

## Effect of Smoking on Tear Break-Up Time and Basal Tear Secretion

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**Abstract :** Tobacco contains nicotine, which causes addiction to many toxic chemicals. In the world, people consume it in the form of smoke, chew, and sniffing, smoke of it is composed of almost 7000 active chemicals, which are very harmful to human health as well as for eye health, inhalation of tobacco smoke and fumes can accelerate and cause many blinding eye diseases. Dry eye and smoking have not been covered extensively in researches; more studies are required to unveil the relationship between smoking and dry eye. This study was conducted to determine the quantity and quality of tears in smokers. 60 subjects participated in the study, which was divided into two groups on the basis of consumption of cigarettes per day with age matched non smokers of 15-50 years. All participants have gone through a study based questionnaire, eye examination, and diagnostic 'Dry Eye Tests' for evaporative tears evaluation and measurement of basal tear secretion. Subjects were included in the criteria of 10 cigarettes per day with a minimum duration of 1 year; passive smokers for control groups were excluded. The study was carried out in a Medina Teaching Hospital, Faisalabad, Pakistan, ophthalmology department for the duration of 8 months. Mean values for tear break up time (TBUT), was reported 10sec with SD of +3.74 in controlled group, 5sec with SD + 2.32 in smokers and 4sec SD +3.77 heavy smokers in right eye (RE) and left eye (LE) 10.35sec with SD of +3.88 in controlled 5sec with SD + 2.3 in smokers and much reduced TBUT in heavy smokers was 3.85sec SD+2.20. Smoking has a very strong association with TRUT with a significance of  $P=.00$  both eyes. Mean Schirmer-I value of the subjects was reported 12.6mm with SD + 8.37 in RE and 12.59mm with SD + 8.96 LE. The mean Schirmer-II test value was reported in the right, and left eye with a mean value for control was 20.23mm with SD + 8.93, 20.75mm with SD + 8.84 respectively, and in Smokers 9.90mm with SD + 5.74, and 10.07mm with SD + 6.98, and in heavy smokers 7.7mm, SD + 3.22 and 6.9, SD + 3.50 mm, association with smoking showed  $p=.001$  in RE and  $.003$  in LE. Smoking has deteriorated effect on both evaporative tear and aqueous tear secretion and causing symptoms of dry eye burning, itching, redness, and watering with epithelial cell damage.

**Keywords :** tear break-up time, basal tear secretion, smokers, dry eye

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