

EXOTROPES AND MENTAL CAPACITY

by

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The subject of "Exotropes and Mental Capacity" as given to us by the College as a research problem has proven to be very interesting; and while we do not believe that we have sufficient data from which to draw conclusive proof, we are glad to submit the following information for your consideration and wish to point out the indications.

Mentality means the power or the quality with which we are endowed at birth and later develop to use for the betterment of our positions, socially, physically, financially, and intellectually. We know that a child born of parents who both have normal, health eyes and vision, but who developed Squint at an early age could not trace his affliction to heredity; and that he would (all other conditions being equal in this synthetic case) have the same mental faculty as his brother who did not develop Squint.

We have therefore disposed of the question as to whether Strabismus is a result of the number of brain cells with which we begin our lives.

In as much as in the new born infant the visual apparatus is divergent, and it is only through the process of learning by trial and error that the two eyes are coordinated, and their usefulness established as one functioning organ, it is reasonable to think that the exotrope from babyhood has never developed that faculty which the orthophoric pair of eyes enjoy or which at some stage the esotrope passes through. Of course this does not apply to the traumatic or paralytic squint which developed at a later age and whose ability should be further developed because of fewer handicaps in his visual efficiency.

One such subject who had been injured at the age of fourteen causing exotropia whom we checked had an IQ of 94. We are compelled to admit however, that another similar case – an exotrope paralyzed at age thirty-five showed an I Q of 68. We do feel however, that there are other determining factors in this particular case and that our theory still holds true.

How greatly the sense of sight influences intelligence is particularly seen from the investigations of Berger. He sewed together the eye lids of newborn pups so as to be sure that all the impressions through sight had been excluded. After a year elapsed the brain cortex of these animals was compared with the brains of other pups of the same litter and it was observed that the processes were less developed and the cells pressed more together. He also found in the brains of persons, who because of some eye disease had been blind for twenty years, that the cells in the visual region were smaller than those in normal persons and were closer to one another.

No one can deny that human intelligence depends on the normal function of the brain. Therefore, a healthy mind determines the intelligence the same as a healthy body determines physical stamina.

We find in numerous cases that the sensitiveness brought about by the affliction (particularly in neurasthenic women) puts the patient on a less equal and lower plane so that a so-called inferiority complex is developed. The self-consciousness causes nervousness which in turn creates a vicious circle.

These people who are mentally diseased are so lacking in sense perception that their whole thinking which is based in great part on visual impressions deviates from normal.

It is also true that in low degrees of phoria, that when a man spends effort holding his eyes straight when the tendency is to diverge, he becomes easily wearied and has less chance to develop brain power. Therefore, his mentality is less, because his impressions are conveyed more slowly.

Authorities tell us that an exotrope is more handicapped than an esotrope. Therefore, his achievements or accomplishments would be less because he would not have the same chance to develop his mental faculties, for squint in the last analysis is a mental affair.

We have used the Stanford Revision of the Binet Simon Intelligence Tests on a series of cases as they came into our office. Following is a brief history of the cases which we checked.

Case No. 1

Young Woman, Age 25, Mental age 16 years, 8 months; I Q, 104; College Graduate; left exotrope from babyhood. V.A. 20/22.2-1 on the Clayson. Has always had every advantage. It was interesting to note that this subject's vocabulary was far above the average.

Case No. II

Woman, Age 31; A/S Type; mental age 15, I Q 93; Left Exotrope caused by injury at birth; can count fingers at three feet with left eye: Average home; super sensitive about condition, and extremely nervous.

Case No. III

Woman, Age 42; right exotrope since birth; mental age, 13 years, 8 months; I Q, 85; V. A. 20/20 O.U.; from respectable back-ground in comfortable circumstances.

Case No. IV.

For our own information, we tested a case of alternating squint with the following findings: Boy, age 12 years, 11 months; A/Type; mental age, 9 years, 6 months; I Q, 74; V.A. 20/40-1 O.U., fifth grade in school; conscientious conduct, but dull; father, laborer; background poor.

Case No. V

Esotrope with interesting I Q findings. Girl, age 11 years, 11 months; A/Type Mental age, 13 years, 11 months, I Q 116; right esotrope from babyhood; V.A. in right 20/800. Excellent grades in school. From a home giving excellent social and educational background.

The above and additional cases which we check that gave the same normal averages point to no varying relationship. However, we do know that there is a close relationship between intelligence and acuteness of vision. When we say that lower animals manifest a lower development of the sense organs we can just as well turn it about and say that an animal must have a low grade of intelligence when it has badly developed sense organs, and on the other hand, if an animal shows well developed sense organs, it also must be an intelligent animal. As a rule, the degree of idiocy varies inversely to the development of the organs of sense and among the various sense organs the eye plays a dominating

role in a man. This is manifested by the fact that in idiots it is this organ which is chiefly retarded in its development. The fineness of a sense organ can be judged best by its condition of sensibility. In idiots of the worst type, the retina is distinguished by such insensibility that they can look straight into the sun or into a brilliant source of light without a twinkle. Thus, insusceptibility of the sensory organs and their deficient development we find in all idiots, less pronounced the more they are capable of education and much more pronounced the greater the degree of idiocy.

Dr. Glenn A. Fry, of Ohio State University suggests the following as having a bearing on this subject: A toxic condition arising from an excessive use of tobacco, tea or coffee, tends to make the eyes go toward so, and the condition may be treated medically with sedatives. In exophoria, the medical treatment required if any, is the use of a stimulant, such as strychnine. This chemical factor might in a number of cases give a correlation between tropias, and that trait of personality as designated by Professor W. McDougall as introvert or extrovert. Sedatives and drugs, like alcohol, and ether, make an extrovert out of a normal individual, whereas, a drug like strychnine, introverts him.

Although introversion and extroversion, theoretically, have nothing to do with mental tests, the introvert usually shows up higher.

To date, however, we have not been able to show any existing relationship.

Although our findings are scattered, and the many hours spent on the above problem have not been very productive, it has been valuable to us, for we have gained by striving to learn. We will welcome any criticism or opinions on the subject.

Part II

More than two years ago, I began a series of experiments in an attempt to determine whether or not a relationship existed between exotropia and mentality. If you will refer to the findings presented in Part I, you will note that there were a number of indications which were puzzling.

Please bear in mind that mentality, as we are discussing it, does not refer to the innate intelligence that a baby has when it is born – but rather to the mental acumen that acquired or developed. A person's intelligence is revealed by his capacity to new situations. Intelligence is measured by placing people in adjust as compared with standards derived from the study of large numbers of people. The I.Q., or intelligence quotient, is obtained through dividing the mental age obtained on a standard test by the actual or chronological age; and an I.Q. tends to remain constant for a given person.

Man shifts between true perception and illusion. Observation is the psychological term for the apprehension of relationships between a person and the physical objects and conditions which surround him. In practical life, the importance of observation is enormous. The man or woman who does not "remember" a name is usually the one who failed to "catch" it in the first place. In fact, the most effective psychological treatment of faulty memory starts with attempts to increase the ability to observe. Perception is the process of organizing sensory data, through combing them with the results of previous experience, to let the individual know how he stands in relation to the objects and conditions of the physical world.

An Optometrist well knows that when there is a deviation of the visual axes with respect to an object, that there cannot be corresponding images in the eyes. Therefore, diplopia must result if there

be simultaneous binocular vision, because while the one image is macular, the other is not, and is projected to a different place in space. In constant concomitant strabismus, diplopia does not occur because the image of squinting eye is mentally suppressed. The deviation of the one eye is the result of a circle of cause and effect in that, in order to rid itself of the confusion caused by the false image, the brain impulses turn the eye over to a great extent, so that the image may be formed as far as possible from the macula, and on the comparatively insensitive retinal periphery. Even if a false image be seen by the squinting eye, it is so faint and so remote from the clear image obtained by the fixing eye, that it has no more effect than the impression received in ordinary binocular vision, of objects in the periphery of the field.

Exotropes, and esotropes, are without exception conscious of their physical appearance. An inferiority complex is set up, which limits their power of observation, their participation in society, and the development of their intelligence. For example, what would the Eskimo see in New York? It is true that the permanently blind learn to compensate to some extent through the finer training of their other senses, but they never reach the point where lack of vision is not a handicap.

It is therefore, to be concluded, that the mental capacity of an exotrope is influenced to an appreciable extent, although, we do have specific cases which indicate the contrary. To repeat, the innate intelligence cannot be affected – but the development of that intelligence or mentality is affected by a lack of the fusional situations that are project – psychologically.

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