

<b>DEWS</b>	<b>DRY EYE: DIAGNOSTIC TEST TEMPLATE</b>																	
<b>RAPPORTEUR</b>	A.J.Bron		18 <sup>th</sup> Oct2004															
<b>TEST</b>	<b>MIXED TESTS for DRY EYE</b>																	
<b>TO DIAGNOSE</b>	Ocular Irritation from multiple causes		REFERENCES															
<b>VERSION of TEST</b>	[ V 1 ]		Afonso et al. 1999															
<b>DESCRIPTION</b>	Correlation of Tear Clearance and Schirmer scores with Irritation symptoms.																	
<b>NATURE of STUDY</b>	40 patients with irritative symptoms (various exclusions) 40 normal controls of similar age (various exclusions)																	
<b>CONDUCT of TESTS</b>	<p><b>Questionnaire:</b> 12 questions, on nature, severity and impact. Minimum severity 0; greatest 56.  <b>MGD</b> as in Pflugfelder 1998  <b>Corneal fluorescein stain</b> (NEI Lemp 1995) scale  <b>Schirmer 1</b> without anaesthesia [see Schirmer Pflugfelder A]  <b>Cochet-Bonnet</b> aesthesiometry  <b>Tear Clearance:</b> 5ul of 2% fluorescein. Sample collected at 15 minutes using a polyester, Transorb rod. Also an detailed study of clearance kinetics. See original article:  <b>FCT</b> = Fluorescein Clearance Test</p> <p>Fluorometry:</p>																	
<b>RESULTS of STUDY</b>	<p>Patients with ocular irritation have sig :  Higher log of tear clearance;  Lower Schirmer,  Than controls</p> <table border="1"> <thead> <tr> <th>Group</th> <th>Schirmer mm</th> <th>Log tear clearance - at 15 minutes.</th> </tr> </thead> <tbody> <tr> <td>Controls</td> <td>22.25 ± 8.27</td> <td>1.89 ± 0.70</td> </tr> <tr> <td>Symptomatic</td> <td>12.5 ± 8.84</td> <td>3.07 ± 0.61Ψ</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="3">Ψ p &lt; 0.0005; normal v symptomatic</td> </tr> </tbody> </table>		Group	Schirmer mm	Log tear clearance - at 15 minutes.	Controls	22.25 ± 8.27	1.89 ± 0.70	Symptomatic	12.5 ± 8.84	3.07 ± 0.61Ψ				Ψ p < 0.0005; normal v symptomatic			Afonso et al. 1999
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<b>Web Video</b>	NA																	
<b>Materials:</b>	<ul style="list-style-type: none"> <li>• Fluorescein 2%. Iolab, Claremont</li> <li>• Transorb, polyester rods. American Filtrona, Richmond VA</li> <li>• Cochet-Bonnet aesthesiometer: Luneau Paris, France</li> <li>• Microtitre plate fluorometer (CytoFluor II)</li> </ul>																	
<b>Standardization</b>	Different requirements for each test. ]																	
<b>Diagnostic value</b>	<ul style="list-style-type: none"> <li>• Schirmer score inversely correlates with symptom severity (Spearman's rho - -0.39, P&lt; 0.001)</li> <li>• Schirmer test correlated inversely with log tear fluorescein concn. At 15 minutes (Fig 5) (r = -0.585, P &lt; 0.001). [note: upper Schirmer values vignetted]. ie ATD associated with delayed clearance.</li> <li>• A Receiver Operator plot indicates that the FCT had a higher Sensitivity for identifying cases of ocular</li> </ul>		Afonso et al. 1999															

	<p>irritation, than the Schirmer 1 test, for Specificities ranging from 40-100% (Fig 3).</p> <ul style="list-style-type: none"> <li>• FCT discriminated symptomatic cases from controls, by Logistic regression analysis. Delayed clearance correlates with ocular irritation.</li> <li>• Fluorescein clearance falls with age.</li> <li>• Corneal Stain Scores showed greater correlation with: Schirmer test scores (Spearman's rho - -0.39, P&lt; 0.001) than with log tear fluorescein (Spearman's rho - -0.263, P&lt; 0.018). ie low Schirmer and delayed clearance correlate with stain.</li> <li>• Corneal sensitivity correlated with reduced fluorescein clearance (Spearman's rho - -0.38, P&lt; 0.003) and reduced Schirmer (Spearman's rho - -0.39, P&lt; 0.002).</li> <li>• MG Drop out correlates positively with log FCT ((P &lt; 0.001 –analysis of variance).</li> <li>• MG Drop out correlates inversely with Schirmer score (P &lt; 0.001 –analysis of variance).</li> <li>• MG orifice metaplasia correlated positively with clearance and negatively with Schirmer scores</li> </ul> <table border="1"> <thead> <tr> <th colspan="3">Normals v Symptomatic subjects Afonso et al. 1997</th> </tr> <tr> <th>% MG acinar loss</th> <th>Schirmer mm</th> <th>Log Tear Fluor concn (fl units)</th> </tr> </thead> <tbody> <tr> <td>0-33%</td> <td>23.92 ± 7.58</td> <td>1.86 ± 0.78</td> </tr> <tr> <td>34-66%</td> <td>15.60 ± 8.52</td> <td>2.50 ± 0.73</td> </tr> <tr> <td>67-100%</td> <td>13.04 ± 10.16*</td> <td>3.07 ± 0.75*</td> </tr> <tr> <td>MG metaplasia</td> <td>14.47 ± 8.53</td> <td>2.81 ± 0.78</td> </tr> <tr> <td>No metaplasia</td> <td>23.14 ± 7.67Ψ</td> <td>1.83 ± 0.71Ψ</td> </tr> <tr> <td colspan="3">* P &lt; 0.001, 0-66% v 67-100% acinar loss. ANOVA Ψ P &lt; 0.001, metaplasia v no metaplasia.</td> </tr> </tbody> </table>	Normals v Symptomatic subjects Afonso et al. 1997			% MG acinar loss	Schirmer mm	Log Tear Fluor concn (fl units)	0-33%	23.92 ± 7.58	1.86 ± 0.78	34-66%	15.60 ± 8.52	2.50 ± 0.73	67-100%	13.04 ± 10.16*	3.07 ± 0.75*	MG metaplasia	14.47 ± 8.53	2.81 ± 0.78	No metaplasia	23.14 ± 7.67Ψ	1.83 ± 0.71Ψ	* P < 0.001, 0-66% v 67-100% acinar loss. ANOVA Ψ P < 0.001, metaplasia v no metaplasia.			
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<b>Repeatability</b>	Intra-observer agreement. [ - ] Inter-observer agreement. [ - ]																									
<b>Sensitivity 1</b>	FCT 274 units/μl at 15 minutes (true positives) [ 80% ]																									
<b>Specificity 1</b>	FCT 274 units/μl at 15 minutes (100 – false positives) [ 85% ]																									
<b>Specificity 2</b>	FCT 525 units/μl at 15 minutes (100 – false positives) [ 100% ]																									
<b>Glossary</b>	FCT = Fluorescein Clearance Test																									

**References:**

Afonso AD, Monroy D, et al. Correlation of tear fluorescein clearance and Schirmer test scores with ocular irritation symptoms. *Ophthalmology* 1999;106:803-10.