

Are trunk and pelvis kinematics during gait affected by aging?

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Changes in pelvic and trunk movement may contribute to a decline in gait efficiency in older adults. This systematic review compared trunk and pelvic kinematics during gait among adults and older adults (PROSPERO: CRD42018107005). Electronic search was conducted on MEDLINE and EMBASE from the earliest record to August 2018. Two reviewers screened titles, abstracts and full texts. The search strategy included terms related to “gait”, “kinematics”, “aged”, “trunk” and “pelvis”. Inclusion criteria: studies that compared trunk and/or pelvis movement during gait between adults and older adults. Exclusion criteria: participants affected by any health condition that could affect gait. Data extracted: gait speed, walking surface and pelvic and trunk range of motion. The Effective Public Health Practice Project Scale was used to assess the quality of the studies. The search strategy identified 2042 papers. After screening, seven observational cross-sectional studies were included. Five studies had strong quality, one had moderate quality and one had weak quality. They included 94 adults and 180 older adults. The results showed that older adults had reduced pelvic tilt range of motion during comfortable speed (SMD: -0.86; CI 95% [-1.49 to -0.22]; Z: 2.65; p=0.008) and during gait in faster speeds. They also presented reduced pelvic rotation range of motion during faster speeds (SMD: -1,31; CI 95% (-1.87 to -0.75); Z= 4.58, p<0.001) in comparison to adults. There were no differences in trunk movement. Older adults have reduced pelvic range of motion in comfortable and faster speeds that could contribute to the decline of gait function.