

# Age-Related Macular Degeneration (AMD): A Quick Guide

## What is AMD?

AMD affects about 2.5 million Canadians.<sup>1</sup> To help you understand AMD, let's break down what it stands for:

### A

#### Age-related:

It is a disease linked to age, specifically people over age 55<sup>1,2</sup>

### M

#### Macular:

It affects the macula, the centre of the retina that allows you to see things right in front of you (e.g., text, faces)<sup>1,3</sup>

### D

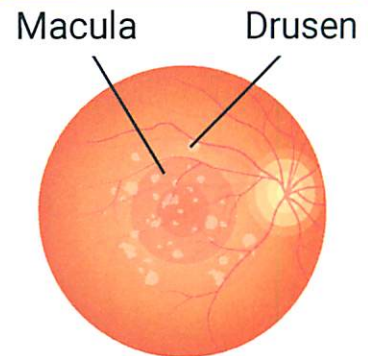
#### Degeneration:

There is a breakdown of cells<sup>3</sup>

## What is dry AMD?

- Occurs when the macula gets thinner and fat deposits called drusen build up underneath it, causing a slow loss of central vision<sup>1,3</sup>
- 3 stages:
  - Early
  - Intermediate
  - Late (also known as geographic atrophy)<sup>1</sup>
- Usually there are **no symptoms early on**, so it is important to have your eyes checked regularly. Your eye doctor will look for drusen and perform tests on your eyes to diagnose AMD<sup>1,3</sup>
- Can occur in one or both eyes and progress differently in each eye<sup>3</sup>
- **Early diagnosis is important to help prevent vision loss<sup>2</sup>**

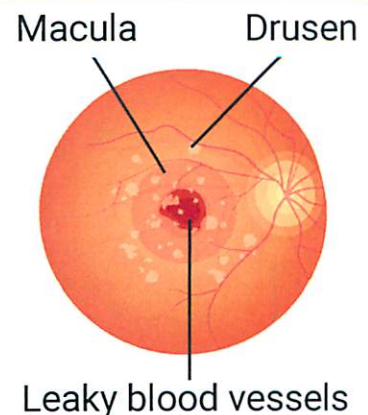
### Dry AMD



## What is wet AMD?

- Occurs in 1 in 10 people living with dry AMD<sup>1</sup>
- Abnormal blood vessels grow beneath the retina (a layer in the back of your eye vital to maintaining vision) and push their way through it
- The abnormal vessels leak fluid and blood into the eye, which scars the macula and results in **blind spots in central vision<sup>1,3</sup>**

### Wet AMD





Ask your doctor for an Amsler Grid (or scan to use an online version) so that you can monitor your vision every week for changes or distortion. You should test each eye separately.



## What will happen to my vision?

As **dry AMD** advances, the first symptom is usually **slight blurring or distortion** in the centre of your vision.<sup>3</sup> Over time, this can get worse and you may notice other symptoms, such as blank spots.<sup>3</sup>

If your dry AMD progresses to **wet AMD**, you may **notice sudden changes in the centre of your vision**, such as:

- Distorted vision (straight lines appear wavy)
- Blurred vision
- Dark spots
- Difficulty seeing details in low light<sup>1</sup>

**It is rare for wet AMD to cause you to lose your vision completely**, because it does not impact peripheral (side) vision and you may only get it in one eye.<sup>1,2</sup> However, having less central vision can make everyday activities, like reading or watching TV, difficult.<sup>1,3</sup>



**Normal vision**



**Dry AMD**  
Fuzzy or distorted vision



**Wet AMD**  
Blind spot in centre of vision

**Contact your doctor right away if you notice sudden vision distortion or significant vision changes.**

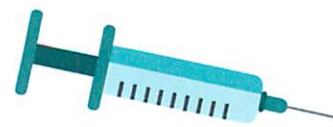
## Will I still be able to drive?

Yes, you may still be able to drive if your vision is not greatly affected. In most provinces and territories in Canada, you must have good vision in at least one eye to be able to drive.<sup>4</sup> This is often the case for the early stages of dry AMD.



## What treatment options are available for AMD?

- Eye injections are a treatment option for wet AMD (currently there are no eye injections available for dry AMD in Canada).<sup>1,5</sup>
- These injections will likely be a long-term treatment that can slow the progression of vision loss or even improve your vision.
- How often you receive eye injections will depend on the state of disease in your eye, and will vary from person to person.
- To help maintain the benefits of your treatment, it is important to attend all of your injection appointments.
- Another treatment option is photodynamic therapy, which can slow vision loss and slow or stop the growth of abnormal blood vessels and leakage from them.



**Your dry AMD does not go away when you develop wet AMD, so you may still have vision loss from your dry AMD even if your wet AMD is being treated.**<sup>1</sup> All treatment options can cause serious side effects and may not be suitable for everyone.

## What can I do to help manage my AMD?

Two of the most important things you can do are:

- **Attend all of your eye doctor appointments.**
- **Commit to the treatment plan given to you by your doctor.**

Lifestyle changes may help slow vision loss from AMD, such as:



Maintain healthy blood pressure and cholesterol levels<sup>1,3</sup>



Exercise regularly – check with your doctor before starting any new exercise program<sup>1,3</sup>



Add leafy green vegetables and fish to your diet<sup>1,3</sup>



Quit smoking



AREDS 2 nutritional supplements may help delay the progression of AMD, and can help maintain vision and eye health.<sup>6</sup> **Be sure to ask your eye care professional if your supplements meet the AREDS 2 criteria.**



# Are my family members at risk of getting AMD?

Family history is a risk factor for AMD.<sup>1,3</sup> If you have AMD, it is a good idea for family members over 55 years of age to visit their eye doctor regularly to screen for AMD.<sup>3</sup>

## Where can I get more information?



- Online vision tests
- Educational articles and videos



[www.seethepossibilities.ca](http://www.seethepossibilities.ca)



- Dedicated phone line and email
- Educational articles, videos, and webinars



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[healthinfo@fightingblindness.ca](mailto:healthinfo@fightingblindness.ca)



[www.fightingblindness.ca](http://www.fightingblindness.ca)



- Dedicated phone line
- Educational articles and webinars



**1-866-867-9389**



[www.aqdm.org](http://www.aqdm.org)

1. "Age-Related Macular Degeneration", Fighting Blindness Canada, last modified July 21, 2023, <https://www.fightingblindness.ca/eyehealth/eye-diseases/age-related-macular-degeneration/>
2. "Age-Related Macular Degeneration", HealthLink BC, last modified January 24, 2022, <https://www.healthlinkbc.ca/more/aging-well/age-related-macular-degeneration>
3. "Age-Related Macular Degeneration (AMD)", National Eye Institute, last modified June 22, 2021, <https://www.nei.nih.gov/learn-about-eye-health/eye-conditions-and-diseases/age-related-macular-degeneration>
4. Yazdan-Ashoori, P., & M. ten Hove. Vision and driving: Canada. *J Neuroophthalmol.* 2010 June;30(2):177-185. doi:10.1097/WNO.0b013e3181dfa982
5. "Age-Related Macular Degeneration Preferred Practice Pattern 2019", American Academy of Ophthalmology, 2019, <https://www.aao.org/education/preferred-practice-pattern/age-related-macular-degeneration-ppp>
6. Cruess, A.F., Berger, A., Colleaux, K., et al. Canadian expert consensus: optimal treatment of neovascular age-related macular degeneration. *Can J Ophthalmol.* 2012;47(3):227-235. doi:10.1016/j.cjco.2012.03.007

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# Diabetic Retinopathy (DR): A Quick Guide

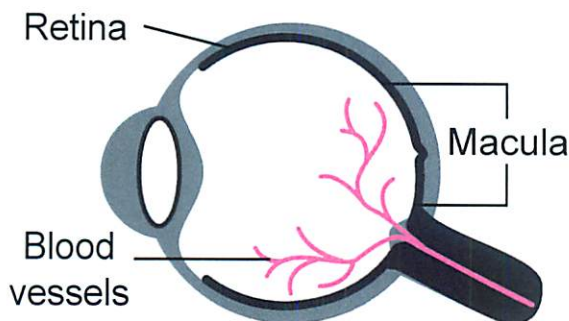
Diabetic retinopathy (DR) is an eye disease of the retina, the layer at the back of your eye that is vital to maintaining vision. It happens when significant changes in blood sugar levels damage blood vessels in the retina.<sup>1</sup> Of the more than 5.7 million Canadians living with diabetes, approximately 1 million are also affected by DR.<sup>2</sup>

## What are the types of DR?

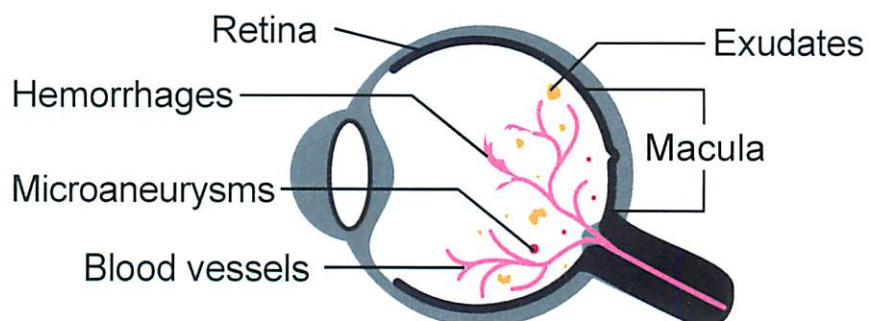
### Non-proliferative diabetic retinopathy (NPDR):

- **Early** stage of the condition
- Often there are no symptoms<sup>2</sup>
- At this stage you should visit your eye doctor yearly so that they can check for things that are abnormal in your eye, like:
  - exudates (fluid from a wound)
  - hemorrhages (bleeding)
  - microaneurysms (tiny pouches of blood) leaking fluid<sup>2,3</sup>

### Healthy retina



### NPDR



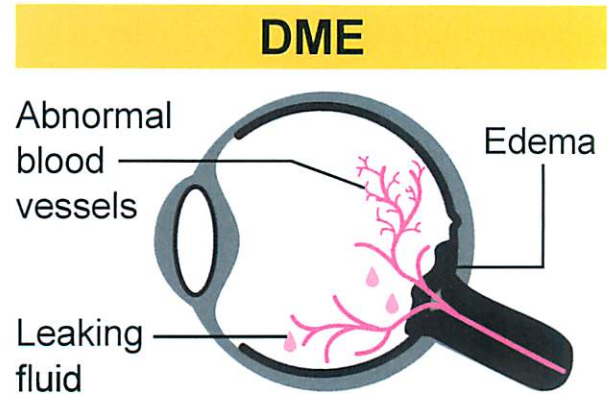
### Proliferative diabetic retinopathy (PDR):

- **Advanced** form of DR
- New abnormal blood vessels start to proliferate (grow) to make up for the poor circulation in your retina caused by diabetes<sup>1,2</sup>
- The new blood vessels are fragile and can cause vitreous hemorrhage (bleeding in the eye) or retinal detachment (the retina is pulled away from its normal position)<sup>1,2</sup>
- Symptoms may include large floaters (black or red in colour) or sudden vision loss<sup>1,2</sup>



## What is diabetic macular edema (DME)?

- It can occur with NPDR or PDR
- Abnormal blood vessels develop along the macula (the centre of the retina that allows you to see things right in front of you, like faces or text)<sup>4</sup>
- The vessels leak fluid into the retina, which can cause edema (swelling) in the macula, affecting your central vision<sup>2</sup>
- A symptom of DME may be distorted vision (straight lines appear wavy)<sup>2</sup>



## How are DR & DME treated?



In its early stage (NPDR), **proper diabetes control** can slow the development and progression of the disease.<sup>5</sup>

## If the condition progresses (e.g., PDR or DME), you may receive:



**Eye injections:** an injection of medication to target the proteins in the eye that are causing the abnormal blood vessels to form<sup>5</sup>



**Laser treatment:** different types of office-based laser treatments can help reduce vision loss<sup>5</sup>

**All treatment options can cause serious side effects and may not be suitable for everyone. Your eye doctor is the best source for advice on your treatment options.**



## I have been diagnosed with DR; what can I do now?

**By taking care of your diabetes**, you can take care of your vision. While the results may not be immediate, over time it is possible to undo some of the damage caused by DR.<sup>2</sup> Be sure to:

- Check your blood sugar often, and maintain your recommended target.
- Follow your diabetes management plan and take any medications as prescribed.
- Work alongside your healthcare team to develop and follow healthy eating and exercise plans. Ask your doctor to see if a nutritionist or dietitian may be able to help you.
- Keep your blood pressure and cholesterol under control. Talk to your doctor about how often these should be monitored.
- If you smoke, stop. Ask your doctor for help to quit, if you need it.
- Follow the guidance from your eye doctor on how often you need to have eye exams or treatments.<sup>1</sup>



## What other support can I get?

If you receive a diagnosis that could lead to vision loss, this can bring up emotional and practical challenges. Lean on your loved ones for support, and consider connecting with others facing a similar path.

### Emotional support

- Express how you are feeling to friends and family, and don't be afraid to ask for help with everyday tasks.
- Seek advice from a therapist or counsellor (your family doctor may be able to suggest one).<sup>6</sup>

### Lifestyle adaptations

- Using screen-magnification technology on websites or low-vision aids (e.g., magnifying glasses or descriptive audio television programs) may be helpful.<sup>6</sup>



# Helpful resources for more information on DR



- Online vision tests
- Educational articles and videos



[www.seethepossibilities.ca](http://www.seethepossibilities.ca)



- Tips for managing your diabetes



[www.diabetes.ca](http://www.diabetes.ca)



- Dedicated phone and email



**1-888-626-2995**



**[healthinfo@fightingblindness.ca](mailto:healthinfo@fightingblindness.ca)**

- Educational articles, videos, and webinars



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1. "Diabetic Retinopathy: Symptoms & Causes", Mayo Clinic, last modified February 21, 2023, <https://www.mayoclinic.org/diseases-conditions/diabetic-retinopathy/symptoms-causes/syc-20371611>
2. "Diabetic Retinopathy", Fighting Blindness Canada, last modified October 27, 2020, <https://www.fightingblindness.ca/eyehealth/eye-diseases/diabetic-retinopathy/#resources-drm>
3. Davoudi S., et al. Optical coherence tomography characteristics of macular edema and hard exudates and their association with lipid serum levels in type 2 diabetes. *Retina*. 2016;36(9):1622-1629. doi:10.1097/IAE.0000000000001022
4. "Macula", American Academy of Ophthalmology, accessed June 30, 2023, <https://www.aao.org/eye-health/anatomy/macula-6>
5. Altomare F., et al. 2018 Clinical Practice Guidelines: Retinopathy. *Can J Diabetes*. 2018;42:S210-S216
6. "Strategies for Coping with Vision Loss", Braille Institute, last modified November 3, 2019, <https://brailleinstitute.org/blog/sight-loss-blog/strategies-for-coping-with-vision-loss#:~:text=Consider%20counseling%20%E2%80%93%20Vision%20loss%20can,based%20on%20your%20individual%20requirements>

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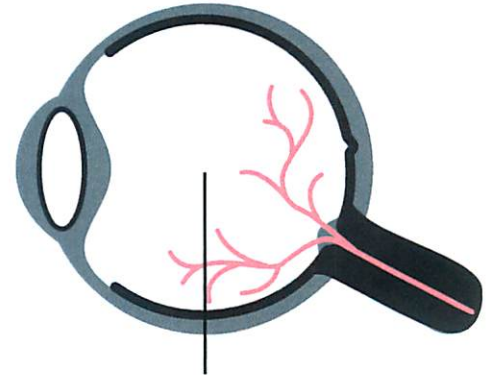




# Eye Injections: A Quick Guide

## What are eye injections?

You may hear your doctor refer to eye injections as intravitreal injections. The injection is a procedure where medication is placed directly into the vitreous cavity, which is a space at the back of your eye.<sup>1,2</sup> Injections are usually done in an office setting.<sup>1</sup>



Vitreous cavity

## What types of medications are injected?

Your eye doctor may inject the following medications:

- Anti-VEGF (vascular endothelial growth factor) drugs
- Steroids (used during eye surgery)

## Eye conditions treated with injections may include:

### Wet age-related macular degeneration (wet AMD)

Fluid leaking from abnormal blood vessel growth

### Myopic choroidal neovascularization (CNV)

Severe near-sightedness leading to abnormal blood vessels forming

### Edema due to retinal vein occlusion (RVO)

Blockage of blood flow out of the retina

### Diabetic macular edema (DME)

Fluid leaking out of diabetic blood vessels

### Non-infectious uveitis

Inflammation inside the eye not caused by an eye infection

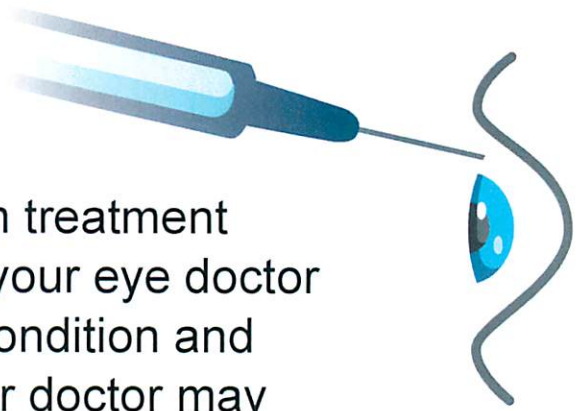
**It is important to attend all of your injection appointments to maximize your treatment outcomes.**



## The Injection Process

During an eye injection, medicine is injected into your eye with a thin needle.<sup>3</sup>

If you have a condition that requires long-term treatment with eye injections, you will need to return to your eye doctor for additional injections. Depending on your condition and how you are responding to the treatment, your doctor may change the length of time between injections.



## How do I prepare for an eye injection?

### Before

It may be helpful to have a “treatment buddy” to remind you of your appointments, to talk about your treatment with, and to review your doctors’ recommendations.



### During

Every doctor will have their own specific process, but in general, you can expect the following:<sup>3-5</sup>

- A small clip (speculum) may be used to keep the eye open.
- The surface of your eye will be cleaned with a disinfectant eyewash to prevent infection.
- You will receive an eye drop to numb your eye to reduce or prevent pain from the injection.
- You will be seated in a slightly reclined chair.
- The medication is injected into your eye with a very thin needle.
- On the day of your injection, the appointment will have many parts to it including testing and treatment, but the injection itself will only last a few seconds.





## After

- You may feel like there is something in your eye. This can be soothed with artificial tears as often as needed.<sup>1</sup>
- You may notice the side of your eye can become very red after the injection. This is often just a drop of blood from the injection.
- You may notice black spots, flashing lights, or floaters in your vision.
- Your eye doctor will ask you to return to the clinic to check that the treatment is working for you.



This is not a complete list of possible side effects. Your doctor will tell you about possible side effects to watch out for, and in which cases you should contact them.

**Ask your doctor for recommendations on what to do or where to go if you experience any complications. You can make note of their response here:**



**TIP: A strong partnership with your eye doctor can help you to maximize your treatment outcomes. Follow their instructions, attend every appointment, and ensure you report any changes in your vision to your doctor right away.**



## How often will I need an eye injection?

Typically, injections are initially given once a month. Your doctor may then decide to give injections less often (every 2 to 4 months) depending on the medication, your condition, and how you are responding to treatment.

## Need help getting to or from your appointments?

If you need assistance getting to or from your eye injection appointments, 211 is available in all provinces and territories across Canada and can help connect you to local resources.



 Call 2-1-1

Another option is the Vision Mate program offered by the Canadian National Institute for the Blind (CNIB) which matches those who are blind or living with partial vision loss with volunteers who can provide 1-on-1 assistance with tasks and errands, such as getting to and from appointments.

 To be matched with a volunteer, call 1-800-563-2642

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3. "Anti-VEGF Treatments", American Academy of Ophthalmology, accessed August 30, 2023, <https://www.aao.org/eye-health/drugs/anti-vegf-treatments#:~:text=Anti%2DVEGF%20medicine%20blocks%20VEGF,it%20can%20even%20improve%20vision>
4. "Anti-VEGF intravitreal injection", Waterloo Regional Eye Program, accessed August 30, 2023, <https://www.waterlooeeye.ca/procedures/anti-vegf-intravitreal-injection>
5. "Anti-VEGF Treatments", Eye Physicians and Surgeons of Ontario, accessed August 30, 2023, <https://www.epso.ca/vision-health/eye-conditions/retinal-diseases/amd/amd-treatments/anti-vegf-treatments#:~:text=Treatment%20with%20the%20anti%2DVEGF,your%20eye%20to%20reduce%20pain>

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# PRP Laser Treatment: A Quick Guide

**Pan-Retinal Photocoagulation (PRP) laser treatment** is a medical procedure for people with proliferative diabetic retinopathy.<sup>1</sup> Unlike laser treatments used for correcting vision, such as LASIK, PRP laser is used to stabilize vision and **prevent the progression** of diabetic eye disease.<sup>2</sup>

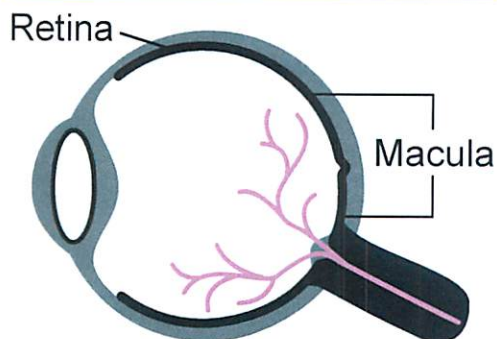
## What is proliferative diabetic retinopathy (PDR)?

- **Advanced** form of diabetic retinopathy
- New abnormal blood vessels start to proliferate (grow) to make up for the poor blood flow in your retina (a layer in the back of your eye vital to maintaining vision) caused by your diabetes<sup>3</sup>
- The new blood vessels are fragile and can cause vitreous hemorrhage (bleeding in the eye) or retinal detachment (the retina is pulled away from its normal position)<sup>4</sup>

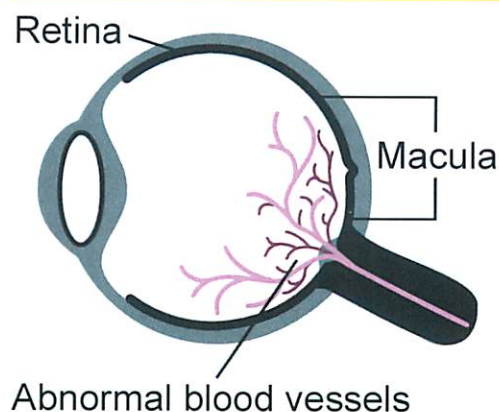
## How does PRP laser treatment help with PDR?

PRP laser is the main treatment for PDR, used to alter the abnormal blood vessels in the peripheral (outer) parts of the retina.<sup>1</sup> This allows more oxygen to get to the macula, the centre of the retina that allows you to see things right in front of you like faces or text.<sup>4</sup>

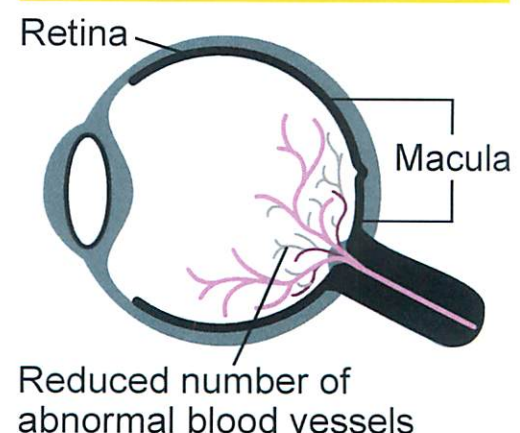
### Healthy retina



### Retina with PDR



### Retina with PDR after laser treatment



**Evidence shows that PRP laser treatment reduces the risk of severe vision loss by 50% or more for people with PDR.<sup>5</sup>**



## What happens during PRP laser treatment?

Your eye doctor will perform PRP laser treatment in a clinic or hospital. It usually takes anywhere from 5-30 minutes and is often completed over the course of several sessions.<sup>2</sup> At the treatment:



Eye drops will be used to dilate your pupil to see your eye more clearly. You will also receive drops to numb your eye.<sup>2</sup>



You will be either:

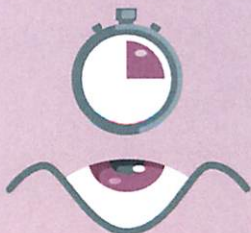
- Seated with your chin in a chin rest. A special contact lens will be placed in your eye to help the doctor focus the laser.<sup>6</sup>
- Lying flat on a chair or bed. Your doctor will use a headpiece to deliver the laser.<sup>1</sup>



You will look straight ahead or at a target light with your other eye. Your doctor will aim the laser at the part of the eye needing treatment. You will see a flash of light.<sup>6</sup>



You may experience discomfort or mild pain during the treatment. You can ask your doctor about taking ibuprofen or acetaminophen (Advil<sup>®</sup> or Tylenol<sup>®</sup>) before or after the procedure if you are concerned about pain.<sup>2</sup>



Your vision may be different for several minutes after the treatment and you may see different colours, such as pink and purple hues.<sup>4</sup> Afterwards, your vision will return to the same as it was prior to the laser treatment.<sup>6</sup>



**Your doctor is the best source of advice on your treatment options, and on what to expect at your treatment visit.**

## How many laser sessions will I need?

Multiple laser sessions are usually needed.<sup>2</sup> Your eye doctor will advise you on the number of follow-up laser appointments you may need.

## Here are a few tips to help you prepare for your treatment:



You are welcome to bring someone with you for support.



Have a plan for a ride home, as you may not feel comfortable driving after treatment.



Bring sunglasses in case your eyes are sensitive to light after the treatment.

## Are there any risks with PRP laser?

As with any eye treatment, there are possible risks. The main ones are:

- Reduced night vision
- Reduced peripheral (side) vision
- Reduced colour vision
- Mild headache<sup>1,7</sup>



**Remember: Diabetic retinopathy can get worse over time, so it is important to attend all of your eye doctor appointments to ensure you are closely monitoring your eye health.<sup>5</sup>**



## Frequently asked questions

### How much time will I need to recover from the PRP laser treatment?

You can go home after the treatment and you should be able to resume your normal activities the next day.<sup>1,2</sup>

### Will I need an eye patch?

No, you will not need to wear an eye patch unless your doctor advises you to.

### How long will my vision be affected after treatment?

Typically, you won't be able to see for a few minutes after treatment. After that, you may notice slight changes in your ability to see colour, and at night.<sup>7</sup> These changes usually get better.<sup>1</sup> Contact your doctor right away if you experience significant pain or changes to your vision that do not go away.

1. "Panretinal Photocoagulation", American Academy of Ophthalmology, last modified June 17, 2023, [https://eyewiki.aao.org/Panretinal\\_Photocoagulation](https://eyewiki.aao.org/Panretinal_Photocoagulation)
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