Dietary inulin supplementation promotes weight loss in obese individuals

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Context

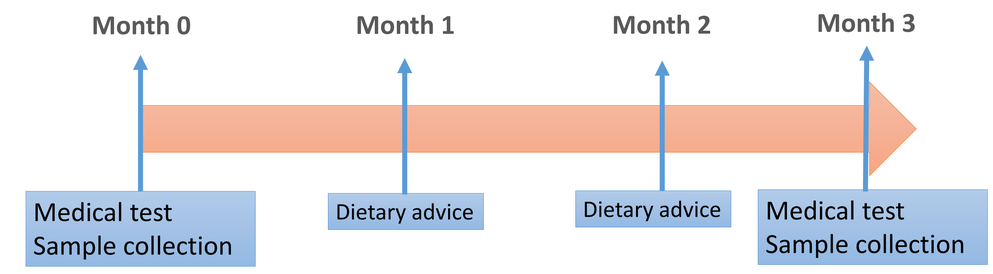
- Prevalence of **Obesity** in **Europe** has reached **epidemic proportions**
- Novel nutritional approach such as **inulin-enriched vegetables** consumption are promising tools to control **weight gain** and related **metabolic disorders**

Aim

This study aims to evaluate the effect of an innovative nutritional approach combining the consumption of vegetables naturally rich in inulin with daily supplementation in native inulin on obese individuals. Primary outcome includes the identification of microbiota driven improvement of host health

Study Design

- Randomized, simple-blind, placebo-controlled parallel study including 150 obese subjects (BMI > 30 $kg.m^{-2}$; 18-65 years, recruited in three university hospitals in Belgium). The preliminary data presented here concern 38 patients (end of recruitment January 2018).
- Subjects must present at least one of the following comorbidities : prediabetes, hypertension, dyslipidemia, liver steatosis.
- Treatment/Placebo consist of a daily consumption of meals (following given recipes) including vegetables naturally rich/poor in inulin. In addition, patients receive a daily supplement of 16 g of native Inulin/Maltodextrin (Cosucra).
- Ethical approval was registered under the number: BE403201422056
- Analysis performed before and after the treatment include :
  - ✓ Anthropometric measurements
  - ✓ Blood tests
  - ✓ Fibroscan (evaluates the level of liver fibrosis)
  - ✓ CT-scan (Measurement of abdominal fat area)
  - ✓ Dietary habit evaluation
  - ✓ Behavior study
  - ✓ Urine, saliva and feces collection

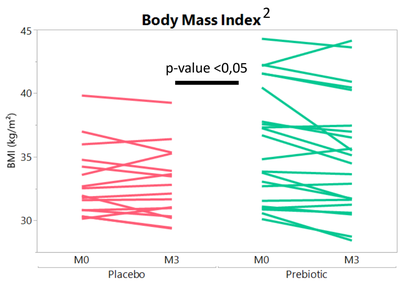


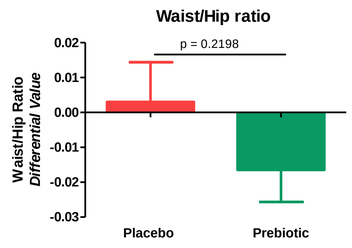
Results

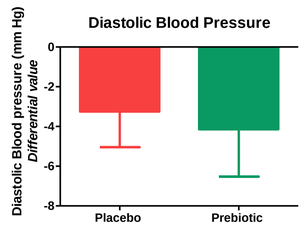
Recruitment

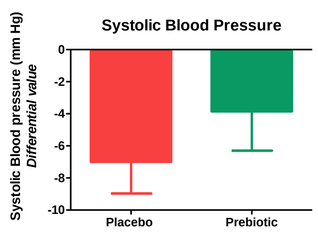
- Included patients : 73
- Ended the study : 38
- Drop out : 12

Anthropometric Measurements[1]







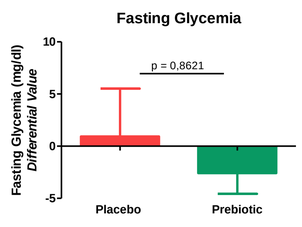


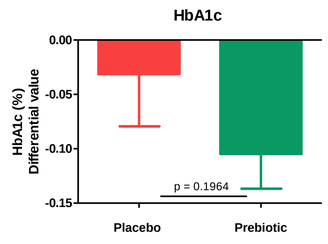
Blood Parameters[1]

Lipid Profile

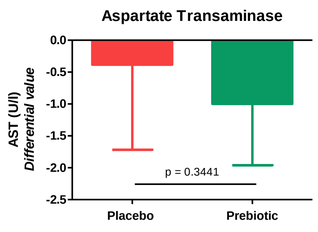
Blood lipid parameters (mg/dl)	Change (Final-Initial measurement)		Between group p-value
	Placebo	Prebiotic	
Triglycerides	-27,71 ± 13,22	-38,95 ± 38,23	0,26
Total Cholesterol	-4,50 ± 7,45	-4,43 ± 4,90	0,99
HDL-Cholesterol	2,143 ± 2,09	1,52 ± 1,00	0,62
Calculated LDL-Cholesterol	-0,36 ± 6,20	-0,06 ± 3,274	0,96

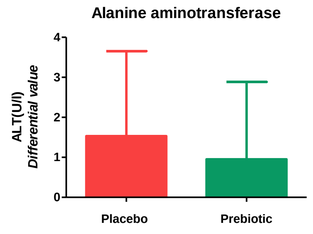
Glucose Metabolism

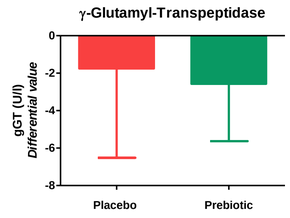




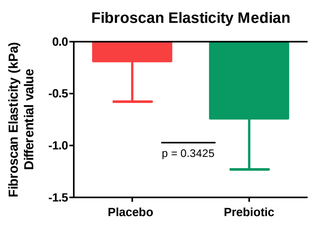
Liver Transaminases

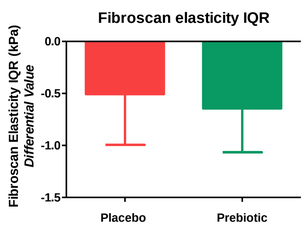




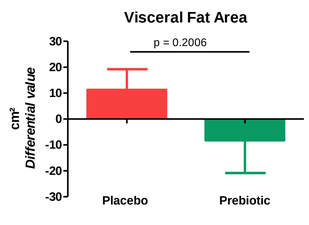


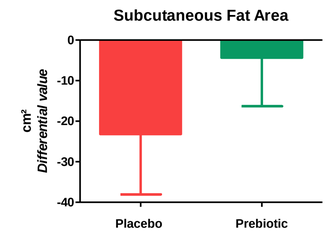
Liver Fibrosis[1]





Abdominal Fat Area[1]





[1]Data are expressed as mean±SEM ; n=16 in placebo, n=22 in prebiotic ; Statistical analysis were performed on differential values, Mann-Withney non parametric t-test
[2] Mixed model ANOVA analysis performed

Main Findings

- Three months nutritional advices and prebiotic supplementation significantly **reduce Body Mass Index** in obese individuals.
- Glucose metabolism, liver fibrosis and visceral fat area tend to improve with the treatment. More patients are needed to confirm these trends.
- Gut microbiota analysis will be performed at the end of the study and will be correlated to health parameters.

These preliminary data's highlight a promising way to prevent obesity and metabolic disorders. To our knowledge, this is the first study to propose nutritional advices favoring the consumption of vegetables rich in Inulin. To a larger scale, this approach will lead the patients to manage their health with daily nutritional choices, favoring nutriments beneficial for gut health.