

DEWS	DRY EYE: DIAGNOSTIC TEST TEMPLATE	
RAPPORTEUR	Ikuko Toda	10 th Oct 2004
TEST	Tear Function Index	
TO DIAGNOSE	<i>To evaluate tear dynamics of production and drainage and diagnose aqueous tear deficiency (ATD) and/or tear drainage insufficiency.</i>	REFERENCES
VERSION of TEST	[V 1] (See also kit version of SB Kaye).	Xu et al. 1995
DESCRIPTION	<i>TFI is the value obtained by dividing the value of the Schirmer test with anesthesia by the tear clearance rate.</i>	
CONDUCT of TEST	<ol style="list-style-type: none"> 1. <i>The Schirmer value with anesthesia and tear clearance rate (TCR) are measured 5 minutes after instilling a 10ul drop of 0.5% fluorescein and 0.4% oxybuprocaine hydrochloride into the conjunctival sac.</i> 2. <i>A standard Schirmer strip is then placed for another 5 minutes.</i> 3. <i>The length of the wet portion is measured and the intensity of its staining is compared with the standard strip colors for the TCR. The TCR is determined by the rate at which the color of the fluorescein dye fades and is graded: 1,1/2,1/4,,1/8,1/16,1/32,1/64,1/128, or 1/256.</i> 4. <i>The TFI is defined as the value of the Schirmer test with anesthesia divided by the TCR.</i> 	Xu et al. 1995 Ono et al. 1991 Xu et al. 1995
Web Video	Not available	
Materials:	<ul style="list-style-type: none"> • <i>Schirmer strip</i> • <i>0.4% oxybuprocaine hydrochloride eye drop with 0.5% fluorescein</i> • <i>Standard color plate</i> 	
Standardization	Time of day [] Temperature [] Humidity [] Air speed [] Illumination [] Other:[]	
Diagnostic value	This version : [NA] Other version: [NA]	
Repeatability	Intra-observer agreement. [NA] Inter-observer agreement. [NA]	
Sensitivity	(true positives) <i>[TFI below 96 is 67.4% sensitive for diagnosing dry eye, and TFI below 34 is 78.9% sensitive for SS dry eye]</i>	Xu et al. 1995a
Specificity	(100 – false positives) <i>[TFI below 96 is 60% specific for diagnosing dry eye, and TFI below 34 is 91.8 % sensitive for SS dry eye]</i>	
Test problems	<ol style="list-style-type: none"> a. <i>Results may be poorly reproducible, as with the Schirmer test.</i> b. <i>The standard color plate may fade with time.</i> 	
Test solutions	<i>b. Plate needs to be renewed in several months</i>	
FORWARD LOOK	<i>The Schirmer value does not reflect tear secretion independently, because Schirmer value is influenced by tear drainage. Combination of Schirmer test and clearance rate can diagnose ATD-type dry eye with high sensitivity and specificity.</i>	
Glossary	TFI: Tear Function index.	

References:

Ono M, Yoshino K, Ogawa Y, et al. Tear clearance rate in normal and dry eye patients. *Invest Ophthalmol Vis Sci (Suppl)* 1991;32:1113

Xu KP, Yagi Y, Toda I, Tsubota K. Tear Function Index A New Measure of Dry Eye. *Arch Ophthalmol*

1995a;113:84-88

Xu KP, Tsubota K. Correlation of tear clearance rate and fluorophotometric assessment of tear turnover. *Br J Ophthalmol* 1995b;79:1042-1045.