Rayner

EYE SCIENCE by Rayner
SUPPORTING CLINICAL ADVANCES

Clinical claims - Quick Reference Guide V1

Low PCO and Nd:YAG capsulotomy rates

A retrospective study in 3,461 eyes implanted with C-flex IOL reports only 58 eyes received Nd:Yag capsulotomy. The rate of Nd:YAG capsulotomy was 0.6% at 12 months and 1.7% at 24 months. (1)

A prospective multicentre study in 80 eyes receiving Superflex or Acrysof SA60AT reports 6 of 39 cases had a gap between the posterior capsule and IOL (only 1 case in the Superflex IOL group and 5 cases in the Acrysof IOL group) at 1-month follow-up. PCO scoring showed no statistically significant difference between both groups. (2)

Excellent fixation, rotational stability and superb centration

Just 1 degree of misalignment results in about 3.5% loss of cylindrical correction, 2 degrees up to about 7%, and 10 degrees more than 34%.

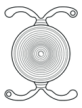
A prospective study in 66 eyes implanted with the RayOne equivalent 600S IOL reports absolute values for rotation postoperatively were 1.83° ± 1.44° and decentration was 0.08 ± 0.37 mm at 3 months. No lens rotated more than 5°. (3)

A retrospective case series of 48 eyes implanted with Sulcoflex Aspheric 653L, reports the mean decentration of the sulcus-fixated IOL was 0.23 ± 0.02 mm. (4)

IOLs	Rotational stability (6 months)	% rotated ≥ 5 degrees
RayOne 600S	1.83 degrees	0%
Acrysof IQ Toric (12)	2.72 degrees	8%
Tecnis Toric (12)	3.79 degrees	18%
AT Torbi 709M (13)	3.00 degrees	10%
EnVista Toric (15)	3.00 degrees	9%

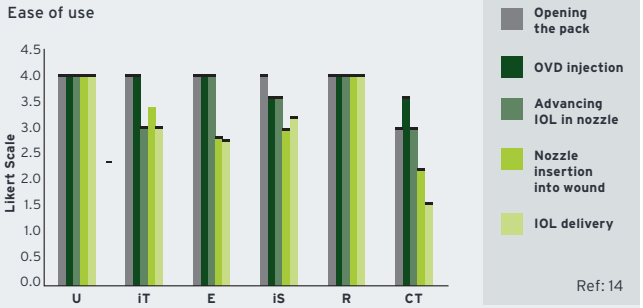
Manufacturer	Rayner	Alcon	J&J	B&L	B&L (Croma)	Hoya	Zeiss
Injector name	RayOne	Ultrasert	iTec	BLISS	MDJ	iSert	Accuject 2.0 (Accuject 2.2)*
IOL name	Hydrophobic	Acrysof	Tecnis	EnVista	EyeCee One	Vivinex	CT Lucia
Preloaded power range (D)	-10.0 to +32.0	+6.0 to +27.0	+5.0 to +34.0	N/A	+1.0 to +30.0	+6.0 to +30.0	+4.0 to +24.0 (+24.5 to +30.0*)
Loadable power extension (D)	N/A	+6.0 to +40.0	N/A	0.0 to +34.0	N/A	N/A	N/A
Nozzle tip (mm)	1.65	2.01	1.86	1.76	1.69 (split)	1.87	1.75 (1.80*)
Incision (mm)	Sub 2.2	2.2	2.2 - 2.4	2.2	2.2	2.0	2.2 (2.4*)
Preload type	Fully	Fully	Fully	Manual	Fully	Fully	Fully
Prepare steps	2	3	4	6	2	5	3
Hands to inject	1	1	2	1	1	2	1
Glistenings	None	YES	None	None	YES	None	YES
Refractive index	1.51	1.55	1.47	1.54	1.52	TBC	TBC
Unfolding speed	Medium	Slow	Slow	Very slow	Slow	Slow	Slow

Complete Trifocal Solution for the correction of Presbyopia

Brand	Rayner RayOne Trifocal	PhysIOL FineVision	Zeiss AT LISA Tri	Alcon PanOptix
				
Diffractive technology	Trifocal up to 4.5 mm, then monofocal	Apodized trifocal across full optic surface	Trifocal up to 4.34 mm, then bifocal	Trifocal up to 4.5 mm, then monofocal
Diffractive shape	16 steps	26 steps	29 steps 0.0 D	15 steps
Diffractive orders	-1, 0, 1	0, 1, 2	0, 1, 2	0, 2, 3 (non sequential)
Light loss at 3mm pupil	11%	14%	14.3% average	12%
Light energy split at 3mm pupil	52% D / 22% I / 26% N	49% D / 18% I / 34% N	50% D / 20% I / 30% N	42% D / 24% I / 22% N (includes 12% loss)
Optic add powers	+3.5 D near +1.75 D intermed.	+3.5 D near +1.75 D intermed.	+3.33 D near +1.66 D intermed.	+3.25 D near +2.17 D intermed.
Reading distance	37.5 cm 75 cm	37.5 cm 75 cm	40 cm 80 cm	42 cm 60 cm

Easy to use RayOne Preloaded Injector

An experimental lab study comparing 5 preloaded injection systems (Ultrasert (U), iTec (iT), Eyecee (E), iSert (iS), RayOne (R), and CT Lucia. RayOne received the maximum score for ease of use for all delivery steps, the least time consuming for delivering the IOL, less injector tip damage post insertion than 50% of tested delivery systems and minimal wound stretch through a 2.2 mm incision compared to the other delivery systems. (5)



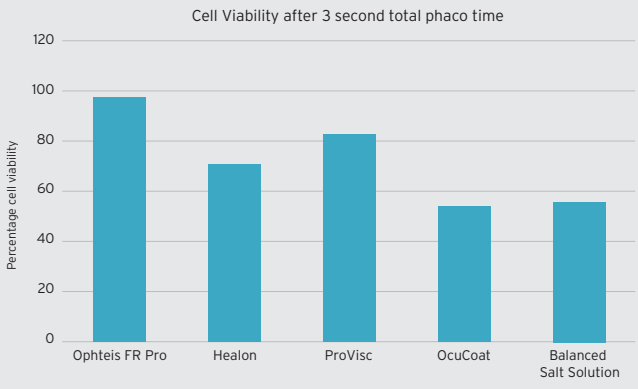
All Categories	Alcon	Croma	Hoya	Rayner	Zeiss
Mean score (max = 4.0)	4.0	3.5	3.5	4.0	2.7
Total time (s)	69.0	66.9	111.7	94.6	126.2
Percentage successful	100%	80%	100%	100%	60%
Mean external incision (mm)	2.54	2.60	2.60	2.48	2.64
% stretch	*15.5*	*18.2*	*18.2*	*12.7*	*20.0*
Mean internal incision (mm)	2.46	2.56	2.50	2.42	2.54
% stretch	*11.8*	*16.4*	*13.6*	*10.0*	*15.5*

FR Pro OVD provides a new level of corneal endothelial protection and reduces cell death by an average of 28.4%.

A comparative trial with 73 ophthalmic surgeons reports 78% of surgeons would recommend it compared to their usual OVD.

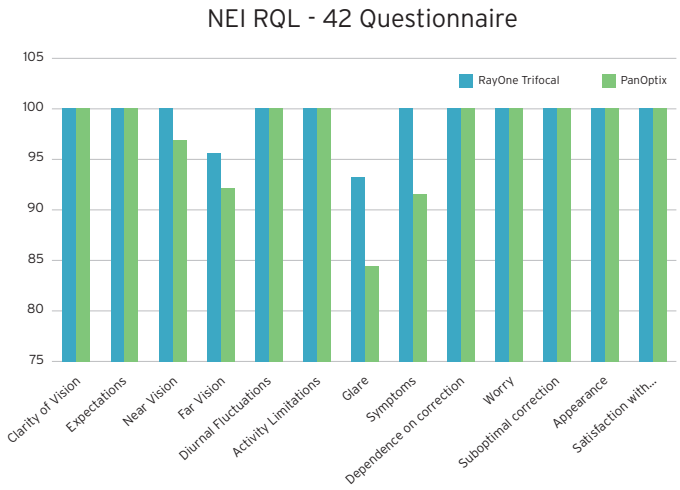
97% said it offered endothelial protection better than or similar to their existing product. 96% said that "it creates and maintains a deep anterior chamber to their clinical satisfaction for the entire duration of the procedure" 98% said they saw an improvement in "visibly clearer corneas postoperatively". (6)

An in-vitro lab study comparing the cellular protection provided by FR Pro and other leading OVDs from free radical damage under phaco conditions. Results show that during a three-second phaco exposure study, FR Pro showed greater overall average cell viability (28.4%) compared to the three tested market-leading OVDs (Healon, Provisc and Ocucoat). (6)

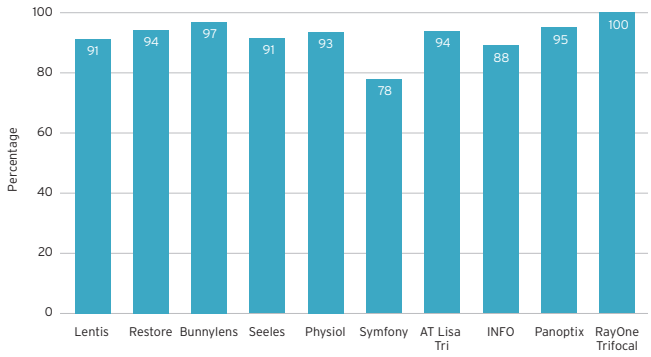


Less photic phenomena and increased patient satisfaction
In a prospective comparative study of 48 eyes, the RayOne Trifocal group was associated with better scores for glare, symptoms and near and distance VA against the PanOptix Trifocal group. (7)

In a prospective comparative study in 60 eyes:
- Glare - 40% of patients in RayOne Trifocal vs 67% of patients in the FineVision POD F group
- Halos - 40% of patients in RayOne Trifocal vs 53% of patients in the FineVision POD F group
- Difficulties in depth perception - 7% of patients in RayOne Trifocal vs 33% of patients in the FineVision POD F (8)



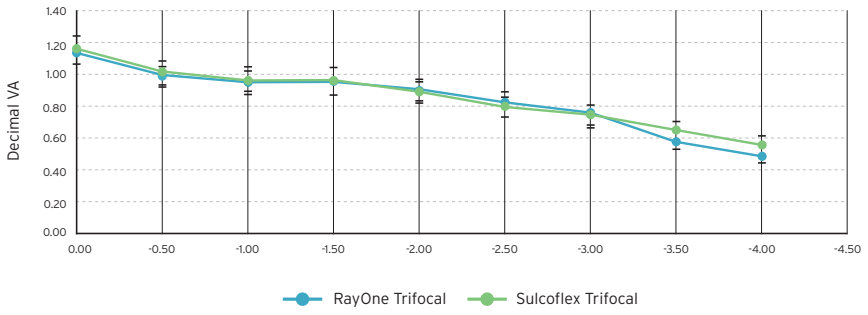
100% Spectacle independence - In a prospective study of 16 eyes implanted with RayOne Trifocal, 100% of patients achieved spectacle independence and agreed they would have the operation again at 1 month follow up. (9)



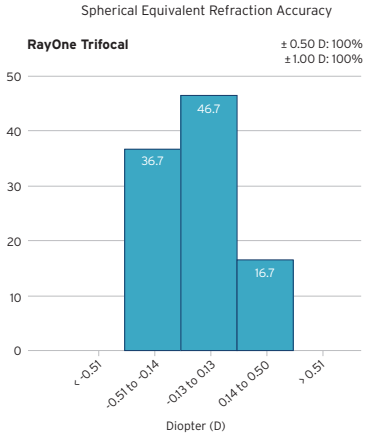
Excellent visual acuity at near, intermediate and far distances
In a large scale prospective study of 150 eyes by Clinica Baviera, visual acuity results were excellent in both monocular and binocular testing. Mean binocular logMAR VA values were: UNVA 0.07, UIVA 0.21, UDVA 0.01 and CDVA 0. (7)

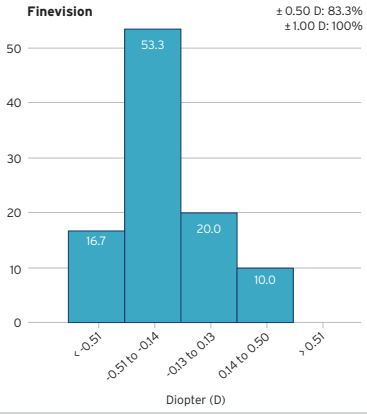
Excellent Biocompatibility
A retrospective case review of 171 eyes reports that the long-term safety profile of the Rayner hydrophilic acrylic IOL was good, leading to good visual outcomes and a low rate of vision-impairing uveal and capsule complications. (10)

Comparable visual outcomes across capsular bag RayOne Trifocal and sulcus-fixated Sulcoflex Trifocal lens platforms - In a retrospective study on RayOne Trifocal and Sulcoflex Trifocal DUET in 40 eyes, the defocus curve shows comparable visual acuity results reporting similar outcomes. (7)

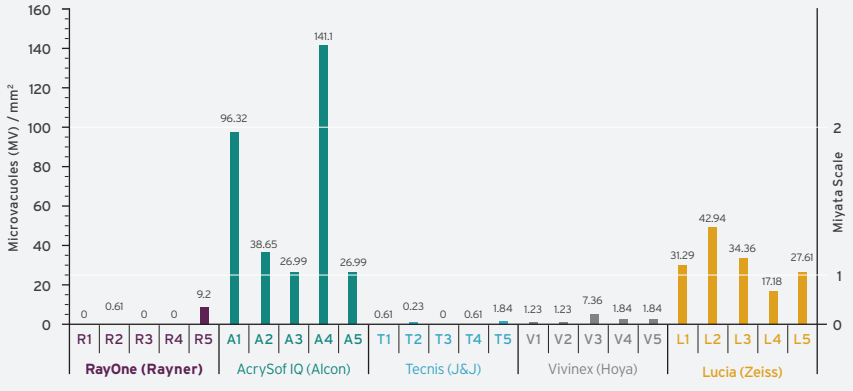


Excellent refractive predictability
In a prospective comparative study in 60 eyes, 100% of eyes implanted with RayOne Trifocal were within ±0.50 D of the attempted correction compared to 83.3% of eyes in the FineVision POD F group at 3 months. (8)





Ultra-glistening free equivalent or superior to market leading IOLs
In-vitro comparative study conducted at University Hospital Heidelberg, evaluating the levels of glistenings in 5 x each IOL model - RayOne 800C (Rayner) Acrysof IQ (Alcon) Tecnis (J&J), Vivinex (Hoya) and Lucia (Zeiss). RayOne 800C achieved average results of 1.96±3.69 MV/mm² and a Miyata scale value of 0. Acrysof averaged 66.01±19.25 MV/mm² with a Miyata scale value of 1. (11)



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(1) Mathew RG and Coombes AGA. Ophthalmic Surg Lasers Imaging. 2010 Nov-Dec;41(6):651-5. (2) Koshy J et al. European Journal of Ophthalamology. 2018 Nov; 28(6):639-644. (3) Bhogal-Bhamra GK et al. Journal of Refractive Surgery. 2019;35(1):48-53. (4) Prager F et al. J Cataract Refract Surg 2017; 43:643–647. (5) Nanavaty MA and Kubrak-Kisza M. J Cataract Refract Surg 2017; 43:558–563. (6) Lacey J et al. Eposter presented at ESCRS, Copenhagen, Denmark, September 2016. (7) Eurotimes Supplement Feb 2019. RayOne Trifocal & Sulcoflex Trifocal. (8) Ferreira TB and Ribeiro FJ. J Refract Surg. 2019;35(7):418-425. (9) De Lange J. Ophthalmology Times Europe article March 2019. (10) Tomlins PJ et al. J Cataract Refract Surg. 2014 Apr;40(4):618-25. (11) Auffarth et al. RDTR Rayner Data on file. (12) Lee BS and Chang DF. AAO Ophthalmology 2018;1-7 (13) Mencucci et al. J Cataract Refract Surg 2014; 40:1479–1487 (14) Ma JJ, et al. J Cataract Refract Surg. 2008;34:1631–6 (15) Packer M and al. Clinical Ophthalmology 2013;7:1905–1912

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