

The Snake as a Source of Living Spermatozoa in the Laboratory

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Classes in elementary biology or zoology rarely have opportunity to observe living spermatozoa. Yet many classroom laboratories have on hand a convenient source of sperm—a live male snake. In a small sample of semen observed under the microscope, the myriads of spermatozoa and their frenzied activity provide such an impressive spectacle that the interest and imagination of even the most indifferent student can be aroused.

Massaging the rear part of the snake's abdomen with a few gentle strokes of the thumb, directed posteriorly to the anal plate, will usually express a few drops of cloacal fluid containing spermatozoa. As the snake's cloaca normally contains waste products from the intestine and kidneys, it is best to discard the first sample, then pipette a few drops of Ringger's Solution into the cloaca and repeat the massaging in order to obtain a sample that is not mixed with excreta. I usually examine such samples under 60-power magnification. Illumination from below, with light reflected at the proper angle, is essential; otherwise the spermatozoa will be invisible.

Most common species of snakes in the United States have a spring breeding season when sexual activity is most concentrated; mating occurs at this time exclusively in some species. Nevertheless, males may have sperm throughout the season of their activity. Compared with the spermatozoa of homoiotherms, those of snakes

are remarkably hardy, and will survive for a long time, over a wide range of temperatures. Their vitality is such that a female snake has been known to lay fertile eggs as long as six years after mating, but ordinarily, even in the seminal receptacles of the oviduct, spermatozoa survive for a much shorter time.

For non-herpetologists, determining the sex of a captive snake may prove difficult since external appearance offers no clue to sex, except to an experienced observer. However, in a male snake, a slender, blunt probe placed in the anal opening and directed posteriorly, can be freely inserted into the base of the tail on either side, through the invaginated tubular hemipenis (the paired copulatory organ), while in the female there are no such openings into the tail.

In snakes, especially the males, sexual maturity is attained long before full adult size. In the common garter snake, for instance, the male matures at a minimum length of approximately 21 inches and a weight of 22 grams, whereas a large adult (female) may be 45 inches long and may weigh 300 grams or even more.

A snake is almost ideally adapted for use as a laboratory animal because it is exceptionally easy to maintain. A meal once a week, or even less often, is ample to keep one in good condition.

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