

## HIGH IMPACT EXERCISE AND FEMALE URINARY INCONTINENCE

### Aims of Study

A growing number of women are exercising and discovering the benefits of exercise on the cardiovascular and musculoskeletal systems. Little attention has been given to the effects of high-impact exercise on the lower urinary tract in females. This questionnaire-based study attempts to determine the prevalence of the symptoms of urinary incontinence in women who regularly undertake some form of high-impact exercise (step, aerobics, treadmill or circuit training) within a gymnasium setting.

### Methods

A self-administered questionnaire was developed to assess the prevalence of the symptoms of urinary incontinence during high-impact exercise as well as during the activities of daily living in women attending a chain of female-only gymnasia. Data were evaluated by  $\chi^2$  analysis of associations or Student's *t* test for continuous variables. Results were considered statistically significant when  $p < 0.05$ .

### Results

300 questionnaires were administered and 174 were returned completed (Response Rate: 58%). The average age of respondents was 38.5 years (range 16 – 80). 27 women were post-menopausal (15.5%). 80 women (46%) were nulliparous and 23 women (13%) had undergone at least one caesarean section. Overall, 86 women (49%) had noticed some degree of urinary leakage. Parity was the single greatest predictor of incontinence with a statistically significant relationship ( $p < 0.01$ ) between vaginal delivery and leakage. Incontinence was observed by 13 of the nulliparous women (16%). Positive correlations were observed between subjects over the age of 40 and the post menopausal state ( $p < 0.01$ ) and with a Body Mass Index in the range of 25 – 30 ( $p < 0.01$ ). We found no significant relationship between leakage and hysterectomy or prolapse surgery, or with the use of diuretics or hormone replacement therapy. We did not find that the frequency or duration of exercise or time spent per session had any effect on the prevalence of incontinence during exercise. 9 women (5%) experienced leakage on exercise and at no other time. The remaining women who were incontinent during exercise were also incontinent at other times during their daily life. 38 women (47%) had stopped or modified the way they performed an exercise because of urinary leakage and 38 (47%) wore a pad during exercise.

### Conclusions

This study demonstrates that incontinence of urine during high-impact exercise is not uncommon. Although the greatest determinant of leakage is vaginal childbirth, leakage during high-impact exercise was also experienced by nulliparous females. We postulate that prolonged high-impact exercise might lead to chronic mechanical overloading of the pelvic floor. Were this work to be repeated in the same cohort of patients in (say) 2 years, would chronic pelvic loading have led to an increased prevalence of stress leakage? Our data demonstrate that women will modify their exercise regimes because of leakage, although most were disinclined to discontinue exercising completely. We believe that gymnasia and personal trainers do women a disservice if they do not include pelvic floor training within the framework of a generalised exercise programme, particularly for those women who participate in high-impact exercises.