THE THREE DOT TEST (Q3D): A DEVICE TO QUANTITATIVELY MEASURE VISUAL SUPPRESSION

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Technology description

Summary
The Q3D is a handheld device that quantitatively measures the amount of visual suppression in a patient allowing a clinician to measure the amount (up to 3 log units) of visual suppression. It potentially has wide applications for measurement of the depth of suppression in amblyopia, quantifying an afferent papillary defect from optic nerve abnormalities, a means to measure outcome for vision therapy, and can be used as a screening test for binocular function. Vision disorders are the 4th most prevalent class of disability in the United States and the most prevalent handicapping condition in childhood. Early detection of visual suppression increases the likelihood of effective treatment and decreases the negative impact of conditions such as amblyopia, which affects 2-3% of children and is the most common cause of monocular visual impairments in young and middle-aged adults. Researchers at the University of Missouri-St. Louis have developed the Q3D (Quantitative Three Dot) Test, a handheld device that quantitatively measures the amount of visual suppression in a patient. Able to detect very small impairments and changes in suppression, the Q3D can catch suppression earlier than current methods. Quantified measurement allows for tracking intervention progress over time.

Application area

- Measuring the depth of suppression in conditions such as amblyopia
- Quantifying an afferent pupillary defect from optic nerve abnormalities
- Measuring the progress and outcome of treatments - Screening for binocular function

Advantages

Currently, the Worth 4 Dot Test is commonly administered to determine the presence (not the depth) of suppression in patients.
The Q3D is the only device that quantifies the depth of visual suppression, making it an exciting product line expansion opportunity.

The Q3D can detect small changes or impairments in visual suppression (0.1 log unit steps up to 3 log units), while the Worth 4 Dot can detect only a dense suppression. - Quantifying depth of suppression allows for the selection of appropriate treatments and can be used to monitor outcomes over time.
The Q3D is a fast (<1 min.) and easily administered test, making it easily adopted by clinicians. Others can also be trained on the Q3D testing device to screen for binocular function within occupations that require good depth perception.
The Q3D can be used as a stand-alone device or can be easily modified to be used with a rechargeable handle (e.g., Welch Allyn). - Inexpensive to manufacture, the Q3D offers attractive margins.

Institution

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