

# IMPACT OF SEMEN ANALYSIS AND ABSTINENCE PERIOD ON SPERM PARAMETERS

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Semen analysis remains the cornerstone for evaluating male fertility. However, the accuracy and consistency of semen parameters can be significantly influenced by the duration of sexual abstinence before sample collection. Current WHO guidelines recommend 2–7 days of abstinence, but the optimal duration for maximizing semen quality is still debated. To assess the impact of different abstinence periods on key semen parameters — volume, sperm concentration, motility, and morphology — in a cohort of men undergoing fertility evaluation.

This retrospective study analyzed 100 semen samples collected at NOVA IVF Fertility Howrah, between June 2022 and December 2023. Participants were grouped based on self-reported abstinence duration: Group A (1–2 days), Group B (3–5 days), and Group C (6–7 days). Standard WHO 5th edition criteria were used for semen analysis.

Semen volume and sperm concentration were positively correlated with longer abstinence, peaking in Group C. However, total and progressive motility showed a significant decline in Group C compared to Groups A and B ( $p < 0.05$ ). Morphology remained relatively stable across all groups. Group B (3–5 days) demonstrated the most balanced profile across all parameters.

While prolonged abstinence improves semen volume and concentration, it may negatively impact motility. An abstinence period of 3–5 days appears optimal for balanced semen parameters and may be ideal for diagnostic and assisted reproductive purposes. Standardizing abstinence duration is essential to improve the reliability of semen analysis and guide treatment decisions in male infertility.

Factors such as age, body mass index, lifestyle habits (e.g., smoking, alcohol consumption), stress levels, and underlying medical conditions were not controlled for and could influence semen quality.