

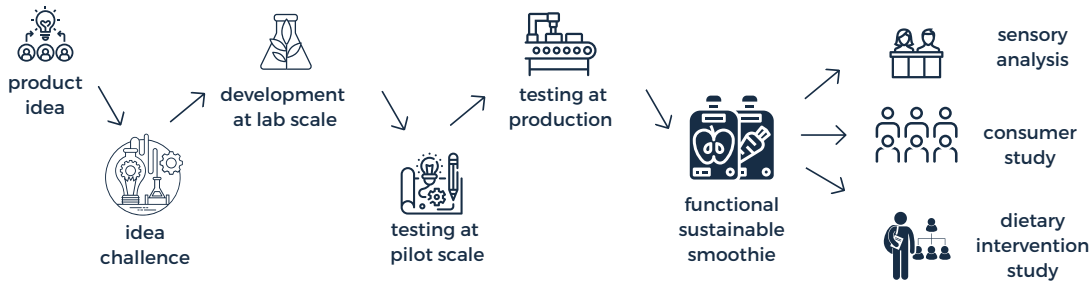


# CASE STUDY

## FUNCTIONAL SUSTAINABLE SMOOTHIE



### AGILE PRODUCT DEVELOPMENT



### DIETARY INTERVENTION STUDY



39 participants  
11 weeks  
5 periods



400ml per day  
50-50 high fiber & low fiber smoothie



blood sample  
body composition  
microbiome sample



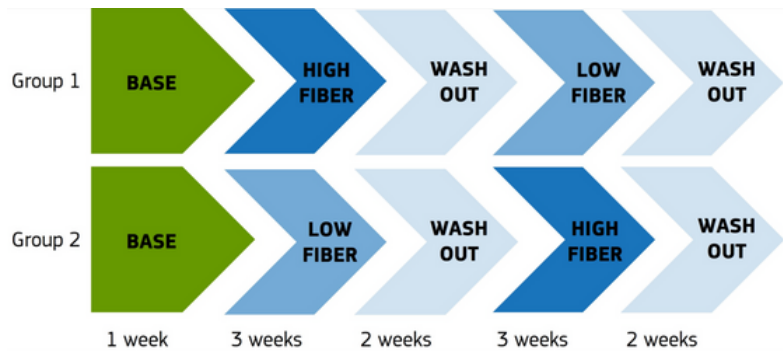
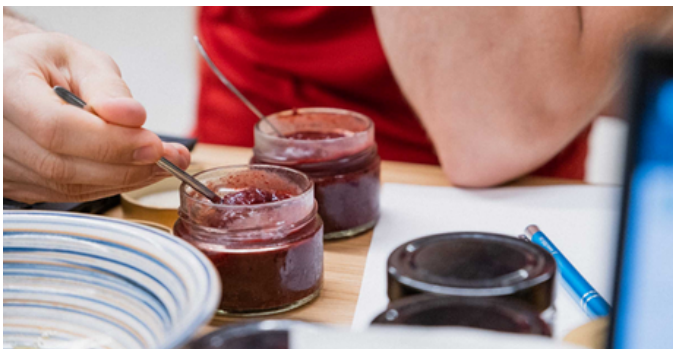
results analysis



positive effect proven



results in scientific paper



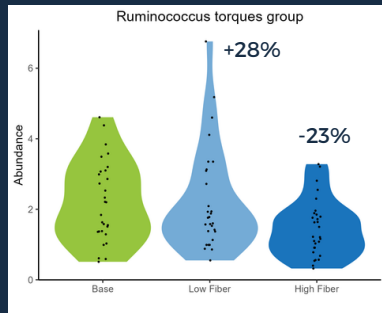
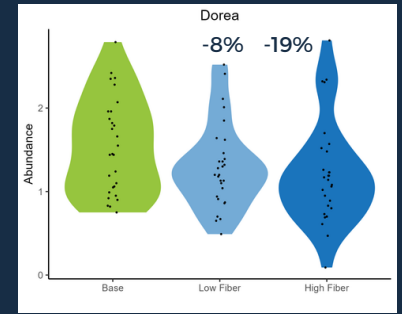
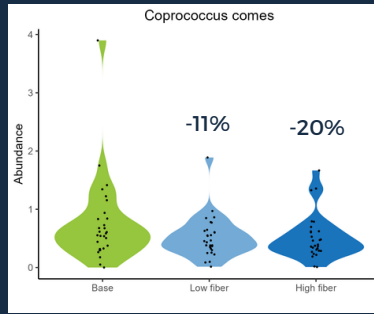
### GLOBAL PROBLEMS WE CHALLENGED

- 5 million tons of waste (apple pomace) produced during apple juice production every year.
- 1/3 of population in the world is overweight.
- High cholesterol levels among people.
- Global low consumption of fruits & vegetables - 1/3 eat less fiber than recommended.
- Digestive problems increasing globally.
- More gut-friendly functional products needed.



# CHANGES IN HEALTH PARAMETERS

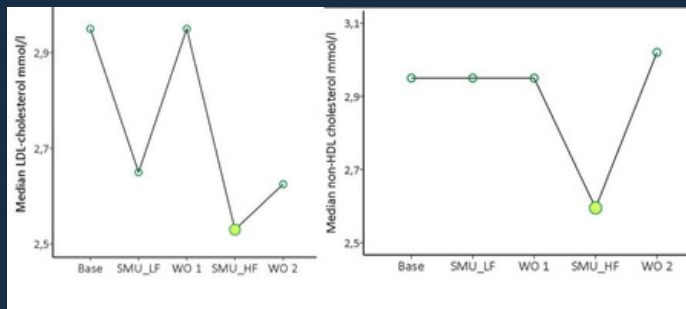
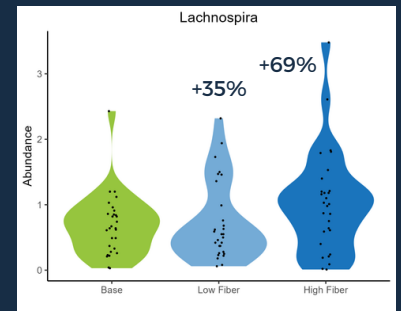
Reduction of bacteria associated with overweight or inflammation



Decreased bacteria = decreased intestinal inflammation.

Increase (2x!) of active fermentative bacterium = potential development of acidic environment in the colon =

- Inhibiting the growth of pathogens in the gut.
- Supporting immune boosting butyric acid producing bacteria.
- Enhancing intestinal peristalsis.
- Indicating of good health.



A trend of a decrease in LDL and non-HDL cholesterol (by an average of 0.2 units) during consumption of a high-fiber smoothie.

## MAIN RESULTS

Consumption of functional high fiber smoothies led to:

- Growth of beneficial immune boosting butyric acid producing bacteria.
- Reduction of bacteria related to overweight and inflammation.
- Increased gut health.
- Decrease of LDL and non-HDL cholesterol.
- Increase of general well-being of the participants.

## CONTACT

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