

ISOMETRIC CORE MUSCLE ENDURANCE IN HEALTHY ACTIVE AND NON-  
ACTIVE WORKING AGE POPULATIONS

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This is the first study to investigate the core muscle endurance of different age groups and genders with all four endurance tests of the core.

Core endurance has been previously tested in literature with either isometric or dynamic tests. Strand et al. (1), however, claim that dynamic tests like sit-ups are more indicative of inner range muscle strength and power, and therefore, do not reflect the muscle endurance. Biering-Sorensen, McGill v-sit and side plank have been found to be the most reliable and safe in a myriad of different isometric core endurance tests (2–7). The reliability of v-sit has been found to be 0.66-0.73 (7–9), Biering-Sorensen 0.54-0.99 (5,7,9) right side plank (RSP) 0.74-0.78 and left side plank (LSP) 0.91-0.96 (7,8) in healthy adult populations with and without low back pain (LBP).

Core endurance may be affected by different factors. Correia et al. (10) found that core muscle activity of people who experience LBP is delayed, which may lead to further dysfunction and pain. It is unclear, though, if reduced core muscle endurance affects LBP experience or the risk of its' development.

Another possible factor influencing the core muscle endurance is age. However, the results in the older general population are contradicting (mean age values of 37–47.95) (11,12) due to possible influence of participants' lifestyle, work, and selected endurance tests. We are living in an aging society and further investigation should be carried out to reject or confirm this possible connection.

As a result of aging, a healthy person loses 1–2% of the muscle mass (13–15) and put on 0.45kg fat every year after reaching the age of 40 (16,17). An increase in BMI has been associated with reduced core muscle endurance (18-20). However, physical activity may reduce these changes and account for different results of previous studies.

The purpose of this study was to investigate a possible correlation between core muscle endurance and participants' age in healthy adult population. The secondary purpose was to identify other dependent variables influencing isometric core muscle endurance (e.g. low back pain, physical activity, gender, body mass index).

48 (35 females, 13 males) healthy adults (aged 21–66 years) will perform 4 isometric core muscle endurance tests- Biering-Sorensen, McGill V-sit, right and left side plank. All

participants will be divided into 2 age groups considering the physiological changes taking place during aging- <41 and >40.

Guidelines suggest that to maintain a healthy lifestyle, adults aged between 18 and 65 should do moderate-intensity aerobic physical activities for a minimum of 30 minutes, 5 times a week, or high-intensity aerobic activities 20 minutes, 3 times a week (21–24). Participants will also be divided based on the physical activity level- groups that meets national and international guidelines and a group that doesn't. A correlation between core endurance and age, gender, low back pain (LBP), physical activity level (PAL), and body mass index (BMI) is calculated using Pearson's correlation and Independent T-test on SPSS. It is a case control study, collecting both numerical and categorical data.

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