

Evidence for increased tone or overactivity of pelvic floor muscles in pelvic health conditions: a systematic review

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Objective

Pelvic floor muscle tone, which includes active and passive components, is argued to be increased in many pelvic health conditions, including those involving pain. This study systematically reviewed evidence for increased pelvic floor muscle tone in pelvic health conditions.

Data Sources

Electronic databases (PubMed, CINAHL, and Embase) were searched up to May 31, 2021. The search strategy included variants of pelvic and/or floor, muscle, and tone using keywords and Medical Subject Headings (MeSH) terms.

Study Eligibility Criteria

Studies were included if they investigated increased tone of the pelvic floor muscle and reported measures of active or mechanical properties of the pelvic floor muscle in humans with any pelvic

health condition, including pain, bowel, urogenital, or sexual dysfunctions. Studies of any design were included, except systematic and narrative reviews. Reference lists of studies, reviews, and book chapters were searched for additional studies.

Methods

Data were extracted using a standardized form, including measurement tool and outcome measure. Risk of bias was analyzed using a modified ROBINS-I (Risk of Bias In Non-randomized Studies - of Interventions) tool, and a score was allocated to determine whether the study provided “convincing” interpretation (comparison with condition-free control group, valid measure, no application issues).

Results

In total, 151 studies were included, reporting 8 different tools (electromyography, dynamometry, manometry, digital palpation, defecography, ultrasound, magnetic resonance imaging, other). The most common pelvic health condition was pelvic pain (n=16 conditions), followed by bowel and urogenital conditions. Most studies (57%) were cross-sectional. A healthy control group was infrequently included for comparison (27%). Unvalidated methods or methods applied in a manner that precluded convincing interpretation were common (94%). Of the 15 measurement tools that provided convincing evidence, 10 demonstrated greater tone in a pelvic health condition (all pain) compared with controls, and 5 showed no difference.

Conclusion

Despite the large literature, few studies provide convincing evidence for increased tone/overactivity of pelvic floor muscles in pelvic health conditions. Interpretation is hampered by design and measurement issues. Terminology was often inaccurate. Few studies investigate male, transgender, and pediatric groups.