Can Insulin Resistance Affect Your Eyes?

When the problem is not in the eyes — but in blood sugar

HOOK

Your eyes may be showing you something… your body has not told you yet.

Introduction

If you have insulin resistance or prediabetes and notice:

- blurred vision that comes and goes
- eyes that get tired easily
- burning or dryness
- watery eyes without an obvious reason
- difficulty with screens

you probably think:

“It’s just fatigue…”

But the reality may be different:

the problem may start from blood sugar — not from the eyes

Blurred vision is a recognized symptom of diabetes and glucose fluctuations, while metabolic dysfunction is also associated with dry eye, affecting tear production, eyelid glands and inflammation of the ocular surface.

What Is Insulin Resistance?

History & Evolution

Insulin resistance is a metabolic condition in which:

the cells do not respond properly to insulin.

The NIDDK defines insulin resistance as a condition in which the body “does not respond to insulin the way it should,” which can lead to elevated glucose levels and prediabetes.

Historical Background

- **1921:** Insulin was discovered by Banting & Best

- **1930–1950:** The role of insulin in blood sugar regulation became better understood
- **1960–1980:** Insulin resistance was recognized as a distinct metabolic condition
- **2000+:** It became linked to metabolic syndrome, low-grade inflammation and chronic disease

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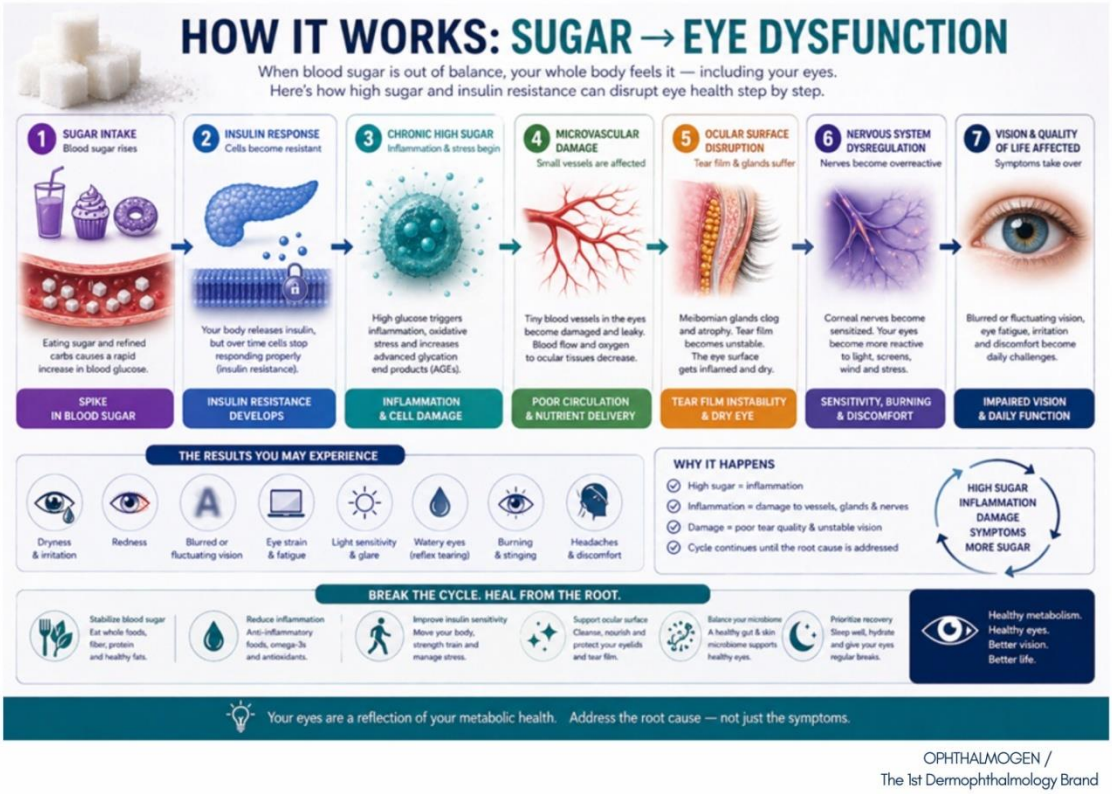
What We Know Today

it is not only about blood sugar
it is **systemic metabolic dysfunction**

Insulin resistance and prediabetes are associated with elevated glucose levels, weight gain and future risk of type 2 diabetes.

How Common Is It?



There is no single percentage that applies to every population, but prediabetic and metabolic dysfunction are extremely common, and many people remain undiagnosed or experience mild symptoms for a long time. NIDDK and MedlinePlus note that type 2 diabetes can develop slowly and many people may not have clear symptoms early on.

And very often:

the first signs do not appear only in blood tests but in daily body function

Including the eyes.

The Connection: Blood Sugar → Eyelids → Tear Film → Vision

Vision is not just an “eye” issue.

It is a functional system:

- eyelids
- Meibomian glands
- tear film
- ocular surface
- neurosensory regulation

This is the:

Eye–Skin Axis

When insulin resistance is present:

the entire system becomes dysregulated.

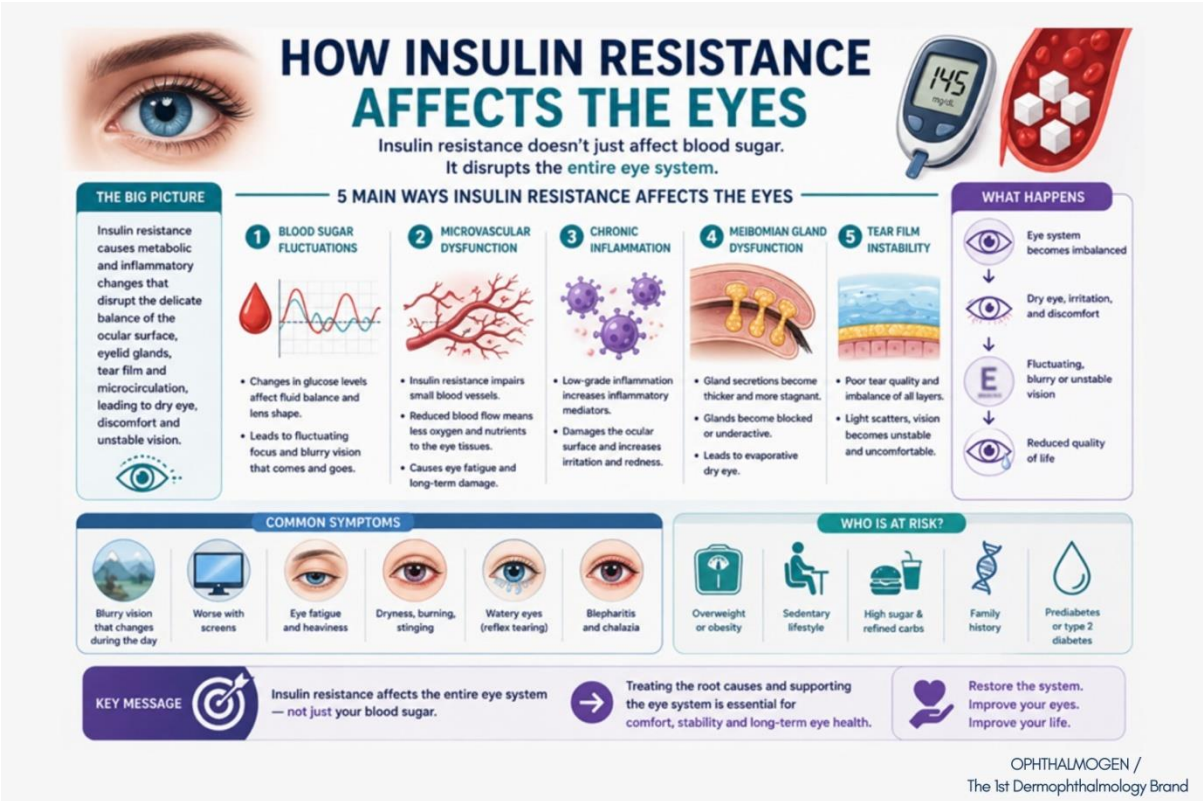
Glucose is not the only thing that changes. Also affected are:

- tear quality
- eyelid gland function
- microcirculation
- inflammatory status
- visual stability

High blood sugar can affect both the tear-producing glands and the eyelid glands that help prevent rapid tear evaporation, contributing to dry eye.

How Insulin Resistance Affects the Eyes

Blood Sugar Fluctuations → Direct Impact on Vision



When blood sugar rises or falls:

- fluid osmolarity changes
- the lens may be temporarily affected
- focusing can fluctuate
- the tear film becomes less stable

Result:

blurred vision that changes throughout the day

When diabetes treatment plans or medications change, blurred vision may occur for days or weeks because glucose changes can alter eye fluids or cause swelling in tissues involved in focusing.

Microvascular Dysfunction

Metabolic dysregulation also affects microcirculation.

small vessels are affected blood flow may decrease tissue nutrition may be reduced

Result:

eyes that feel tired for no obvious reason

Chronic Inflammation

Insulin resistance is associated with low-grade inflammation.

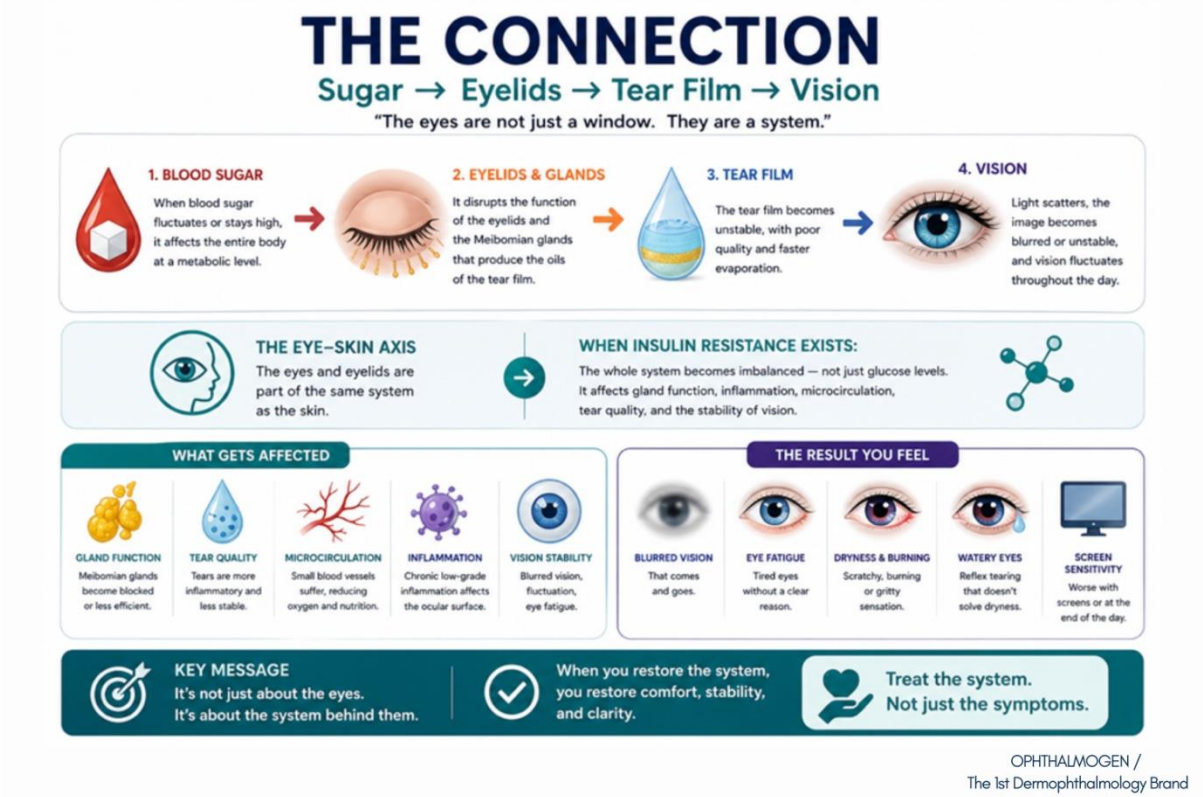
inflammatory mediators increase the ocular surface becomes stressed irritation increases

Result:

dry eye and burning

Inflammation is one of the mechanisms linking diabetes and dry eye.

Meibomian Gland Dysfunction



The Meibomian glands regulate the lipid layer of the tears.

When their function is disrupted:

- oils become thicker
- flow decreases
- obstruction increases

Result:

evaporative dry eye

The eyelid glands that help prevent tear evaporation can be affected in diabetes.

Tear Film Instability

The tear film is the first optical surface of the eye.

When it becomes unstable:

- light scatters
- the image becomes distorted
- vision becomes unstable

Result:

blurred vision “foggy vision” that comes and goes poor visual quality

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The Classic Pattern

If you notice that your vision:

- clears after blinking
- gets worse with screens
- changes throughout the day
- feels worse toward the end of the day

then the problem is often a **tear film issue** not necessarily a glasses issue

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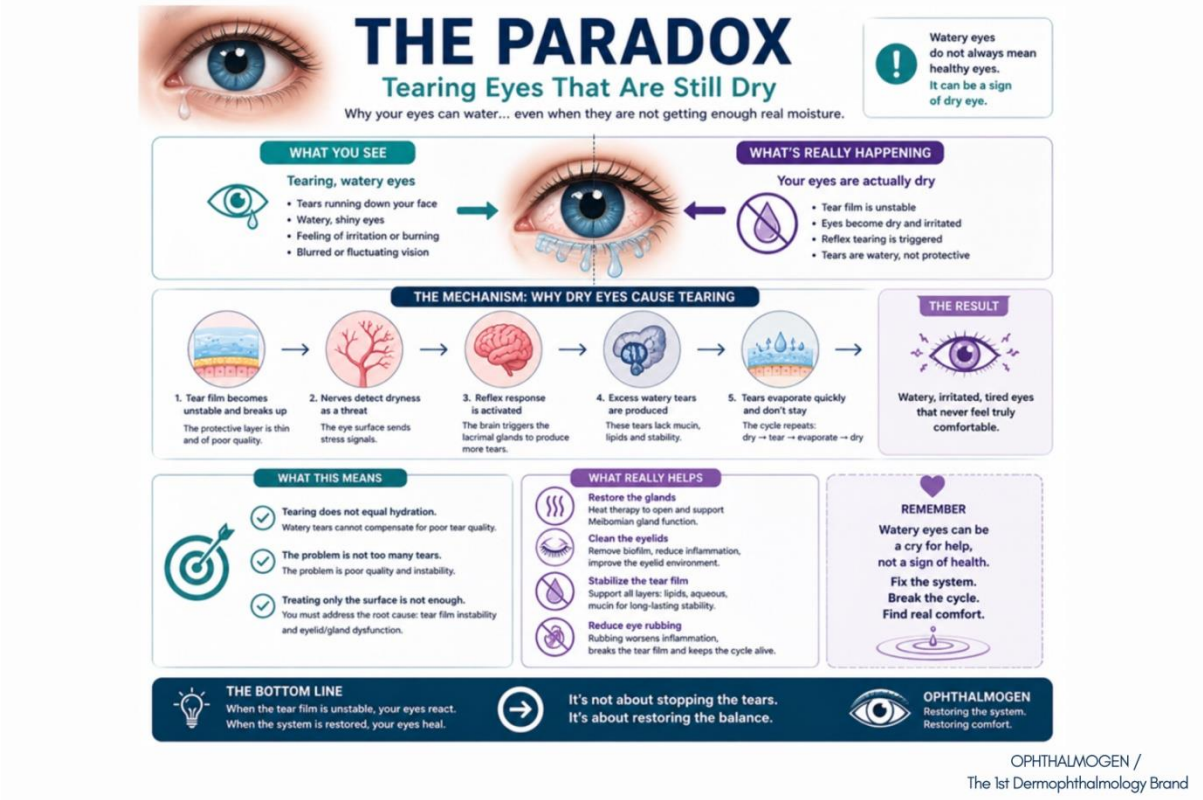
The Paradox: Watery Eyes While Having Dry Eye



Many people wonder:

“If my eyes are watering, how can I have dry eye?”

The answer is:

- dryness triggers reflex tearing
- those tears are often low-quality
- they do not stabilize properly on the eye surface

Result:

the eyes water but remain dry

Excessive tearing can be a compensatory response to chronic dryness.

Microbiome & Demodex

Metabolic dysregulation can affect:

- the skin
- the eyelids
- the microbiome
- the lash line

Result:

blepharitis
chronic irritation
chalazia
increased Demodex-related burden

Why the Problem Keeps Coming Back

Because most people:

- use only eye drops
- get temporary symptom relief
- do not support the system

but they do NOT fix:

the root of the problem

CRITICAL INSIGHT

Insulin resistance does not simply cause:

“dry eyes”

It causes:

eyelid dysfunction
gland imbalance
tear film instability
poor visual quality

In other words:

a SYSTEM DISORDER

Treatments Patients Already Use

Many people with insulin resistance, prediabetes or early diabetes use:

- **Metformin**
  (e.g. Glucophage, Siofor)
- **GLP-1 receptor agonists**
  (e.g. Ozempic, Wegovy, Trulicity)
- **Insulin**
  (in more advanced stages)

These treatments:

regulate blood sugar
improve metabolism
reduce long-term complications

BUT:

they do NOT restore:

- eyelid function
- tear film stability
- the microenvironment of the ocular surface

What No One Has Told You

Blood sugar regulation is essential
but it is NOT enough for the eyes

Because:

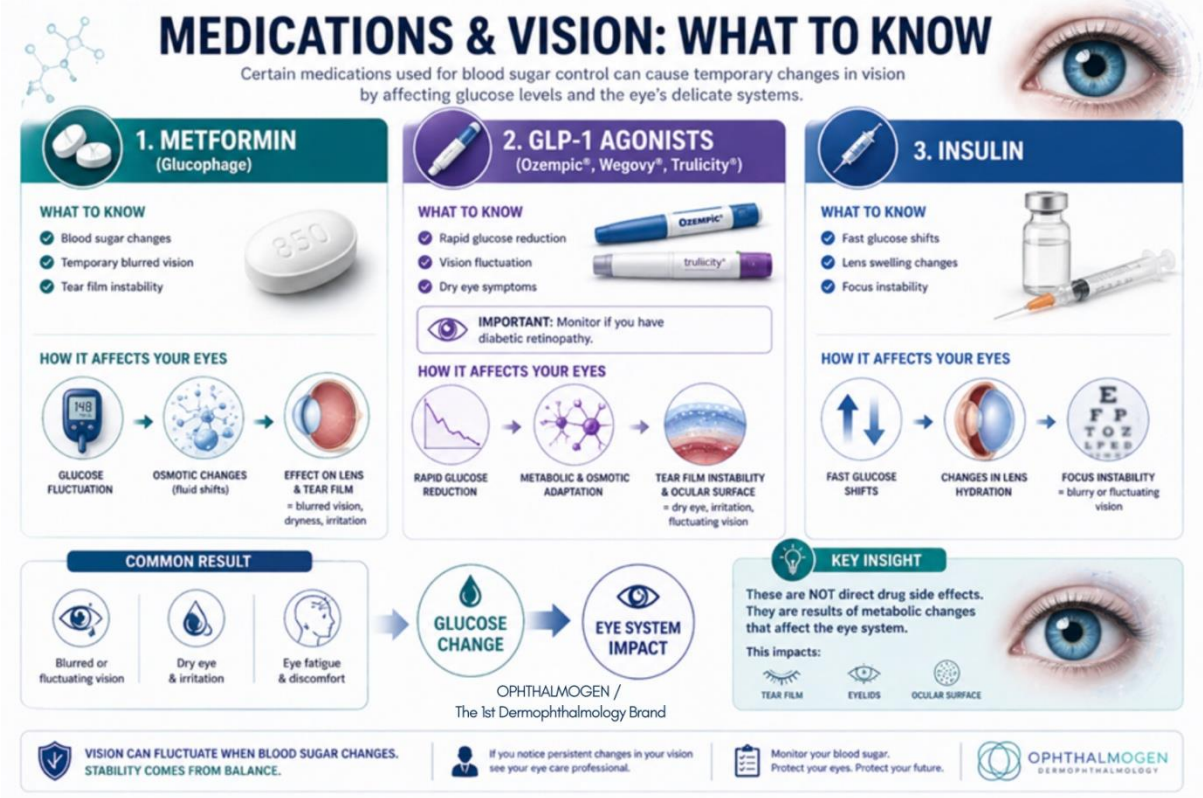
the eyes function as their own system

And they require:

local restoration
(eyelids + tear film + behavior)

Can Metformin (Glucophage) Affect the Eyes?

What many people search for — but rarely find clearly explained



Yes — in some cases, people may experience:

- blurred vision
- eye fatigue
- mild dryness

What's Actually Happening

This is not a "side effect" in the classic sense.

It is the result of metabolic changes in the body.

When you start or adjust metformin:

- blood sugar changes
- osmolarity shifts
- the lens may be temporarily affected
- the tear film becomes unstable

Result:

blurred vision that comes and goes

When Does It Happen Most Often?

- at the beginning of treatment
- when the dose changes
- when blood sugar drops quickly

What You Need to Know

This does NOT mean:

that the treatment is harming you

It means:

your body is adapting

Here’s the Critical Part

Even when blood sugar stabilizes:

the ocular system may remain dysregulated

Because:

- the glands have not recovered
- the tear film remains unstable
- the eyelids continue to dysfunction

Critical Insight

Metformin regulates blood sugar
but does NOT restore the foundation of vision

What This Means in Practice

If you experience:

- blurred vision
- dryness
- eye fatigue

it does NOT mean:

you need to change your medication

it means:

your eyes also need local support

Medical Note

If blurred vision:

- is severe
- persists
- worsens
- is accompanied by pain or double vision

you should consult a doctor immediately

Can GLP-1 Medications (Ozempic, Wegovy, Trulicity) Affect Vision?

Yes — in some cases.

Official information for Ozempic reports that **changes in vision** may occur, and that patients with a history of diabetic retinopathy should be monitored.

Mainly through:

- rapid changes in blood sugar
- metabolic shifts
- added stress on an already unstable visual system

This may lead to:

blurred vision
unstable focus
dry eye symptoms

What About Insulin?

Especially at the beginning of treatment or during rapid adjustments:

- blood sugar changes quickly
- the lens is affected
- focusing fluctuates
- the tear film becomes unstable

Result:

variable / fluctuating vision

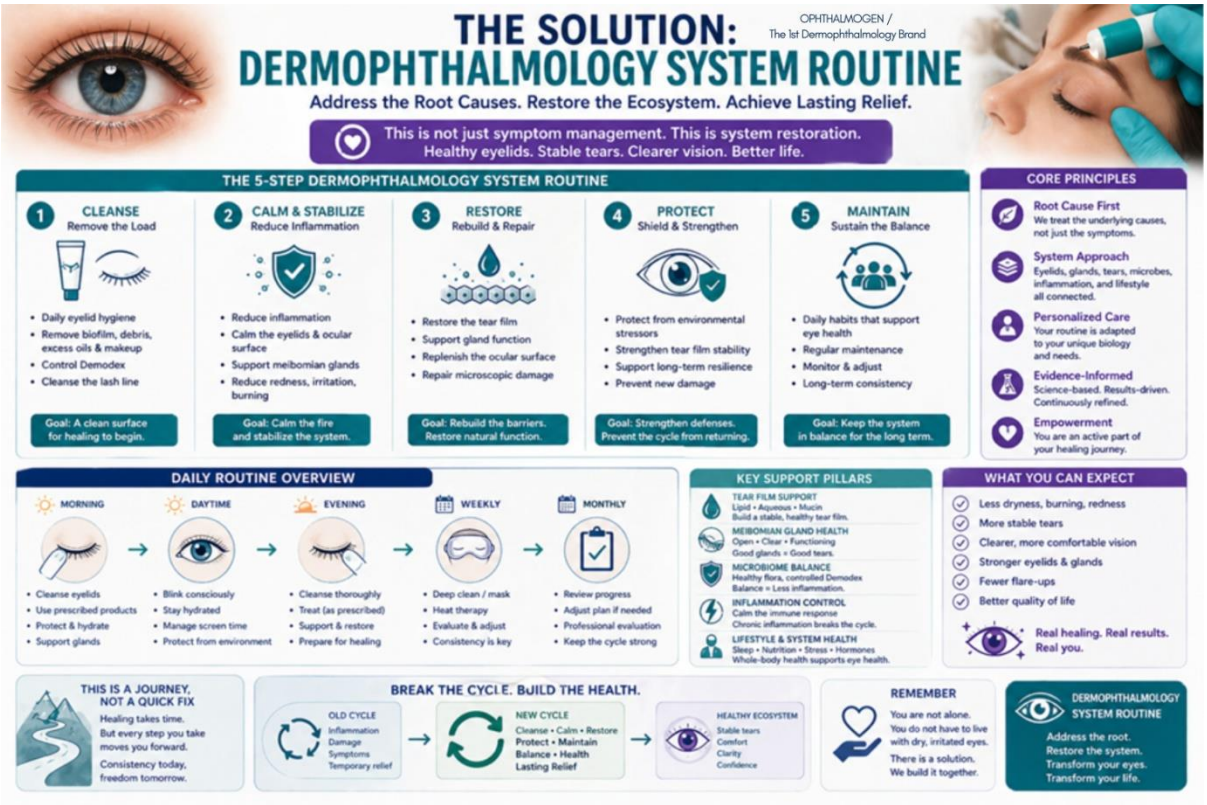
The Common Mechanism

This is NOT a “side effect” in the classic sense

It is:

a result of metabolic changes in the body

The Solution: Dermophthalmology System Routine



Not just eye drops

but a **system-based routine**

This is where eye care needs to become:

- structured
- daily
- targeted

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1. Heat Therapy with Ophthalmogen EYE10

For patients with insulin resistance, dry eye, fluctuating vision and gland dysfunction, **heat therapy is a foundational step**.

How it helps:

opens the Meibomian glands
liquefies thickened oils
improves gland flow
supports tear film stability

Practical use:

Ophthalmogen EYE10
15–20 minutes, controlled temperature ~40–42°C

Especially useful when patients experience:

- heavy or tired eyes
- fluctuating vision
- symptoms worsening with screens
- a feeling that “the eyes don’t open properly”

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2. Daily Eyelid Hygiene with Ophthalmogen Gel

Eyelid hygiene is not a minor detail.

It is the foundation.

Ophthalmogen Gel helps:

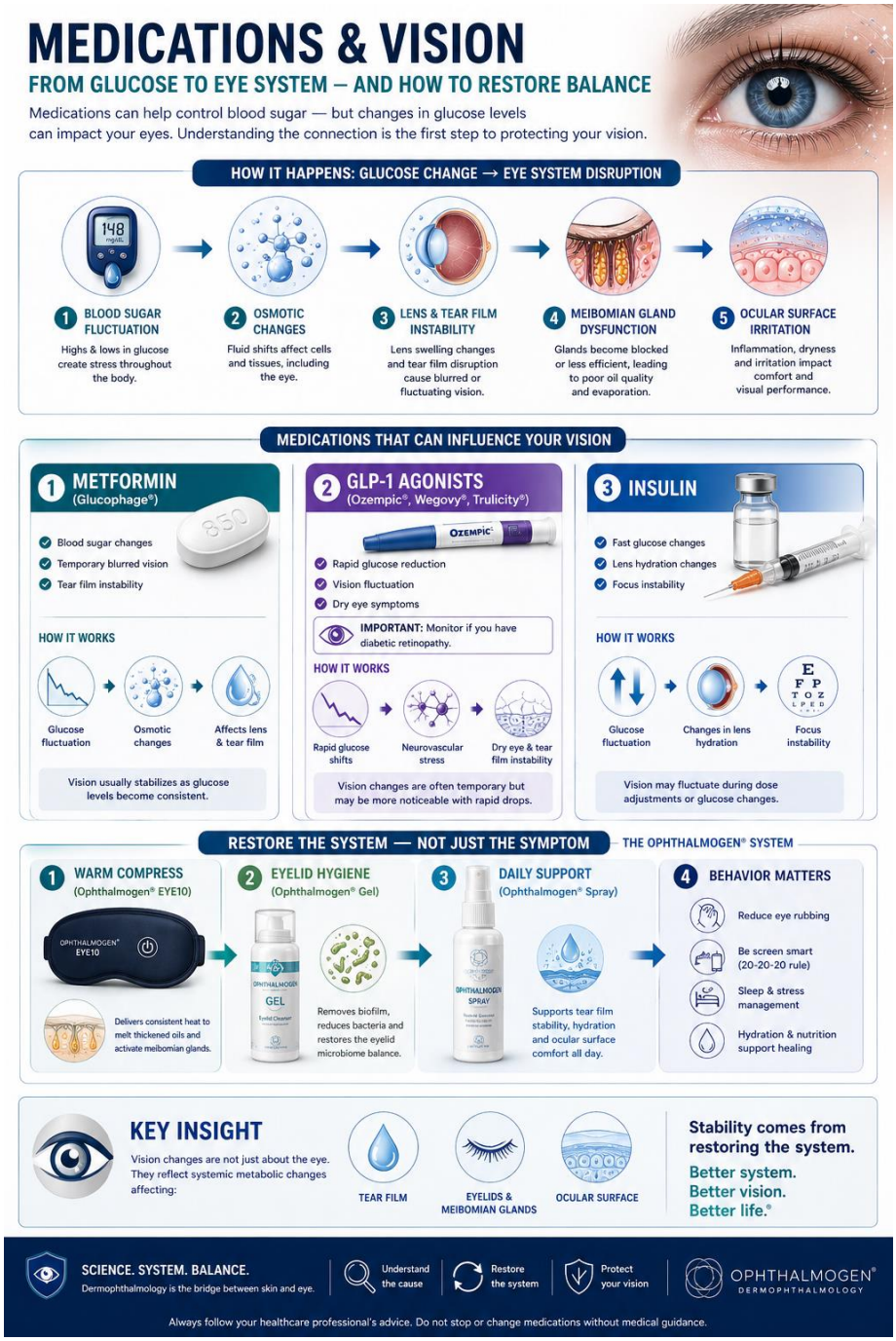
cleanse the lash line
reduce biofilm
support microbiome balance
help control Demodex load
improve the eyelid microenvironment

Practical use:

gentle application / massage on eyelids and lash base
ideally after heat therapy or in the evening

Critical for these patients because:

- metabolic dysfunction affects eyelids
- low-grade inflammation maintains irritation
- artificial tears alone are often not enough



3. Tear Film Stabilization with Ophthalmogen Spray

A common mistake:

applying drops on an unstable, unprepared surface

Ophthalmogen Spray helps:

hydrate the periocular microenvironment
reduce itching and burning
reduce the urge to rub the eyes
support daily eyelid comfort

Practical use:

during the day
before long screen exposure
before or between artificial tears

The Critical Detail

Before using artificial tears:

use **Ophthalmogen Spray**
or
perform gentle eyelid massage with **Ophthalmogen Gel**

Why?

reduces irritation
activates gland function
reduces eye rubbing
allows drops to work on a more stable surface

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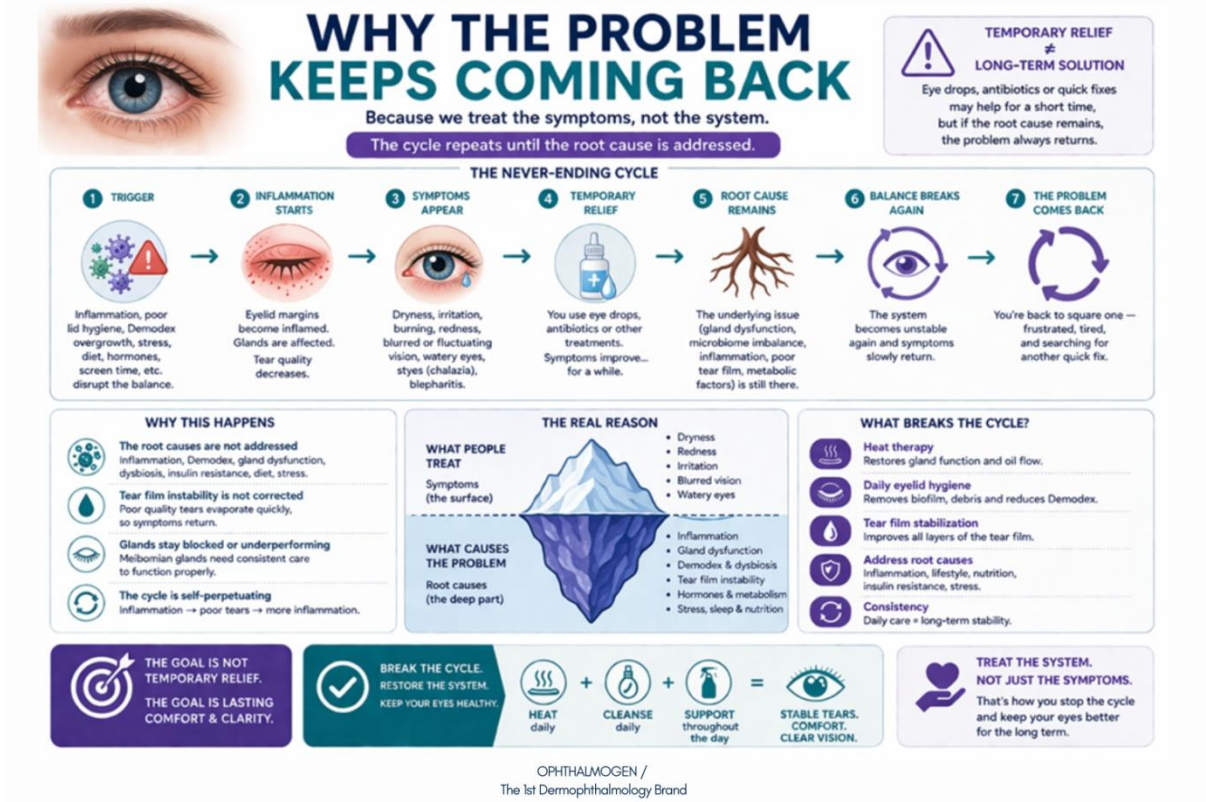
4. Reduce Eye Rubbing



Eye rubbing:

- increases inflammation
- damages eyelids
- worsens gland function
- further destabilizes the tear film

In these patients, this is **critical**.

Integrated Benefit

Using:

- **Ophthalmogen Spray** during the day
- **Ophthalmogen Gel** for daily hygiene
- **Ophthalmogen EYE10** for gland activation

helps not only with symptom relief
but also reduces the need to rub the eyes

The Big Picture

This is not:

one product
one step

It is:

a **4-level system**

Meibomian glands → heat therapy (Ophthalmogen EYE10)
Eyelids / lash line → cleansing (Ophthalmogen Gel)
Tear film / daily comfort → stabilization (Ophthalmogen Spray)
Behavior → less rubbing, better stability

Conclusion

Yes — insulin resistance:

- affects vision
- causes dry eye
- creates instability
- impacts eyelids and gland function

Because it disrupts the entire system

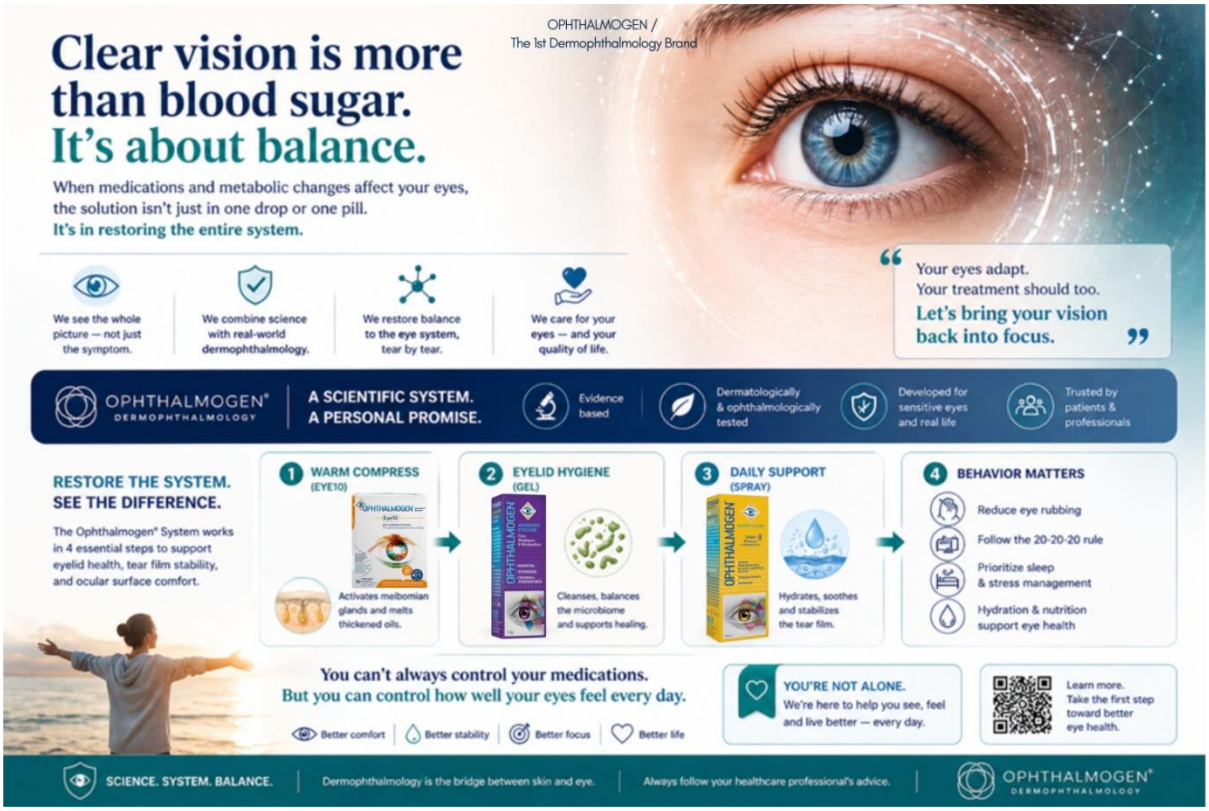
Final Thought

If you treat only the eyes…

the problem comes back

If you restore the system…

you break the cycle



FAQ – Insulin Resistance & Eyes

Can insulin resistance cause blurred vision?

Yes — mainly due to **blood sugar fluctuations** and **tear film instability**.

Why is my vision blurry during the day?

Because of:

- fluctuations in blood glucose
- instability of the tear film
- small temporary changes in the lens

Result: vision that comes and goes

Is it a glasses issue?

Not necessarily.

In many cases, it is **tear film instability**, not a refractive error.

Can insulin resistance cause dry eye?

Yes.

Through:

- chronic low-grade inflammation
- Meibomian gland dysfunction
- poor tear quality

Leading to dry eye symptoms

Why do my eyes water if they are dry?

Because:

- dryness triggers reflex tearing
- but the tears are often of poor quality
- and do not stay stable on the eye surface

Result: watery eyes that are still dry

Can insulin resistance cause blepharitis or chalazia?

Yes.

Through:

- microbiome imbalance
- gland dysfunction

Increasing the risk of:

- blepharitis
- recurrent chalazia

Does metformin (Glucophage) cause blurred vision?

It can be associated with **temporary blurred vision**, especially:

- at the beginning of treatment
- when the dose changes

Due to changes in blood sugar levels — not a direct toxic effect.

How long does blurred vision from metformin last?

Usually temporary.

It may last from **a few days to a few weeks** as the body adapts.

Can Ozempic or other GLP-1 medications affect the eyes?

Yes, in some cases.

Mainly due to rapid metabolic changes.

Official Ozempic information mentions **“changes in vision”** and recommends monitoring in patients with diabetic retinopathy.

Are artificial tears enough?

No.

They provide temporary relief but do **not correct the root cause**.

What actually works?

A system-based approach:

- heat therapy
- daily eyelid hygiene
- tear film stabilization
- reducing eye rubbing

What is the practical Ophthalmogen routine for these patients?

A structured daily protocol:

- **Ophthalmogen EYE10** → 15–20 minutes (heat therapy)
- **Ophthalmogen Gel** → eyelid cleansing & gentle massage
- **Ophthalmogen Spray** → daytime support & comfort

This combination targets the system — not just symptoms.

Do I need to clean my eyelids every day?

Yes.

Just like teeth need daily hygiene, **eyelids require daily care**.

When should I see a doctor?

If you experience:

- persistent blurred vision
- eye pain
- light sensitivity
- frequent chalazia
- sudden worsening of vision

FINAL MICRO SUMMARY

Insulin resistance affects the eyes
not only through blood sugar
but through the entire ocular system

The solution is not just eye drops
but **restoring the system**

CTA

If you have insulin resistance or prediabetes and eye symptoms:

don’t treat only the symptoms

restore the system

info@ophthalmogen.com for a personalized protocol

Scientific Basis

The relationship between insulin resistance, ocular surface dysfunction, and visual instability is supported by both ophthalmological and metabolic research, highlighting the eye as a sensitive indicator of systemic imbalance (1–6).

REFERENCES

Ophthalmology / Ocular Surface

1. Craig JP, Nichols KK, Akpek EK, et al. TFOS DEWS II Definition and Classification Report. *Ocul Surf.* 2017;15(3):276–283.
2. Nichols KK, Foulks GN, Bron AJ, et al. The international workshop on meibomian gland dysfunction: executive summary. *Invest Ophthalmol Vis Sci.* 2011;52(4):1922–1929.
3. Manaviat MR, Rashidi M, Afkhami-Ardekani M, Shoja MR. Prevalence of dry eye syndrome and diabetic retinopathy in type 2 diabetic patients. *Cornea.* 2008;27(6):605–610.
4. King-Smith PE, Bailey MD, Braun RJ. Four characteristics and a model of an effective tear film lipid layer. *Prog Retin Eye Res.* 2018;66:47–81.

Diabetes / Metabolism

5. American Diabetes Association. Standards of medical care in diabetes—2024. *Diabetes Care.* 2024;47(Suppl 1):S1–S350.
6. National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK). Insulin resistance & prediabetes [Internet]. Bethesda (MD): NIDDK; Available from: https://www.niddk.nih.gov
7. National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK). Diabetic eye disease [Internet]. Bethesda (MD): NIDDK.

Medications / GLP-1 / Metformin

8. Novo Nordisk. Ozempic (semaglutide) prescribing information. 2023.
9. Novo Nordisk. Wegovy (semaglutide) prescribing information. 2023.
10. Eli Lilly. Trulicity (dulaglutide) prescribing information. 2023.
11. UK Prospective Diabetes Study (UKPDS) Group. Intensive blood-glucose control with sulphonylureas or insulin compared with conventional treatment. *Lancet.*1998;352(9131):837–853.