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ANALYSIS OF LATERAL FLEXION OF SPINE OF ULTRASONOGRAPHERS' BODIES DURING ABDOMINAL AND BREAST ULTRASOUND EXAMINATIONS

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Ultrasound examination is one of the most commonly used imaging techniques due to its safety, non-invasiveness, and ability to assess anatomical structures in real-time. However, despite its advantages, the procedure can be physically demanding for the physician, potentially leading to musculoskeletal pain caused by awkward body positions during examinations. This study aimed to evaluate lateral flexion of spine during breast and abdominal ultrasound examinations to identify which poses are the most strenuous for the diagnostician.

The study involved five experienced ultrasonographers from the University Clinical Center named after Prof. Gibiński in Katowice. Kinematic data was collected using the Noraxon Myomotion system, with 16 inertial sensors placed on each physician. The kinematic measurements were conducted for physicians while performing ultrasound examinations of the following body segments: liver, right kidney, left kidney, right breast and left breast. Each patient was informed about the study, and it was conducted with approval from the Bioethics Committee. Data was collected in single recordings, marked according to examination points, and analyzed in MATLAB using a custom script to measure lateral flexion. Statistical analysis was then performed to identify which ultrasound exam segments caused the most unnatural posture for the physician.

The analysis of the obtained results showed that, for the positions analyzed, the most strenuous for the spine are those assumed during the imaging of both kidneys and the left breast.