

# Effect of a sleepless night combined with 2 cups of instant coffee on heart rate variability in an elderly man

## Abstract

Insomnia is harmful and has negative effects on the human body. Coffee is the most commonly used beverage to invigorate. Measurement of heart rate variability is the most accurate method for quantitative assessment of the sympatho-vagal balance of the autonomic nervous system, which determines adaptive capacity to stress. In our Case Report, after 1 sleepless night, the stress index rises and the sympathetic over parasympathetic prevails.

**Keywords:** Insomnia, Heart Rate Variability, sympatho-vagal balance, stress, stress index, coffee, elderly person

Volume 9 Issue 2 - 2022

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Received: September 28, 2022 | Published: October 20, 2022

**Introduction:** The adequate sleep is very important for a person's health. The insomnia is harmful and has negative effects on the human body. In this aspect, it makes sense to investigate the impact of a completely sleep-deprived night on heart rate variability, as well as to measure the stress index.

**Method:** We used the "Kalenji" chest strap (it transmits the signals wirelessly via BLE Bluetooth) for heart rate recording. The "HRV Kubios" software was used for the analysis of HRV parameters.

**Material:** The HRV-parameters were measured in a 61-year-old man. He is 178 cm tall and weighs 75 kg (BMI = 24). The subject spent a night completely deprived of sleep, continuing to be awake the next day. On this day, this man consumes a total of 2 cups of instant coffee in 1 hour.<sup>1-10</sup>

The short term measurement (3 min.) of HRV - parameters was carried out 40 minutes after the consumption of the second cup of instant coffee at 14:00 in the afternoon under conditions of complete rest in a supine position.

**Results:** The obtained results of this measurement are presented in Figure 1, Figure 2 and Figure 3.

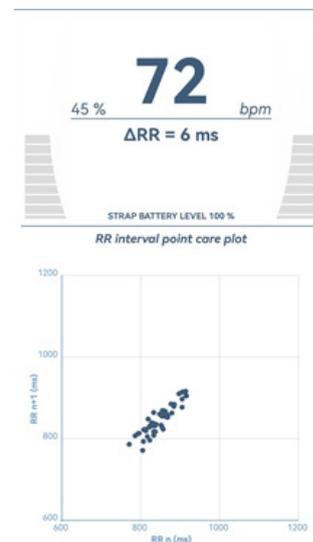


Figure 2 After insomnia

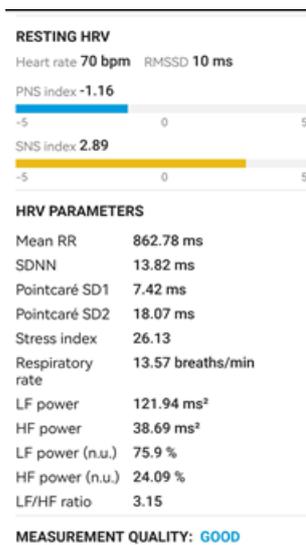


Figure 1 After insomnia



Figure 3 After insomnia

For comparison, we also present the results obtained from the measurement of HRV parameters on another previous day in the morning at 8 hours after a good 7 h night's sleep under basal conditions (complete rest in a supine position) (Figure 1A-3A).

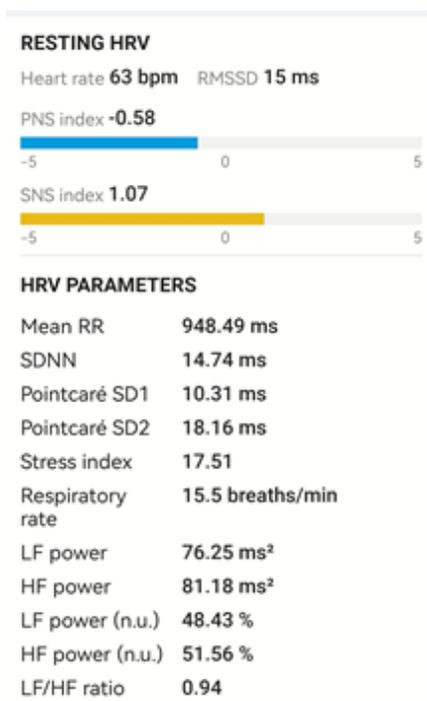


Figure 1A After a quality sleep

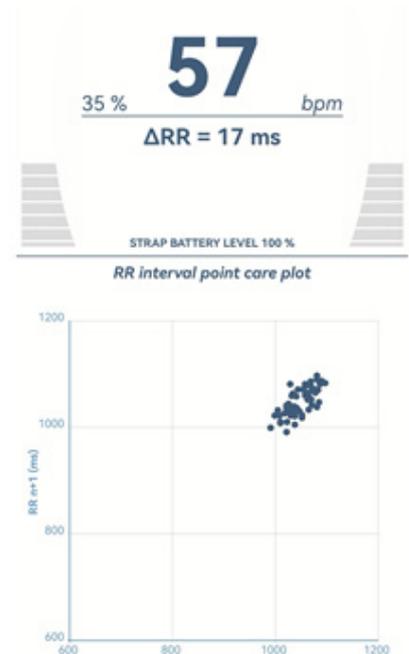


Figure 2A After a quality sleep



Figure 3A After a quality sleep

**Conclusion:** In our Report, after 1 sleepless night, the stress index rises (from 17.51 to 23.16) and the sympathetic over parasympathetic prevails (LF/HF ratio = 3.15). The readiness decreased from 63% to 32%.

## Acknowledgements

None

## Conflicts of interest

Author declare that there is no conflicts of interest.

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