# Central serous retinopathy

## What is central serous retinopathy?

Central serous retinopathy (CSR) or central serous chorioretinopathy (CSCR) affects the central area of your retina known as the macula. The retina is the light sensitive tissue at the back of your eye. CSR can cause your vision to be blurred and distorted due to fluid collecting underneath your macula. The condition usually occurs in one eye.

CSR typically affects people aged between 20 and 50 and is more common in men than in women. However, it can occur in older people too. For most people, CSR gets better on its own and doesn’t cause long-term changes to vision. However, for some people, it may recur. Episodes of CSR that last for a long time or keep coming back are more likely to cause permanent changes in your vision.

## How does CSR affect your eye?

Your retina is made up of several layers that must work together to enable you to see. Behind the retina is a layer of tissue rich in blood vessels called the choroid. The choroid helps to keep the retina healthy along with the tissue layer between them called the retinal pigment epithelium (RPE). The RPE acts like a barrier and a pump, stopping fluid from the choroid from building up underneath the retina.

CSR develops if the RPE does not work as it should. Fluid from the choroid gets through the RPE and starts to collect underneath your retina, causing the central macula area to swell. The health of the macula is vital because it enables you to see fine detail and colour when you are looking directly at something, such as when reading, looking at people’s faces or at the television. Your macula therefore gives you your central vision, while the rest of your retina gives you side vision (peripheral vision).

## What are the symptoms of CSR?

Macular swelling due to CSR can cause changes to your central vision such as:

* blurring that is painless
* distortion
* blind spots
* dulled colour vision
* seeing objects that appear to be smaller than they actually are
* increased sensitivity to light
* problems seeing an object against a background of a similar colour
* fluctuating vision from one day to another

## What causes CSR?

In most cases, no cause can be found to explain why CSR is present. This is known as idiopathic CSR. However, several possible risk factors have been identified that could trigger CSR in some people. The condition seems to occur more frequently in people:

* with a Type A personality (people who are more highly competitive, are continually stressed and find it hard to relax)
* who use steroid medication
* during pregnancy
* with Cushing syndrome
* with H.pylori bacterial infection
* sleep apnoea syndrome

When you’re under stress, your body releases a natural steroid called cortisol into your bloodstream which helps your body to cope. Pregnancy, sleep apnoea and Cushing syndrome can also cause greater than normal levels of cortisol to be in the body.

Although cortisol itself is essential for your health, continuously raised levels of cortisol can sometimes cause problems for your body. This can include immune suppression (reducing the body’s ability to fight infection) and increased fragility and permeability (leakiness) of the blood vessels.

Although cortisol is currently thought to be linked to CSR, it is not thought to be solely responsible for the condition and cannot explain all cases of CSR.

## How quickly will my sight get better?

The way CSR may progress can be grouped into three categories.

* Most people will recover within four to six months without any need for treatment
* CSR which lasts up to 12 months may require treatment.
* CSR which lasts over 12 months. This is very rare but can lead to further changes such as RPE detachment or bullous retinal detachment.

Treatment isn’t usually needed for CSR. Most people will find that their vision improves within three to six months without the need for treatment. Vision often returns to how it was before CSR developed, although in some people small changes to vision may continue in the long term. About 30-50 per cent of people (between 30 and 50 people out of 100) will have another episode of CSR either in the same or other eye.

In a small number of people, CSR can be chronic, lasting longer than 12 months. In these cases, sight is more at risk because the retinal layers at the back of the eye can become damaged from prolonged swelling which can lead to a permanent worsening of vision. Therefore, treatment may be recommended for CSR lasting longer than six months.

## How is CSR diagnosed?

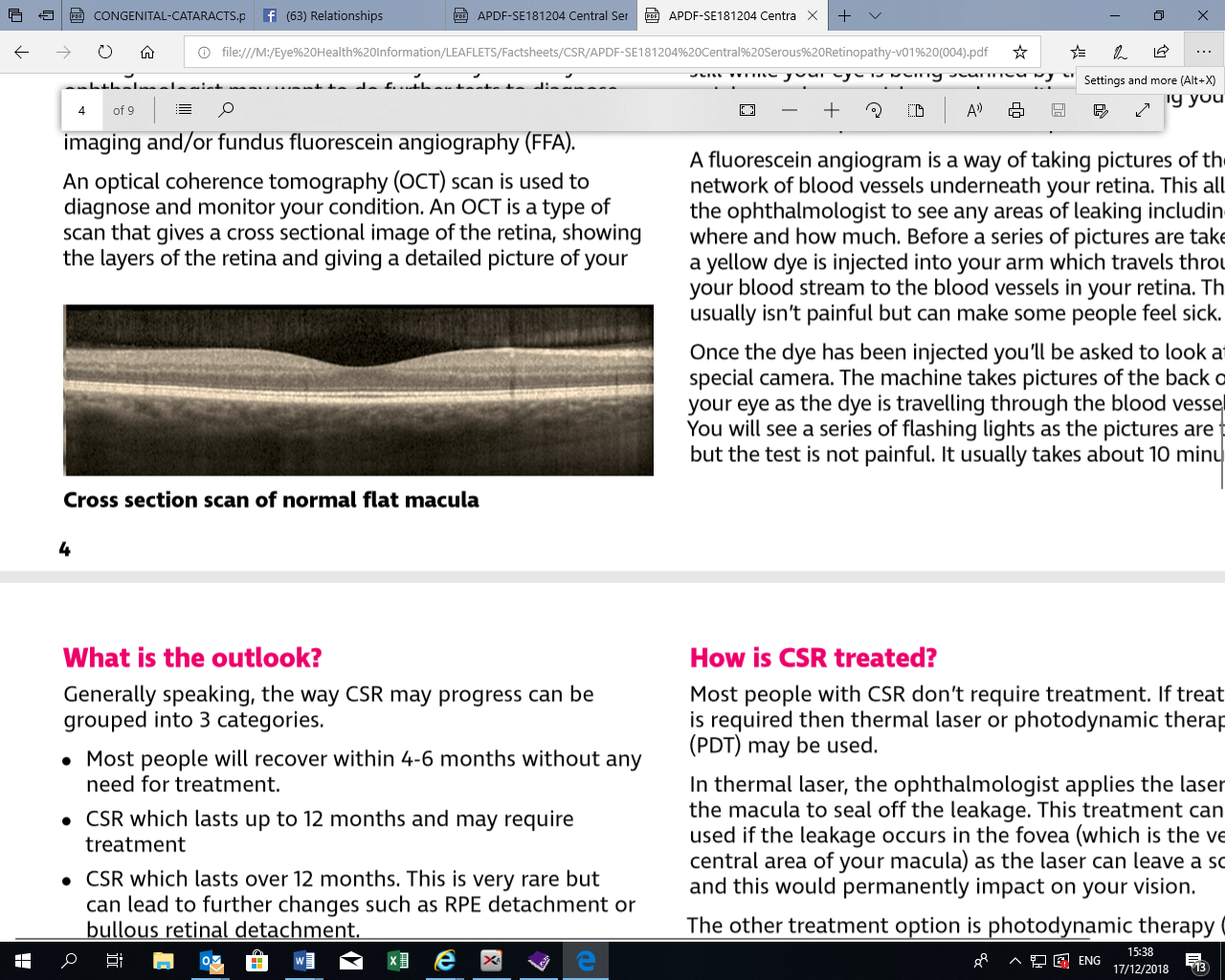
CSR is diagnosed by an ophthalmologist (hospital eye doctor). Some people will see an optometrist (optician) first because they have noticed symptoms of CSR affecting their vision. An optometrist will refer you onto an ophthalmologist at the eye clinic for further tests and diagnosis.

The ophthalmologist will examine your eyes using a microscope called a slit lamp. To examine the retina and macular area more easily, your pupils will be dilated (made bigger) with eye drops that take about 30 minutes to work. They may last four to six hours before their effects wear off completely.

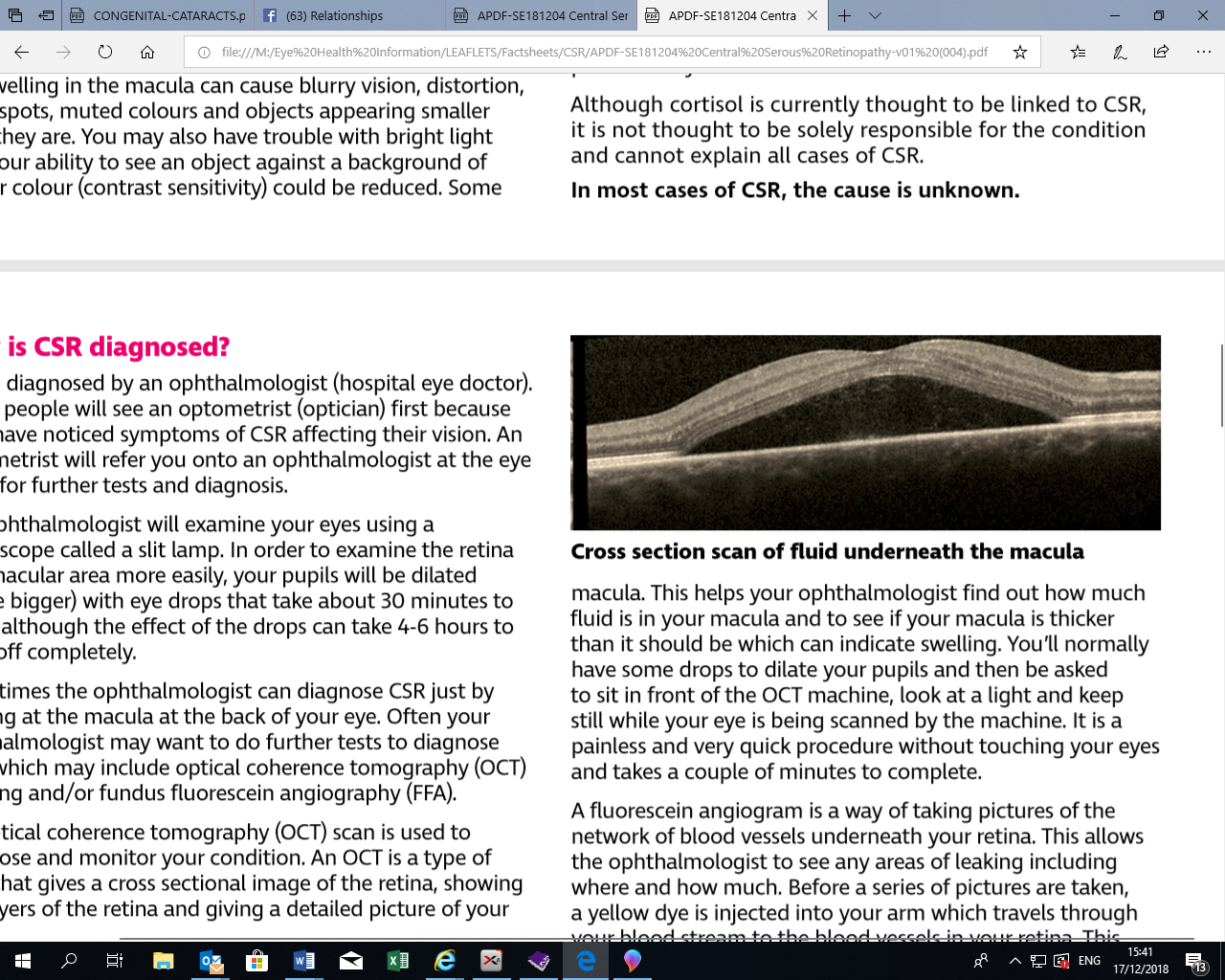
This initial examination and certain camera-based imaging tests enable your ophthalmologist to diagnose CSR. Your ophthalmologist will decide which of these imaging tests are necessary for you to have. These can include optical coherence tomography (OCT) imaging and/or dye contrast photographs of the retina, such as fundus fluorescein angiography (FFA) and indocyanine green angiography (ICGA). Not everyone will need to have FFA or ICGA tests, but for some people, it can help the ophthalmologist to rule out conditions that are similar to CSR and to decide on whether treatment is recommended.

An OCT scan is used to diagnose and monitor your condition. The scan gives a cross sectional image of the retina, showing the layers of the retina and giving a detailed picture of your macula. This helps your ophthalmologist find out how much fluid is in your macula and to see if it’s thicker than it should be, which can indicate swelling. You’ll normally have some drops to dilate your pupils and then be asked to sit in front of the OCT machine, look at a light and keep still while your eye is being scanned. It is a painless and very quick procedure which takes a couple of minutes to complete and without anything touching your eyes.

Below are two OCT scans showing the cross-sectional view of a normal macula and that of a macula with CSR



Cross section scan of a normal flat macula



Cross section scan of fluid underneath the macula (CSR)

FFA and ICGA techniques use non-toxic dyes to highlight the network of blood vessels within and underneath your retina, making them easier to see when they are photographed. This allows the ophthalmologist to see any areas where there is leakage, and to identify the extent and location of these leaks. Fluorescein (yellow) and/or indocyanine green dye is injected into your arm which travels through your blood stream to the blood vessels in your retina. This usually isn't painful but can make some people feel sick.

Fluorescein makes the blood vessels in the retina easier to see as it passes through them and blood vessels that are leaking will be easier to detect. Indocyanine green makes the blood vessels in the choroid underneath the retina easier to examine. Once the dye has been injected, you’ll be asked to look at a special camera so that a series of pictures can be taken of the back of your eye as the dye travels through the blood vessels. You will see a series of flashing lights as the pictures are taken, but the test is not painful. It usually takes between 10 to 30 minutes.

## Can CSR be treated?

Most people with CSR don’t require treatment, just monitoring, as their CSR recovers on its own within the first six months. There are various treatment options available that work in managing the condition but at the time of writing this information, they are not licensed or NICE approved for treating CSR. (NICE stands for National Institute for Health and Care Excellence) This means not every hospital has funding for treatment for CSR. If your CSR doesn’t improve, and you are offered treatment, your ophthalmologist might suggest thermal laser or photodynamic therapy (PDT).

With thermal laser treatment, the ophthalmologist applies the laser to the macula which seals off the leakage. This treatment can’t be used if the leakage occurs in the very central area of your macula, known as the fovea, as the laser can leave a scar which would permanently affect your vision if the fovea was affected.

The other treatment for CSR is photodynamic therapy (PDT). PDT is a type of laser treatment which uses a combination of a non-toxic, light sensitive drug called verteporfin (Visudyne) and a low energy (cold) laser to reduce the leakage. Verteporfin is given as an injection, usually into your arm. It makes its way to the blood vessels underneath the macula and is activated by the low energy laser to seal off areas of leakage. This form of treatment is unlikely to damage the centre fovea and surrounding tissue.

Some people may be offered anti-inflammatory agents and drugs that alter steroid metabolism within the body. Your ophthalmologist is the best person to advise you about suitable treatment options for your situation, as these options are not used routinely at the moment.

When deciding on treatment, the ophthalmologist would consider:

* How long you have had CSR, as treatment would only be considered after four to six months of the initial diagnosis
* If you experience a recurrence of CSR, treatment may be considered sooner
* Thermal laser treatment isn’t given if the fluid is leaking to close to the centre of the macula because it could cause more harm than good.

## What are the complications of CSR?

Some people with long-term CSR may have irreversible sight loss if the RPE retinal layer is permanently damaged.

For a small number of people with CSR, there can be complications that lead to abnormal blood vessels forming under the retina. These blood vessels can leak further fluid in the retina, and you may be offered treatment with anti-VEGF (anti-vascular endothelial growth factor) injections in the eye. Anti-VEGF injections stop new blood vessels from forming and reduces the swelling that has formed under the retina.

In rare cases, central serous retinopathy can cause the retina to detach away from the RPE and bullous serous retinal detachment can occur. In this type of retinal detachment, fluid collects under the retina, away from the central macula but without causing the retina to break. It is important for the condition to be diagnosed so that the appropriate treatment options can be explored.

## Can I do anything to help my condition?

After an episode of CSR, you may wish to see your GP to discuss control of any possible risk factors that could be triggers for your CSR.

Your GP may review your general health and, if it is appropriate for you, may advise you to stop taking any medication containing steroids, including those taken by mouth, inhaled, and applied to the skin. **However, it’s important not to stop taking any medication without speaking to your GP first.**

Your GP may also be able to discuss counselling for stress management and other lifestyle changes which can be important considerations when you have CSR.

## How will I manage with the change in my sight?

How much CSR will affect your sight overall can vary from person to person. Some people do not notice much difference in their vision unless they cover the unaffected eye, while others are very aware of the change in their eye all the time. When you lose vision in one eye, it’s common to experience some uncomfortable symptoms as your visual system adjusts to this new way of seeing. Because you use both eyes together to see in three dimensions (3D), when one eye is affected, you may have difficulty judging distances. You may feel clumsy, misjudge steps, pavements, and the position of objects, for example cups. However, after a few months you will probably find that this becomes less of a problem. This is because our brains are very adaptable and able to adjust to a new level of vision over time. It’s difficult to predict how long this adaptation will take because it’s very individual. However, people often find that with time their good eye “takes over” and that tasks that were previously difficult become easier.

You may be tempted to cover your affected eye with a patch or your hand to make things easier to see. This may help for very short-term tasks, where seeing detail quickly, such as reading key information, is more accurate with the better eye alone. However, unless your consultant has recommended patching your eye, it is better to try to adapt to the change in your vision by leaving the affected eye uncovered as much as possible. This means you won’t need to keep re-adapting to your change in sight every time you remove the patch. Patching also restricts your peripheral vision on that side, making it more likely that you’ll bump into things when you’re wearing it.

You can find more information about coping when there is some degree of vision loss in one eye on our website **rnib.org.uk/eye-health/eye-conditions/monocular-vision** or by calling our Helpline **0303 123 9999** and requesting our information about monocular vision.

## Can I still drive?

You may be able to continue driving a car or motorcycle if the vision in your other eye is unaffected by other eye conditions and can meet the visual requirements for driving. You are required by law to tell the Driver and Vehicle Licensing Authority (DVLA) if you have any eye conditions which may affect your vision in both eyes. Ask your optometrist or your ophthalmologist for advice about whether your sight meets DVLA standards and whether you can continue driving. Even if you’re told that your sight does meet DVLA standards, you may be advised to wait until you have adapted to having poorer vision in one eye before you resume driving.

## Can I get help to see things better?

Most people with CSR find that their vision gets better on its own and they aren’t left with long term changes to their sight. However, having chronic CSR can cause changes to your vision in the long term, but there are lots of things you can do which will help you adapt to make the most of the vision you still have.

If the eye with CSR was your good eye and you have a sight problem in your other eye, then you may need to make some changes or use low vision aids to make the most of your remaining sight. This may mean making things bigger, using brighter lighting, or using colour to make things easier to see.

We have a series of leaflets with helpful information on living with sight loss, including how to make the most of your sight. You can find out more about our range of titles by calling our Helpline on **0303 123 9999**.

You may benefit from having a low vision assessment and you can ask your ophthalmologist, optometrist or GP about how to access this service in your area. During this assessment, a low vision specialist can discuss with you whether using magnifiers and other aids will help you to see things more clearly.

If you also have reduced vision in your other eye due to an eye condition, you should ask your ophthalmologist whether you’re eligible to register as sight impaired or severely sight impaired. Registration can act as a passport to expert help and sometimes to financial concessions. Even if you aren’t registered, a lot of this support is still available to you.

## Coping

### Support from RNIB

Being diagnosed with an eye condition can be very upsetting. You may find that you are worried about the future and how you will manage with a change in your vision. All these feelings are natural.

It can sometimes be helpful to talk about these feelings with someone outside your circle of friends or family. By calling our RNIB Helpline, you are no longer alone. The RNIB Helpline is your direct line to find out what support is available in your area and beyond, both from RNIB and other organisations. We can support you at every step, putting you in touch with the advisors you need from any of our supportive teams. Whether it be advice about your employment, using assistive technology or understanding more about your eye condition, we are here to help. Our Counselling and Wellbeingteam is also available to provide the emotional support you may need. Your GP or social worker may also find a counsellor for you if you feel this might help.

### Eye Care Liaison Officer (ECLO)

You may think of further questions about CSR on your way home from hospital or in the days and weeks following your diagnosis. There is someone to turn to with these questions. Your eye clinic may have a sight loss advisor working alongside the doctors and nursing staff. This advisor may be known as either the Eye Care Liaison Officer (ECLO), the Vision Support Officer or the Early Intervention Support Officer and they are on hand within your hospital to provide you with further practical and emotional support about your eye health. To find out if your hospital eye clinic has an ECLO, you can search within the RNIB Sightline Directory:**sightlinedirectory.org.uk**.

Alternatively, you can call our Helpline to speak to our advisors within our **Eye Health Information Service** as they would be happy to discuss any questions you may have.

## Sources of support

### Helpline

If you have questions about anything you’ve read in this factsheet, or just want to speak further to someone about CSR, please get in touch with us. It doesn’t matter if you have just been diagnosed with CSR or you’ve known about it for a while; we’re here to support you at every step.

Our Helpline is your direct line to the support, advice and services you need. We'll help you to find out what's available in your area and beyond, both from RNIB and other organisations.

Whether you want to know more about your eye condition, buy a product from our shop, join our library, find out about possible benefit entitlements, or be put in touch with a trained counsellor, or make a general enquiry, we’re only a call away.

Call our Helpline on **0303 123 9999**, we’re ready to answer your call Monday to Friday 8am – 8pm and Saturday 9am – 1pm. You can also email us at **helpline@rnib.org.uk**. You can also say, “**Alexa, call RNIB Helpline**” to an Alexa-enabled device.

You can also get in touch by post or by visiting our website:

RNIB

105 Judd Street

London WC1H 9NE

**rnib.org.uk**

### The Sight Advice FAQ

The Sight Advice FAQ answers questions about living with sight loss, eye health or being newly diagnosed with a sight condition. It is produced by RNIB in partnership with a number of other sight loss organisations. **sightadvicefaq.org.uk**

### Connect with others

You can meet or connect with others who are blind or partially sighted online, by phone or in your community to share interests, experiences and support for each other. From book clubs and social groups to sport and volunteering, our friendly, helpful and knowledgeable team can link you up with opportunities to suit you. Visit **rnib.org.uk/connect** or call **0303 123 9999**.

### Other useful organisations

Sometimes it can help to talk about your feelings or share your experience with people who may have had similar experiences. The Macular Society offer local support groups, including working age groups, for people with macular eye conditions or central vision loss.

They also offer a telephone counselling service.

#### Macular Society

PO Box 1870

Andover

SP10 9AD

Tel: **0300 3030 111**

Web: **macularsociety.org**

Email: **help@macularsociety.org**

#### Driver and Vehicle Licensing Agency (DVLA)

Drivers' medical enquiries

DVLA

Swansea

SA99 1TU

Tel: **0300 790 6806**

Web: **gov.uk/driving-medical-conditions**

## We value your feedback

You can help us improve our information by letting us know what you think about it. Is this factsheet useful, easy to read and detailed enough – or could we improve it?

Send your comments to us by emailing us at **eyehealth@rnib.org.uk** or by writing to:

Eye Health Information Service

RNIB

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## Information sources

This factsheet has been written by the RNIB Eye Health Information service. Our factsheets have been produced with the assistance of patient and carer input and up-to-date reliable sources of evidence. The accuracy of medical information has been checked by medical specialists. If you would like a list of references for any of our factsheets, please contact us at **eyehealth@rnib.org.uk**

All our factsheets are available in a range of formats including print, audio and braille.

This factsheet has been produced jointly by RNIB and The Royal College of Ophthalmologists.

RNIB is a member of the Patient Information Forum (PIF) and have been certified under the PIF TICK quality mark scheme.

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