Syncope and Palpitation Evaluation and Guidelines
Syncope and Palpitations

Syncope and palpitations are common complaints in the pediatric and adolescent age groups. Initial work-up for patients presenting with palpitations is often aimed at ruling out an arrhythmia. Palpitations may be due to autonomic nervous system dysfunction that is the cause of dizziness and syncope; therefore, the work-up for these symptoms (palpitations, dizziness and syncope) is along a continuum. The diagnostic and therapeutic modalities that are most appropriate for the individual patient can be determined after completing a patient history, physical examination, family history and ECG.

Guidelines and Management

If physical examination, ECG and family history are negative, the following algorithm can be used:

### Syncope, Palpitations and Dizziness (Pediatric/Adolescent)

**History of Symptoms**

<table>
<thead>
<tr>
<th>Syncope Occurs</th>
<th>Palpitations Occur</th>
<th>Recommended Therapy</th>
</tr>
</thead>
<tbody>
<tr>
<td>- With exercise</td>
<td>- Associated with syncope</td>
<td>Refer to Cardiology</td>
</tr>
<tr>
<td>- While driving</td>
<td>- Caused by exercise</td>
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<tr>
<td>- Age 6 or under (not related to breath holding)</td>
<td>- &gt;2 episodes per month and/or lasts longer than 15 minutes</td>
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<tr>
<td>- With urination or defecation</td>
<td>- Occurs less than once per month and lasts less than 15 minutes</td>
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<td>- With hair brushing</td>
<td>- Presuming the physical exam and ECG are normal and the family history is</td>
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<tr>
<td>- With identifiable trigger (e.g., sight of blood)</td>
<td>- negative for sudden death and cardiomyopathy, no need to be referred, unless</td>
<td></td>
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<tr>
<td></td>
<td>- palpitations become more frequent or last longer</td>
<td></td>
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<tr>
<td>- With hot environment (e.g., shower)</td>
<td>- Address dietary concerns:</td>
<td></td>
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<tr>
<td>- With prolonged standing</td>
<td>- Consume breakfast regularly</td>
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<tr>
<td>- &lt;2 episodes</td>
<td>- Increase fluid intake to 50-70 oz.</td>
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<tr>
<td></td>
<td>- Decrease/eliminate caffeine</td>
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<tr>
<td></td>
<td>- Increase salt intake (consider salt tablets)</td>
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<tr>
<td></td>
<td>Refer to Cardiology</td>
<td></td>
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<tr>
<td></td>
<td>Educate as indicated:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Avoid the trigger</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Dietary changes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Symptoms improve after 1 week</td>
<td></td>
</tr>
<tr>
<td></td>
<td>NO</td>
<td></td>
</tr>
</tbody>
</table>

**Refer to Cardiology**

**Educate as indicated:**

- Avoid the trigger
- Dietary changes
**Visual Aid: Why Children Faint**

**Autonomic (Automatic) Nervous System**

- **Nervous System**
- **Non-Autonomic**
  - Things you think about doing: walking, writing, chewing
- **Autonomic**
  - Things your body does on its own without thinking: breathing, blinking, maintaining blood pressure

**Comparison: Normal vs. Abnormal Autonomic Nervous System**

- **Child stands up**
- **Blood redistributes to the legs**
- **Autonomic nervous system slow to respond**
- **Blood pools in the legs**
- **Blood pressure drops**
- **Brain sends message to heart to speed up**
- **Heart sends message to brain to speed up; however, heart cannot pump blood it does not have**
- **Brain sends message to slow heart down and open vessels**
- **Blood pressure drops**
- **Child faints**
- **Child is now flat and blood is redistributed to brain**

**Additional Reasons Children Faint**

Child more susceptible to fainting with:
- Prolonged standing
- Heat
- Intercurrent illness
Evaluation Process and Checklist

History of Circumstances Surrounding Symptoms

Syncope

• What was patient doing at time of episode? ______________________________________________________

• When did it occur?
  □ With exercise  □ While driving  □ In hot environment (e.g., shower)
  □ After prolonged standing  □ With identifiable trigger (e.g., sight of blood)

• Patient’s position at time of episode
  □ Lying down  □ Sitting  □ Standing

• How long was patient unconscious? _____________________________________________________________

• How often is patient experiencing the symptoms? __________________________________________________

• Associated symptoms
  □ Dizziness  □ Pallor  □ Cold sweat  □ Nausea  □ Loss of bladder or bowel control  □ Seizure

• Dietary
  Amount of food and beverage consumed prior to episode ____________________________________________
  Breakfast consumed on day of episode?  □ Yes  □ No
  Amount of fluid consumed per day (teens target 50-70 oz. per day) ________________________________
  Caffeine consumed regularly and/or on day of episode?  □ Yes  □ No
  Amount of salt present in diet ____________________________
  Number of times patient urinates per day ____________
  Color of urine _________________________________

Palpitations

• With syncope?  □ Yes  □ No  With exercise?  □ Yes  □ No
• Rate  □ Mild (<100 bpm)  □ Moderate (100-150 bpm)  □ Racing (>150 bpm)
• Can patient tap out rate?  □ Yes  □ No
• How long did palpitations last? ________________________________
• How often is patient experiencing palpitations? ____________________________________________________

Family History

□ Sudden cardiac death  □ Deafness
□ Cardiomyopathy  □ Long QT Syndrome
□ Implantable defibrillator or pacemaker  □ Brugada Syndrome
□ Syncope

Physical Examination  □ Normal  □ Abnormal

Notes _______________________________________________________________________________________
___________________________________________________________________________________________

Electrocardiogram  □ Read by pediatric cardiologist or pediatric electrophysiologist

Referrals and Consultations

Online: NationwideChildrens.org/HeartCenter
Phone: (614) 722-6200 or (877) 722-6220  |  Fax: (614) 722-4000
Physician Direct Connect Line for 24-hour urgent physician consultations: (614) 355-0221 or (877) 355-0221.