413

Kyrklund M[1], Törnävä O[2], Airaksinen O [1]
1. Kuopio University Hospital, 2. Tampere University Hospitla

THE INFLUENCE OF SITTING TO THE ACTIVITY OF PELVIC FLOOR MUSCLE ACTIVITY

Hypothesis / aims of study

Stress urinary incontinence is mainly a reflection of decreased pelvic floor muscle control.
Overall, the litterature review provides some support for the widespread recommendation that Pelvic floor muscle exercises are effective conservative therapy for women with stress, urge, or mixed, urinary incontinence. Preventive training of the pelvic floor muscles before pregnancy and/or after childbirth improves the situation significantly, especially if the people are able to continue to activate pelvic floor muscles during their daily life situations. Most of our work situations require continuous sitting. The purpose of this study was to evaluate the pelvic floor muscle activity during sitting in different positions with healthy women.

Study design, materials and methods
The study population consisted 19 young and healthy women without any problems of incontinence or low back area. Three of them had one childbirth.
The electrical activity of pelvic floor muscles were evaluated by intravaginal probe with ME 6000 Mucle Tester professional device (Mega Electronics Ltd, Kuopio, Finland.)
The study protocol included sitting half of hour in three different positions – low back in neutral physiologic position, low back in lumbar kyphosis and low back in dynamic variable position.
In each position after baseline measurements there were recorded one minute test periods three times in three different sessions by two independent investigator with intravaginal probe with ME 6000 emg-recorder. Before the sitting session the test persons have half an hour introduction and supervising by physiotherapist. For calibration and standardisation purposes we measured also activation during maximal contraction during sitting and also during standing in neutral position three times with short five seconds maximal contractions.
The mean values of each test session were used as a result in each sitting position.
For statistical evaluation the SPSS 13.0.1 package were used.
The ethical approval were accepted in Tampere University Hospital.

Results

In the results of this study we observed that in every sitting position the pelvic floor muscles were activated. In neutral physiologic position and lumbar kyphosis position the electrical activity of pelvic floor muscles were low – only few mikrovolts. The activation levels during sitting changed from 10 to 20 percent of maximal voluntary contraction activity. The electrical activity were highest at the dynamic sitting position and lowest in lumbar kyphosis position. The differences in electrical activity of pelvic floor muscles were statistically significant also between dynamic and physiological positions ($p<0.01$).

Interpretation of results

The activation levels changed from 10 to 20 per cent during rehabilitation programmes concerning stabilisation exercises with low back pain patients. Our results showed that the same level were received. Our results also suggested that dynamic sitting position may be helpful for activation of pelvic floor muscles and preventing the tendency to urinary incontinence, especially for risk situations eg near childbirth.

Concluding message

The pelvic floor muscles were activated differently in various sitting positions. Dynamic sitting seemed to activate more than neutral or kyphotic positions. The muscle activity levels suggested that active sitting will also repay for the light exercise programme.

FUNDING: NONE
DISCLOSURES: NONE
CLINICAL TRIAL REGISTRATION: This clinical trial has not yet been registered in a public clinical trials registry.
HUMAN SUBJECTS: This study was approved by the Tampere University Hospital and followed the Declaration of Helsinki Informed consent was obtained from the patients.