

2027-04-05 · 80 minutes

Wk12 CER: Glucose data CER analysis

Your goal: Analyze blood-glucose data and write a CER explaining how feedback maintains homeostasis.

One product: Written CER analyzing blood-glucose graph data: claim about homeostasis restoration, two specific data-point evidence entries, reasoning naming negative feedback.

Question: Which time-value pairs support correction, and what can a glucose curve leave unresolved?

Start the work

1. Orient the D1/V1 blood-glucose graph: label axes, units and meal time. Answer the two C1 warmups.
2. Read E1/E2. Find the peak and return toward baseline; annotate expected insulin or glucagon responses as inferences, not measurements.
3. Use R1 to draft the claim, two data-point evidence entries and reasoning that explains negative feedback.
4. Peer-review the CER or apply the C1 solo checklist. Revise any claim that exceeds the graph evidence.
5. Complete the self-check and diabetes reflection, then save or submit the same CER product.

If access is unavailable, save the same work and tell the teacher. Label the supplied example as practice. Ask for the actual graph, assigned official analysis and tracker requirements before using them.

Words you will use

blood glucose

Glucose carried in blood.

mg/dL

Milligrams per deciliter, a unit of concentration.

baseline

The reference value before the model meal; not a universal medical target.

peak

The highest listed value in a stated curve or interval.

time point

A stated time paired with a value.

axis

A graph reference line showing the variable and scale.

interval

The span between two times.

claim

The conclusion your evidence supports.

evidence

Specific information that a reader can check against its source.

reasoning

The explanation linking evidence to a claim using a scientific principle.

CER

Claim, evidence and reasoning written as a connected scientific argument.

homeostasis

Regulation that helps maintain internal conditions within workable limits.

negative feedback

A response that opposes its starting change and reduces the stimulus for that response.

hormone

A chemical signal carried in blood to responsive target cells.

pancreas

An organ containing endocrine cells that release insulin and glucagon.

beta cell

A pancreatic islet cell that releases insulin.

alpha cell

A pancreatic islet cell that releases glucagon.

insulin

A hormone supporting processes that lower blood glucose, including uptake and storage.

glucagon

A hormone supporting liver glucose output, helping raise blood glucose.

glycogen

A linked glucose storage material.

target tissue

Tissue able to respond to a signal using suitable receptors and cellular machinery.

insulin resistance

A reduced tissue response to insulin.

type 2 diabetes

A disease involving high blood glucose with inadequate insulin supply or use.

inference

An interpretation based on evidence and stated assumptions.

assumption

Information treated as given in this fictional model, not measured from the graph.

limitation

Something the data or model cannot establish.

annotation

A label or note attached to a graph feature.

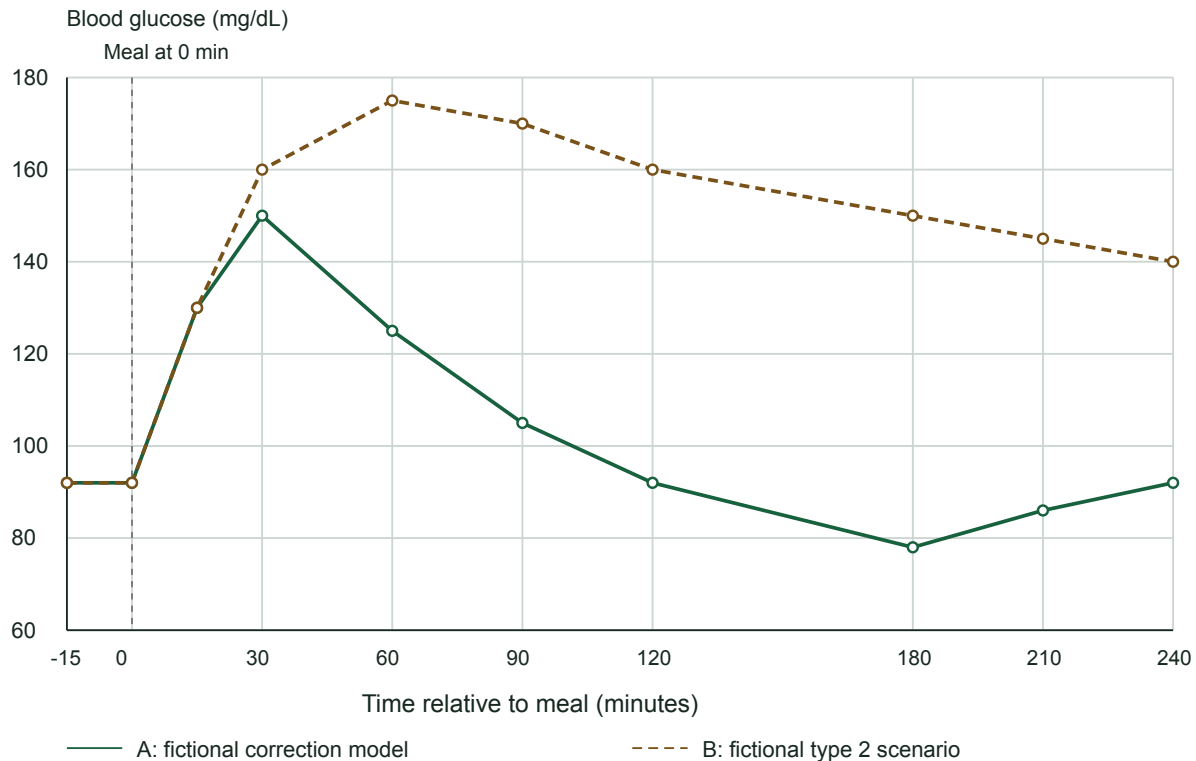
revision

A change made after checking the work.

V1: invented blood-glucose curves

V1 | Invented glucose data for a CER

No people were measured. No hormone concentration is plotted.



Exact points are supplied in D1. Connectors do not establish values between listed times.

Entirely invented instructional data. Meal at 0 minutes. The curves do not diagnose diabetes or measure hormones.

Text description: Two invented curves over minus 15 to 240 minutes, glucose in mg/dL. Curves A and B plot every row of the D1 table. Both begin at 92.

E1: glucose regulation and inference limits

Beta cells in pancreatic islets release insulin as glucose rises. Insulin supports uptake in skeletal muscle and fat, and promotes liver glycogen storage. These actions can lower blood glucose.

When glucose falls, alpha cells release glucagon. Glucagon promotes liver glycogen breakdown and glucose output. Rising glucose then reduces the drive for further glucagon release.

A correction that opposes its starting change is negative feedback. A glucose curve can fit that explanation, but glucose alone does not measure hormone release or target-cell response.

Annotate expected insulin emphasis during the raised-glucose interval and expected glucagon emphasis during the low-glucose interval. Do not claim the graph measures either hormone's maximum activity.

D1: complete original graph input

Both curves are invented teaching values. They are not records of people, averages, a clinical test or official PLTW data. Time zero marks the model meal; negative time is before it.

V1 plots every row below. Horizontal axis: time relative to meal, minutes. Vertical axis: blood glucose, mg/dL. Straight connectors guide reading; values between listed points are not measured.

Time (minutes): -15, 0, 15, 30, 60, 90, 120, 180, 210, 240.

Curve A (mg/dL): 92, 92, 130, 150, 125, 105, 92, 78, 86, 92.

Curve B (mg/dL): 92, 92, 130, 160, 175, 170, 160, 150, 145, 140.

Each column position pairs a time with both glucose values. Start with A for the main CER. Its model baseline is 92 mg/dL, not a universal healthy value.

For A, identify the peak and first listed return to baseline after the peak. Then inspect the later below-baseline interval. The model includes both directions of correction.

If the printed graph is missing, plot every row on axes spanning -15 to 240 minutes and 60 to 180 mg/dL. Label both curves and the meal. Use the table to check each point.

E2: diabetes and the comparison boundary

MedlinePlus explains that diabetes involves blood glucose being too high. Insulin problems can involve too little insulin or the body not using insulin properly.

NIDDK describes type 2 diabetes as involving not enough insulin or ineffective use of insulin. A prolonged elevated glucose curve alone cannot separate those mechanisms.

For the optional comparison, B is a stipulated fictional type 2 scenario. The scenario adds this assumption: target tissues respond less strongly to insulin; insulin release is not assumed absent.

That mechanism is supplied scenario information, not a measurement inferred from B. It lets you discuss target response while admitting that insulin supply could also matter in real type 2 diabetes.

Compare A and B at the same times, cite both values and distinguish graph evidence from the added mechanism assumption. Neither curve diagnoses a person.

R1: write and check the CER

Claim starter: In invented curve A, after the meal glucose ____ and then ____, which is consistent with ____.

Evidence starter: At ____ minutes, A is ____ mg/dL; at ____ minutes, A is ____ mg/dL. Choose two listed points that test your claim.

Reasoning starter: E1 explains that _____. The change from my first point to my second opposes _____. This is negative feedback because _____.

Add a limit: the glucose values support the pattern, but do not directly establish insulin concentration, hormone activity or one exact cause.

Use the table and graph to verify both time-value pairs. Distinguish a listed return to baseline from an assumed exact return between samples.

If interrupted, orient the axes, find the peak, select two evidence entries, then reconnect them to E1. Sentence starters help structure your writing; you still choose your own evidence.

C1: warmups, self-check and review rules

Warmup 1: explain why evidence needs specific values and time points. Warmup 2: name two possible insulin-related reasons glucose might stay high; explain why a glucose-only graph cannot choose between them.

Given separate self-check: glucose is 160 mg/dL at 15 minutes and 95 mg/dL at 90 minutes after a meal. These values belong to a separate hypothetical prompt, not D1.

Self-check: write one evidence sentence that pairs each value with its time and states the direction of change. Then name what that change does not directly measure.

For peer review, check the claim, both time-value pairs, negative-feedback reasoning and inference limit. Record one specific revision or justify keeping a sentence.

If alone, label the route solo, check each item against D1/E1, and write your own revision note. Do not invent a partner, comments or approval.

Finish with an individual diabetes reflection: explain why a prolonged high curve invites further investigation but does not pinpoint one defect. Use E2, not personal history.

P1: actual inputs, submission and week boundaries

Bring the assigned glucose graph and any teacher-provided notes if available. D1/V1 is a complete original recovery graph; label that choice. It cannot serve as authentic assigned data.

Today's class schedule says to finish Lesson 2.2 data analysis and write the CER. Your teacher may also assign an Activity 2.2.1 analysis or reflection before peer review.

Obtain the actual prompt and stopping point. Activity 2.2.1 includes an endocrine game, feedback diagram, type 1/type 2 annotations and a Body System Organizer.

Activity 2.2.1 may not include a separate glucose-graph analysis screen. Ask the teacher to identify the exact official task before starting it. Record actual completion evidence only after doing the assigned work.

The March 24 lesson supplies an insulin/glucagon card model, not measured glucose results. Bring actual prior work if available; do not assume the game, organizer or feedback model is complete.

No homework is due before this class. The remediation route is the graph plus separate CER starters. The weekly teacher-posted data/model packet remains an authentic input if required.

This week, April 5-9, is endocrine work.

Keep the endocrine organizer/model and online 2.2.1 evidence visible. Ask the teacher how the separate research-plan requirements align with this work. Do not replace today's dated glucose CER.

The dated ethics alternate is imaging and privacy. It is an alternate, not an additional required CER here; obtain teacher direction if it is selected.

Section 1292: <https://clevelandmetro.schoology.com/assignment/8544583736> . Section 6792: <https://clevelandmetro.schoology.com/assignment/8544583775> . Use your enrolled section and confirm live access.

Submit one written CER and its review/revision notes under Wk12 CER: Glucose data CER analysis. If access is unavailable, save the work and tell the teacher. Keep evidence from your official and tracker work separate.

M1: a different worked CER, tank-level control

Entirely invented tank data: time 0 minutes, water height 10 cm; 5 minutes, 18 cm; 10 minutes, 12 cm; 15 minutes, 10 cm.

Given mechanism for this model: a high-level sensor opens a drain; the controller reduces drainage as the tank approaches its reference height.

Worked claim: the tank returns toward its starting level after the rise. Evidence: height falls from 18 cm at 5 minutes to 10 cm at 15 minutes.

Reasoning: removing water opposes the rise, reducing the sensor's high-level signal. This is negative feedback. The 8 cm decrease describes the model; it is not a physiological response.

The height curve alone would not prove which valve moved. The stated mechanism supplies that information. For your CER, choose D1 glucose evidence and use E1/E2 with their limits.

Try the decision

Which conclusion is supported by a glucose curve and the supplied science?

- Compare the curve with its baseline and explain any return using negative feedback, while the exact hormone activity remains unmeasured.
- Elevated values on the glucose curve prove that insulin release is completely absent.
- Falling values on the glucose curve prove that every target cell responded normally.

Explain your choice using the reading. Discuss it or say it to yourself. This practice does not add another submission.

Your 80-minute flow

0–8 minutes	Orient D1/V1 axes and units; answer the two C1 warmups.
8–22 minutes	Read E1/E2, find peak and baseline return, and annotate expected hormone emphasis.
22–40 minutes	Use R1 to draft the claim, two evidence entries and reasoning; attempt actual assigned official prompt if available.
40–58 minutes	Peer-review or apply the complete C1 solo checklist.
58–70 minutes	Revise the CER; extend with B if ready.
70–80 minutes	Answer the separate self-check, write diabetes reflection and submit or save.

Your response record

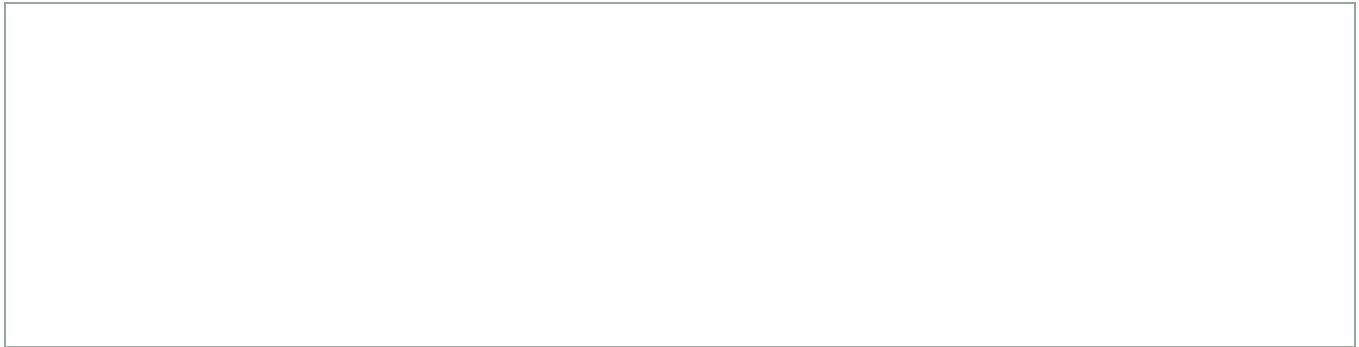
Use these labels on paper or in your document. The space below also works when this page is printed.

Read the axes and answer both warmups

Use C1, then mark the meal, axes and units on D1/V1. Identify A's peak and first listed return to baseline.

Pair each time with the value in the same table position. Negative time is before the meal.

Use this space or the same labeled section in your existing document. Add paper when your table, graph or drawing needs more room.

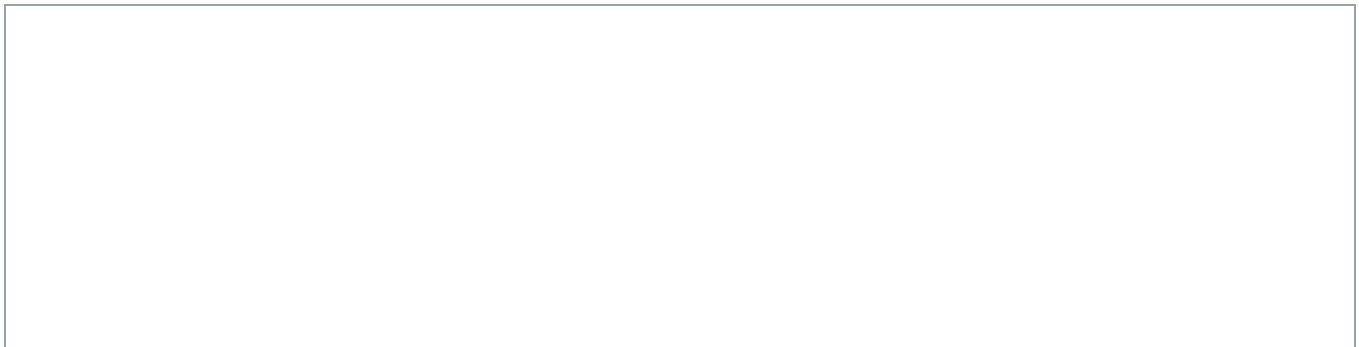


Annotate expected hormone emphasis

Mark A's raised-glucose and later low-glucose intervals. Explain the expected insulin and glucagon responses using E1.

Glucose is the measured variable represented by the model; hormone concentrations are not plotted. Use expected, not proven most active.

Use this space or the same labeled section in your existing document. Add paper when your table, graph or drawing needs more room.



Draft the full CER

Write a claim about restoration, two exact time-value evidence entries and reasoning naming negative feedback. Add the graph's inference limit.

R1 supplies starters. Use A for the core response; identify your source as original recovery if the actual graph is absent.

Use this space or the same labeled section in your existing document. Add paper when your table, graph or drawing needs more room.

Review with a partner or independently

Apply all C1 review checks. Record one concrete correction or a justified retention, with the actual review route.

The solo route is complete practice; invented peer feedback is not.

Use this space or the same labeled section in your existing document. Add paper when your table, graph or drawing needs more room.

Revise and extend if ready

Revise the CER. For the extension, compare A and fictional type 2 scenario B at matching times and discuss the impaired response step using E2.

Cite values from both curves. Label reduced insulin response as supplied scenario information; the curve alone cannot distinguish release from response.

Use this space or the same labeled section in your existing document. Add paper when your table, graph or drawing needs more room.

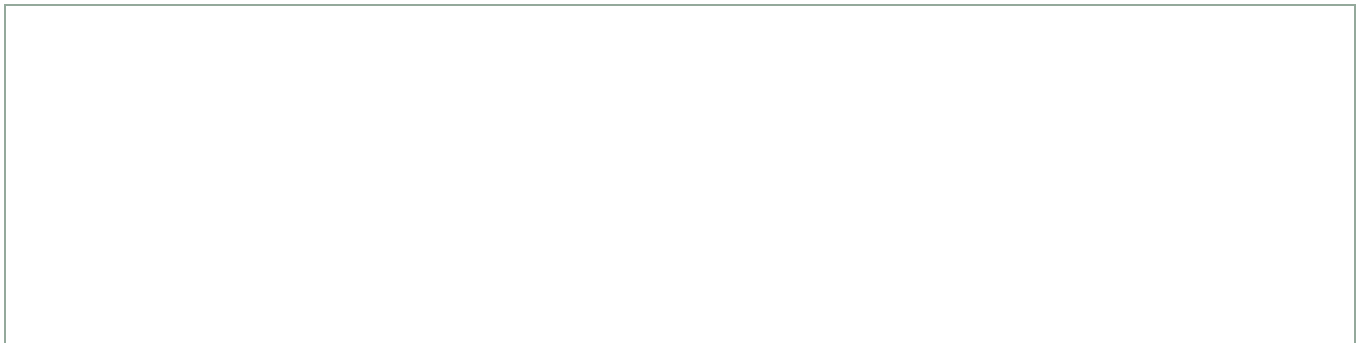


Check, reflect and submit

Answer the separate C1 self-check, write the individual diabetes reflection and submit the CER with review notes. Identify the inputs you used and keep evidence from your assigned official work.

The hypothetical self-check values are not D1 data. Ask for the assigned myPLTW analysis and tracker directions; do not substitute practice for their required evidence.

Use this space or the same labeled section in your existing document. Add paper when your table, graph or drawing needs more room.



Check your product

- Claim, two checkable time-value pairs and negative-feedback reasoning are present.
- Expected hormone responses are distinguished from measured glucose.
- Review and revision are documented honestly.
- Distinguish your assigned graph from supplied practice, and keep evidence from the official task separate.

Keep the limit: Invented recovery curves illustrate patterns. They cannot establish patient findings, a diagnosis, measured hormone activity or one failed feedback step. Actual official inputs and completion remain separate.

Turn in your work

Submit one written CER with review/revision notes through your enrolled section: 1292

<https://clevelandmetro.schoology.com/assignment/8544583736> ; 6792

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[Section 1292: Wk12 CER: Glucose data CER analysis](#)

[Section 6792: Wk12 CER: Glucose data CER analysis](#)

Carry forward

Use values and times to support the pattern, then separate a feedback explanation from an unmeasured mechanism.

Keep the graph, CER and review notes for the tracker; later model-organism planning remains separate. What can a model organism help investigate that your glucose graph cannot establish?

Sources and resources

[Open today's page](#)

OS-PAN · 17.9 The Endocrine Pancreas

OpenStax Anatomy and Physiology 2e

<https://openstax.org/books/anatomy-and-physiology-2e/pages/17-9-the-endocrine-pancreas>

MED-DIAB · Diabetes

MedlinePlus, National Library of Medicine

<https://medlineplus.gov/diabetes.html>

NIDDK-T2 · Type 2 Diabetes

National Institute of Diabetes and Digestive and Kidney Diseases

<https://www.niddk.nih.gov/health-information/diabetes/overview/what-is-diabetes/type-2-diabetes>