

## Abstract

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Title: Evaluation for the morphology and function of Meibomian gland and the tear film parameters in Junior high school students.

Purpose: To evaluate the morphological changes, function of meibomian glands and tear film parameters in Junior high school students(15 years old).

Methods: One hundred eleven students in 15 years old (56 men, 55 women) were recruited at physical examination at Junior high school. Examinations were performed sequentially as follows. 1) ocular symptom score (0-14). 2) questionnaires regarding study and visual display terminals (VDTs) (study hour). 3) lid margin abnormality score (0-4). 4) conjunctival and corneal staining score (0-9)(fluorescein score). 5) tear film break-up time (TBUT). 6) meiboscore (0-6) using non-invasive meibography. 7) meibum score (0-3). 8) lipid layer thickness (LLT) using LipiView (TearScience Inc, Morrisville, NC). 9) tear-film production by Schirmer's test without anesthetic. The correlations among the parameters were calculated using Pearson correlation coefficient analysis.

Results: The mean? average? (中間値か平均値かどちらですか?) values (standard deviation) were ocular symptom score; 3.7(2.3), lid margin score; 0.1(0.3), fluorescein score; 1.1(1.4), TBUT; 8.6(7.2), meiboscore; 2.8(1.2), meibum score; 1.8(1.2) and Schirmer's test; 20.2(11.5). There was a significant correlation between study hour and meibum score ( $r=0.20$ ,  $p=0.038$ ), study hour and symptom score ( $r=0.33$ ,  $p=0.0004$ ), meiboscore and meibum score ( $r=0.30$ ,  $p=0.0015$ ), and meiboscore and LLT ( $r=0.27$ ,  $p=0.004$ ). Also, there was a significant correlation between TBUT and meibum score ( $r=-0.33$ ,  $p=0.0004$ ), and TBUT and LLT ( $r=0.32$ ,  $p=0.0005$ ).

Conclusion: Our data indicated that changes of morphology and function of meibomian glands might be developed even in 15 years old.