Supporting Information

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SI Text

Conversion Factors. The conversion factors from conventional and/or metric units to Système International units: leptin, nmol/L, multiply ng/mL values by 0.0625; glucose, mmol/L, multiply mg/dL values by 0.0555; insulin, pmol/L, multiply

 μ IU/mL by 6.95; urinary epinephrine, nmol/24 h, multiply μ g/24 h values by 5.46; urinary norepinephrine, nmol/24 h, multiply μ g/24 h values by 5.92; cortisol, nmol/L, multiply μ g/dL values by 27.6.



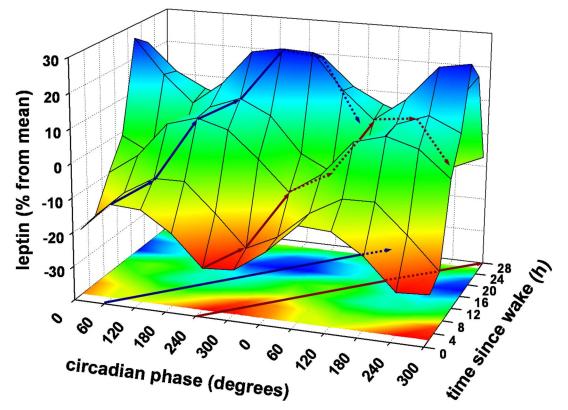


Fig. 51. Three-dimensional plot showing the nonlinear interaction between effects of circadian and behavioral cycle on leptin. Blue arrows on the *Left*, behavioral cycle-profile during circadian alignment, when wakening at \approx 08:00 a.m.; red arrows on the *Right*, circadian misalignment, when wakening \approx 12 h later than subjects' habitual wake time at \approx 20:00. Data are double-plotted across the circadian cycle for better visualization of rhythmicity.

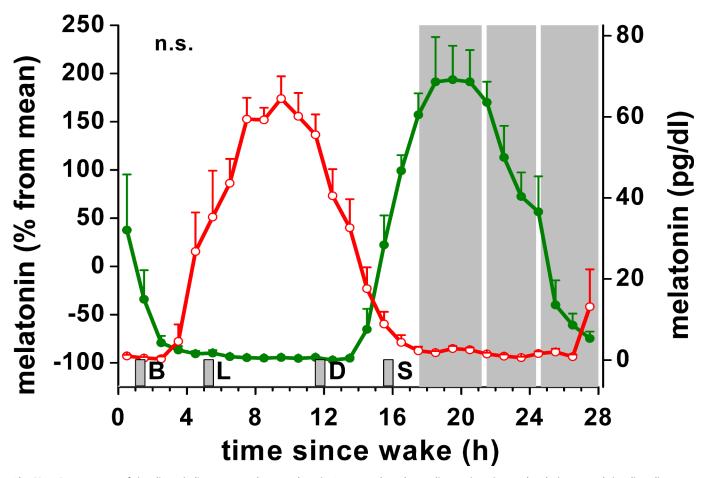


Fig. 52. Consequences of circadian misalignment on plasma melatonin. Data are plotted according to time-since-wake, during normal circadian alignment (filled green symbols; scheduled awakening at habitual wake time) and during circadian misalignment (open red symbols; scheduled awakening 12 hout of phase from habitual wake time). Plasma melatonin was assayed for 7 of the 10 subjects for whom enough plasma was available using a RIA with a sensitivity of 0.2 pg/mL. n.s. indicates no statistical significance on average melatonin for effect of misalignment (based on 24-h cycle, since melatonin is mainly driven by circadian cycle); gray area, scheduled sleep episode; short vertical gray bars, meal times; B, breakfast; L, lunch; D, dinner; S, snack.

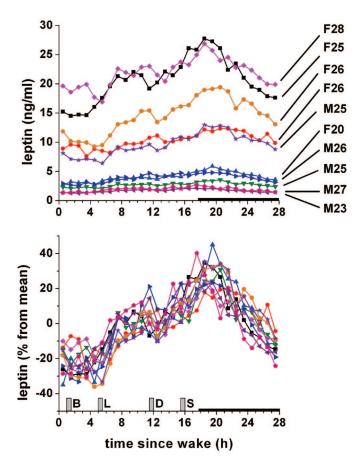


Fig. S3. Normalization of plasma leptin concentration reveals highly consistent patterns across the behavioral cycle. Leptin concentrations averaged across all circadian phases (after correcting for any individual linear trend across the FD) exhibited very large interindividual differences, varying by 10-fold and partly explained by gender (higher in women; P = 0.02; two-tailed t test) but not significantly by BMI in this small group of subjects (n.s., linear regression) (Top panel). However, normalization of leptin (% difference from each individual's mean across whole FD protocol) revealed similar timing and amplitude across sleep—wake and fasting—feeding cycles among all individuals (Bottom panel). Symbols, individual averages; horizontal black bar, sleep episode; F, female; M, male; numbers next to M or F indicate body mass index (Kg/m^2); short vertical gray bars, meal times; B, breakfast; L, lunch; D, dinner; S, snack.