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Urogenital and Sexual Complaints in Female Club Cyclists—A Cross-Sectional Study

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ABSTRACT

Introduction: Cycling has gained increased popularity among women, but in contrast to men, literature on urogenital overuse injuries and sexual dysfunctions is scarce.

Aim: To determine the prevalence and duration of urogenital overuse injuries and sexual dysfunctions in female cyclists of the largest female cycling association in The Netherlands.

Methods: A cross-sectional questionnaire survey was sent to 350 members of the largest female Dutch cycling association and 350 female members of a Dutch athletics association (runners).

Main Outcome Measures: The prevalence and duration of urogenital overuse injuries and sexual complaints were assessed using predefined international definitions.

Results: Questionnaire results of 114 cyclists (32.6%) and 33 runners (9.4%) were analyzed. After at least 2 hours of cycling, dysuria, stranguria, genital numbness, and vulvar discomfort were present in 8.8%, 22.2%, 34.9%, and 40.0%, respectively (maximum duration 48 hours). These complaints are not present in the controls ($P < .001$). In multivariable logistic regression analysis, increased saddle width was significantly associated with the presence of dysuria and stranguria. Older age was significantly associated to the presence of vulvar discomfort. Of the cyclists, 50.9% has at least one urogenital overuse injury. Insertional dyspareunia was present in 40.0% of cyclists and lasted until 48 hours after the effort. The latter complaint was not present in runners ($P < .001$). Uni- or bilateral vulvar edema was reported by 35.1% of cyclists. As for general complaints, 18.4% of cyclists reported a change in sexual sensations and 12.8% reported difficulties in reaching orgasm owing to cycling-related complaints. Limitations include population size and the use of non-validated questionnaires.

Conclusions: The results of this study suggest that urogenital overuse injuries and sexual complaints are highly prevalent in female cyclists who are active participants in riding groups.

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Key Words: Cycling; Female; Urogenital Overuse Injuries; Female Sexual Dysfunction

INTRODUCTION

Cycling is one of the most popular means of exercise.[1] It is an ideal nonimpact aerobic exercise that increases cardiorespiratory fitness and lowers all-cause mortality risks and the development of cardiovascular diseases such as diabetes mellitus type 2, hypertension, and stroke.[2,3] In the past decade, cycling has gained increasing popularity among women, thus decreasing the gender inequity in recreational activity and sports. In the United States, the percentage of women who cycle has increased by 20% from 2003 to 2012 compared with a decrease of 0.5% in men.[4] In contrast to the well-reported prevalence of cycling-related urogenital overuse injuries in men (eg, genital numbness in 50%—91% and erectile dysfunction in 13%—24%), literature concerning women is scarce.[5—7] The longer distance between ischial tuberosities in women compared with men makes women hypothetically more prone to developing cycling-related urogenital soft tissue damage and overuse injuries. This explorative study was conducted to obtain an estimation of the prevalence and duration of urogenital and sexual complaints in female cyclists who are active participants in riding groups.

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METHODS

From April 2013 through October 2013, digital questionnaires were sent by email to all 350 members of the largest female cycling association in The Netherlands and by a newsletter to all 350 members of a Dutch female athletics association (runners). The questionnaires were resent a second time to increase participation. The runners functioned as a control group of women who were not directly exposed to external pressure in the vulvar and perineal area. Only healthy volunteers (>18 years old) who cycled regularly for at least 2 hours or ran regularly for longer than 1 hour were included.

Identical questionnaires for the two groups consisted of questions regarding general medical history, cycling history (including cycling efforts), previous injuries related to cycling (eg, skin chafing or defects, perineal furunculosis, vulvar edema, and hematuria), urogenital and urologic complaints (eg, dysuria, stranguria, genital numbness, and pain) during and/or after cycling for at least 2 hours, and female sexual dysfunction (FSD; eg, vulvar discomfort and insertional dyspareunia) in general and during and/or after cycling for at least 2 hours.

For urogenital and urologic complaints and FSD, participants were asked to state for each complaint whether it was present during and/or after the effort and whether the specific complaint was absent in normal circumstances. Futhermore, participants had to categorize the frequency (<50%, ~50%, ≥50% of the time or always) at which these complaints occurred. Complaints were considered clinically relevant if present more than 50% of the time the effort was performed.

For this questionnaire, internationally accepted descriptions of urogenital and sexual complaints and dysfunctions were translated to Dutch.[8–10] A "bicyclist's vulva" was defined as uni- or bilateral vulvar edema, especially of the labia majora.[9] Vulvar discomfort was defined as a painful, burning, or tingling sensation of the external genitalia, and insertional dyspareunia was defined as a superficial vulvar pain restraining sexual intercourse or vaginal penetration.[10] To determine individual saddle width, cyclists were asked to report their saddle (sub) type.

Categorical and numerical variables are presented as number of participants (percentage) and mean (standard deviation [SD]), respectively. Differences between groups were compared using the χ^2 or Fischer exact test for categorical variables and independent samples *t* test or Mann-Whitney *U* tests for numerical variables. To assess which demographic (age and body mass index [BMI]) or cycling (saddle width, experience, estimated mean effort per ride, and estimated distance per season) characteristics were related to the presence of dysuria, stranguria, vulvar edema, insertional dyspareunia, and vulvar discomfort after cycling, univariable logistic regression was performed. Characteristics with a *P* value less than .20 were included in multivariable logistic regression analysis. Statistical analyses were performed with IBM SPSS 19.0 Statistics for Windows (IBM Corp, Armonk, NY). *P* values less than or equal to .05 were considered statistically significant.

Table 1. Demographic Characteristics of Cyclists and Runners*

	Cyclists (n = 114)	Runners (n = 33)	*P* value
Age (y)	35.6 (9.5)	39.7 (11.2)	.04
Experience (y)	6.9 (7.1)	5.9 (3.4)	.39
BMI (kg/m^2)	22.1 (2.2)	21.6 (2.3)	.34
Estimated distance per season (km)	<1,000: 6 (5.3) 1,000–3,000: 63 (55.3) 3,000–5,000: 23 (20.2) >5,000: 22 (19.3)	<200: 0 (0.0) 200–500: 6 (19.4) 500–800: 10 (32.3) >800: 15 (48.4) missing: 2	N/A
Estimated average effort (h)	<1: 1 (0.9) 1–2: 15 (13.2) 2–3: 75 (65.8) >3: 23 (20.2)	<1: 7 (21.9) 1–2: 24 (75.0) >2: 1 (3.1) missing: 1	N/A

BMI = body mass index; N/A = not applicable.
*Values are presented as mean (standard deviation) or number (percentage).

RESULTS

In total, 114 cyclists and 33 runners filled out the questionnaire, resulting in a response rate of 32.6% for cyclists and a rate of 9.4% for runners. There were no omissions owing to eligibility. Demographic characteristics of the two groups are presented in Table 1. All included women were free of significant comorbidity (eg, hypertension, hypercholesterolemia, or diabetes mellitus). Saddle width was available for 70 cyclists (61.4%). Mean saddle width was 148.4 mm (SD 12.0 mm).

For previous injuries related to cycling, 22 (19.3%) stated that they had experienced perineal furunculosis directly related to cycling. This complaint was not present in runners ($P < .001$). Ten of 22 (45.5%) reported this complaint more than three times. Skin chafing or skin defects of the labia minora or majora were reported by 72 cyclists (63.2%) and by 1 runner (3.0%; $P < .001$). Forty-five cyclists (39.5%) reported this injury more than three times. Thirty-seven cyclists (33.0%) reported the sensation that their labia minora "were getting in the way" while cycling. Vulvar edema was reported by 40 cyclists (35.1%). In nine cyclists, the edema did not disappear completely. None of the runners reported vulvar edema ($P < .001$). In univariable logistic regression analysis, no characteristics were associated with the presence of vulvar edema. Macroscopic hematuria after cycling or running was reported by six cyclists (5.3%) versus no runners (0.0%; $P = .344$). In five cyclists, this complaint was recurrent (at least two times). Incontinence during cycling and running was reported by eight cyclists (7.3%) and seven runners (23.3%; $P = .019$).