

# Social Effects of Precocious Puberty

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# Puberty Defined

- Normally between the ages of 8-13 for girls and 9-14 for boys
- Development of secondary sexual characteristics
- Sexual maturity

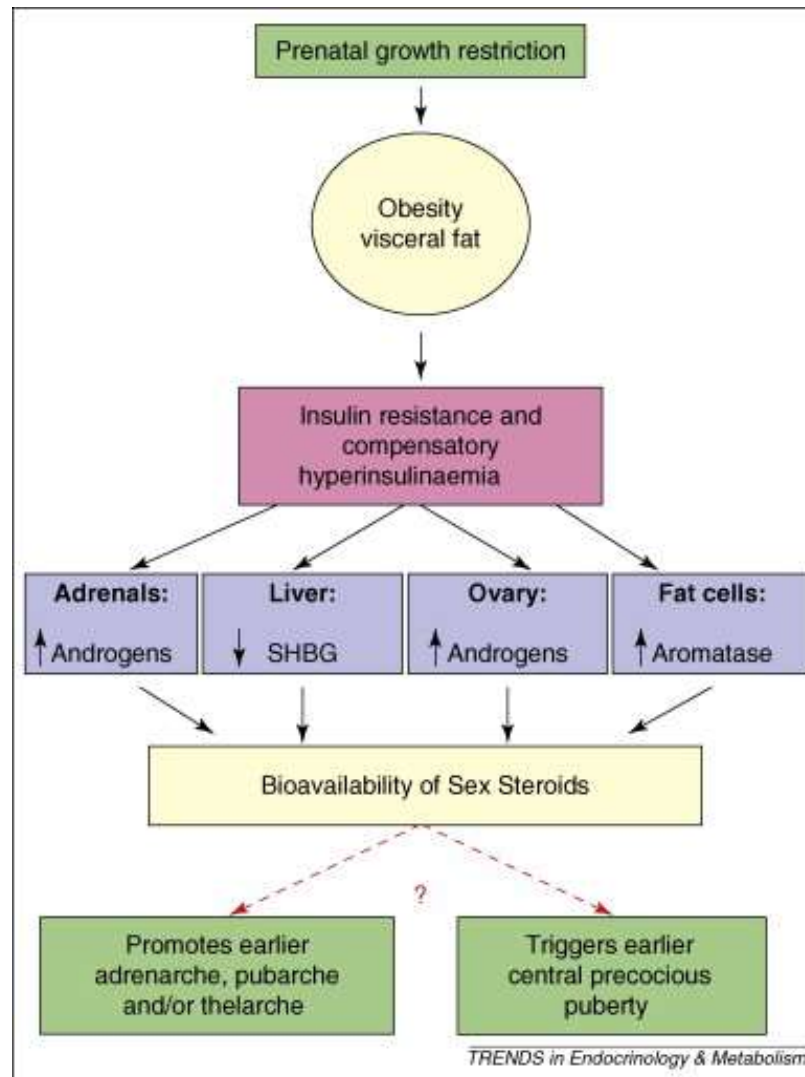
# Precocious Puberty

- Puberty before the age of 8 for girls or 9 for boys
- Effects 1 in 10 children in the U.S.
- 10 times more common in girls than boys
- Endogenous and/or exogenous causes

# Causes: Obesity

- Higher leptin production and concentration
  - Signal adequate energy stores to support pubertal progression
- Aromatase action
  - Conversion of androgens to estrogens
- Insulin Resistance
  - Increase availability of sex steroids

# Obesity's Effect on Puberty



# Causes: Endocrine Disruptors

- Chemicals that negatively effect the endocrine system
- Bind to hormone receptors
- Act as agonist or antagonist of estrogens
- Focus on 3 endocrine disruptors since 1990s: phytoestrogens, phthalates, and phenols

# Phytoestrogens, Phthalates, Phenols

- Phytoestrogens: plant estrogens
  - **Estrogenic**
- Phthalates: synthetic compounds not bound to the plastic matrix they're found in
  - **Androgenic**
- Phenols: aromatic alcohols that can accumulate in fat tissues
  - **Estrogenic**

# The Perfect Storm

- Independently all four causes are essentially harmless
- Summation of causes may have greater effect on adolescents



# Microeffects: Physiological

- Reduced stature
  - Bone growth controlled by pubertal hormones
  - Premature skeletal maturation
  - Reduced stature

# Microeffects: Psychological

- Negative self-esteem and body image
- Depression
- Eating Disorders

# Microeffects: Social

- School Performance
- Substance Abuse
- Sexual Activity

# Microeffects: Long-term Health

- Breast Cancer
- Stroke
- Heart Disease

# Macroeffects: Parenting

- Utilize structured parenting style
- Few rules with firm enforcement
- Adjust parenting style to successfully keep their children from negative social effects of precocious puberty

## Macroeffects:

### Sexual Education Programs

- Puberty occurring before children are informed about the changes their body is experiencing
- Reformat programs for younger audiences
- Provide sexual education programs yearly

# Macroeffects: Government Costs

- Increase cost to support teen mothers
- Lower educational attainment with lower lifetime income
- Continuum of costs

# In summary

- Precocious puberty has been progressively increasing in occurrence
- It can cause several negative immediate and long-term effects
- Changes may need to be made in response to increasing rates of precocious puberty



Ahmed, M., Ong, K., Dunger, D (2009). Childhood Obesity and the Timing of Puberty. *Trends in Endocrinology and Metabolism*. 20(5): 239.