

## Fact Sheet

# Retinopathy of Prematurity (ROP)

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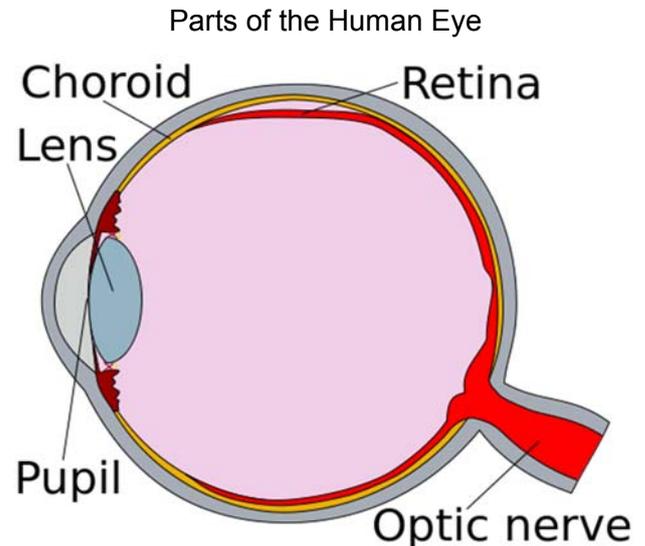
### What is Retinopathy of Prematurity (ROP)?

It is a common disorder which can affect the eyes of premature and low-birth-weight infants. It may resolve (fix itself) without needing treatment, however some infants with severe stages of the disease may develop vision loss.

Three out of four babies who are born at less than 31 weeks gestation, or who weigh less than 1250g at birth, may develop a form of ROP.

### What is the cause of ROP?

- At the back of the eye there is a thin tissue layer called the retina which receives light and sends signals to the brain. The retina requires blood flow in order to function and its blood vessels develop quickly in the second half of pregnancy.
- While the fetus is in the womb, there is a 'low oxygen' environment which is ideal for the development of these blood vessels. Once born, the baby's oxygen levels must increase in order to provide oxygen rich blood to important organs such as the brain, heart and lungs.
- This increase in oxygen interrupts the normal forward growth of these vessels and causes the vessels to grow too quickly and abnormally. As a result scar tissue may develop and in some instances can pull the retina away from the eye wall leading to detachment (coming loose) of the retina and permanent loss of vision (blindness).



By Erin Silversmith from an original by en:User:Delta G derivative work: RexxS (Schematic diagram of the human eye.svg) [GFDL (<http://www.gnu.org/copyleft/fdl.html>) or CC-BY-SA-3.0 (<http://creativecommons.org/licenses/by-sa/3.0/>)], via Wikimedia Commons

### Screening for ROP

- Premature and low-birth-weight babies are routinely screened for ROP at Westmead Hospital. The first exam is usually 4-6 weeks after they are born, depending on their age at birth.
- An ophthalmologist (eye doctor) will see your baby at the hospital and in some instances, follow up appointments will be needed after your baby is home.
- The nurse will use eye drops to dilate (open up) the baby's pupil before the examination. The ophthalmologist uses a special head lamp to look at the baby's eyes. The examination is quick and if it is causing any discomfort, pain relief is given during the procedure.

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The eye doctor will determine how severe the ROP is by classifying it as follows:

### Stages of ROP

- Stage 1 – a fine white line is seen on the retina
- Stage 2 – the line thickens and congests (fills) with blood
- Stage 3 – severely abnormal blood vessel growth
- Stage 4 – severely abnormal blood vessel growth that can cause part of the retina to detach (come loose)
- Stage 5 – severely abnormal blood vessel growth that has caused the whole retina to detach

### Zones

The retina is divided into 3 zones from the back to the front of the eye: 1, 2 and 3. Once the normal blood vessels reach into zone 3, sight-threatening ROP is no longer possible and your baby will not need to have frequent retinal examinations. However, any ROP in zone 1 is potentially more dangerous and frequent follow up examinations will be required.

### Plus Disease

Plus Disease refers to the congestion and tortuosity (being twisted) of the established retinal vessels and is an indication of increased ROP activity and that closer surveillance will be necessary.

**Remember that follow-up examinations after discharge are important. These follow up examinations may prevent blindness.**

A paediatric ophthalmologist uses an indirect ophthalmoscope to examine an infant for signs of retinopathy of prematurity (ROP).



credit: National Eye Institute, National Institutes of Health.  
<https://www.flickr.com/photos/nationaleyeinstitute/7544453892>

### Treatment

It is reassuring to know that 80% of ROP will spontaneously resolve and thus not require treatment. However, for severe cases of ROP, treatment may include:

- Extra oxygen – can be given to 'trick' the retina so that it will not send the chemical message to call in the abnormal 'rapid growth' of blood vessels.
- Laser therapy – is given if sight threatening disease develops. This procedure is done under a general anaesthetic and stops the growth of abnormal blood vessels.
- Drug injection – In severe cases of ROP a drug can be injected into the eye to assist the resolution of abnormal blood vessel growth. This drug counters (stops) the increased hormonal levels in the eye that are responsible for the abnormal blood vessel growth.
- Surgery – may be required if the retina becomes detached.

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### What will happen next?

All premature infants are at risk of other visual problems as well as spontaneous retinal detachment and it is recommended they have regular eye exams after discharged right through to young adulthood.

### References

*Understanding Retinopathy of Prematurity, Fact Sheet. Ikaria advanced critical care. Ikaria Australia. [www.ikariaaust.com](http://www.ikariaaust.com)*

*Retinopathy of Prematurity (ROP), Patient Information Sheet. Dr Jeremy B. Smith. (Ophthalmologist).*

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