RayOne

Rayner

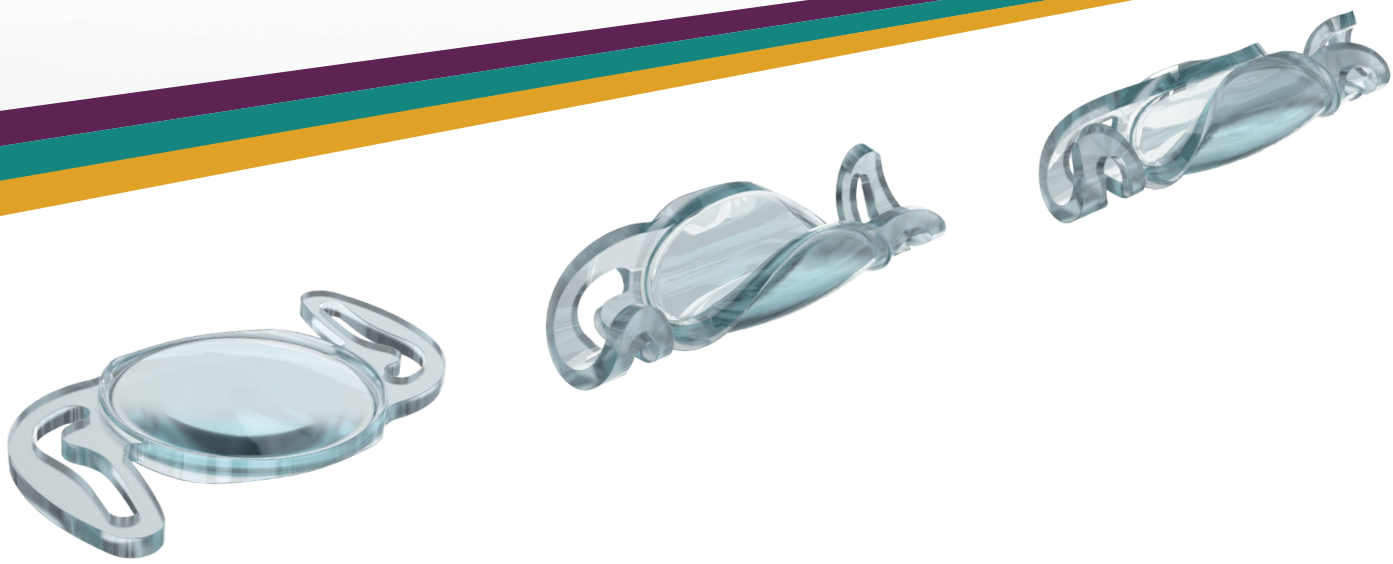
Not everyone can do this

RayOne with patented Lock & Roll technology for the smallest fully preloaded IOL incision

RayOne ASPHERIC

RayOne SPHERIC

RayOne TORIC



MADE IN UK

RayOne fully preloaded IOL injection system, designed to deliver without compromise

The need

Talking to surgeons indicates that they are looking for an injector that can deliver an IOL consistently, with expert control, through a micro incision with minimal wound stretch.

The dilemma? The preloaded IOL systems available to date have sought to meet these requirements by enhancing one element, be it the injector or lens. However, this means that a trade-off has to be made, usually between the ease of use or surgical outcomes.

At Rayner, we believe that the only way to create a true, fully preloaded micro incision cataract surgery (MICS) injection system that works consistently without compromise, is to design the system as one – both lens and injector. This was the inspiration behind RayOne.

The solution

When creating RayOne, we developed our MICS lens and unique patented Lock & Roll technology as part of the same design process; this combination has resulted in the smallest fully preloaded injector available (1.65 mm nozzle).

Our RayOne MICS lens is an enhanced version of the tried-and-tested C-*flex* and Super*flex* platform, combined into a single 6 mm optic design.

We have retained the material and design benefits of our original lenses, without compromising on proven stability or optical performance.

About Rayner

When Sir Harold Ridley designed the world's first IOL in 1949, he chose Rayner to manufacture this ground-breaking invention. Rayner has remained at the forefront of innovation for 70 years, focused on providing you and your patients with the best IOLs – always driven by science to improve patient outcomes and safety.

Rayner is the only manufacturer of IOLs in the UK, with its state of the art manufacturing plant and global headquarters on the south coast of England.

Supplementing Rayner's family of IOL systems is a full spectrum of OVDs, the RayPRO patient outcomes app, as well as a range of tear film and pharmaceutical eye care products.

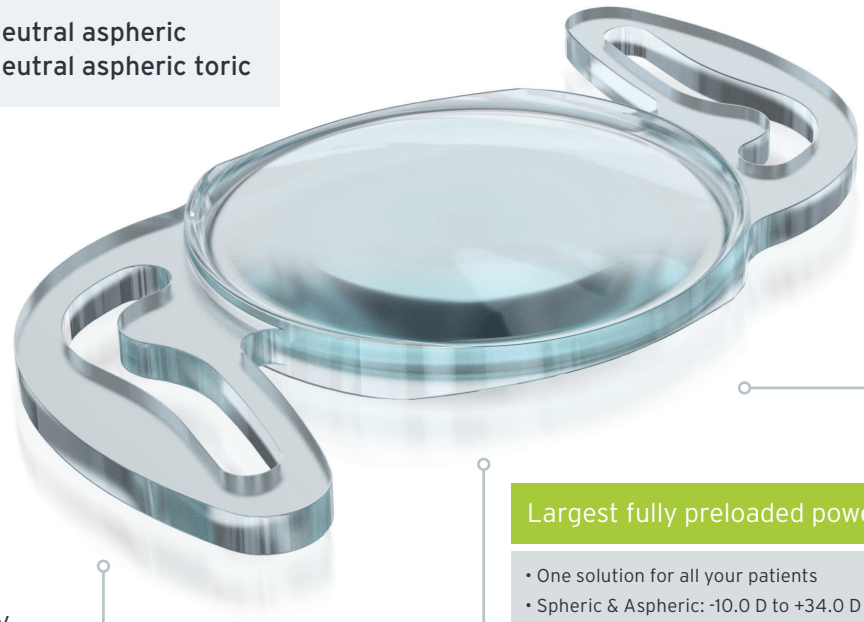
RayOne with patented Lock & Roll technology for a smoother, more consistent rolling and delivery of the lens via micro incision

RayOne enhanced 6 mm optic

Available as:

- **Spheric**
- **Aberration-neutral aspheric**
- **Aberration-neutral aspheric toric**

Amon-Apple enhanced square edge for minimal PCO 1.7% at 24 months[7]



Zero glistenings

Largest fully preloaded power range on the market

- One solution for all your patients
- Spheric & Aspheric: -10.0 D to +34.0 D sphere
- Toric: -9.5 D to +34.5 D SE, +1.0 D to +11.0 D cylinder

Based on proven haptic technology for excellent stability[1,2]

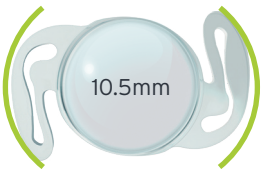
Reliable optical outcomes and a low rate of post-operative complications

Rayner's anti-vaulting haptic technology provides excellent fixation in the capsular bag[1]:

- **Superb centration** – Maximum offset of only 0.4 mm 3 to 6 months after surgery[2]
- **Excellent rotational and torsional stability** – 2.3° mean IOL rotation 3 to 6 months after surgery[2]

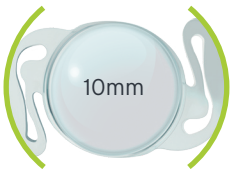
Stability of RayOne IOLs

STAGE 1



Outer haptics begin to take up the compression forces of post-operative capsule contraction

STAGE 2



Outer haptics engage the inner haptics

STAGE 3

Haptic tips gently meet the IOL optic and are effectively locked into position

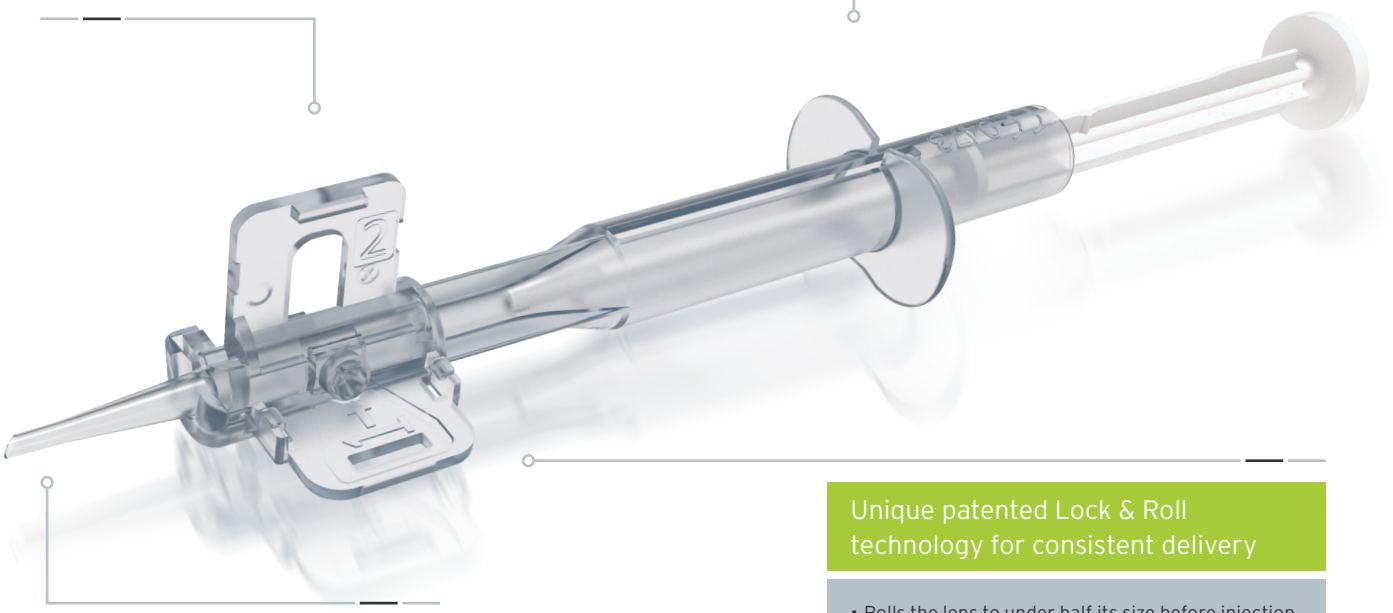
RayOne easy to use injector

True 2-step system

- Simple and intuitive
  - i.Minimal learning curve
  - ii.Minimises error
- Increase efficiencies
  - i.Designed for repeatability
  - ii.Reduces operating time
- **Step 1:** Insert OVD into cartridge via port
- **Step 2:** Lock cartridge ready for implantation

Single handed plunger with minimal force required

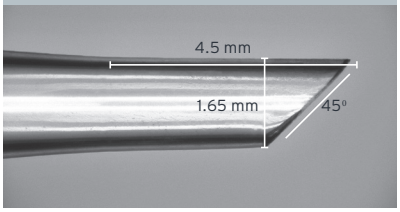
Ergonomic design for ease of handling



Sub 2.2 mm incision

1.65 mm RayOne nozzle for sub 2.2 mm incision

- Smallest fully preloaded injector nozzle
  - i. Ease of insertion
  - ii. Enables true micro incision
- Parallel sided for minimal stretch
  - i. Sub 2.2 mm delivery
  - ii. Maintains incision architecture



Unique patented Lock & Roll technology for consistent delivery

- Rolls the lens to under half its size before injection
  - i. Consistent, smoother delivery
  - ii. Reduces insertion forces
- Fully enclosed cartridge with no lens handling
  - i. Reduces the risk of lens damage
  - ii. Minimises chance of contamination

Lock & Roll technology

Consistently locked and rolled to under half its size in one simple action

1. Claoué C. Clinical and Surgical Ophthalmology 2008; 26(6): 198-200. 2. Bhogal-Bhamra GK, Sheppard AL, Kolli S, Wolffsohn JS. J Refract Surg. 2019;35(1):48-53. 3. Nanavaty MA, Spalton DJ, Boyce J, Saha S, Marshall J. J Cataract Refract Surg. 2009; 35:663-671. 4. Yagci R, Uzun F, Acer S, Hepsen IF. Eur J Ophthalmol. 2014 Jul 24; 24(5):688-92 5. Vyas AV, Narendran R, Bacon PJ, Apple DJ. J Cataract Refract Surg 2007; 33:81-87. 6. Johansson B, Sundelin S, Wikberg-Matsson A, Unsbo P, Behndig A. J Cataract Refract Surg. 2007; 33:1565-1572. 7. Mathew RG, Coombes AGA. Ophthalmic Surg Lasers Imaging. 2010 Nov-Dec; 41(6):651-5. 8. Rayner. Data on File. 9. McLoone E, Mahon G, Archer D, Best R. Br J Ophthalmol. 2001; 85:543-545. 10. Rayner. Data on File. 11. Altmann GE, Nichamin LD, Lane SS, Pepose JS. J Cataract Refract Surg. 2005; 31(3): 574-585. 12. Tomlins PJ, Sivaraj RR, Rauz S, Denniston AK, Murray PI. J Cataract Refract Surg. 2014; 40:618-625 13. Pepose JS, Qazi MA, Edwards KH, Sanderson JP, Sarver EJ. Graefe's Archive for Clinical and Experimental Ophthalmology July 2009, Vol 247, Issue 7, pp 965-973 14. Nanavaty MA,Kubrak-Kisza M. J Cataract Refract Surg 2017; 43:558-563 15. Khan MI, Muhtaseb M. J Cataract Refract Surg 2011; 37:1751-1755

When considering an intraocular lens, what's important to you?

Aberration-neutral technology for optimal visual quality and functional visual acuity in all light conditions

RayOne Aspheric and RayOne Toric are designed with an aspheric anterior surface that creates no spherical aberration.

Studies have demonstrated that aberration-neutral technology:

- Offers improved contrast sensitivity compared with spherical IOLs[3,4]
- Provides better low light level visual acuity than spherical IOLs[13]
- Can offer more depth of field than aberration-negative IOLs by retention of the patient's natural level of corneal spherical aberration[6]
- Are less susceptible to the effects of decentration than aberration-negative IOLs[11]
- Twice as many patients* preferred the aberration-neutral IOL than aberration-negative[6]
- Three times fewer reports of visual disturbances with the aberration-neutral IOL than aberration-negative[6]

Reducing dysphotopsia by design

- Rayner's Enhanced Square Edge Technology shows no general increase in glare from previous models without a square edge[7]
- Low refractive index (1.46)

360° Optimised Barrier to reduce PCO

Rayner's 360° Amon-Apple Enhanced Square Edge creates an optimum barrier to reduce epithelial cell migration including at the haptic-optic junction[5,7]. Extremely low Nd:YAG capsulotomy rates, comparable with hydrophobic acrylic lenses with square-edge optics.[7]

ND: YAG CAPSULOTOMY RATES[7]		MEAN TIME TO ND: YAG CAPSULOTOMY[7]
At 12 months	0.6%	9.3 ± 5.5 mths (range 2.6 - 22.7 mths)
At 24 months	1.7%	Follow-up period: 5.3 - 29 mths

Vacuole free material for a glistening free IOL

- Single piece IOL created from a homogeneous material free of microvacuoles[8]
- Compressible material for delivery through a micro incision
- Excellent handling characteristics with controlled unfolding within the capsular bag
- Low silicone oil adherence[9]
- Excellent uveal biocompatibility[12]
- Hydrophilic acrylic material with low inflammatory response[10]

How many of your patients would benefit from a RayOne Toric IOL?

Prevalence of pre-operative corneal astigmatism in a cross-sectional study of 746 patients (1,230 eyes)[15]

Over 40% presented >1.0 D of astigmatism

More than 20% presented with >1.5 D of astigmatism

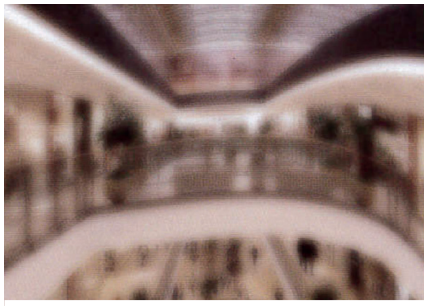
Proven rotational stability and centration[2] with predictable, sustainable and accurate visual results

In a prospective study of 66 eyes with <1.5 D regular corneal astigmatism, at 1, 3, 30, 90 and 180 days post-operatively the results showed[2]:

-10°±2.34°	average rotation
5%	maximum rotation
-0.04±0.25 mm	average centration relative to the limbus
<0.5 mm	decentration

RayOne Toric is available in an extensive range of sphere and cylinder powers, allowing you to accurately correct more of your patients, even those with significant corneal astigmatism.

Why leave your post-operative patients with residual astigmatism?



Vision with cataract and astigmatism

Post-operative vision with conventional IOL

Post-operative vision with RayOne® Toric

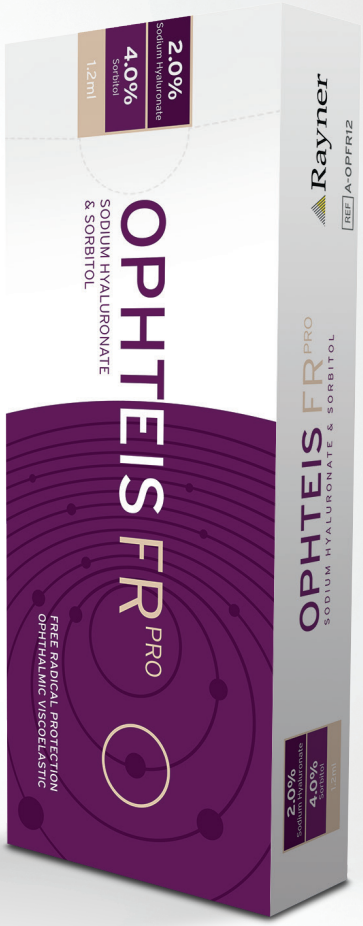
Recommended for use with Ophteis FR Pro: sodium hyaluronate and sorbitol

Ophteis FR Pro with sorbitol is a viscous cohesive designed to exceed core OVD requirements and enhance endothelial protection during surgery. In addition to a 2% NaHa concentration, FR Pro contains 4% sorbitol, a proven free radical scavenger.

During a three-second phaco time study, FR Pro showed greater overall average cell protection (28.4% less cell death) compared to three market-leading OVDs*.

RayOne also has been validated for use with the entire Rayner Ophteis and Methylvisc OVD ranges, as well as leading competitor OVDs.

*University of Brighton, UK. Data presented at ESCRS Congress 2016.



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Discover why RayOne is in a class of its own visit **rayner.com/rayone**

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RayOne Technical Information

Model Name:	RayOne Aspheric RA0600C	RayOne Spheric RA0100C	RayOne Toric RA0610T
Power Range:	-10.0 to +7.0 D (1.0 D increments, inc. plano) +8.0 to +30.0 D (0.5 D increments) +31.0 to +34.0 D (1.0 D increments)		**Standard** SE +8.0 to +30.0 D (0.5 D increments) Cylinders +1.0 to +6.0 D (0.5 D increments) **Made to order** SE -9.5 to +34.5 D (0.5 D increments) Cylinders +1.0 to +11.0 D (0.5 D increments)

Delivery System	
Injector Type:	Single use, fully preloaded IOL injection system
Incision size:	1.65 mm nozzle for sub 2.2 mm incision
Bevel Angle:	45°
Lens Delivery:	Single handed plunger

Monofocal IOL	
Material:	Single piece Rayacryl hydrophilic acrylic
Water Content:	26% in equilibrium
UV Protection:	Benzophenone UV absorbing agent
UV Light Transmission:	UV 10% cut-off is 380 nm
Refractive Index:	1.46
ABBE:	56
Overall Diameter:	12.5 mm
Optic Diameter:	6 mm
Optic Shape:	Biconvex (positive powers), Biconcave (negative powers)
Asphericity:	RayOne Aspheric: Anterior aspheric surface with aberration-neutral technology RayOne Toric: Posterior aspheric surface with aberration-neutral technology
Optic Edge Design:	Amon-Apple 360° enhanced square edge
Haptic Angulation:	0°, uniplanar
Haptic style:	Closed loop with anti-vaulting haptic (AVH) technology

Estimated Constants for Optical Biometry						
	SRK/T	Haigis			HofferQ	Holladay
	A-constant	a0	a1	a2	pACD	SF
Aspheric - Spheric	118.6	1.17	0.40	0.10	5.32	1.56
Toric	118.6	1.17	0.40	0.10	5.32	1.56

For Contact Ultrasound, the estimated A-constant for Aspheric, Spheric and Toric is 118.0.

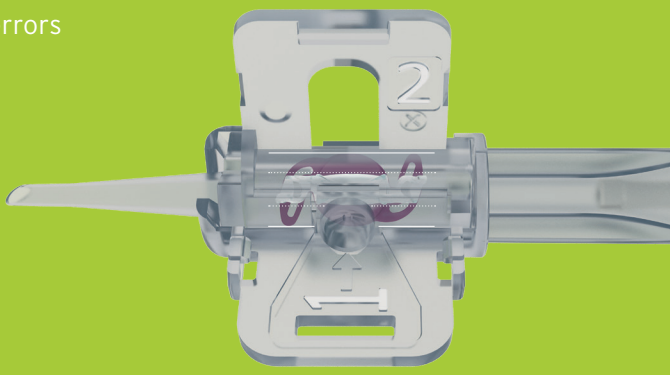
Please note that the constants indicated for all Rayner lenses are estimates and are for guidance purposes only. Surgeons must always expect to personalise their own constants based on initial patient outcomes, with further personalisation as the number of eyes increases.

Rayner

Discover why RayOne is in a class of its own visit **rayner.com/rayone**

RayOne preloaded primary IOL platform not only meets your surgical needs, **it exceeds them**

- **Lock & Roll technology**
  - Rolls the lens to under half its size before injection for consistent and smooth delivery
  - Fully enclosed cartridge with no lens handling means low risk of lens damage and contamination
- **Easy to use, two step system**
  - Simple design minimises the learning curve and chance of errors
  - Efficient system reduces your operating time
- **1.65 mm nozzle**
  - Smallest fully preloaded injector nozzle available
  - Sub 2.2 mm delivery for low risk of SIA
- **Largest fully preloaded power range available**
  - RayOne Spheric and Aspheric -10 to +34.0 D
  - Extensive range of toric spheres and cylinders available
  - One system for all your patients

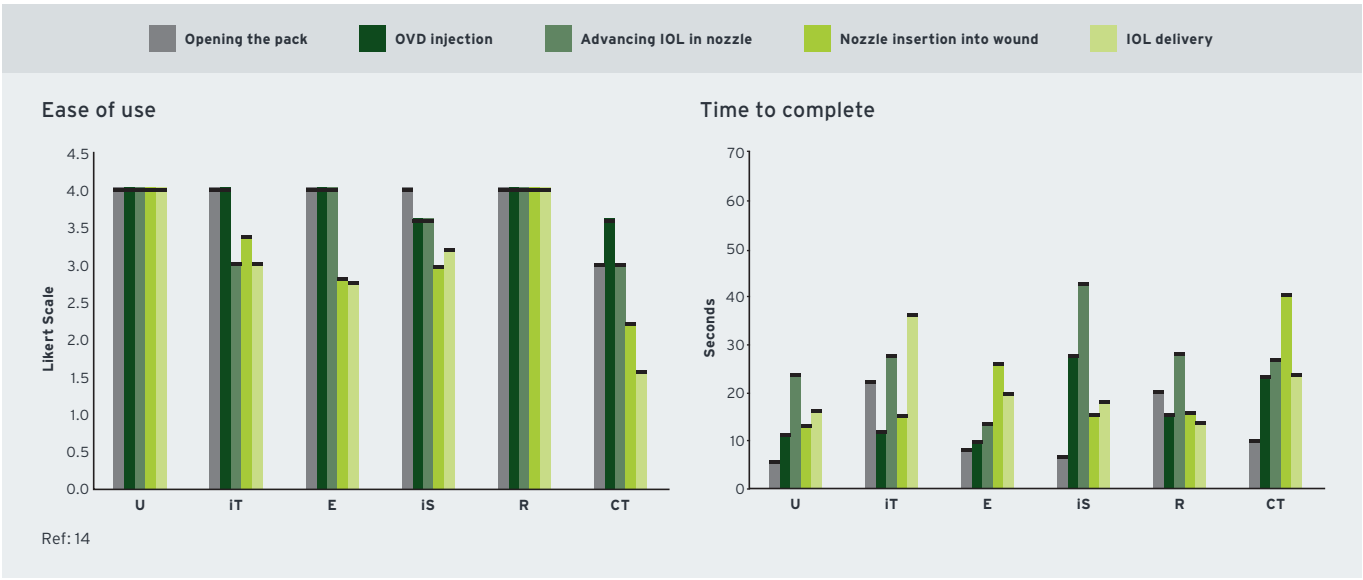


In a comparative study of six market-leading preloaded delivery systems

1. **RayOne received the maximum score for 'ease of use' for all delivery steps:**

Opening of pack → OVD priming → Advancing OVD in the nozzle → Nozzle insertion into the wound → IOL delivery

2. **RayOne was the least time consuming system for delivering the IOL**
3. **RayOne showed less injector tip damage post-insertion than 50% of the tested delivery systems**
4. **RayOne showed minimal wound stretch compared to other tested delivery systems when through a 2.2 mm incision**



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