



# Contact Lens Aftercare

## The Missed Opportunity

Written by Gurraj Jabbal and Neil Retallic



# Learning objectives

- Understands the importance of record keeping in contact lens wear and understands the minimum data set that should be recorded in contact lens wearers.
- Understands methodologies for a proactive approach to communicating which will elicit a full history from patients and allow recommendations to be made authoritatively in a way which will be understood by all patients.
- Understands the causes of contact lens discomfort and common pathologies seen at aftercare, how to identify the probable cause and how to manage the various causes using the right combination of lens material, lens design, wearing modality and care products.



Written by Neil Retallic & Gurraj Jubel



# Case 1a - Amarjit

Name: Amarjit

Age: 36

Occupation: Graphic Designer



## Prescription:

RE: -5.00DS 6/5

LE: -4.50/-0.50x90 6/5

From eye exam 1 year ago

## Wearing:

Monthly hydrogel contact lenses

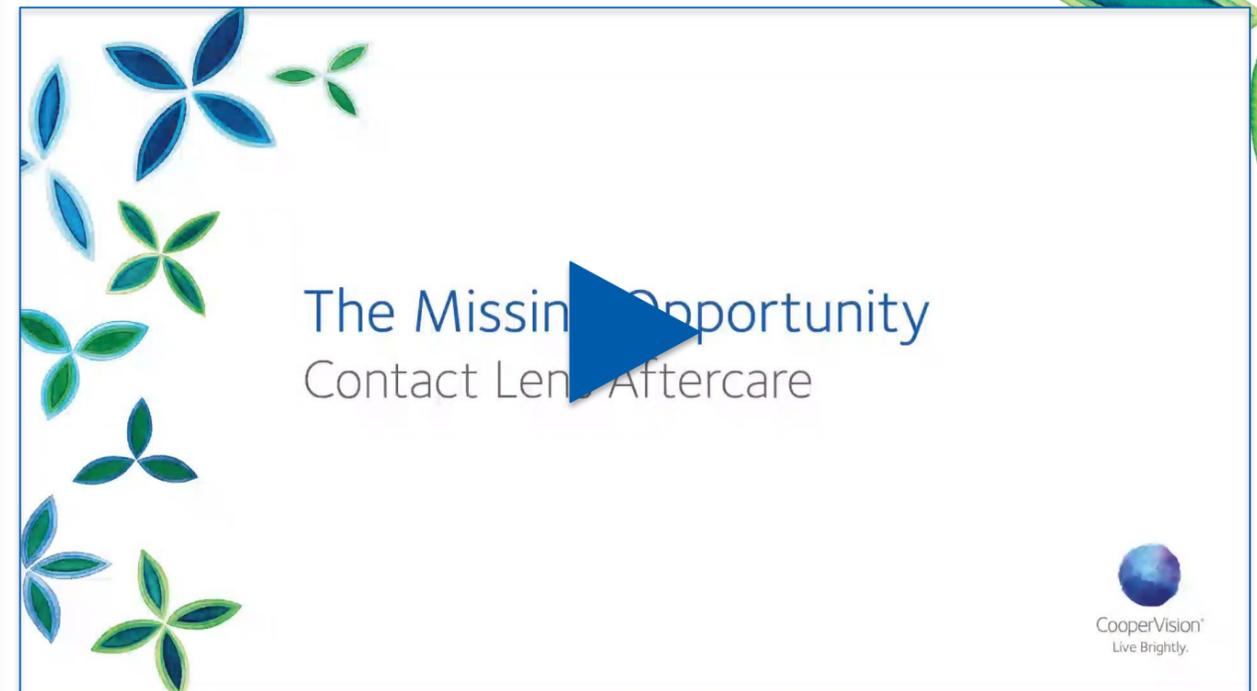
RE: 8.6/14.2 -4.75 6/5

LE: 8.6/14.2 -4.50 6/5

Based on CL specification from 1 year ago.

## History

- Worn planned replacement hydrogel lenses for 12 years
- Wears contact lenses all the time
- Works in an office doing computer aided design
- Likes to play golf



# Case 1a - Amarjit

Name: Amarjit

Age: 36

Occupation: Graphic Designer



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RE: -5.00DS 6/5

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Based on CL specification from 1 year ago.

## History

- Worn planned replacement hydrogel lenses for 12 years
- Wears contact lenses all the time
- Works in an office doing computer aided design
- Likes to play golf

# Discussion Points

1. What are the positives in the way this history was conducted?
2. How would you have improved on our approach?
3. What other questions would you ask?
4. How is Amarjit getting on with his lenses?
5. How long does Amarjit wear his contact lenses?
6. Does he have any problems handling the lenses?
7. Is he compliant with his solution and care regimen?

# What Questions do UK Practitioners typically ask during aftercare visits?

Questions asked as routine practice	% ECPs
Daily wearing time	94%
Days worn per week	93%
Any problems with your eyes	93%
Reason for visit	90%
Care system used	89%
Modality of wear	88%
Any discomfort/pain	86%
Any problems with your vision in general	84%
Last contact lens aftercare (if relevant)	83%
Brand/type of lenses worn	81%
Comfortable daily wearing time	79%
Last eye-test date	78%
End of day dryness	78%
Any problems with your vision D/I/N	76%
Are you on any medication	71%
How is your general health	65%
<b>VDU use</b>	<b>60%</b>
Nap / sleep in lenses	60%
<b>Visual tasks</b>	<b>60%</b>
Any previous infections	59%
<b>Driver Occupation</b>	<b>59%</b>
Any allergies	53%
<b>Daily environment Hobbies</b>	<b>49%</b>
Ever been to hospital / GP about your eyes	47%
<b>Typical working distance</b>	<b>38%</b>
Diabetic	35%
<b>Smoker</b>	<b>34%</b>

Contact Lens & Anterior Eye 38 (2015) 258–265



Contents lists available at ScienceDirect

Contact Lens & Anterior Eye

Journal homepage: [www.elsevier.com/locate/clae](http://www.elsevier.com/locate/clae)



## History and symptom taking in contact lens fitting and aftercare

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<sup>b</sup> Optometry and Visual Sciences, City University, London, UK

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<sup>1</sup>Wolffsohn J et al. History and symptom taking in contact lens fitting and aftercare. Contact Lens & Anterior Eye; 2015;38: 258–265



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<b>Occupation</b>	<b>55%</b>
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<sup>1</sup>Wolffsohn J et al. History and symptom taking in contact lens fitting and aftercare. Contact Lens & Anterior Eye; 2015;38: 258–265

# Compliance approach during CL consultation?

Contact Lens & Anterior Eye 38 (2015) 258–265



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# Case 1b - Amarjit

Name: Amarjit

Age: 36

Occupation: Graphic Designer



## Prescription:

RE: -5.00DS 6/5

LE: -4.50/-0.50x90 6/5

From eye exam 1 year ago

## Wearing:

Monthly hydrogel contact lenses

RE: 8.6/14.2 -4.75 6/5

LE: 8.6/14.2 -4.50 6/5

Based on CL specification from 1 year ago.

## History

- Worn planned replacement hydrogel lenses for 12 years
- Wears contact lenses all the time
- Works in an office doing computer aided design
- Likes to play golf

## Clinical findings

- Vision in contact lenses/ over refraction

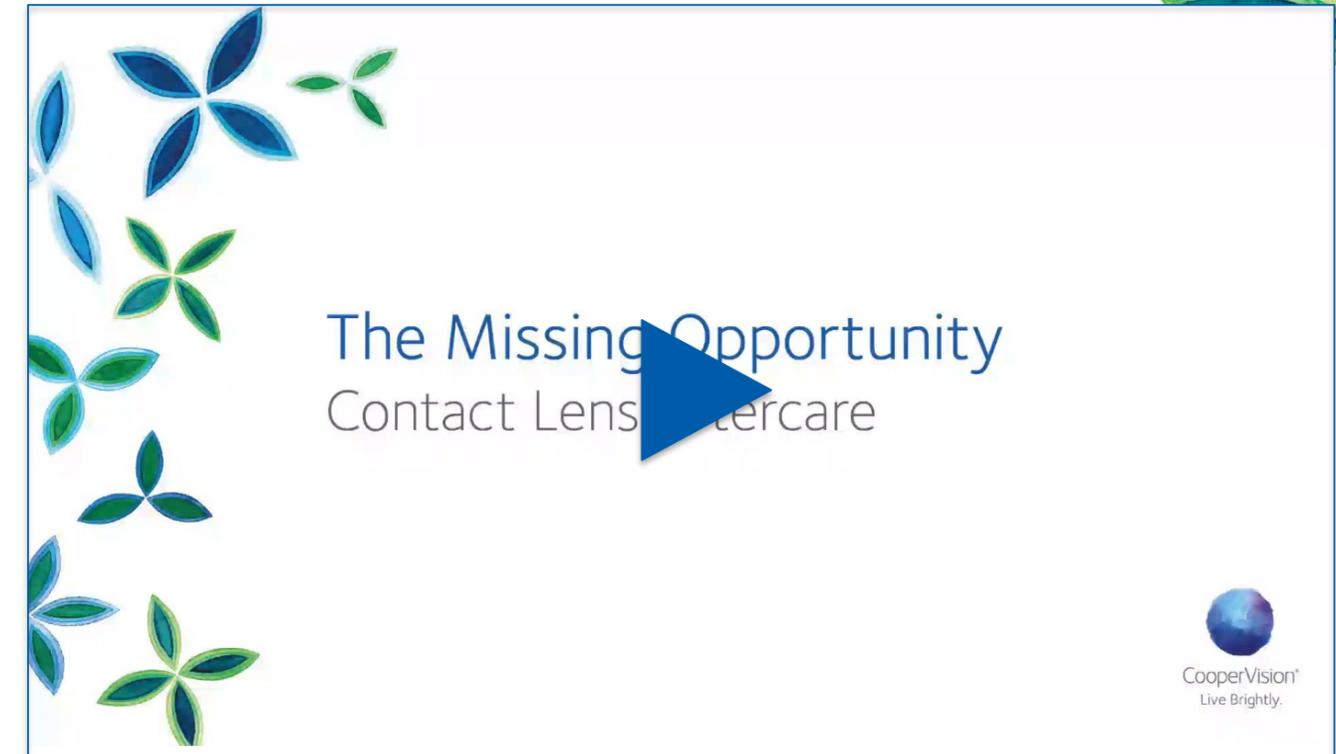
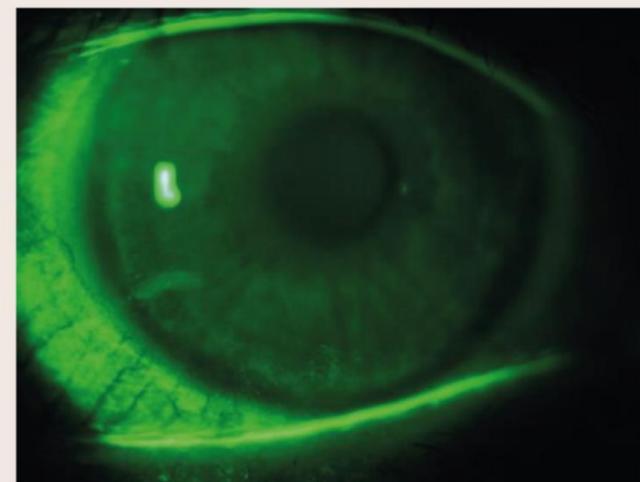
RE: 6/5 +0.25 6/5

LE: 6/5 +0.25 6/5

- Lenses fit and move well
- Good movement on push up
- Mild epithelial staining on both eye  
RE: Grade 1.5 LE: Grade 1.0

## Apointment outcome

- Supply new hydrogel lenses  
RE: 8.6/14.2 -4.75  
LE: 8.6/14.2 -4.50
- Review in 24/12



# Case 1b - Amarjit

Name: Amarjit

Age: 36

Occupation: Graphic Designer



## Prescription:

RE: -5.00DS 6/5

LE: -4.50/-0.50x90 6/5

From eye exam 1 year ago

## Wearing:

Monthly hydrogel contact lenses

RE: 8.6/14.2 -4.75 6/5

LE: 8.6/14.2 -4.50 6/5

Based on CL specification from 1 year ago.

## History

- Worn planned replacement hydrogel lenses for 12 years
- Wears contact lenses all the time
- Works in an office doing computer aided design
- Likes to play golf

## Clinical findings

- Vision in contact lenses/ over refraction

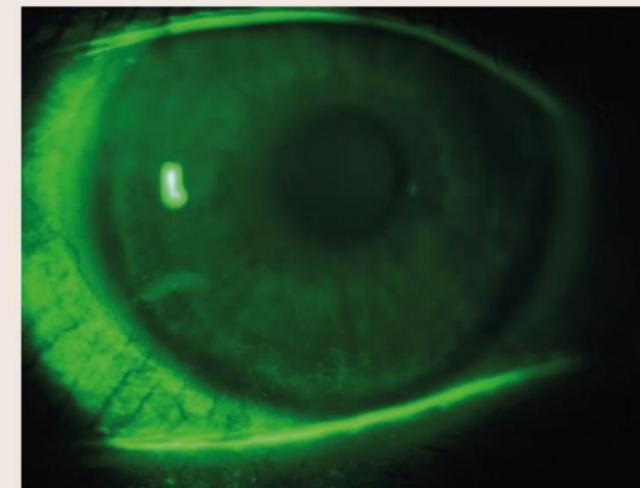
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RE: 8.6/14.2 -4.75  
LE: 8.6/14.2 -4.50
- Review in 24/12



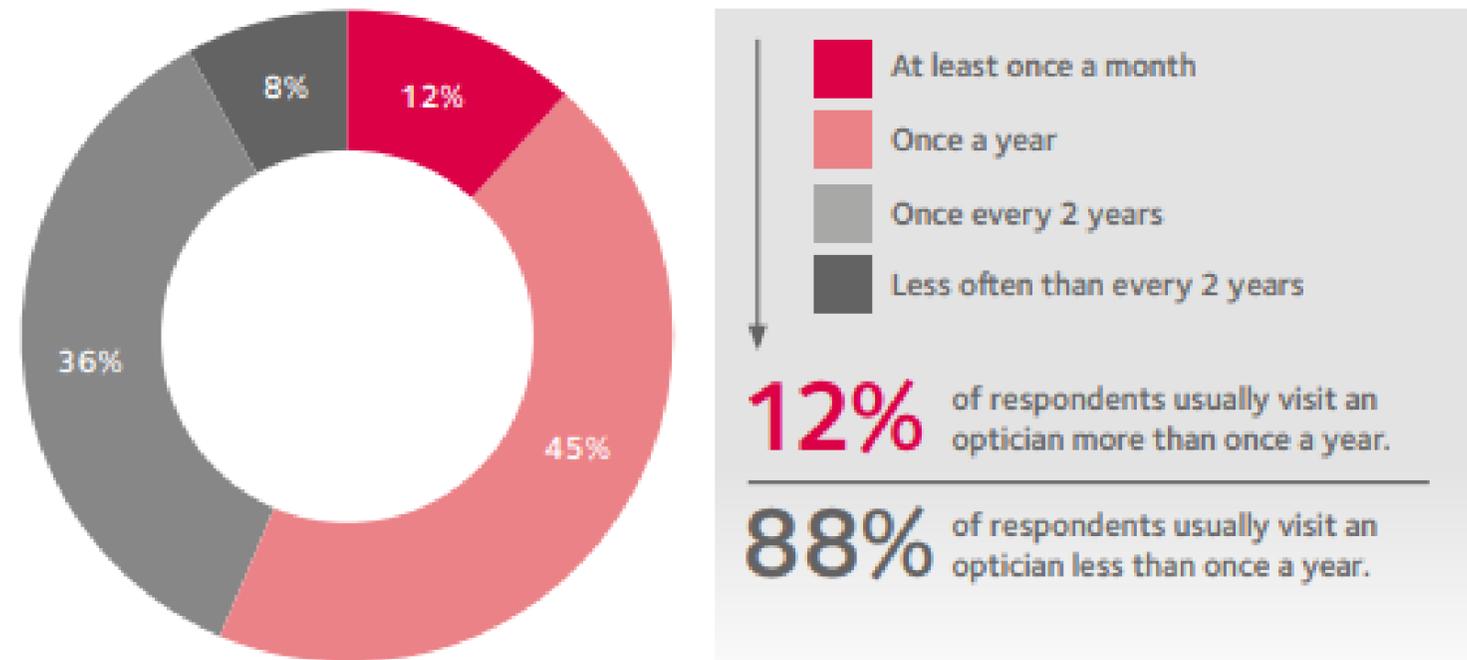
# Discussion Points

1. What are the positives in this summary?
2. Did the summary cover everything we need to? How could it have been done better?
3. What would you have done differently?
4. Is it OK to recall him for aftercare in 2-years?
5. Is his prescription correct?
6. What might have caused the staining?
7. Are you happy with the way he handles his contact lenses?

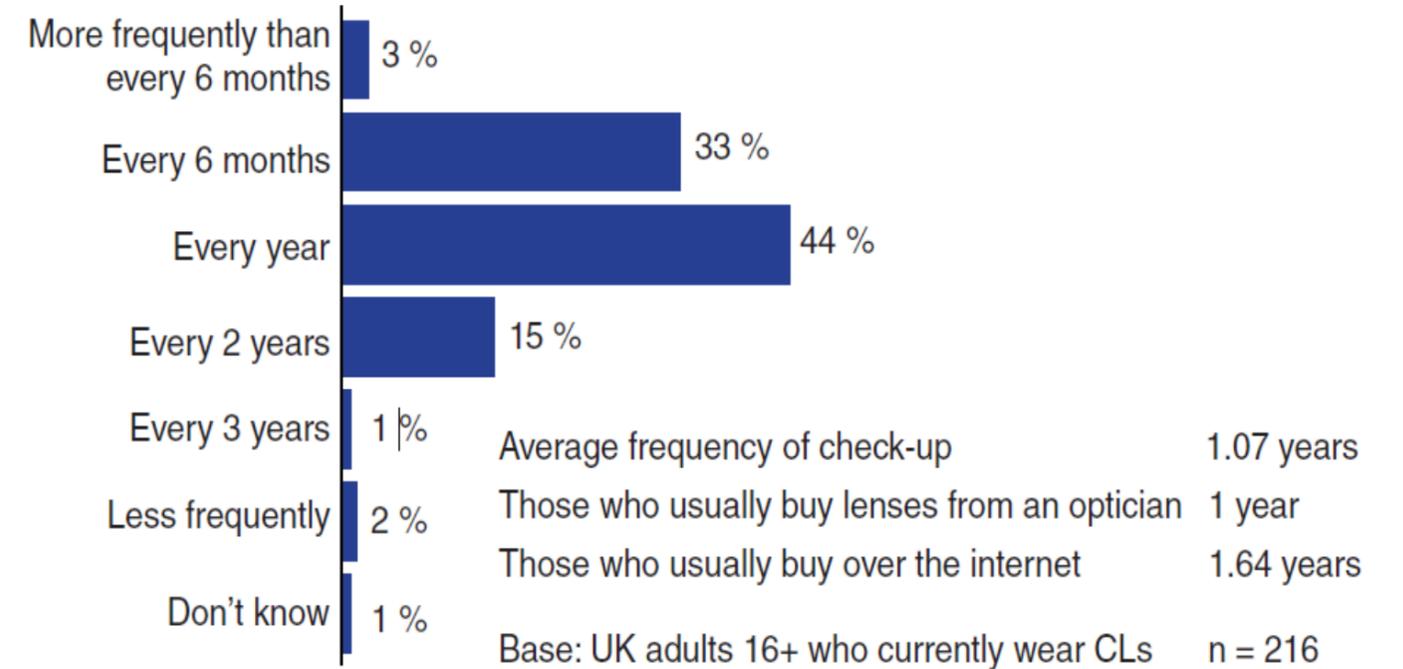


# Contact lens recall frequency

Optician visit frequency



Frequency of CL wearers presenting for ACs (Ewbank)



<sup>1</sup>Ewbank A. Understanding the CL consumer: Part 1 – Buying habits and customer loyalty. Optician 2013; 245: 38–41.

# Contact lens recall frequency

CLINICAL AND EXPERIMENTAL  
**OPTOMETRY**

INVITED REVIEW

## Rethinking contact lens aftercare

*Clin Exp Optom* 2017; 100: 411–431

DOI:10.1111/cxo.12588

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The evolution of contact lens technology and clinical practice over the past three decades has been remarkable, with dramatic improvements in material biocompatibility, better lens designs and care systems, and more flexible and convenient modalities of wear. However, our approach to the aftercare examination has remained conservative, with the general *modus operandi* having not fully evolved from the difficult, early years of fitting non-regular replacement rigid and low water content hydrogel lenses. In this paper, we review current aftercare practice and in particular, the preferred frequency that lens wearers should return for routine visits and the appropriateness of regulations governing con-

<sup>2</sup>Efron, N and Morgan, PB. 2017. Rethinking contact lens aftercare. *Clinical and Experimental Optometry*. 100. Pp. 411-431.

# Contact lens recall frequency

Decision matrix for AC frequency (Efron and Morgan)<sup>2</sup>

Lens Type	6/12 AC	12/12 AC	24/12 AC
DD			✓
Reusable/RGP		✓	
EW	✓		
Youth (5 -15) -with Prog RX	✓		
Presbyopia -Adv accom loss		✓	

<sup>2</sup>Efron, N and Morgan, PB. 2017. Rethinking contact lens aftercare. Clinical and Experimental Optometry. 100. Pp. 411-431.

# Case 1c - Amarjit

Name: Amarjit

Age: 37

Occupation: Graphic Designer



## Prescription:

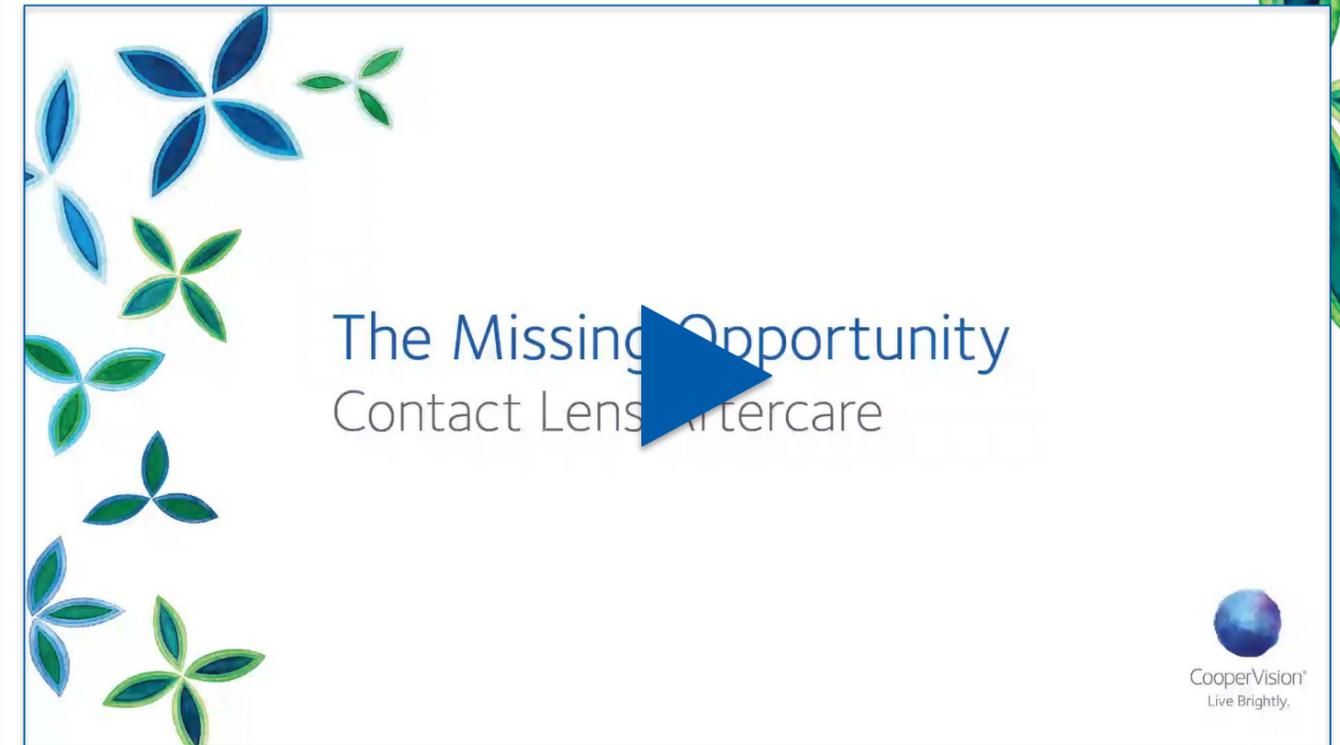
RE: -5.00DS 6/5  
LE: -4.50/-0.50x90 6/5  
Last examination 2 years ago

## Wearing:

Monthly hydrogel contact lenses  
RE: 8.6/14.2 -4.75 6/5  
LE: 8.6/14.2 -4.50 6/5

## History

- Wants new glasses (four years old)
- Has contact lenses but doesn't wear them often
- Uncomfortable when at the computer



# Case 1c - Amarjit

Name: Amarjit

Age: 37

Occupation: Graphic Designer



## Prescription:

RE: -5.00DS 6/5

LE: -4.50/-0.50x90 6/5

Last examination 2 years ago

## Wearing:

Monthly hydrogel contact lenses

RE: 8.6/14.2 -4.75 6/5

LE: 8.6/14.2 -4.50 6/5

## History

- Wants new glasses (four years old)
- Has contact lenses but doesn't wear them often
- Uncomfortable when at the computer

# Discussion Points

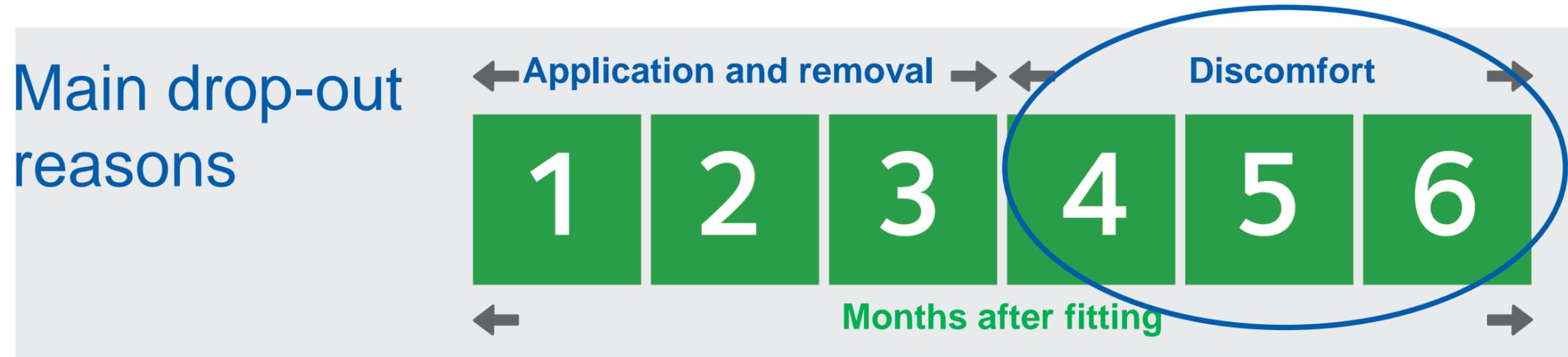
1. What are the positives from today's history and symptoms?
2. Why did Amarjit drop out of contact lenses?
3. What would you say to bring Amarjit back into contact lens wear?
4. Could we have predicted or even prevented him dropping out last year?
5. What triggers can you look for in a history and symptoms that might indicate someone is at risk of dropping out of lens wear?
6. What tools do you have in practice to help choose new contact lenses?

# Reason for contact lens drop out?



- **Drop out with in 3 months:**
  - 42% handling issues (A&R)
  - 13% discomfort through out day

# Reason for contact lens drop out?



- **Drop out after 3 months:**
  - 45% comfort / dryness / red eye / watering / infection
  - 16% cost, too expensive

Is perceived value for money linked to comfort and performance?

# Try something new.....

When the participants were asked questions regarding the contact lenses they had trialled...

Only **13%**  
of lapsed  
wearers were  
**offered an  
alternative lens  
type.**

However almost  
**50%**  
would have been  
interested to  
**trial  
an alternative.**

## Highlights

- Lapsed wearers were not given the option to try a different lens.
- However, many claim they would have liked the option to do so.



# Case 2 - Tosh

Name: Tosh

Age: 34

Occupation: Computing student



## Spectacle prescription:

RE: +3.50/-0.75x180 6/4.5

LE: +3.25/-0.75x170 6/4.5

From eye exam 1 year ago

## Wearing:

Hydrogel contact lenses (10 years)

RE: 8.6/14.2 +3.75

LE: 8.6/14.2 +3.50

## Vision in CLs:

RE: 6/6

LE: 6/6

## History

- Mature student (learning to write computer code)
- Works in a restaurant/café evenings and weekends
- No significant ocular history
- Wears contact lenses full time



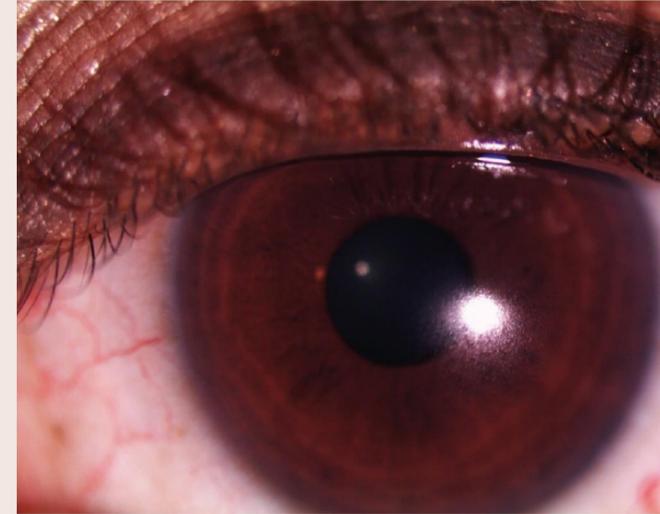
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# Case 2 - Tosh

## Findings

- Scores vision 6/10, comfort 8/10
- Lenses fit and centre well
- Good movement and recovery on push up
- Some deposition on both lenses (4 weeks old)
- Limbal hyperaemia  
RE: Grade 2 LE: Grade 1
- Cornea clear R&L
- Over refraction: RE: -0.25 6/6 LE: plano 6/6



## Fitting Trial

- Silicone hydrogel monthly-replacement lenses  
RE: 8.6/14.0 +3.50 6/6+  
LE: 8.6/14.0 +3.50 6/6+
- Lenses fit and centre well. Good movement on push up

## Recommendation

- Trial new lenses.
- Discussed oxygen requirement for full day wear
- Discussed eye redness
- Discussed lens cleaning and deposition
- Review in 3 weeks

# Case 2 - Tosh

Name: Tosh

Age: 34

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RE: +3.50/-0.75x180 6/4.5  
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From eye exam 1 year ago

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Hydrogel contact lenses (10 years)  
RE: 8.6/14.2 +3.75  
LE: 8.6/14.2 +3.50

## Vision in CLs:

RE: 6/6  
LE: 6/6

## History

- Mature student (learning to write computer code)
- Works in a restaurant/café evenings and weekends
- No significant ocular history
- Wears contact lenses full time

## Findings

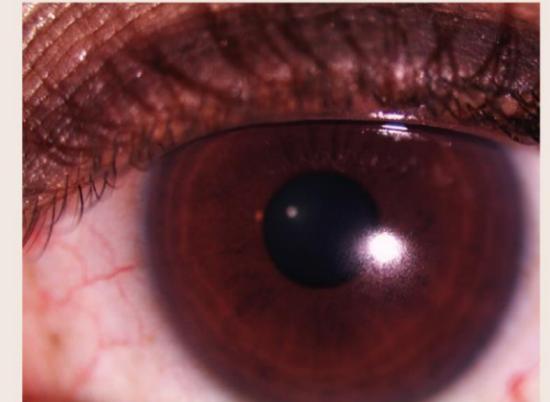
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RE: 8.6/14.0 +3.50 6/6+  
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## Recommendation

- Trial new lenses.
- Discussed oxygen requirement for full day wear
- Discussed eye redness
- Discussed lens cleaning and deposition
- Review in 3 weeks



# Discussion Points

1. What is good about this patient record card?
2. What other questions would you ask Tosh about his lenses?
3. Were any opportunities missed in this consultation?
4. Why would you upgrade Tosh's lenses?
5. What lenses would you recommend for Tosh and how would you explain the benefits?
6. Is Tosh at risk of dropping out of contact lens wear?

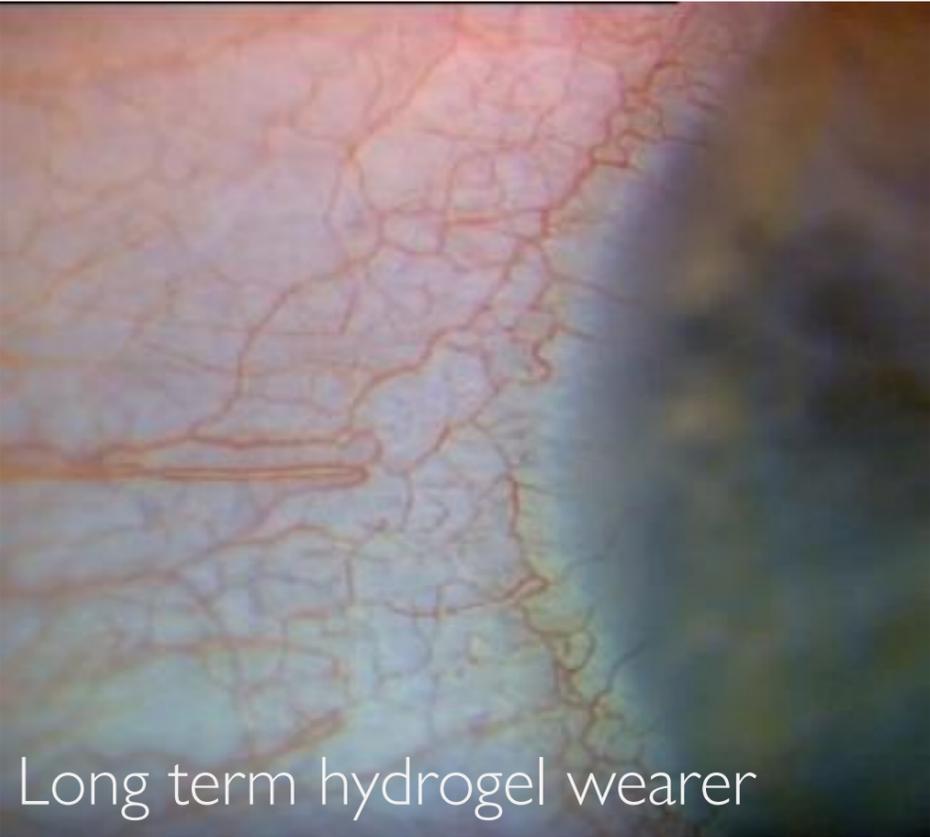




# Benefits of High DK/t:

What time do you commonly carry out aftercares?

What time do Pxs remove their CLs?



Long term hydrogel wearer



Refitted with SiH lenses



Fonn D, Dumbleton K, Jalbert I and Sivak A. Benefits of Silicone Hydrogel Lenses. Contact Lens Spectrum February 2006 – Special Issue. Images taken by K. Dumbleton. Published in Manual of Contact Lens Prescribing and Fitting, 3<sup>rd</sup> Edition. Hom and Bruce. Chapter 20. Authors Lyndon Jones and Kathy Dumbleton



# Closer Look at Oxygen Requirements

- Traditional criteria for no central corneal swelling<sup>1,2</sup>
- Open eye: 24 units  $10^{-9}$  (cm/s) ( $\text{mlO}_2/\text{ml} \times \text{mmHg}$ )
- **Centre and periphery of lens need to be considered<sup>3</sup>**

## Central and Peripheral Oxygen Transmissibility Thresholds to Avoid Corneal Swelling During Open Eye Soft Contact Lens Wear

Philip B. Morgan,<sup>1</sup> Noel A. Brennan,<sup>2</sup> Carole Maldonado-Codina,<sup>1</sup> Walead Quhill,<sup>1</sup> Khaled Rashid,<sup>1</sup> Nathan Efron<sup>3</sup>

<sup>1</sup> Eurolens Research, Faculty of Life Sciences, The University of Manchester, Manchester, UK

<sup>2</sup> Brennan Consultants, Auburn Village, Australia

<sup>3</sup> Institute of Health and Biomedical Innovation, and School of Optometry, Queensland University of Technology, Queensland, Australia

Received 30 June 2008; revised 24 April 2009; accepted 27 May 2009

Published online 10 November 2009 in Wiley InterScience (www.interscience.wiley.com). DOI: 10.1002/jbm.b.31522

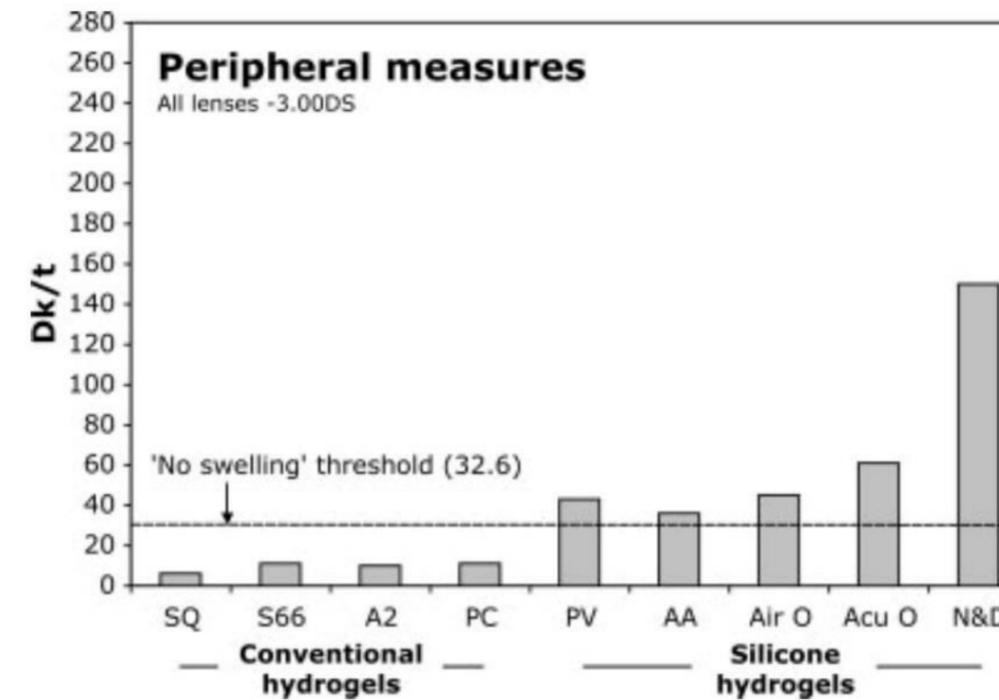
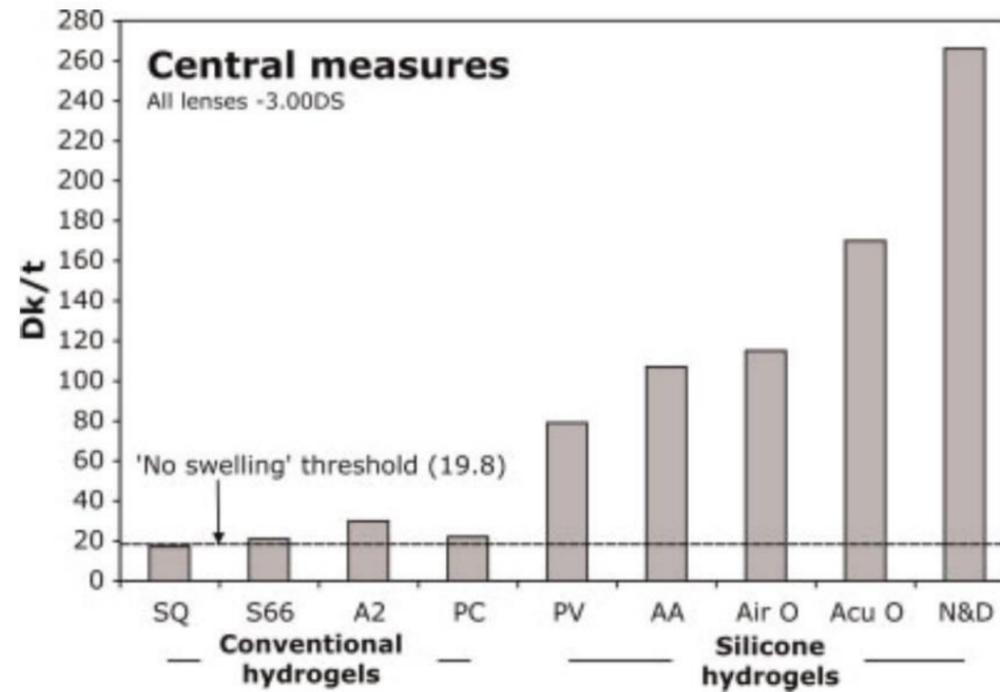
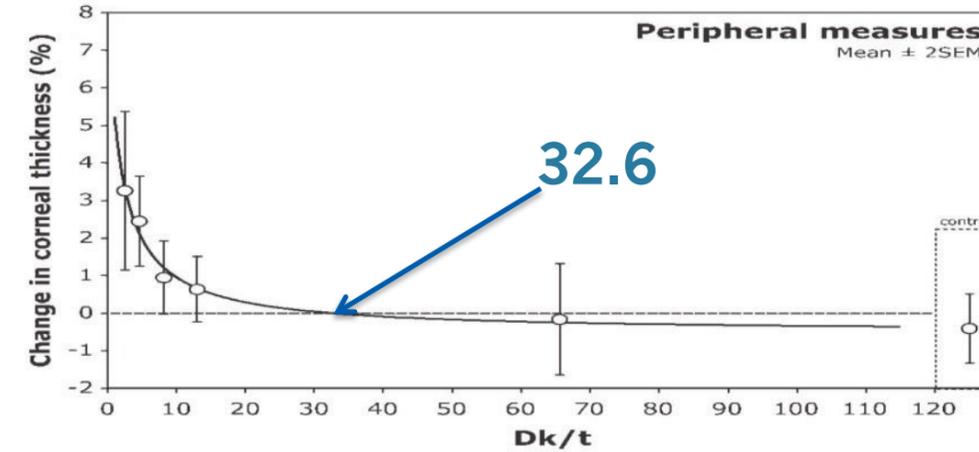
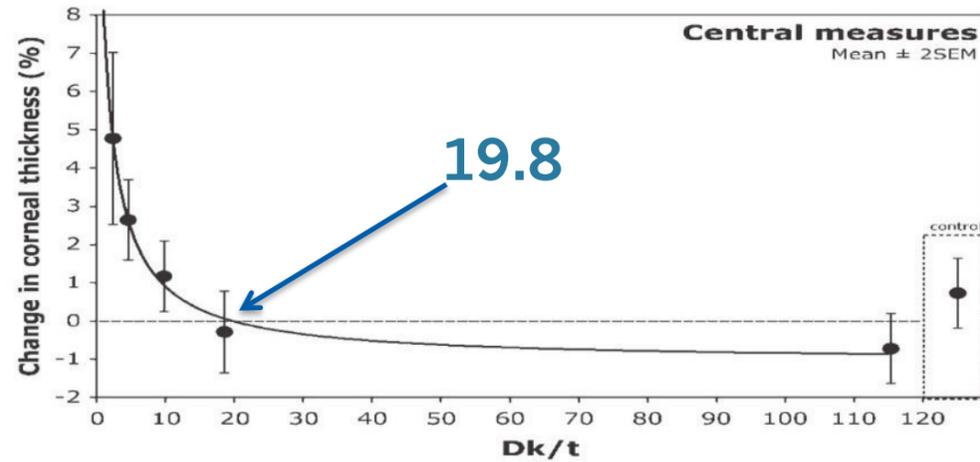


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1. Holden BA, McNally JJ, Mertz GW, Swarbrick HA. Topographical corneal oedema. *Acta Ophthalmol* 1985;63:684–691.
2. Holden BA, Mertz GW, McNally JJ. Corneal swelling response to contact lenses worn under extended wear conditions. *Invest Ophthalmol Vis Sci* 1983;24:218–226.
3. Morgan et al. Central and peripheral oxygen transmissibility thresholds to avoid corneal swelling during open eye soft contact lens wear. *Applied Biomaterials*. 2010;92:361–366.
- 5.

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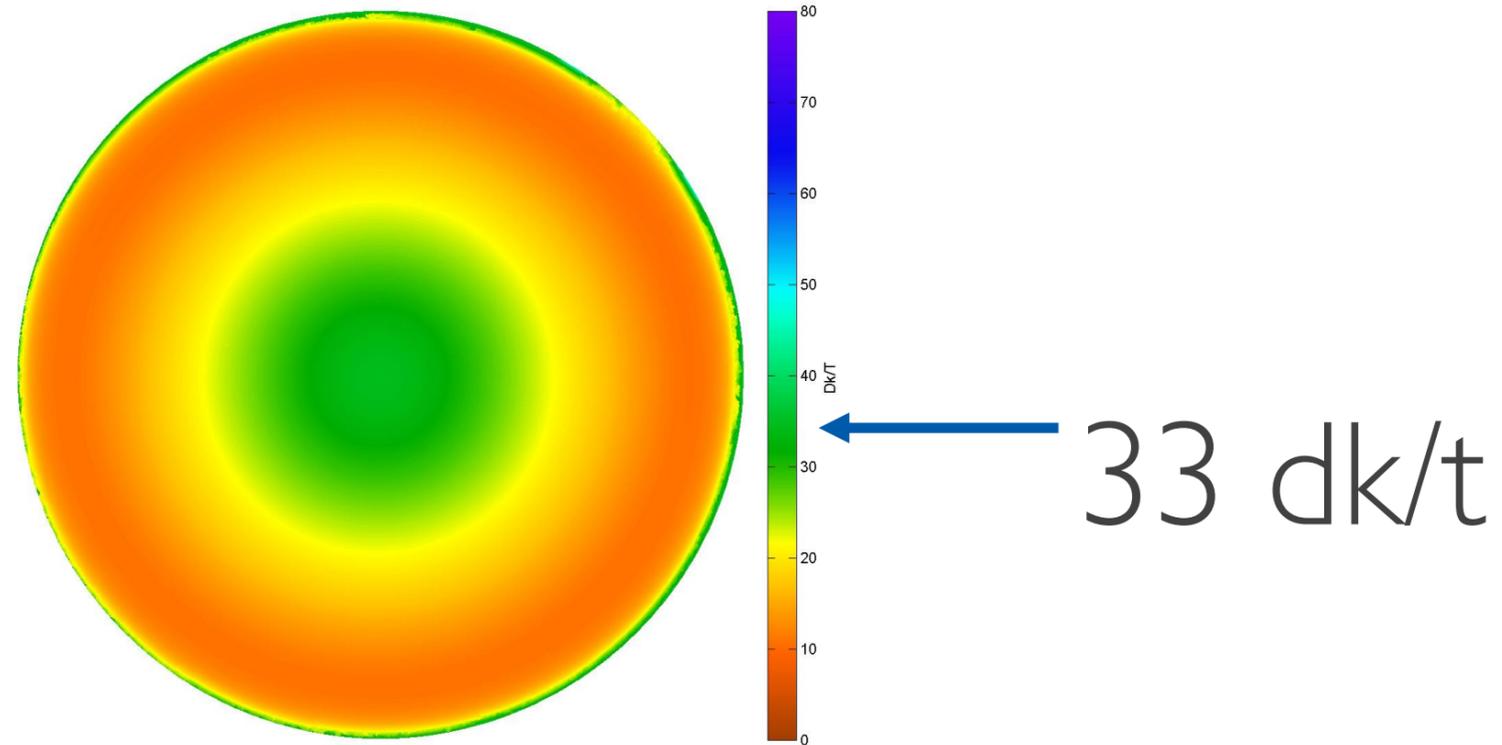
# Central and Peripheral Dk/t requirements



Figures reproduced from Morgan et al. Central and peripheral oxygen transmissibility thresholds to avoid corneal swelling during open eye soft contact lens wear. *Applied Biomaterials*. 2010;92:361-5.

33Dk/t in periphery to avoid corneal swelling

- “no conventional **hydrogel** soft lenses meet both the central and peripheral thresholds”
- “only the **silicone hydrogel** lenses offer the required level of Dk/t of 32.6 units”



# Progression of contact lens discomfort



# Case 5 - Jayne

Name: Jayne

Age: 56

Occupation: Retired



## Prescription:

RE: -4.50/-0.25x25 6/5

LE: -4.50 6/5

ADD: +1.00 N5

From eye exam 2 years ago

## History

- Recently took early retirement from work- was a call centre supervisor for an insurance firm
- Cycles every day, visits gym and does yoga regularly
- Lives in Spain for the winter months
- No other significant ocular history – used to wear contact lenses, stopped 10 years ago. Eyes were uncomfortable at work and it was easier to wear glasses to see at different distances.
- Sometimes feels eyes are dry.
- Mum (86) has 'macular'. Has had injections but still doesn't see well
- No medication



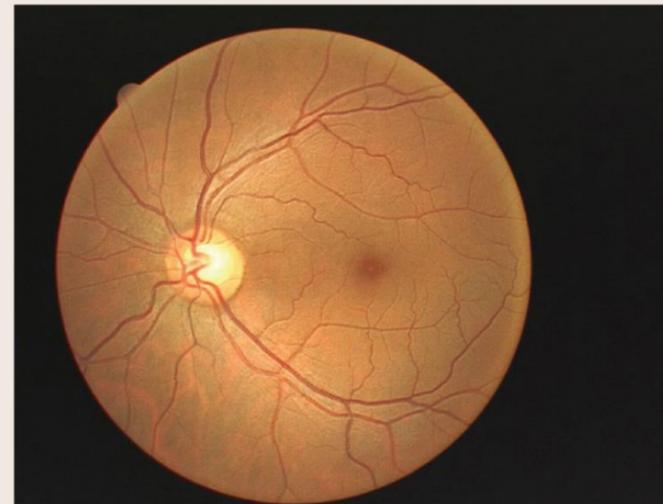
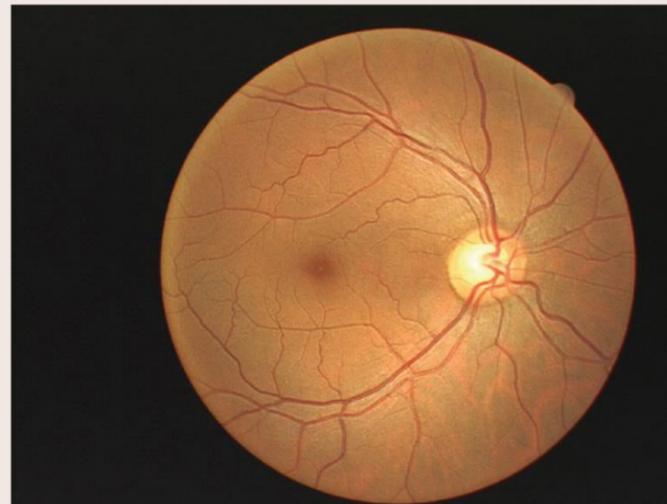
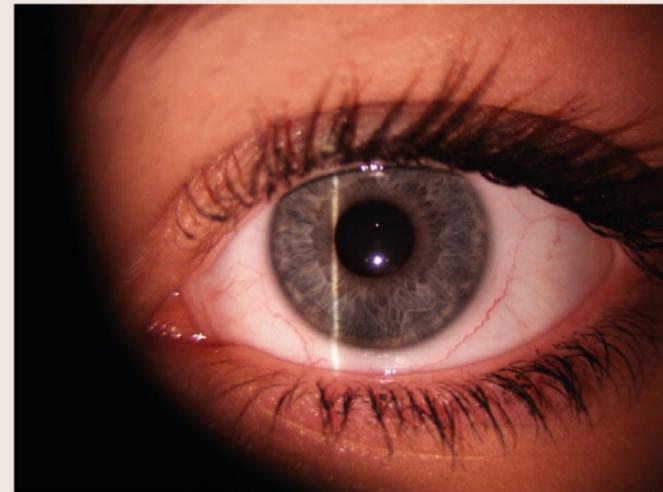
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# Case 5 - Jayne

## Clinical findings

- Prescription RE: -4.50/-0.25x25 6/5 Add +1.50 N5  
LE: -4.50/-0.25x180 6/5 Add +1.50 N5
- Very mild (grade 1) blepharitis R&L. Tear break up time R&L 7 seconds
- Anterior eye healthy (see image of RE)
- Fundus healthy (see image of RE)
- IOP RE: 17mmHg  
LE: 18mmHg
- Fields full both eyes: 3.2 0/26



# Case 5 - Jayne

Name: Jayne

Age: 56

Occupation: Retired



## Prescription:

RE: -4.50/-0.25x25 6/5

LE: -4.50 6/5

ADD: +1.00 N5

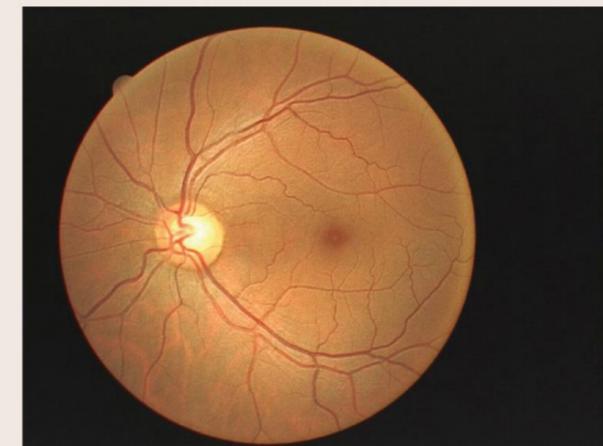
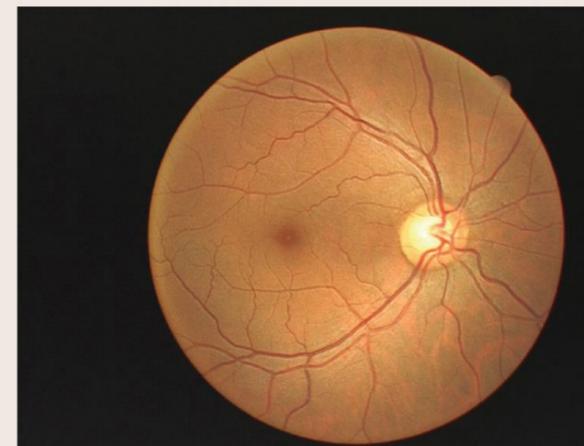
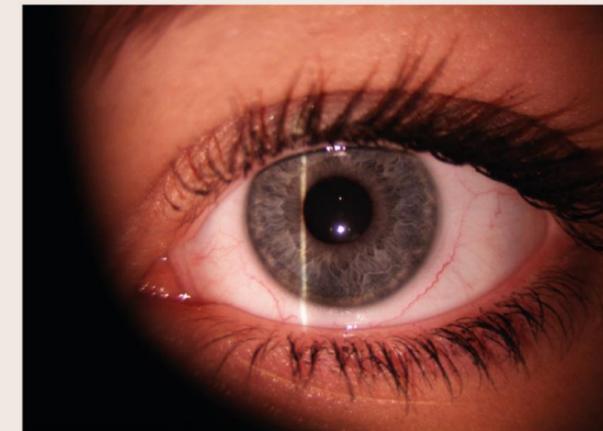
From eye exam 2 years ago

## History

- Recently took early retirement from work- was a call centre supervisor for an insurance firm
- Cycles every day, visits gym and does yoga regularly
- Lives in Spain for the winter months
- No other significant ocular history – used to wear contact lenses, stopped 10 years ago. Eyes were uncomfortable at work and it was easier to wear glasses to see at different distances.
- Sometimes feels eyes are dry.
- Mum (86) has 'macular'. Has had injections but still doesn't see well
- No medication

## Clinical findings

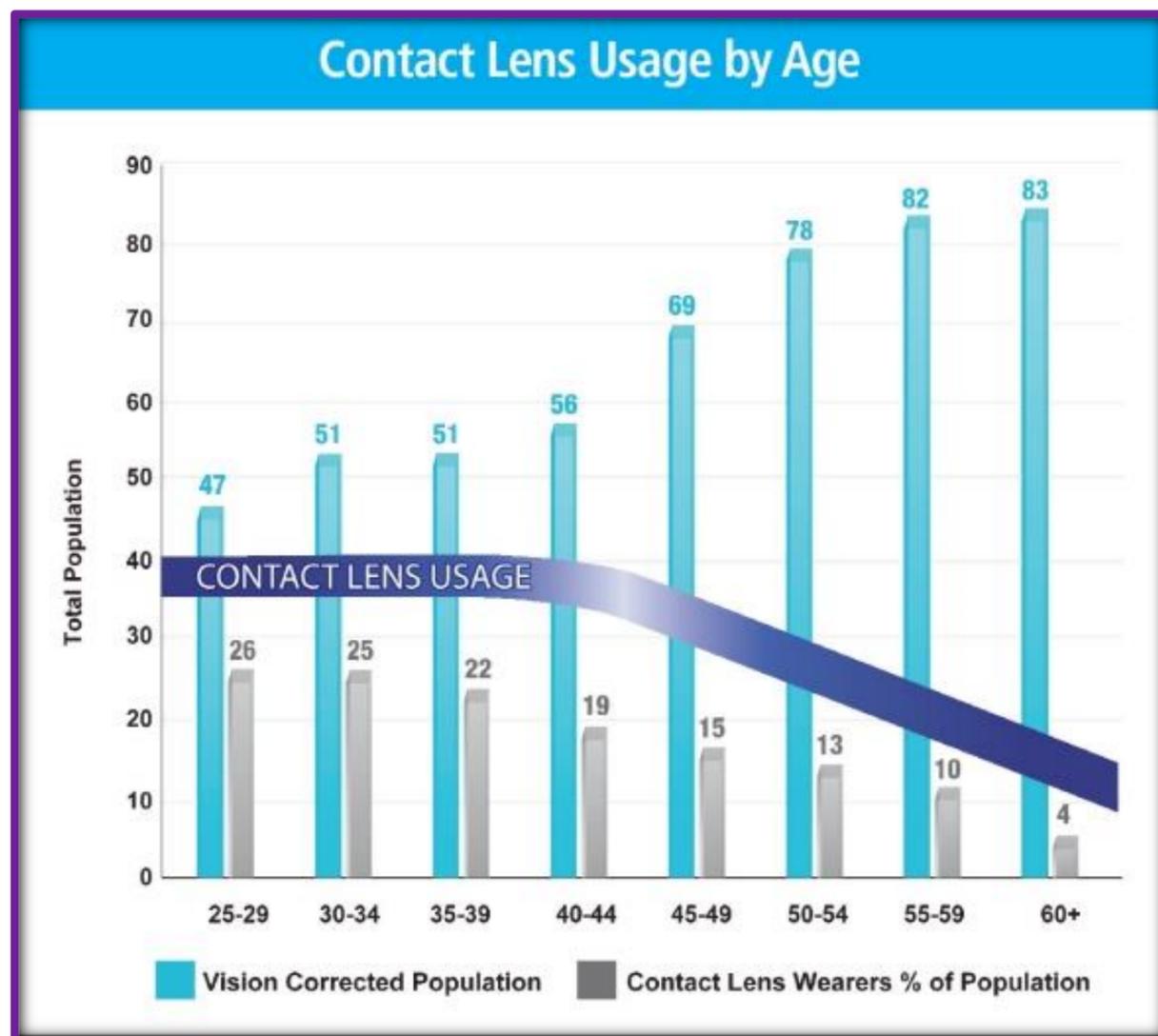
- Prescription RE: -4.50/-0.25x25 6/5 Add +1.50 N5  
LE: -4.50/-0.25x180 6/5 Add +1.50 N5
- Very mild (grade 1) blepharitis R&L. Tear break up time R&L 7 seconds
- Anterior eye healthy (see image of RE)
- Fundus healthy (see image of RE)
- IOP RE: 17mmHg  
LE: 18mmHg
- Fields full both eyes: 3.2 0/26



# Discussion Points

1. Why did Jayne drop out of contact lenses?
2. Were any opportunities missed in this consultation?
3. Are there any contra-indications to lens wear?
4. How would you explain that she might now be suitable for contact lenses again?
5. What lenses would you recommend for Jayne and how would you explain the benefits?

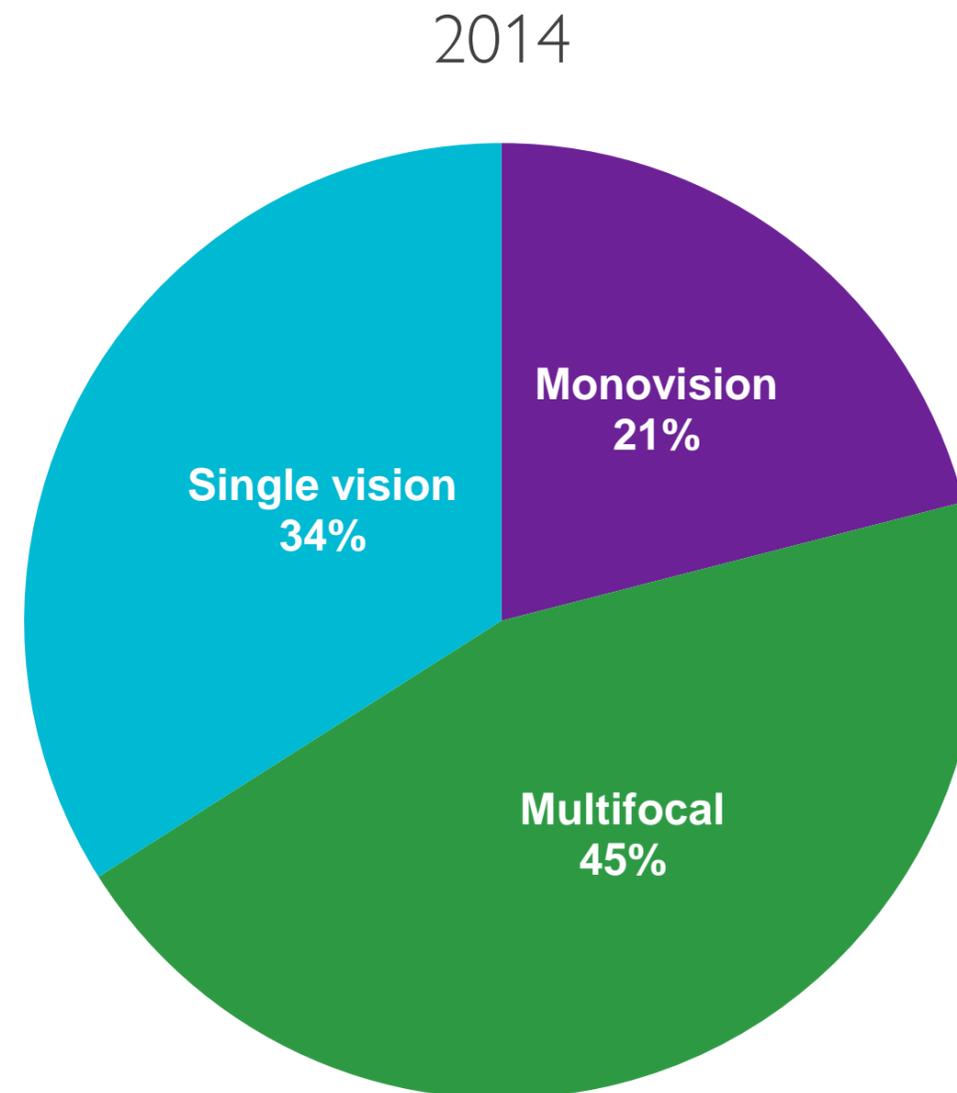
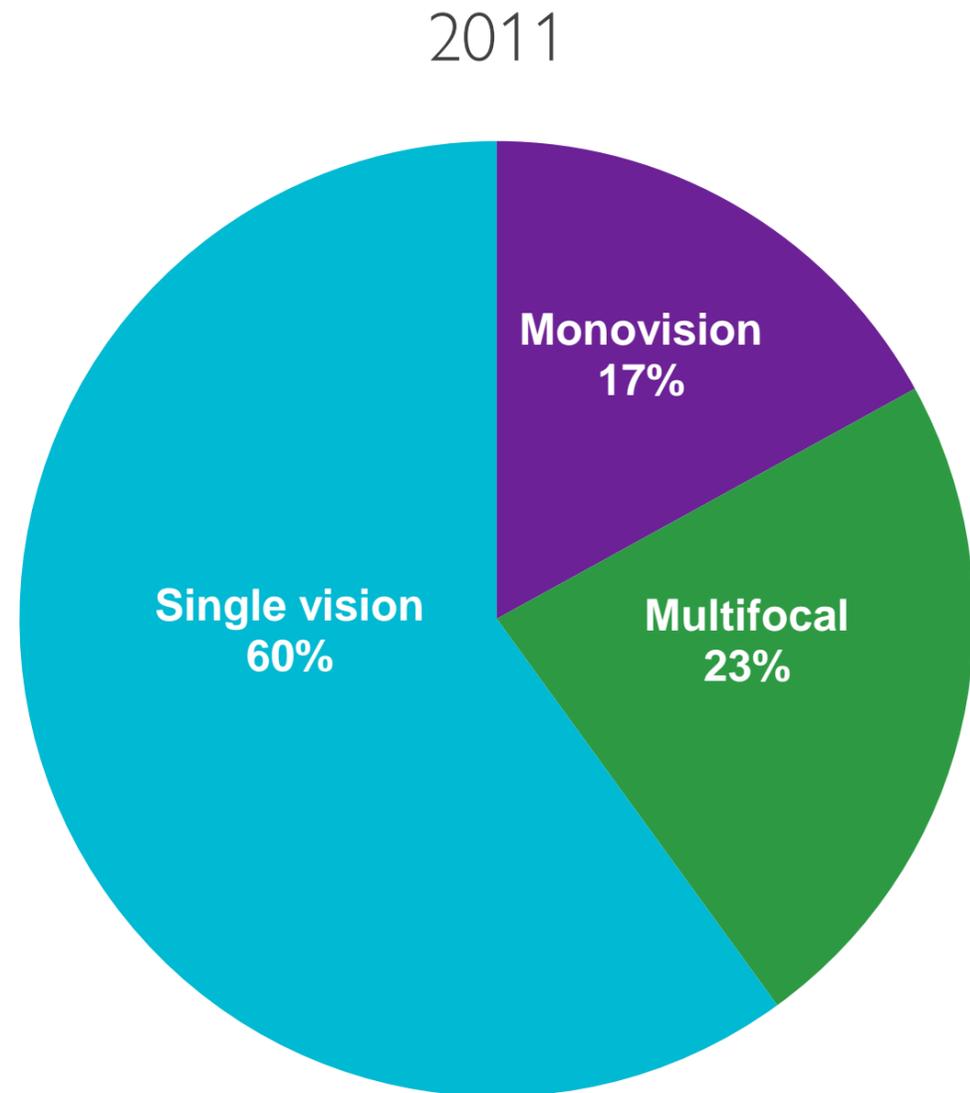
# Contact lens use by age



Ackerman CL Spectrum March 2010

- After 40 years of age, the onset of prebyopia brings about a marked rise in the use of specs
- However, at the same time the use of contact lenses drops significantly

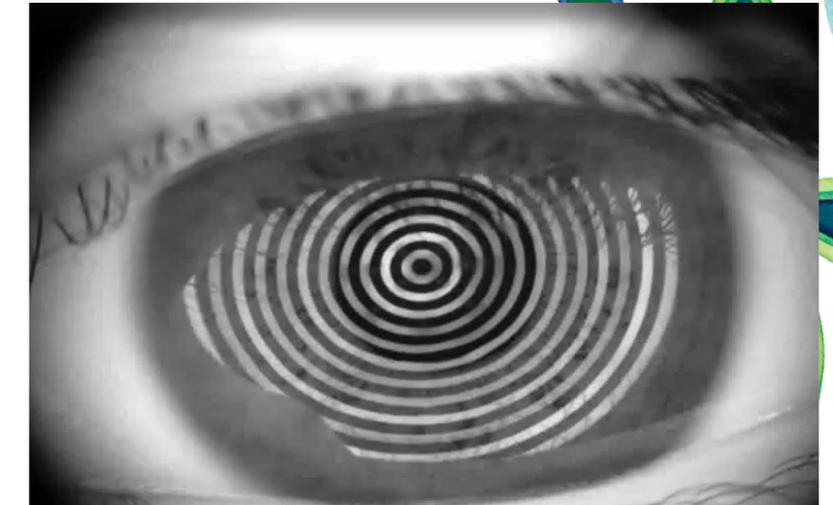
# UK presbyopic contact lens Wearers



Morgan, P. et al. International Contact Lens Prescribing 2011 and 2014. CL Spectrum.

# Retention Strategies for existing wearers

- R** recognise Px needs, expectations, symptoms & risk factors
- E** evaluation of vision, CL fit, CL & ocular surface
- T** trial new CLs, care systems &/or products
- E** ensure handling & correct compliance is discussed
- N** normalise their CL wear routine & replacement frequency
- T** treat & manage co-existing ocular surface disease/allergy
- I** improve environment/lifestyle demands & prescribe tear supplements
- O** obtain agreement on future compliance & review frequency
- N** new strategies to ↑ engagement, motivation, satisfaction & to identify changing needs



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Thank you

