B128 Persistence of Sperm: What the Literature Really Says

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The goal of this presentation is to shed light on the inconsistencies in the forensic literature regarding the persistence of spermatozoa in the vaginal cavity and cervix. Specifically, this presentation will show that the literature citations of spermatozoa persisting for 17 and 19 days are not reliable. This presentation will leave attendees more aware of how to critically read and process scientific literature.

This presentation will impact the forensic science community by increasing awareness of how journal articles are cited in the literature and the potential pitfalls in relying on secondary sources for setting laboratory and investigative policies and guidelines.

During the investigation of an alleged sexual offense, the timely recovery of physical evidence is crucial; however, for a variety of reasons, a victim of sexual assault may not report the alleged incident immediately. It is in these extended intervals between the alleged offense and reporting (post-assault interval), that key decisions must be made by investigators and laboratory examiners regarding if any physical evidence may still exist and how that evidence can best be recovered. The identification of semen can be of great importance in establishing sexual contact between an alleged victim and subject. It is the recovery of semen from the female victim that is frequently the focus of the investigative decision making efforts. The literature can give a misleading picture as to how long semen can be recovered from body cavity swabs taken during a sexual assault exam. Based on the scientific literature review, most of the citations state that spermatozoa can be detected approximately three days in the vaginal cavity and five to seven days in the cervix; however, there are a small number of published accounts relating that spermatozoa can be detected much later than a week in the vaginal cavity. These outliers in the literature can cause confusion as to when reliable semen results can be obtained from swabs collected during a sexual assault exam and identified during laboratory testing.

A literature review was performed to determine the veracity of two separate claims that spermatozoa can be recovered from the vaginal cavity up to 17 and 19 days post coitus. The specific source that cites a 17-day claim was traced to an article written in Italy in 1891. In that reference, the author was focused on artificial impregnation and fertilization. Based on the success of fertilization, the author determined spermatozoa may remain alive for as long as 17 days. The sources that reference this paper illustrate this claim is dubious at best. The claim of finding spermatozoa 19 days post coitus was traced to a conference abstract from 1977 that referred to data which was eventually published; however, the published paper did not address the 19-day findings stated in the conference proceedings. The data referenced in the conference proceedings was based upon self-reporting by female volunteers. In this case, the 19-day findings were regarded as "possibly correct" because very few spermatozoa were routinely observed after day ten. In the same reference, the authors noted that the reported post-coitus times of one month to many months where spermatozoa were found were incorrect because there were a high number of spermatozoa detected that did not show degenerative changes that would be expected. Even though these outliers are mentioned in these two papers, the preponderance of the data in these citations and others support the trend that spermatozoa can be detected three days in the vagina and up to seven days in the cervix post coitus.

During the laboratory's search of the literature, these two outliers were found to be cited several times in an effort to illustrate that semen can persist outside of the traditionally expected time frame of three to seven days post coitus. The problem is the original sources that mention these figures are typically not cited directly in the literature. Instead, the literature articles cite various secondary sources to illustrate these claims. This made it very difficult to determine the origin of the data. Having knowledge of what the original sources of these claims say about the persistence of sperm has made it possible to educate submitters about the likelihood of obtaining usable data from samples collected 17 and 19 days post coitus.

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Sperm, Persistence, Semen