

# Effect of the probiotic cheese on high-normal blood pressure

<b>Submission date</b> 09/08/2011	<b>Recruitment status</b> No longer recruiting	<input checked="" type="checkbox"/> Prospectively registered <input type="checkbox"/> Protocol
<b>Registration date</b> 24/08/2011	<b>Overall study status</b> Completed	<input type="checkbox"/> Statistical analysis plan <input type="checkbox"/> Results
<b>Last Edited</b> 07/02/2022	<b>Condition category</b> Circulatory System	<input type="checkbox"/> Individual participant data <input type="checkbox"/> Record updated in last year

## Plain English summary of protocol

### Background and study aims

High blood pressure (hypertension) is a major cardiovascular (heart disease) risk factor. It has been shown that reducing blood pressure reduces the risk of cardiovascular diseases and stroke. For people with high-normal blood pressure and without any serious risk factors like diabetes and kidney failure clinical treatment using medications is not indicated, but changes in lifestyle and diet could be helpful. The purpose of this study is to assess the safety of a probiotic Edam-type cheese and its effectiveness on blood pressure reduction.

### Who can participate?

Generally healthy persons aged 18 years and over with elevated blood pressure who do not take medications will be recruited through clinics in Southern and Central Estonia.

### What does the study involve?

Participants are randomly allocated to eat 50 g per day of either probiotic cheese or normal cheese, or to receive no treatment. The study duration is 4 weeks, and participants are asked to assess their well-being and gastrointestinal (digestive) effects, and also to provide blood, urine and fecal samples to test the effects of the probiotic.

### What are the possible benefits and risks of participating?

Study participants will receive an assessment of their health status and if necessary, a consultation with a nutritionist and/or a specialist. The study causes minimal inconvenience to participants. As blood samples are taken by an experienced nurse, the procedure is safe. However, there may be bruising and discomfort at the site of the blood test as with any blood test. The amounts of blood we are taking are small enough that they should not make you feel fatigue or cause anemia. There may be local red reactions at the site of the injections.

### Where is the study run from?

The study is carried out in a cooperation between the Bio-Competence Centre of Healthy Dairy Products LLC, the Faculty of Medicine, University of Tartu and the Dairy Cooperative E-piim (Estonia). The study takes place at the Centre for Clinical and Physiological Research of the Bio-Competence Centre of Healthy Dairy Products LLC in Tartu, Estonia.

When is the study starting and how long is it expected to run for?  
Patients will be enrolled in the study in September 2011. Follow-up examinations will continue until December 2011.

Who is funding the study?  
Bio-Competence Centre of Healthy Dairy Products LLC, the EU Structural Funds.

Who is the main contact?  
Dr Pirje Hütt  
pirje.hutt@ut.ee

## Contact information

**Type(s)**  
Scientific

**Contact name**  
Prof Marika Mikelsaar

**Contact details**  
University of Tartu  
Faculty of Medicine  
Dept of Microbiology  
Ravila 19  
Tartu  
Estonia  
50411  
+372 (0)737 4179  
marika.mikelsaar@ut.ee

## Additional identifiers

**Protocol serial number**  
202M-25

## Study information

**Scientific Title**  
Effect of the probiotic Südamejuust (heart friendly cheese) comprising *Lactobacillus plantarum* TENSIA DSM 21380 on subjects with high-normal blood pressure: a randomized blinded controlled parallel three-arm study

**Acronym**  
TE6

**Study objectives**  
The consumption of probiotic cheese comprising the strain *L. plantarum* TENSIA helps to maintain normal blood pressure by reducing high-normal systolic and/or diastolic blood pressure.

**Ethics approval required**

Old ethics approval format

### **Ethics approval(s)**

Ethics Review Committee on Human Research of the University of Tartu, 14/03/2011, ref: 205T-5

### **Study design**

Randomized blinded controlled parallel three-arm study

### **Primary study design**

Interventional

### **Study type(s)**

Treatment

### **Health condition(s) or problem(s) studied**

Hypertension

### **Interventions**

Participants randomised to active, placebo or control group will receive the intervention for 3 weeks:

1. Active intervention: probiotics cheese 50 g per day (probiotic *Lactobacillus plantarum* TENSIA dose:  $10^{10}$  colony forming units [CFU])
2. Placebo: 50 g control cheese
3. Control: no treatment

### **Intervention Type**

Drug

### **Phase**

Phase II

### **Drug/device/biological/vaccine name(s)**

*Lactobacillus plantarum* TENSIA probiotic cheese

### **Primary outcome(s)**

Decrease in systolic and/or diastolic blood pressure measured pre intervention, at the end of the intervention and also 1 week post intervention.

### **Key secondary outcome(s)**

The following outcomes will be measured pre intervention, at the end of the intervention and also 1 week post intervention.

1. Body mass index (BMI)
2. Changes in inflammatory markers (WBC, hs-CRP)
3. Changes in lipidogram [total cholesterol and/or low density lipoprotein (LDL)-cholesterol and /or triglycerides]
4. Changes in fecal microflora
5. Persistence of ingested probiotic strain for 1 week
6. Blood, fecal and urine samples are collected at run-in, baseline and end of the study

### **Completion date**

07/11/2011

# Eligibility

## Key inclusion criteria

1. Wish to participate
2. Aged 18 years and over
3. Baseline blood pressure levels high-normal according to European Society of Hypertension (ESH)/European Society of Cardiology (ESC) Guidelines for the Management of Arterial Hypertension (2007): systolic blood pressure (SBP) 130-139 mmHg, diastolic blood pressure (DBP) 85-89 mmHg, white blood cell (WBC)  $< 8.8 \times 10^9 /L$ , high sensitivity C-reactive protein (hs-CRP)  $< 5 \text{ mg/L}$ , glucose  $< 6.0 \text{ mmol/L}$ , serum creatinine F  $< 80 \text{ } \mu\text{mol/L}$ , M:  $< 106 \text{ } \mu\text{mol/L}$ .
4. Signed informed consent

## Participant type(s)

Patient

## Healthy volunteers allowed

No

## Age group

Adult

## Lower age limit

18 years

## Sex

All

## Key exclusion criteria

1. History of any gastrointestinal disease
2. Use of any antimicrobial drug within the last month
3. Use of any regular concomitant medication, including medical preparations including non-steroidal anti-inflammatory drugs and antioxidant vitamins
4. Food allergy
5. Diabetes and acute infection
6. Pregnancy or breastfeeding

## Date of first enrolment

19/09/2011

## Date of final enrolment

07/11/2011

# Locations

## Countries of recruitment

Estonia

**Study participating centre**  
**University of Tartu**  
Tartu  
Estonia  
50411

## **Sponsor information**

**Organisation**  
BioCC OÜ

## **Funder(s)**

**Funder type**  
Industry

**Funder Name**  
Bio-Competence Centre of Healthy Dairy Products LLC (Estonia)

## **Results and Publications**

**Individual participant data (IPD) sharing plan**  
Not provided at time of registration

**IPD sharing plan summary**  
Not provided at time of registration