

How will reflex fainting affect my lifestyle?

Until a diagnosis is made and your fainting is under control, your safety and that of others must be a priority. This may mean that your normal activities/job may need to be restricted. If your job involves high-risk activities such as driving and working with dangerous equipment, these should be avoided. Once therapy has begun, a one-month period free of symptoms or syncope is usually enough time to ensure that your episodes are well-controlled. You may then be able to return to your normal life style. Driving should be discussed with your doctor. Your doctor will be happy to discuss these concerns with you.

Final comments

The outlook for the person with reflex fainting is good now that it can be more easily identified and controlled. Once your syncope is properly treated you will be free of worrying about the unknown and will be able to return to a normal lifestyle.

Reflex fainting is a subject of major interest. Studies are ongoing in many institutions throughout the western world to help us understand its causes and search for the best possible treatment. You may be asked if you would be interested in helping us help other people with this condition by taking part in a research study.

This booklet was prepared to help you better understand reflex fainting. You may have questions or concerns not addressed in this booklet. Please discuss these with your doctor.

Try to prevent episodes of reduced blood volume by including extra salt in your diet, especially during exercise or bowel upsets (as long as you have no other medical condition which limits salt intake).

You should know certain facts about your medications. These include:

- their name
- their purpose
- the dosage you take
- when to take them
- how to take them
- their side effects

Take your medication only as prescribed. Do not increase, decrease, or stop your medicine without your doctor's advice. Note any warning symptoms of weakness/dizziness and lie down right away. If you have symptoms of syncope and outright syncope after starting therapy, these should be reported to your doctor right away. Adjustments may need to be made to your medications.

It is important to continue the medication as your doctor ordered- perhaps for the rest of your life. If you have any side effects, these should be reported to your doctor right away for possible adjustment of the dosage or type of medication. Some side effects may disappear after you have been taking the medication for a while.

Notify your doctor if your attacks:

- are lasting longer
- are happening more often
- are more severe
- you become or wish to become pregnant
- you have questions or concerns

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Introduction

We hope this booklet will help you understand how to deal with your fainting spells.

Fainting is often a dramatic event and can be very frightening.

You likely have many questions about why this occurred and how it will affect your life in the future.

This booklet should help answer some of your questions. It will explain what fainting is, how you can best help yourself, and what treatments are available. It will answer some of the common questions that people, like you, with reflex fainting ask.

What is syncope?

The medical term for fainting is syncope, which means “pause” or “short cut”. This refers to an episode of sudden and complete loss of consciousness with complete recovery in a few minutes. Sometimes this is called a “blackout”. The cause is a sudden decrease in blood pressure alone or in combination with a fast or slow heart rate. This temporarily deprives the brain of blood, causing loss of consciousness. The term “pre-syncope” refers to an episode of sudden decrease in blood pressure causing symptoms such as: loss of strength, lightheadedness, giddiness, dizziness or weakness. Think of this as an incomplete fainting spell.

Syncope and pre-syncope are common disorders. Most adults will experience pre-syncope, and many will have syncope, at least once in their lifetime. It is estimated that up to 40% of all people faint at some time in their lives. The underlying cause of syncope cannot be found in 30-50% of cases, despite numerous medical tests. About half of all patients with one episode of syncope will have another episode at some time in the future.

The symptoms of pre-syncope and syncope are caused by a sudden decrease in blood pressure, alone, or with a decrease or increase in heart rate. This decrease in blood pressure temporarily decreases the flow of blood to the brain. The decrease in blood pressure may have different causes. Some of these include:

- A miscommunication in the nervous system resulting in abnormal regulation of the blood pressure and heart rate. This is the cause of reflex fainting, or the “common” faint.
- Prolonged straining, such as from severe coughing or attempted bowel movements when constipated.
- Pain
- Sudden emotional stress
- Noxious (unpleasant) stimuli, such as the sight of blood
- Heat- e.g. hot weather, saunas
- Heartbeat abnormalities- too fast or too slow

Beta Blockers: This family of medications may help by blocking the effects of the surge of adrenalin responsible for activation of the receptors in the heart muscle that lead to the exaggerated response causing syncope.

Fludrocortisone: This drug acts to increase the volume of blood and limits the effects of pooling of blood in the legs in the upright position.

Alpha-agonists: This family of drugs prevents pooling in the legs by constriction of the blood vessels.

Antidepressants: Selective serotonin reuptake inhibitors have shown some promise.

Antihistamines: May help by increasing heart rate.

“Investigational”: Certain treatments are being tested at this time and are called investigational. If you are to be given such a treatment it will be explained to you.

Pacemaker:

Pacemakers have been studied in the treatment of reflex fainting. The effectiveness of pacemakers is limited, especially in patients who have mainly blood pressure changes rather than heart rate changes. Pacemakers usually are used as a last resort.

What precautions should I take?

If you have warning signs before an episode, you are likely to be at a low risk for injury. If you faint often, with little or no warning, you should avoid activities in which fainting may endanger you or other people’s lives (e.g. climbing to high places, driving vehicles, or operating dangerous machinery).

General measures

These measures should be tried first to help avoid or ease syncope:

- Keep hydrated by making sure you have enough water and salt intake (unless your doctor has said otherwise).
- Avoid situations that trigger your syncopal spells.
- Flex calf muscles to improve circulation and prevent blood pooling when in the upright position.
- With the onset of the first symptoms, sit down on the floor with your back against the wall or squat. If this does not help, lie down and put your legs up against a wall.
- Avoid sitting on chairs if you are pre-syncopal, as you might fall out of the chair onto something hard or sharp.
- Avoid using armchairs, which might trap you in an upright position during a syncopal spell.
- To improve circulation, try flexing your legs and arms before standing. Get up slowly or in stages.

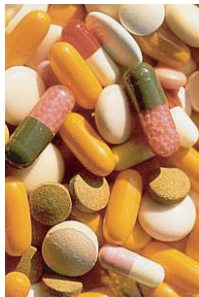
Counter-pressure movements:

Similar to flexing your legs and arms before standing: If you have symptoms while upright, try to squeeze the muscles in your legs by crossing them and squeezing, or by placing your arms together and squeezing or gripping your hands and pressing in order to increase blood return to the heart. As mentioned above, squatting may help or putting one foot on a chair and bending at the waist.

Medications:

Medication is sometimes effective. What works for one person may not work for another. Research in this area is ongoing.

There are several different types of medications that your doctor may prescribe for you.



- Heart disease that limits the amount of blood the heart pumps.
- Getting out of bed/chair suddenly (orthostatic hypotension).
- Certain medications
- Specific times in people's lives may increase the likelihood of fainting, such as children who hold their breath, adolescence, and pregnancy.

These are only some of the possible causes of syncope due to low blood pressure. A detailed history and examination by your doctor can narrow the list of causes of syncope. Some of the tests that may help diagnose reflex fainting or rule out other causes will be described later in this booklet.

What is reflex fainting?

Reflex fainting is the most common cause of fainting. Its cause is not fully understood, although it was first described over 2500 years ago in the Bible. Reflex fainting can best be described as a mix-up in the nervous system's communication between the brain, heart and the blood vessels.

There are several theories as to what causes reflex fainting. These theories are the subject of intense research and debate.

One theory is that it occurs due to improper actions of part of the autonomic nervous system on the circulatory system. The autonomic nervous system is that part of the nervous system over which we have no voluntary control. It automatically regulates such actions as breathing, blood pressure and heart rate. The circulatory system is the heart and blood vessels.

To understand the cause of reflex fainting, it is important to first understand how the autonomic nervous system and the heart and blood vessels work together to maintain blood pressure and heart rate.

How the body maintains blood pressure and heart rate

Whenever a person stands, about 300-800 mL (2-4 cups) of blood is moved from the chest to the lower part of the body and is temporarily “lost” from the central circulation. The force of gravity causes blood to collect and remain in the legs. This decreased amount of blood in the central body leads to a temporary decrease in the amount of blood returning to the heart. This leads to an immediate drop in the amount of blood the heart pumps out with each heartbeat, causing a drop in blood pressure. The autonomic nervous system automatically tries to correct the fall in blood pressure. The walls of the pumping chambers of the heart (ventricles) and the blood vessels contain receptors that influence the action of the heart and blood vessels. The decrease in blood returning to the heart and fall in blood pressure is sensed by these receptors and transmitted by the nervous system to the brain. In response to these messages, the brain increases the body’s release of various chemicals and hormones. This release results in an increase in the heart rate, the strength of the heart’s pumping, and the resistance of the blood vessels against which the heart must pump. These actions help to maintain enough blood pressure and oxygen flow to the brain when a person moves to an upright position.

What happens to the blood pressure and heart rate during reflex fainting?

In people with reflex fainting, the shift of fluid to the lower extremities when upright leads to a drop in blood pressure, which triggers the usual response of the autonomic nervous system. At first, this response may result in an increase, maintenance or decrease in heart rate. However, the ability to maintain blood pressure is dependant on heart rate, strength of heart contraction, and on the narrowing/squeezing of the blood vessels to return blood to the heart. If any one of these components has a decreased response, for example, if the heart rate does not increase (or it decreases) the result amplifies the temporary decrease

How might I feel during the tilt testing?

The doctor and nurses present during the test will be asking how you are feeling throughout the test. If at any time during the test you get dizzy or start to faint, tell the nurse or doctor. They will lower the bed flat if syncope occurs or if you cannot tolerate being tilted for any other reason. You should start to feel better within seconds. Remember, this test is being done to learn whether or not you are prone to episodes of fainting and to see if your syncope can be induced under controlled conditions. Although feeling dizzy or faint are unpleasant, you will be attended to right away and the unpleasantness will pass as it does with your spells.

Once tilt testing is completed, you will be allowed to recover. You will be able to eat and drink as soon as you feel like having something. You will be allowed to leave as soon as you are feeling well.

Your doctor will let you know the results of the test and any treatment you may need usually on the same day. Be sure to ask your doctor any questions you have about the results of your test and the recommendations.

How is reflex fainting treated?

There are a number of ways in which reflex fainting can be treated; however, not all people need treatment. Based on the results of the tests described earlier, your doctor can diagnose what components (drop in blood pressure alone or with an abnormal heart rate and/or rhythm) contribute to your syncope and advise you of the best treatment. Unfortunately, it is not yet known if any of the following treatments are completely successful at preventing future syncopal episodes. Nevertheless, most people can be helped.

The following are some treatment options your doctor may discuss with you. Keep in mind that not all of the following may be right for you:

How do I prepare for the tilt test?

Do not eat nor drink anything for at least 4 hours before the test.

You will usually be able to take any medications you have been prescribed for other conditions. Check with your doctor to see if or when you should stop taking any medications that you have been prescribed for your syncopal episodes. These may need to be stopped before the tilt test.

As part of the test, medication may be used to try to reproduce your spells. One medication used may require that you have an intravenous (IV) started just before the test. Another medication (nitroglycerine) used is absorbed through the blood vessels under your tongue.

How is a tilt test done?

A specially equipped bed is used for this test. You will be securely strapped onto the tilt table. An ECG machine and a blood pressure monitor will monitor your heart rate and blood pressure throughout the test.

The tilt test starts with a measurement of your blood pressure and heart rate while you are lying down. Then the tilt table is tilted to an upright position and your heart rate and blood pressure are recorded regularly. If syncope does not occur medication may be used to cause an attack.

Your doctor will decide if the use of medication is needed. The medication and its expected effects will be explained at the time of the test. If you have an episode, you should expect to feel as you do after your regular spells.

The length of the tilt test varies, but generally takes about one hour.

in the blood pressure and flow of blood to the brain. When this happens, lightheadedness or fainting occurs. Recovery is rapid once the person is back in a lying position.

What are the signs and symptoms of reflex fainting?

Fainting spells usually occur when people are upright. In many people, they usually occur in one position (either sitting or standing), after walking, during or shortly after heavy exertion, or with emotional stress. However, in some people there are no factors which bring on a syncopal spell.

Some people may also have many episodes of near-fainting (pre-syncope). Other symptoms may include: nausea, warmth, vomiting, clamminess, sweating, anxiety, and/or visual blurring.

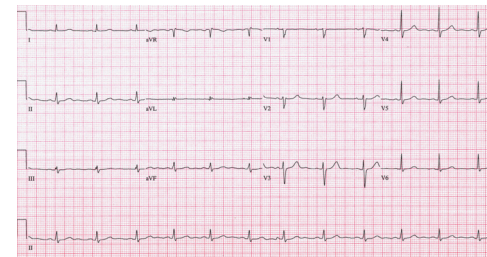
However, others have no warning before they faint. Surprisingly few syncopal spells result in trauma or motor vehicle accidents, possibly because the warning symptoms give the person enough time to protect themselves. The number of syncopal events per person varies widely and ranges from one or two to thousands.

What tests may be needed?

Your doctor may wish to perform a number of tests to find out how serious your condition is, or to rule out other causes of syncope.

Electrocardiogram

An ECG produces a readout of your heart's electrical activity while you are resting. This printout allows your doctor to look for any abnormalities in rhythm and heart disease.



Event Recorder/Holter monitoring

Long-term ambulatory event monitoring is useful in obtaining ECG recordings over a long time period (weeks to months). You must start the recorder when you are having symptoms. For people who do not faint often, this may be the only way to obtain an ECG recording during an event. The recorder can record ECG's for a varying time period before and after it is started. The event monitor is especially useful if you have warning signs before fainting.

The monitor is small, lightweight, and simple to use by either the affected person or a witness to the event. If there is an activity that causes you to faint, your doctor may encourage this activity in an effort to more quickly identify the problem. Make sure you have a family member or friend present to protect you from possible harm and to ensure that the event recorder is activated.

Holter Monitor

A monitor records your heart's electrical activity for 24-48 hours, while you carry on with your everyday activities. Later the recording is analyzed through a machine. This will produce a graph of your heart's activity through the entire period. Your doctor can look at this graph and see how your heart rhythm is affected by your normal activity.



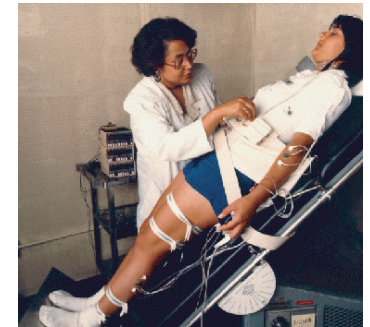
The monitor may give little information about heart rhythm disturbances unless you actually have symptoms or syncope while wearing the monitor.

Implantable loop recorder

This is a small device implanted under the skin, below the collarbone on the left side of the chest, in order to record heart activity. Its purpose is to record the heart's activity during a fainting spell. It is similar to an event recorder or Holter monitor, without having the leads attached to the skin. It lasts about two years and is activated by placing a device over the skin where the loop recorder is implanted. The device causes the recorder to save a tracing of the heart activity at that time.

Head-up Tilt Table Test

A head-up tilt table test (tilt test) is a test done to see if you are prone to an exaggerated drop in your blood pressure or to an abnormal sudden slowing of heart rhythm. The tilt test can bring out an abnormal slowing of the heart rhythm and low blood pressure in a susceptible person. It gets its name from the bed that is used during the study. This bed can be tilted to an upright position from a lying position and vice versa, in a matter of seconds. This tilting is similar to standing except less muscle contraction is needed to maintain an upright position. This results in more blood pooling in the legs.



What is the purpose of a tilt table test?

Tilt testing is a safe, simple and useful way for your doctor to identify whether you suffer from neuromediated syncope. It attempts to copy the conditions that cause you to faint. A negative tilt table test does not rule out reflex fainting.

Tilt testing may be helpful in learning whether reflex fainting plays a role in your syncopal episodes and may be used to assess the benefits of treatment.