Surface architectural anatomy of the penile and preputial epithelia of bulls
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Introduction
A common assumption is that older bulls are more likely to become chronically infected with *Trichomonas foetus* and *Campylobacter fetus* subsp. *venerealis*. One theory is that older bulls develop deeper penile and preputial epithelial folds as they age providing a protected, microaerophilic environment suitable for long-term maintenance of *T. foetus* and *C. fetus*. However, multiple case reports exist of young bulls developing chronic venereal infections and no published reports support the theory that older bulls develop deeper penile or preputial epithelial folds. In this study we compared the histological and surface architectural anatomy of penile and preputial epithelia between young and old bulls.

Materials and methods
Twelve Angus bulls were divided into two groups: 1) bulls approximately 2 years of age (Group 1; n=6) and 2) bulls ≥ 5 years of age (Group 2; n=6). Samples of penile and preputial epithelium were collected from three anatomical locations and examined with light and scanning electron microscopy to assess three variables: area of epithelium, total number of epithelial folds, and area contained within the folds. Results were compared between age groups.

Results
No differences (p>0.05) were detected between age groups with respect to penile and preputial area of epithelium, total number of epithelial folds, or area contained within the epithelial fold.

Significance
Older bulls do not have thicker penile or preputial epithelium, more epithelial folds, or develop a larger area contained within the fold as they age. Chronic *T. foetus* and *C. fetus* infections in older bulls are unrelated to changes in the surface anatomy of penile or preputial epithelia.

Keywords: Trichomoniasis, penile epithelium, preputial epithelium, epithelial crypts, epithelial folds