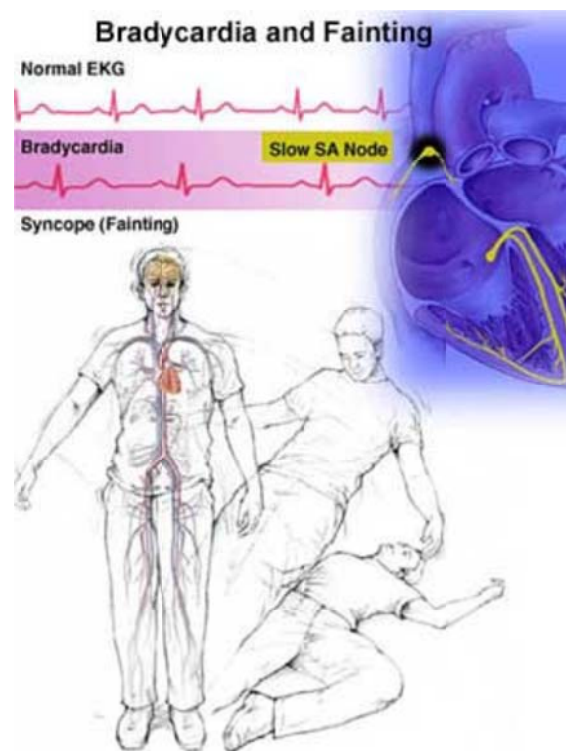


## TILT TESTING

There are several mechanisms by which someone may lose consciousness (black-out). Most episodes of this nature are related to a loss of blood flow to the brain, an episode termed syncope. Other possibilities might include an epileptic seizure or low blood sugar.

Amongst patients with syncope, two broad mechanisms are responsible for over 90% of cases. The first mechanism is a heart rhythm disturbance (heart stops or runs slow temporarily – bradycardia; heart races – tachycardia). The other major mechanism is a classical fainting reflex – what is variably termed “neurocardiogenic” or “vasovagal” in origin. This latter mechanism is what is being explored in the Tilt Test.

Almost all of us are familiar with the concept of fainting under particular circumstances, for example – getting bad news, standing on parade in the heat, the sight of blood etc. What is often a surprise to patients is that the same mechanism can be operative without a particular trigger. The body



has various complex and sophisticated mechanisms that regulate the blood pressure, preventing it from becoming too high or low under various influences. There are pressure sensors within the heart and larger blood vessels that feed blood pressure information to the brain, which then adjusts the pressure by sending nerve signals to the heart (to speed it up or slow it down) or signals to the wall muscle of a blood vessel to adjust its squeeze

(letting blood pool in the legs if the pressure is too high or tightening the vessels if it's too low). In patients that faint by this mechanism, an error occurs in blood pressure regulation where the pressure is inappropriately lowered or the heart slowed. In some, the description they give of their turns, is highly suggestive of a fainting reflex (nausea/flushing etc) but in others it is less clear. The tilt test is designed to trigger an episode whilst blood pressure and heart rate are monitored closely to see if any abnormal reflex behaviour is occurring.

The test is done in two phases. The initial tilt phase requires the patient to lie on a table in a quiet darkened room while the table is gradually tilted upright – aiming to confuse the pressure monitoring sensors in the body. If this produces no significant response, the tilt is repeated after administration of nitroglycerine spray or perhaps a slow injection of an adrenaline-like drug (isoprenaline). If positive, a patient might get the symptoms they experience during a blackout and may lose consciousness. It is the behaviour of blood pressure and heart rate during this phase that is critical in interpreting the result.

It is a very safe test, but not a perfect test. Some patients with classical

fainting will have a completely normal tilt test and it is possible **for some to have a positive result where that is not the mechanism of their blackout.** Your Cardiologist will interpret the result in your special context.

Ultimately it is the combination between the description of the event and our test results that will potentially give the answer and guide treatment. This is difficult area where our testing tools have some limitations.

