



# Hey Body! Puberty, Periods, & the Nutrients You Need

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# Race Plan

- Our growing bodies
- Periods
- Bone Health
- Calcium
- Iron



# About Me

I've been a sports dietitian for over 10 years helping athletes at Northwestern University fuel their bodies for athletic and academic success.

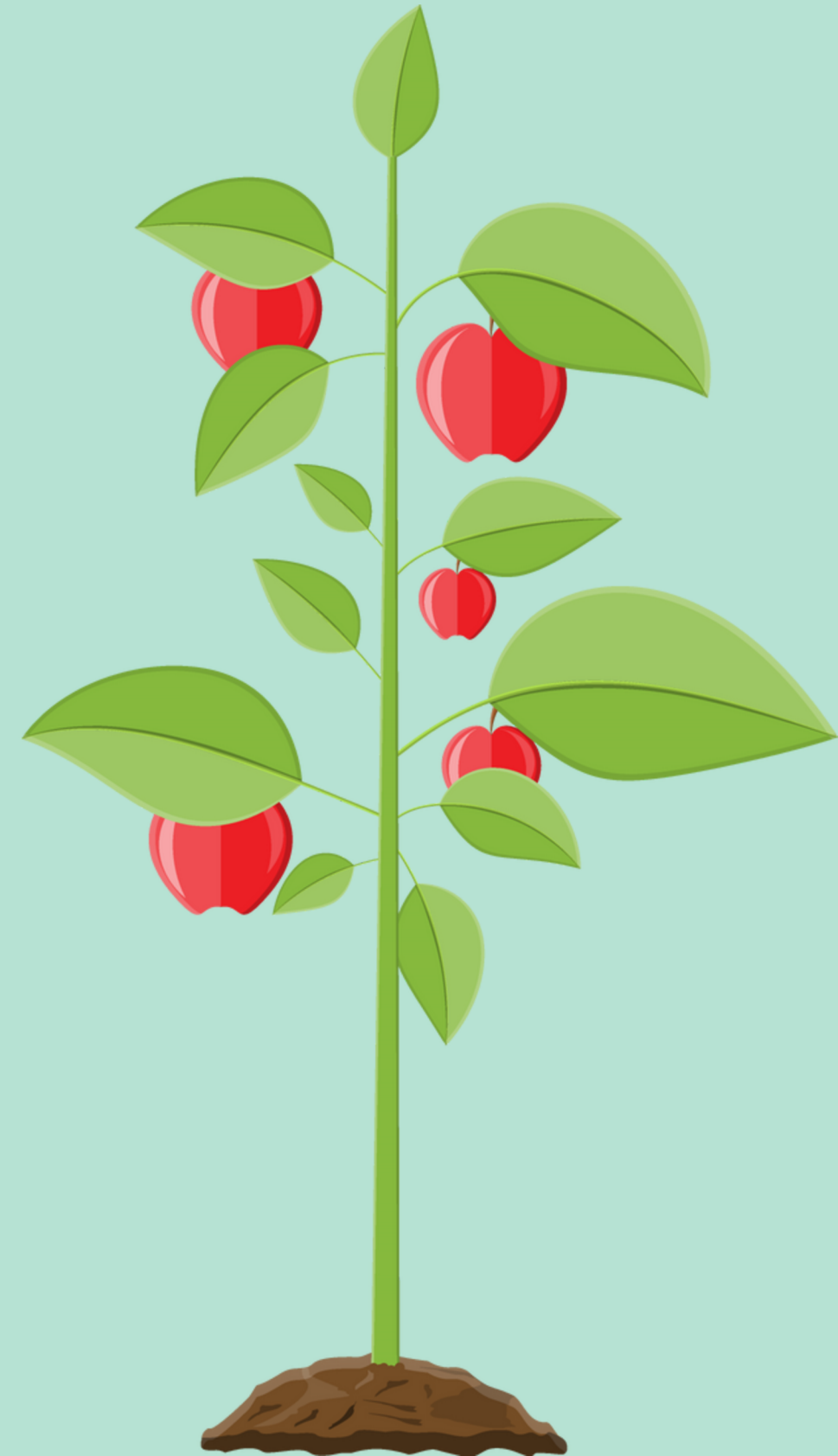
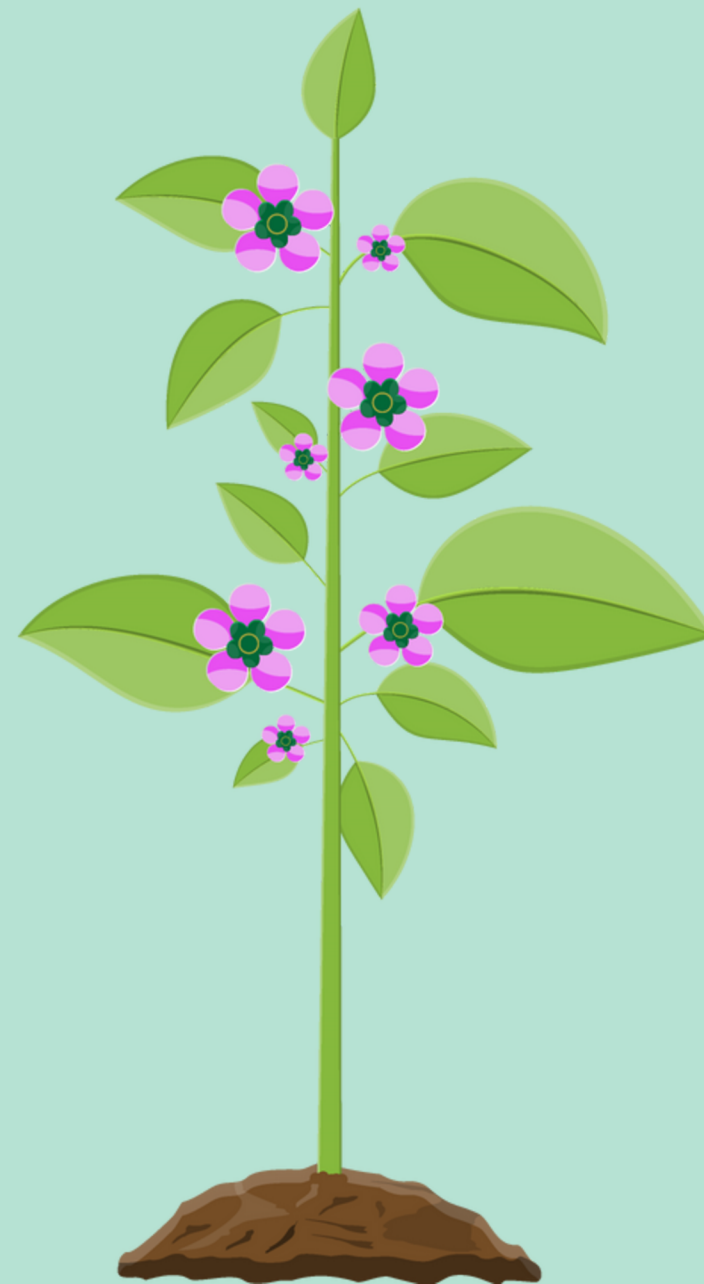
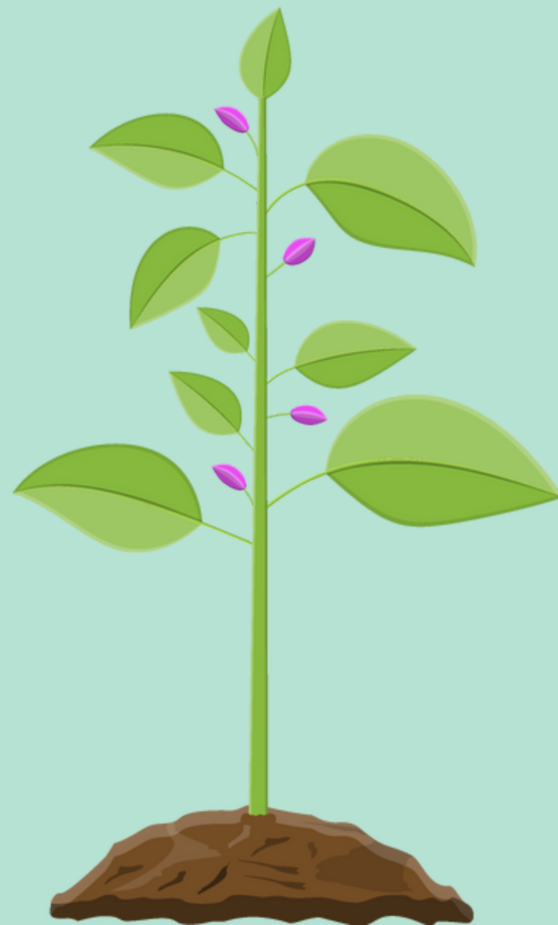




I help athletes unlock their potential through redefining their relationship with food, their body, and sport.



**How do you know  
your body is  
growing?**





# My body is growing when...

...my clothing/shoe size changes

...I need a new bra

...my period starts

...I need deoderant

...my skin changes

...I'm tall enough for a new ride

...a new skill doesn't feel so hard

...an old skill feels different



# What is Puberty?

The period of time when your body is transitioning to its adult body.

In females, this starts with an increased production of estrogen and progesterone.

This process can take up to 4 years.



# Benefits of Puberty

*Increased Flexibility*

*Better Balance*

*Stronger Bones*

*\*As long as we let our bodies flow through puberty.*





# Bodies will and should grow.

- “Grow out to grow up”
  - Biologically appropriate weight looks different at each stage of life
- Expect to look different each school year
  - Growing into an adult lasts through mid-20s
- Shift the focus from weight/body to performance
  - Look at the variables you can control

The background is a solid blue color. Two white, thick, curved lines swirl around the text. One starts at the top left, loops down and left, then curves back up and right. The other starts at the top right, loops down and right, then curves back up and left.

# **How to have a “body growth” mindset**

# Body Growth Mindset

- Avoid comments on your own and each other's bodies
  - “You look slim”
  - “You look fit”
  - “You’re so toned”
  - “She looks chubby”
  - “My thighs are so thick”
  - “I need to lose weight”
- Focus on the performance
  - “You looked confident out there today”
  - “You took that tempo with grit today”
  - “You’re moving more weight in lift these days”
  - “Thank you for being a supportive teammate”



## ATHLETIC PERFORMANCE IS DETERMINED AND ENHANCED BY SEVERAL PHYSICAL AND PSYCHOLOGICAL FACTORS...

GENETICS <sup>4</sup>	TRAINING <sup>19</sup>	PRACTICE <sup>8</sup>	COACHING <sup>24</sup>	PHYSICAL HEALTH	BALANCE <sup>12</sup>	BODY COMPOSITION <sup>1</sup>
COORDINATION <sup>26</sup>	COURAGE <sup>10</sup>	ENDURANCE <sup>11</sup>	NUTRITION <sup>25</sup>	QUICKNESS <sup>16</sup>	REACTION TIME <sup>20</sup>	REST <sup>14</sup>
SLEEP <sup>23</sup>	SPEED <sup>15</sup>	STRENGTH <sup>27</sup>	VO2MAX <sup>17</sup>	<b>WEIGHT<sup>18</sup></b>	MENTAL HEALTH <sup>21</sup>	MENTAL PREPARATION <sup>2</sup>
MENTAL TOUGHNESS <sup>13</sup>	ANTICIPATION <sup>20</sup>	COACHABILITY <sup>3</sup>	COMPETITIVENESS <sup>22</sup>	COMMITMENT <sup>22</sup>	CONCENTRATION <sup>6</sup>	CONFIDENCE <sup>29</sup>
DESIRE <sup>3</sup>	"HEART" <sup>22</sup>	INTELLIGENCE <sup>3</sup>	MOTIVATION <sup>3</sup>	PERFECTIONISM <sup>9</sup>	"PLAYING WITH PAIN" <sup>3</sup>	POISE <sup>13</sup>
	TEAMMATE DYNAMIC <sup>28</sup>	RESPECT <sup>3</sup>	SACRIFICE <sup>5</sup>	TEAMWORK <sup>28</sup>	HARD WORK <sup>3</sup>	

*Weight is a factors sometimes focused on more than other factors. This mindset could increase the risk of developing or worsening an eating disorder. Are you putting too much emphasis on weight?*

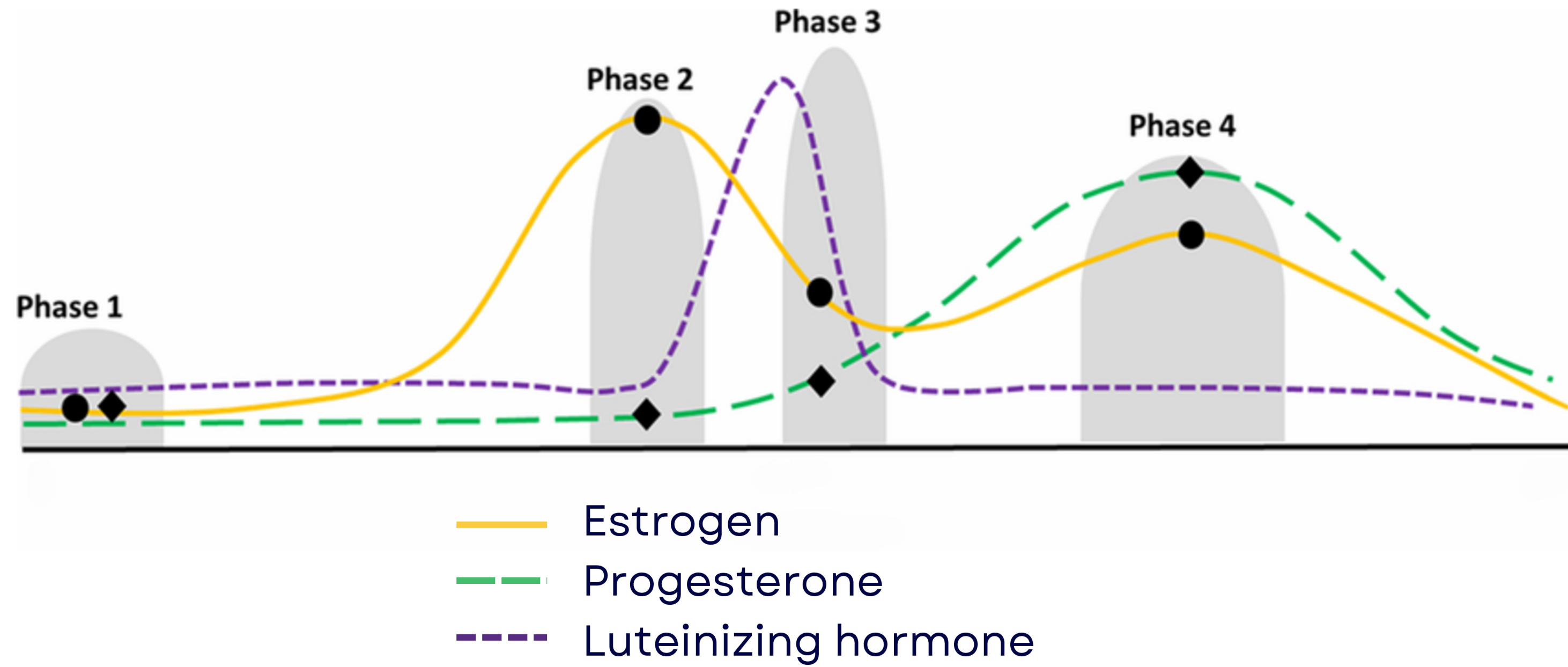


**The Victory Program**  
at McCallum Place

# Periods

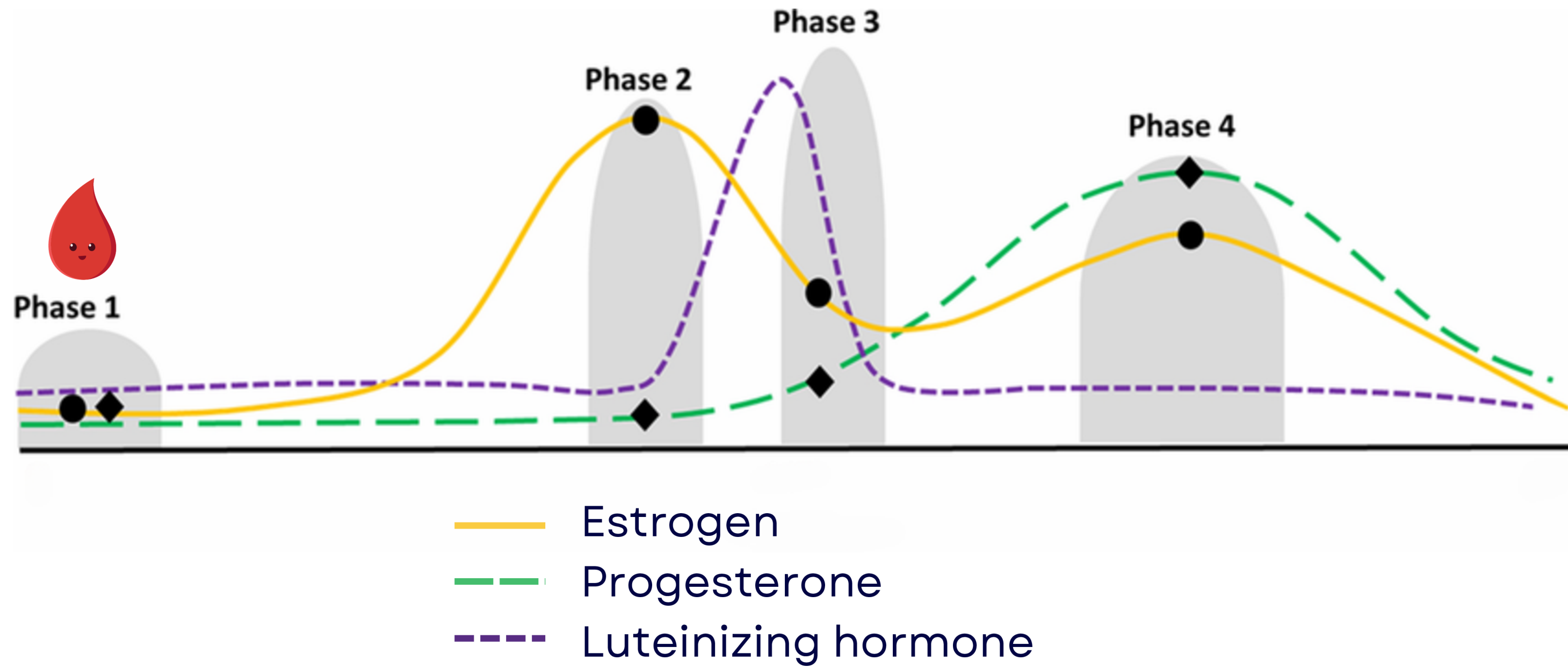


# The Menstrual Cycle

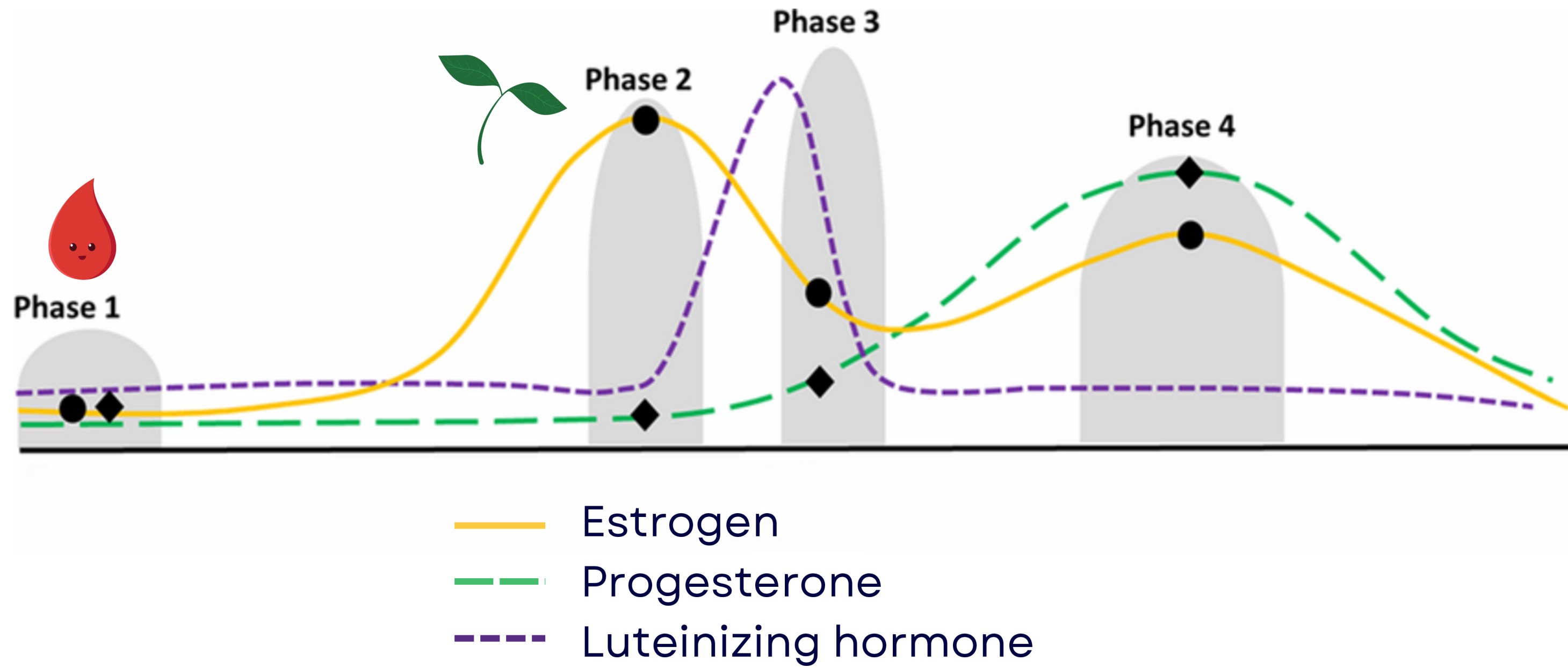




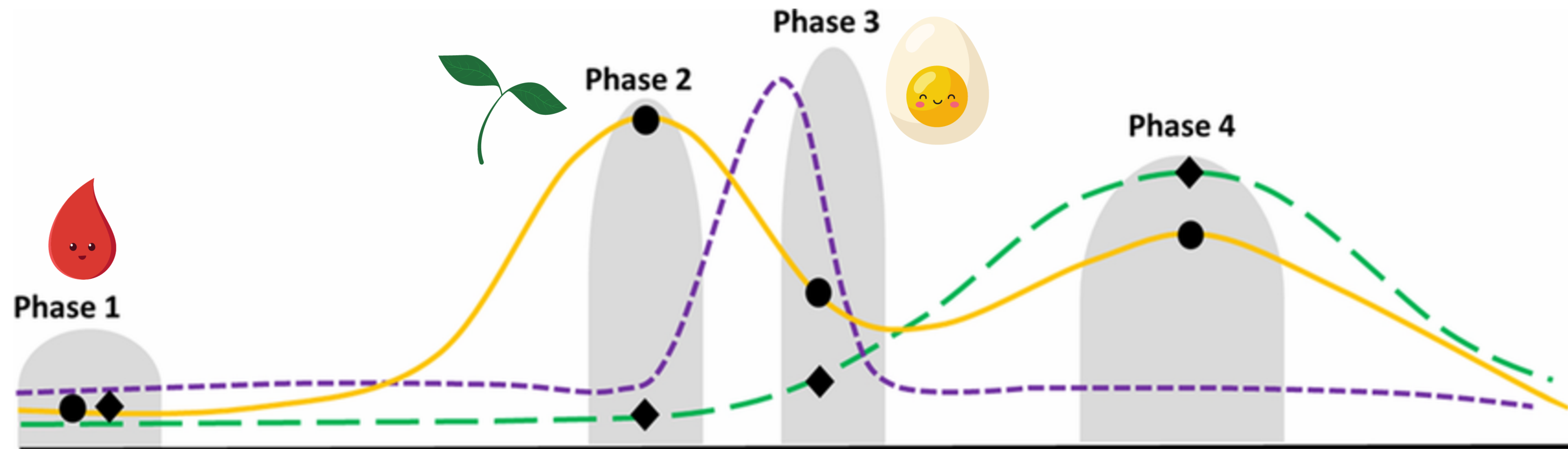
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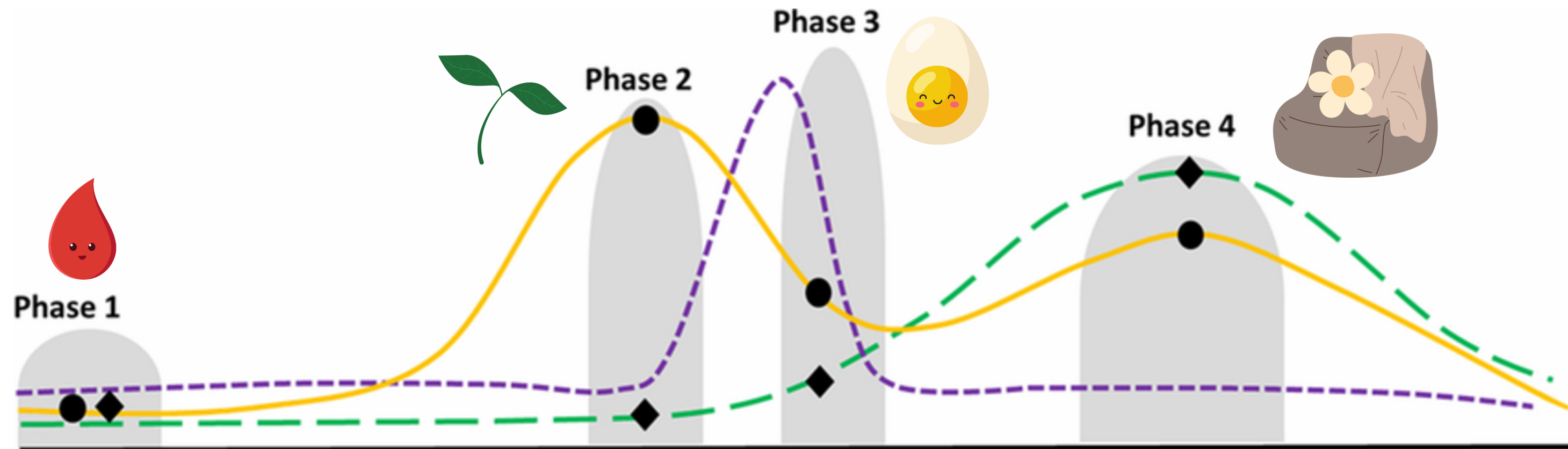


# The Menstrual Cycle



- Estrogen
- - - Progesterone
- - - Luteinizing hormone

# The Menstrual Cycle



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# Your Cycle

- What is a normal cycle?
  - 21-35 days from start of one to the next
  - Bleeding last 4-7 days
  - Menstruation starts by age 15
- Start tracking
  - Use an app
  - Irregularities may happen in the first 1-2 years of your cycle
  - Know your pattern and body



# Period Definitions

## Primary Amenorrhea

No menstruation by the age of 15

## Secondary Amenorrhea

Absence of 3 or more menstrual cycles

## Oligomenorrhea

<9 menstrual cycles per year or cycle length >35 days



# Period Red Flags



- Very heavy periods (needing to change pad/tampon every hour)
- Periods feel unpredictable
- Periods affect your ability to go about your daily activities
- You feel lightheaded or dizzy
- No period by age 16
- Your cycle is <21 days or >45 days
- You experience severe pain, anxiety, or depression before or during your period
- You bleed between periods
- Your periods stop



# Bone Health

# Understanding Bones

- Peak Bone Mass
  - Maximum strength and density of bones
- 90% of peak bone mass happens by 18-19 y/o in girls
  - Bone can keep growing through your 20's but the majority of your bone bank has been filled




Understanding Athlete Bone Health



Share

# UNDERSTANDING ATHLETE BONE HEALTH



Watch on  YouTube



# Bone + Prolonged LEA

## Normal Bone Remodeling

Formation=Resorption

## Poor Estrogen Status

Increased bone breakdown (resorption)

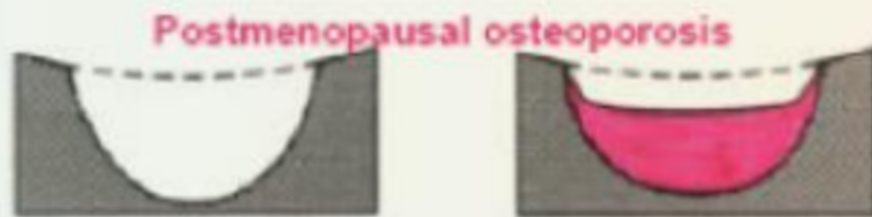
## Poor Energy Status

Decreased IGF-1 and  
Decreased bone formation

## Poor Estrogen and Energy Status

Increased bone breakdown (resorption)  
Decreased bone formation

Resorption      Formation



Low Bone Mineral Density in REDs

**Adequate Energy Availability is  
on board**

**Poor estrogen status as in  
menopause**

**Low Energy Availability but  
estrogen has not yet been impacted**

**Low Energy Availability + poor  
estrogen status**

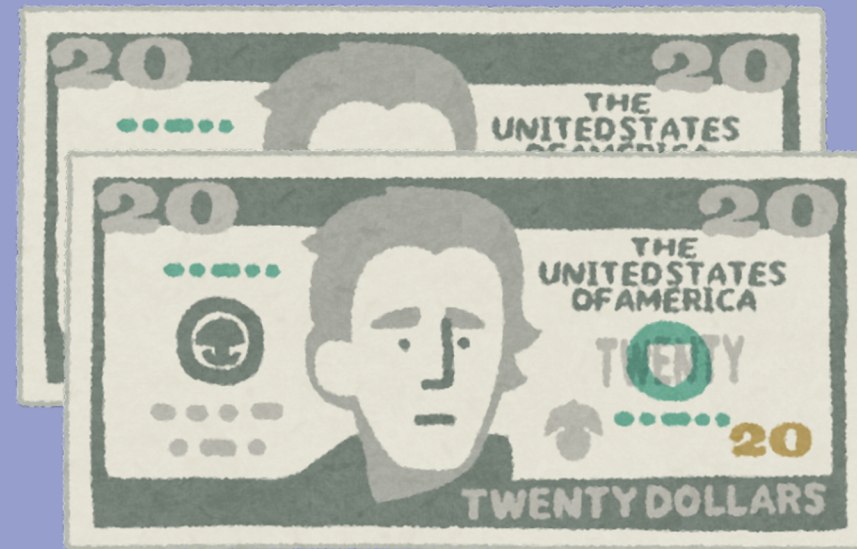
Adapted from Parfitt, 1988 and Sanborn, 2005  
Attributed to Dr. DeSouza (FNCE 2019)

# Bone + Prolonged LEA

Spent



Earned



**Adequate Energy Availability is on board**

Poor estrogen status as in menopause

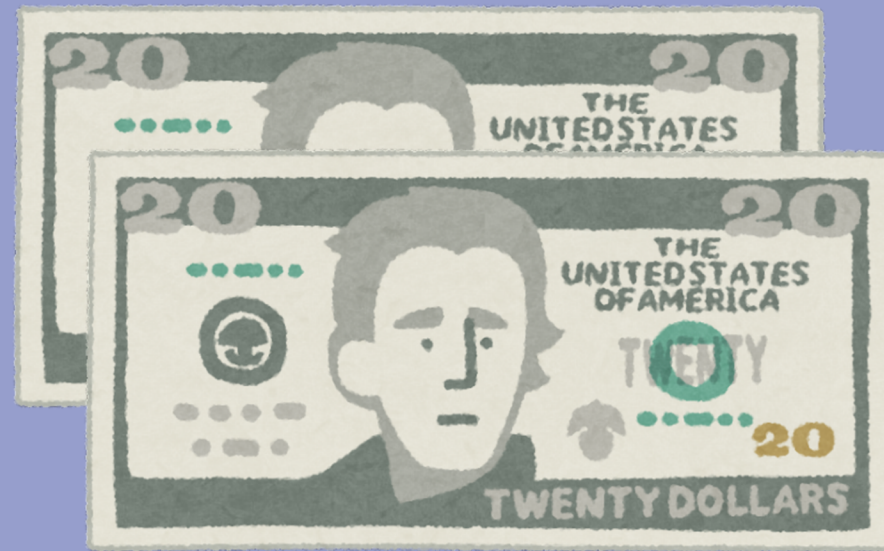
Low Energy Availability but estrogen has not yet been impacted

Low Energy Availability + poor estrogen status

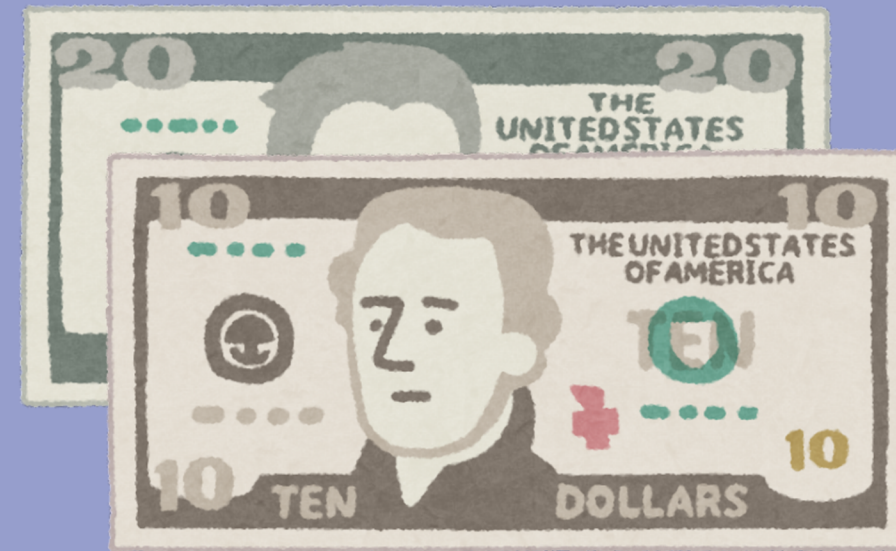


# Bone + Prolonged LEA

**Spent**



**Earned**



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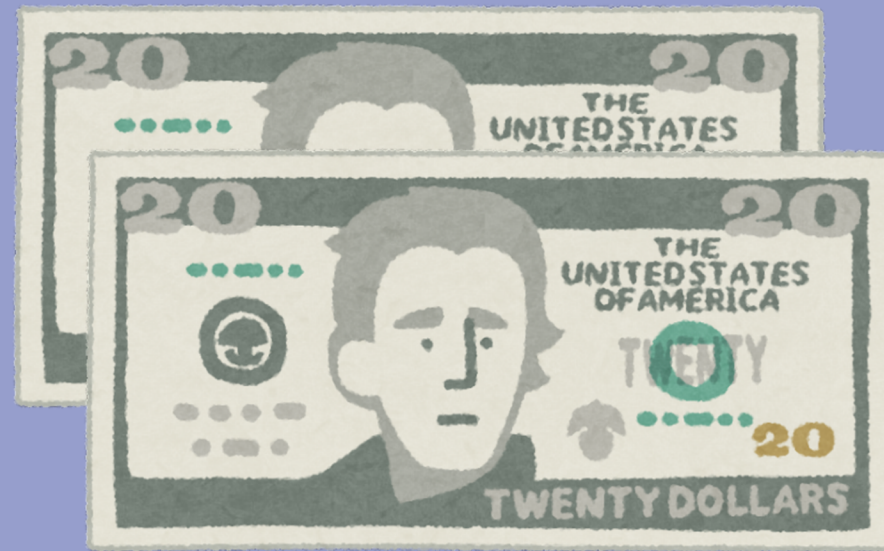
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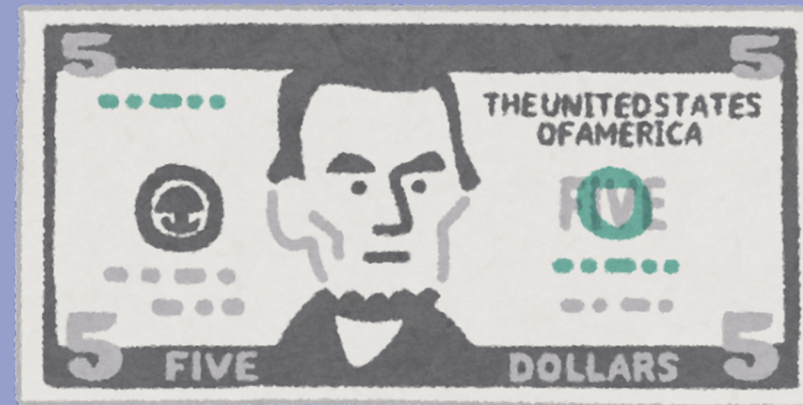
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# Bone + Prolonged LEA

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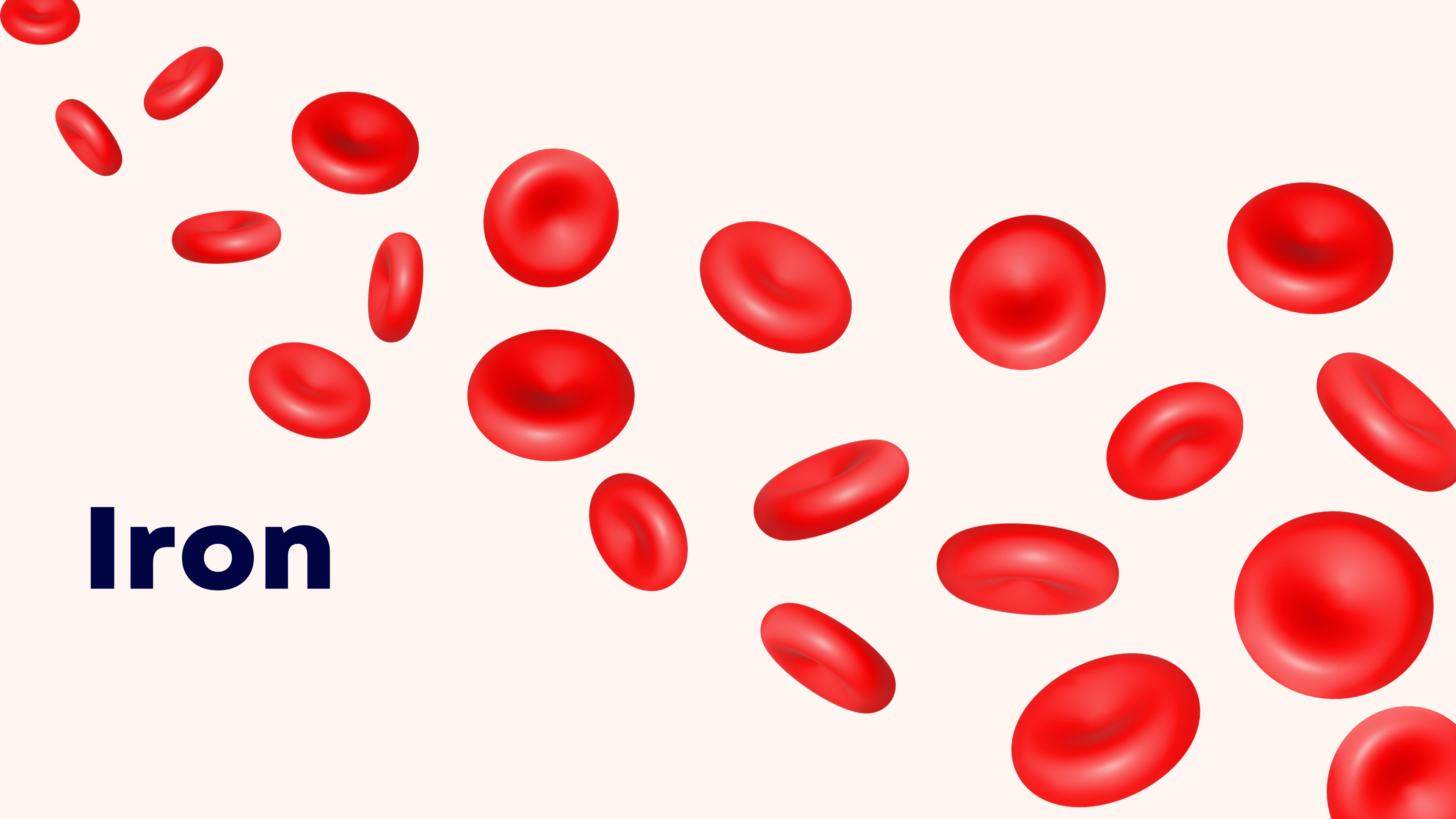
# Meeting Your Calcium Needs

Age	Calcium
9-18 years	1300 mg
≥19 years	1000 mg
If not menstruating	1500 mg

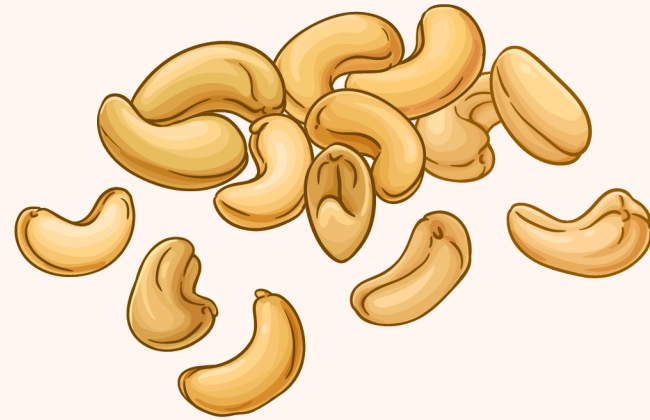
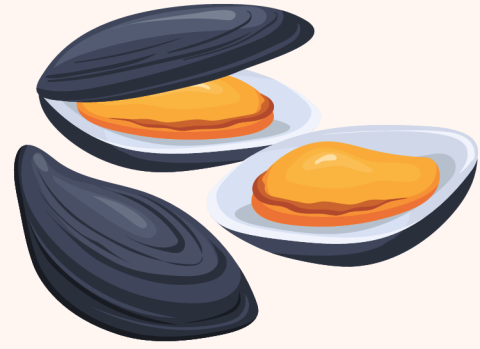
Our body can only absorb about 500 mg at one time.

Food	Serving Size	Calcium Content
Plain yogurt or fruit yogurt	6 oz	280-360 mg
Greek yogurt	6oz	200 mg
Milk	1 cup	300 mg
Sliced Cheese	1 slice	111-173 mg
Cottage Cheese	1 cup	133 mg
Almonds	1/4 cup	100 mg
Soy or Almond Milk with added Calcium	1 cup	450 mg
Orange Juice with added Calcium	1/2 cup	174 mg
Chia Seeds	2 tbsp	200 mg





**Iron**



# What is Iron?

- A mineral naturally found in some foods or fortified in others
- Carries oxygen throughout the body
  - Hemoglobin in blood and myoglobin in muscles.
- Iron is also stored in the body
  - Think of ferritin as your body's pantry store of iron ready to be used



# Why Do You Need Iron?

- Growing bodies!
- More training = a higher demand for oxygen
- Athletes lose iron through sweat
- Female athletes lose iron during menstruation
- Those with GI disorders may have lower rates of absorption
- Increased inflammation from training can decrease iron absorption

# Signs of Deficiency

- Dizziness/Lightheadedness
- Fatigue
- Increased heart rate
- Brittle nails
- Pale skin
- Shortness of Breath

*If you are worried about a deficiency, always test and reach out to your medical provider.*



# Meeting Your Iron Needs

Age	Iron (females)
9-13 years	8 mg
14-18 years	15 mg
≥ 19 years	18 mg

*But athletes may need more. Make sure to supplement with caution.*

Heme Sources	Serving Size	Calcium Content
Clams	5 large	7.5 mg
Mussels	10 small	5.7 mg
Beef or Pork	3 oz	3.5 mg
Chicken or Turkey (Dark Meat)	3 oz	1.3 mg
Chicken or Turkey (White Meat)	3 oz	1 mg
Tuna, light canned in water	3 oz	1 mg

*These are easily absorbed by our body.*



# Meeting Your Iron Needs

Age	Iron (females)
9-13 years	8 mg
14-18 years	15 mg
≥ 19 years	18 mg

*We only absorb about 10% of this iron form.*

Non-Heme Sources	Serving Size	Calcium Content
Soybeans or White Beans	1/2 cup	4 mg
Blackstrap Molasses	1 Tbsp	3.5 mg
Tofu, firm, raw (not packed in calcium)	1/2 cup	3.4 mg
Lentils, boiled	1/2 cup	3 mg
Spinach, cooked (not raw)	1/2 cup	2 mg
Dark Chocolate (70-85%)	1 oz	3.4 mg
Chickpeas or Kidney Beans	1/2 cup	2 mg
Cashews	1 oz	2 mg
Dried apricots	6 halves	2 mg

# Boosters & Busters of Non-Heme Iron

BOOSTERS	BUSTERS
Vitamin-C rich fruits and vegetables (citrus, strawberries, pineapple, juice with vitamin C, raw broccoli)	Strong coffee or tea
Heme iron sources	Dairy and other calcium-rich foods
Morning intake	Raw spinach

*If supplementing with iron, keep these things in mind as well!*

# Carb Availability & Iron Status

Over a 24-hour period...



*Low carb intake*  
(Mostly Easy Day  
Athlete Plates)

Increased inflammatory markers  
BUSTED iron absorption



*High carb intake*  
(Mostly Heavy Day  
Athlete Plates)

Decreased inflammatory markers  
BOOSTED iron absorption



# Recap

- Have a “body growth” mindset
- Periods can be complex but keep track and they can be a key to your athletic success.
- Bone Health starts young. Build your bone bank now!
- Focus on iron-rich foods in your eating pattern.



# Questions?

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