

Optimal ECG Sampling Frequency for Multiscale Entropy-Based HRV

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Abstract : Multiscale entropy (MSE) is an extensively used index to provide a general understanding of multiple complexity of physiologic mechanism of heart rate variability (HRV) that operates on a wide range of time scales. Accurate selection of electrocardiogram (ECG) sampling frequency is an essential concern for clinically significant HRV quantification; high ECG sampling rate increase memory requirements and processing time, whereas low sampling rate degrade signal quality and results in clinically misinterpreted HRV. In this work, the impact of ECG sampling frequency on MSE based HRV have been quantified. MSE measures are found to be sensitive to ECG sampling frequency and effect of sampling frequency will be a function of time scale.

Keywords : ECG (electrocardiogram), heart rate variability (HRV), multiscale entropy, sampling frequency

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