

## Rest-activity circadian rhythms and fat mass percentage in men with metabolic syndrome

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Metabolic syndrome is a cluster of risk conditions such as abdominal obesity, dyslipidemia, high blood pressure and high fasting glycemia. These factors generated an increase of risk of cardiovascular diseases and type 2 diabetes mellitus. Furthermore, it has been shown that there is a correlation between metabolic syndrome and disruption of circadian rhythms. The circadian rhythms produce 24-hour oscillations of several physiological variables and any irregularity of these rhythms exposes the subject to an increased risk of metabolic syndrome [1]. Aim of the study was to investigate a possible relation between the percentage of fat mass (FM%) and rest-activity circadian rhythm (RAR) in men with metabolic syndrome. We recruited 36 men with metabolic syndrome in care at Fondazione IRCCS, Istituto Nazionale Tumori. All participants underwent a continuous 7-day actigraphic monitoring (MotionWatch 8®, CamNtech, Cambridge, UK) to record the activity levels. Then participants were divided into 2 groups referring to their median FM%: group 1, with FM% <29.2 (n=19) and group 2, with FM% >29.2 (n=17). The actigraphic activity data were analyzed by single cosinor method to obtain MESOR (M), amplitude (A) and acrophase ( $\emptyset$ ) of each subject. In addition, we applied the population mean cosinor method to evaluate the RAR parameters of each group. The results show a trend to have a reduction of MESOR and Amplitude in relation to FM%, even if we didn't find statistically significant differences (MESOR: group 1=207.5 vs group 2=194.7; Amplitude: group 1=158.4 vs group 2=145.3) between group 1 and 2 by Hotelling test.

### References

- [1] Shahmir et al. (2015) Irregular 24-hour activity rhythms and the metabolic syndrome in older adults. *Chronobiology International* 32(6): 802–813.

### Key words

Metabolic syndrome, actigraphy, circadian rhythm, women, body mass index, physical activity levels.