

Chisolm (J. J.)

REST FOR PAINFUL EYES,
IS THIS ADVICE ALWAYS
GOOD?

—BY—

JULIAN J. CHISOLM, M.D.,

Professor of Eye and Ear Diseases in the University
of Maryland, Surgeon in Charge of the Presby-
terian Eye and Ear Charity Hospital of
Baltimore City, Etc., Etc.

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When the eyes tire under much and long continued use relief naturally comes with rest, and we voluntarily desist from work so that the eyes may regain their normal condition of comfort; and this they rapidly do. This eye weariness, which comes on simultaneously with a tired feeling in the whole body, is not a painful condition. That it is a general discomfort which rest relieves, is familiar to us all as individuals, and hence we are ever ready to acquiesce in the proposal to rest our painful eyes, when such advice comes from the physician to whom we have appealed for treatment. *But is this advice always good?*

To answer correctly this very important question eye troubles must be classified into two great divisions.

First—We have diseased states of the eyes, inflammatory in their nature, accompanied by pain with other evidences of congestion, and often associated with blurred vision.

Second—This great division comprises faults in eye construction, defects in the



focusing power, errors in refraction, unaccompanied by visible congestions except on abusive use of the organ.

In one or the other of these two great classes most eye troubles can be placed.

When we see an eye that is red, watering, painful, and in many instances accompanied with blurred vision, whether this trouble be in one or in both eyes, we naturally and properly advise rest from eye work, while the inflammatory symptoms are being relieved by judicious medication. We even shut out the normal retinal stimulus, light, by smoked glasses or darkened rooms, and thereby add to the comfort of the patient.

All eyes, painful under use, are not necessarily inflamed ones. On the contrary, a very large number of the most annoying eye troubles are not dependent upon diseased conditions. The discomfort induced by the use of such eyes is occasioned by faults in the focusing power, necessitating over use of the eye muscles, and subsequent pain in the eyes and head. Any disturbance of the system, which causes temporarily general muscular debility, will diminish the force of the eye muscles and increase the tendency to head and eye pains. As these eye faults are most frequently congenital, starting with our very being, they often commence to show

their injurious effects when young growing and not necessarily over strong eyes, are taxed in the acquisition of knowledge, and when the advice to rest these painful eyes for months at a time is a serious interference with school life and with education. In this classification is brought a very large number of young persons, whose eyes are badly shaped, and hence pain in them on use.

A well shaped eye should be nearly a sphere. In such a round eye the inner or retinal coat will receive the focused image, sharply defined, of distant objects, without aid from the muscles of accommodation. These important muscles, within such an eye-ball, are called into use when the eye is viewing near objects. Writing, reading and sewing are properly called eye work, because they require the need of the accommodating eye muscles. All other uses to which the eyes are put, except the viewing of near objects, mean rest. This of course is not rest from retinal work, which is going on actively as long as our eyes are opened, for as a rule the retina does not seem to tire. It means rest from intra-ocular muscular work. Such a round eye is called *emmetropic*, and is the type of a good one. This is the kind of eye that nature should always supply to the human race.

Unfortunately from this standard, deviations, detrimental to the comfortable uses of the organ, are found in numbers. Many children are born with eyes flattened from before backwards, so that the retina is brought too near the lens and therefore in front of its normal focus plane. This flat eye is called over-sighted or *hyperopic*. Such a flat eye, when at rest, does not see even a distant object sharply. It needs muscular work for all purposes, to enable it to focus light from far as well as from near objects. Such an eye is never at rest during waking hours. As nature abhors a vacuum, so badly shaped eyes may be said to abhor badly defined pictures on the retina. An effort is made involuntarily by the flat eye to sharpen outlines and perfect the focus. This is always a muscular effort. When required for distant vision, as is always the case with flat eyes, some of the muscular force of the eye is used up, leaving less for the accommodating power in viewing small near objects. If the eye be very flat and the demand upon the muscular apparatus necessarily very great for even distant objects, then the moderate use of the eyes for reading soon exhausts the remaining muscular power. After reading for a short time the natural relaxation of the over-worked and tired muscles changes the focus of

the lens, blurs the image upon the retina, and causes the letters of a page to run together. A little rest enables the muscles to resume work and the printed page to be again clearly seen, but a very few more minutes use of the tired muscles again blurs the page. If the effort to read be persisted in, pain in the eyes and in the head ensues. If the muscular force be weakened by any acute disease then the eyes give out the sooner. We experience this in children after measles, diphtheria, etc. Children who could study with comfort before the attack find themselves unable to read for any length of time afterwards. Often months are required before the eye muscles again become strong.

An eye may be so very short in its antero-posterior diameter that all the intra ocular muscular power is required for viewing distant objects, leaving none for near work. Children with such badly shaped eyes can not study, because from deficiency in the focusing power of the crystalline lens they can not distinguish the shape of the small letters. The nervous apparatus of such an eye is good. The retina and optic nerve are perfect, but the picture thrown upon this retinal screen is blurred, solely for want of accurate focusing power. Add to the lens power

and perfect vision for small objects is at once obtained. The accidental use of their grandmother's glasses to aid the crystalline lens to focus a sharply defined image is a marvellous revelation to such an eye, and shows just what it requires to make it a strong useful organ; viz, a pair of properly adjusted magnifying spectacles. With such scientific aid the child is in condition to undertake hard study, and seeing clearly becomes easy. Because over exertion of the eye muscles is no longer required, when the child wears properly selected glasses, no more pain in eyes and head is experienced during study hours.

Although rest from near work will always bring about relief from the pain consequent to over muscular exertion, the advice so often given to parents by the family physician, to take hyperopic children from school, and let them rest their eyes from study, for months at a time, is bad, because it is founded on ignorance of the cause producing the trouble. At the end of six or twelve months the eye is just as misshaped as it was before the rest was taken, and application for near work will surely bring back the former painful discomfort. This is a matter of every day observation. Adjust proper glasses, correct the error of refraction, give the eye muscles less

work to do by allowing the eye to do its work with spectacles on, and consequently without effort, is surely the rational course to be pursued. *With the aid of magnifying glasses for all uses a flat eye will need no rest. To rest such eyes with the expectation that they will become strong is delusive, and is therefore bad advice.*

Again an eye may be misshaped from the round standard by being longer than it ought to be. An eye long in its antero-posterior diameter is more oval than round and is called near-sighted or *myopic*, because it only sees near objects clearly. The retina is so far from the lens in long eyes that a focus of light from distant objects is made before the retinal screen is reached. When the picture is finally thrown upon the nerve layer it is illy defined and consequently blurred. Distant objects for such eyes are always befogged, unless the strength of the crystalline lens is weakened and its focus lengthened by the use of concave or near-sighted glasses. As flat eyes were always congenital, so long eyes may be found at birth. As a rule, however, eyes acquire this condition and become misshaped by too much study in early school life. When an eye, previously good for seeing distant objects, changes shape and becomes near-sighted, the

change indicates a yielding of the sclerotic or outer tough coat which is the sustaining wall of the eye-ball. This is a weakening and diseased condition of the organ, which will eventually be a serious injury if it becomes excessive.

When progressive near-sightedness is found in school children, in order to check the rapid deterioration in this very valuable organ, rest from eye work becomes a very important factor in the treatment. When the eye-ball is elongated, the cornea retaining its regular outlines concave spherical glasses correct the defect in the focusing power of the lens and makes vision better; but this aid for distant vision does not make such young and still growing eyes strong or capable of standing abusive work.

There is still a very important class of misshaped eyes, also starting usually with the very beginning of life. *It is to call attention to the headaches and eye pains caused by many such eyes that this paper is written.* In this large class of painful eyes the cause of trouble lies in irregularities of curvature of the surface of the cornea. The curvatures of the various meridians differ, as if the eye-ball had been flattened from its sides. In such eyes the misshaped cornea may be represented by the crystal of a watch, which has lost its

true spherical form, from irregular pressure upon its edges when the substance of the glass was still soft. The curvatures of the short diameter, corresponding to the direction of pressure must be greater than those of the longer ones, and this must necessarily vary the focus of light passing through these different convex surfaces. In some meridians light may pass through and focus correctly upon the retina; in other directions the focus of transmitted light will be made too rapidly or too tardily, in either case blurring the retinal image, and causing defective vision. Whether the cornea border be compressed vertically, horizontally, or obliquely it so changes the surfaces of the cornea for that direction, that however perfectly the other surfaces of the cornea may focus, the faulty curvature acts as if it were a distinct lens of different focal power, and it will cast shadows over the sharply defined picture made by the correct portions of the cornea. This error of refraction is called *astigmatism*, and may be found in long, short, or round eyes; hence we find simple or mixed, hyperopic or myopic astigmatism. Such irregular corneas are frequently met with. In all such eyes an effort is made automatically to correct this fault by changing the shape of the crystalline

lens to correspond with the irregularities in the cornea. Fortunately the lens in young persons is so soft and jelly-like, that very little action on the part of the eye muscles corrects the faulty lines of refraction, and a perfect focus is secured. For a time this succeeds well, and comfortable clear vision is enjoyed, provided the application of the eyes for near work is not too long continued. But unfortunately the lens is hardening steadily with advancing age, and the muscular effort has to be continually increased till it becomes irksome and finally painful. The discomfort produced does not restrict itself to the eyes alone, but diffuses itself over the brow, forehead, and temples, causing headache more or less persistent. In some cases the pain invades the whole head, back of neck, and even spine. These headaches can always be brought on by eye use. To some very sensitive astigmatic patients eye use refers to their whole waking life. They arise in the morning with comfortable heads, but before they are dressed the headache has been started by the necessary toilet preparations, and it increases in severity with the advancing day. Sun rise and all day headaches they are, with some of these very susceptible persons, whose eyes see differently for the different curvatures of their cornea.

Every object in nature will radiate light from every exposed surface, and the eye catches some of these rays. Where the cornea is regularly curved light from any and all directions is accurately focused on the retina, and while we see every thing perfectly we are not aware that we have eyes, so painlessly do they function. To the abnormally sensitive astigmatic eye this varied direction of light beams, transmitted through and irregularly refracted by the varied curvatures of the cornea, necessitates nearly a choreic action of the ciliary muscles. From this perpetual changing of focus, now for one part of the cornea and then for an other, fatigue of the muscles and pain in the eyes must soon be induced, even to the extent of making sunlight annoying.

This irregular shape of the cornea can be detected if the eye views a drawing similar to a clock dial, traversed by groups of black radiating lines of equal size and distinctness. By a well formed eye these groups of lines are seen with equal sharpness of outline and of the same degree of blackness. By an astigmatic eye some of these groups of lines are brought out much more boldly than others. While some remain black others of these black lines may appear gray and at times even red or blue; and in-

stead of standing out boldly in the group they run together as if they were one solid line. The faulty lines are always at right angles to those most clearly seen. With the clock dial card if the lines running from 12 to 6 o'clock are brightest those from 3 to 9 o'clock will be most blurred. If those from 10 to 4 are the most clearly defined the blurred lines will be in the direction of 1 to 7 o'clock, and so on for any other series of lines. If a cylinder lens be selected, which will make the dull lines as bright as the clear ones, this peculiar eye-glass, when carefully set at the proper angle, will equalize vision, and will remove the discomfort which the use of the eyes had formerly produced.

The ordinary spectacles, worn by the masses, are called spherical lenses, being sections of a sphere or ball. Such are the glasses worn by near-sighted and by old persons. The peculiar glasses which correct irregularities of corneal refraction are called cylinder lenses, because they represent a slice of glass taken from the length of a round bar or cylinder. The spherical and cylinder glasses bear the same relation to each other as would an open umbrella to a wagon top. The cylinder lens has, as it were, a ridge pole over which the curvatures of the lens are made, while the spherical lens

curves in all directions from a central point. In the use of cylinder glasses the ridge pole or plain surface is always set in the direction corresponding to the clearest lines of the clock dial, and the curved surfaces of the lens are put necessarily in the direction of the blurred or discolored lines of the dial. Such cylinder glasses alone can give rest to the weary muscles in astigmatic eyes, for without them these irregularly curved eyes can not secure rest except during sleep.

A very useful law can be laid down for the guidance of physicians in the treatment of their eye complaining patients, viz. that headaches which come on with the use of the eyes and which disappear during the rest which a night's sleep brings to the weary eyes, do not usually depend upon gastric, hepatic, cerebral, or uterine troubles, as is so commonly believed.

When school girls from 12 to 18 years of age complain of eyes and head aching, after hours of close application, and are not annoyed in this way during vacations or times of eye rest, inquiry is yet made by the family physician concerning the menstrual functions. Any tardiness in the appearance of this discharge, or any deviation in its amount or frequency from what

the physician has established in his own mind as the normal, is deemed too often a sufficient and satisfactory explanation for all the head and eye discomforts. According to their theory when the monthly discharge becomes regular the head and eye troubles will disappear; but permanent relief does not come as was expected. When young men complain of these identical symptoms of eye pains and headache after hours of study I sometimes wonder why from professional habit, their menstrual functions should not be also inquired about, for the same explanation might as truthfully be accepted for them.

In this connection I will also say that these eye-headaches disappearing after sleep have their origin neither in malaria nor in a bilious derangement, notwithstanding the fact that these terms are used every day in connection with them by patients and physicians. Neither quinine, calomel, morphine nor pessaries will prevent this kind of eye headache, although building up the system in feeble persons will help the eye muscles and relieve them. The careful adjustment of proper glasses, by correcting the painful muscular effort, alone will cure them. Rest is a very frequent prescription with physicians for such

painful eyes. It will quiet temporarily the pain, but what permanent good can it possibly secure? When upon the use of the eyes the headaches, and when painless heads are made painful by reading, with very few exceptions, it is the abnormal curvatures of the cornea which causes the eye and head pains. How can rest bring about a correction in these faulty curvatures. Might as well expect rest from walking to make a shortened leg grow to the length of the other, as to expect a shorter curve in one direction of the cornea to grow out to the dimensions of the other longer meridians by resting the eyes from reading or sewing. We can readily see the absurdity in the leg suggestion, and yet many physicians do not see that the expectations from the eye rest is equally preposterous.

How many thousands in this country to-day are impatiently and uselessly resting eyes that pain when put to near work, when a pair of properly adjusted spectacles will correct the evil?

Nearly every day I restore some restless patient to his work who had sought in vain relief from eye pains in rest: or I assist some ambitious person, who having acquired an enviable start in life, feels that his painful eyes have become barriers to further study and prospective promotion. Daily

by the use of properly selected glasses I cure headache often of years duration, and which have resisted every species of medication. In so doing I have often been able to satisfy anxious patients that their brains, stomachs, livers, kidneys, or uteri, have been accused wrongfully of producing the headaches, and that these have ever been innocent and healthy organs. The following remarks I have frequently heard from patients to whom I had recently prescribed astigmatic glasses. "For one week, ever since I put on the spectacles, I have been free from headache, and it is a freedom that I have not had before for years."

Although most astigmatic eyes cause headache and eye pains, if the eyes are much used in fine work, especially by artificial light, I find cases of faulty refraction from astigmatism in which headache is not and has never been an annoying symptom.

In some astigmatic persons a strong muscular development enables them to conceal the corneal irregularity. Should any disturbance of the system temporarily weaken this muscular power, the eye muscles, along with the other muscles of the body are weakened and unable to keep up their work, then are pains induced. If it be a bilious or gastric disturbance its temporary in-

fluence over the muscles is mistaken for the actual cause of the headache, when it is only the indirect cause, permitting the latent trouble to become manifest. If the astigmatism did not exist in a concealed form there would be no headache on use of the eyes during these general disturbances.

Again in nervous persons, especially in females, I have found great suffering about the head and eyes, clearly traceable to a small degree of irregular refraction, and promptly corrected by the constant use of carefully adjusted cylinder lenses.

The report of a case with which I will close this paper is one of unusual severity in effects, although a high degree of astigmatism did not exist. Such extreme discomfort as this lady suffered is fortunately not often found. The case is also peculiar from the length of time that she suffered before her eyes were suspected of being the source of the trouble. In this age of diffusion of medical knowledge by means of many medical journals, physicians are on the alert to distinguish eye headaches from the headaches caused by other organic disturbances, and usually at an early day, invoke the aid of the specialist in eye diseases to remedy the evil. In her own case several years elapsed in testing newspaper remedies for headache, having lost faith in

physicians from her earlier medical experiences. The case, however, will illustrate the efficacy of proper glasses in relieving even years of suffering.

Mrs. F., aged 38, the mother of several children, has been a martyr to headaches since childhood; and during the past 13 years, since her married life, has been often nearly crazy from them. Any close eye work, continued for even a short time, would send her to bed with a raging headache. On an average she has spent one day out of every week in a dark room, and that has been kept up for months at a time. If she felt bright and applied herself to complete any piece of needle work, so necessary with a growing family, she never failed to pay the penalty in severe head and eye suffering. When she came first to my office, she frankly told me that she had come because she had been advised, not that she expected any benefit, for she had no faith in any curative agent whatever having years since exhausted them all without finding any relief. She gave me this very clear history of her case. "Dr. A——, has always been my family physician and in him I have every confidence. Having in my early married life exhausted his skill in vain attempts at relieving me of suffering, he gave up treating me for these headaches many

years ago. Under his advice I had consulted Prof. B——, you know him to be one of our leading practitioners. He acknowledged that I had a good family doctor, but thought that something might have been overlooked, and that he hoped to find me a remedy. He varied his medicines, as one after another failed to procure me relief, and finally he advised a visit to the Sea Shore. I spent six weeks at Cape May, and while there rested my eyes from all work, eschewing both reading and sewing. I returned home with body invigorated by the salt baths and was free from pain. As soon as I commenced using my eyes in sewing all the old distressing symptoms returned. My family physician and friend, seeing me in some of these terrible attacks, advised me to consult another physician Prof. C——, who you know has the reputation of being a very skilfull physician. He had me under his professional care all Winter and Spring. Summer found me no better. Any use of the eyes in sewing or reading sent me to bed with twenty-four hours of suffering before me. He finally advised a course of mineral waters and sent me to the White Sulphur Springs of Virginia. There I spent two months which improved me much in health. In the Fall I returned to Baltimore looking and feeling well.

A very few days of housekeeping showed me that the long rest at the springs and the drinking of sulphur waters had brought me no permanent good. My head at times ached as badly as ever."

"I now despaired of ever getting relief, because I had sought the best medical advice at my command and all to no purpose. Some of my friends, in their anxiety to see me cured of the daily suffering, advised me to try Homœopathy. I accepted the suggestion and sent for Dr. D——. He examined carefully into my case and said that he could cure me. With these assurances from the new physician, my feeling barometer at once went up, and my future prospects brightened. I entered actively into the course of medication mapped out by him. I took his mixtures hour by hour, for days and weeks, my faith growing unfortunately less and less with the monotony of the dosing. Finally as my headaches were not mitigated even by the long continued treatment, I gave up all hope and dismissed the homœopathic physician."

"I felt that my case was now beyond medical cure, and I became despondent and rash. In my anxiety to secure relief I have tried anything that any one would suggest. I believe that during the last six years I have taken

every quack remedy warranted to cure headaches that I could hear of, as published in the newspapers, and my many friends have kept me well supplied with this kind of information. Recently I have heard how Miss E—— has been cured of constant headaches by wearing glasses, and my friends have suggested that I have my eyes examined. On the principle that, in my desire to escape this bodily torment, I have been willing to try every treatment that has been brought to my notice I have come to have you examine my painful eyes, but I must tell you candidly that I expect no benefit, and have given up all hope of obtaining relief.”

Upon examination I found that she could read the finest print, but only for a few lines. Her distant vision was also acute. Fixing the eyes upon the clock dial trial card for a short time caused pain in the head and eyes and also induced a feeling of nausea. I found that she could clearly see the vertical lines of the test card, but only dimly those which were horizontally placed. I selected from the trial case a magnifying lens which would make these blurred lines perfectly clear, for each eye, and finding the corresponding cylinders adjusted them at the proper angle in a trial frame. These I placed before her eyes. To her

surprise not only did all the lines come out with equal boldness of color and of definition, but she found herself able to stare at them without inconvenience. After she had worn the glasses for some minutes, feeling great comfort from them I removed the frames when immediately the nausea previously experienced came on. The restoration of the glasses brought back strength of vision and comfort. I prescribed for her the proper cylinder lenses set at an angle of 180° , in spectacle frames to be constantly worn. So anxious was she to test these spectacles that on her way home from my office she called at the opticians and remained in the store while the glasses were being fitted to the frames which she had selected. When they were ready she put them on at once and sallied forth. Before getting home she found herself walking with a degree of comfort which she had not known for months.

The rapid improvement commenced from that hour. Her headache disappeared within three weeks by the rest which her eyes enjoyed from the constant wearing of the spectacles. Now she makes her eyes do just what she pleases. Her constant headaches are by-gones, and are only remembered from the years of torture through which she had passed. Her face has

become bright and free from care as her head is free from pains. Her relief by such apparently simple means, and without medicines, is called a miracle by her self, and is a marvel to her friends. No amount of rest without these cylinder glasses could have effected this cure from suffering. It had been thoroughly tested, and had been found as useless, as the many prescriptions with which during many years her body had beer drugged. *Cylinder glasses alone could, and they have cured her.*



