

## Comparative Study of Gonadotropin Hormones and Sperm Parameters in Two Age Groups

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**Abstract :** Our objective was to investigate whether and how extensively there is a correlation between aging in men, gonadotropin hormone regulation, and a decline in sperm parameters, and whether it is possible to identify an age limit beyond which the decrease in sperm feature and hormonal regulation reaches statistical significance. A total of one hundred and twenty men (age: 20-50 years) were divided into two groups; each group contained 60 males (Group A with a young age of 20-35 years and Group B with an older age of 36-50 years) who visited the Center for Reproductive Medicine (CRM) in Peshawar General Hospital (PGH) Peshawar, Pakistan. Clinical assessment and sperm analysis were investigated. Hormone testing and semen analysis were carried out in accordance with World Health Organization (WHO) guidelines. Hormone tests, sperm morphology, and the total motile spermatozoa count (TMS) were computed. SPSS 20.0 (SPSS Inc., Chicago, IL, USA) was used for the statistical analysis. It was observed that the testosterone levels in Group A (mean = 3.770) and Group B (mean = 3.995) were comparable, with a significant P-value <0.005 in both age groups; furthermore, similar levels are shown by follicle-stimulating hormone (FSH) (Group A mean = 19.73, Group B mean = 15.64) and luteinizing hormone (LH) (Group A mean = 12.25, Group B mean = 11.93) in both groups, with a significant P = <0.005. Sperm concentrations were most similar in Group A, with a mean of 4.44, and in Group B, with a mean of 4.42 and a significant P value of 0.005 in both groups. Additionally, it was discovered that sperm motility was higher in Group A, with a mean of 22.40 and a P-value of 0.052, which was non-significant when compared to Group B. Morphological differences were also observed in both age groups. This research found that advancing in male age does not affect sex hormone regulation; in contrast, the fraction of motile and morphologically normal spermatozoa decreases as male age increases, with the strongest evidence being when the age exceeds 40 years. To clarify the causes and clinical implications of these correlations, more research is necessary.

**Keywords :** gonadotropins, motility, spermatozoa, testosterone

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