

Keratoconus

Disease Report

REPORT CATEGORY —



Sample Client

Report date: 15 January 2026

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DISCLAIMER

This report does not diagnose this or any other health conditions. Please talk to a healthcare professional if this condition runs in your family, you think you might have this condition, or you have any concerns about your results.

Personal information

NAME

Sample Client

SEX AT BIRTH

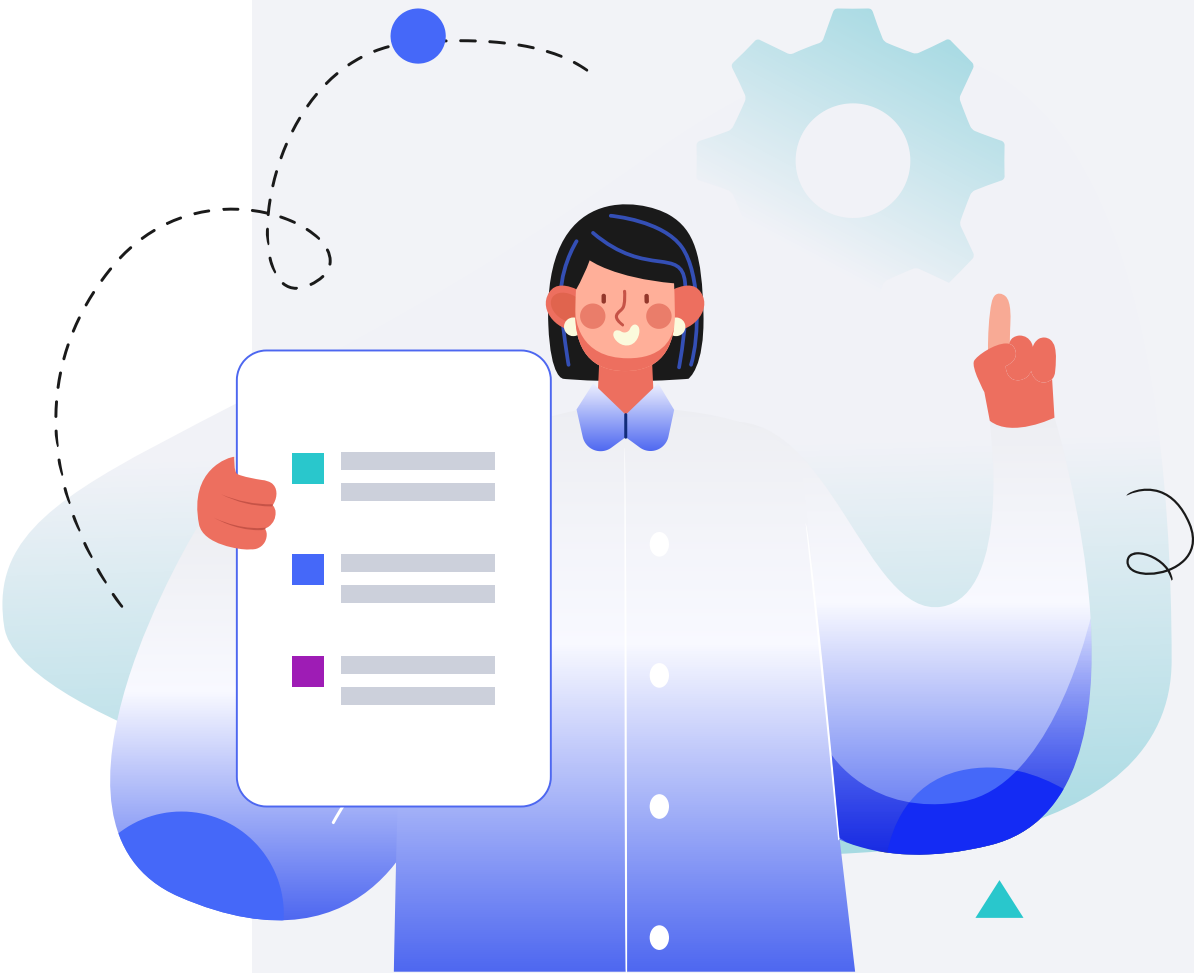
Male

HEIGHT

5ft 5" 165cm

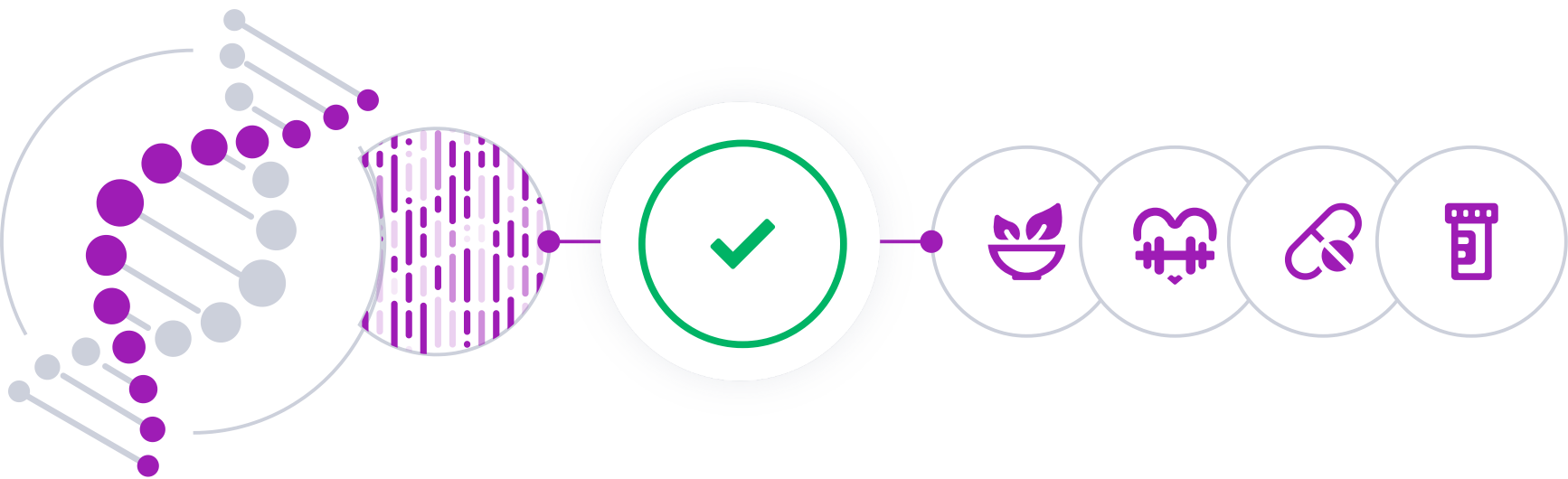
WEIGHT

137lb 62kg



How this works

Our Wellness Reports analyze how your DNA influences your health.
We then use this analysis to give you personalized risk estimates and recommendations.

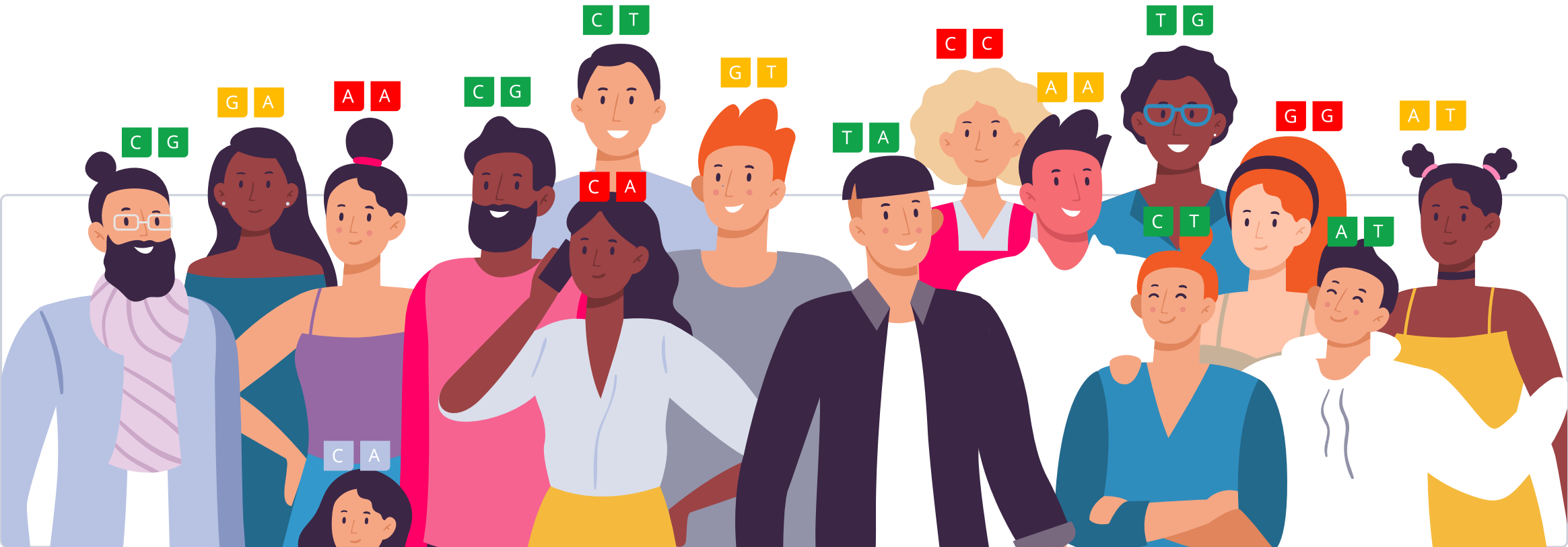


Similarly, our Trait Reports look at how your DNA influences your traits.



Your DNA is like an instruction manual — it contains a lot of information.
You can think of it as a blueprint for your body.

Genetic variants are parts of DNA that differ from person to person. Some can make you more vulnerable to certain health issues, while others may influence traits such as eye color.



We use artificial intelligence and machine learning to analyze all this information.
We then summarize your results as a risk score or display it on a gauge.

In total, we analyze up to 83 million genetic variants.

When we give a risk score, the risk icon tells you if you are at a higher or lower risk compared to other people:



Genotype color info:

AA

You don't have any risk alleles

AA

You have 1 risk allele

AA

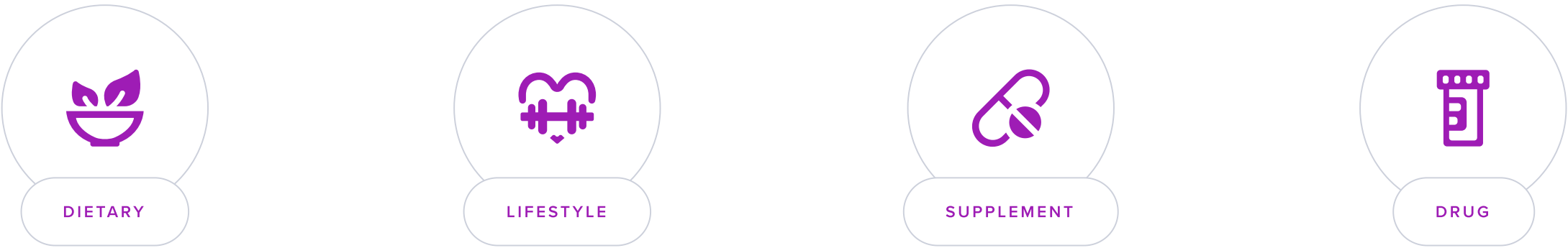
You have 2 risk alleles

Your risk is also displayed as a percentile. This will tell you how your risks compare to our sample population. The lower your percentile number, the lower your risk. The "50th percentile" would be an average risk.

Similarly, the gauge tells you your relative risk score compared to our sample population, or it indicates a specific trait or haplotype you are more likely to have based on your genetic variants.

When applicable, we also list top evidence-based recommendations that may help lower your risk. The focus is on recommendations that may be of benefit to you, based on your genetics.

Our recommendations come in four categories: lifestyle, diet, supplements and drugs.
The following icons tell you which category a recommendation falls into:



Our team of scientists also ranks each recommendation.
We rank based on impact and the strength of evidence in the medical literature.

Impact shows how strongly a recommendation will affect your health in a certain area.
Evidence is how much scientific support there is for the recommendation. Rankings are from 1 to 5 (low to high):



Impact

Impact scores range from 1-5. These scores reflect how much of an effect each recommendation can have. An impact score of 5 predicts the biggest effect.

When a recommendation affects something we can measure, we use those measurements to assign the impact score. For example, a recommendation that decreases cholesterol by 20% will have a higher impact score than one that decreases it by 5%.

Some recommendations affect things that we cannot directly measure, like stress or mood. For these, the impact score is based on how well they work relative to other recommendations and standard treatments. The best ones get the highest scores.

If there is a lot of research that shows a recommendation works especially well for your genotype, the impact score gets increased.

Recommendation Evidence

- 5 / 5
- Recommendations that are considered effective and generally recommended by experts and medical bodies.
-
- 4 / 5
- Recommendations that are considered likely effective and that have multiple independent meta-analyses and a great many studies supporting them.
-
- 3 / 5
- Recommendations that are considered possibly effective and have many studies supporting them
-
- 2 / 5
- Recommendations that have insufficient evidence, with two or several clinical trials supporting them, or many studies but with ambiguous results.
-
- 1 / 5
- Recommendations that have insufficient evidence, with a single clinical trial, or with many studies most of which didn't find support for the recommendation.
-
- 0 / 5
- No evidence in humans.

Genotype-specific Evidence

- High-quality
- Direct evidence that a recommendation helps more in people with your gene variant (many clinical trials, a few large clinical trials, or a meta-analysis).
-
- Medium-quality
- Direct evidence that a recommendation helps more in people with your gene variant (a few clinical trials or one large clinical trial).
-
- Low-quality
- Direct evidence that a recommendation helps more in people with your gene variant (a single clinical trial or more trials with inconsistent results).
-
- Indirect
- A recommendation may help more in people with your gene variant because it targets a specific gene or protein affected by your variant (e.g., MTHFR, dopamine).
-
- In theory
- A recommendation may help more in people with your gene variant because it targets a specific mechanism affected by your variant (e.g., inflammation, oxidative stress).

Some things to keep in mind:

- Genetics doesn’t play a considerable role in a condition or a trait.
- There is not enough research available to estimate a genetic predisposition.
- There are technical limitations to estimating or presenting a genetic predisposition.
- The topic is sensitive, and a genetic predisposition should only be estimated and presented by a healthcare professional.

Introduction

Keratoconus is a progressive eye disorder in which the normally round cornea thins and starts to bulge into a cone-like shape. This change in shape deflects light as it enters the eye, leading to distorted vision. The disease usually **starts in the teenage years or early 20s and may progress for 10-20 years before stabilizing**.

Common symptoms of keratoconus include:

- Blurred or distorted vision: Objects both near and far become distorted.
- Increased sensitivity to light and glare.
- Frequent prescription changes in eyeglasses or contact lenses.
- Double vision in one eye.
- Halos around lights and ghosting, especially at night.

The cause of keratoconus is not entirely known. However, it's believed to be a combination of genetic, environmental, and hormonal factors.

Risk Factors and Genetics

Genetics may influence the risk of keratoconus. Between **5-25%** of people with keratoconus have a family history of the disease. Several genes are associated with the disease, but no single gene has been identified as the primary cause [\[R, R, R\]](#).

Other factors are also associated with an increased risk of developing keratoconus:

- **Frequent rubbing of the eyes:** Vigorous rubbing can lead to thinning of the cornea, contributing to its abnormal shape.
- Certain allergic disorders (e.g., hay fever, asthma)
- Other diseases (e.g., retinitis pigmentosa, Down syndrome, Ehlers-Danlos syndrome)
- Overexposure to UV rays



TYPICAL LIKELIHOOD

Typical likelihood of having keratoconus based on 16,590 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
COL5A1	rs3118518	AA
ZNF469	rs11117401	AA
LOX	rs840464	TT
RAB11FIP4	rs56161228	GG
SLC47A1	rs4646785	CC
PTGDS	rs11145948	AA
PNPLA2	rs7117921	CT
RNF167	rs12603055	CG
MOCS2	rs12515400	TC
NANOS1	rs658352	TC
GALNT6	rs3782473	TC
TMEM245	rs2417930	CT
CACYBP	rs6669560	CT
TP53INP1	rs1453379	CT
COL6A1	rs142493024	GG
COL12A1	rs35523808	TT
/	rs76747345	AA
FOXO1	rs2721051	CC
FNDC3B	rs4894414	CC
ICE2	rs76194223	CC
SESN3	rs11021221	TT
SGCA	rs2075556	CC
/	rs2143683	CC
STK35	rs6106210	CC
SKAP1	rs12948086	CC
LZTR1	rs756878	CC

The number of "risk" variants in this table doesn't necessarily reflect your overall result.

Your Recommendations

Your recommendations are prioritized according to the likelihood of it having an impact for you based on your genetics, along with the amount of scientific evidence supporting the recommendation.

You’ll likely find common healthy recommendations at the top of the list because they are often the most impactful and most researched.

DOSAGE		DOSAGE	
1	Maintain Eye Moisture	2	Guar Gum Eye Drops1 drop
3	Avoid Contact Lenses	4	Artificial Tears1 drop
5	Dietary Vitamin A	6	Dietary Antioxidants
7	N-acetylcysteine (NAC)1200 mg	8	Dietary Omega-3 Fatty Acids
9	Dietary Zinc		

1



Maintain Eye Moisture

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Blink regularly especially while using digital devices, take frequent screen breaks every 20 minutes to look at something 20 feet away for 20 seconds, and use a humidifier in dry environments to help maintain eye moisture.

Description

Maintaining eye moisture through methods such as using lubricating eye drops can help prevent dry eye syndrome and maintain ocular comfort. Adequate eye moisture supports visual clarity and reduces the risk of eye discomfort and irritation.

The eyes have a very high water content and a unique system of water regulation. Imbalances in this system may cause dry eyes and blurry vision [\[R\]](#).

Causes of decreased eye moisture include [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Exposure to dry air
- Wearing contact lenses
- Not blinking enough, especially while working on a computer or reading
- Certain health conditions and surgical procedures
- Dehydration

How it helps

Maintaining eye moisture through lubricating drops alleviates discomfort in keratoconus patients by addressing dryness caused by the irregular corneal shape. This therapy enhances visual clarity and reduces eye irritation, promoting overall ocular comfort.

2



Guar Gum Eye Drops

IMPACT1 / 5

EVIDENCE1 / 5

How to implement

Use guar gum eye drops by applying 1-2 drops in each eye, usually up to 4 times a day. Make sure to follow the instructions on the product label or as prescribed by a healthcare provider.

TYPICAL STARTING DOSE

1 drop

Description

Guar gum eyedrops are used to lubricate and relieve dry eyes. They provide temporary relief from eye discomfort and can help maintain ocular moisture.

Guar gum is a fiber made from the seeds of the Indian cluster bean (*Cyamopsis tetragonolobus*). It is used in food products to help bind and thicken them [R].

Guar gum may be used as a thickening agent in eye drops, skincare, makeup, and hair care products [R].

How it helps

Guar gum eye drops assist in managing keratoconus by enhancing tear film stability and providing lubrication, which alleviates dryness and discomfort associated with the condition. This promotes ocular health and comfort, essential for effective vision management.

3



Avoid Contact Lenses

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Switch to using glasses for your vision correction needs. If you must use contact lenses, such as for specific activities where glasses are not feasible, limit their use to those occasions only. Prioritize wearing glasses on a daily basis.

Description

Avoiding the use or extended use of contact lenses can reduce the risk of eye infections and improve ocular comfort by allowing the eyes to breathe and maintain their natural tear film.

Contact lenses are **small, artificial devices placed on the front surface of the eye**. They were first proposed in the **1500s** by Leonardo da Vinci and became popular in the **1940s** [\[R\]](#).

There are **different types of contact lenses** based on their [\[R\]](#):

- Material (soft, hard, rigid gas permeable)
- Wear time (daily, extended, disposable)
- Water content (low, medium, high)
- Design (single or lenticular cut)

People mainly use contact lenses to help **correct vision problems** [\[R\]](#).

How it helps

Avoiding contact lenses in keratoconus patients helps reduce corneal irritation and the risk of complications associated with corneal fragility. This practice enhances ocular comfort and safeguards the integrity of the natural tear film, promoting overall eye health.

4



Artificial Tears

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Apply 1-2 drops of artificial tears into the affected eye(s) as needed for relief. Use them throughout the day whenever you experience dryness or irritation. There is no maximum duration; they can be used as long as they provide relief.

TYPICAL STARTING DOSE

1 drop

Description

Artificial tears help lubricate the eyes and maintain their moisture in people with dry eyes. They normally come in liquid form (eye drops), but gels and ointments are also available. There are two types of artificial tears: **preserved and non-preserved**.

Artificial tears help lubricate the eyes and maintain their moisture in people with dry eyes. They normally come in liquid form (eye drops), but gels and ointments are also available [\[R\]](#).

There are two types of artificial tears: **preserved and non-preserved** [\[R\]](#), [\[R\]](#).

How it helps

Artificial tears help alleviate dryness and irritation in keratoconus patients by providing moisture, which can enhance comfort and reduce symptoms related to the corneal deformation of the condition.

5



Dietary Vitamin A

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Include foods high in vitamin A in your daily diet, such as sweet potatoes, carrots, spinach, and fortified foods like milk. Aim for 700-900 micrograms (mcg) of vitamin A per day for adults, depending on your age and sex, with a slightly higher intake recommended for women who are pregnant or breastfeeding.

Description

Vitamin A is essential for maintaining healthy vision, immune function, and skin integrity. It also plays a role in cell differentiation and growth, supporting various bodily functions.

How it helps

Vitamin A is vital for maintaining a healthy cornea. It supports the regeneration of corneal cells and can improve overall eye health.

6



Dietary Antioxidants

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Incorporate foods rich in antioxidants, such as fruits (berries, oranges, plums), vegetables (spinach, kale, bell peppers), nuts (walnuts, almonds), and seeds (flaxseeds, chia seeds) into your daily meals. Aim for at least 5 servings of fruits and vegetables per day, ensuring a variety of colors to cover different antioxidants.

Description

Dietary antioxidants are compounds found in foods that help neutralize harmful molecules called free radicals, potentially reducing the risk of oxidative stress-related diseases and supporting overall health. Examples include vitamins C and E, beta-carotene, and polyphenols.

Our cells sometimes produce molecules called **reactive oxygen species (ROS)** [\[R\]](#).

High levels of ROS can cause [oxidative stress](#) and damage our cells. Oxidative stress plays a role in many health conditions, including [\[R\]](#):

- High blood sugar
- Type 2 diabetes
- Heart disease

Antioxidants are substances that help combat ROS [\[R\]](#).

Antioxidants are found in many plants. Good sources include [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Fruits like tomatoes, berries, and pomegranates
- Vegetables like onions, spinach, and celery
- Chocolate
- Olive oil
- Wine

How it helps

Antioxidants help reduce oxidative stress in the cornea. This can slow the progression of keratoconus by protecting the corneal cells from damage.

7



N-acetylcysteine (NAC)

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Take 600 mg of N-Acetylcysteine (NAC) supplement daily with water. It can be taken at any time of the day, but try to take it at the same time each day for best results.

TYPICAL STARTING DOSE

1200 mg

Description

NAC is a supplement that contains a form of the amino acid cysteine, a protein building block that your body uses to make the antioxidant glutathione. It is used for its potential antioxidant properties and its ability to support lung, gut, and mental health.

[N-acetylcysteine](#) (NAC) is converted to cysteine in the body. Cysteine is a protein building block (amino acid) that helps make the antioxidant glutathione [\[R\]](#).

People take NAC to potentially support [\[R\]](#), [\[R\]](#):

- Mental health
- Ovarian health and pregnancy outcomes
- Lung health
- Gut health

How it helps

NAC has antioxidant properties that protect the eye tissues from oxidative damage, which may slow the progression of keratoconus.

8



Dietary Omega-3 Fatty Acids

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Incorporate foods high in omega-3 fatty acids into your diet daily. This includes eating fish such as salmon, mackerel, and sardines at least twice a week. Alternatively, include a tablespoon of flaxseed oil or chia seeds in your daily diet.

Description

[Omega-3 fatty acids](#) are some of the healthiest fats we can eat. They help lower inflammation and protect the heart, brain, and eyes. Our bodies produce less omega-3s than we need for optimal health, so it's important to get enough through food or supplements [\[R\]](#), [\[R\]](#), [\[R\]](#).

There are three major types of omega-3s: ALA, EPA, and DHA. **EPA and DHA are vital for mental and heart health** [\[R\]](#), [\[R\]](#), [\[R\]](#).

Fatty fish are rich in EPA and DHA. They include [\[R\]](#):

- Salmon
- Tuna
- Herring
- Sardines

For optimal health, try to get at least **two servings of fatty fish per week**. Fish oil supplements are available for those who don't eat fish regularly [\[R\]](#).

How it helps

Omega-3 fatty acids have anti-inflammatory properties that can help reduce inflammation in the cornea, potentially slowing the progression of keratoconus.

9



Dietary Zinc

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Incorporate foods high in zinc, such as beef, poultry, seafood (especially oysters), beans, nuts, and whole grains, into your daily diet. Aim for the recommended dietary allowance of zinc, which is 11 mg per day for adult men and 8 mg per day for adult women.

Description

Dietary zinc is essential for the body. It helps our immune system fight off bacteria and viruses, plays a role in healing wounds, and is essential for our sense of taste and smell. Without enough zinc, these systems may not work as effectively as they should.

How it helps

Zinc plays an important role in maintaining eye health by supporting the function of antioxidants in the body. This can help protect the corneal cells from damage.