Exercise Intensity & Time on Melatonin Levels

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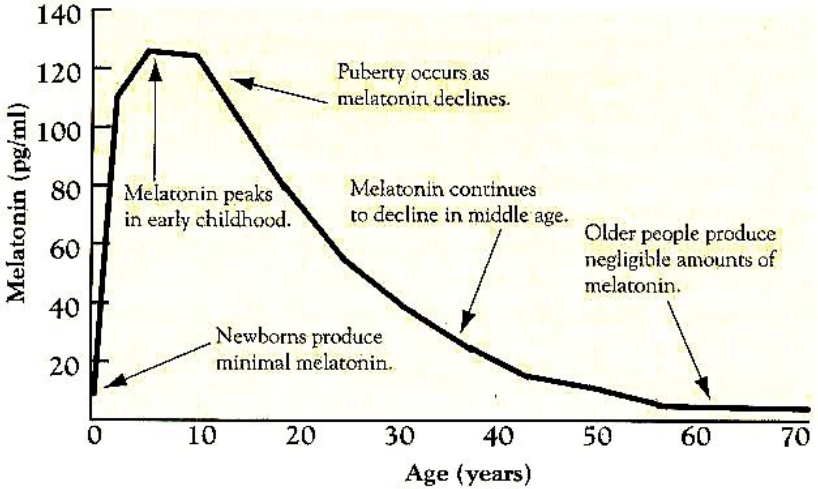
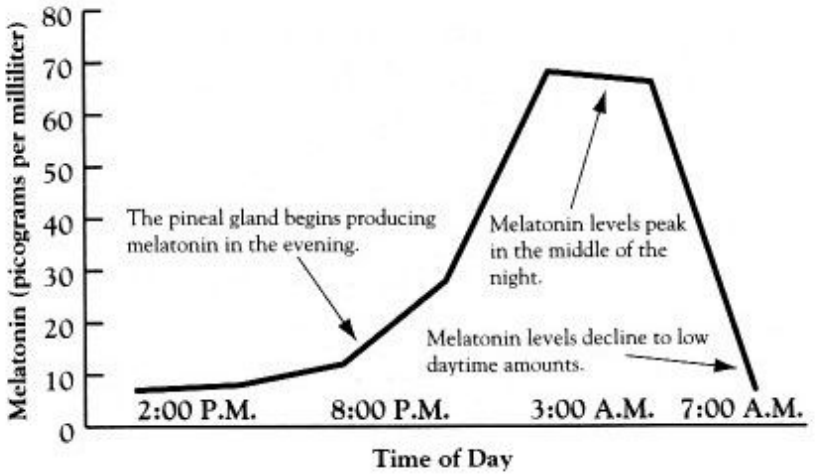
Melatonin is...

- hormone that controls your biological clock
- secretion decreases by age
- affected by exposure to light & exercise





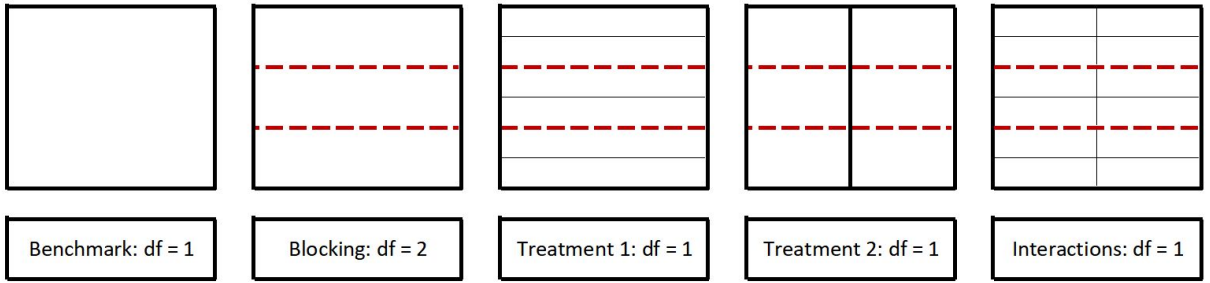
Experimental Design

- Purpose:
  - Investigate relation between exercise intensity & exercise time on melatonin secretion levels
- Design: 2^2 factorial design

Response Variable	Blood Melatonin		
Treatment 1: Time of Exercise	Daytime	Nighttime	
Treatment 2: Intensity	Moderate	High	
Blocking: Age	20-35	35-50	50-65

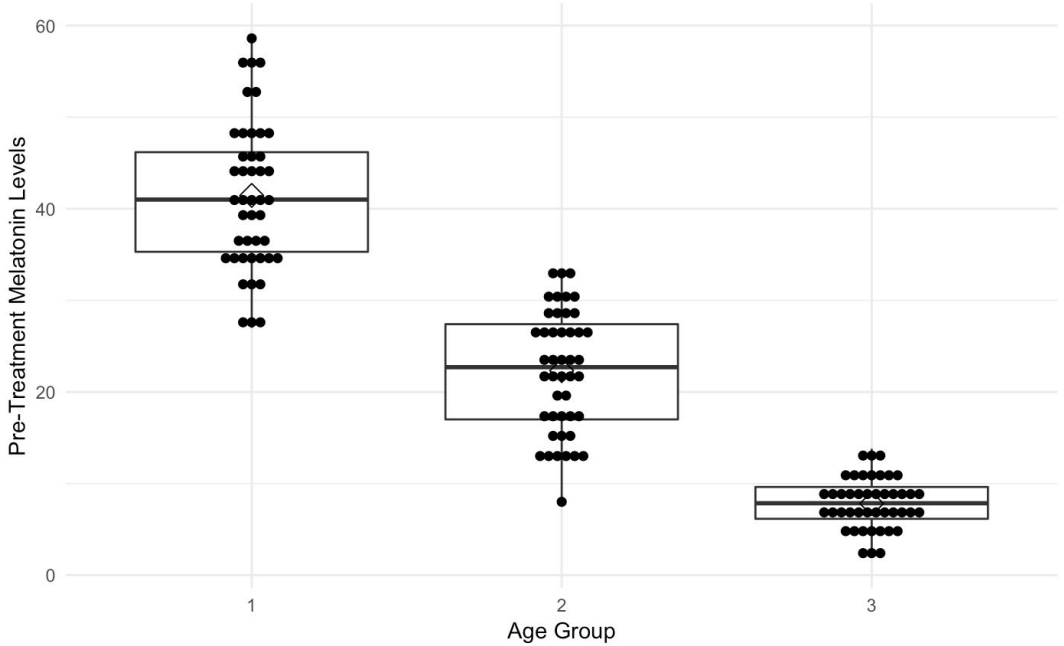
  - Participants: 132 healthy males
  - Collect data at 10 PM
    - before exercise
    - day of exercise
    - day after

Factor Diagram



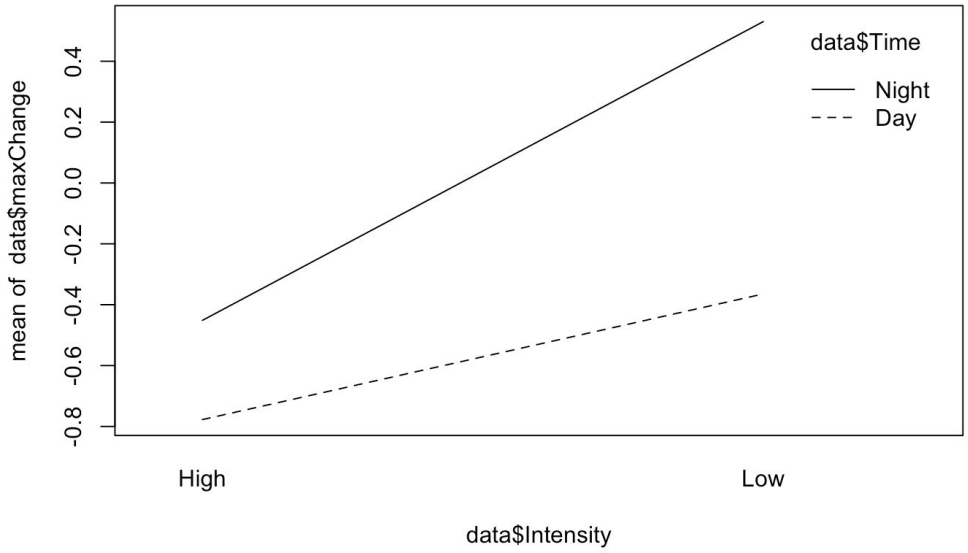
Analysis (1)

- Melatonin levels varies by age
  - significant factor in linear model analysis
  - Boxplot results



Analysis (2)

- Two Way ANOVA with blocking:
  - aov(maxChange~Intensity*Time+factor(AgeGroup), data = data)
  - None are significant
  - Daytime exercise renders lower melatonin levels than previous day



Analysis (3)

- Melatonin levels vs age
  - Changes varies between individuals
  - Average is 0
  - Lower levels for 36-50 year olds