A study by Kieran O'Sullivan, University of Limerick on the BackApp

Link to video: https://youtu.be/h7FuO_g-eqA

**No more back pain**

Twenty-one people with lower back pain sat on the Back App for 1 hour and then on an ordinary office chair with armrests and a backrest for 1 hour. The participants reported a level of lower back pain and overall discomfort every fifteen minutes over the course of the hour. Lower back discomfort (pain) increased significantly while they sat on the ordinary office chair ($p=0,05$). Their pain also continued to increase over the course of the hour, so the level of significance increased to $p=0,01$ after 60 minutes. Their overall discomfort was also significantly higher after 60 minutes on the ordinary office chair.

**Exercise your core muscles**

Fifteen healthy people sat still on the Back App for 1 hour watching a video with the ball in the medium challenge position. Then they sat for 1 hour on an ordinary office chair with a backrest and armrests. Energy expenditure increased significantly ($p=0,001$) while they were using the Back App. The average increase was 19%. Even though the sitting position was neutral when sitting on the Back App, which requires less energy, the muscles worked more and burned 19% more energy. The reason for this is that the body uses energy to maintain balance.

**Burn more energy while balancing on the Magic Ball**

Fifteen healthy people sat still for 1 hour and watched a video while sitting on the Back App with the ball in the medium challenge position. Then they sat for 1 hour on an ordinary office chair with a backrest and armrests. Energy expenditure increased significantly ($p=0,001$) while they were using the Back App. The average increase was 19%. It is well documented in the scientific literature that a standing position increases energy consumption by 15%. Thus, sitting still on the Back App with the ball in the medium challenge position, increased energy consumption to the same level as when standing. Sitting on the Back App 8 hours a day for 230 days will burn 27,600 kcal more than sitting on an ordinary office chair. 27,600 kcal is approximately equivalent to 4 kg of body fat.

**Sit more upright with less effort**

Based on two studies where people sat upright without a backrest and attempted to keep a natural posture, or performed a typing task. The conclusion was that the outer stabilizing muscles are less active when sitting on the Back App. Lumbar flexion was significantly reduced and so was the activity of one of the main lumbar muscles. The conclusion was that sitting upright on the Back App is easier than sitting upright on an ordinary office chair. You are able to sit upright for longer without a backrest while using the Back App.

**A survey of 364 physiotherapists**

Since 2006 the Back App chair has been on the market as a training apparatus exercising the back supporting muscles during seating. After selling 11000 chairs we sent a questionnaire to specialists (physiotherapists, chiropractors, etc) in the Nordic countries who use the BackApp.

**Effects of Back App on the neck**

67,3 % of specialists said that neck patients would benefit from training with Back App, and over 62,2 % said that sitting on Back App had positive effects on neck function.

**Effects of Back App on the hips**

49,5 % of specialists said that patients with hip problems would benefit from training on Back App, and over 39,3 % said that sitting on Back App should give positive effects on hip function.

**Effect of Back App on the pelvis**

47,3 % of specialists said that patients with problems in the pelvic region would benefit from training on Back App, and over 39 % said that Back App affected pelvic function positively. In addition over 44,8 % said that pelvic muscles were positively affected.

**Back App can be recommended**

We asked the specialists if they would advise their patients to use Back App?
348 of 364 said "Yes"

The 18 saying no had these reasons: 5 of them had no patients and could of course not advise the Back App to anybody, 6 said they thought it was too expensive, 7 said that they would not recommend the chair because of the need for height adjustable tables and because Back App was not movable (needed wheels)

**Comfort**

351 of 364 said that Back App seating was comfortable. Comfortable seating is a key factor for the continuous use of Back App as a training apparatus.

From this extensive study, we can conclude that specialists from Norway, Sweden, Denmark and Finland agree that the Back App chair is doing the job it was planned to do; Back App exercises the back supporting muscles - by sitting