ABNORMAL SEMEN pH

A pH value outside of the normal range which is harmful to sperm.

♂ Symptom  ♂ Male

About Abnormal semen pH

A normal pH of human semen range of 7.1-8.0, which is higher than the neutral pH. Pure water is neutral, at pH 7, being neither an acid nor a base. Solutions with a pH less than 7 are acidic and solutions with a pH greater than 7 are basic.

Mature sperm cells in the testes that are ready for ejaculation pass through the epididymis where prostate fluid, which is rich in proteins and other factors such as citric acid and zinc, is added. Semen is further augmented by fluid from the seminal vesicles, which are responsible for establishing the alkaline pH of semen. About 50 - 70% of seminal fluid in humans originates from the seminal vesicles, but is not expelled in the first ejaculate fractions which are dominated by spermatozoa and prostatic fluid. Alkaline pH of semen helps neutralize the acidity of the vaginal tract, prolonging the lifespan of sperm.

Abnormal semen pH as a symptom is associated with several conditions such as infection of genitourinary tract, hypospermia or obstructive azoospermia.

A genitourinary infection

A basic ejaculate (higher pH value) may indicate an infection. When the male genitourinary tract is infected, bacteriotoxin, leukocytes, oxidative stress, and inflammatory factors may change the seminal plasma environment, which leads to the impairment of sperm motility. Sperm motility is essential for fertilization. Progressive motility is a vital functional characteristic of sperm, and it measures the ability of sperm to penetrate into an egg, and migrate
through cervical mucus.

Hypospermia

Hypospermia which means that a man has an unusually low ejaculate (or semen) volume, less than 1.5 ml can sometimes be associated with semen pH more than 7.8. This can indicate some hypothalamic disorder which has to be treated. In cases that the hypospermia is associated with pH less than 7.4, physician have to evaluate if there is not an absence of seminal vesicles.

Obstructive azoospermia

Obstructive azoospermia (OA) is defined as the absence of sperms in the ejaculate. It is a common cause of male infertility and can result from infection, congenital anomalies, or iatrogenic (induced inadvertently by a physician or surgeon) injury. Acidic ejaculate (lower pH value) may indicate one or both of the seminal vesicles are blocked. The finding of acidic ejaculate helps physicians to determine the exact cause of infertility and solve the problem by removal of the obstruction.

Find more about related issues

Diagnoses

Hypospermia
A condition in which a man has an unusually low ejaculate (or semen) volume. Learn more at: www.fertilitypedia.org/therapy/diag/hypospermia

Obstructive azoospermia
Medical condition where sperm are produced but not ejaculated due to physical obstruction. Learn more at: www.fertilitypedia.org/therapy/diag/obstructive-azoospermia

Sources

“Obstructive azoospermia: reconstructive techniques and results” —by Baker and Sabanegh Jr licensed under CC BY-NC 3.0

“The Effect of Chronic Bacterial Prostatitis on Semen Quality in Adult Men: A Meta-Analysis of Case-control Studies” —by Shang et al. licensed under CC BY 4.0
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