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Syncope Trust And Reflex anoxic Seizures®
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Take Fainting to Heart
There is no such thing as a simple faint...

Reflex Syncope (Vasovagal Syncope)



Working together to improve the diagnosis, treatment and quality of life for all those affected by syncope

Glossary

12-lead electrocardiogram (ECG) A quick,non-invasive test to record the heart rhythm

Blackout/Transient loss of consciousness (T-LOC) The spontaneous loss of consciousness with complete recovery

Bradycardia is a slow heart rate, usually less than 60 beats per minute

Epilepsy A condition that affects the brain and causes repeated seizures

Heart rhythm monitor A device used to record heart rhythms whilst away from hospital

Hypotension is low blood pressure

Insertable cardiac monitor (ICM) A device used to monitor heart rhythms for months at a time if the episodes are less frequent than every two weeks. The device can remain in place for up to three years

Psychogenic blackouts A cause of apparent blackouts without evidence of syncope or epilepsy

Reflex syncope A transient condition resulting from an abrupt dysfunction of the autonomic nervous system, which regulates blood pressure and heart rate

Syncope A temporary loss of blood flow to the brain. It is commonly called fainting or passing out

Tilt table test An autonomic test used to induce an episode whilst connected to heart and blood pressure monitors

Transient ischaemic attack (TIA) A TIA or "mini stroke" is caused by a temporary disruption in the blood supply to part of the brain

Contents

What is reflex syncope?

Syncope (sin-co-pee) is a medical term for a blackout caused by a sudden lack of blood supply to the brain. Reflex syncope is one of the most common forms of syncope, sometimes it is called neurally mediated syncope, or vasovagal syncope. Reflex syncope is usually the result of a transient disturbance of the mechanisms that maintain blood pressure and blood flow to the brain. In reflex syncope, blood that should be going to the brain is diverted elsewhere in the body, mostly to muscles. In an upright person, the brain quickly shuts down and consciousness is lost.

This booklet is designed for patients who have been diagnosed with reflex syncope and their carers.

It contains information on the diagnosis, treatment and management of reflex syncope.

Autonomic sympathetic nerves pass from the brain to blood vessels that maintain blood pressure. In reflex syncope a poorly understood reflex suddenly withdraws the effect of these nerves, and blood pressure falls abruptly. Another part of this reflex involves the vagus nerve from the brain. When the vagus nerve stimulates the heart, it slows down the number of beats per minute. The activation of the vagus nerve can be very abrupt, causing the heart to slow suddenly, or even stop. The longest recorded period of time that a heart has stopped during reflex syncope is 86 seconds.

A fall in blood pressure and heart rate results in a decreased blood supply to the brain. At very low levels this can cause dizziness, visual disturbances and blackouts. These symptoms are most likely to be a problem when a person is upright (due to gravity further lowering blood pressure), but other factors such as food, heat, exercise, sight of blood and emotional stress can bring it on.

Fainting/Blackouts/Syncope/Unexplained loss of consciousness could signal severe heart issues in certain groups, including those with a family history of inherited heart conditions, unexplained deaths, or premature sudden deaths; individuals who faint during physical activity; and those whose fainting episodes are accompanied by palpitations or sensations of a rapidly beating heart. If this could apply to you or a member of your family, please discuss with your doctor.

It is very important to make sure syncope and epilepsy are distinguished from each other; syncope affects 50% of the population at some point in their life, but only 0.5-1% are affected by epilepsy.

The reason for confusion is convulsive syncope. When the blood suddenly drains from the brain, the brain can be irritated by lack of oxygen and lack of glucose from the blood. A 'seizure' can result. A patient may have sudden loss of consciousness, twitching and jerking of the arms, legs and face, and even incontinence of urine or faeces. Patients may have an unusual warning just before, as in epilepsy, and may be confused afterwards, as in epilepsy.
In syncope, it is common for people to look very pale, or 'like they had died'.
In epilepsy they will not be pale, but if breathing is affected, a patient may go blue.

A blackout is too often assumed to be due to epilepsy. If you have any doubt, then please look at the STARS Blackouts Checklist, which has been written specifically to help doctors and sufferers reach the correct diagnosis for an unexplained loss of consciousness.

What are the symptoms?

Symptoms vary from patient to patient, and from one faint to another but the most common symptoms are light headedness, dizziness, and nausea. Some people will feel very hot and clammy, sweaty and complain of visual and hearing disturbances. Many individuals become very pale. These symptoms are known as 'pre-syncope' and may or may not be followed by a complete blackout. Some people, particularly older people, get very little or no warning symptoms before blacking out.

Some symptoms of fainting may be complex, with no warning but with jerking and incontinence. Some individuals may take quite a while to come round. The symptoms of some faints can appear like a seizure or fit hence the confusion between reflex syncope and epilepsy. The important thing is that abnormal movements can occur in both syncope and epilepsy, and incontinence can occur in both.

How do I obtain a diagnosis?

Reflex syncope is not life-threatening, and with certain measures and sometimes medication, can be controlled. Fortunately the problems can improve with time. However, there are two important concerns. Firstly, some causes of syncope are not benign and can be very dangerous. These mostly occur in older patients. However, some children and young people can have electrical abnormalities of the heart that should not be overlooked and could be confused with reflex syncope if simple tests are not done. Some of the most important high-risk electrical diseases of the heart can be diagnosed or suggested by an ECG. Sometimes an echocardiogram is also helpful, but an ECG MUST be done in every patient with blackouts.

Obtaining a correct diagnosis can be achieved by consulting a doctor who is fully aware of the condition and takes a detailed history, a good description of the event by a witness and keeping a diary of events. Every patient who suffers a blackout should be given a 12-lead ECG.

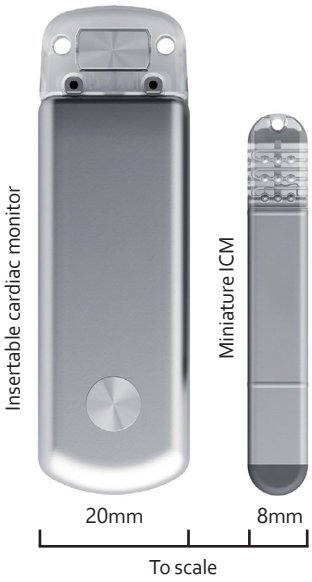
- **12-lead electrocardiogram (ECG)** is done to check for any features on the resting ECG that might suggest a genetic, inherited or familial heart rhythm disorder, and for heart rhythm analysis.

Occasionally after getting the story and doing an ECG, other tests may be helpful. However, tests are not a substitute for these vital basics, and very rarely make a diagnosis on their own.

The following tests are sometimes also used to help doctors make a diagnosis:

- **Heart rhythm monitors** are used to record heart rhythms whilst away from the hospital. You will be given a small monitor to wear and this will detect any abnormal rhythms that may occur during that period (24 hours - 2+ weeks)

- **Insertable cardiac monitors (ICMs)** are used to monitor heart rhythms for months at a time if the episodes are less frequent than every two weeks. The device, which is virtually invisible to the naked eye, can remain in place for up to three years. Implanting the device requires an incision of less than 1cm, takes approximately 10 minutes and can be closed with steri strips or one suture. The ICM is remotely monitored, wirelessly, through a receiver in the house. You would then be contacted if necessary



- **A tilt table test** is used to help establish the cause of fainting and falls by inducing an attack while connected to heart and blood pressure monitors. The test is painless and ideally should be performed with other autonomic tests to aid diagnosis and help in treatment, especially in advising on non-drug measures to prevent or reduce blackouts.

Syncope or Epilepsy? In some case it may be unclear whether the blackouts are due to syncope or epilepsy and you would be asked to see a neurologist. As before, it is the history that allows the neurologist to make a diagnosis of epilepsy. Occasionally, tests such as electroencephalogram (EEG) or a brain MRI scan may help but diagnosis rests on the story and an ECG.

What should I do if I feel dizzy or faint?

Immediate action advice

- **Sit down** immediately, draw your knees up and put your head between your legs or
- **Squat** if you can
- **Squeeze**
    - In all cases do **clenching** exercises
    - Clench your fists tight, dig elbows against your side, squeeze your tummy muscles
    - If sitting, raise your heels and squeeze your calf muscles
    - If standing and stable on your feet, cross your legs and tighten all your leg muscles and clench your buttocks
- **Lie down** flat and put your legs in the air, for example against a wall, or ask someone to hold them up for you

This is the fastest way to get your blood pressure up and stop your symptoms.

When you feel well, get up cautiously. However, if you have further symptoms you may need to lie down again.

For mild symptoms, the 'Squeeze' exercises may be all you need.

What should my friends/family do if I faint?

1. Make sure the area is safe and remove any hazardous objects
2. Carry out simple first aid checks (airway, breathing and circulation). It is sometimes hard to check a pulse if the patient has low blood pressure
3. Do not attempt to sit the patient up. You should place them in the recovery position on their side (to aid breathing). If breathing is satisfactory, raise the legs to speed recovery
4. Recovery is normally quite quick; however the patient may feel disorientated, weak or tired for a little while afterwards. The patient may benefit from being able to lie horizontally and getting up slowly
5. If the patient does not regain consciousness in their normal recovery time, then they should be turned on their back with their legs raised. This will increase blood pressure and improve blood flow to the brain
6. If recovery is slow, or if the patient feels different from how they normally feel after a faint, then they should seek medical assistance

"The self-help advice really works."
Abigail, yoga teacher

What can I do to prevent syncope attacks?

Long term prevention advice

Situations to avoid

- Avoid sitting or standing for long periods of time, for example on a bus, a check-out queue or in church, particularly in warm weather or hot environments. If you do have to stand still, then clench and unclench your calves or rock forward on the balls of your feet to encourage blood flow. If seated for long periods of time, for example while flying, raise your heels and squeeze your calf muscles frequently, fidgeting can be beneficial

- Avoid lifting heavy objects or any type of strain on the body. This activity can send messages to slow down your heart rate and therefore lower your blood pressure

Fluid intake

- Increase fuid intake. Try to drink 2-3 litres of water a day - ideally one litre in the first two hours of the morning. Urine should be clear or light yellow. Check with your doctor about fluid intake if you have other medical conditions such as heart failure or kidney problems

Diet

- Eat regular meals, including breakfast. Eat small meals often and avoid meals with large quantities of carbohydrates (bread, pasta, pastry). Increase your salt intake (only after discussion with your doctor, and never if treated for high blood pressure). Many people have taken away the message that the less salt you eat, the healthier you will be. This is now changing, as evidence is starting to emerge that cardiovascular mortality, from heart attacks, strokes and heart failure, is higher if you take too much OR too little salt

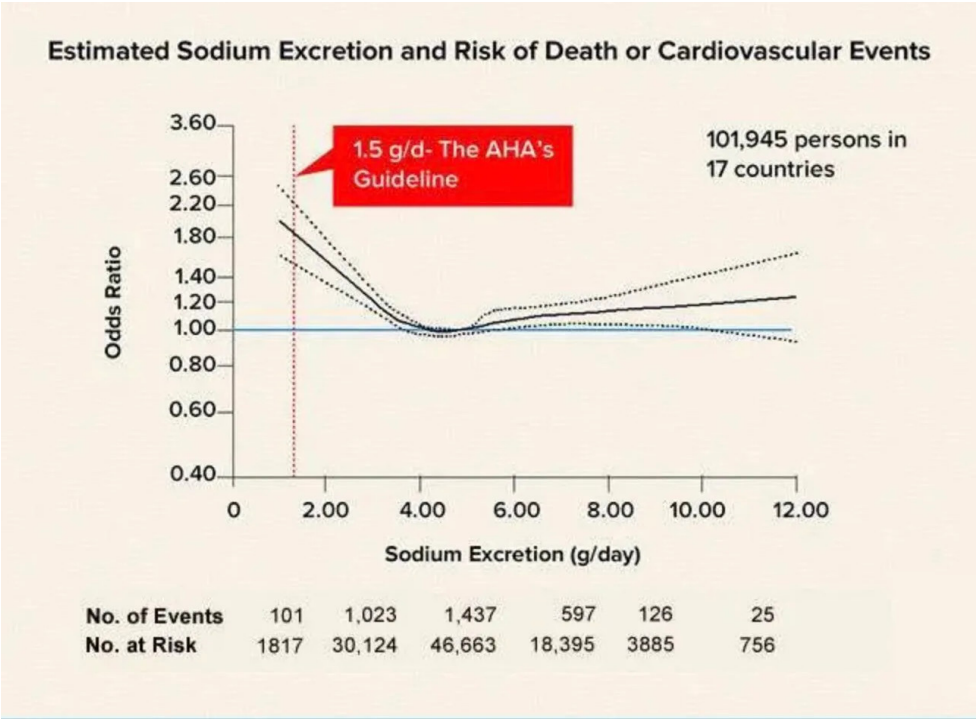


Figure 1: Graph of risk of death plotted against salt intake showing that mortality rises with lower salt intake more steeply than with higher salt intake. The dotted lines indicate the statistical certainty of the findings.

- Caffeine may worsen syncope in some patients; you should try avoiding or limiting your intake of caffeine-containing drinks (coffee, tea and cola-type drinks) to see if this helps your symptoms

- Avoid excess alcohol. Alcohol will make your symptoms worse. You may find that you can tolerate a small drink, but avoid drinking large amounts

Exercise

- Improve muscle tone in your legs with regular exercise, this helps to return blood to your heart

Medications

- Ensure you receive a regular review of your medications. Low blood pressure can be a side-effect of some medications. Once prescribed, medications should be reviewed at least once a year to ensure they are not the cause of the problems

Posture

- Avoid sudden changes in posture. Bending or stooping suddenly may make your symptoms worse. Try to pause in between changes in position

- Put two wooden blocks 2-3 inches high under the top feet of the bed. This means you will be lying slightly downhill. This reduced fluid loss during the night and 'trains' blood pressure reflexes to deal better with standing up for a long time

Clothing

- Try to keep cool and wear loose layers of clothing which can be easily removed if you become hot
- Wear high leg support tights during the day, but remove them before bed. Support tights prevent blood from pooling in your legs

Stokes-Adams Disease

This is a form of heart disease where the electrical wiring system of the heart is scarred. The effect is to slow electrical conduction across the heart and sometimes to stop it completely. If this happens the pumping chambers are not electrically activated to beat and there is then no output of blood from the heart, a condition known as asystole.

The consequence can be that the patient has a sudden blackout with no warning. Falls and injuries may result. Normally, the heart re-starts spontaneously but this is a dangerous condition requiring urgent pacemaker treatment. The cause is thought to be auto-immune meaning that, for reasons unknown, the body starts to attack and scar its own tissue as if it were foreign tissue.

The condition is very well treated by implantation of a permanent pacemaker and the remaining heart tissue is not usually damaged by the auto-immune process. In a Stokes-Adams attack, the patient's pallor is white, becoming blue, if it is prolonged beyond about 30 seconds. Upon recovery there is pronounced red flush.

The disease was identified by two Irish physicians Adams and Stokes in the 19th century.

Misdiagnosis

A wrong diagnosis can be very damaging to a patient and their family. Unfortunately misdiagnosis of epilepsy in syncope is common. It is thought to occur in 20– 30% of adults and 39% of children diagnosed with epilepsy. This represents about 125,000 people in the UK. The All-Party Parliamentary Working Group on Epilepsy reported in 2008 there were at least 75,000 people misdiagnosed with epilepsy in England and all prescribed unnecessary antiepilepsy drugs. If there are doubts about the diagnosis, a specialist opinion is essential. If this expert believes the blackouts may be due to syncope then an individual should be referred to an electrophysiologist for assessment and diagnosis.

General Information

Information for anaesthetists

It is important that the anaesthetist is informed that a patient has syncope and that the heart can stop due to increase in the vagal tone for up to one minute. It is advisable to inform the anaesthetist at the surgery pre-assessment appointment so he/she is prepared and aware of the patient's condition ahead of time. The anaesthetist may then ask for an ECG and a letter from the patient's cardiologist.

- The induction of anaesthesia can result in bradycardia and hypotension. Endotracheal intubation further increases vagal discharge. Therefore, syncope is more likely to occur in susceptible individuals

- This is often prevented by pre-medicating with atropine, a drug that increases the patient's heart rate. A more 'gentle' anaesthetic can be given to minimise the fall in blood pressure

- Syncope is not a contraindication to anaesthesia and, with normal and careful monitoring, the anaesthetic should cause no problems. Should the patient experience a syncopal episode on induction of anaesthesia, the heart will restart spontaneously

The only danger is giving an anaesthetic to a patient in an upright posture as when their heart has stopped, blood can pool in the legs causing problems when the heart normally restarts.

Thus, those with syncope should be anaesthetised lying down rather than sitting and may have atropine or a similar pre-medication.

A fact sheet for anaesthetists is available for download from www.stars.org.uk

Note:
The above guidelines maybe followed by dentists treating a patient with vasovagal syncope.

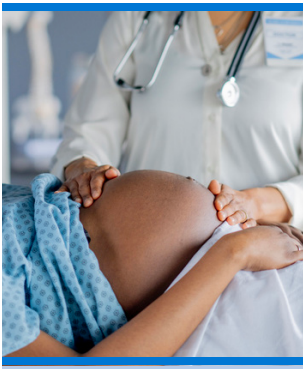
Syncope during pregnancy

If you wish to have a child, then reflex syncope should not be considered a contraindication to pregnancy. There is no evidence that reflex syncope (vasovagal syncope) will harm you or your child during pregnancy.

It is, however, recommended that patients taking midodrine, ivabradine or other such drugs should not become pregnant and, in the event of pregnancy occurring accidentally, then the drug should be discontinued as soon as possible. You should consult your doctor as soon as possible if you become pregnant on any of these medications.

Many mums-to-be report significant improvement in their symptoms during pregnancy. Careful attention should be paid to non-pharmacological measures to treat syncope – increasing fluid intake, following physical counter manoeuvres when experiencing pre-syncope symptoms and avoiding situations that could trigger an attack.

There is no evidence that reflex syncope increases the likelihood of a miscarriage or complications but it is essential that the GP, midwife and obstetrician are aware that you suffer with syncope.



A comprehensive factsheet on syncope during pregnancy covering labour, pain relief and other concerns is available to download from www.stars.org.uk

Syncope causes falls in older people

Though it is not widely known, syncope causes a significant number of falls in older people and one of the major concerns is the potential injury that may be caused.

Syncope undetected

30% of patients aged 65 years and over who have experienced syncope will not be aware that they are losing consciousness and say they have fallen. This can be due to a brief loss of memory in the time just before losing consciousness (medically termed retrograde amnesia).

Doctors may diagnose a mechanical fall and patients will not be investigated for the actual cause such as a fall in blood pressure as the body's mechanisms slow over the years. This may leave the loss of unconsciousness untreated.

Chronic medical problems, including diabetes, congestive heart failure, coronary artery disease, stroke and Parkinson's disease can increase the chance of an older person fainting at some point. Multiple medications can also be a problem if they are not regularly monitored.

Syncope misdiagnosed

Syncope is often misdiagnosed, in the event of a fall, because there are many factors for falls in older adults. People are very aware of deteriorating eye sight or a `knee giving way` contributing to falls, but syncope should also be investigated as a cause.

Syncope and falls are the most common reasons for older patients to attend accident and emergency. It is estimated that syncope accounts for 10 – 20% of falls which cause injuries.

A booklet, Syncope and Falls in the Elderly (SaFE) is available to download from www.stars.org.uk

Healthy eating for patients with syncope

Blood pressure and pulse rate can be influenced by what we consume. These changes can be quite dramatic in a patient with vasovagal syncope, which can work to the advantage or disadvantage of the patient.

Fluids: It is recognized that people who are dehydrated are prone to fainting. When fluid intake is insufficient, or fluid loss is excessive, the volume of blood circulating in blood vessels becomes reduced and blood pressure falls. An average healthy adult requires at least 1.5/2 litres of fluid per day. When exercising or in a hot environment, considerably more may be needed. Younger patients are often advised to drink sufficient fluids so that their urine is pale yellow in colour, i.e. not dark yellow or brown.

Some patients find it useful to drink pre-packaged sports rehydration drinks containing electrolytes and glucose when they are at risk of developing symptoms.

"I never realised that I was losing consciousness. Each time I found myself on the ground, I thought I had tripped. I was consistent in my description of my symptoms but they kept sending me to the eye doctor. I have injured myself falling on so many occasions"

Mary,
syncope patient

Alcohol: It is important to avoid excess alcohol consumption as alcohol dilates (opens up) blood vessels and can lower blood pressure and provoke syncope.

Caffeine: Caffeine ingestion has been shown to produce a small rise in blood pressure, which may be helpful to patients with low blood pressure and syncope, but for some it can cause tachycardia (fast heart rate) and palpitations. Experiment!

Salt: Patients with a tendency to low blood pressure and syncope are advised to increase their salt intake. Some eat salty food such as crisps, salted nuts, bacon, sausages, feta, marinated olives,and vegetable extracts. Fast foods are salty but also contain unhealthy fats and should be limited.

Fibre: It is important to avoid constipation with vasovagal syncope. Straining can induce fainting in susceptible patients. Eat high fibre foods such as bran cereal, fresh and dried fruits, vegetable, beans and lentils, wholemeal bread, brown rice and pasta. Read the food label! Plenty of fluids also help to prevent constipation.

Potassium: Patients taking fludrocortisone are prone to losing potassium. If monitoring shows that levels are low, potassium rich foods should be eaten. These include bananas, avocados, dates, beans, lentils, spinach, mushrooms, melon and dried fruit.

When to eat: Many patients struggling with vasovagal syncope find their symptoms are worse if they eat large heavy meals or become hungry. It is best to eat little and often. Reserve refined carbohydrates/high GI foods for evenings or times when you can lie down and rest afterwards.

It is useful to keep long-life, low GI food at work or in your car or handbag for those moments when you are caught out! Low fat flapjacks, oatcakes, nuts and dark chocolate are proven examples.

An information sheet, Healthy Eating for Syncope is available to download from www.stars.org.uk

Other treatments

Many syncopal attacks require only explanation and reassurance from a GP or trained nurse regarding the likely absence of anything being seriously wrong.

Consultation with a specialist will be necessary if the cause of the syncope remains uncertain or if there are particularly concerning symptoms or there is a family history of a heart condition.

Very rarely, tablets may be prescribed for reflex syncope, but the majority manage their condition following the simple preventative advice previously described.

In some cases, where evidence has shown sudden falls in heart rate associated with fainting, a pacemaker may be of benefit.

Cognitive behavioural therapy (CBT)

For some patients who identify the trigger to their attacks, cognitive behavioural therapy (CBT) may help to break a vicious circle of anxiety or similar type of problem. This is a structured talking therapy that can help to accept and adjust to a condition.

It is not a cure but it can help improve recovery, ability to function and quality of life.

Therapy can be particularly useful in helping us cope better with some of the very real and frightening symptoms of reflex syncope in such a way that prevents any anxious responses to these sensations causing them to get worse.

A GP should be able to advise how to access a suitable NHS therapist. The British Association of Behavioural and Cognitive Psychotherapist (BABCP) has a list of accredited therapists.

A booklet Cognitive Behavioural Therapy for chronic health conditions is available to download from www.stars.org.uk

Driving and reflex syncope

Most people with reflex syncope can continue to drive so long as:

- They have warning symptoms
- They do not have episodes whilst sitting or lying down
- They do not have another cause for their blackouts

Please ask your doctor and/or check with the DVLA if you are uncertain about your condition and driving. Consult the DVLA for further information on the latest guidelines.

Flying and reflex syncope

Follow the preventative advice already discussed. Drink plenty of fluids during the flight, avoid alcohol, wear compression stockings, move around the cabin when you can and take evasive action quickly if you get symptoms. Ensure you contact your insurer using the term 'common faint' regarding your symptoms, particularly if you have frequent symptoms or are taking medication for reflex syncope. STARS can provide a list of insurers sympathetic to those with pre-existing conditions.

Reflex Syncope is also known as:

Neurocardiogenic syncope, vasovagal syncope, neutrally mediated syncope, common benign fainting, malignant vasovagal syncope and emotional fainting.

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Working together to improve the diagnosis, treatment and quality of life for all those affected by syncope

STARS

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"A wonderful comprehensive booklet for everyone struggling with syncope."
Jane O, Norfolk

To view our patient resources, scan the QR code below:

Please remember that this publication provides general guidelines only. Individuals should always discuss their condition with a healthcare professional. If you would like further information or would like to provide feedback, please contact STARS.

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If you would like further information or would like to provide feedback please contact STARS.