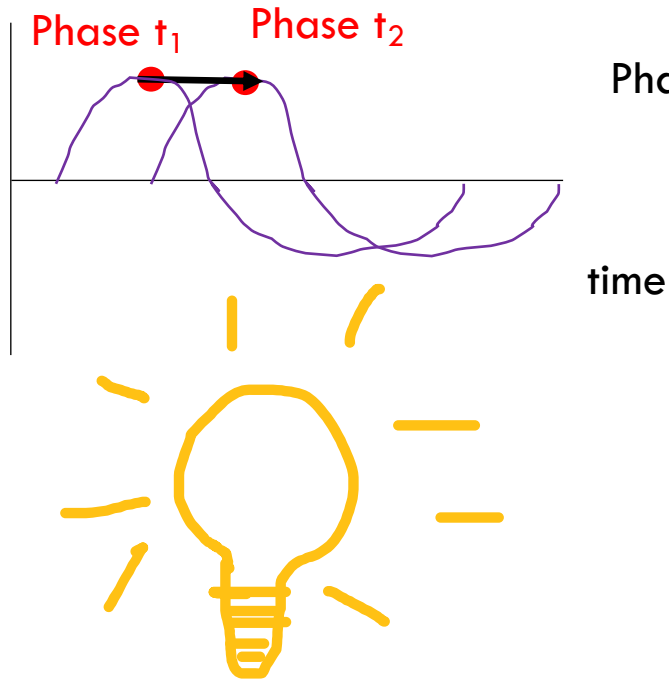
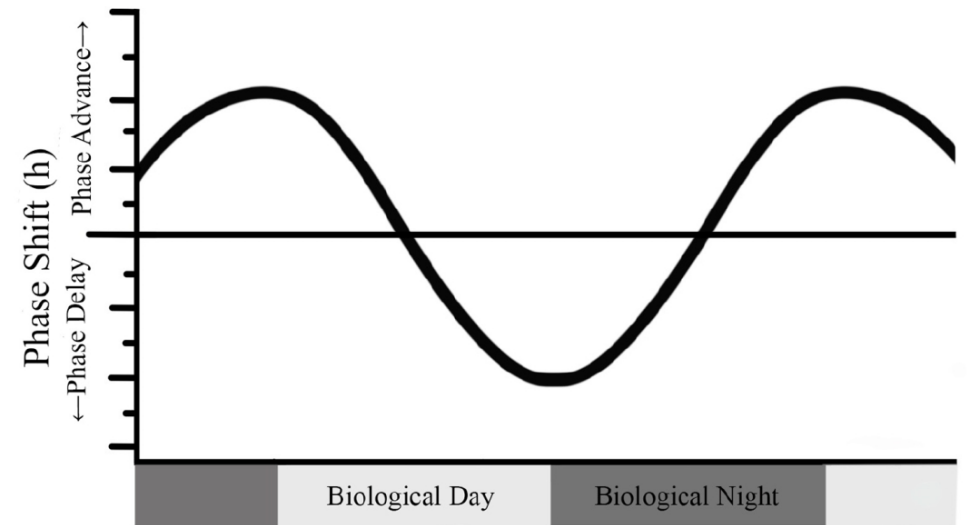


# What is considered a circadian phase shift?



Phase shift = difference between two phases



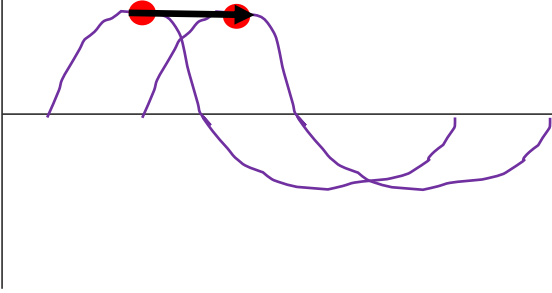
DrCelineVetter



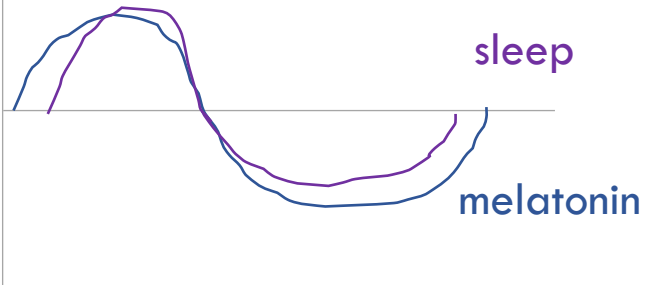
celine.vetter@colorado.edu

# What is circadian disruption?

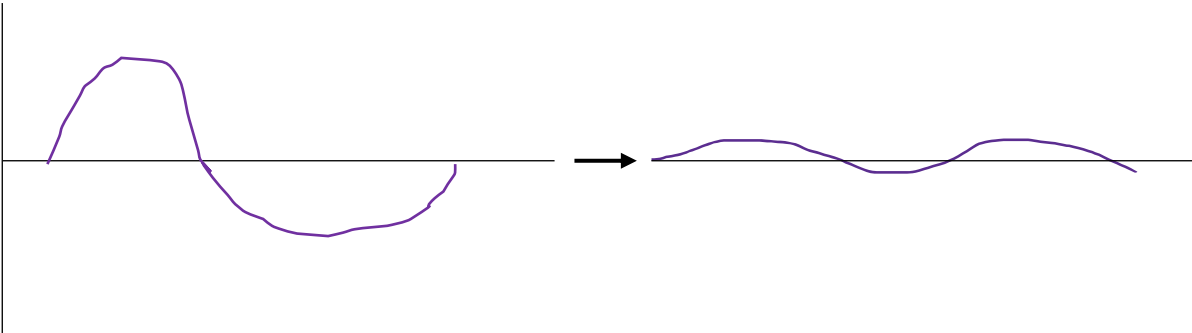
Repeated phase shifts



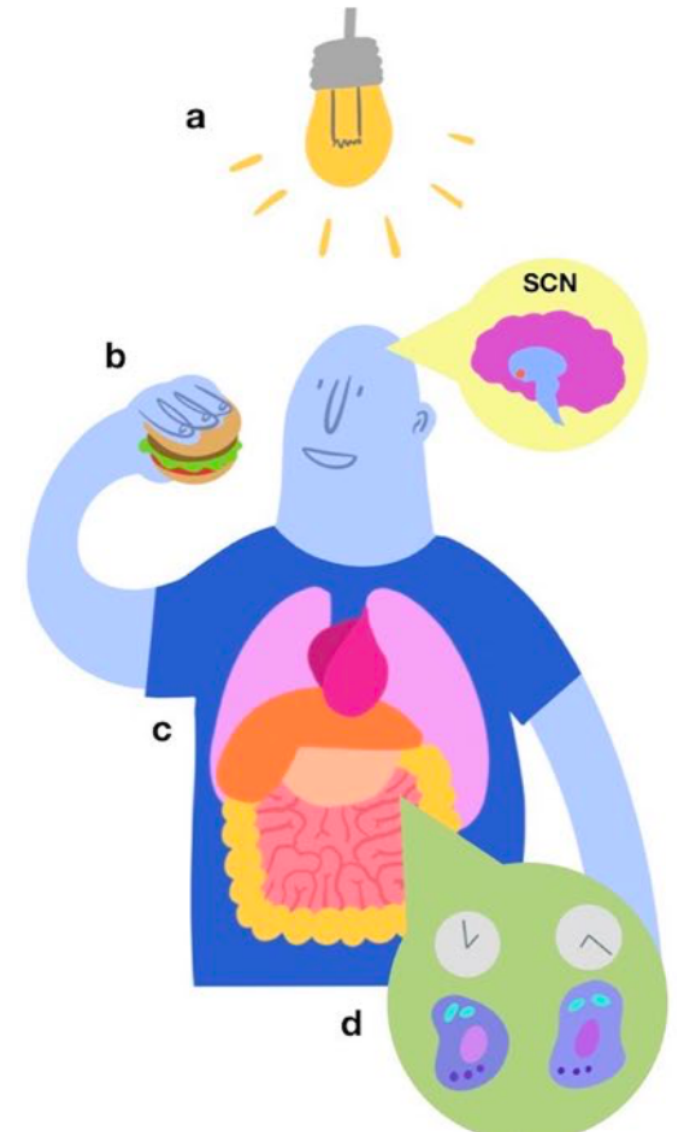
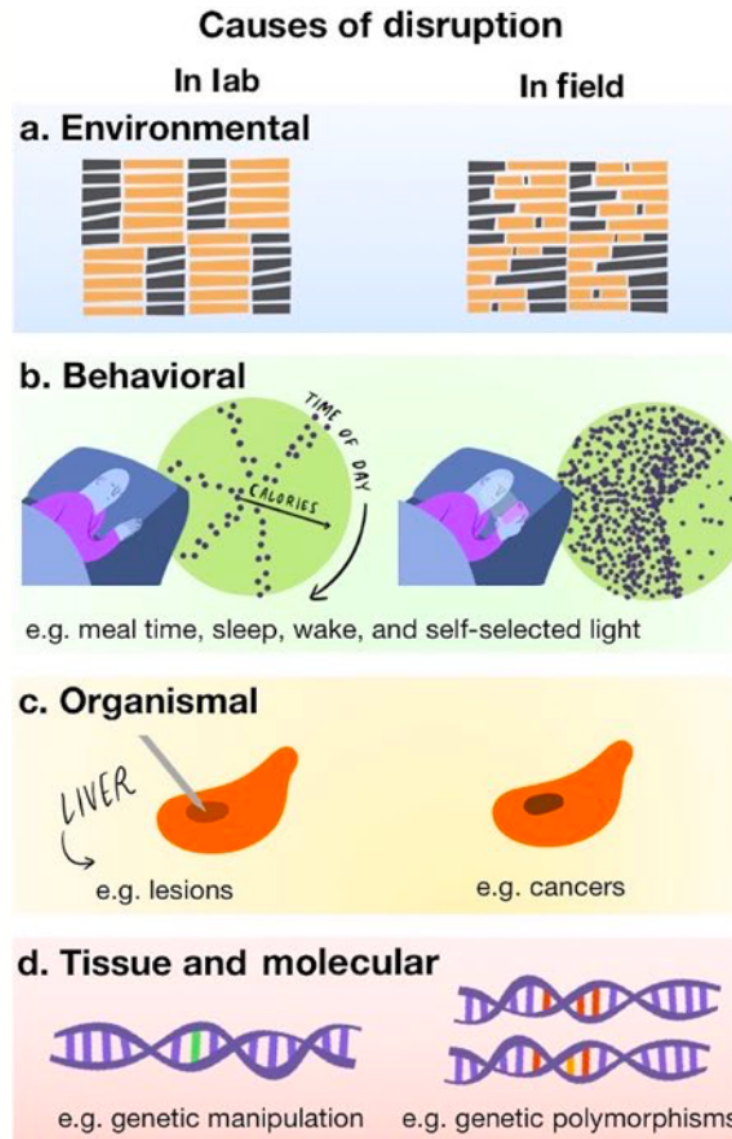
Loss of phase relationship



Loss of rhythmicity and/or dampening of amplitude



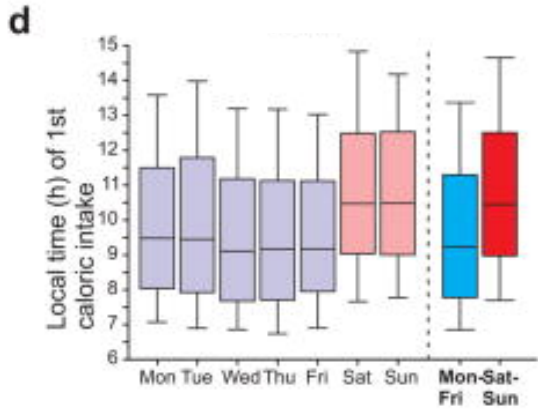
# What is circadian disruption?



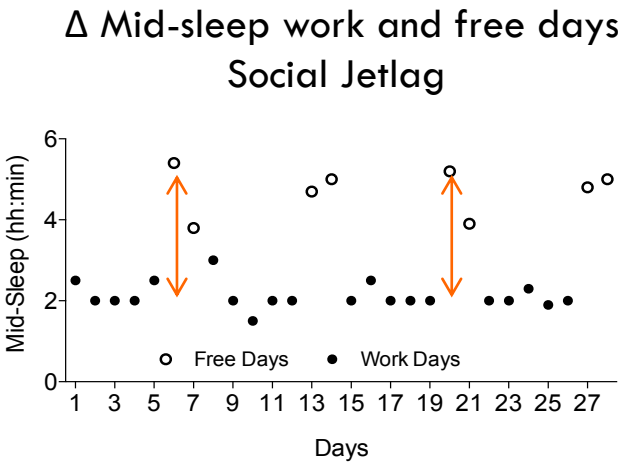
# Environment- and behavior-based proxies for circadian misalignment



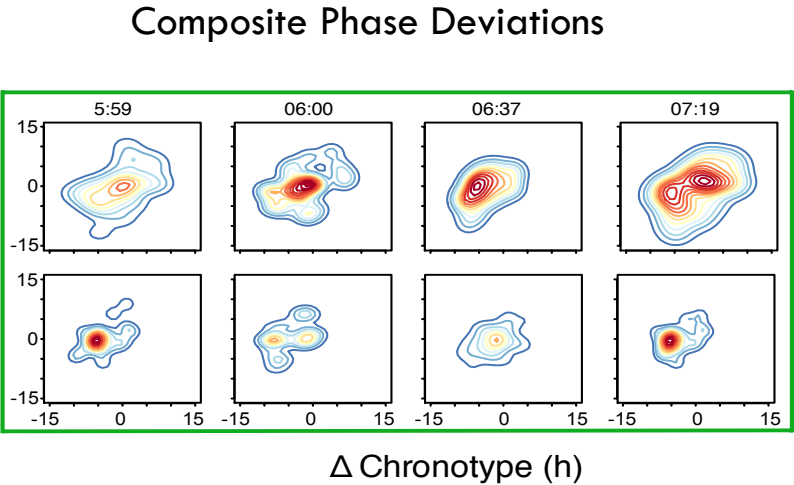
Shift Work, Position in Time Zone, DST...



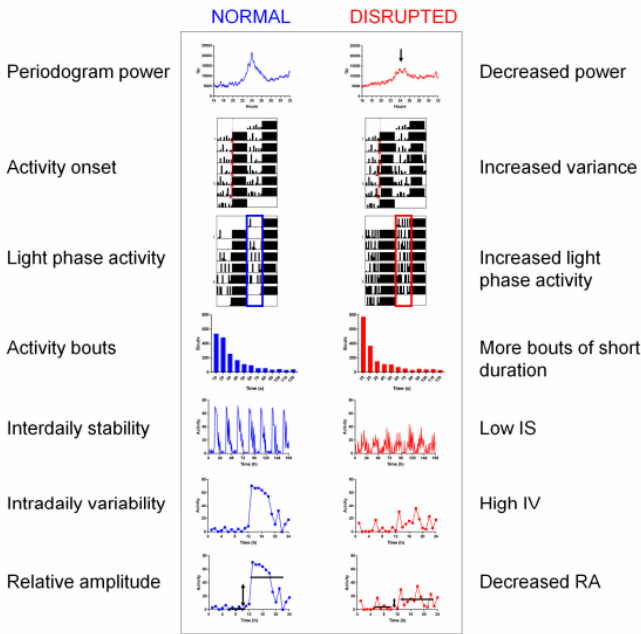
Gill & Panda, Cell Metab, 2015



Wittmann et al., 2006  
Roenneberg et al., 2019



Fischer et al., Sci Rep, 2018



Brown et al., Biology, 2019