

The Q3D: A New Device to Measure Visual Suppression

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Visual Suppression

- Well characterized process where visual information is “ignored” from one eye.
 - If suppression occurs over a long enough period of time, permanent loss of vision results-amblyopia.
 - Also important to assess binocular function.
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Current “Gold Standard”: Worth 4 dot



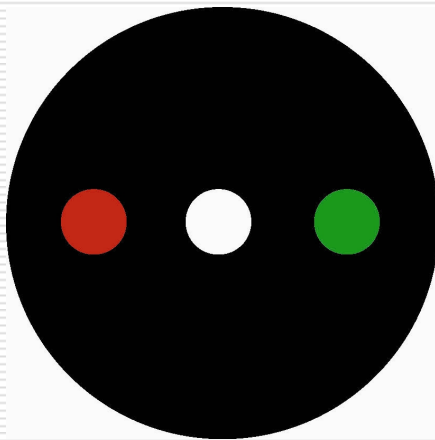
All current versions are
based on a qualitative
assessment i.e.
normal vs. abnormal



Q3D Prototype



Use of LEDs (stable,
high luminance)



Calibrated light output
driven by pulse width
modulation

Digital readout

Updated device



Two studies done: One at UMSL College of Optometry (n=30) and another at Cardinal Glennon Children's Hospital-St. Louis (n=350)

Brad Davitt, M.D., Oscar Cruz, M.D. (chair), and Eric Behrman

1. The Q3D be used in a busy clinical practice

Clinicians, techs, residents, medical students, easily incorporated the test into a clinical exam.

2. The test be done/understood by all ages

Patients as young as 2 years of age performed the test

This has importance because earlier diagnosis of amblyopia and treatment increases the success of treatment

3. The Q3D more sensitive to suppression than the Worth 4 dot

Overall, 20.8% of patients identified as having deficit with Worth 4 dot, 44.4% of patients with the Q3D

Logistic analysis found nearly 4X as many deficits with the Q3D than the Worth 4 dot in patients with amblyopia

Conclusions

Reliable, valid quantitative measure of visual suppression

More sensitive than Worth 4 dot (at least by a factor of 2)

Because it is quantitative it can be used as a means to monitor treatment over time.

Simple for patient and clinician to use

Where are we going?

We are looking for a licensing partner to manufacture and distribute the device.

US patent issued (#7,686,452) National stage applications filed AU, CA, EPC, JP

Ongoing study

Device is currently being used in a study in patients with optic nerve disease (optic neuritis and anterior ischemic optic neuropathy)

This has the potential to further expand the market.
