

## Research on Bicycle Saddles and Sexual Health Comes of Age

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The evidenced-based review, "Bicycle Riding and Erectile Dysfunction: An Increase in Interest (and Concern)," by Huang et al. demonstrates the relationship between bicycle riding using a saddle and erectile dysfunction. The current focus has shifted from research investigating whether or not a relationship between cause (bicycle riding on a saddle) and disease (erectile dysfunction) exists, to research investigating the possible pathophysiology of the erectile problem. The articles "Only the Nose Knows: Penile Hemodynamic Study of the Perineum-Saddle Interface in Men with Erectile Dysfunction Utilizing Bicycle Saddles and Seats with and Without Nose Extensions" by Munarriz et al. and "Development of a New Geometric Bicycle Saddle for the Maintenance of Genital-Perineal Vascular Perfusion" by Piazza et al. have then taken this knowledge to the next step: intervention.

As early as the 1890s, urogenital numbness was associated with the bicycle saddle [1]. While literature over the last 20 years, as cited by Huang et al., has described the perineal problems resulting from compression by bicycle saddles, there continue to be endless testimonials about "miles of cycling" and "erections of steel." While such testimonials are not surprising in the popular press or on the Internet, it is disappointing that such comments have been expressed by physicians and other scientific-based professionals. Some of the testimonials have even appeared on scientific electronic bulletin boards, along with remarks regarding the proliferation of bicycle riders in China without erectile problems. They sound similar to the cigarette smoker proclaiming that they have smoked a pack a day for years without lung cancer. One would not expect that every bicyclist would suffer from erectile dysfunction, any more than one would expect every smoker would get lung cancer. As indicated by Huang et al. the data documenting the relationship between bicycle riding using a saddle and erectile dysfunction are now based on a high level of evidence: random sample,

community-based epidemiologic studies. As is the case for all controversial associations, however, more research is needed.

Huang et al. indicates that research in this field has moved forward, showing that the vascular system supplying the penis is adversely affected by the pressure exerted on the perineum due to the body weight of the bicyclist. The work reported in the Munarriz et al. article shows that this pressure obstructs penile blood flow as measured by cavernosal artery peak systolic velocity. Others have also reported diminished penile hemodynamics secondary to perineal compression by bicycle saddles. In addition, bicycle-induced paresthesias have been reported due to pudendal nerve entrapment with or without an associated vascular occlusion.

The next steps are quite clear. Effective strategies based on sound ergonomics and urogenital physiologic principles and testing are needed to reduce the risk of erectile dysfunction from bicycle riding. Recent studies including the articles of Munarriz et al. and Piazza et al. presented here have utilized such strategies employing nonconventional seats. It becomes the responsibility of the research community to continue to develop effective intervention strategies, and just as importantly, to put the research into practice. It is extremely important that such interventions be based on scientific data. The saddles with a cutout are a case in point. The internal penis fits into the cutout, perhaps providing some perceived relief to the cyclist. However, as the pressure on the perineum is inversely related to surface area, lowering the contact surface area with a cutout increases perineal pressure. Ronado et al. 2002, as reported in the review by Huang et al., found an increase in pressure in the area of the pudendal vessels and nerves among cyclists using a cutout saddle. There is a popular misperception that these "holed" saddles lower the chances for erectile dysfunction when the data actually suggest they may increase risk.

As research advances in this area, the differences between the sexes may result in different etiologies and interventions with regard to bicycle saddles and sexual health. Medical questions regarding women cyclists in the early days included the concern that women would use the saddle as a tool of masturbation [2]. Much of this concern was put to rest by Dickerson in 1895 when he surmised that the woman's genitalia, like that of the man, probably became numb while bicycling and thus would not stimulate sexual feelings. The research in this area is in its infancy, and the observed sexual problems may be more neurological than vascular. However, the extensive work completed in the male and the interventions developed for men may prove to be useful interventions for women.

Ultimately, health communication based on scientific data is essential. The medical and scientific communities must project a strong voice above the advertising of commercial saddle manufacturers and individual testimonials, explaining that the

perineum was not designed to bear a human's body weight and bicycle seats need to be designed to relieve perineal pressure. Nontraditional bicycle saddles look and feel different. Bicyclists, being human, resist change. Different saddle designs may require some relearning of "how to ride a bicycle," but the health benefits to having unrestricted vascular flow to and from the penis is self-evident.

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#### References

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