

Perspectives and Editorials: Letters to the Editor

Artificial Vagina for Rabbits

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To the Editor:

We read with interest "Development of an Inexpensive Artificial Vagina for Semen Collection From Rabbits" by Naughton et al (*J Androl.*

2003;24:712–715) and consider the underlying premise flawed. The abstract incorrectly states that "no easily reproducible or inexpensive device for semen collection (from rabbits) has been reported."

Prior to the mid 1960s, a "Walton-type" artificial vagina (AV) was used to collect rabbit semen. Amann and Lambiase ([1967](#)) and others provided a citation path leading to Macirone and Walton ([1938](#)). Each user had his or her own homemade version of this AV. For many years, IMV Technologies (www.imv-technologies.com) has sold a Walton-type AV; currently it costs \$42.

The rabbit AV illustrated with instructions for fabrication by Bredderman et al ([1964](#)) rapidly gained wide acceptance because of convenient usage, minimal sperm loss, and low cost. It remains in use. A technician could fabricate a Bredderman-style AV from materials costing <\$3.00 (including latex liner) plus \$2.50 or \$9.00 for a cutoff, 15-mL graduated centrifuge tube (polycarbonate or glass). This AV is easily washed and sanitized, so cost per ejaculate is very low.

Consistent quantitative recovery of ejaculated sperm is essential for most studies, yet Naughton et al did not estimate sperm loss in their AV. They implied that sperm loss in the collection condom might be substantial. Sperm loss within a Walton-type AV averaged 10% of the total number ejaculated ([Amann and Lambiase, 1967](#)), and loss averaged <4% within a ≤6-cm long Bredderman-style AV ([Bredderman et al, 1964](#)).

Considering semen collection, we never sedated a "teaser doe"; <1 in 10 are/become obstinate and should not be used. A selection of female and male teasers is essential. The teaser should be placed into the male's cage rather than vice versa. Sexual preparation (ie, 3 false mounts; [Macmillan and Hafs, 1967](#)) is essential to maximize "harvest" of available sperm. False mounts are accomplished by

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"brushing" the male off the teaser several times before allowing ejaculation into the AV. Lack of sexual preparation likely contributed to low values for total sperm per ejaculate noted by Naughton et al. In our experiences (hundreds of males), urination concomitant with ejaculation is rare and usually results from too warm an AV. Even with proper temperature (43° C to 49° C), an occasional male urinates frequently; if feasible, he might be excluded from a study. Proper evaluation of a male requires multiple collections every 2 or 3 days, using false mounts, over a period of weeks or months ([Amann and Lambiase, 1967](#); [Foote et al, 1986](#)).

References

- Amann RP, Lambiase JT Jr. The male rabbit. I. Changes in semen characteristics and sperm output between puberty and one year of age. *J Reprod Fertil.* 1967; 14: 329 – 332.
- Bredderman PJ, Foote RH, Yassen AM. An improved artificial vagina for collecting rabbit semen. *J Reprod Fertil.* 1964; 7: 401 – 403. [\[Abstract/Free Full Text\]](#)
- Foote RH, Schermerhorn EC, Simkin ME. Measurement of semen quality, fertility, and reproductive hormones to assess dibromochloropropane (DBCP) effects in live rabbits. *Fundam Appl Toxicol.* 1986; 6: 628 – 637. [\[Medline\]](#)
- Macirone C, Walton A. Fecundity of male rabbits as determined by "dummy matings." *J Agric Sci.* 1938; 28: 122 – 134.
- Macmillan KL, Hafs HD. Semen output of rabbits ejaculated after varying sexual preparation. *Proc Soc Exp Biol Med.* 1967; 125: 1278 – 1281. [\[Medline\]](#)
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Response to Artificial Vagina for Rabbits

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To the Editor:

We are grateful for the interests and comments of Drs Amann and Foote regarding our recent report of an artificial vagina assembled from inexpensive products purchased at a local Home Depot for the purposes of semen collection from rabbits. Andrologic studies using semen analyses from rabbits as a study endpoint have been reported for decades. However, most of these reports do not provide enough detail to reproduce the "artificial vagina" so widely quoted as a method of semen collection in rabbits. This report is simply a step-by-step description of how we overcame our obstacle of not being able to obtain a commercial device to aid us in rabbit semen collection as an endpoint for a separate study. Following publication of this report, we have obtained several requests for article reprints by investigators using semen collection from rabbits as an endpoint. These requests are testimony to our frustrating experience in attempting to acquire even existing commercially available devices or to find a step-by-step description to reproduce a device from previous reports. Our goal in publishing this report is to provide an option for investigators who are involved in andrologic rabbit studies to reproducibly "home" construct an artificial vagina from easily

obtainable products at low cost.

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