

Bell Work

- Copy model tracker question
 - Question: Does this chemical reaction between food and oxygen happen in our bodies?
 - WDWFO: Chemical reactions are happening that rearranges food and oxygen into carbon dioxide and water, energy is released, more glucose used when active, O₂ comes in and CO₂ comes out
 - Evidence: BTB indicator and color changes, images of respiratory system, O₂ and CO₂ data, Glucose levels, Graphs
 - Model
- READ ARTICLE ON M'KENNA

A. Navigation

General Symptoms <ul style="list-style-type: none"><input type="checkbox"/> Fever<input type="checkbox"/> Fainting<input checked="" type="checkbox"/> Fatigue<input checked="" type="checkbox"/> Weight loss<input type="checkbox"/> Weight gain	Respiratory System <ul style="list-style-type: none"><input checked="" type="checkbox"/> Difficulty breathing with exercise<input type="checkbox"/> Difficulty breathing all the time<input type="checkbox"/> Chest pain<input type="checkbox"/> Wheezing<input type="checkbox"/> Asthma	Circulatory System <ul style="list-style-type: none"><input checked="" type="checkbox"/> Rapid heartbeat with exercise<input type="checkbox"/> Slow heartbeat<input type="checkbox"/> Cold feet or hands<input type="checkbox"/> Chest pain<input type="checkbox"/> High blood pressure
Digestive System <ul style="list-style-type: none"><input checked="" type="checkbox"/> Nausea<input checked="" type="checkbox"/> Vomiting<input checked="" type="checkbox"/> Abdominal cramps<input checked="" type="checkbox"/> Diarrhea<input type="checkbox"/> Constipation	Muscles and Skeletal System <ul style="list-style-type: none"><input type="checkbox"/> Back pain<input type="checkbox"/> Leg pain<input checked="" type="checkbox"/> Muscle cramps<input type="checkbox"/> Swollen joints<input type="checkbox"/> Difficulty walking or moving	Nervous System <ul style="list-style-type: none"><input type="checkbox"/> Confusion<input type="checkbox"/> Dizziness<input checked="" type="checkbox"/> Brain fog or difficulty concentrating<input type="checkbox"/> Headaches<input type="checkbox"/> Numbness

Notes

Patient complains that her stomach hurts after she eats meals, but she has **suddenly started losing a lot of weight**. The patient says she often has diarrhea and stomach cramping. She has a hard time breathing when she tries to play basketball and gets out of breath quickly. Patient complains of feeling tired and weak all the time.

B. Navigation

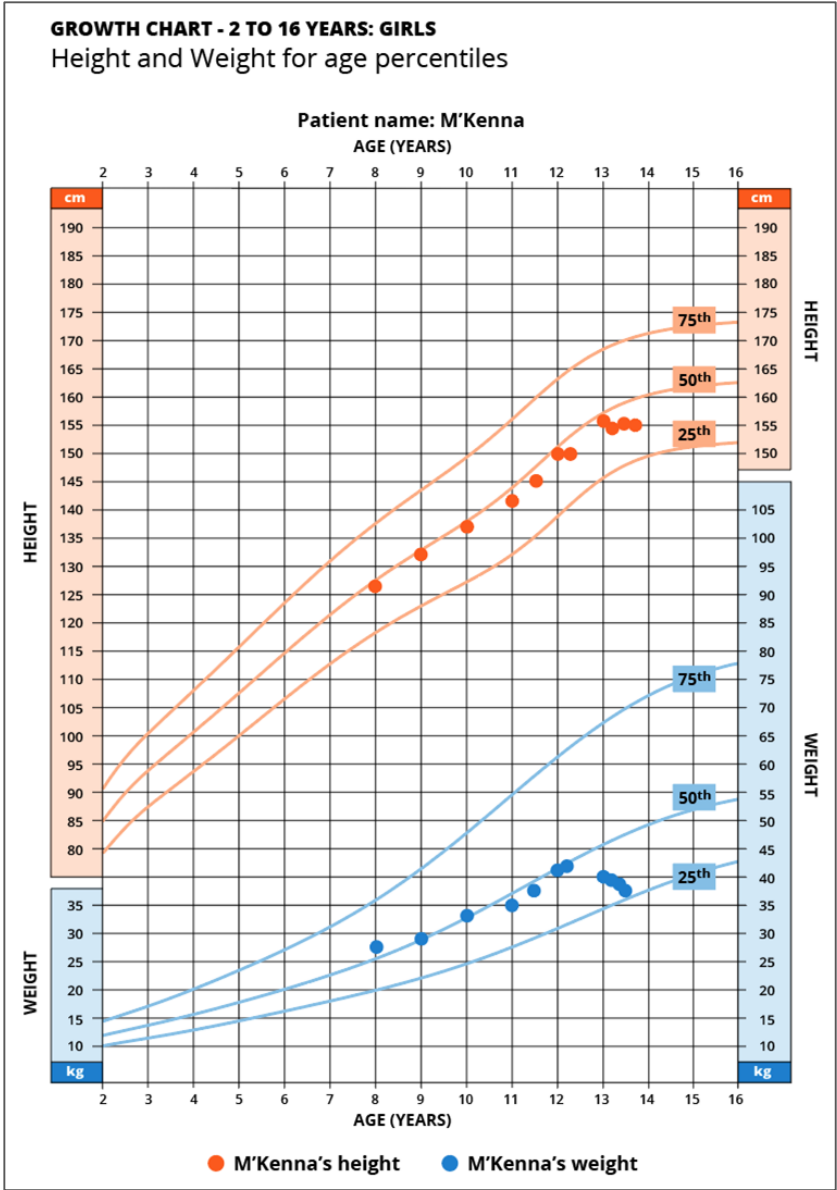
Why is M'Kenna losing so much weight?

- What are your initial ideas?
- What sort of data would we need to investigate this question?

C. Patterns in M'Kenna's Weight

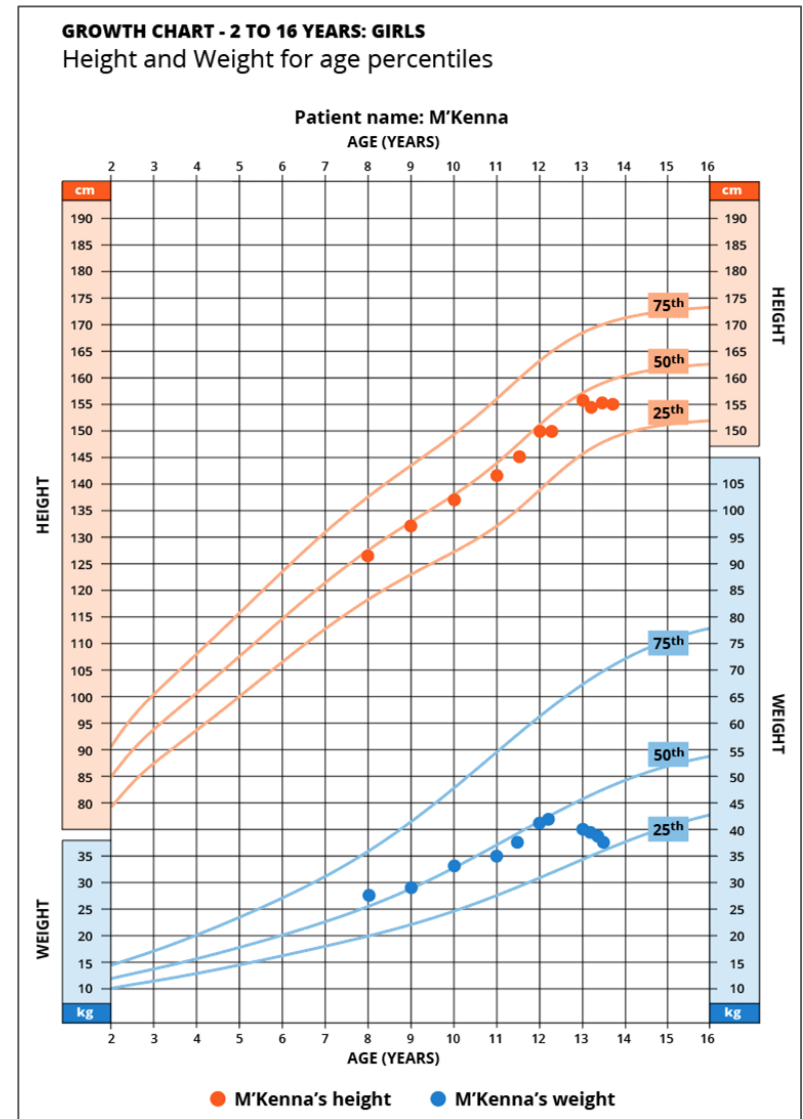
What did we see?

What do we think it means?






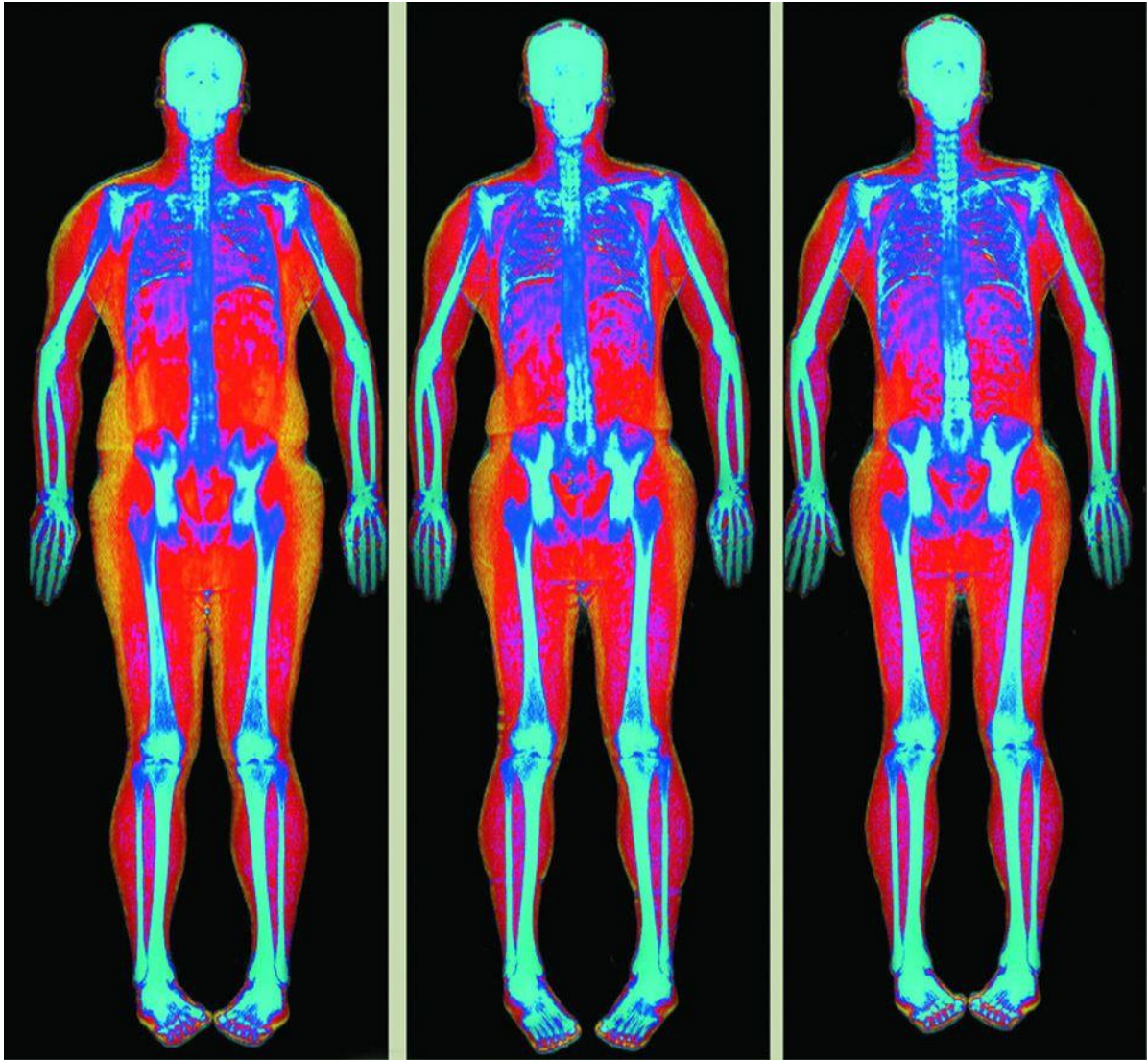
D. Patterns in M'Kenna's Weight

1. What was the pattern in M'Kenna's weight before she got sick (ages 8-12)?
1. How did M'Kenna's weight pattern change? If M'Kenna's weight continues on the new pattern, where do you expect her weight to be at age 14?
1. If M'Kenna was your patient and you saw this change in her weight pattern, would you be alarmed? Why or why not?






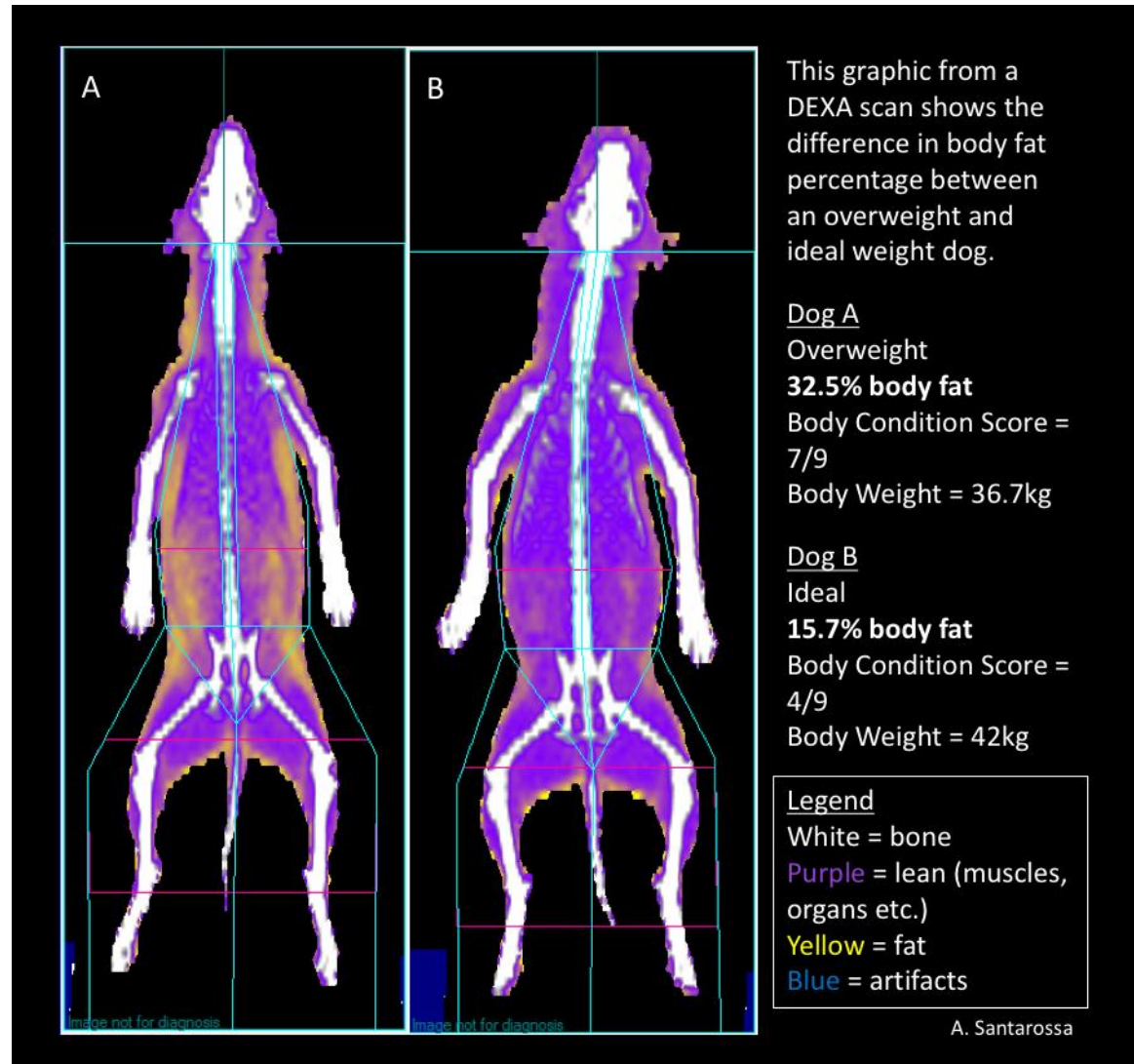
E1. Where do our bodies lose weight?

-  Fat
-  Lean muscle
-  Bones



E2. Where do our bodies lose weight?

-  Fat
-  Lean muscle
-  Bones

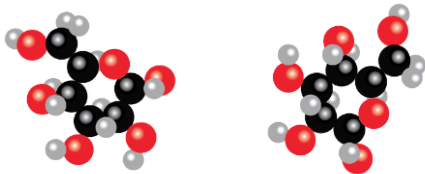


F. Compare Glucose to Fat

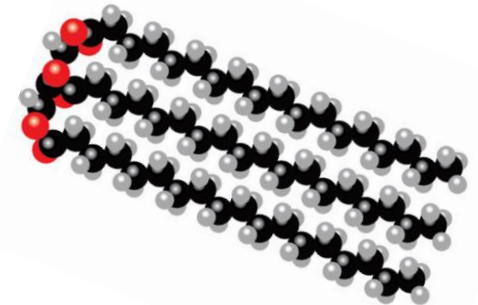
Can your body use stored fat like it uses glucose?

What is similar?

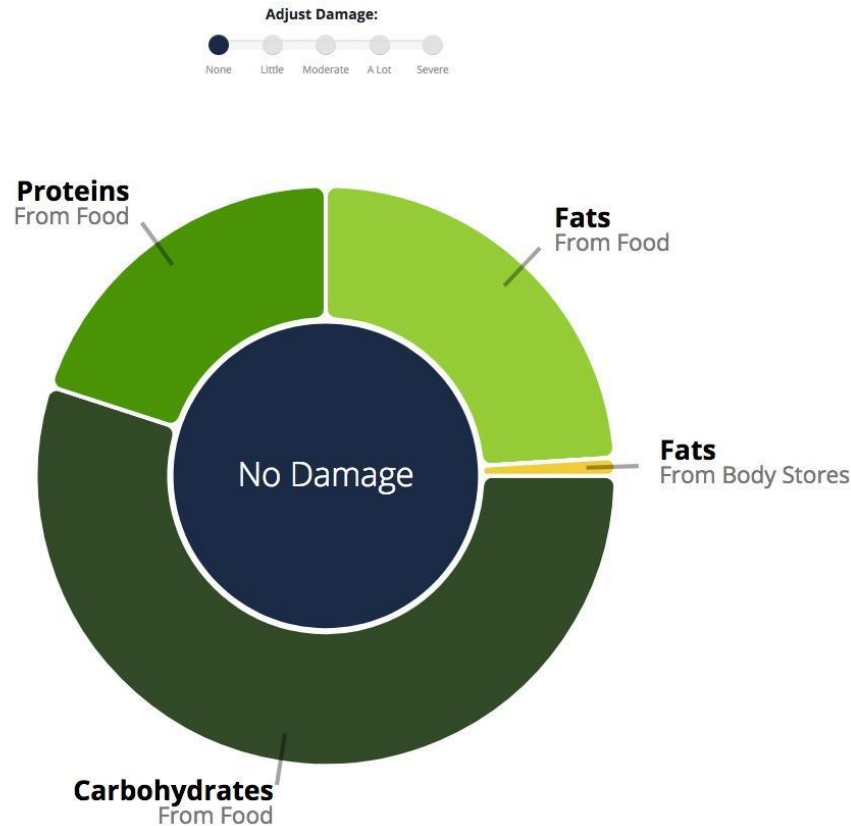
What is different?



KEY	Type of atom	Symbol
●	carbon	C
●	oxygen	O
●	hydrogen	H



G. Connect Damage to Fuel Source



<http://emat.bscs.org/3DMSS/3DMSS-interactives/body-stores.html>

H. Navigate: Storing and Using Foods

What happens to food once it's absorbed but it's not used right away?

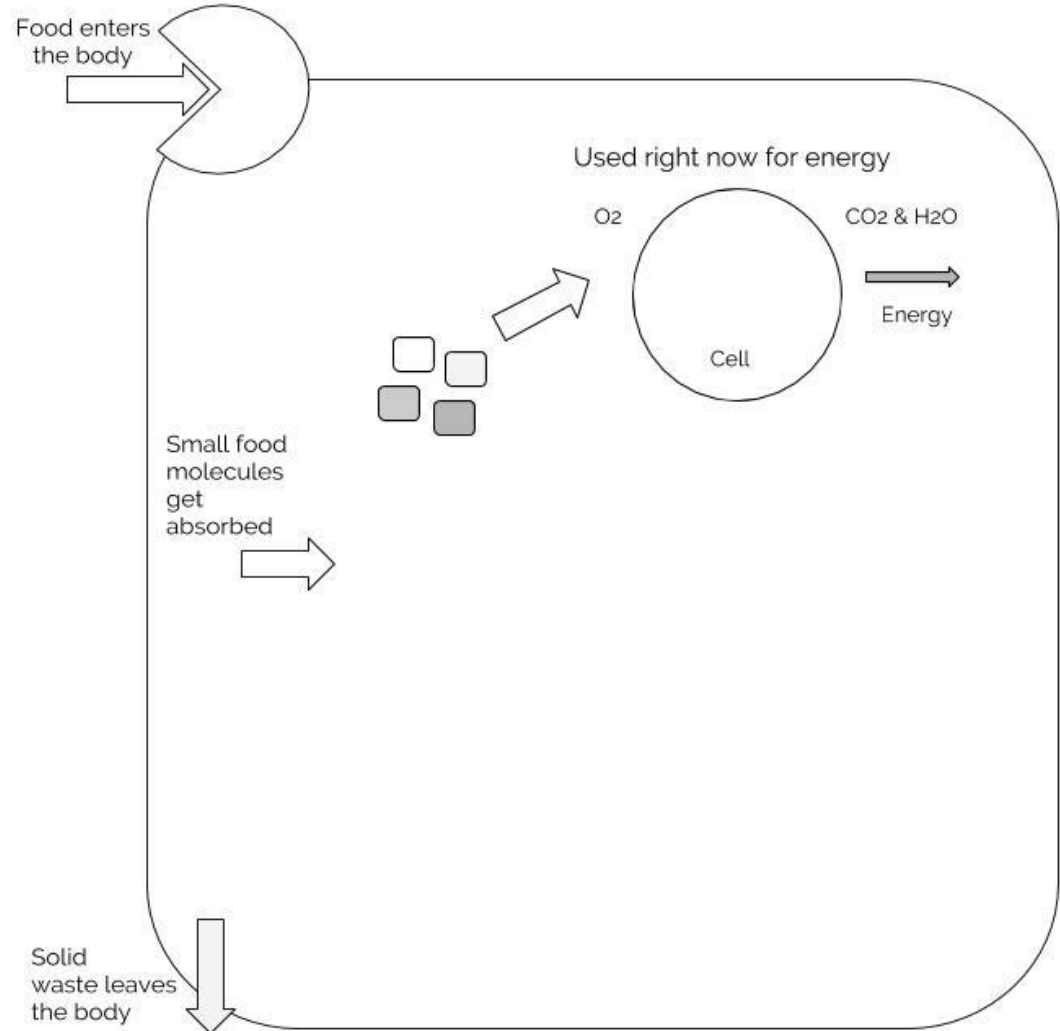
Brainstorm how you could explain

- how M'Kenna's body built up fat stores for later use and
- how M'Kenna's cells tapped into the fat stores when she needed them.

I. Brainstorm pathways for food

Brainstorm new things that could happen to food molecules once they are absorbed but not used right away for energy (already shown in the model).

- Add 1 pathway showing what happens if a person absorbs more molecules from food than the cells need. What happens to the extra molecules?
- Add 1 pathway showing what happens if a person absorbs too few molecules from food and cells need more molecules for energy. Where can cells get the molecules?



J. Class Consensus Model



Share your ideas with the whole class

- How did M'Kenna's body build up fat stores for later use?
- How did M'Kenna's cells tap into the fat stores when she needed them?