**PREVENTION OF WORK-RELATED MUSCULOSKELETAL DISORDERS (MSDs) IN UPPER EXTREMITIES**

**Introduction** Musculoskeletal disorders occupy the first place among occupational and work-related diseases in Estonia, Europe and many other countries in the world. The field has been widely studied, however, due to the specificities of work environment as well as cultural environment, development mechanisms of diseases are somewhat different. The aim of the research was to elaborate the conceptual model for prevention of work-related musculoskeletal disorders which enable the possibility to the occupational health doctors to elaborate prevention and rehabilitation activities from badly organised workplace ergonomics.

**Methods** 505 people (office and garment industry workers) participated in the study. The comparison group consisted of patients with occupational diseases. For a questionnaire survey, the study participants filled out the Nordic Questionnaire for Analysis of Musculoskeletal Symptoms and Work Ability Index (WAI) questionnaire; pain assessment took place with the Pain Visual Analogue Scale. Muscle stiffness and frequency were measured myotonomically. The Student’s t-test was used. The statistical significance of the t-test was p=0.005. Univariate analysis, correlation, analysis, parametric and nonparametric tests were applied in SPSS. The Shapiro-Wilk test, Pearson’s Chi-Square test, Likelihood Ratio, Fisher’s Exact test and the Linear-by-Linear association test were used in the process of elaborating the model.

**Results** Most painful body regions (in neck, shoulders, elbows, wrists and back) correlated to pain duration (four stages), pain severity, age of workers and three stages of MSDs in preventive and rehabilitative medical activities. The novelty: the right hand of office workers is more painful than the left one; garment workers’ both hands are painful to the same extent.

**Conclusion** The current research contributes to the elaboration of the conceptual model which enables the occupational health doctors to workout the basis for prevention of MSDs and rehabilitation from MSDs caused by the poorly organised workplace ergonomics.

**INFLUENCE OF BED HEIGHT ON MUSCULAR ACTIVITY OF DORSAL ERECTOR MUSCLES DURING STANDARD NURSING TASKS**

**Introduction** A higher frequency of back complaints in the lower back area can be observed among nursing staff than among workers in other professions. The use of adjustable beds in nursing practice has been suggested as a means of influencing working postures and reducing muscular demand and load on nursing personnel. The purpose of this study is to objectively assess the impact of different bed positions on muscle activity during nursing tasks.

**Methods** Seven nurses in a geriatric nursing home performed a standardised morning care routine for an immobile patient. Muscular activity of left and right erector spinae muscle was measured using surface electromyography. Each participant conducted four measurements with the bed at two different heights (recommended height of the bed according to the anthropometric characteristics of the employee and recommended height lowered by 10 cm), once with raised and once with lowered side rails. Measurements were recorded for four consecutive days, from 6:00–8:00 am, each nurse taking care of the same immobile patient. Statistical analysis was performed on the basis of non-parametric Wilcoxon matched pairs test. The value p<0.05 was considered as statistically significant.

**Results** A small difference in bed height resulted in a significant change of back muscles activity. Therefore, height adjustable beds and ergonomic training for employees should be an essential part of back pain prevention in nursing personnel. Working in pairs may represent an unexpected ergonomic puzzle if two health care workers have different bed height demands according to nursing care recommendations and standards.