENERAL POPULATION OF CHILDREN: THE PANIC STUDY.

Lakka, TA ; Lintu, N ; Väistö, J ; Viitasalo, A ; Sallinen, T ; Haapala, EA ; Tompuri, TT ; Soininen, S ; Karjalainen, P ; Schnurr, TM ; Mikkonen, S ; Atalay, M ; Kilpeläinen, TO ; Laitinen, T ; Laaksonen, DE ; Savonen, K ; Brage, S ; Schwab, U ; Jääskeläinen, J ; Lindi, V ; Eloranta, AM  
Diabetologia. 2020

The number of children and adolescents with type 2 diabetes and prediabetes has increased over the past decades which is likely due to decreased physical activity, increased sedentary time, unhealthy diet and consequently increased body fat content. Insulin resistance plays an important role in the development of type 2 diabetes.

The aim of this 2 year non-randomised, controlled trial was to investigate the long-term effects of a combined physical activity and dietary intervention programme on insulin resistance in a general population of children, most of whom had a normal body weight. Children in the intervention group had six intervention visits which included 30–45 min of physical activity counselling and 30–45 min of dietary counselling for the children and their parents/carers.

Fasting insulin and HOMA-IR (a measure for insulin resistance) increased significantly less in the intervention group than in the control group, whilst there were no significant differences in fasting glucose, body fat or lean body mass after 2 years. The effects on insulin resistance were mediated by changes in physical activity, sedentary time and diet. The authors conclude that the prevention of type 2 diabetes should begin in childhood by increasing physical activity, decreasing sedentary time and improving diet in the general paediatric population and not just among overweight and obese children.

