Letter to the Editor

Chlorogenic acids, sleep architecture and energy metabolism

Park et al.\(^1\) conducted a randomised, placebo-controlled, double-blinded cross-over trial to examine the effect of consuming chlorogenic acids (CGA) over 5 d on energy metabolism and sleep quality in humans. They found that the consumption of CGA significantly increased fat oxidation during sleep, and they speculated that it might reduce body fat and prevent obesity. In addition, consumption of CGA enhanced parasympathetic activity, as assessed by heart-rate variability during sleep. However, CGA consumption did not have significant effects on sleep architecture, except for shortened sleep latency. I have some concerns about their study.

First, the authors considered that CGA consumption reduced body fat and body weight. However, a review of the literature yields no clear evidence of a relationship between CGA and these outcomes\(^2\). In addition, a 5-d-long intervention is not representative of continuous consumption of CGA. The study was too short and there is a lack of causality between CGA and the outcomes. Further study is needed for assessing the consumption of CGA and obesity through a longer follow-up period.

Second, insufficient sleep in people with obesity is a risk factor for metabolic disorders\(^3\). Unfortunately, this study observed no significant association between consumption of CGA and change in sleep architecture. It is possible that a 5-d intervention period cannot lead to the improvement of sleep architecture. However, sleep latency significantly became shorter. As such, an interventional study using sleep parameters would be useful in understanding the effect of CGA consumption on sleep quality.

Finally, there is a need for speculation regarding the origin of CGA. If the authors considered coffee as the main source of consumption, the association between consumption of CGA and sleep architecture should be considered according to caffeine intake\(^4\). That said, a meta-analysis reported that both caffeinated and decaffeinated coffee consumption was associated with reduced risk of diabetes\(^5\). Inter-relationships among sleep, obesity, metabolic disorders and CGA should be further studied.

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