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A link between tear breakup and symptoms of ocular irritation

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FOOTNOTES

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ABSTRACT

Purpose. We used the presence or absence of a soft contact lens (CL) as a barrier to test the hypothesis that tear breakup (TBU) presents a direct noxious stimulus to the ocular surface.

Methods. Ten subjects kept one eye open as long as possible, termed *sustained tear exposure* (STARE), for 10 consecutive trials while discomfort was monitored with and without a CL in place. The area of TBU was quantified in each frame. Discomfort was measured during and after each STARE trial and symptoms of ocular irritation were assessed before and after all testing.

Results. TBU increased at the end of trials to an average of 19.89% ± 17.91% and 20.58% ± 15.33% and discomfort to 9.09 ± 1.44 and 1.97 ± 2.19 in trials without and with a CL, respectively. Discomfort was significantly higher during trials without CLs (Friedman test, $p<0.005$), but there was no significant difference in the area of TBU between trials (Friedman test, $p=0.296$) with and without a CL (Friedman test, $p=0.527$). Discomfort after each STARE trial increased significantly across