Dyop Abstract

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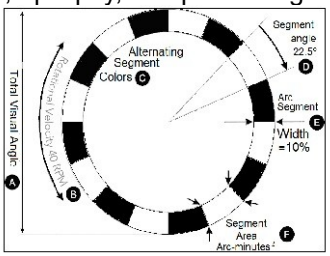
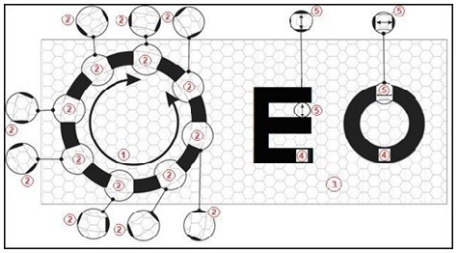
Vision is an autonomic and dynamic process inherent in all animals because the world we see is dynamic, rather than static. Our eyes are **biological machines** which help us survive by enabling us to **automatically detect motion, distance, and colors** so that we can see predators and food and eat rather than be eaten. Inherent in vision is the **Gestalt Psychology** (pattern recognition which allows animals to put patterns of meaning as to what we see. By vision being autonomic most of us don't have to think about the images we see properly being in focus. Ironically, the greater the disparity between what we actually see and what we think we see creates a sense of authoritarianism and excess confidence.

Visual acuity is the term used to describe the **clarity of what we see**. A **refraction** is the process of **using special lenses** to measure the **optical variables of sphere, cylinder, and axis** which go into creating eyeglasses and contact lenses and compensate for "less than perfect" vision. "Traditional vision tests" use **static letters or symbols** as standard targets for measuring vision [1]. The **flaws in static measurement systems** are that they typically measure only **two dimensions** using the **height** of the visual target and the **viewing distance to that target**, and that they typically require culturally dependent cognition (**Recognition Acuity**) as the "visibility" threshold. Instead, the **world we see** is a **fifth dimensional process** consisting of **height, width, colors, distance, and time** (using **Resolution Acuity**) as the variables.

A **Dyop®** (pronounced "**di-op**" and short for a special type of **dy**namic **op**totype) is a **calibrated** segmented spinning ring visual target (aka, optotype) **which helps doctors (and you) test the clarity of your vision**.[2] A **Dyop** provides a **strobic stimulus** to the **photoreceptors in the central rear area of the retinal** of your eye called the **fovea.** The smallest angular diameter of a Dyop which can be detected as spinning is the **acuity endpoint** [3]. When a Dyop becomes sufficiently small as to its angular diameter, the contrasting gaps and segments become too small to be detected as spinning and the Dyop has a **sub-acuity diameter.** Comparative refractions have documented that **a Dyop is up to six times more precise than Snellen testing**, **up to eight times more consistent, and up to more than three times as efficient for acuity and refraction measurement** [4]. The lack of the need for (letter-based) cognition, also allows Dyop testing to measure acuity in infants as young as 14 weeks of age [5]. However, comparative Snellen refractions also consistently showed an excess of approximately –0.50 diopters of **minus power** compared to Dyop measurements [6]. Dyop color permutations can measure **acuity in color** as a diagnostic and potential for therapy for symptoms of dyslexia, migraines, epilepsy, and pre-emergent glaucoma [7].





Dyop Spinning Ring Components

Item 1 – the visual angular movement/velocity for the strobic contrast response for **Resonance Acuity**
Item 2 – a moving segmented **M**inimum angle/arc/**Area** of **R**esolution **(MAR)** for dynamically stimulating retina cells with motion
Item 3 – retinal cell clusters
Item 4 – examples of static historic optotypes – **Recognition Acuity** and **Resolution Acuity**
Item 5 – the static **M**inimum angle/arc/**Area** of **R**esolution **(MAR)** of a historic optotype

This systematic overminus with Snellen/Sloan likely contributes to visual fatigue, reduced comfort, diminished literacy outcomes, and the **Global Epidemic of Myopia** [8].

Acuity Mechanics Validation

https://www.dyop.net/documents/Acuity_Mechanics.pdf

Acuity Screening Tests

https://www.dyop.net/documents/Dyop_Acuity_Screening_Tests.pdf

References

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