

Authors: J Laycock, P Chiarelli, J Haslam, R Lavender, K Mann, D Naylor
Institution: The Culgaith Clinic
Title: PELVIC FLOOR EXERCISES: ARE WE TEACHING THEM CORRECTLY?

Aims of study:

Historically, in pelvic floor re-education, pelvic floor muscle (PFM) contractions were performed in isolation, avoiding the use of accessory muscles (the abdominals, glutei and adductors). However, recent research (1) suggests that there is always co-contraction of the pelvic floor muscles and the lower abdominal muscles. This pilot study set out to investigate whether voluntary co-contraction of the lower abdominals and the PFM enhanced the resultant PFM contraction.

Methods:

Six healthy healthcare professionals aged between 33 and 58 years agreed to test the following null hypothesis: there is no difference in the strength of pelvic floor contractions when performed in isolation compared with pelvic floor contractions with co-contraction of the lower abdominals.

The EMG activity of the perivaginal muscles was evaluated using a Periform electrode (Neen Healthcare, UK). The EMG activity of the lower abdominal muscles was evaluated using surface electrodes placed midway, on either side of an imaginary line drawn between the symphysis pubis and the anterior superior iliac spine; the reference electrode was placed equidistant from each of the active electrodes. This technique of testing the abdominals was not able to differentiate between transverses abdominis (TrA) and the oblique abdominal muscles.

Participants were placed in crook lying and, after brief instruction to ensure correct muscle contraction, were asked in random order to perform a maximal contraction of the muscles of the pelvic floor in isolation, and a maximum contraction of the muscles of the pelvic floor with co-contraction of the lower abdominal muscles. Participants were asked to sustain the contractions and co-contractions for a period of five seconds and adequate rest time (2 minutes) was allowed between contractions. Measurements were recorded on a PRS 900 (Hollister USA) and registered in microvolts.

Statistical analysis was carried out using Wilcoxon Signed Rank Test.

Results:

Table 1 shows the results of the test

Number	P. floor (μv)	P. floor + abd. (μv)
1	53.5	78.5
2	30.0	27.5
3	39.3	42.1
4	10.7	23.0
5	46.8	54.7
6	27.0	37.2

Table 1. Results of EMG measurements (in microvolts).

P. floor = pelvic floor in isolation; P.floor + abd. = pelvic floor with co-contraction of the lower abdominals.

All subjects (except subject 2) showed an increase in pelvic floor muscle EMG activity during co-contraction of the lower abdominals. The mean strength of a pelvic floor contraction in isolation was 34.6 μ v and with co-contraction of the lower abdominals was 43.8 μ v, and this was statistically significant ($p=0.046$) Wilcoxon Signed Rank Test, 2-tailed.

Conclusion:

This pilot study suggests that the null hypothesis (that there is no difference in the strength of contraction between pelvic floor contractions in isolation and pelvic floor contractions with co-contraction of the lower abdominals) should be rejected in favour of the alternate hypothesis (that the strength of pelvic floor contraction is significantly enhanced with co-contraction of the lower abdominals).

Discussion:

Compliance with pelvic floor exercises is known to be poor and may be improved if a concomitant improvement in abdominal activity is encouraged.

Reference:

Sapsford RR et al. 2001. Neurourol & Urodynam. 20:1: 31-42.