

Development of a Mechanical Model of the Lumens of the Male
Reproductive Tract
(Technical Report)

Public Health in the US: Reaching Low-Income Communities
(Sociotechnical Research Paper)

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by

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Amongst the dynamic realm of healthcare, it's clear that successful healthcare systems are characterized by being effective, inclusive, and equitable.

Birth control methods and the responsibility for using them have been disproportionately matters for women, but new methods of birth control can shift a greater share of the responsibility toward men. Contraline Inc. is developing a novel male birth control method in which a hydrogel is injected into the vas deferens to prevent the release of sperm. To develop the method, researchers must accurately model the male reproductive tract. Sample vas deferens were subjected to tensile testing and histology sectioning to obtain physical and cross-sectional properties. The dimensions of the tract were sourced from literature. Collected data were applied to the development of a 3D printed resin model which was subjected to tensile testing to verify its similarity. A successful model mimics human tissue and is valid for lab use in testing male contraceptive hydrogel injection. The resulting model had similar mechanical properties to human vas deferens tissue, validating its simulation of the male reproductive tract.

In the US, social groups disagree about how best to improve public health in low-income communities. Overcoming disparities in education and healthcare access demands diverse approaches that acknowledge socioeconomic complexities and engage community stakeholders. How do local community advocacies, state and local healthcare services, public health agencies, and organized health professionals strive to influence community health and education? Participants include public health agencies, community advocacy groups, organized health professionals, and local healthcare services.