



## Adolescent Biological and Psychosocial Development

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### **Warm Up and Introductions**

When you were an adolescent, how would your friends, family, or chosen family have described YOU? Share this with 1-2 neighbors and come up with your team name for the morning.



## What is Case Based Collaborative Learning?

We will start with a whole task – in this case, an adolescent well visit.

We will have you work in teams of 2-3 and ask you to think out loud.

We will then provide you with some modeling, coaching, and scaffolding to move your thinking forward before asking you to work in teams again.

We will all make mistakes (your faculty included), and that is ok! It is how we learn.

We will end with key points – including what you need to know for the exam – before asking you to give us feedback on the exercise.

# **Learning Objectives**

- 1. State the major changes that occur in skeletal growth and body composition as a child progresses to and through adolescence.
- 2. Identify the major reproductive physiological changes that occur in males and females throughout puberty.
- **3.** Itemize the features of the SSHADESS assessment for teens at a health check and explain the purpose of this approach.
- 4. Discuss the pros/cons of privileged communication with teens regarding issues of sexuality and drug use.
- Additional key words/phrases: puberty; adolescence; sexual maturity rating; patient confidentiality

## Your 14 year old health check is ready for you doctor...



## Your 14 year old health check is ready for you doctor...



## Assessment of height, weight, and growth trajectory (LO1)

Mom is 65 inches. Dad is 72 inches.

What is her mid parental height?

Plot the patient's height and weight.

What do you notice about her growth pattern?

What do you think might be happening?

What more information do you want?

Age	Height (cm)	Weight (kg)
3	97	14
4	105	16
5	112	18
6	119	20
8	132	26
9	138	30
10	145	33
11	150	34
12	15 <b>4</b>	36
13	156	38

# Show images of 12 year old and 14 year old females from the Digital Atlas of Skeletal Maturity

Gilsanz, V., & Ratib, O. (2005). Hand Bone Age: A Digital Atlas of Skeletal Maturity. Springer-Verlag, Berlin, Heidelberg.



# Assessment of height, weight, and growth trajectory (LO1)

#### Procedural knowledge

- Plot height and weight on growth curve
- Calculate mid parental height and plot it on growth curve
  - For sex assigned at birth females: subtract 13 cm (5.12 inches) from the father's height and average with the mother's height.
  - For sex assigned at birth males: add 13 cm (5.12 inches) to the mother's height and average with the father's height.
  - 13 cm (5.12 inches) is the average difference in height of women and men.

#### Cognitive Strategies

- Recognize when a child is deviating from their growth percentile
- Identify possible causes of growth trajectory deviation

# Assessment of pubertal status (LO2)

Where do you expect to find on her physical exam?

Is her pubertal status what you would expect for her age?

What more information do you want?



# Assessment of pubertal status (LO2)



- LH 1.1 IU/L (range 0.1-13.4 IU/L)
- FSH 2.3 IU/L (range 0.1-12.0 IU/L)
- Estradiol 18 pg/ml (range 20-87 pg/ml)
- How do you interpret these labs in the context of her growth pattern?
- Where on this diagram do you think the problem is?

# Assessment of pubertal status (LO2)

#### Procedural knowledge

- Perform physical exam for sexual maturity rating (SMR)
- Classify SMR
  - See ScholarRX brick for full description of stages

#### **Cognitive Strategies**

- Recognize when a child is deviating from typical pubertal development
- Identify possible causes of pubertal delay

#### **SSHADESS** Assessment (LO3) and Parent/Teen Communication (LO4)

S	• Strengths
S	• School
Н	• Home
А	• Activities
D	<ul> <li>Drugs and other substances</li> </ul>
E	<ul> <li>Emotions and eating</li> </ul>
S	• Sexual Health
S	• Safety

- Role play how you would talk to this adolescent and her mother.
- What if she were 16 and sexually active? How would that change your approach?

### **SSHADESS** Assessment (LO3) and Parent/Teen Communication (LO4)

#### Procedural knowledge

- List steps of SSHADESS
- List confidentiality laws
  - Minor definitions and minor consent laws vary by state.
  - In Georgia, a minor is anyone under the age of 18.
  - In Georgia, minors have the right to consent for confidential sexual health services and substance use treatment

#### **Cognitive Strategies**

- Recognize which adolescent behaviors may relate to pubertal and growth problems
- Describe strategies for engaging adolescents and parents
- Negotiate parent/teen conflict

State the major changes that occur in skeletal growth and body composition as a child progresses to and through adolescence.

- Adolescence has the <u>second highest</u> linear growth rate after the first 2 years of life
- Females (typically) experience peak height velocity before males.
- Estrogen causes the epiphyseal growth plates to fuse, ending linear growth.
- Bone age reflects maturational age, not chronological age, as demonstrates the effect of estrogen on the epiphyseal plates.
- Blood pressure increases and heart rate decreases as adolescents achieve peak height and muscle mass.
- Hemoglobin levels increase in puberty and males have higher levels than females due to the blood loss with menstruation

Identify the major reproductive physiological changes that occur in males and females throughout puberty.

- Females typically begin and end puberty before males. This is the main reason males are taller than females. Females also have a shorter duration of peak height velocity.
- The first sign of puberty in females is typically breast enlargement.
- The first sign of puberty in males is typically testicular enlargement >4cc.
- GNRH is released by the hypothalamus and stimulates LH and FSH release from the pituitary. LH and FSH are released by the pituitary and act on the gonads.
- GNR, LH, FSH, estrogen, and testosterone exist in a system of positive and negative feedback loops. You will learn more about this in endocrinology (this is an advanced topic and will not be on the exam).
- Adequate nutrition is required for pubertal development and linear growth.

Itemize the features of the SSHADESS assessment for teens at a health check and explain the purpose of this approach.

- Beginning with strengths allows physicians to build rapport with adolescents and assess their sense of self
- One way to assess for strengths is to ask adolescents how friends, family, or chosen family would describe them.
- The leading cause of death in adolescents is unintentional injury, followed by homicide and suicide.
- Mental health conditions, substance use, and sexually transmitted infections are major causes of morbidity in teens.
- The SSHADESS assessment allows for assessment of risk factors for adolescent morbidity and mortality and the provision of anticipatory guidance

Discuss the pros/cons of privileged communication with teens regarding issues of sexuality and drug use.

- A minor in Georgia is anyone under the age of 18 years of age
- Public health laws allow minors in Georgia to consent for sexual health and substance use services
- Caring for adolescents requires working collaboratively with them and their guardians.
- Assurances of confidentiality (and its limitations) should be discussed with adolescents and their guardians together and presented as important for building the skills necessary for adulthood



## **Hearing Your Feedback**

Please take 5 minutes to complete. Your responses are anonymous and will help us improve the next session!

