ColorDx® CCTHD®

High-Precision Diagnostic Color Vision Testing

Color vision and contrast sensitivity are important functions of the visual system, which may be affected by many diseases, disorders and common drugs and substances.

Understanding if and how much visual function is affected may assist clinical decision making and augment conversations with your patients.

ColorDx® CCTHD®

The gold standard in diagnostic

color vision testing

Developed in collaboration with the U.S. Air Force School of Aerospace Medicine OBVA (Operational Based Vision Assessment) laboratory under CRADA, CCTHD® expands on the strengths of the original USAF cone-isolation contrast test (Rabin CCT) and is built from the ground up with entirely new architecture.

Highlights include:

- Cone-isolation contrast sensitivity methodology
- Expanded low-contrast range testing
- “Landolt C” based test strategies
- Simple to use 4-button response pad
- Robust Bayesian threshold with standard error
- Konan custom-calibrated IPS matte display technology
- Rapid, intuitive, staged calibration
- High fidelity cone-contrast granularity
- Expansive illustrated reporting
- Auto trends analysis
- Contrast Sensitivity (achromatic) with auto AUC calculation
- ...and much more

06:10

Request More Information

Clinical Applications

DR, glaucoma, AMD, MS

Other disorders of the

Clinical Benefits

Detect subtle changes missed by books, plates, and other color vision tests

Regulatory

FDA Listed | **CPT Code 92283**
TGA Approved
Available in Canada

retina or optic nerve

Pre and post cataract surgery

Vocational, avocational, and scholastic color vision testing

Track the effect of supplements over time2

Compare structure & function, especially when *subjective* SAP does not correlate with OCT

Inform patients about the risks, consequences and hazards related to deficiencies in their cone and achromatic contrast sensitivity

ColorDx® is not cleared for the specific diagnosis of any condition

54:47

Eye Care Beyond Black and White

Color Vision Changes in Macular Disease

Andrew Browne, MD PhD

Clinical Assistant Professor, Ophthalmology
Vitreoretinal Diseases and Surgery
Gavin Herbert Eye Institute, UC Irvine Health

Visual acuity measurement is the gold standard for evaluating visual function. However, contrast and color vision are largely neglected in clinical trials. In this presentation we will discuss changes in contrast and color vision associated with a variety of clinical disease states starting at the front of the eye and moving to the back.

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Clinical Benefits of Diagnostic Color Vision Testing

1 in 5 may have a color vision deficiency. Contemporary eye care includes qualitative and quantitative assessment of this important measure of visual function.

Acquired color deficiencies are commonly S-cone (blue-yellow) type, but may also affect L- and M-cones.

Acquired deficiencies are typically gender neutral and become more common with age, yet may affect up to 15%* of the general population.

This important but often overlooked clinical sign may be caused by retinal, macular, optic nerve, trauma or neurological disorders, in addition to cataracts and high-risk meds, as well as hundreds of common drugs and substances**.

Testing for acquired color vision deficiencies may be one of the most underutilized measures of functional vision. Commonly used color vision tests historically (such as printed pseudo-isochromatic, “Ishihara plates”, designed more than a century ago), may only test L and M-cone deficiencies, completely missing all S-cone (blue) deficiencies as well as being not quantitative. Genetic color vision deficiencies, most commonly affect males as a sex-linked trait and most commonly affect the L or M-cones.

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**Rayman, R., et al. Rayman’s Clinical Aviation Medicine. Castle Connelly. 2013. **Fraunfelder, Fraunfelder, Chambers. Clinical Ocular Toxicology. Sanders Elsevier, 2008: 320. Clinical Ocular Toxicology, Substances and Pharmaceutical Agents that can Cause Color Vision Defects*

High-precision color diagnostics require high-precision calibration for highest sensitivity.

Custom-Precision Calibration

ColorDx® CCT HD® devices are individually, precision calibrated at manufacturing prior to customer shipment.

Konan's proprietary deep, synchronous calibration provides a high-precision baseline from which periodic verifications / calibrations are based to account for typical monitor color changes over time. CCT HD® includes a USB colorimeter for routine calibrations, typically taking only about a minute.

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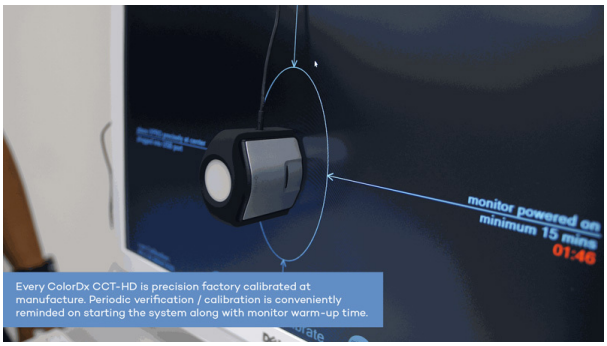

Clinical and Scientific Publications | Fundamentals | Key Features | Frequently Asked Questions | Product Specifications

Scientific and Clinical Publications

Summary of Independent Evaluation of Konan Medical CCT HD

"The CCT HD, with very precise color calibration, can achieve the very low cone contrast values needed to accurately quantify cone contrast thresholds even for CVN (Color Vision Normal) individuals. The capability to test CVN individuals is essential in order to research the relationship between color vision and operationally relevant performance.

Additionally, the CCT HD, with precise calibration and excellent test-retest reliability can also enable early detection of disease, improved ability to quantify the effect of hypoxia and other environmental stressors on vision, and improved ability to investigate the potential effects of chemicals/pharmaceuticals.

The precise calibration also enables binocular testing, which is not possible with the RCCT (Rabin CCT) due to the ceiling effect. The RCCT was a substantial improvement over PIP tests (e.g., Ishihara) when it was introduced, and the CCT HD is a substantial improvement over other commercially available CCTs. ”

Evaluation of Konan Medical CCT HD

James Gaska, Marc Winterbottom, and Steve Hadley711 HPW/RHBC OBVA LaboratoryEleanor O’Keefe, Elizabeth Shoda, and Alex Van Atta KBR, Inc.; 2021 Feb.

Air Force Research Laboratory711th Human Performance WingAirman Systems Directorate Wright-Patterson Air Force Base, OH 45433Air Force Materiel CommandUnited States Air Force

Evaluation of Konan Medical CCT HD: Feb 2021 Final Report

James Gaska, Marc Winterbottom, and Steve Hadley 711 HPW/RHBC OBVA Laboratory Eleanor O’Keefe, Elizabeth Shoda, and Alex Van Atta KBR, Inc. ; 2021 Feb. Start with the customer – find out what they want and give it to them.

Read Full Article

Operational Based Vision Assessment Cone Contrast Test: Description and Operation

Gaska J, Winterbottom M, van Atta A. Operational Based Vision Assessment Cone Contrast Test: Description and Operation. USAF School of Aerospace Medicine, Aeromedical Research Department Wright-Patterson AFB; 2016 Jun 1.

Read Full Article

The Diabetes Visual Function Supplement Study (DiVFuSS)

Chous AP, Richer SP, Gerson JD, Kowluru RA. The diabetes visual function supplement study (DiVFuSS). British Journal of Ophthalmology. 2015 Jun 17:bjophthalmol-2014.

Read Full Article

Evaluation of Acquired Color Vision Deficiency in Glaucoma Using the Rabin Cone Contrast Test

Niwa Y, Muraki S, Naito F, Minamikawa T, Ohji M. Evaluation of Acquired Color Vision Deficiency in Glaucoma Using the Rabin Cone Contrast TestRabin Test for Glaucoma Color Vision Deficiency. Investigative ophthalmology & visual science. 2014 Oct 1;55(10):6686-90.

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Rabin Color Cone

Evaluation of

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Rapid Quantification of Color Vision: The Cone Contrast Test

Rabin J, Gooch J, Ivan D. Rapid quantification of color vision: the cone contrast test. Investigative ophthalmology & visual science. 2011 Feb 1;52(2):816-20.

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Evaluation of clinical validity of the Rabin conecontrast test in normal phakic or pseudophakiceyes and severely dichromatic eyes

Fujikawa M, Muraki S, Niwa Y, Ohji M. Evaluation of clinical validity of the Rabin cone contrast test in normal phakic or pseudophakic eyes and severely dichromatic eyes. Acta Ophthalmologica. 2017 May 31.

Read Full Article

A Performance Comparison of Color Vision Tests for Military Screening

Walsh DV, Robinson J, Jurek GM, Capó-Aponte JE, Riggs DW, Temme LA. A Performance Comparison of Color Vision Tests for Military Screening. Aerospace medicine and human performance. 2016 Apr 1;87(4):382-7.

Read Full Article

A Monte Carlo simulation of four contrast threshold estimation techniques: clinical vision test selection for operationally-based vision assessment

Winterbottom, M., J. P. Gaska, S. T. Wright, and J. M. Gooch. “Monte Carlo simulation of four contrast threshold estimation techniques: clinical vision test selection for Operationally-Based Vision Assessment.” Aviation, Space, and Environmental Medicine 83, no. 3 (2012).

Read Full Article

What Konan Medical Customers Say

In the future, ECPs will move beyond testing only black and white visual sharpness and treat patients routinely to maintain their quality

of color vision experience.

I use ColorDx® CCT HD® to assess and counsel patients with reduced contrast sensitivity as well as track progression.

Andrew Browne, MD, PhD
University of California, Irvine
Gavin Herbert Eye Institute
Department of Ophthalmology

See What You've Been Missing®

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