

(Control of blood glucose (insulin, glucagon, diabetes))

Q1.(2019)

(blood glucose increases after meal causing) insulin secretion

insulin causes glucose to enter cells / liver / muscles

(insulin causes) glucose conversion to glycogen

(so) blood glucose decreases causing glucagon secretion

glucagon causes glycogen to be converted to glucose

Q2.a)(2019)

cells / liver / muscles absorb less glucose

(so) glucose concentration in blood remains high

(high blood glucose stimulates / causes) pancreas to release more insulin

Q2.b)(2019)

any **three** from:

- age
- height **and** mass
- proportion of males and females **or** group size
- (same) severity of diabetes
- (same) activity (during investigation)
- (same) type of meal
- dose of drug
- (similar) blood glucose concentrations at start
- other health conditions **or** other drugs being taken

Q2.c)(2019)

Mean = 177.2 ± 15.4

Q3.(2019)

Pro:

- Met + A gives larger (%) reduction (in blood glucose) than Met alone
- so statement is supported
- Met + B gives larger (%) reduction (in blood glucose) than Met alone
- so statement is supported
- Met + A SD does not overlap with Met SD
- so difference is significant

Con:

- Met + B SD overlaps with Met SD
 - so difference is not significant
 - difference in results could be due to chance
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- number of people used is not very large
 - number of people in each group is different
 - so may not be representative **or** may not be repeatable / reproducible
 - so anomalies will have a bigger impact on smaller groups
 - 30 minute / starting levels of blood glucose are different
 - all 30 minute / starting levels are higher in the 2-drug trial
 - so may cause different % reductions
 - no information about control variables **or** named eg
 - concentration of drugs not given / may differ
 - so results may not be valid

for level 3 an inclusion of a discussion of significance is required

Q4.a)(2022)

**an answer in the range
1.1 to 2(.0) (hours)**

Q4.b)(2022)

effect : lowered

explanation:

glucose taken in

or

glucose converted to glycogen

or

glucose used in respiration

by cells / liver / muscles

Q5.a)(2022)

underweight

Q5.b)(2022)

(from) 67.5 (kg to) 90 (kg)

Q5.c)(2022)

(person **C** has) higher glucose
(than mean)

(person **C** has) higher insulin
(than mean)

Q5.d)(2022)

(more) exercise

eat less carbohydrate / sugar
or eat a low carbohydrate diet