

DEWS	DRY EYE: DIAGNOSTIC TEST TEMPLATE	
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TEST	Basal Tear Volume - Periotron	
TO DIAGNOSE	Aqueous deficient dry eye.	REFERENCES
VERSION of TEST	[V1]	Farris et al 1981
DESCRIPTION	This is an indirect index of 'basal' tear volume based on the uptake of tear fluid from the conjunctival sac into a standard wick. Volume uptake is proportional to the change in electrical resistance.	
CONDUCT of TEST	In this study, the test was performed 15 minutes after an osmolality measurement, 1. 'Basal tears' were collected from the inferior cul-de-sac onto the 2x6 mm filter paper strip (the Periopaper®). 2. The paper remains in place against the unanesthetized globe, for 5 seconds. 3. The paper is transferred to the sensing element and placed with the blue laquer line of the paper at the forward edge, and 5mm of the strip within the instrument. 4. Readings are taken 30 seconds after filter paper insertion. The instrument was calibrated using a 1% lysozyme solution and a calibrated wire loop which transferred 0.15 ±0.015µl of distilled water to the filter paper strip. (repeated readings of 31±1 were obtained. In the digital readout, one unit was equivalent to 0.05 µl.	
WebVideo	Not available	
Materials:	<ul style="list-style-type: none"> • Periotron Instruments(Harco Electronics) • Periopapers 	
Diagnostic value	<i>The cited analyses in this study were based on eyes not people, or on averages of eye.</i> Normals were: <41 years: 46M; 53 F >40 years: 55M; 65F KCS (Symptomatic; Osmolality 312 mOsm/L; tear debris, viscous tears, reduced marginal strip; SPK with fluorescein) Values: KCS : 0.84 ± 0.42µl Normals: 1.18 ± 0.36µl (P< 0.01)	Farris et al 1981
Repeatability	Intra-observer agreement. [NA] Inter-observer agreement. [NA]	
Sensitivity Cut off 104	(true positives) [59]	Farris et al. 1983
Specificity	(100 – false positives) [77]	
Test problems	1. The technique does not measure total basal volume. It is an indirect measurement based on the assumption that total basal volume will influence the volume of tears that can be absorbed over a 5-second period. The linear relationship between fluid content and digital readout is lost at about 0.5 µl, but this is not relevant to the diagnosis of KCS. The majority of KCS patients give a reading of < 90.	

FORWARD LOOK	At this time, the technique has not been validated against other methods of measuring tear volume.	

References:

Farris RL, Stuchell RN, et al. (1981). Basal and reflex human tear analysis. I. Physical measurements. Osmolarity, basal volumes, and reflex flow rate. *Ophthalmology* 88:852

Farris RL, Gilbard J, et al. (1983). Diagnostic tests in keratoconjunctivitis sicca. *CLAO J* 9: 23-28.