

# CHANGES IN ERYTHROCYTE GLUCOSE-6-PHOSPHATE DEHYDROGENASE (G6PD) AND REDUCED GLUTATHIONE (GSH) ACTIVITIES IN THE DEVELOPMENT OF SENILE AND DIABETIC CATARACTS

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**Abstract.** Oxidative and osmotic stress have been implicated in the pathogenesis of cataracts. Reactive oxygen intermediates (ROI) mediate peroxidation of membrane lipids and cause irreversible damage to lens proteins. The purpose of this study was to assess the changes in erythrocyte glucose- 6-phosphate dehydrogenase enzyme (G6PD) and reduced glutathione (GSH) levels in the development of senile and diabetic cataracts. The activity of erythrocyte G6PD and the concentration of GSH were measured to assess changes in oxidation-reduction status. The oxidation-reduction status of 26 non-diabetic non-cataract (control) subjects were compared with 24 diabetic non-cataract, 30 diabetic cataract and 28 non-diabetic cataract subjects. The results revealed that the GSH and G6PD levels of the subjects with senile cataracts were significantly lower than the subjects without cataracts. The present study reveals the risk of developing senile cataracts is associated with decreased levels of erythrocyte G6PD and GSH. In the formation of diabetic cataracts an adequate supply of NADPH (G6PD activity) is essential to produce osmotically active sorbitol in the lens.

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