

Elucidation of pathophysiology of spinal postural abnormalities using a randomly selected community cohort

Primary Researcher: Masashi Uehara
Assitant Professor, Department of Orhotpaedic Surgery, Shinshu University School of Medicine

Co-researchers: Shota Ikegami
Associate Professor., Department of Rehabilitation, Shinshu University Hospital
Jun Takahashi
Professor, Department of Orhotpaedic Surgery, Shinshu University School of Medicine

This study, based on a community cohort established in 2014 (the 1st Obuse Study), aimed to clarify longitudinal changes in spinal alignment abnormalities and their related factors through a second follow-up examination (the 2nd Obuse Study) conducted approximately eight years later. The second survey has been fully completed, with 169 of the 415 participants from the first phase undergoing radiographic, physical function, biochemical, and questionnaire assessments. Data analysis of these newly obtained measurements is currently in progress. Findings from the first phase demonstrated age-related deterioration of sagittal spinal alignment, with earlier decreases in lumbar lordosis and increases in pelvic tilt observed in women. Malalignment parameters were significantly associated with declines in physical performance measures such as grip strength and one-leg standing time. Low back pain was reported in 12.9% of participants, with a significant independent association found with pelvic incidence–lumbar lordosis (PI–LL) mismatch. The ongoing analysis of the second-phase data aims to elucidate the longitudinal progression of spinal alignment and identify potential strategies for the prevention of posture-related functional decline.