

The effects of circadian disturbances induced by night-shifts on the mouse peripheral tissues

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We have examined the effect of circadian disturbances induced by night-shifts on the phenotypes of the tibiae and abdominal adipose tissues in a mouse model by using *in vivo* micro-computed tomography (micro-CT). We found that the volumes of total and visceral abdominal adipose tissues in the night-shifted group of mice were significantly larger (69% and 92%, respectively) than those in the control. The mean polar moment of inertia, cross-sectional thickness, and bone mineral density of the cortical bone in the night-shifted group of mice were less (13%, 5%, and 3%, respectively) than those in the control. Moreover, the volume and the thickness of growth-plates of the tibiae in the night-shifted mice were significantly smaller (22% and 20%, respectively) than those in the control. Taken together, our results indicate that disturbances in the mouse circadian rhythms induced by night-shifts affect the morphological characteristics of cortical bone, the volume and the thickness of growth-plates, and the volume of abdominal adipose tissues.

References

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