THE ASCRS FUNCTIONAL VISION WORKING GROUP TERMINOLOGY AND NOMENCLATURE INITIATIVE

A patient-centered framework to describe the performance of presbyopia-correcting IOLs.

BY KAMRAN M. RIAZ, MD, AND DANIEL H. CHANG, MD

The ASCRS Functional Vision Working Group (FVWG) was formed to collaborate with international colleagues in response to persistent confusion surrounding presbyopia-correcting IOLs. Current nomenclature—such as *multifocal*, *extended depth of focus*, *premium*, and *advanced technology*—has been applied inconsistently and often blurs distinctions among optical design features, defocus curve characteristics, and marketing language. At times, it also contributes to unrealistic patient expectations. The lack of clarity complicates technological comparisons, the interpretation of study results, and patient counseling.

The FVWG's goal is to move beyond device labels and instead describe IOL performance in terms of how patients experience vision in their daily lives.

A PATIENT-FOCUSED STARTING POINT

Rather than begin with optical engineering categories, the FVWG started with a practical clinical question: What do patients actually see?

This initiative was sparked by colleagues in the ESCRS, who proposed an initial approach to classifying IOLs based on partial or full range of field.[1] That concept was refined through discussion with FVWG members and colleagues from Asia and Latin America. From this work, the group developed a framework organized around three interrelated dimensions of functional vision and unified by the fundamental optical concept of contrast:

- **Visual quality.** Photopic and mesopic contrast sensitivity across spatial frequencies (high to low).
- **Visual range.** Contrast sensitivity along the visual axis (z-axis, distance to near).
- **Visual symptoms.** Scotopic contrast sensitivity across the visual field (x- and y-axes, central to paracentral).

Contrast as the Unifying Concept

Contrast sensitivity is the eye's ability to detect differences in luminance between objects and their backgrounds. This is distinct from (1) an object's intrinsic (actual) contrast and (2) perceived contrast, which may be influenced by environmental factors such as lighting and defocus. Optical aberrations and stray light can degrade contrast sensitivity and contribute to visual symptoms, which is why contrast serves as a unifying concept across visual quality, visual range, and visual symptoms.

Although visual quality (eg, sharpness, clarity) and visual symptoms (eg, photic phenomena, dysphotopsias) are mechanistically related, the FVWG considers them best addressed as distinct clinical entities because they represent different patient experiences and outcomes. Photic phenomena are often driven by diffractive or ring-based design features near the central optic (stimulated by oncoming light). Positive and negative dysphotopsias more commonly arise from optic edge–related interactions with oblique light and can occur with essentially any IOL design. This distinction is a simplification that the FVWG intends to address in greater detail in future work.

How the Framework Was Developed

The framework emerged from multidisciplinary discussions among refractive and cataract surgeons, a review of optical bench and clinical literature, and iterative refinement using real-world clinical scenarios. Guiding principles included that terminology should focus on patients and be clinically useful, compatible with regulatory and standards

frameworks, and harmonizable with parallel international efforts.

Practical Implications for Counseling and Technology Assessment

Using the framework, IOLs can be characterized across the three axes of visual quality, visual range, and visual symptoms, making trade-offs explicit rather than implicit. For example, increasing visual range may come at the cost of reduced visual quality and/or increased visual symptoms. The FVWG believes these relationships can be discussed more clearly when counseling patients and when comparing technologies across studies and platforms.

DEPTH OF FIELD IOL AS AN ACADEMIC STANDARD

From a nomenclature perspective, the FVWG proposes moving away from ambiguous umbrella terms and toward descriptors that incorporate depth, range, field, or focus, modified by qualifiers such as *partial*, *extended*, or *full*. The intent is not to dictate marketing language but to offer terminology that is functionally descriptive and adaptable across clinical, research, and regulatory contexts.

The FVWG recognizes *depth of field* (DOFi) as the most precise and widely accepted optical term for describing extended-focus performance and supports its use in scientific communication, conference presentations, and peer-reviewed publications, consistent with recent discussions in the ophthalmic literature.[2]

Accordingly, the group supports using DOFi IOLs as an umbrella academic descriptor for IOLs designed to provide a partial, extended, or full range of functional vision (often marketed as *presbyopia-correcting IOLs*).

Establishing a DOFi-based framework might facilitate more objective comparisons across devices and studies and reduce semantic ambiguity in academic settings. Although the abbreviation may appear unconventional, the distinction is intentional: the terms *depth of focus* and *extended depth of focus* are entrenched in clinical usage to describe depth of focus, whereas the framework proposed here is explicitly based on depth of field, a distinct optical concept. The term DOFi preserves conceptual accuracy while minimizing confusion.

CLINICAL LANGUAGE REMAINS FLEXIBLE

The FVWG acknowledges that operationalizing DOFi-based classification in everyday clinical practice remains an area of active exploration. Translating optical concepts into simple, patient-relevant counseling language requires additional work, particularly when balancing precision with accessibility. Many surgeons use the phrase *range of vision* (or similar terms) when counseling patients, and it remains a reasonable and intuitive clinical expression of the same underlying concept.

Importantly, the FVWG does not seek to prescribe how surgeons should speak to patients. Patient-facing terminology must be sensitive to language, geography, cultural context, educational level, and historical precedent. Surgeons should retain the flexibility to use terminology that resonates with their patient populations and supports informed decision-making. The FVWG's priority is consistency and clarity in professional communication, research reporting, and technology assessment. This shared language is professional, not universal.

HARMONIZATION WITH PARALLEL EFFORTS

The FVWG supports harmonization rather than competition among nomenclature initiatives. Optical, clinical, and patient-reported frameworks are complementary. A shared functional vision model allows different classification systems to map onto one another, promoting regulatory alignment, clearer research interpretation, and more consistent education across professional societies. Convergence around core concepts—particularly contrast as it relates to visual quality, visual range, and visual symptoms—may ultimately be more valuable than convergence around specific product categories.

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The authors were invited to contribute this perspective as representatives of the FVWG. The concepts and recommendations summarized here reflect the collective efforts and ongoing discussions among all FVWG members, including Nicole Fram, MD; Cathleen M. McCabe, MD; Vance Thompson, MD; George O. Waring IV, MD; and Mitchell P. Weikert, MD.

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1. Ribeiro F, Dick HB, Kohnen T, et al; ESCRS Functional Vision Working Group. Evidence-based functional classification of simultaneous vision intraocular lenses: seeking a global consensus by the ESCRS Functional Vision Working Group. *J Cataract Refract Surg*. 2024;50(8):794-798.
2. Riaz KM, Wendelstein JA, Koch DD. Depth of field or depth of focus? *J Cataract Refract Surg*. 2024;50(12):1291-1292.

DANIEL H. CHANG, MD
- Cataract and refractive surgeon, Empire Eye and Laser Center, Bakersfield, California
- Member, *CRST* Editorial Advisory Board
- dchang@empireeyeandlaser.com; www.empireeyeandlaser.com
- Financial disclosure: None

KAMRAN M. RIAZ, MD
- Clinical Associate Professor, Dean McGee Eye Institute, Oklahoma City, Oklahoma
- kamran-riaz@dmei.org
- Financial disclosure: None