11 WAYS WE STRAIN OUR EYES WITH COMPUTERS

AND HOW TO DEAL WITH THEM

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Introduction

People spend most their waking hours staring at screens.

Whether you work in an office, lay in bed browsing on your phone all day or play games on your PC all night, you probably spend about ten hours in front of a screen every day.

That has a significant effect on your body and health, but most importantly your eyes.

So let’s review some things that cause the most strain to our eyes when we spend a lot of time in front of a computer and ways we can fix our bad habits in order to be healthier, more productive and live longer.

Desk position

First, it’s very important to choose the proper position in your workplace.

When placing your computer or laptop on your desk you must make sure the windows in the room are either on your left or your right side.

As we know the main source of light in our lives is the Sun.

But as great as the Sun is, it can be very dangerous. We’ve all tried to look directly at the Sun—notice how your eyes hurt after that?

That’s because the light coming from the Sun is very powerful and it can greatly damage our sensitive eyes, even causing blindness. Therefore an incorrect position in relation to the source of sunlight in a room can cause great strain to our eyes.

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If the Sun is behind us, we experience the so-called ‘double image’ — on one part the image on the screen and on another the reflection from the light behind.

This way the eyes cannot maintain and constantly change focus.

On the other hand, if the Sun is in front the greater light coming from it will cause strain to our vision—imagine it as you’ve just woken up and opened your eyes to a really bright room.

All of this is why the source of sunlight should be on either of your sides when working on a computer.

This does not directly apply to artificial light since it's always on the ceiling which is in its own way on your side.

Monitor position

After you've placed your monitor properly in accordance to the Sun and you've sat down, how are you supposed to position yourself against the monitor?

If you're too low and you have to look up at the screen your eyes will be more open which means they are more exposed to the environment like dust and wind.

If you're too high your eyes are less open but that position can cause slumping and different issues with back posture and spinal form.

So the best way to sit across your monitor is to have the top of it be at the same level of your eyes —this lowers strain and fixes posture.

Taking a break

Spending countless hours in front of a screen without taking a break is also the main cause in eye strain.

The average person blinks at a rate of 10-15 blinks per minute, however when we focus for a long time at a screen that rate drops to 1-2 blinks per minute.

Less blinking, apart from the usual eye strain, adds further tension.

Blinking helps keep dust away from the eyes and also helps regulate the moisture on the retina.

Less moisture equals more eye strain and can lead to headaches.

One way of creating additional moisture is yawning.

However, the best way to deal with the implication of spending a lot of time in front of a screen is to just take a break.

Stand up, stretch your arms and legs, take a walk, look far away into the distance to focus and calm your eyes. It's best to remember the 20-20-20 rule —every 20 minutes of work take a 20-second pause in which you look at an object 20 feet away (approx. 7 meters).

This way you can balance your digital life and still keep a healthy daily routine.

Bad lighting

As we know there are different types of lights.

It’s been 200 years since the light bulb was invented.

Today apart from the regular incandescent bulb there are also LED lights, halogen and luminescent lamps, fluorescent lights, neon lights, energy-efficient bulbs and so on.

It greatly depends on what kind of light you’re using in the room when working on a computer.

The best one for your health is the original incandescent bulb.

Its emission spectrum is the same as the Sun’s which means it’s very close to the natural light we receive during the day.

It also doesn't flicker as LED and fluorescent lights tend to do.

However in many countries today this bulb is banned. Offices and workplaces now use luminescent lights that emit a lot of blue light and are very harmful to our eyes especially after so many hours of exposure.

Bright screens

Since light is an electromagnetic wave the more exposure to bright lights can cause permanent damage to the retina.

There always needs to be a balance between the brightness of your screen and the light around you.

If the environment is dark that opens up your pupil to let more light in and then you shine the bright phone or computer screen right in there.

That can cause blurred vision, headaches and after constant exposure much more serious diseases.

Step away from your screen and look at it from afar. If it looks like a light source in the room then it's definitely too bright.

Some newer devices have auto brightness features, but some don’t allow low enough settings of brightness.

Lower brightness can also cause shimmering and flickering on the device which causes additional eye strain.

If you feel your devices brightness settings aren’t meeting your needs you can use software like Iris for additional help.

Glossy screens

Take your phone and look at the screen when it's turned off. Can you see your reflection?

That means your screen is glossy.

Glossy screens can cause the so-called double image we talked about earlier.

If you have a glossy screen you can buy a matte filter.

Matte screens don't allow reflection because they scatter more light away from the eye.

One pro for glossy screens is that they have better and more accurate colors, but is that really worth it that much?

Blue light

Blue light is the part of the visible spectrum of light with the shortest wavelength.

Humans have evolved under blue skies so blue light controls our sleep time.

Now imagine what happens when you spend all night in front of your laptop screen exposed to blue light.

Simply put your daily rhythm gets all messed up.

But also since blue light has the highest kinetic energy level over time it damages the eyes and can cause various diseases like cataract, macular degeneration, blurred vision and can also lead to permanent blindness.

The solution is to limit exposure to blue light and try to receive more red light which is on the opposite end of the spectrum

Red light is much softer on the eyes and has a calming and soothing effect.

If your phone or computer doesn't have a built-in feature you can use software like Iris to regulate the red shift in accordance with the environment around you.

Flickering

It’s no secret screens emit light.

Once upon a time, someone decided they want to save from their electricity bill and that’s how flickering lights came to be.

How does flickering work?

Basically, the light turns off and then back on so quickly the brain cannot register it.

However, that’s extremely harmful to our eyes.

Remember that really old internet saying that your pupil enlarges when you’re looking at someone you love?

Yeah well, that only happens if you’re in a really dark room and you can’t really see them.

You see the pupil gets bigger in conditions of little light so it can let in the eye as much light as possible.

And when there's a lot of light the pupil gets smaller so you don't go blind from too much light entering the eye.

So when your screen is constantly turning off and on the pupil keeps pulsating like a muscle trying to adjust.

In order to deal with this you can increase the brightness on your display but that, as we already saw, causes other problems on its own, especially in a dark room.

Newer smartphones now have something called DC dimming that deals with the issues caused by flickering.

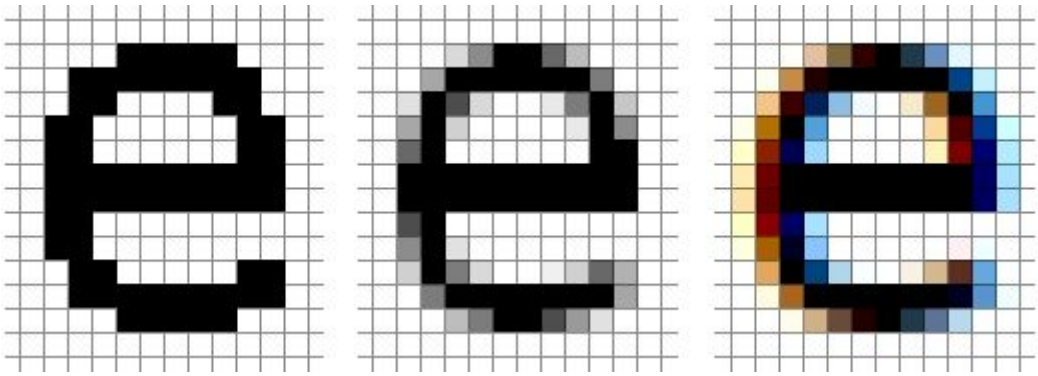
But if your devices don't you can always use specialized software like Iris.

Iris adjusts the brightness of your screens, controls the flickering, and stops the emission of too much harmful blue light.

Blurred fonts

The blurring of fonts can be a technique for font rendering. That is the way you see the letters on your screen.

Every pixel on our monitors is actually a small diode emitting light in red, green or blue. In order to fix jagged edges of letters and make fonts ‘prettier’ something called font smoothing is used.



However when letters are smoothed out that causes eye strain.

The sharper and simpler a font is the better it affects our eyes.

Small fonts and letters

Apart from being blurred, fonts can be too small.

This is probably something we've all experienced, even when reading a book or a newspaper if the font is too small you have to either move closer or kind of squint at the text to read it better.

Obviously, that causes great strain to the eyes and can lead to headaches from focusing too hard.

So remember — bigger is better.

Need for glasses

Even if you follow all previous advice to the max, if you are in need of glasses your eyes will still hurt no matter what.

If after taking precautions you still experience eye pain you need to visit a professional optometrist.

It’s better if you go to a hospital and not a mainstream optic shop because sometimes they’re not as professional.

If you have any concerns about your eye health visit an eye doctor for a check-up at least since nowadays almost everyone needs glasses — some hospitals offer free check-ups.

If you are prescribed glasses do not waste time and go get them and make sure they’re the right diopter so you don’t worsen your eye pain.

It’s not possible to lower your diopter but it’s possible to slow its increase.

Since we can’t get rid of all electronics in our lives we can at least try to lessen their harmful effects on us.

Learn how you are able to do this with **Iris**.