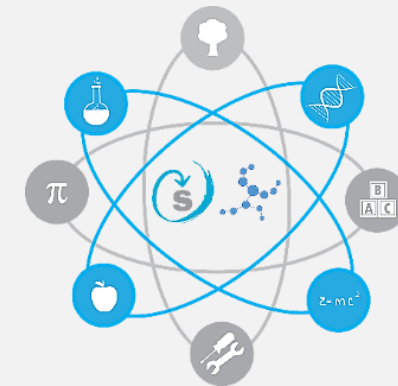


3. konferenca učiteljev naravoslovnih predmetov
Povezujemo znanje za boljšo pismenost & Scientix

Povezanost hormonske in živčne regulacije pri človeku – primer homeostaze glukoze

Andraž Stožer & Marjan Slak Rupnik
Medicinska fakulteta Univerze v Mariboru

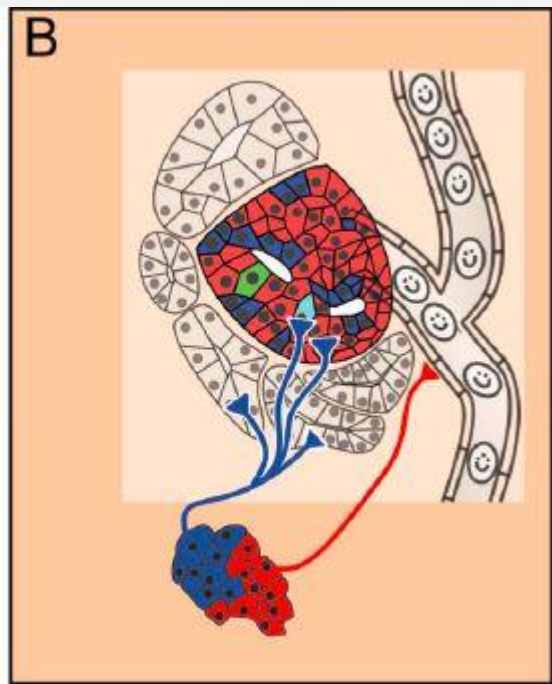
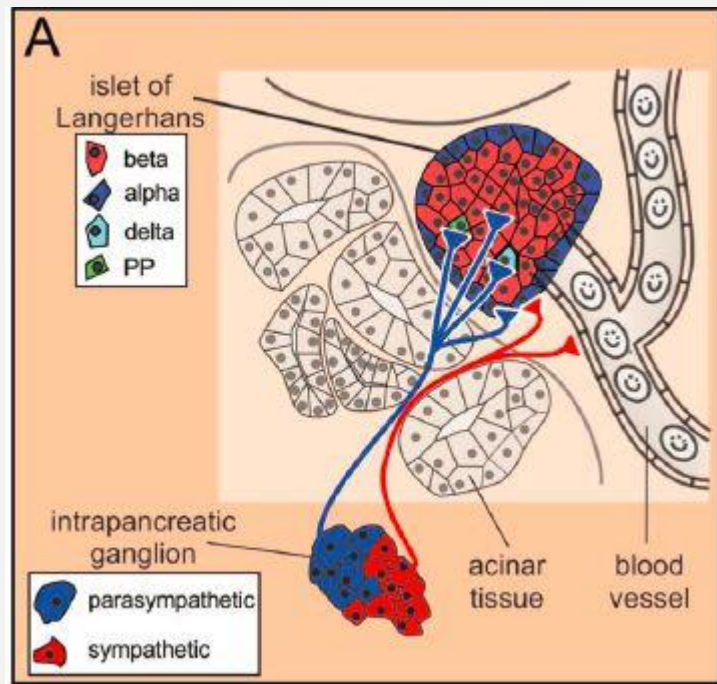
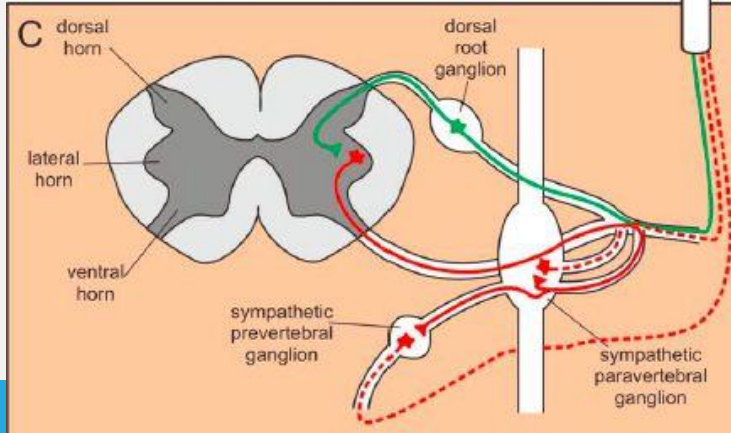
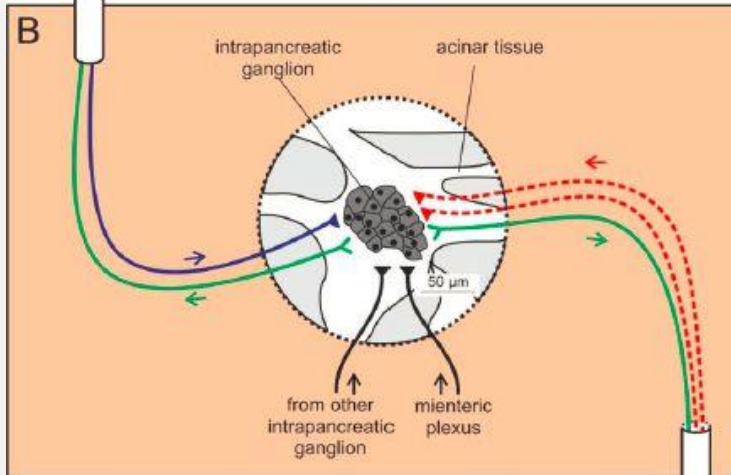
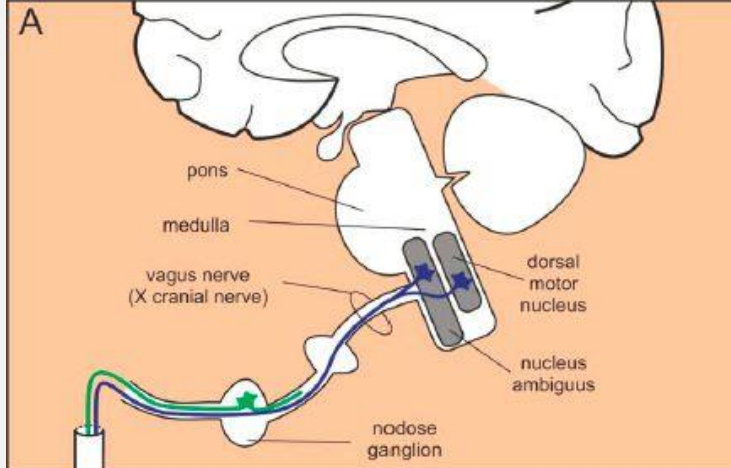


Zakaj nisem prijazen do natakarja, ki je pozabil posredovati moje naročilo v kuhinjo?



- A. Ne maram njegovega naglasa
- B. Prijaznost gosta do natakarja sploh ni potrebna, saj navsezadnje plačam za dobro storitev
- C. Sem živo bitje in z lakoto sprožena agresija mi pomaga preživeti.

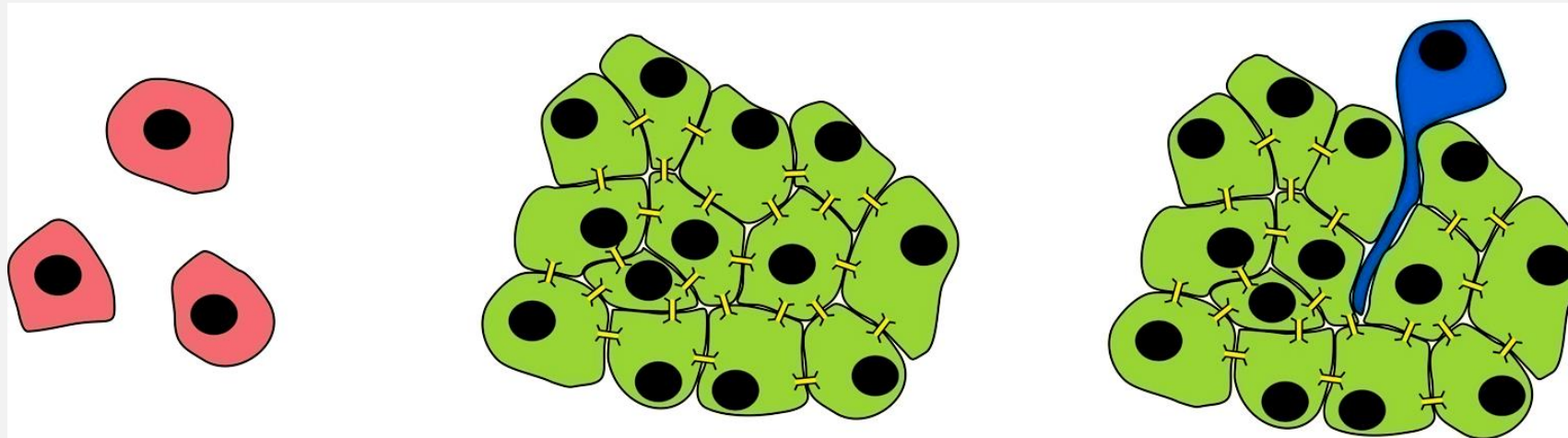
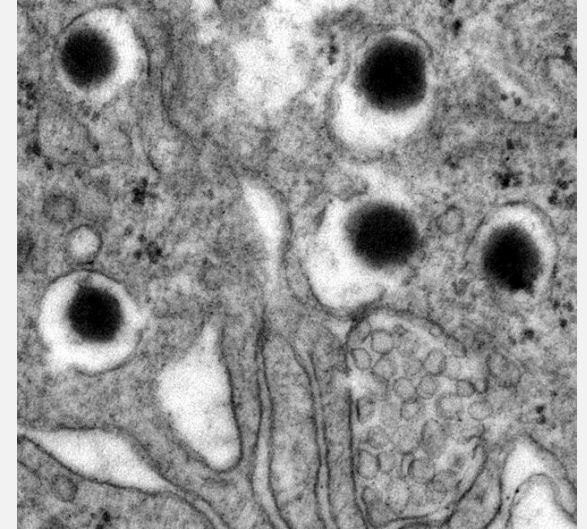
Oživčenje Langerhansovega otočka



Kako je z zaznavo ravni glukoze v trebušni slinavki?



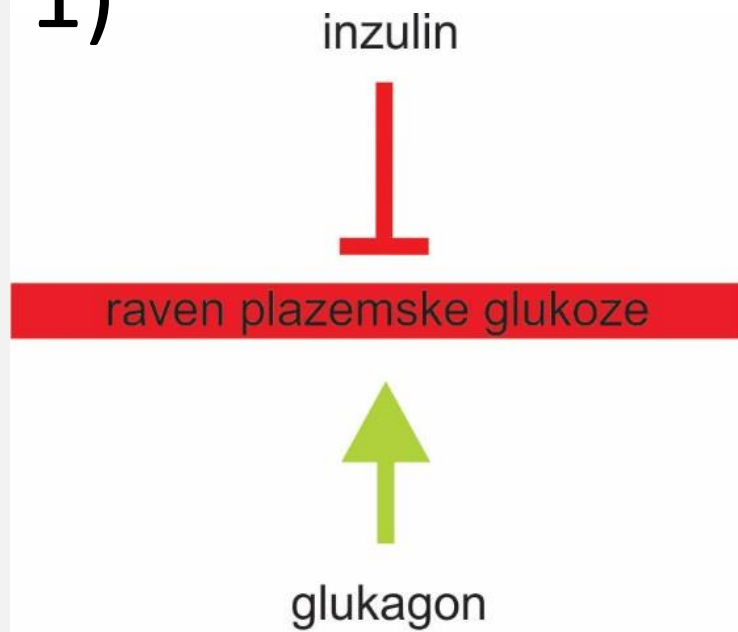
- posamezne celice beta
- skupki električno sklopljenih celic beta
- živčni nadzor skupkov celic beta



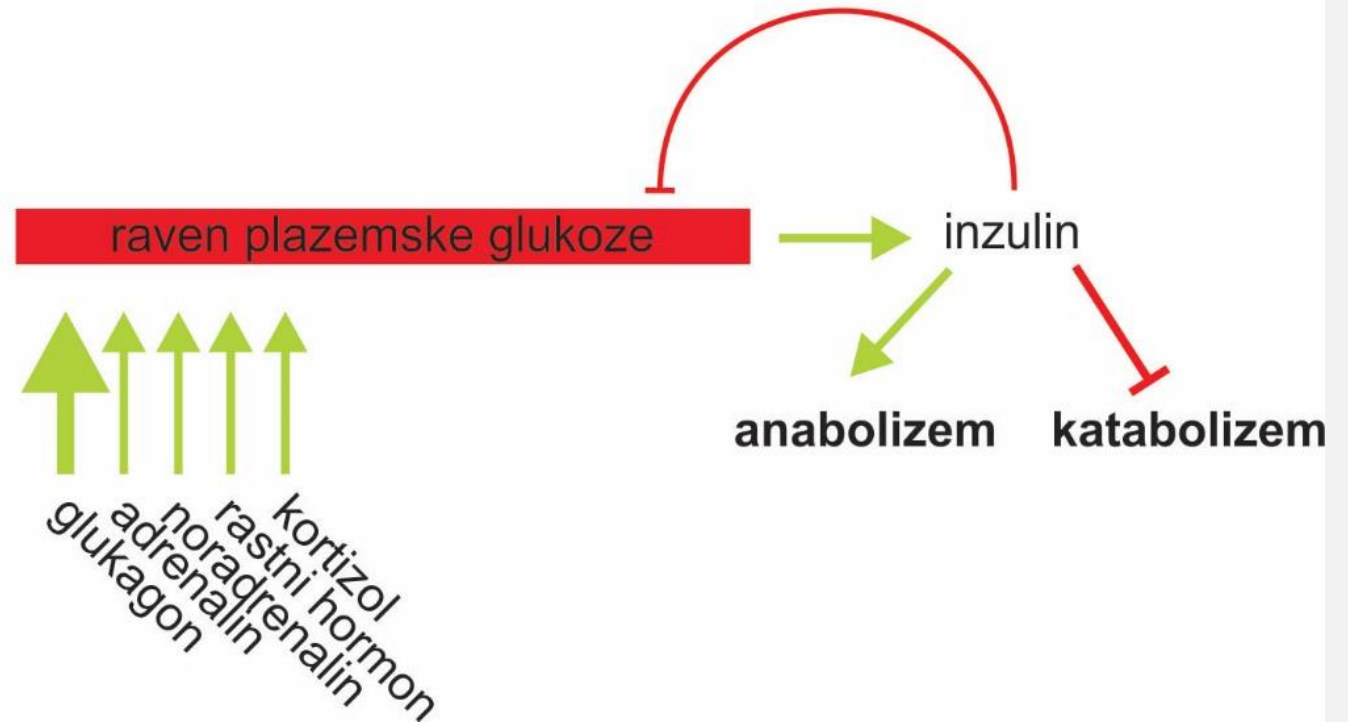
Hormonsko uravnavanje plazemske ravni glukoze



1)



2)

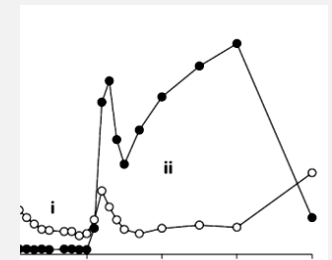
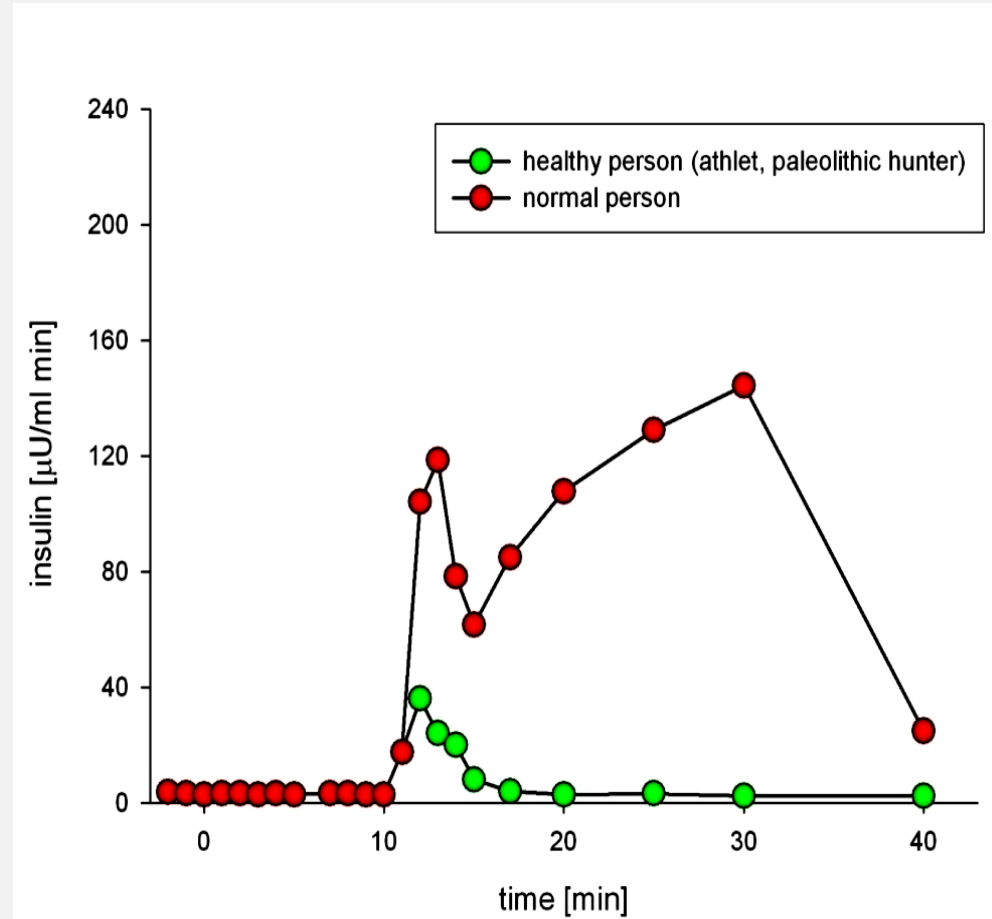
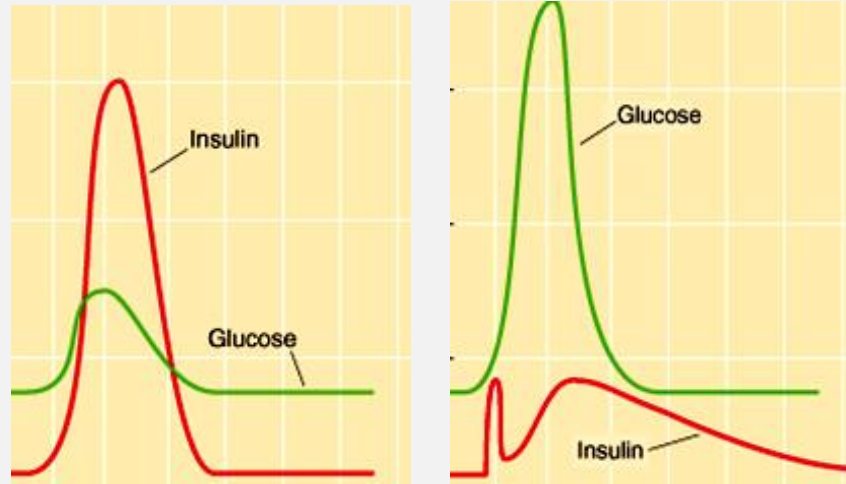


Hormoni trebušne slinavke in nutritivna stanja

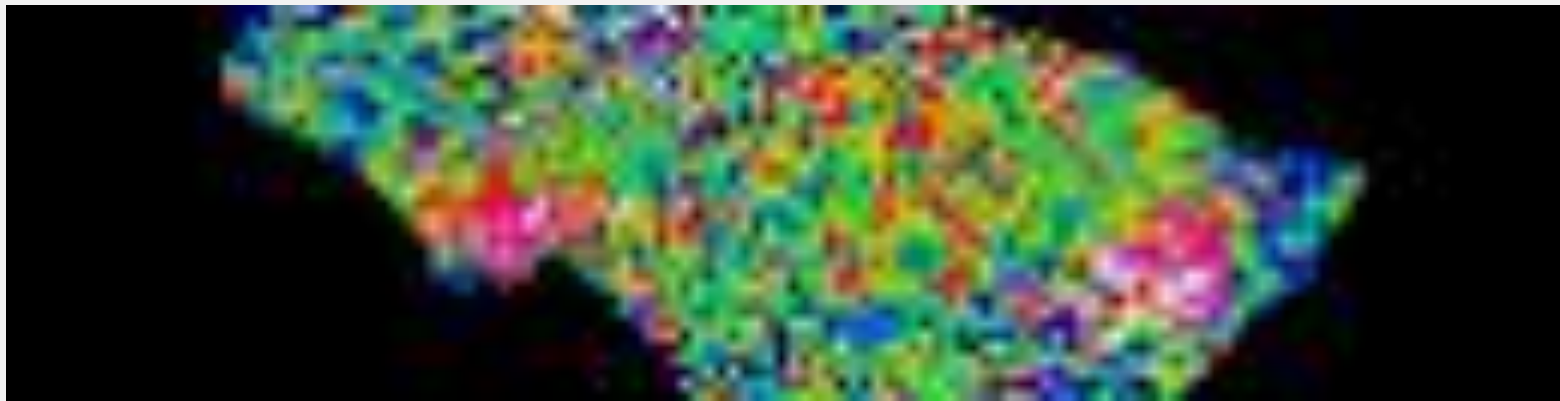
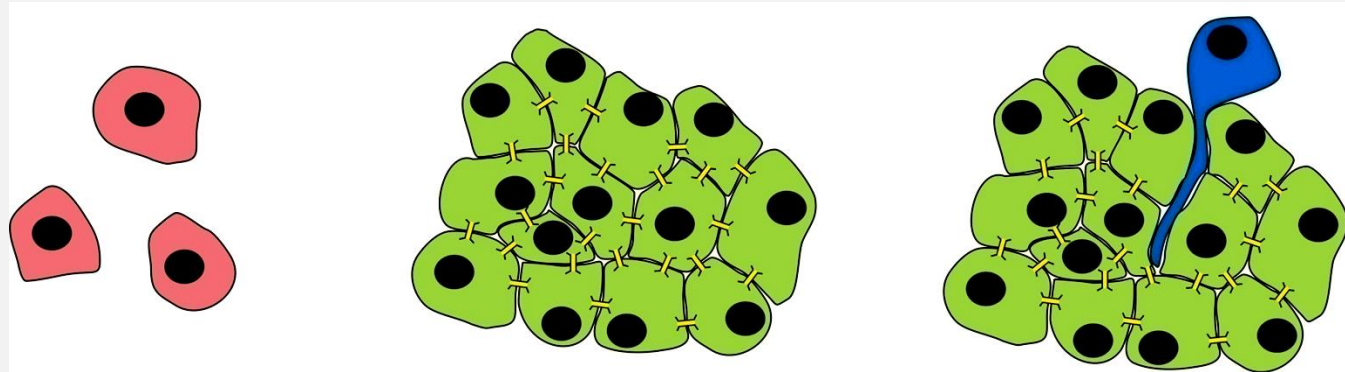
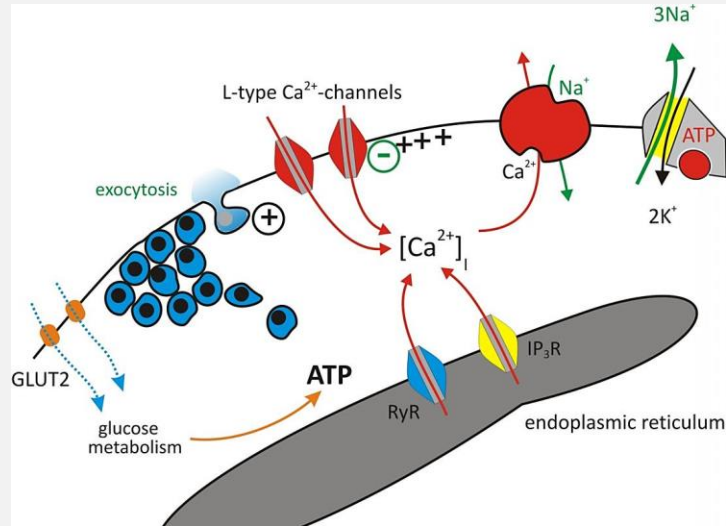


parameter	po 24 urnem postu	2 uri po mešanem obroku
plazemska glukoza mg/dl	60 - 80	100 - 140
mM	3,3 - 4,4	5,6 - 7,8
plazemski inzulin $\mu\text{U/ml}$	3 - 8	50 - 150
plazemski glukagon pg/ml	40 - 80	80 - 200
jetra	<ul style="list-style-type: none"> ↑ glikogenolizo ↑ glukoneogenezo 	<ul style="list-style-type: none"> ↓ glikogenolizo ↓ glukoneogenezo ↑ sinteza glikogena
adipozno tkivo	mobilizacija lipidov	sinteza lipidov
mišica	<ul style="list-style-type: none"> presnova lipidov proteoliza in izvoz aminokislin 	<ul style="list-style-type: none"> oksidacija glukoze ali pretvorba v glikogen ohranjanje proteinov

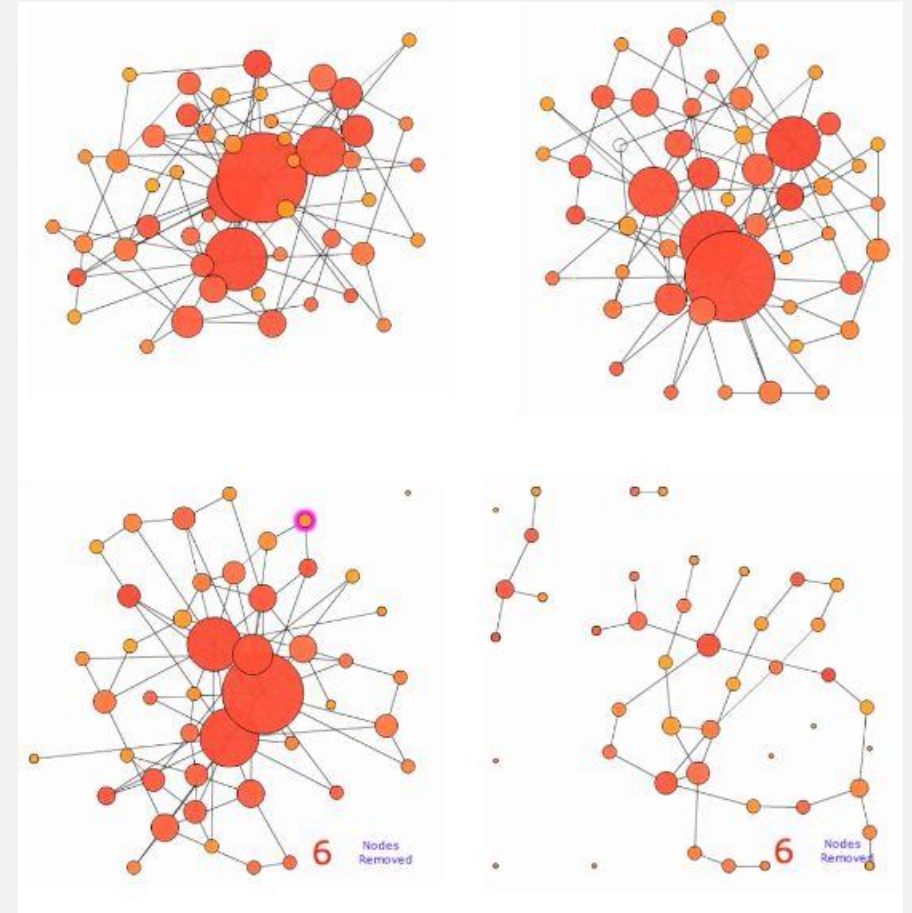
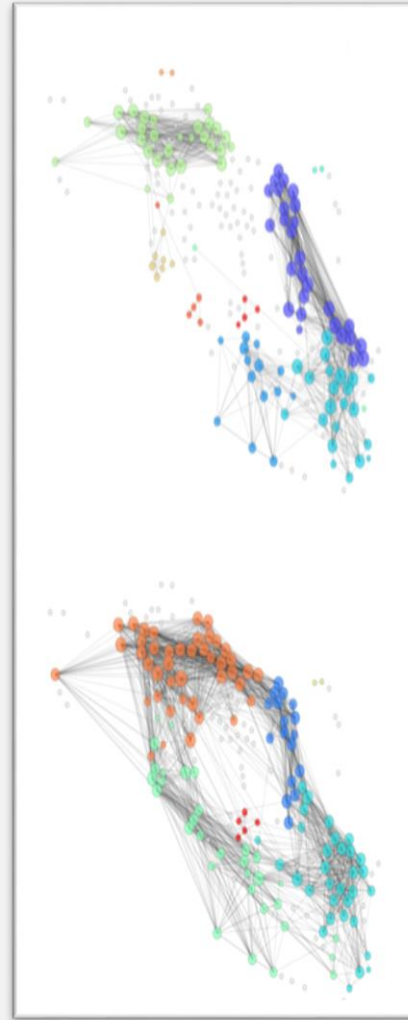
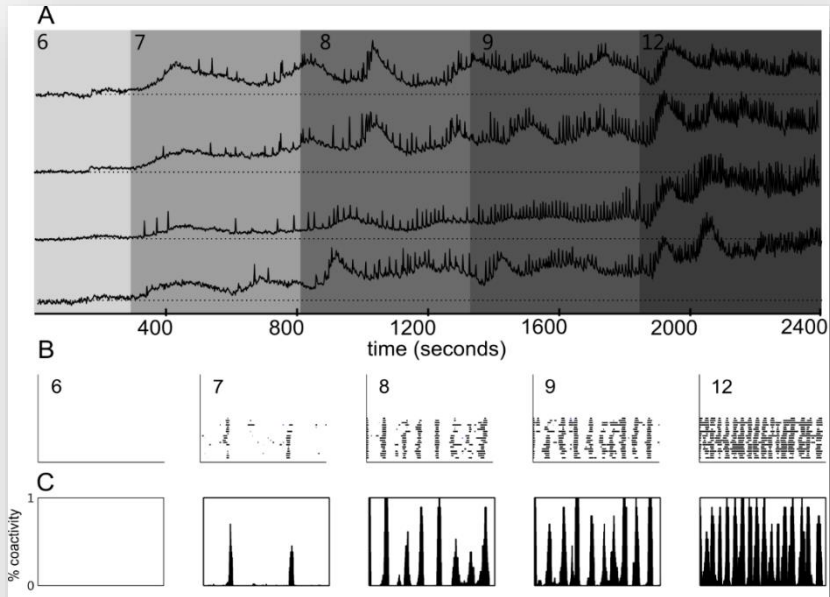
Normalno ali zdravo?



Posamezno ali kolektivno?



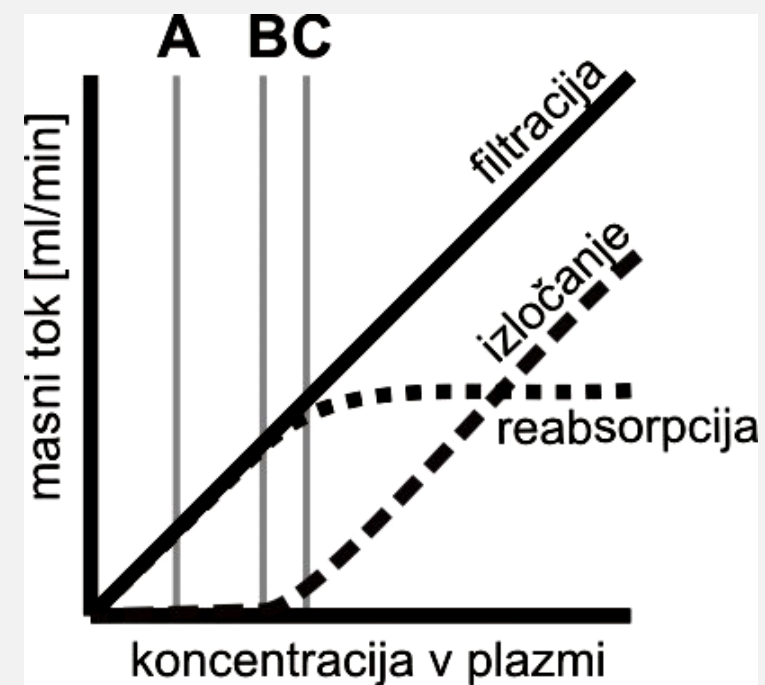
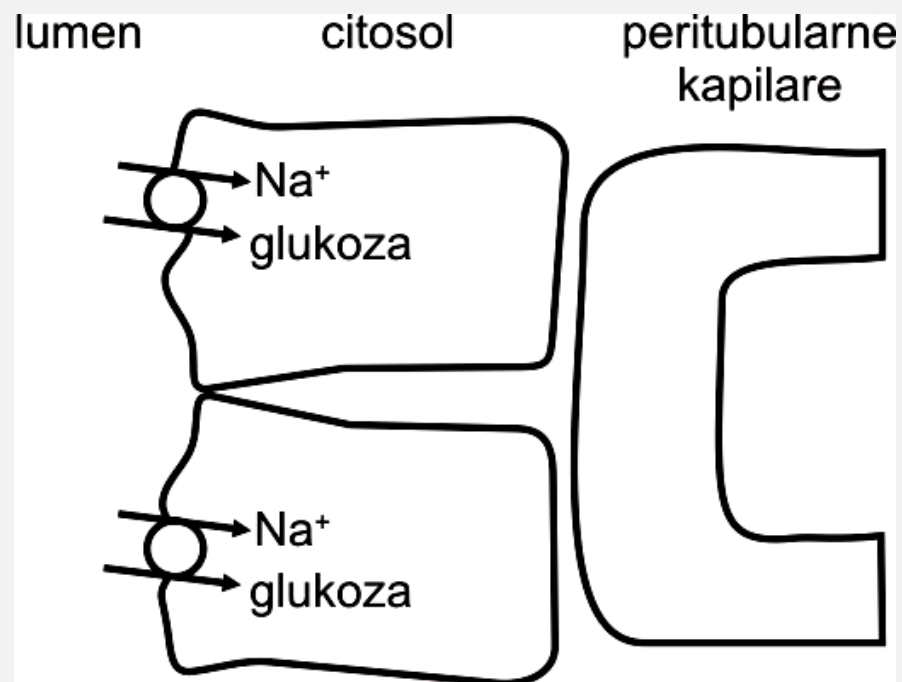
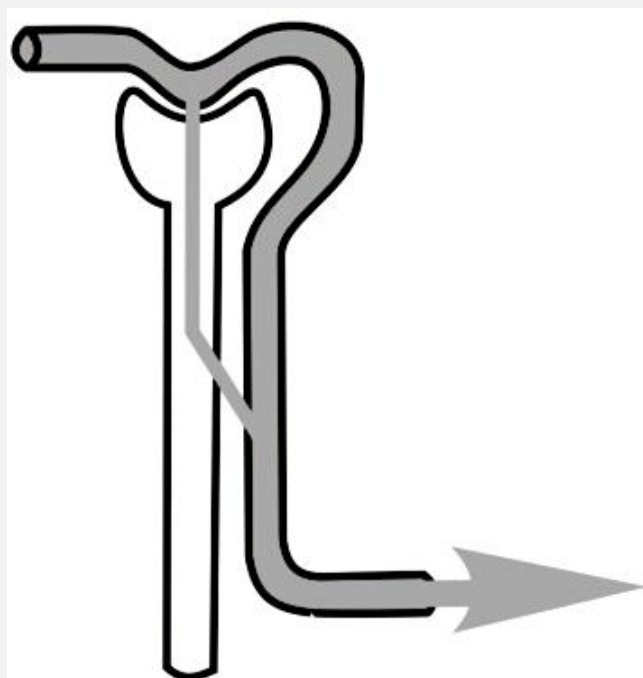
Otočki celic beta kot kompleksne mreže – zakaj že?



Hormonsko uravnavanje plazemske ravni glukoze – brez ali s premalo inzulina



Filtracija in reabsorpcija glukoze



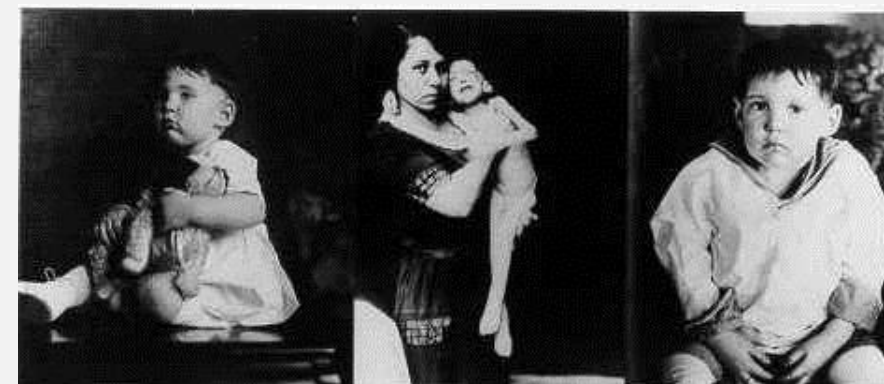
Diabetes mellitus – sladkorna bolezen



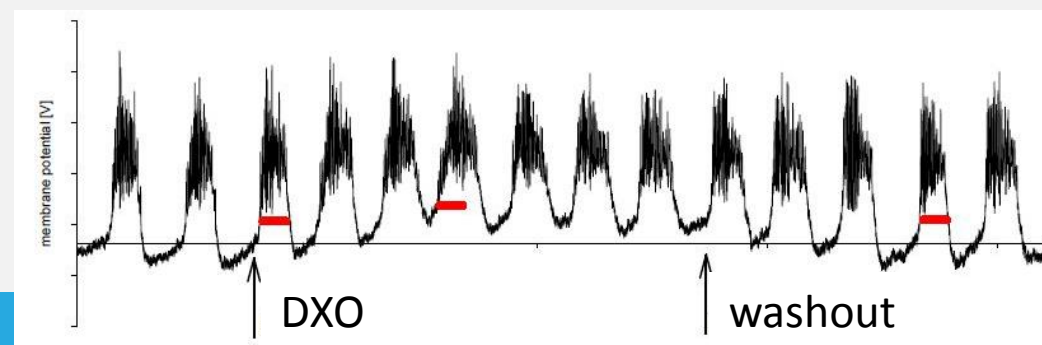
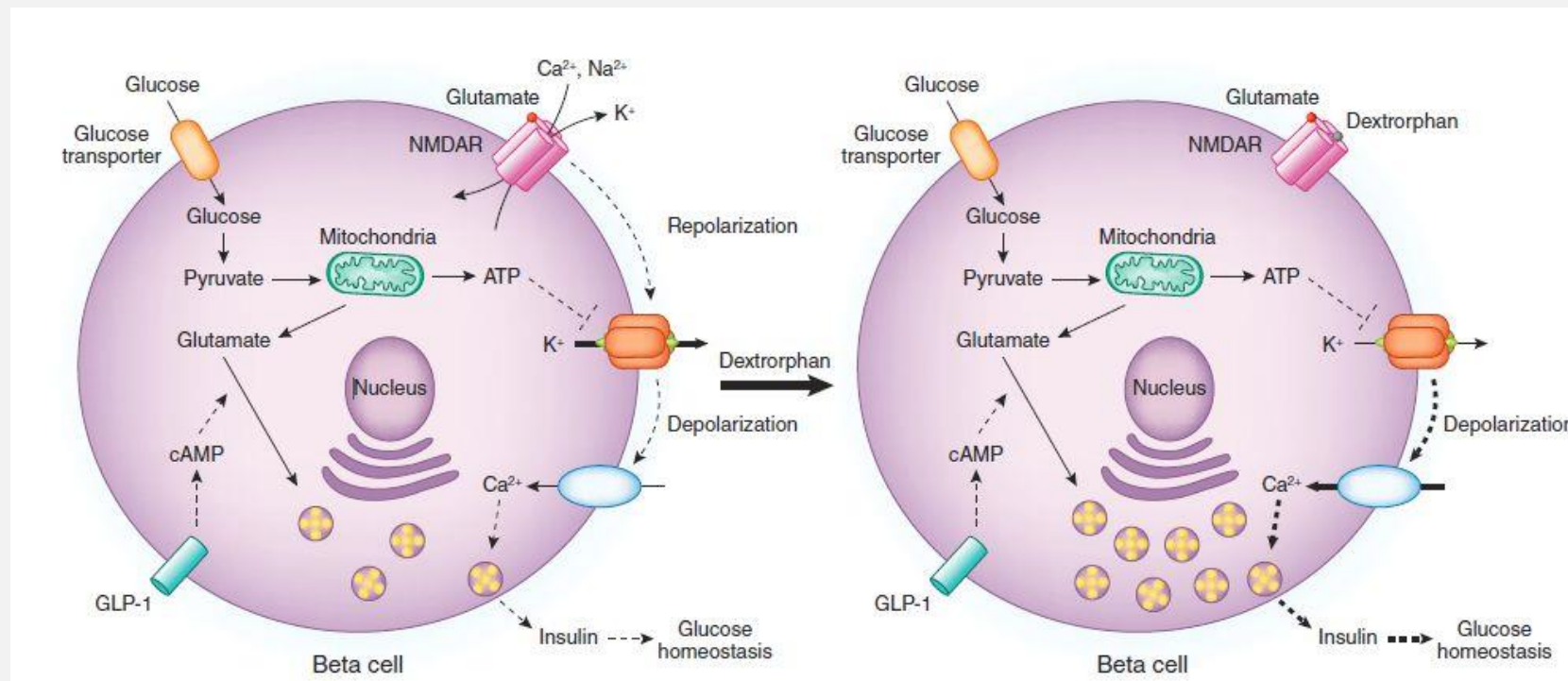
- premalo inzulina (T1D)
- premajhen učinek inzulina (T2D)

poliurija in polidipsija

trend naraščanja števila bolnikov pri ljudeh , hišnih ljubljenceh in živalih v ujetništvu



Sirup proti kašlju in sladkorna bolezen



Zaključki



- Večji pomen živčne regulacije – nova uporaba sirupa proti kašlju
- Učinki inzulina in glukagona praviloma niso antagonistični
- Normalno ni enako zdravo
- Celice beta delujejo kot kompleksna mreža – novi vidiki preventive in terapije sladkorne bolezni



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