

How Technology Affects the Eyes

Interim Report

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The health of a person's eye and how technology affects it. People on the average spend too much time on their digital devices. It can cause dry eye, headaches, and eye strain. We are concerned why this is happening and **Why Technology is Affecting the Eyes.**

The progress we have made so far: We have already collected our surveys, almost all of the sixth, seventh, and eighth graders filled out our survey and are currently tabulating the data into Google Sheets. We separated the different grade levels to see what similarities and differences and can determine based on the results of the surveys. The research we have done about said that technology and what affect it has on the eyes and what the symptoms are and we plan to talk with the eye doctors that two of us see on a regular basis. The two of us are going to the eye doctors but, we have yet to go and talk to them, we plan to do it very soon. We are planning to develop a 3D model using NetLogo to show the effects of electronics on the eyes. This is a medicine and health.

We plan to solve this problem computationally by creating a 3D model with a cell phone and with the blue light reflecting off the phone. This will show the light reflecting onto the eyes and the impact on the eye. We will be doing this by using the supercomputing Netlog program. The model will show a phone reflecting blue light to the eyes which will show the effect of being on technology too long. So far our research demonstrated that the blue light has nothing to do with the eyes, just making you want to stay up longer. We are still researching our project and would like to prove that blue light does have impact on your eyes.

We expect to show the effects of blue light and its impact on the eye. We also expect that the increase in the time a child spends on an electronic device will influence that impact on their eyes. How does technology affect your eyes?

There is no consistent research that show a constant use of technology that will cause permanent eye damage. However, in the article from *Life Science* it discusses about three ways technology affects eyesight. This gives us information about the side affects of technology. “Staring at bright screens for hours on end can lead to smaller-scale problems.” Some of those small scale problems are headaches, eye strain, and dry eye. (Chan, 2011)

In another article from *Everyday Health* it talks about how technology is hurting your eyes. “Constantly staring at a screen can lead to a host of problems.” One of those problems are the eyes refocusing which sometimes take a while to. Another problem is that the eye will begin to dry up, losing the needed tears to keep the eye lubricated. (Khan, 2014).

Another article talks about how digital devices are affecting the eyes and how you can protect your eyes as well. Staring at a bright screen isn’t good for the eye and will result in the eye taking a while to refocus. Look away from the screen for at least twenty seconds and only look at the device again for twenty minutes. (Eye specialists of Louisiana, 2013)

The article, *21st Century Optometric Association*, talks about how kids in the 21st century are relying on technology and that their eyes are still developing between the ages of 5 to 13. This will not cause permanent damage to the eyes but it will lead to some difficulty to the eyes. (The American Optometric Association, 2015)

Our final article explains different symptoms when you're looking at a digital device such as eye strain, dry eye, and eye fatigue which are the side effects from looking at a screen for more than 2 hours at a time. (baycollege, 2013)

Resources:

<http://www.livescience.com/35579-3-ways-technology-affects-eyes.html>

<http://www.everydayhealth.com/healthy-living/how-technology-is-hurting-your-eyes.aspx>

<http://optometrytimes.modernmedicine.com/optometrytimes/news/how-digital-devices-are-affecting-vision?page=full>

<http://www.aoa.org/newsroom/the-21st-century-child-increased-technology-use-may-lead-to-future-eye-health-and-vision-issues?sso=y>

<http://www.baycollege.ca/2013/12/03/3-ways-technology-affects-your-eyes/>

This is our survey data on a spreadsheet.

Sixth Grade							
66	28					Their Age	11/12
						Number of Surveys	
61	16	17				Headaches	Yes/No/Other
16	27	10	10	31		Affects on the eyes	A/B/C/D/E
22	29	28	15			About on Electronic Devices	30min-1hr/1-2/3-5/5-more
8	26	60				Glasses or not	Yes/Need/No
2	28	64				Squinting Eyes	All the time/Never/sometimes
Seventh Grade							
70	28					Their Age	12/13
98						Number of Surveys	
15	69	14				Headaches	A/B/C/D/E
8	22	10	8	50		Affects on the eyes	30min-1hr/1-2/3-5/5-more
19	31	22	26			About on Electronic Devices	Yes/Need/No
31	5	62				Glasses or not	All the time/Never/sometimes
3	25	70				Squinting Eyes	
Eight Grade							
60	25					Their Age	13/14
85						Number of Surveys	
8	65	12				Headaches	A/B/C/D/E
8	22	10	10	35		Affects on the eyes	30min-1hr/1-2/3-5/5-more
20	19	26	20			About on Electronic Devices	Yes/Need/No
23	26	36				Glasses or not	All the time/Never/sometimes
3	29	53				Squinting Eyes	