



York and Scarborough  
Teaching Hospitals  
NHS Foundation Trust

# Riboflavin-UVA treatment to help prevent worsening Keratoconus

Information for patients, relatives, and carers

## Department of Ophthalmology

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<b>Contents</b>	<b>Page</b>
What is Keratoconus? .....	5
How is vision corrected in Keratoconus? .....	5
How is the Riboflavin-UVA treatment carried out? .....	6
Who is suitable for Riboflavin-UVB treatment? .....	7
What are the risks of Riboflavin-UVA treatment? .....	8
What are the benefits of having Riboflavin-UVA treatment? .....	9
What are the alternatives to Riboflavin-UVA treatment? .....	9
What happens after my treatment?.....	10
Tell us what you think of this leaflet .....	11
Teaching, training and research.....	11
Patient Advice and Liaison Service (PALS).....	11



# **What is Keratoconus?**

Keratoconus is a condition that causes a progressive worsening in eyesight. In affected patients, this can start in their late teen to early thirties. Keratoconus affects the front part of the eye, called the cornea. It causes the cornea to change shape from a smooth sphere to an irregular cone shape. The irregular cone shape no longer works as a focussing lens and the vision becomes blurred. In many cases, progression happens very slowly. The change in lens shape also slows down with age. Few people have further progression after their forties. This is because of natural ageing of the cornea. This ageing causes the cornea to stiffen by developing bonds between the collagen fibres that make up the structure of the cornea.

# **How is vision corrected in Keratoconus?**

In the early stages of Keratoconus, you will need no more than glasses to correct your blurred vision. During the later stages, you will need a rigid contact lens to improve your sight. In advanced cases, it might become impossible to fit a contact lens, or scars might have formed where the cornea should be clear, making it difficult to see. Some cases progress to the extent that the only way to improve vision is with a corneal transplant, but this is not in every case. A corneal transplant will replace the abnormally shaped or scarred cornea.

## How is the Riboflavin-UVA treatment carried out?

Riboflavin-UVA involves removing some of the surface cells from the cornea then soaking the cornea with riboflavin (vitamin B2) drops for 10 minutes. A carefully controlled ultraviolet light is then shone onto the eye for 8 minutes. This causes changes in the structure of the cornea, which are similar to the natural aging process described above. The aim of the operation is to preserve the shape of the cornea in the early stages of Keratoconus, whilst glasses or contact lenses still work to correct any blurred vision.



## **Who is suitable for Riboflavin-UVB treatment?**

Treatment should only be done if there is evidence of progressive changes in the last six months and you are in the early stages of Keratoconus. Treatment might be done in later stages combined with Keraring surgery.

There is no point in performing the treatment in the later stage of Keratoconus when the cornea is a shape that is not worth preserving.

The treatment should not be done if:

- The cornea is too thin;
- If the cornea has scars;
- There is evidence of a previous infection or
- There is recent use of aspirin, high dose vitamins, or alcohol.

Severe dry eye patients should not be treated.

It is recommended that only patients between the ages of 14 and 40 are treated using this method.

# What are the risks of Riboflavin-UVA treatment?

Evidence about the long-term effect of this treatment is not yet available as the first treatments were performed within the last 10 years. Published results so far, have been very encouraging. The progression of Keratoconus appears to be stopped in most cases. Vision is therefore stabilised. In some cases, vision improves. A long-term delay in the need for additional surgical treatment is expected, but the need for additional surgical treatment at a later stage cannot be excluded. The treatment appears to have no effect on structures of the eye other than the cornea.

Following the treatment, patients are likely to experience:

- Pain in the eye for up to 48 hours (two days).
- Watering of the eye for up to 72 hours (three days).
- Blurred vision for up to 60 days (two months). Any blurring may be constant and may need corneal transplant surgery.
- It is possible for the corneal surface to fail to fully heal, requiring additional treatment.



## **What are the benefits of having Riboflavin-UVA treatment?**

The benefits are to preserve a good corneal shape and to prevent poor shape developing, which would require surgery in the future.

## **What are the alternatives to Riboflavin-UVA treatment?**

Riboflavin-UVA treatment is just one option in the treatment of Keratoconus. Each Keratoconus patient should have their options and needs decided upon individually.

Other forms of treatment include:

- Do nothing.
- Glasses or contact lenses.
- Corneal implants called Keraring surgery.
- Corneal transplants called Penetrating Keratoplasty or Lamellar Keratoplasty.

## **What happens after my treatment?**

After the treatment, you will be fitted with a bandage contact lens, given eye drops and pain killing tablets. The contact lens will be removed at your follow up appointment at the hospital.

Your eye will recover from the treatment after a few days. You will not be able to tell the difference between which eye has been treated and which has not without the aid of specialist equipment.

## **Tell us what you think of this leaflet**

We hope that you found this leaflet helpful. If you would like to tell us what you think, please contact:

Mr J D Gormley, Consultant Ophthalmologist,  
The York Hospital, Wigginton Road, York, YO31 8HE or  
telephone 01904 725938.

## **Teaching, training and research**

Our Trust is committed to teaching, training and research to support the development of health and healthcare in our community. Healthcare students may observe consultations for this purpose. You can opt out if you do not want students to observe. We may also ask you if you would like to be involved in our research.

## **Patient Advice and Liaison Service (PALS)**

PALS offers impartial advice and assistance to patients, their relatives, friends and carers. We can listen to feedback (positive or negative), answer questions and help resolve any concerns about Trust services.

PALS can be contacted on 01904 726262, or email [pals@york.nhs.uk](mailto:pals@york.nhs.uk).

An answer phone is available out of hours.

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