

# Eye Opening Observation: the Connection between Yeshiva Students and Myopia

By Daniella Marcus

The Jewish people are referred to as “the people of the book.” This, most probably, is due to the tremendous importance given to the study of Torah and of the Jewish laws and customs. There is a commandment in the Torah to set aside time to study Torah and Jewish laws. In *Devarim* 5:1 Moshe speaks on behalf of G-d to the Jewish people saying, “שמע ישראל את ה' אחד ואת המשפטים אשר אנכי ”: “Hear, O Israel, the statutes and ordinances which I speak in your ears this day, and learn them, and observe [them] to do them.” The obligation to study the Torah is essential for teaching and passing down the Jewish traditions to the next generation. Maimonides writes “Every Jew is obligated to study Torah, whether he is poor or rich, healthy or ill, young or old. Even if he is a pauper who derives his livelihood from charity, or if he has family obligations to his wife and children, he must still establish fixed times for Torah study both day and night, as it says (Joshua 1:8), ‘You shall think about it day and night.’” [1] It is common for orthodox males, especially in the ultra-orthodox community, to attend *yeshivot*, Orthodox Jewish schools in which most of the day is devoted to Torah study. Many boys start to learn the texts around the age of 9, and gradually spend more time studying them for up to 10-16 hours a day. However, in recent years there has been a strong prevalence of myopia in the Orthodox community, especial in males. This paper will address some of the possible reason as to this trend.

Myopia, a common vision condition, limits a person’s ability to clearly see images at a far distance. Myopia can occur either when the eyeball is elongated or if the cornea is too curved, causing the light entering the retina not to focus properly. The light gathers at an area in front of the retina, rather than on the retina itself, which does not allow the image to be seen clearly. One of the most common ways that myopia is treated is with glasses or contact lenses. [2] Both treatments employ a lens to bend incoming light so that all the rays properly focus on the retina to produce a clearer image.

There have been several reports over the past few years regarding the high prevalence of myopia in Jewish Orthodox males who are *yeshiva* students in Israel. The male high school *yeshiva* students had a significantly higher prevalence of myopia compared to male high school students in a secular school, with numbers being 81.3% and 27.4%, respectively. The yeshiva students also had the highest average myopic correction power when compared to females in orthodox high schools, as well as to males

and females in a secular high school:  $-3.78 \pm .17D$ ,  $-2.70 \pm .15D$ ,  $-2.10 \pm .26D$ , and  $-.90 \pm 1.70D$ , respectively. The greater prevalence of myopia in male orthodox yeshiva students was due to their study habits when studying Torah. Most of the Jewish texts studied have varying size print, which could cause a strain on the eyes, especially after spending many hours a day reading up close. In many Jewish works, the main text is in larger print and the commentaries, on the side of the page, are written in much smaller print. [3]

Environmental risk factors for myopia at a young age include varying positions when reading, less time spent outdoors, and many hours of close- up activity. In one study, a group of 11,590 second graders were tested for myopia. Their parents were given a questionnaire about the lifestyle habits of their children, regarding the number of hours a week that their children read, watched television, and were involved in both near-work and outdoor activities. 36% of the subjects were myopic with a correction of  $-.50$  or higher. Based on the questionnaire and the results from the eye examinations, the main risk factors were the amount of time spent on near-work activity every day, a shorter distance when doing near-work activity, and attendance in an after-school study program. It was found that resting after 30 minutes of near-work activity and spending more time involved in outdoor activities were significantly associated with a lower risk of myopia [4].

One other possible factor which might be associated with the high prevalence of myopia in yeshiva students is the traditional back and forth rocking movement of the upper torso, known in Yiddish as *shuckeling* [3]. *Shuckeling* is practiced by many yeshiva students during prayer and Torah study. There are several mystical and religious reasons behind this study habit. One answer given by several commentators, and noted in the Mishna *Brurah*, is based on the verse in Psalms 35:10, “*kol atzmosai tomamah Hashem mi kamocha*,” “All my bones shall say: ‘G-d, who is like You.’” According to this verse, one’s whole body should be involved in the Torah study and prayer. [5,6] A second explanation given by Rabbi Shimon Schwab is that the movement of rocking forward and backward represents the dichotomy of loving and of fearing G-d. Bending forward represents the ideas of coming close to G-d out of love, while leaning backward represents the recognition of the awesomeness of G-d and retraction out of fear. These are two thoughts that generally come to a person’s mind while involved in prayer or Torah study. [5,7]

For many hours of the day, yeshiva students usually maintain a close work distance to the text and are not involved in much outdoor activity. Even though the mechanism as to why close work causes myopia is not conclusive, some researchers have proposed possible mechanisms. One possibility is that when one is focusing on near-work, the ciliary muscles in the eye will contract to accommodate and allow for better focus. After a long period of time, this constant accommodation of the eyes causes an increased refractive power on the lens in the eye. [8] It seems that the swaying movements of yeshiva students do not allow the eye to properly accommodate to the constant change of distance. This may lead to defocusing of the retina, therefore causing strain on the eye and subsequent elongation of the eyeball, which would lead to myopia.

It has been found that one significant way to slow the progression of myopia is through increasing one's outdoor activity, because taking a break from near-work gives the eye a chance to rest from the stress of constant focus. In an outdoor environment, objects are usually at an optimal distance to allow light to enter the eyes and properly refocus the image on the retina. [9]

A study compared two elementary school classes with students of similar age and socioeconomic class. During recess, one class had a special outdoors program, in which the students were encouraged to be involved. The other class had the same amount of recess, but had no special outdoor activities. The parents of both classes were given a questionnaire that asked them to record the amount of time and the type of near-work activities and outdoor activities that their children were involved in. The eye refraction data were measured at the start of the study and one year later. A significantly fewer number of new cases of myopia cases were noted. Additionally, among the students who were

already myopic, there were fewer accounts of further myopic progression in the group of students with outdoor activities. [10]

Overall, the main factors that cause myopia in *yeshiva* students are the many hours of near-sighted work, the different size prints in the Jewish texts, the rocking motion while learning, and the limited time spent outdoors. As stated above, there may be benefits to incorporating outside activity into their daily routine, since outdoor activity has been found to prevent myopia. Time outdoors would be useful to the students because they spend most of their time in an indoor environment with numerous risk factors for development of myopia. While a yeshiva student is taking a break from studying, it will give him a chance to rest their eyes. This break time should not be considered *bitul Torah*, a disruption to Torah study. Rather it can be used as a time for productive purposes, such as contemplation and meditation. Maimonides writes that "When one eats, drinks, sleeps...rests, his only aim should be his health. But let the goal of being healthy is to remain robust and well enough to acquire the knowledge and the personal and intellectual virtues that one needs to reach his goal [of achieving piety and drawing close to G-d]." [11] By taking a break, one is allowing the body, especially the eyes, to have a little rest, which will hopefully reinvigorate the student to learn at a greater level, while knowing that he is serving G-d with his whole body in a healthy way.

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