

実環境における実時間RSA検出手法の研究

Real-time Extraction of Respiratory Sinus Arrhythmia for Application into Actual Environment

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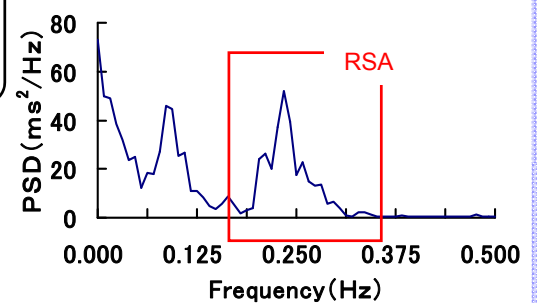
OBJECTIVES

呼吸性洞性不整脈(RSA)を実環境において、実時間で高精度に検出できる手法を開発する。

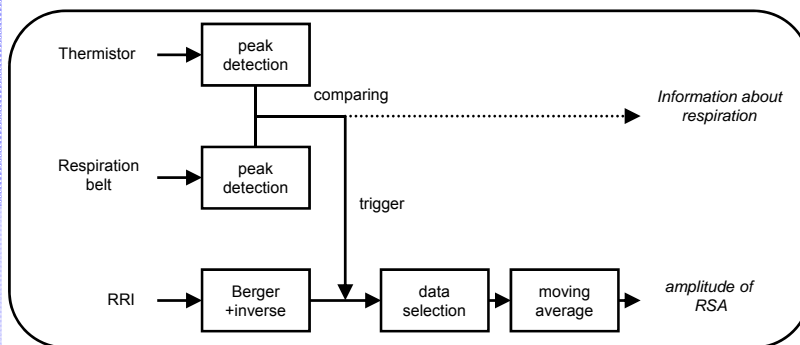
Respiratory-phase domain analysis of RSA

- Signal processing in each respiration (4 sec~)
- Possible to detect and remove accidental Noise

On rest condition, Respiratory-phase domain analysis **followed the mental workload level more closely**, had the **greater stability as an index** than did frequency domain analysis which is conventional approach to RSA.

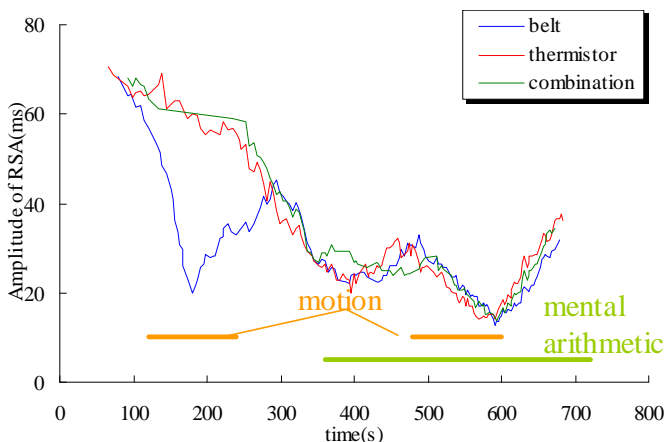


Development of extracting method robust to body motion



To improve the previous method robust to body motion, we use two respiratory sensors, Respiration belt and Thermistor.

Thermistor is more accurate than Respiration belt in terms of robustness to body motion.



Respiratory belt



Thermistor

Proposed method using two sensors, didn't be affected by body motion, in comparison with previous method using Respiration belt only.