

Inovativī risinājumi kailgraudu  
auzu, miežu un tritikāles izmantošanai cilvēku  
veselības nodrošināšanai  
(NFI/R/2014/011)

**RSU**

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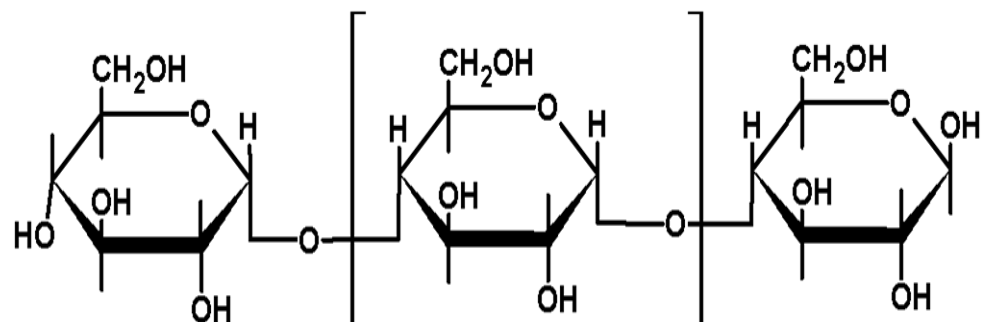
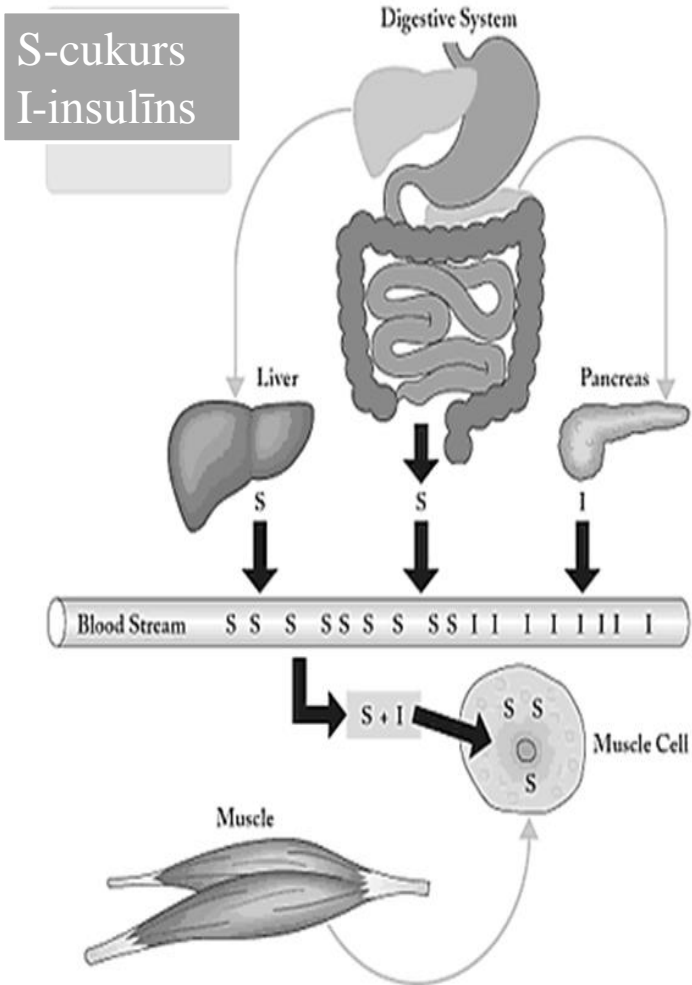
**Inese Slūka**

Priekuļi 23.09.2015

# VESELĪGS UZTURS - GRAUDAUGI- OĢĻHIDRĀTI



# OGĻDRĀTU VIELMAIŅA.

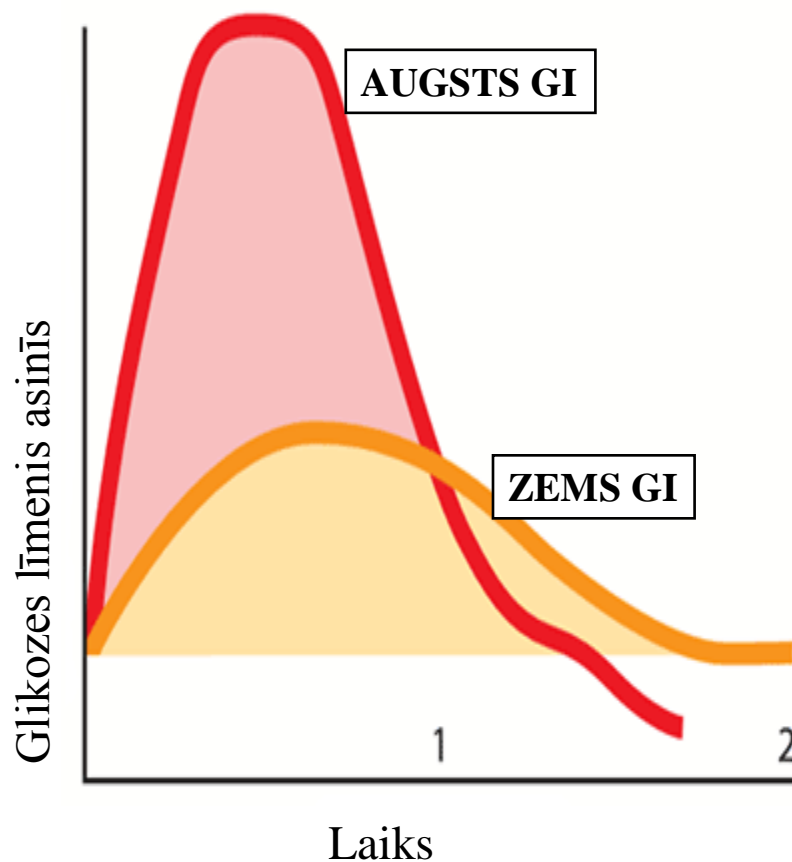


- Gremošanas trakts: ciete-maltoze-glikoze.
- Asinīs: glikoze+insulīns galvenais enerģijas substrāts



# GLIKĒMISKAIS INDEKSS (GI)

parāda, kādā mērā dotais ogļhidrātus saturošais produkts paaugstina cukura līmeni asinīs.



# INSULĪNA INDEKS (II)

## parāda, kādā mērā dotais oghidrātus saturošais produkts paaugstina insulīna līmeni asinīs



# METABOLIC SYNDROME

The syndrome consists of a number of medical conditions including high blood sugar, high blood pressure, excess body fat around the waist, and abnormal cholesterol and triglyceride levels. The syndrome, which is called type 2 diabetes, is caused by insulin resistance and obesity.



### CHARACTERISTICS OF METABOLIC SYNDROME

**ABNORMAL GLUCOSE TOLERANCE:** Insulin resistance is diagnosed when glucose is not taken up by the cells properly. This is often accompanied by higher than normal blood sugar levels.

**FAIRLY NORMAL:** The patient's blood pressure is not elevated. The patient's blood pressure is not elevated. The patient's blood pressure is not elevated.

**EXCESSIVE:** The patient's blood pressure is not elevated. The patient's blood pressure is not elevated. The patient's blood pressure is not elevated.

**LOW CHOLESTEROL:** The patient's blood pressure is not elevated. The patient's blood pressure is not elevated. The patient's blood pressure is not elevated.

**LOW CIRCULATION:** The patient's blood pressure is not elevated. The patient's blood pressure is not elevated. The patient's blood pressure is not elevated.

**ABILITY TO ABSORB FATS:** The patient's blood pressure is not elevated. The patient's blood pressure is not elevated. The patient's blood pressure is not elevated.

**BLOOD PRESSURE:** The patient's blood pressure is not elevated. The patient's blood pressure is not elevated. The patient's blood pressure is not elevated.

**METABOLIC SYNDROME:** The patient's blood pressure is not elevated. The patient's blood pressure is not elevated. The patient's blood pressure is not elevated.

**BLOOD HYPERCALCAEMIA:** The patient's blood pressure is not elevated. The patient's blood pressure is not elevated. The patient's blood pressure is not elevated.

**A clinical diagnosis of metabolic syndrome is confirmed by the presence of two or more of the following:**

- Abnormal glucose tolerance
- Abnormal blood pressure
- Abnormal blood lipid profile (high triglycerides, low HDL cholesterol)
- Abnormal waist circumference (men: >102 cm, women: >88 cm)
- Abnormal fasting blood sugar (fasting glucose: >100 mg/dL)

**SUPPLEMENTARY TESTS:**

- Fasting glucose
- Fasting insulin
- HbA1c
- Blood pressure
- Lipid profile (cholesterol, triglycerides)
- Waist circumference

**THE SYNDROME CAN BE IMPROVED BY:**

- Weight loss
- Exercise
- Diet changes
- Medication

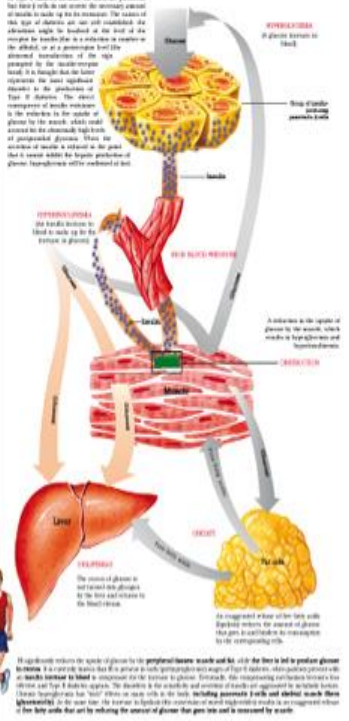
**CONSEQUENCES:**

- Type 2 diabetes
- Heart disease
- Stroke
- Kidney disease
- Liver disease
- Fatty liver disease
- Sleep apnea

**PREVENTION:**

- Healthy diet
- Regular exercise
- Weight management
- Blood sugar control
- Blood pressure control
- Cholesterol control

## HYPERGLYCEMIA AND HYPERINSULINEMIA



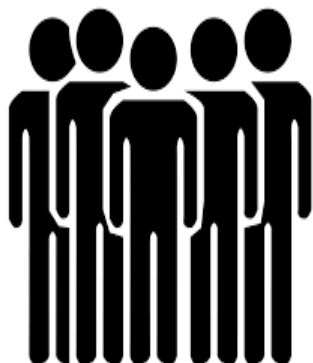
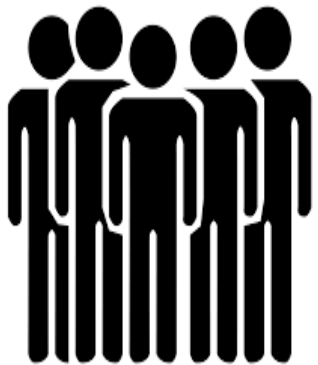
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# GI, II NOTEIKŠANA: izsaka %, salīdzinot ar kādu noteiktu standartu (50g glikozes)

Sērijveida eksperiments:

2 grupas pa 15 cilvēkiem

0 - 15 - 30 - 45 - 60 - 90 - 120



STANDARTA-GLIKOZES  
ŠĶĪDUMS



PĀRSLU PARAUGI

# ASINS PARAUGI

- 1. nedēļa - dzer glikozi 3x /nedēļā
  - 2. nedēļa - 2x / nedēļā
  - 3. nedēļa - 2x / nedēļā
  - 4. nedēļa - 2x / nedēļā
- Kopā: **4-6 nedēļas**



**63X**



**126 ml**



# ANALĪZES

- GLIKOZE



- INSULĪNS
- C-peptīds

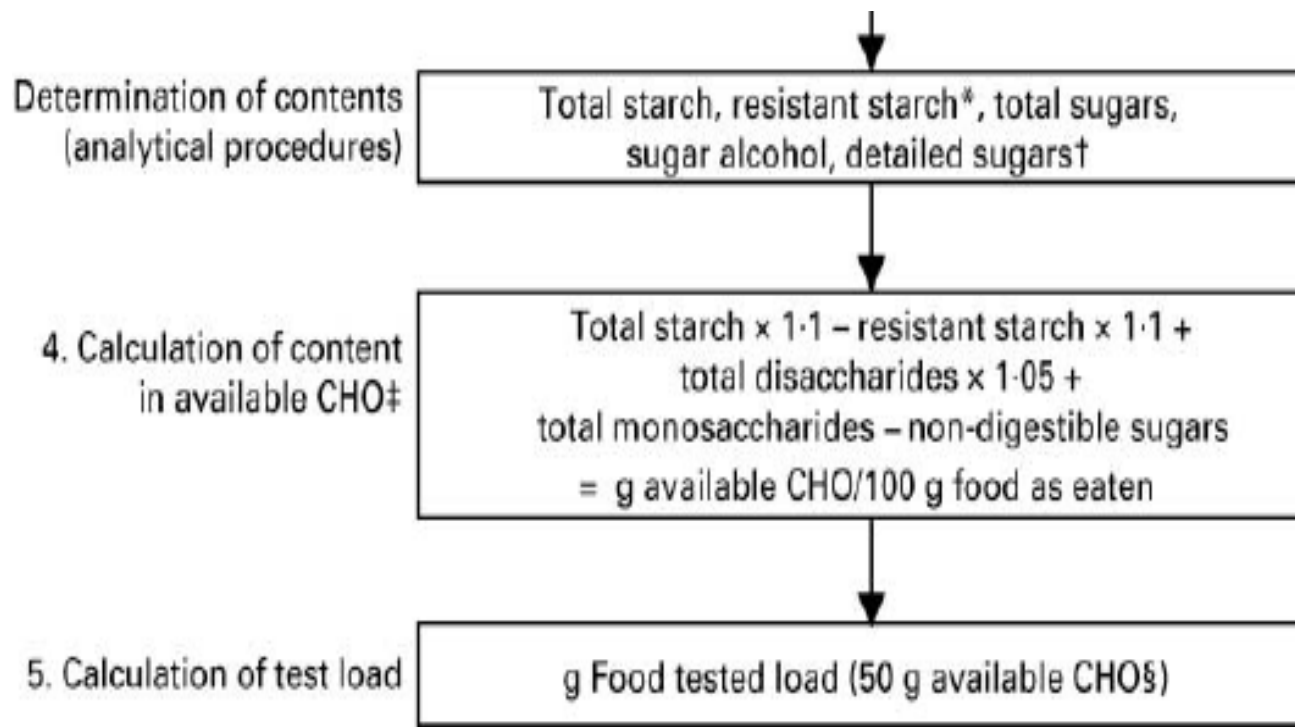




# PĀRSLU PARAUGI **GI** noteikšanai- 50 g sagremojamie OGH



1. Food



**Brouns F., Bjorck I., Frayn K.N., Gibbs A.L., Lang V., Slama G., Wolever T.M. Glycaemic index methodology. // Nutr Res Rev. 2005 Jun;18(1):145-71.**

# PĀRSLU PARAUGI II noteikšanai- 1000 kJ (239 kcal) liela produkta porcija



## Katra porcija satur:

Kalorijas

Tauki

Ogļhidrāti

Piesātinātās  
tauskābes

Olbaltumvielas

Sāls

# PĒTĪJUMAM ATVĒLĒTAIS LAIKS.

- Maksimālais laika periods eksperimentam 6-8 nedēļas katrai grupai (nosaka metodika),  
plānotais laiks kopā 4-6 nedēļas.
- Starp testiem 2 dienu pauze (*washout period*).
- Provizoriskais sākums ne vēlāk kā novembris (11.2015.)

# DARBA UZDEVUMI

- **Apkopot un analizēt jaunāko informāciju par GI noteikšanas metodiku, izstrādāt pētījuma protokolu (paveikts).**
- **Pētījuma protokola saskaņošana ar RSU Ētikas komiteju, dalībnieku piekrišanas anketas izveide (paveikts).**
- **Izstrādāt tehnisko specifikāciju laboratorijas ārpakalpojumam (paveikts).**
- **Dalībnieku piesaistīšana:**
  - sagatavot informatīvu materiālu par pētījuma norisi un mērķiem;
  - informēt un saskaņot testu norises laikus.
- **Informācijas par pētījumu ievietošana RSU mājas lapā**

## **DARBA UZDEVUMI sadarbībā ar LLU**

- **Pārslu analizēšana ( *ref. Brouns* )**

- šķiedrvielas
- ciete
- rezistentā ciete
- monosaharīdi
- disaharīdi

- **Dažādu graudaugu pārslu testa paraugu sagatavošana, atbilstoši metodikai (5.11.2015)**

**PALDIES!**

