



Fiber intake as a tool for manipulating gut microbiota in obese individual

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Introduction

► Overweight and obesity

- Defined as abnormal or excessive fat accumulation that may impair health
- Body mass index (BMI) commonly used classifier
 - $\text{BMI} \geq 25 \text{ kg/m}^2$ overweight
 - $\text{BMI} \geq 30 \text{ kg/m}^2$ obese
- In 2014 more than 1.9 billion adults overweight, of those 600 million were obese
- Disparity between energy intake and expenditure
- Only food intake? Other factors?

► Microbiota

- Marker
 - Difference lean - obese individuals
- Microbiota as a tool
 - prebiotics and probiotics



<http://www.who.int>

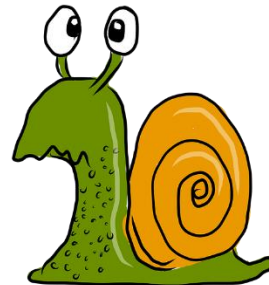
Aim

- ▶ Test the effect of fiber supplementation of obese person with Nutriose FB06® on:
 - ▶ Body weight
 - ▶ Body composition
 - ▶ Microbiota composition



Selection process

- ▶ General questionnaire
 - ▶ Personal data, activity, health, medication
 - ▶ 14 people, 6 overweight, 3 obese
 - ▶ Not taking antibiotics in last 3 months
- ▶ Food frequency questionnaire - personalnutrition.org
 - ▶ Estimate average fiber intake



Test subject

- ▶ Male
- ▶ 34 years
- ▶ Obese, BMI = 33 kg/m²
- ▶ Active lifestyle
- ▶ Apparently healthy
- ▶ No antibiotic treatment in last 3 months
- ▶ Willing to participate in the study



Intervention

- ▶ Calorie intake remained unchanged (~ 2600 kcal)
- ▶ 2 meals/day → 5 meals/day
- ▶ No changes in lifestyle and habits
- ▶ Supplementation personalisation
 - ▶ Daily fiber intake up to 35 g - 15 g of Nutriose FB06®



Methods

- ▶ Dietetic methods - FFQ and Dietary record
- ▶ Anthropometric measurement
 - ▶ Weight (kg), height (cm)
 - ▶ % BF, % BM and visceral fat - bioelectrical impedance
- ▶ Microbiota composition
 - ▶ Sequencing of 16S rRNA gene from faecal samples



Results - Test subject

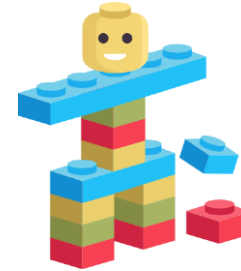
Date	31.01.2017.	17.02.2017.	08.03.2017.
Body height (cm)	178	178	178
Body weight (kg)	104.4	100.1	99.2
BMI (kg/m ²)	33	31.6	31.3
Body muscle %	32.8	33	34.9
Body fat %	31.1	30.6	27.3
Visceral fat rating	15	14	13

Body weight - 5% decrease

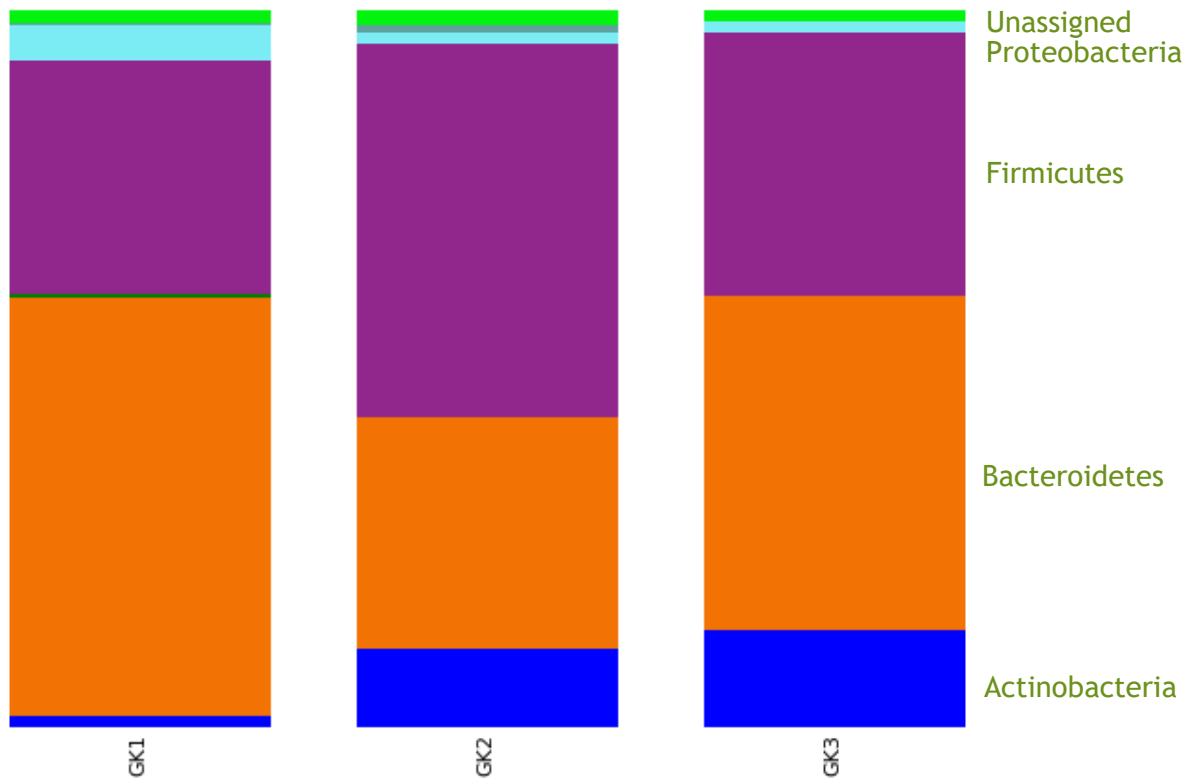
Body fat % - 12.2% decrease

Visceral fat rating - 2 units decrease

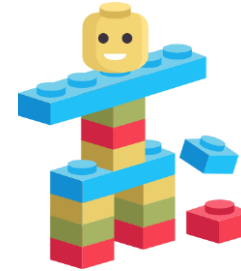
Results - Microbiota



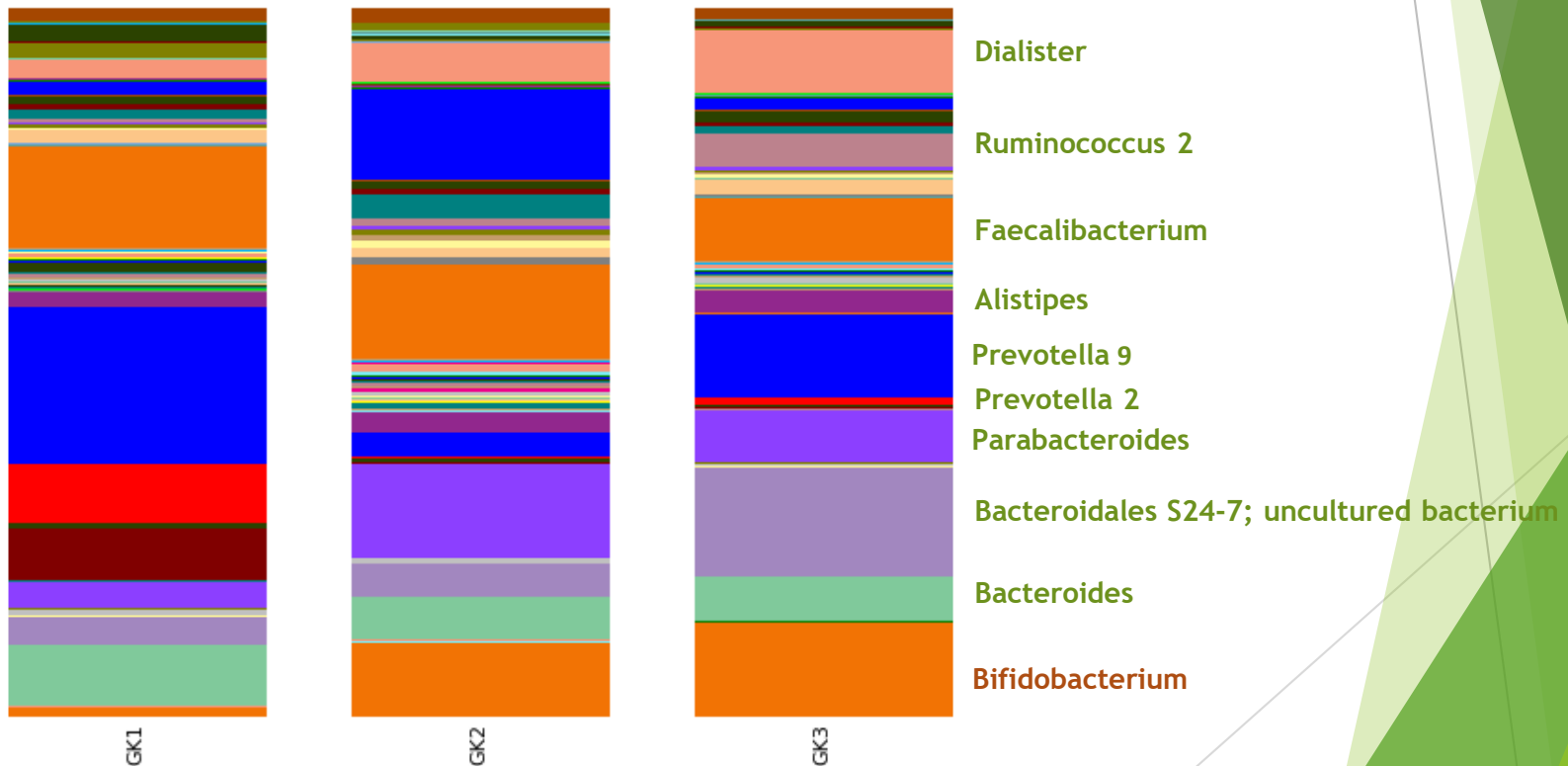
Taxa summary plot - phylum



Results - Microbiota



Taxa summary plot - genus



Conclusions

- ▶ Monthly supplementation with Nutriose FB06® had effect on:
 - ▶ **Body weight** - 5 % decrease
 - ▶ **Body fat %** - 12.2% decrease
 - ▶ **Visceral fat** - 2 units decrease
 - ▶ **Microbiota composition** - 10 fold increase in genus Bifidobacterium

Thank you...

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- ▶ Antonio Starčević

