

## The value of accurate vertical phoria determinations

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OPTOMETRY BECAME a profession when it began to recognize and treat binocular anomalies.

In the beginning, refraction consisted of a monocular investigation of hyperopia, myopia, or astigmatism and the resultant lens therapy was merely two individual corrections mechanically united by a spectacle frame. It is an unfortunate truism that an optometrist or ophthalmologist today can still limit his analysis to this callow level and remain a success, provided the connotation of success is financial gain. It is the essence of a cycloplegic refraction or the refraction of the "quickie" or commercialist. It is impossible, however, to practice truly successful optometry without continuous attention to binocular stress.

In reviewing much of the current literature on the investigation and treatment of binocular problems, the subject of hyperphoria is conspicuous by its relative absence. Frequently case reports are presented with a meticulous set of analytical findings, exhaustive visual skills, etc., and yet the #12 finding, or vertical phoria test, has been eliminated. In others it may be honestly written as "not taken." In most cases it is listed as "negative." Now these conditions can only ensue from universal indifference on the part of practitioners to the importance of hyperphoria, and this indifference generally results from a most inadequate testing for hyperphoria.

A thorough understanding of hyperphoria is an absolute requisite for the successful treatment of binocular stress. It is the foun-

ation upon which further binocular help must rest, for if the hyperphoria is left uncorrected, there will not be lasting benefits from other binocular therapy. In fact, extensive visual training given to establish fusion and binocularity in the presence of an uncorrected hyperphoria can result in the acquisition of migraine headache and numerous secondary symptoms<sup>1</sup> of such magnitude as to render the patient depressed and neurotic.

In trying to analyze why there is such an indifference on the part of vision specialists concerning hyperphoria, we have come to the conclusion that the principal reason is improper vertical phoria determination. When a vertical stress is not found, naturally it is not treated, or if it is a pseudohyperphoria and the resultant therapy is unsuccessful, there is a natural reticence to place any value or importance to the condition.

### Phoria Measurements

Phoria measurements are designed to indicate the position which one eye will take in relation to the other eye when the controlling influence of binocular fusion is abolished and all residual binocular stress has been eliminated. In the event that structural symmetry is good and the reciprocal and synergistic relationship of the binocular reflexes is such that there is no vertical, horizontal, or rotational differences, the condition is referred to as orthophoria.

There are two factors in the above definition of phoria measurements which are equally important. First, binocular fusion

must be abolished; but second, *all residual binocular stress must be eliminated*. Here is the great stumbling block to the accurate determination of vertical phorias.

As true orthophoria is an almost incomprehensible state of perfection, we conclude that heterophoria in some degree must be found in every patient examined. The great problem is to find the degree and the direction of the deviation. If heterophoria exists in any degree, then we know there must be a stress set up in the neuromuscular pattern to counteract this deviation if efficient binocularity is to be maintained.

Here is where *time* becomes an integral factor in phoria measurements. If a hyperphoria has existed for many years, perhaps even a congenital hyperphoria such as found in hypertophthalmia, it may then take hours, or days, or even months for this stress to be inhibited to a degree to facilitate a true phoria measurement and correction. The type of simple vertical phoria measurement that most of us were taught to make, is generally worthless as a diagnosis for hyperphoria; yet, because most vertical phoria measurements are still within the confines of such limited investigation, it is little wonder that so little hyperphoria is found.

#### Conjugate and Disjunctive Action

Movement of the two eyes in the same direction is called *conjugate* movement. When the eyes are moved in opposite directions it is called a *disjunctive* movement.

We have been taught for years that all vertical eye movements are conjugate, and that only convergence or divergence is disjunctive. This would seem understandable, as it is an impossibility for a human organism voluntarily to raise one eye and to lower the other at the same time. If this has ever been recorded it certainly would be the exception which proved the rule.

However, we have held such concepts because we have always made such tests while the head is held in the primary position. When we begin to alter the verticality of the median head plane, we now realize that vertical eye movements can be disjunctive. These movements not only can, but *must*, be

disjunctive if we are to live and act in a vertical position and make the innumerable postural changes which we do in an ordinary day's activity.

Whenever the head is tilted to one side, the horizontal alignment of the eyes is changed so that one eye must lower and the other must raise to maintain single binocular vision. If it were not for this disjunctive vertical movement of the eyes, there would be diplopia at every slight head tilt.

Conversely, we see why the human organism may create a torticollis in an effort to ease the stress of maintaining single binocular vision in hyperphoria. Thus, the entire body structure can become involved merely to ease the vertical compensatory disjunctive movement of the eyes.

#### Differential Diagnosis

When these bodily and ocular stresses have become deeply imbedded through years of compensatory muscle tension, and when electromyographic research has proven that in the face of increasing fatigue a muscle requires a more prolonged time for relaxation, is it any wonder that our feeble, superficial efforts to find hyperphoria meet with such dismal failure?

Once we realize that *time* is a most important catalyst in the creation of a binocular stress, it is easy to see that time may become an equally important part of our investigative procedures. How much time do you spend in testing for hyperphoria? How much time will you use to relax a binocular stress before you measure hyperphoria? If a patient has utilized a compensatory disjunctive stress and compensatory body stress for twenty years to maintain single binocular vision, how long will it take to relax this tension to get a true phoric measurement?

In the light of such stark reality concerning the neuro-physiology behind hyperphoria and its compensatory stresses, our current simple method of measuring hyperphoria becomes ludicrous, and to place such little emphasis on the one binocular function which can be the entire foundation for all binocular therapy is indeed absurd.

Our great problem then becomes one of differential diagnosis. If we find a hyperphoria by any method, is it a true phoric response or is it a pseudo phoric response? Or, if we find a certain degree of hyperphoria by one testing procedure and a differing degree by another, which is the true hyperphoria? If several testing modalities are used and all results are negative, does this actually mean there is no hyperphoria present?

The answers to these and other questions are found after utilizing a prolonged monocular occlusion routine<sup>5</sup> under very strict controls. In certain cases the hyperphoria can be measured without making use of this lengthy procedure, but when the history reveals numerous indications of a binocular stress, then this becomes the final answer to the problem of differential diag-

nosis in vertical phoria determination. ■ ■ ■

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## TEXAS PREPARES for 62nd Annual AOA Congress

Texas is anxious for all critters that wear the "O.D." brand to know that a series of preliminary "bull sessions" have blazed the trail and packed the earth down hard for a stampede to Dallas when the Annual Round-Up (better known as the 62nd Annual American Optometric Association Congress) holds forth next spring. The dates of this big event are June 28 through July 1, and Texas is cutting its own state convention time to one day (June 27) so that it can give its undivided attention to the national affair.

The straw boss in charge of this big shindig is Dr. Arthur Harris of Dallas, and he has lined up a crew to help him that has been tried and proven by its association work in the past.

As noted, special chairmen have been appointed for planning activities for the ladies and children. The shopping facilities offered by downtown Dallas department stores are nationally famous and will provide many hours of interest to the ladies.

Of interest to the kids and adults alike will be the big wild west rodeo and barbecue at the Godfrey Ranch, a well-known recreation spot near Dallas. This ranch party will take up an entire afternoon and evening. Air-conditioned Greyhound buses have been engaged to haul the crowd out to the ranch.

The entire convention program has been planned to allow ample leisure time for sightseeing and visiting with friends. And now here is some information of interest to everyone and particularly to those who have found it difficult to attend previous AOA Congresses for financial reasons.

Mr. Harold Bailey, AOA Administrative Director,



Dr. Arthur J. Harris, right, General Chairman for the Annual Congress, poses with Dr. Joe A. Reeves, Chairman of the Congress Transportation Committee, and Mrs. Reeves, Woman's Chairman.

has made two trips to Dallas in recent months to help with the preliminary arrangements. He and others working on convention plans have been amazed to find how much more economical the various facilities are in Dallas as compared with cities where Congresses have been held in the past. Food, lodging and entertainment are much more reasonable in Dallas, and many conveniences which AOA has had to pay for elsewhere are provided free.

Centrally located, Dallas is easy to reach by air, rail, car, horseback or thumb. Consequently, Dallas looks like the biggest and best convention buy in many years.