

ASSOCIATION BETWEEN URINARY INCONTINENCE AND DISORDERED EATING: A COMPARATIVE STUDY BETWEEN FEMALE ELITE ATHLETES AND NON-ATHLETES

Hypothesis / aims of study

The aim of the present study was to assess the prevalence of urinary incontinence (UI) and its association with disordered eating (DE), among female elite athletes and non-athletes.

Study design, materials and methods

The sample included 372 female elite athletes aged 15-48 years participating at international team level for at least one year. An aged matched control group of 372 female non-athletes, exercising < twice weekly were recruited in high schools, universities and public areas. Data regarding general background variables; age, weight and height, medical history, type of sports, years of sports participation and volume of training (hours/week) were collected through self-administered questionnaires. The International Consultation on Incontinence Questionnaire-Urinary Incontinence-Short Form (ICIQ-UI-SF) was applied to assess UI. DE was evaluated through the Eating Disorder Examination Questionnaire (EDE-Q) [1]. The sports included in the present study were classified into either leanness sports (Swimming, Middle-distance running, Rowing, Canoeing, Figure roller skating, Synchronized swimming, Acrobatic gymnastics, Rhythmic gymnastics, Karate, Judo, Weight lifting, High jump, Long jump, Trampoline) or non-leanness sports (Soccer, Indoor soccer, Basketball, Roller hockey, Handball, Volleyball, Water polo, Rugby, Tennis, Table tennis, Paddle, Beach tennis, Sprint, Horse jumping) sports as previously described [2]. Chi-square test was used to test the independency between categorical variables and the Mann-Whitney test to compare medians between groups. Association between UI and DE (global score of the EDE-Q) was estimated using adjusted odds ratio (adj OR) with respective 95% confidence intervals (CI) through binary logistic regression models. Estimates were adjusted for age and type of sports (leanness vs. non-leanness).

Results

Background variables for the two study groups are listed in Table 1. Twenty-eight sports disciplines were included. More athletes were grouped in the non-leanness sports group (73.1%) compared to leanness sports. There was no difference in prevalence of DE between athletes and non-athletes. Athletes presented higher prevalence of UI of any type than non-athletes (Table 1). Among the athletes, the prevalence of DE was 26.1% in the leanness sports group vs 16.2% in the non-leanness sports group (p=0.086).

Table 1. Participants' characteristics, urinary incontinence and disordered eating among athletes and non-athletes

	Athletes n=372	Non-athletes n=372	
	Median (IQR)	Median (IQR)	p-value
Age (years)	19.0 (7.0)	19.0 (6.0)	0.859
Sports practice duration (years)	9.0 (7.0)	-	
Sports practice frequency (hours/week)	10.0 (8.0)	0 (0)	<0.001
	n (%)	n (%)	p-value
Body mass index (kg/m²)			
Underweight (<18)	3 (0.8)	27 (7.3)	
Normal (18-25)	330 (89.7)	317 (85.2)	<0.001
Overweight or obesity (25-29.9)	35 (9.5)	28 (7.5)	
EDE-Q global score			
≤2.12	298 (82.3)	296 (79.8)	
>2.12	64 (17.7)	75 (20.2)	0.435
Urinary incontinence			
Any UI	109 (29.3)	50 (13.4)	<0.001
SUI	95 (25.5)	16 (4.3)	<0.001
UUI	35 (9.4)	23 (6.2)	0.133

IQR: Interquartile range; EDE-Q: Eating Disorder Examination Questionnaire; UI: urinary incontinence; SUI, stress urinary incontinence; UUI, urgency urinary incontinence.

In non-athletes there was no statistically significant difference in prevalence of any UI between those with or without DE. In athletes, the prevalence of UI of any type was higher among those with DE (Table 2).

In athletes, after adjustment for age and type of sports (leanness vs. non-leanness), athletes with DE were about 3 times more likely to present UI of any type (adj OR=3.07; 95% CI 1.73-5.45), in comparison to those without DE. Athletes with DE also presented an increased odds of stress urinary incontinence (SUI) and urgency urinary incontinence (UUI), 3.24 (95% CI 1.81-5.81) and 2.84 (95% CI 1.27-6.34), respectively.

Table 2. Prevalence of urinary incontinence according to disordered eating, in athletes and non-athletes

	Athletes			Non-athletes		
	Any UI	SUI	UUI	Any UI	SUI	UUI
EDE-Q global score						
≤2.12	75 (25.2)	63 (21.1)	23 (7.7)	40 (13.5)	11 (3.7)	18 (6.1)
>2.12	32 (50.0)	30 (46.9)	12 (18.8)	10 (13.3)	5 (6.7)	5 (6.7)
	<i>p</i> <0.001	<i>p</i> <0.001	<i>p</i> =0.013	<i>p</i> =0.967	<i>p</i> =0.335	<i>p</i> =0.792

EDE-Q: Eating Disorder Examination Questionnaire; UI: urinary incontinence; SUI, stress urinary incontinence; UUI, urgency urinary incontinence.

Interpretation of results

The present study included young women with no comorbidities. Athletes with DE had significantly higher odds of UI than those without DE. As far as we have ascertained there are sparse knowledge on this phenomenon. Although the development of UI is multifactorial, the results are in line with a former study [3].

More basic studies are needed to investigate the relationship between these two conditions.

Strengths of the present study are the large sample size and the use of validated instruments to assessed both DE and UI. The use of self-reported data is a limitation of the study. In addition, the lower number of participants in the leanness groups may have influenced the results.

Concluding message

Female elite athletes with DE have higher risk of UI than other athletes. Both UI and DE can have a negative impact on the athletes' well-being, quality of life and sport performance. Female elite athletes should be screened for both DE and UI and prevention and treatment strategies for both conditions should be evaluated in future high quality RCTs.

References

1. Fairburn, C G and Beglin, S J. Assessment of eating disorders: interview or self-report questionnaire? *Int J Eat Disord.* 1994;16(4):363-70.
2. Torstveit, M K and Sundgot-Borgen, J. Participation in leanness sports but not training volume is associated with menstrual dysfunction: a national survey of 1276 elite athletes and controls. *Br J Sports Med.* 2005;39:141–7.
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Disclosures

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