

## Wolff-Parkinson-White Syndrome (WPW)

### How does the heart work?

The heart is an electrical pump. There is a natural pacemaker of the heart, called the sinus node that controls how fast the heart beats. The sinus node sends an electrical impulse that travels through special conduction pathways in the heart. It stimulates the heart to squeeze and pump blood to the lungs and body.

### What is Wolff-Parkinson-White Syndrome (WPW)?

In WPW, there is an extra electrical pathway that connects the upper and lower chambers of the heart. This extra pathway can let the electrical impulse travel in a circle, much like a dog chasing its tail. This may cause the heart to beat very fast.

### How will I know if my child has WPW?

Many times, your child has no signs of WPW. The extra pathway is seen on a routine electrocardiogram (ECG), shown on the next page. Sometimes your child may have a very fast heart rate called supraventricular tachycardia (SVT). The extra pathway is seen on the ECG when the SVT is stopped.

### Common Signs and Symptoms of SVT

Infants may be:

- cranky,
- pale,
- tired,
- have a hard time eating.

Older children may say:

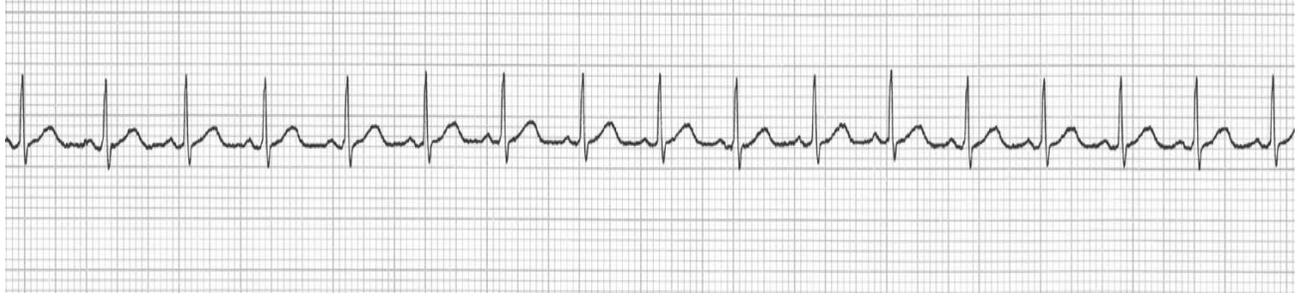
- “My chest hurts”
- “My heart is beating fast”
- “I feel dizzy”
- “It’s hard to breathe”

In SVT, a child’s heart rate is often over 200 beats per minute and is too fast to count. Fainting may happen, but is rare. **SVT is not a dangerous heart rhythm.**

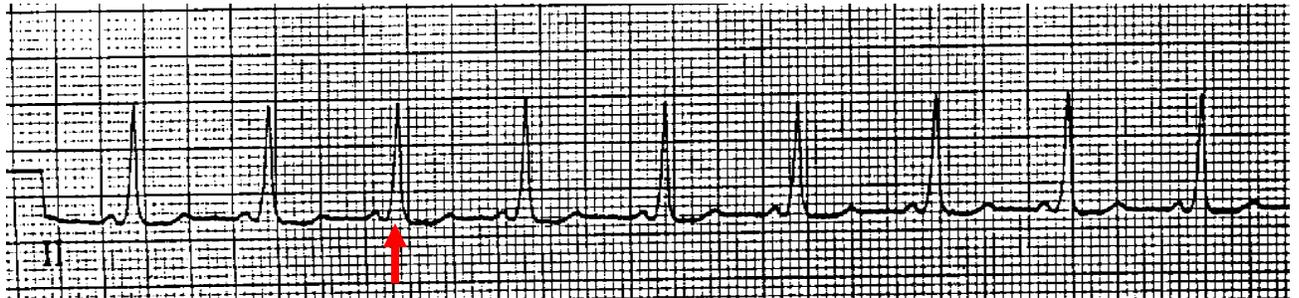
### What type of tests can I expect?

An ECG is a test that records the electrical activity of the heart. The purpose for doing an ECG is to show us if the rhythm is coming from a normal or abnormal part of your child’s heart. In WPW the ECG shows the extra conduction pathway. It is called a delta wave, or pre-excitation because it shows early electrical stimulation of the lower heart chamber. The ECG below is a normal ECG and the second ECG (on the next page) shows the pre-excitation seen in WPW.

## Normal ECG



## ECG with WPW



**Holter Monitor** is a small monitor that is worn for 24 hours. It is a continuous 24 hour recording of the heart rate and rhythm. This is often done to see if the pre-excitation goes away when the heart rate is faster.

**30-day Cardiac Event Monitor** is a device that is often used for people who have sensations of a rapid heart rate. This can be used for a full month. You or your child push a button during times your child has symptoms. The monitor documents the heart rate and rhythm during these times. This information is transmitted over the phone.

**Echocardiogram** is a test that uses sound waves to take pictures of the structure and function of the heart. This includes looking at the valves and chamber sizes of the heart.

**Treadmill Exercise Test** is sometimes used in older children to see if the pre-excitation goes away with faster hearts rates during exercise. During this test your child walks and runs on a treadmill while hooked up to

an ECG machine to record your child's heart rhythm.

Children with WPW have a **very small risk** of a fast and dangerous heart rate that does not allow time for the lower chambers of the heart to relax and fill with blood. This tends to happen with a rare very fast upper heart chamber rhythm called atrial fibrillation. It often results in fainting. A **Holter Monitor** or **exercise treadmill test** can help tell us if your child is at risk for this dangerous heart rate.

For more information and videos of these tests, please visit [uwhealthkids.org](http://uwhealthkids.org).

### **How is WPW treated?**

Some children do not need treatment if they are not having SVT or the tests have shown a low risk for serious heart rhythms. They are seen in the Pediatric Cardiology Clinic as needed.

## **For children who have SVT:**

### **Medicines**

The most common medicine used to treat WPW is a beta-blocker. These beta-blockers slow your child's heart rate and makes it less likely to have SVT.

- Propranolol
- Atenolol

### **Vagal Maneuvers**

If your child has SVT there are things to try at home to slow it down. These are called vagal maneuvers. They work on the vagal nerve which can slow the fast heart rate.

### **For Infants**

- Check a rectal temperature.
- Fill a small bag with ice and cold water. Hold it on your baby's face for 5-10 seconds. Be careful not to cover his mouth so he can still breathe.
- Hold your baby in a head down position making sure to support his head.

### **For Older Children**

- Ask your child to bear down as if trying to have a bowel movement.
- Close your child's lips around his thumb and blow hard for 10-15 seconds.
- Help your child to stand on his head against a wall for several seconds.

Take your child to the emergency room if these do not work after about 15 minutes or if at any time your child is not feeling or looking well.

### **Other Treatment**

Electrophysiology studies (**EP study**) with ablation can be done to cure WPW and SVT. This is done under general anesthesia as an outpatient. Small flexible tubes, called catheters are placed in your child's groin area. They float through the veins to the heart. The catheters provide information about the electrical pathways in the heart. The WPW pathway is found by mapping the electrical signals in the heart. Freezing (cryoenergy) or heating (radiofrequency energy) can be applied to the pathway to get rid of (or ablate) the abnormal pathway. If this treatment is recommended for your child, you will talk about this with your child's heart doctor in more detail.

More information can be found at: [www.uwhealthkids.org](http://www.uwhealthkids.org) Wolff-Parkinson-White Syndrome Clinic.

### **Who do I call with questions?**

Your child's doctor, nurse or clinic staff can answer any questions. Our phone number is **(608) 263-6420**.

If you are a patient receiving care at UnityPoint – Meriter, Swedish American or a health system outside of UW Health, please use the phone numbers provided in your discharge instructions for any questions or concerns.

Your health care team may have given you this information as part of your care. If so, please use it and call if you have any questions. If this information was not given to you as part of your care, please check with your doctor. This is not medical advice. This is not to be used for diagnosis or treatment of any medical condition. Because each person's health needs are different, you should talk with your doctor or others on your health care team when using this information. If you have an emergency, please call 911. Copyright ©4/2019. University of Wisconsin Hospitals and Clinics Authority. All rights reserved. Produced by the Department of Nursing. HF#7173.