

# Is abdominal hypopressive technique effective in the prevention and treatment of pelvic floor dysfunction? Marketing or evidence from high-quality clinical trials?

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## INTRODUCTION

In the late 1940s, Arnold Kegel first described pelvic floor muscle training (PFMT) to prevent and treat pelvic floor dysfunctions such as urinary incontinence (UI) and pelvic organ prolapse (POP). Several systematic reviews and Cochrane reviews conclude that there is level 1A evidence for prevention and treatment of PFMT for UI<sup>1</sup> and POP.<sup>2</sup> Despite the strong evidence for PFMT for these conditions, several other exercise regimens have been proposed and advocated to manage UI and POP. Specifically for stress UI, Pilates and Paula methods, Tai Chi and other methods based on breathing exercises and correction of body posture have very limited or questionable effects based on randomised controlled trials (RCTs).<sup>3</sup>

The abdominal hypopressive technique (AHT) may be classified as a breathing exercise. It was developed in the 1980s by a physical therapist named Dr Marcel Caufriez, and is widely known and used in countries including France, Italy, Spain, Canada and countries of South America. Those in charge of teaching the courses of this technique have already taught more than 1500 coaches in 14 countries, and seem to have a great media impact both on television and social networks (<http://lowpressurefitness.com/en/>). However, search on PubMed, Sports Discus, Web of Science, Physiotherapy Evidence Database (PEDro), and Scopus data base of 4 July 2017 reveal no evidence for the efficacy of the technique.

## WHAT IS THE AHT AND HOW SHOULD IT WORK?

The AHT is a group of breathing and postural exercises developed in the 1980s,

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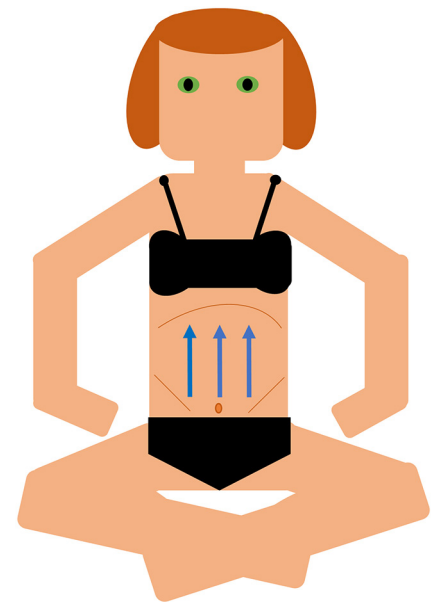
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as mentioned above. The inventor theorised that the decreased abdominal pressure obtained with the AHT can lead to reflex activation of muscles in the abdominal wall and pelvic floor, thereby reducing UI and POP. In addition, Dr Marcel Caufriez hypothesised that the AHT is mainly performed via transversus abdominis (TrA) activation. However, Stupp *et al* found in 34 nulliparous physical therapists that the AHT was less effective than PFM contraction to activate the TrA, but adding PFM contraction to AHT improved the TrA contraction.<sup>4</sup> Despite the above, some authors have indicated that contraction of the TrA may increase the intra-abdominal pressure, which could negatively impact the pelvic floor by causing muscle caudal displacement.<sup>5</sup> Hence, the AHT is controversial and should be further studied.

In brief, the AHT involves: (1) diaphragm inspiration, (2) total air expiration and (3) gradual contraction of the TrA and intercostals muscle with the rise of the haemidiaphragm and apnoea (figure 1). All fundamentals and theoretical bases of the AHT can be found in Rebullido and Pinsach.<sup>6</sup>

## What is the evidence for AHT?

A search on PubMed, Sports Discus, Web of Science, Scopus and PEDro using the mesh terms urinary incontinence, pelvic organ prolapses, pelvic floor dysfunction and pelvic floor disorders revealed two published studies on the AHT and pelvic floor dysfunctions after abstract screening and removal of duplicates. Bo and Hebert developed a six-stage protocol for the introduction of new therapies in clinical practise.<sup>7</sup> The protocol included the following phases: (1) development phase (clinical observation or laboratory studies, clinical exploration and pilot studies); (2) testing phase (RCTs); and (3) refinement and dissemination phase (active dissemination). Subsequently, the same authors conducted a systematic review to



**Figure 1** Illustration of a common sitting exercise involved in the abdominal hypopressive technique routine. The arrows indicate the upward direction of the gradual contraction of the transversus abdominis and intercostals muscle with the rise of the haemidiaphragm and apnoea. This takes place after diaphragm inspiration and total air expiration.

examine evidence of alternative exercise regimens for female stress UI, showing that there were no studies published on the effect of AHT and still no evidence for other techniques to prevent or treat this condition.<sup>3</sup> In this regard, the authors pointed out that the AHT still was in a development phase, according to the proposed six-stage protocol.

Let's consider the two studies on the effect of the AHT for pelvic floor dysfunction: one experimental study<sup>8</sup> and one RCT.<sup>9</sup> The first did not find any acute effect of adding AHT to PFMT on PFM maximal voluntary contraction, endurance and muscle activation.<sup>8</sup> The RCT followed 58 women with stage II POP in a 12 weeks' intervention of adding AHT to PFMT. There was no additional effect on cross-sectional area or PFM strength.<sup>9</sup>

## THEN, GOOD MARKETING CAMPAIGN OR EVIDENCE?

There is undoubtedly a worldwide huge interest of the public and the clinical community on AHT (<http://lowpressurefitness.com/en/>; <https://www.ukhypopressives.com/>; <https://hypopressivescanada.com/>). However, to date, the AHT lacks scientific evidence to support its benefits. At this stage, the AHT is based on a

## Discussion

theory with 20 years of clinical practice. We conclude that at present, there is no scientific evidence to recommend its use to patients. This particular treatment currently illustrates the phenomenon that not all recommended treatments are evidence based.<sup>10</sup>

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