



Meibometry: Contact Lens Discomfort - CLD Management

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WORKING TEAM

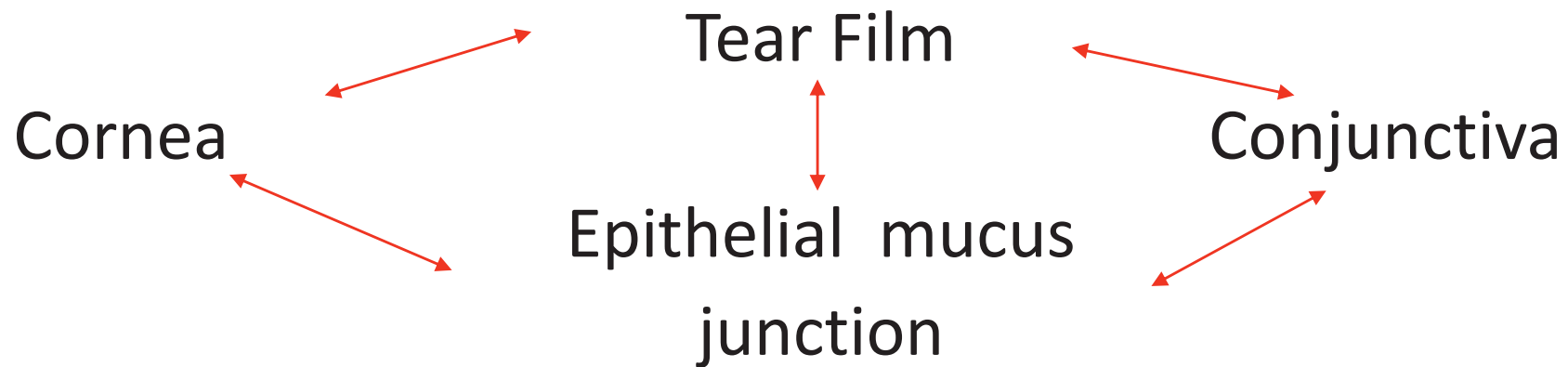


Francesco Cimolato, OD
Assistant Optometrist University of Padova



Prof. Luca Stanco
Statistical - University of Padova

Functional relationships between ocular surface structures



Tear Film: transport, nutrition, cleaning, defense

Cornea: stimulus for protection and cleanliness

Conjunctiva: defense, immune response, repair

Epithelial mucus junction: thickness and regularity control of the tear film, barrier to external contaminants

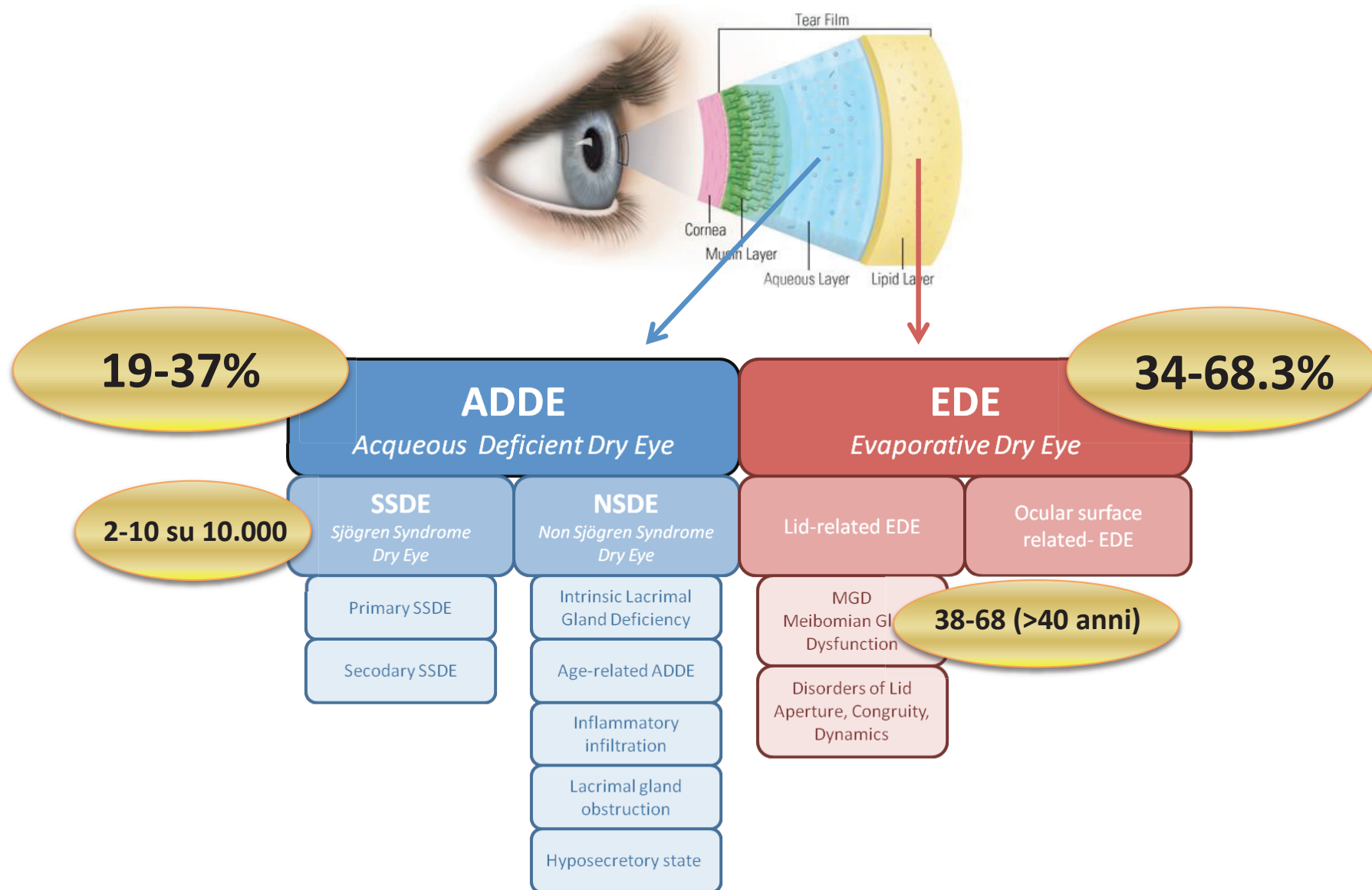
INTRODUCTION

DED definition:

"Dry eye is a multifactorial disease of the ocular surface characterized by loss of tear film homeostasis and accompanied by ocular symptoms, in which tear film instability, hyperosmolarity, inflammation and damage to the ocular surface, and neurosensory abnormalities, play etiological roles".

*Craig et al., TFOS DEWS II Definition and Classification Report.
The Ocular Surface, 2017; 15: 276-283.*

ETIOLOGIC CLASSIFICATION AND EPIDEMIOLOGY OF DED



CLD Definition

*TFOS defined the **Contact Lens Discomfort** as a condition characterized by an **adverse** persistent or occasional **ocular reaction**, **during contact lens wear**, due to an **incompatibility** between the lens and the ocular surface, and which may lead to a **reduction** or **a complete suspension of the use** of lenses.*



CLD epidemiology

Out of 135 million contact lens wearers, 50% complain of dryness and irritability at the end of the day.

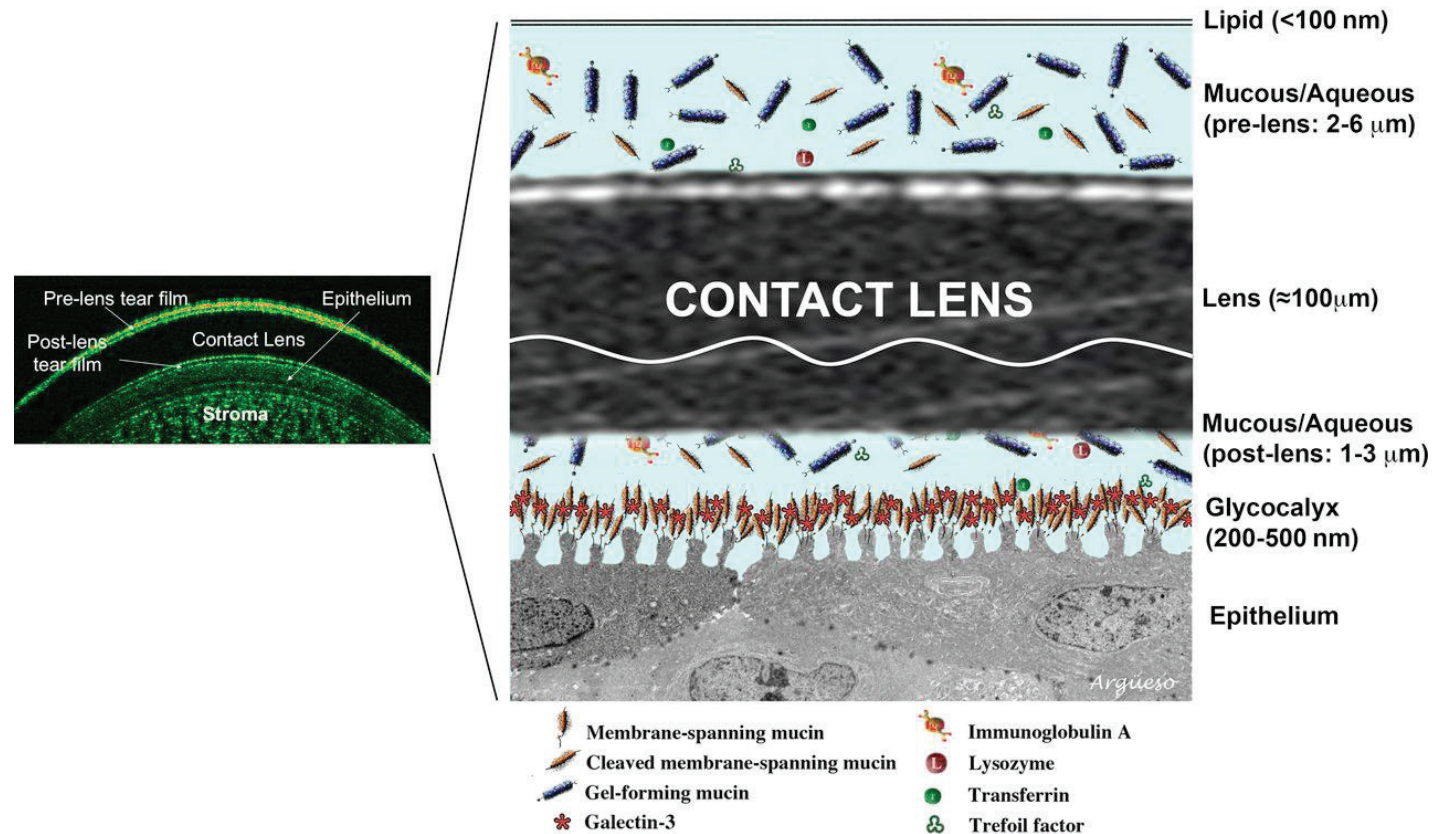


25% suspend its use.

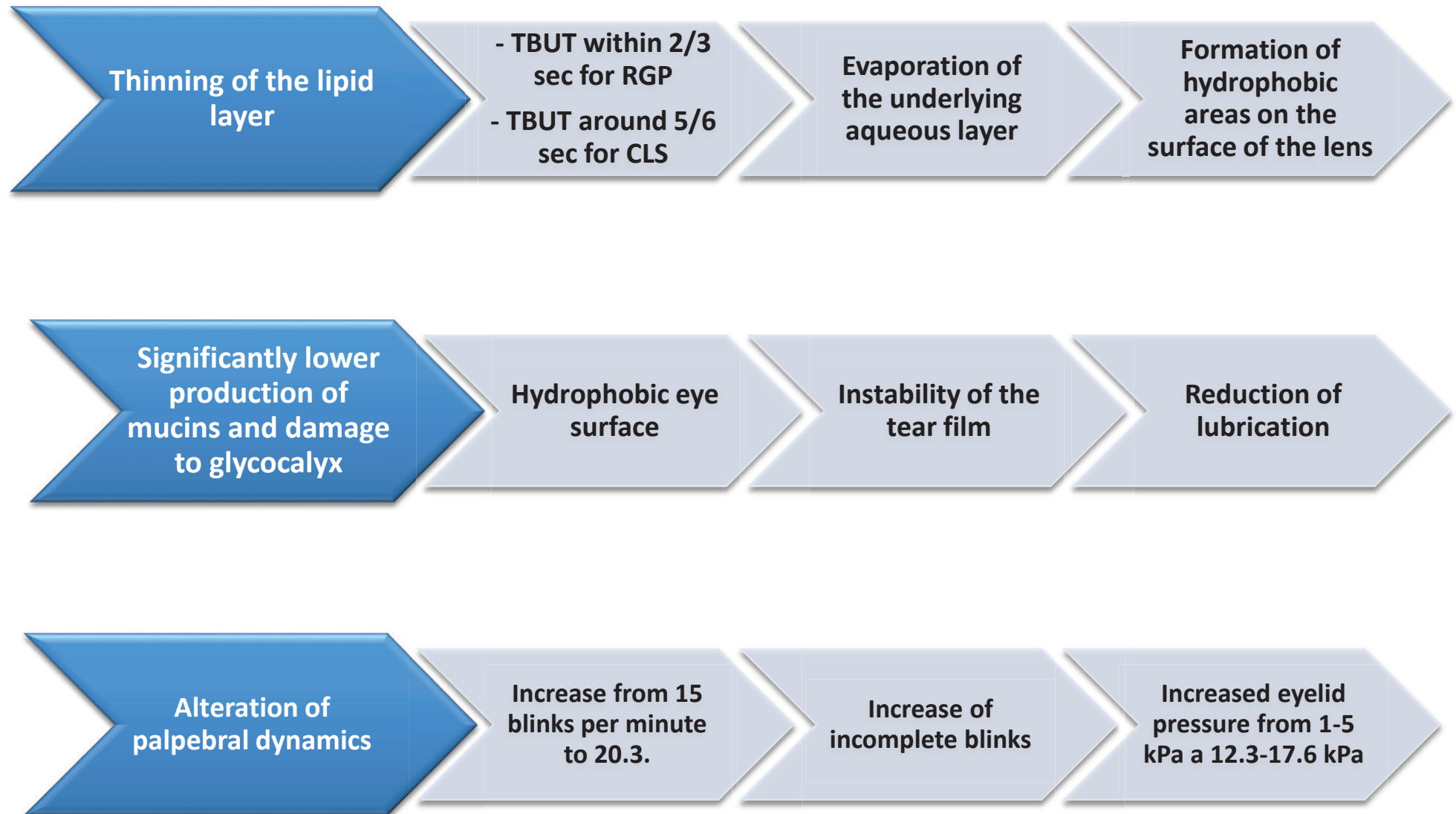
25% reduces the frequency of use.

What happens when a contact lens is worn?

The contact lens rests on the ocular surface immersed in the tear fluid, which separates in two: the PLTF and the POLTF.

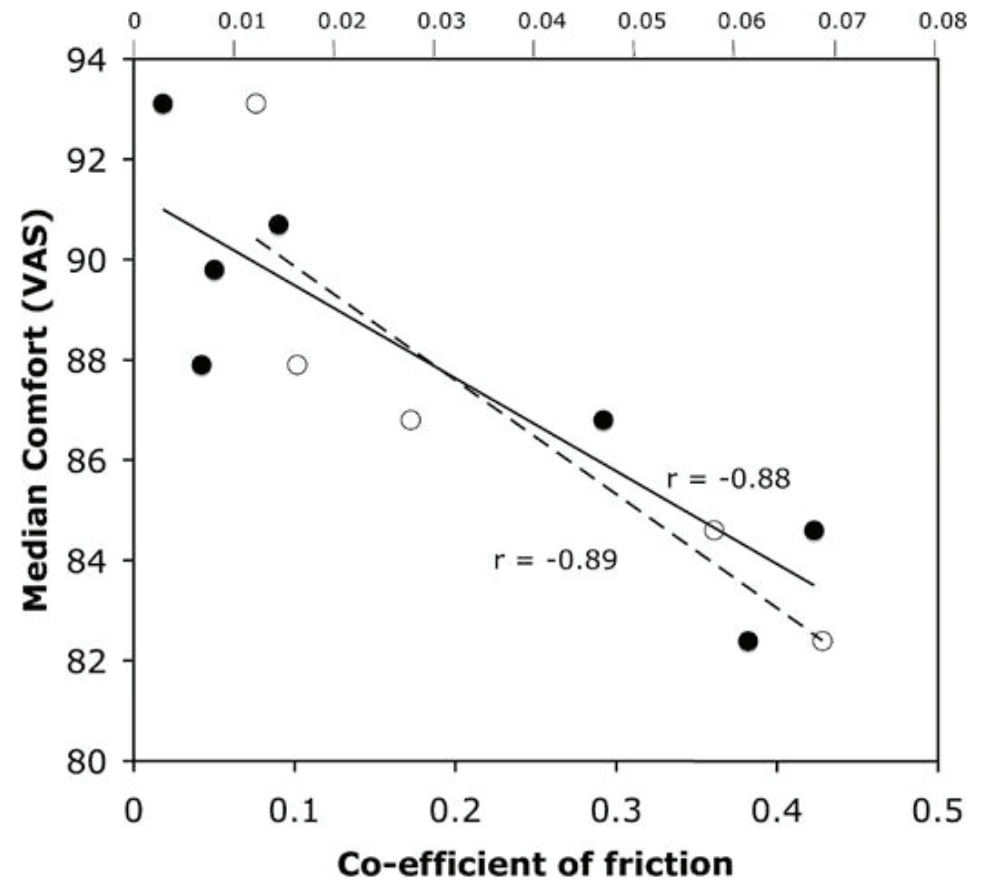


Alterations that can be caused by a lens

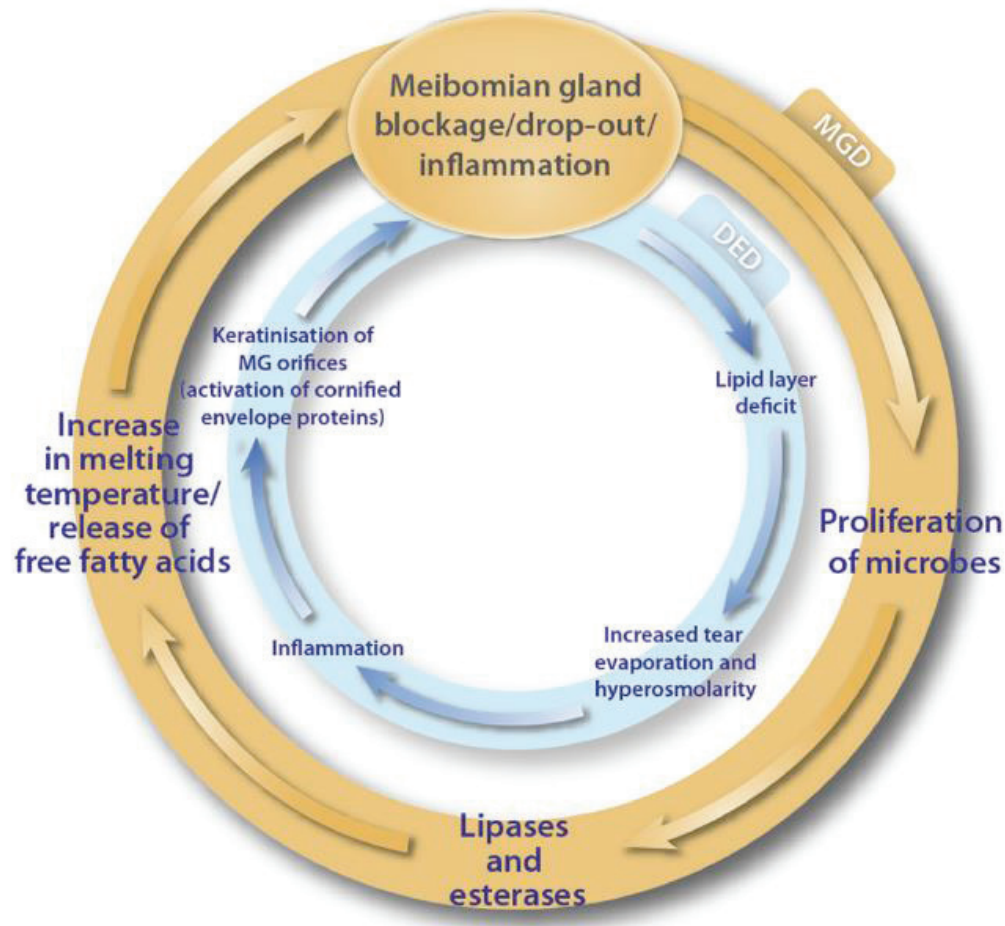


What causes CLD?

The recent report by Tear Film and Ocular Surface on contact lens discomfort, reported that ***friction is currently the only variable***



MDG incidence on dry eye

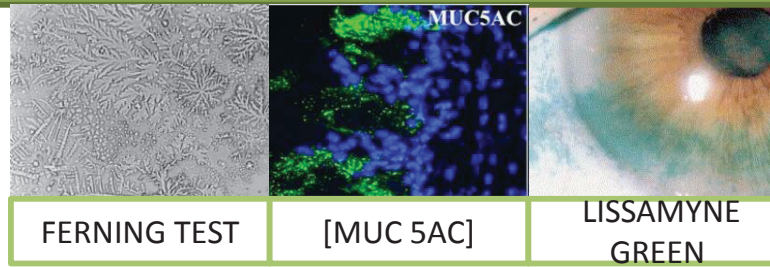


In the last 8 years, 50% of the articles (MEDLINE source) on DED refer to the MDG

60% of Asians suffer from DED
25% of Caucasians suffer from DED

Emerging strategies for the diagnosis and treatment of meibomian gland dysfunction:
Proceedings of the OCEAN group meeting. The Ocular Surface 15 (2017) 179, 192

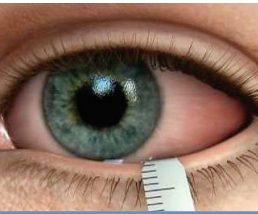
MUCINIC COMPONENT



FERNING TEST

[MUC 5AC]

LISSAMYNE GREEN



SHIRMER I and II



PHENOL RED THREAD

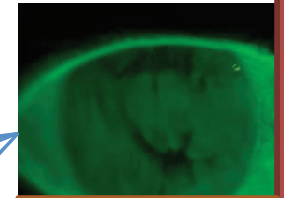


MENISCOMETRY



OSMOLARITY

AQUEOUS COMPONENT



TBUT



IRREGULAR MARGINS

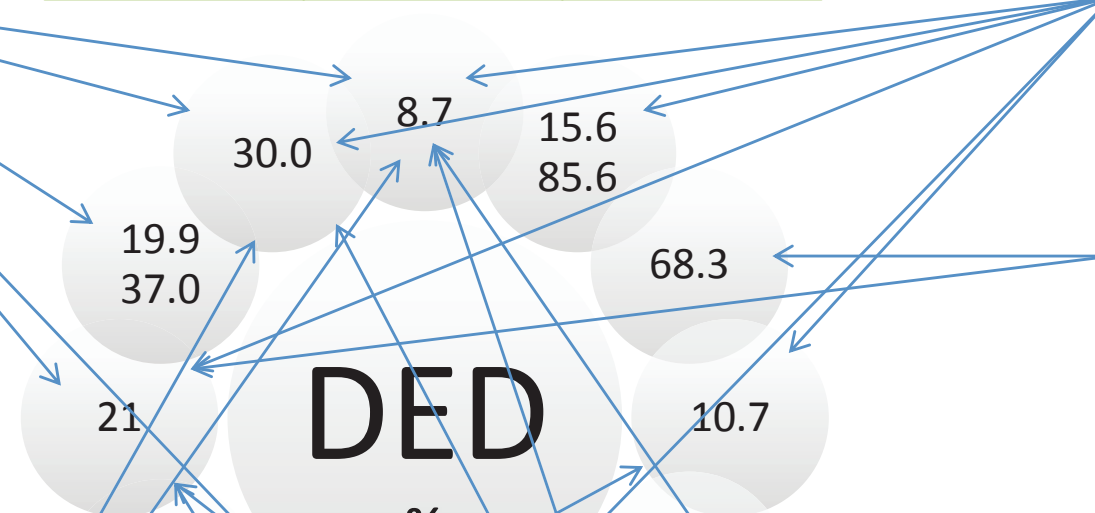


TEARSCOPE



MEIBOGRAPHY

LIPID COMPONENT



SYMPTHOMS

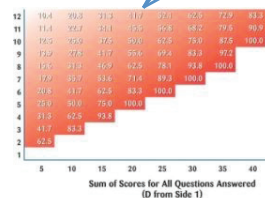
(18.3 - 58.8) %

CLINICAL SIGNES

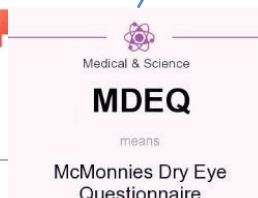
(15.6 - 85.6) %

SYMPTHOMS AND SIGNES

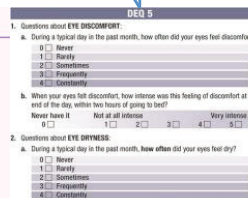
(8.7 - 30.1) %



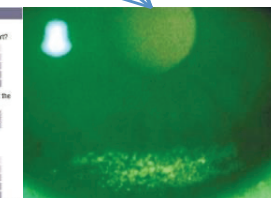
OSDI



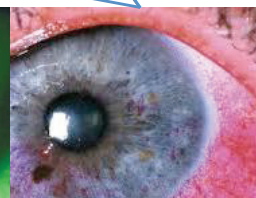
MCMONNIES



OTHER QUEST.



STAINING FLUO



BENGALA RED

SYMPTOMATOLOGICAL AND INTEGRITY TESTS

SCOPE of pre-test

Evaluate patients' "cultural and cognitive trustworthiness" understanding of dry eye questionnaires (McMonnies and OSDI) in self- administration, during an Eye Hospital visit.

Pre-test MATERIALS AND METHODS: Population



All patients Ophthalmology Hospital in Ravenna :

- 88 patient Refraction only
- Age: from age 27-58 years 49 females and 39 males
- Qualification: secondary school



Exclusion criteria

Ocular diseases

Use of systemic and ophthalmic drugs

Use of eye drops

Use contact lenses

Questionnaires: symptomatic diagnosis

OSDI

- self-administered
- 12 questions
- only **symptoms**
- **Cut-off** (Shiffman et al, 2000):

- 0-12= no DED
- 13-22= slight DED
- 23-32= moderate DED
- 33-100 = severe DED

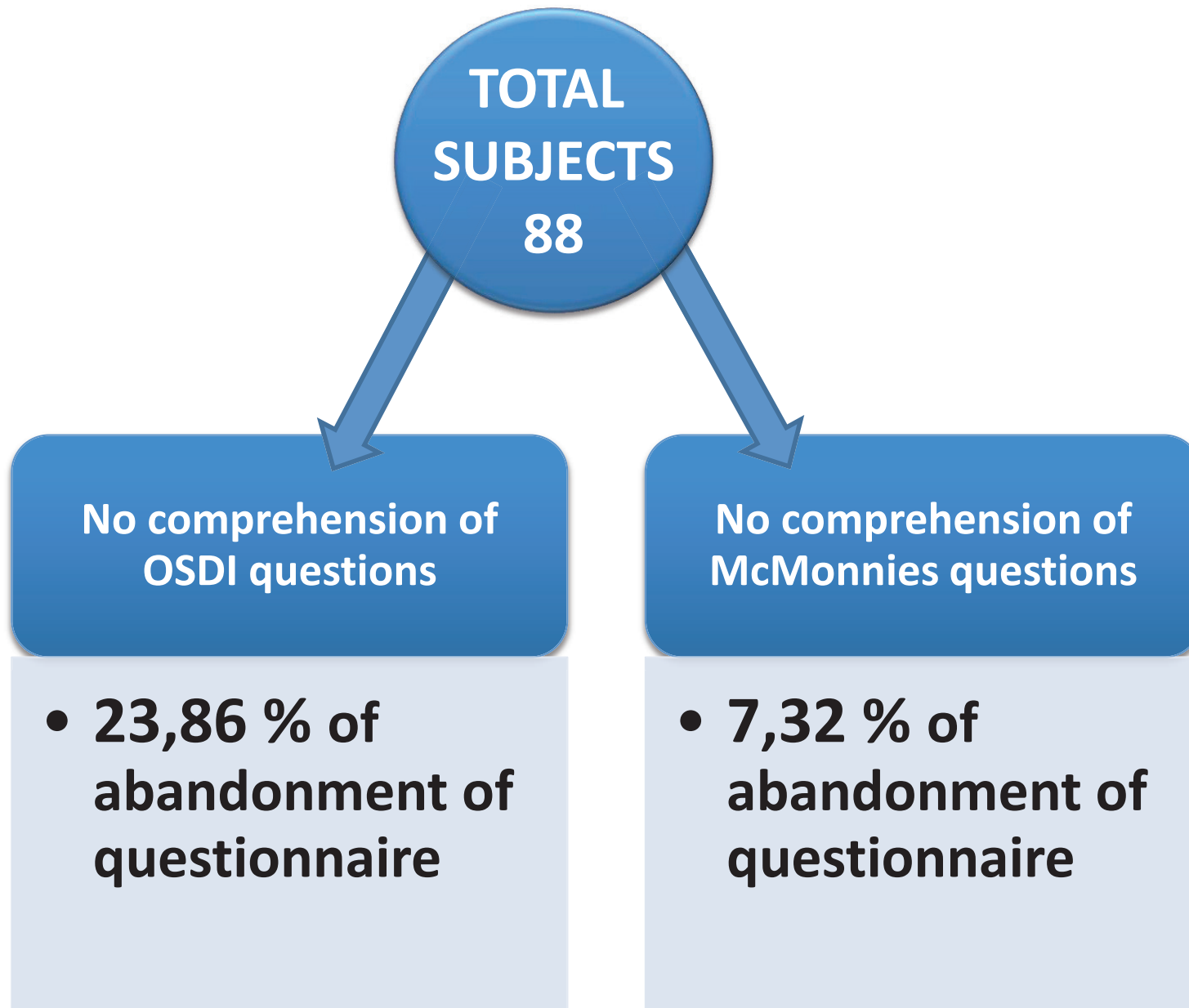
- sensibility **80%**
- specificity **79%**
- **staging** of DED

McMonnies

- self-administered
- 14 questions
- not only symptoms
- **Cut-off** (McMonnies et al, 1998):

- 0-9 = no DED
- 10-19 = marginal DED
- >20 = severe DED

- sensibility **87-97%**
- specificity **48-97%**
- DED **screening**



Materials and methods:

the questionnaire factors of misunderstanding

OCULAR SURFACE INDEX (OSDI) Copyright 1995 Allergan

For each question, please tick the box of the answer that best represents your condition.

During the past week they've suggested they've had:

	Always	Almost always	Half of the time	Sometimes	Never
1. eyes sensitive to light					
2. feeling of sand in the eyes					
3. eye pain or irritation					
4. blurred vision					
5. insufficient vision					

During the past week they have had problems performing some of these actions:

	Always	Almost always	Half of the time	Sometimes	Never	No response
6. reading						
7. driving at night						
8. working on the computer						
9. watching TV						

Over the past week they have experienced eye discomfort in some of these situations:

	Always	Almost always	Half of the time	Sometimes	Never	No response
10. windy conditions						
11. visiting very dry places						
12. visiting places with air-con						

Materials and methods



All patients Ophthalmology Hospital in Ravenna :

- 63 patient Refraction only
- Age: from age 17-83 years 43 females and 20 males
- Qualification: secondary school



Exclusion criteria

Ocular diseases
Use of systemic and ophthalmic drugs
Use of eye drops
Use contact lenses

Ocular Surface Disease Index 6: OSDI 6

Dr. Heiko Pult & Prof. Dr. James Wolffsohn

Please answer the following questions by circling the numbers in the boxes

	Constantly	Mostly	Often	Sometimes	Never
Have you experienced any of the following <i>during a typical day of the last month?</i>					
1. Eyes that are sensitive to light?	4	3	2	1	0
2. Blurred vision?	4	3	2	1	0
Have problems with your eyes limited you in performing any of the following <i>during a typical day of the last month?</i>					
3. Driving at night?	4	3	2	1	0
4. Watching TV (or similar)?	4	3	2	1	0
Have your eyes felt uncomfortable in any of the following situations <i>during a typical day of the last month?</i>					
5. Windy conditions?	4	3	2	1	0
6. Places or areas with low humidity?	4	3	2	1	0

Sum of all questions: _____

Likely Dry Eye if total sum ≥ 4

Normal



4



Dry Eye

Me-Check Meibography



McMonnies

+



meibografia

+



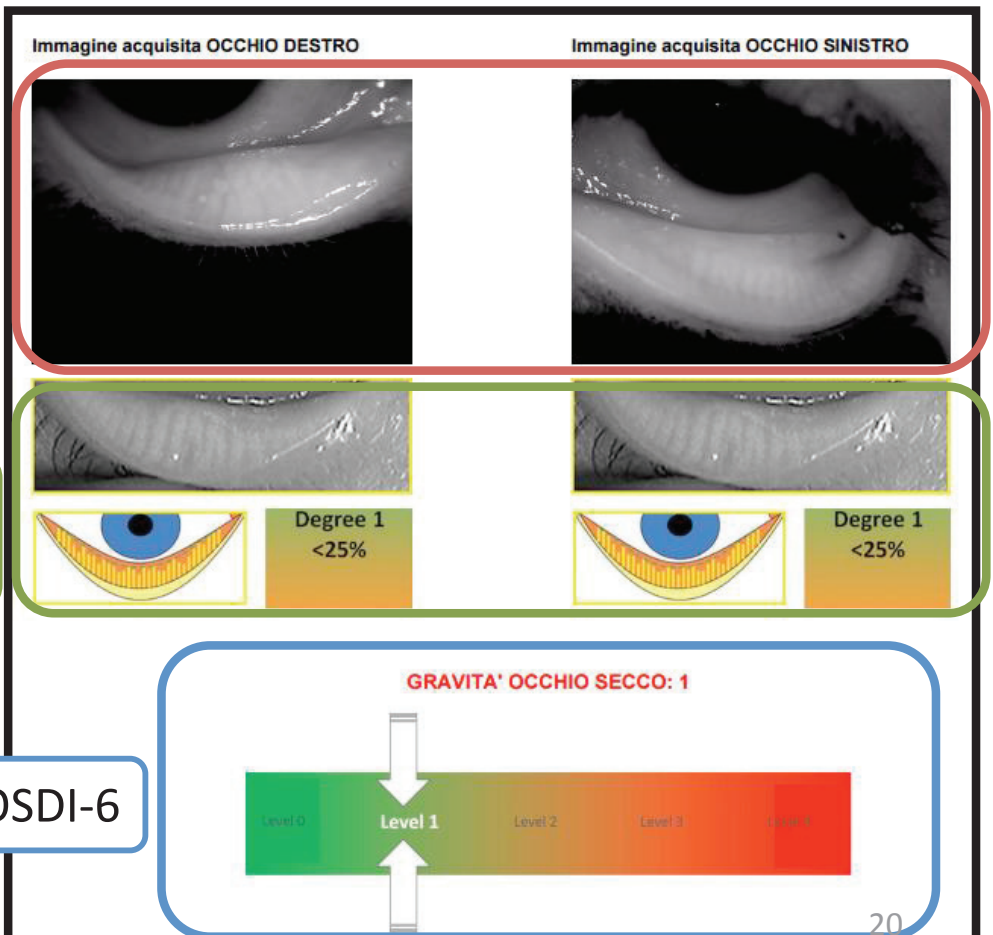
OSDI-6



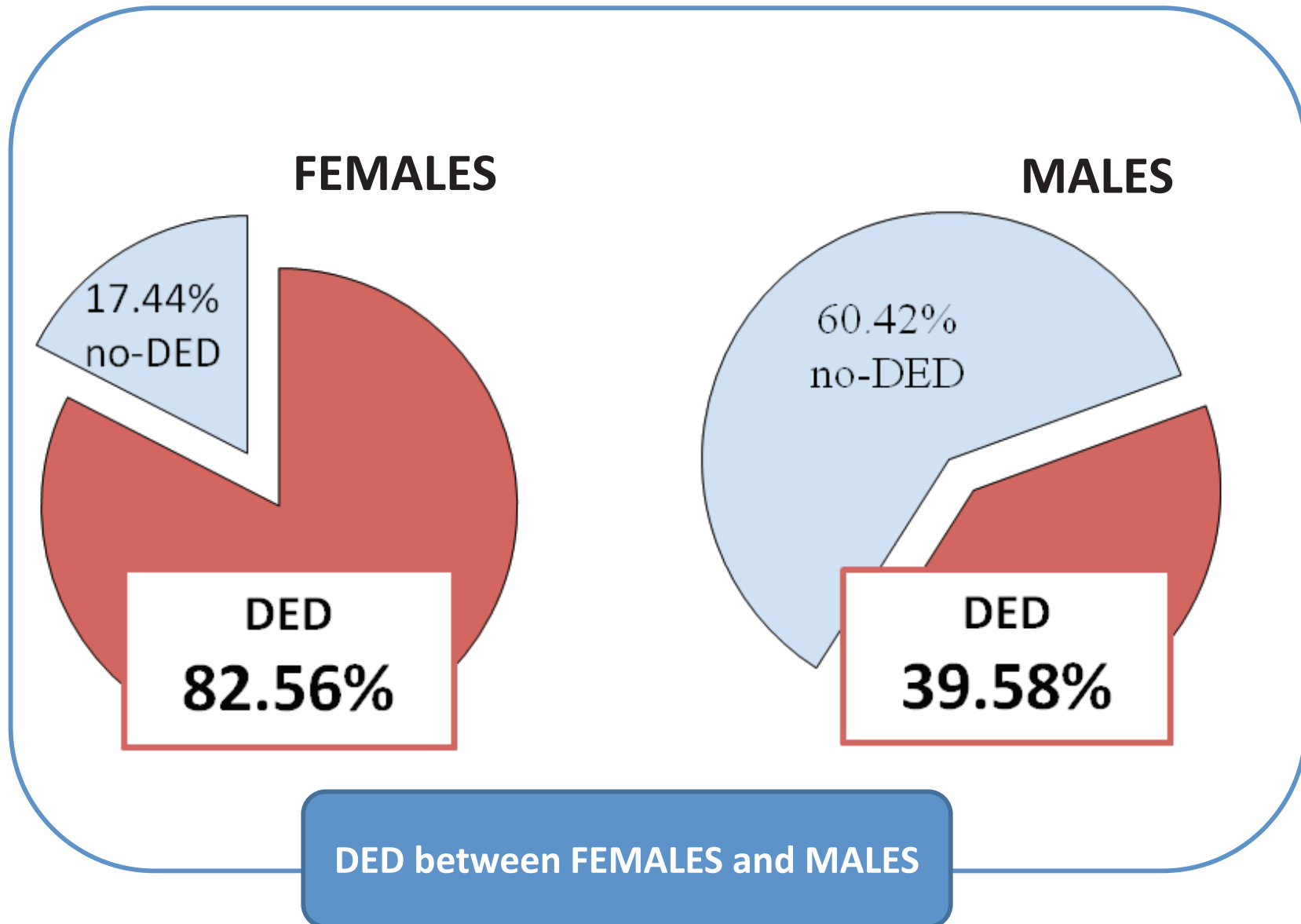
IR PICTURE

MEIBOSCALE
DR.PULT

OSDI-6

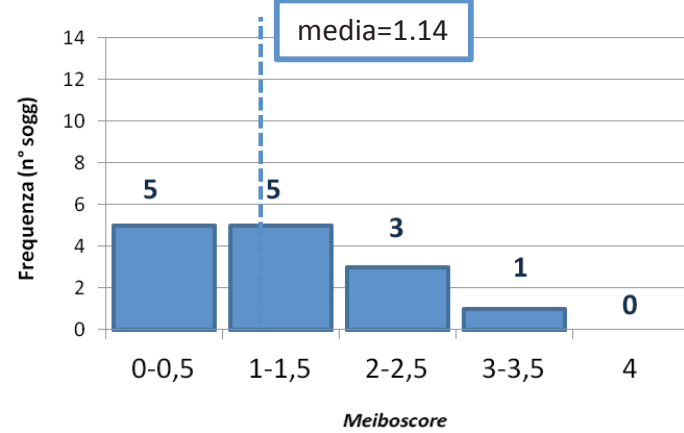


DED

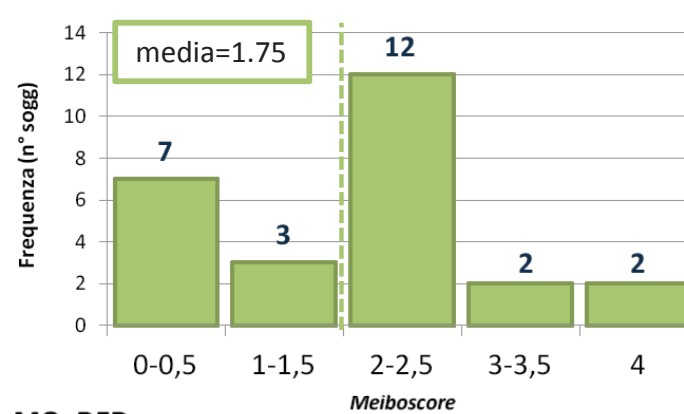


Questionnaires-Meiboscale

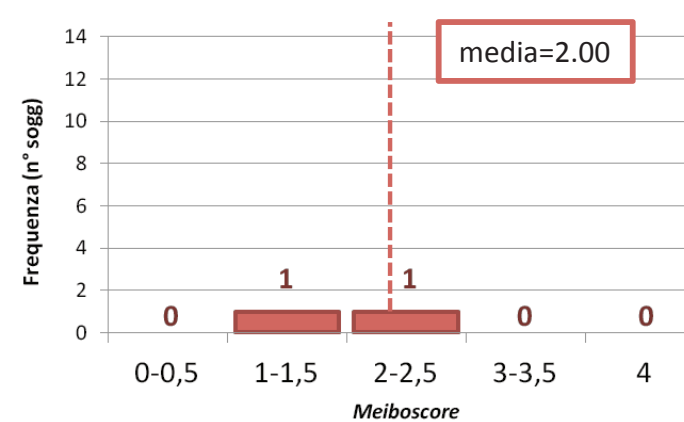
MQ=normale



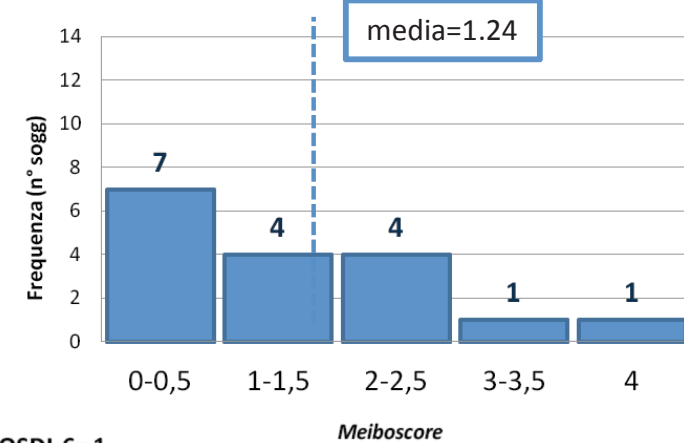
MQ=DED marginale



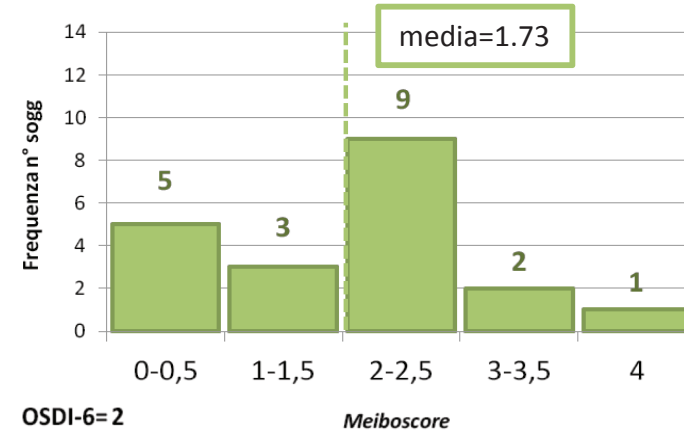
MQ=DED severo



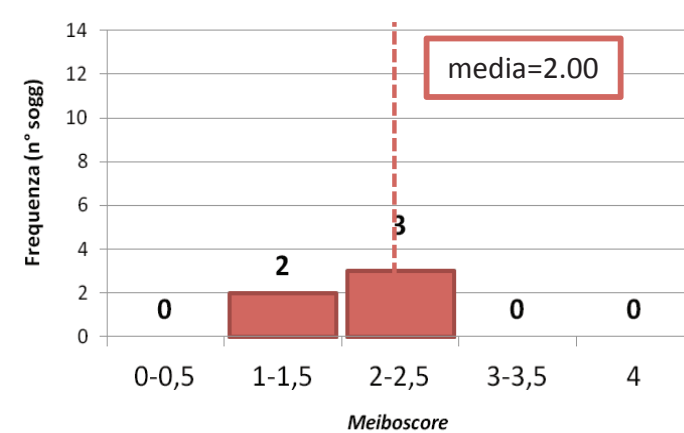
OSDI-6= 0



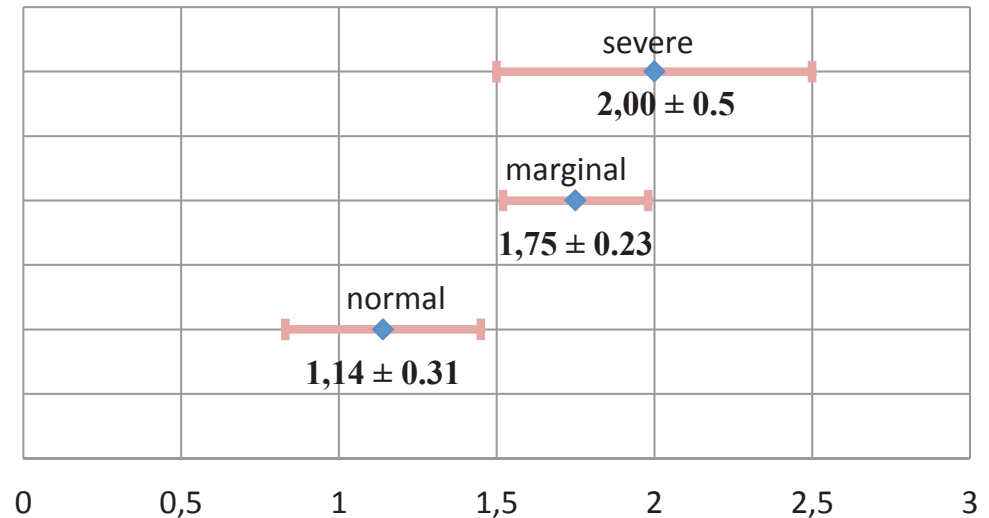
OSDI-6= 1



OSDI-6= 2



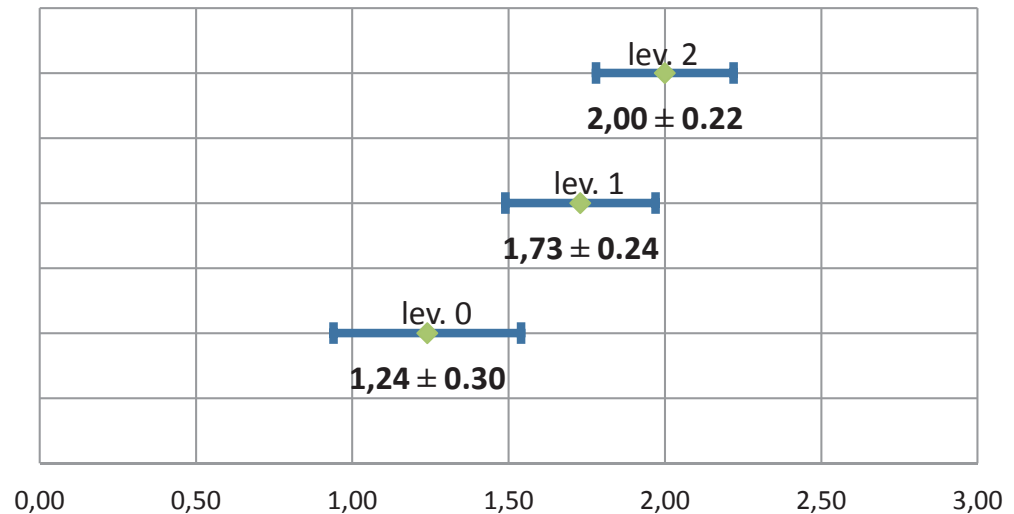
<i>McMonnies</i>	RANGE	DS
Surface. normal	1,14	0,31
Marginal DED	1,75	0,23
Severe DED	2,00	0,50



Meiboscore-McMonnies

<i>OSDI-6</i>	RANGE	DS
level 0	1,24	0,30
level 1	1,73	0,24
level 2	2,00	0,22

<i>Z-TEST</i>	<i>Z</i>	Probability to differ (%)
levels 0-1	1,28	89,98
levels 1-2	0,51	69,50
levels 0-2	2,04	97,72



Meiboscore-OSDI 6

McMonnies not defined?

Hindawi Publishing Corporation
Journal of Ophthalmology
Volume 2016, Article ID 6210853, 6 pages
<http://dx.doi.org/10.1155/2016/6210853>

Research Article

Diagnostic Performance of McMonnies Questionnaire as a Screening Survey for Dry Eye: A Multicenter Analysis

Yuxin Guo, Rongmei Peng, Kang Feng, and Jing Hong

Department of Ophthalmology, Peking University Third Hospital, 49 North Garden Road, Haidian District, Beijing 100191, China

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Over 28.000 patients. To asses the efficacy it is probably necessary to use different cut-offs

The choice of the Manufacturer to associate OSDI-6 to the meibography, seems to be efficient:

- ✓ *Meiboscore* greater **correlation with OSDI-6 levels**. Correlation with McMonnies only between grade 0 and 1;
- ✓ OSDI-6 **faster** to perform.

Comparing results with Arita et al. (2009) it is supposed that the diagnostic significance of the instrument is not in the **differential diagnosis** between DED and non DED, but a good sensibility/specificity between MGD and ADDE.

- ✓ Implement the evaluation of lid margins
- ✓ More studies needed

Non-contact Meibography with IR

- Prevalence of *meiboscore* >2 (gland *dropout*) **in line with the prevalence of MGD in literature**: more particularly in the combination with OSDI-6;
- **increase** of *meiboscore* mean values in parallel with **age**;
- In females there is a **greater** overall incidence as observed in literature

Thank you very much for your
attention