

## Influence of Low-Rate Respiration on Human R-R Interval Power Spectra

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Influence of respiration on human R-R interval power spectra was studied using controlled respiration of 6-15 breaths per minute. Our study was designed to test how the influence of lower-rate respiration than 6 breaths per minute could increase Power Spectra of Human R-R interval. Fourteen men and one woman, ages 17-26 years, participated in this study. Before the recording each subject was trained how to breath so as to obtain the necessary results. Measurements. We recorded digital data (ECG and pneumotachogram) using Biopac Student Lab system at respiration rate of 4 and 15 (normal rate of respiration) breaths per minute. Experimental protocol. Subjects remained supine throughout the recording and breathed in the following 6 fixed sequence each of 3 minutes including: 1) Normal respiration; 2) Normal thoracic respiration; 3) Normal abdominal respiration; 4) Low-rate respiration 4 breathes/minute; 5) Low-rate thoracic respiration 4 breathes/minute; 6) Low rate abdominal respiration 4 breathes/minute. Tidal volume was maintained at 1 liter for normal respiration and between 2,2-3 liters for low-rate respiration. Data analysis. Power spectra of human R-R interval was derived using custom program based on Matlab 7.0. There were not recorded major differences on how age or/and weigh influenced power spectra on R-R interval. For men it was much harder to maintain Low-rate thoracic respiration, none of them had better results than woman. Influence of mouthpiece. The Tidal Volume increased by reason of mouthpiece dead space (about 100 ml). This resulted mainly at the start of the registration. Influence of self-awareness. Even if all subjects had a 5 minute training on respiration pattern, breathing errors were recorded, mostly at low-rate thoracic respiration of 4 breathes/minute. No statistically significant differences were present among mean R-R interval in all respiratory tests. Power spectra of R-R interval was significantly greater ( $p < 0.05$ ) at respiratory rate of 4 breaths per minute than at normal rate of 15. Low frequency power spectra of R-R interval (0.06- 0.14Hz) also were significantly greater at low respiratory rate. Types of respiration (usual, mostly thoracic or mostly abdominal) hadnâ€™t influenced the R-R interval power spectra. Complains. All of the subjects complained about the breathing through mouthpiece (not being able to breathe in fully and shortness of breath). Respiratory recording methods that require a mouthpiece are known to alter the ventilation. Therefore tidal volume rose. It was noticed more breathing irregularities (sighs and pauses) when self-awareness increased (by reason of noise, move, etc). This also altered respiratory pattern.

## Isothioureic-Benzyturon Derivative with Hypotensive Action

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Benzyturon substance was used in the experimental study in dose of 2 mg/kg dissolved in 1,5 ml fiziological solution, which was administrated intravenously to 11 normotensive cats, with weight 2-4 kg, anesthesiated with urethane solution of 30% (1g/kg), administrated intraperitoneal, and subsequent with monitorization of blood pressure, the frequency of heart contraction and breath, at different intervals of time during 7hours. Initially, the blood pressure was 135 mmHg, the frequency of heart contractions (FHC) -157,2 beats/minute, breathe -96,9 breaths/minute. After administration of benzyturon substance the level of blood pressure was reduced and frequency of heart contractions compensatory increased. The results after administration of medication at various time intervals were the following: on 2 minutes with -7,1% and +9,6%; on 15 minutes with -10,3 and +20,2%; on 30