

## Towards Quasi-continuous Heart Rate Variability Estimation using a Patch Type Electrocardiogram Recorder - DTU Orbit (08/11/2017)

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Changes in different heart rate variability (HRV) measures have been found to possess predictive information in patients with many different diseases, e.g. myocardial infarction, diabetic neuropathy, and patients at risk of developing sepsis. At the same time, the emerging of patch type electrocardiogram recorders facilitates new possibilities for long-term monitoring, real-time data analysis, and wireless transmission of clinically relevant parameters, e.g. short-term HRV measures. This information might in the future assist the healthcare professionals in timely notification of changes in the risk stratification profile obtained from the HRV measures. The purpose of this study is therefore to investigate the possibilities for quasi-continuous estimation of reliable HRV measures using the ePatch heart monitor. We compared the physiologically true values of 11 selected HRV measures with the values obtained using automatically generated RR series from electrocardiograms recorded with the ePatch using four different sampling frequencies (128 Hz, 256 Hz, 512 Hz, and 1024 Hz). We found no significant differences between neither the mean nor the median values of the obtained HRV measures for any of the sampling frequencies. This is very promising for the future application of the ePatch for quasi-continuous monitoring of HRV measures.

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Authors: Bodholt Saadi, D. (Ekstern), Ahrens, E. (Ekstern), Sørensen, H. B. D. (Intern), Langberg, H. (Ekstern), Hoppe, K. (Ekstern)

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