<table>
<thead>
<tr>
<th>Suggestive history and physical findings</th>
<th>Initial laboratory and/or radiologic work-up can include:</th>
<th>When to refer</th>
<th>Items useful for consultation</th>
<th>Additional information</th>
</tr>
</thead>
</table>
| **Symptoms/signs:** Before age 8 yrs (female) or 9 yrs (male):  
- Pubic hair (coarse, curly)  
- Axillary hair  
- Body odor  
- Absence of breast tissue development, vaginal discharge (in girls) or penile enlargement, scrotal development, testicular enlargement (in boys)  
Other considerations:  
- Absence of growth acceleration  
- Family history of early puberty  
- Exogenous exposures to androgenic hormones  
- Increased prevalence with obesity and specific ethnic groups  
**Differential Diagnosis** | **Blood tests:**  
- DHEAS  
**Radiologic studies:**  
- Bone age x-ray  
**Other tests to consider after consultation with Pediatric Endocrinologist:**  
- 17OH progesterone  
- LH  
- FSH  
- Total testosterone  
*Pubertal laboratory tests should be obtained in the early AM using sensitive pediatric assays only* | **Urgent:**  
- Significantly elevated DHEAS  
- Bone age greater than 2 SD above chronologic age  
- Signs of rapid virilization | Previous growth data/growth charts  
Pertinent medical records  
Recent laboratory and radiologic studies (including actual copy of bone age) | **Additional Information**  
**Urgent:**  
- Significantly elevated DHEAS  
- Bone age greater than 2 SD above chronologic age  
- Signs of rapid virilization  
**Routine:**  
- normal labs and bone age within 2 SD of the norm for chronologic age | **Additional Information**  
Premature Adrenarche: A Guide for Families  
**References**
**Differential diagnosis of early pubic hair, body odor:**

Normal variants:
- Premature adrenarche
- Benign pubic hair of infancy
  - Fine, straight to curly hair, normal laboratory findings, normal linear growth, minimal to no progression of pubic hair growth, pubic hair typically falls out by 2 years of age

Adrenal:
- Congenital adrenal hyperplasia
- Exogenous androgen exposure
- Adrenal tumor

**Additional Information:**

- A thorough medical history, physical examination, and appropriate laboratory assessment are essential to be able to rule out other underlying medical conditions associated with early pubic hair/body odor.
- Most presentations of early pubic hair or body odor will be benign. However, there is a higher risk of true pathology with pubic hair and/or body odor development in children of younger ages.
- DHEA-S levels are often mildly elevated for age.
- There has been an association of early adrenarche and subsequent development of polycystic ovarian syndrome (PCOS) in adolescent girls.
- Obesity may also predispose to early adrenarche.

**Suggested References and Additional Reading:**

- Kaplowitz P, Bloch C. Evaluation and Referral of Children with Signs of Early Puberty. Pediatrics 2016;137(1):e20153732. [https://pediatrics.aappublications.org/content/137/1/e20153732](https://pediatrics.aappublications.org/content/137/1/e20153732)
Author: Paola Palma Sisto

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