Abstract
The name of the work: Shape changes in the axial system during respiration

Goal of the work: the main objective is to perform a case study of brass parameters and changes the shape of the trunk during the ventilation maneuver, prepare the correct methodology of research and to conduct separate measurements. The thesis will be divided into two parts, the first will contain the theoretical background to the subject, in the second part will then be described by the research, where I measured the change in the volume of the lungs in relation to time, assess the impact of implemented ventilation maneuver on the individual probands and examine the respiratory dynamics in selected ventilation maneuver.

Methods: in the framework of the fulfilment of the tasks of this work have been carried out experiments with the use of 3D kinematic record with Qualisys and spirometric measurement. The experiment involved three probands aged 20 to 40 specific common features.
Each of the proband performed during the measurement of quiet breathing, maximum inhalation and exhalation and ventilation maneuver. Measurements were carried out in one day under standard conditions, measurements made on the day of probands quiet breathing, maximum inhalation and exhalation and ventilation maneuver (5 min total). Data records were made immediately after its completion.

Results: from the results of the measurements implies that occurred after lung volume reduction Kapalabhati two obtained from three. For respiratory dynamics of selected ventilation maneuver was used 3D motion analysis, which proved to be correct. Unfortunately, the evaluation of the data from the Qualysisu showed no significant knowledge, has not changed significantly.

Key Words: diaphragm, posture, body shape, mobility of spine, dynamics of breathing, 3D motion analysis, spirometer