Weight gain induced by high-fat diet increases active-period sleep and sleep fragmentation

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Research to be presented at the Annual Meeting of the Society for the Study of Ingestive Behavior (SSIB), the foremost society for research into all aspects of eating and drinking behavior, finds that prolonged exposure to a high-fat diet reduces the quality of sleep in rats.

Using radio-telemetry, the authors measured 24-hour sleep and wake states after rats consumed a high fat diet for 8 weeks. Compared to rats that consumed a standard laboratory chow, the rats on the high-fat diet slept more but sleep was fragmented. The increased sleep time of the rats on the high-fat diet occurred mainly during the normally active phase of the day, resembling excessive daytime sleepiness observed in obese humans.

According to lead author, Catherine Kotz, "Studies in humans indicate a relationship between sleep quality and obesity. Our previous work in animals shows a link between good quality sleep, resistance to weight gain and increased sensitivity to orexin, a brain chemical important in stabilizing sleep and wake states. The current studies show that after high-fat diet-induced weight gain in rats, sleep quality is poor and orexin sensitivity is decreased. These findings suggest that poor sleep associated with weight gain due to a high-fat diet may be a consequence of reduced orexin sensitivity".

These studies highlight the impact of weight gain on sleep quality and a potential brain mechanism underlying these diet and weight-gain induced changes in sleep behavior.

Provided by Society for the Study of Ingestive Behavior

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