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THE CHALLENGE OF MYOPIA

For a great many years I have been intrigued with the subject of Myopia, its origin and the proper handling of this type of visual dysfunction. My limited observations are in line with many investigators who agree that little or no progress has been made in solving the mysteries of why certain individuals are unable to project satisfactorily into visual space.

This paper, in reality, is a departure from the usual subjects brought before past assemblies. The difference is in the fact that I am unable to arrive at any definite conclusions or offer any solution to the problem. However, the thought occurred to me that if the subject was reviewed, individual interest would be aroused leading to investigations with the hope that some definite information as to the origin and control of Myopia; a visual problem which offers the greatest challenge in the practice of optometry.

In presenting this preliminary report I desire to point out the necessity of approaching the subject with an open mind. Nothing is to be gained by considering Myopia as a structural or a refractive problem without considering the possibilities of the functional processes involved in the maintenance of adequate visual acuity.

No attempt is made toward originality and with few exceptions my thinking and training has been influenced by the experience of others. However, only in a few instances will I be able to give credit to those deserving recognition. My observations and method of handling Myopia may only have a tendency to confirm your own experience with these problems. I shall confine myself in a great measure to personal experience and opinions relative to methods advocated by several investigators of the subject.

What is Myopia? Is it a structural or a functional problem? Does Myopia begin in the cradle or is it the result of our failure to understand or arrive at a definite conclusion relative to some of the situations which I shall discuss rather briefly?

#1. Is it reasonable to assume that Myopia is a structural refractive error?

Only in rare instances do we find a child who is born myopic. I have only found one during the last twenty years. Prior to that time I did my full share in contributing toward the development of many real myopes. Now they come back to haunt me. As a rule a child is born hyperopic and it is our job to keep him that way. I cannot subscribe to the theory that an elongated eye ball is the only reason for Myopia. To preach this doctrine exclusively means that just that long will we fail to make any progress in our understanding of the problem. I can understand that after a certain stage has been reached in progressive myopia structural changes take place. It is the pathological stage and many factors may contribute to diminishing visual acuity. One characteristic in the development of Myopia is that as a rule the progression becomes less or often stabilized between the ages of twenty to twenty-five, lending some support to the theory of structural development. In this review we must give some consideration to the possibility of undeveloped or abnormal structure yielding to muscular effort in focusing within the usual near point range. However, there is no substantial evidence to support this theory.

- #2. Is Myopia the result of a defense visual concession whereby distant acuity is surrendered in order to maintain binocular visual efficiency at near?

This theory has been brought forward as the real cause of myopia, but I do not think the problem is that simple. We find cases where there can be no binocular inefficiency at near and still we find a myope. We can say that in some instances near point inefficiency may be a contributing factor. Even with our limited investigation of the problem I feel further search is indicated.

- #3. Is Myopia the result of excessive near point concentration or faulty posture at an age prior to complete development of binocular vision?

It has been my experience that all pseudo myopes will admit faulty posture, and that the reading material is held within the usual near point range. This is information difficult to obtain at times, but in no instance have I ever found a myope who had not acquired this faulty reading habit. We must not overlook this factor in our search for the cause of myopia. Faulty reading posture ranks very high on my list of probable causes of failure in distant projection.

- #4. Is Myopia the result of excessive innervation of the visceral in relation to the skeletal nervous system? A relationship which is maintained even though the individual is engaged in very limited near work?

If we can prove this contention, or if we are inclined to favor this theory, then Syntonics is the indicated procedure.

- #5. Is a myope an individual who has inherited all the characteristics of limited space projection, or is it possible to inherit myopia regardless of personality?

Proof is not available that myopia is inherited. A child whose parents are myopic will likely develop this type of visual disfunction if he receives the same kind of visual care. Inherited myopia must be viewed with suspicion in the absence of positive proof that succeeding generations will develop this same type of visual disfunction.

- #6. Is Myopia the characteristic visual achievement of the timid individual who is classified as an introvert?

There is much evidence in our records to verify this theory. We must think of an individual who is operating mentally, physically and visually within restricted limits. There is some connection with this theory in our next question and we shall consider number seven.

- #7. Is Myopia, (as Dr. Ann Sutton explains in her extensive study of the subject), the result of the following factors? Temperament, personality, motives and manners combined with other contributing possibilities; otherwise we would all acquire the same visual problem.

The doctor is firmly convinced that there are two distinct types of Myopia, the B1 and the B2. The B1 type is recognized by the following syndrome. The impressionist type, "The situation is too great as I feel it." He has a desire to please others rather than personal achievement. He has large pupils, projects in the vertical plane parallel to himself. Number 20 or positive relative amplitude is high and 21 or Negative Relative amplitude is low. He is an exophore. The chances are that the myopia will become progressive. The B2 is the opposite in temperament, "He is too great for the situation as he sees it." He expects others to please him. He has small pupils and projects in the vertical plane at right angles to self. The number 21 negative relative amplitude is high and the number 20 positive relative amplitude is low. He is an

esophore and not likely to become progressive. Mirror training is recommended for both types.

The above is a brief summary of Dr. Ann's theory on myopia. I find her work extremely interesting and to contain food for thought. In fact I find it convenient to think of a myope as a B1 or a B2 type.

#8. Is myopia the result of pre-adolescent glandular disfunction?
This is a possibility and its investigation is within the field of Syntonics.

#9. Is myopia an achievement whereby the individual has reduced his space world because he is not interested in anything unrelated to self?

We can answer this by another question. Does he habitually concentrate on self while staring into space, keeping in mind that we only see when we are seeking information? His interest is within a diminishing space world.

#10. Is a high myope the result of inadequate visual care and the failure to understand how to prescribe for a myope in the pseudo stage?

Yes, I definitely believe that legalized crime is being committed on the majority of innocent little children who place so much confidence in our ability to help them. It is our opportunity and the time to demonstrate whether or not we intend to give professional eye care or yield to the commercial urge of committing crime. A pair of minus lenses supplied to take care of the false projection at far without considering the real problem which is at near, is a serious mistake. I hope the day is not far distant when an optometrist who supplies a pseudo myope with minus lenses for constant wear will be considered guilty of unprofessional conduct.

#11. Is the projection of myopia at near combined with hyperopia at far the result of near point exhaustion or a situation where the organism prefers normal visual acuity at far at the expense of near point efficiency?

Here we have a very technical problem; since we arrive at the same conclusion by either line of reasoning. This type of false myopia responds to visual training.

In addition to the foregoing situations I am sure that there are many more. While we have reviewed eleven possible causes I am convinced that the underlying psychological or physiological principles relative to the development of myopia are still an evasive and unknown entity.

Part two

What Shall We Do With the Myope?

Admitting that we know scarcely anything about the origin of Myopia, still we face the daily responsibility of caring for this type of visual disfunction. Into our offices come the pseudo and the conditioned myope. Each type must be considered from a different view point. The pseudo is projecting a near point problem at far and the conditioned myope is the victim of a pseudo refractionist. There is no logical reason why a pseudo myope should be permitted to progress and there is no reason why a conditioned myope in the non-pathological stage should become more myopic. Since a myope is an individual requiring concave lenses to obtain standard acuity at a given distance why should he be permitted to read with minus when he is not a myope at near?

As a rule optometrists worry too much about a child's inability to see the blackboard. This is a visual disability resulting from one or more of the situations we have discussed. The diminishing visual acuity has been a gradual process and an increase in resolving power should also be a gradual process. We shall continue to resist the

demand from any source for an immediate improvement in distant visual acuity by minus lenses.

We suggest bifocals and base in prisms to conditioned myopes with a plus add, the power of which should be nearly equal to the total of twenty-one, or negative relative amplitude. Any additional plus beyond his ability to read at sixteen inches is contra-indicated.

If my memory serves me correctly, Dr. R.M. Peckam was first to advocate base in prisms combined with plus lenses for all myopes. The O.E.P. suggests ± 1.00 spheres for all children from the third grade through Junior High school. The lenses to be worn at near in an effort to avoid myopia. While many children will be benefited by this procedure, others will not respond favorably to a prescription not within the individual's pattern.

Part three

Training the Myope

As in all training we must first develop smooth monocular and binocular pursuit movements. Then much consideration must be given to Accommodative rock training. There are several methods of doing this, but many optometrists prefer to use the refractor thus eliminating the awareness of near. The next step is an attempt to disorganize a conditioned myope. As a rule a conditioned myope will respond in ratio with our success in disorganization. In all training plus or the minimum amount of minus is worn by the patient. We cannot expect to reduce high myopia in all cases but if we can stabilize the condition and prevent further progression we can assume that much has been accomplished. The application of selected light frequencies in the higher range of the spectrum has given excellent results in reducing or stabilizing myopia. Dr. Donald J. Mayer has supplied case reports showing increased visual achievement by combining filters with plus lenses in a procedure which he designates as Syntonic Orthoptics.

In 1950 Dr. A. R. Voight reported excellent results by adding prisms to the above procedure. This is an excellent idea since the habitual accommodative convergence relationship is changed, encouraging projection of the object beyond the point of convergence. The combination of Syntonics, plus lenses and base out prisms is given as an office training procedure and plus 1.25 O.U. lenses are supplied for home training.

The use of the plato spiral is of considerable value. The spiral is rotated inward for a few moments and then the control chart is viewed for a few moments. This is repeated with plus 2.00 O.U. and then plus 4.00. In viewing the control chart, all lenses are removed.

A pseudo myope should never be permitted to read through minus and bifocals should be prescribed for a conditioned myope.

In training myopic patients our ego is disturbed quite often. We will obtain some measure of success with a patient to be followed with failure in another. This certainly indicates that there are various types of myopia. Possibly as many as there are types of people.

In one of our New England states there is a law prohibiting an optometrist from prescribing minus lenses. If this restriction were national in scope and included all refractionists we would eventually solve some of the mysteries relative to myopia.

SUMMARY

It is reasonable to assume that our efforts should be directed toward the origin of a dysfunction rather than with the end results. Progress can only be retarded if we hold fast to a certain theory and close our eyes and cease our efforts in other avenues of investigation. If we are of the opinion that myopia is a functional process maintained

by excessive autonomic innervation without giving a thought to abnormal structure, or the numerous other causes, we may delay the final solution. It is equally important that those who firmly believe that myopic conditions result from so-called refractive errors should extend their thinking to other possible situations which could inhibit projection into visual space.

It appears reasonable to assume that the cause of myopia is unknown. However experience leads us to favor the following factors.

1. Inheritable tendencies including temperament, motives and personality.
2. Faulty posture. Reading within the near point range.
3. Excessive near point concentration before the age of 8.
4. Overactive autonomies in relation to somatic innervation.
5. Self consciousness; a lack of interest in anything unrelated to self.

In all discussions of myopia we must give considerable credit to the Optometric Extension Program for their contribution in awakening optometry to the possibility that myopia may be functional and not structural as we had assumed for so many years. A new idea was conceived vigorously proclaiming that the pseudo myope is maintaining an accommodative posture at all times.

The O.E.P. may have been among the pioneers to bring forth the idea that a pseudo myope and a hyperope who have equal acuity at near without lenses, are maintaining the same accommodative effort while reading without a lens correction. If we subscribe to this theory then it is obvious that a 1D. myope at far will use 2 D. more accommodative effort at 16 inches than the 1D. hyperope while reading with their distant corrections. It can safely be said that students of optometric history cannot recall any previous incident which brought forth so much discussion as the theory of functional myopia. National interest was aroused which is leading to serious consideration of the subject and I am sure that in due time we will arrive at a definite understanding of the origin, development and control of myopia.

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References:

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| Spitler, Dr. H. Riley: | Basic Course, 1934 |
| Mayer, Dr. Donald J.: | Research Material, 1951 |
| Voight, Dr. A. R.: | Lecture, 1950 |
| Sutton, Dr. Ann: | Lectures, 1948 |
| Skeffington, Dr. A. M.: | Optometric Extension Program |