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# Understanding biological and perceptual wellness trends in youth athletes

Tom Sawczuk



## *Background*

- ☒ Illness hinders ability to achieve performance goals over a single year (Raysmith and Drew, 2016)
  - ☒ Potential to have much greater impact over 5-10 years in a youth athlete's development
  
- ☒ Salivary IgA is an objective biomarker of immune function
  - ☒ It is associated with illness, but cannot predict it
  - ☒ It is also time consuming and costly
  
- ☒ Is there a different option?



# 3 Wellness Questionnaires

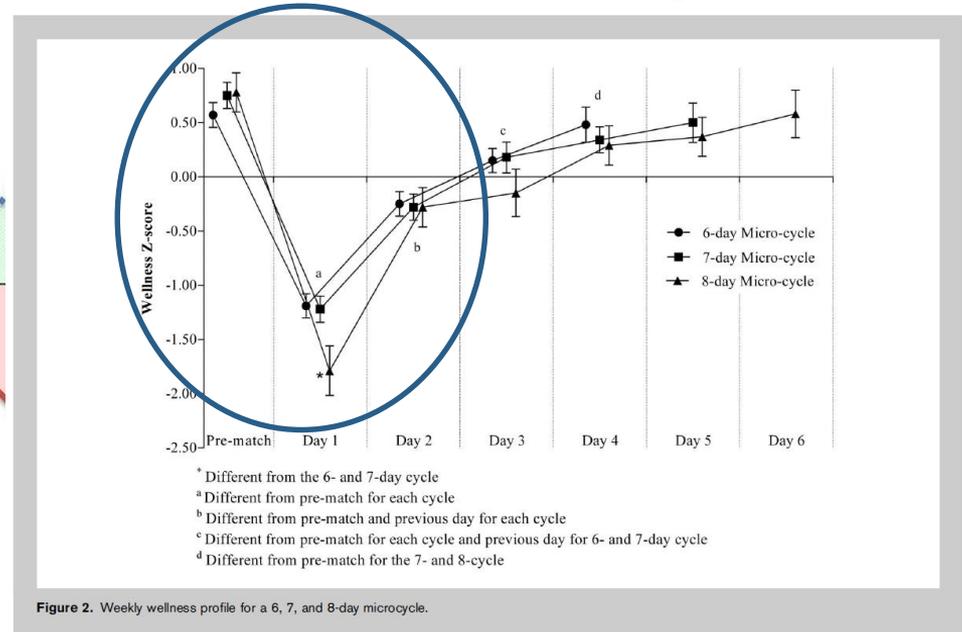
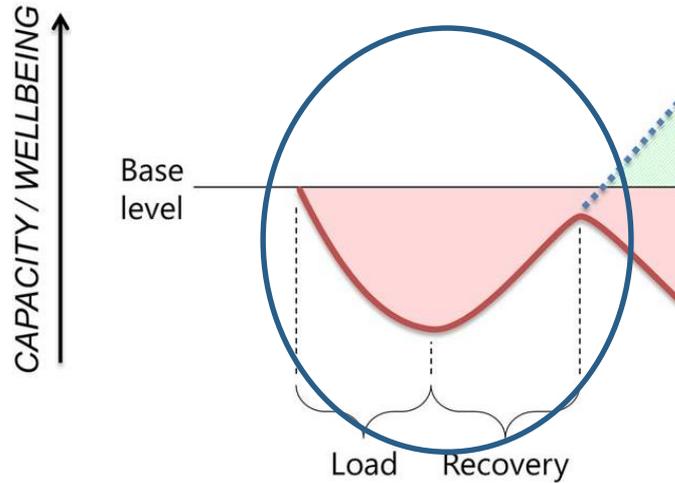


Figure 2. Weekly wellness profile for a 6, 7, and 8-day microcycle.

(Salgado et al, 2008; Gallo et al, 2017)



*Aim*

- ☒ To evaluate the biological and perceptual wellness trends in youth athletes over an academic year
  - ☒ Understand how they may be related to self-reported illness



# Methods



23 youth athletes



14 saliva samples over 35 weeks

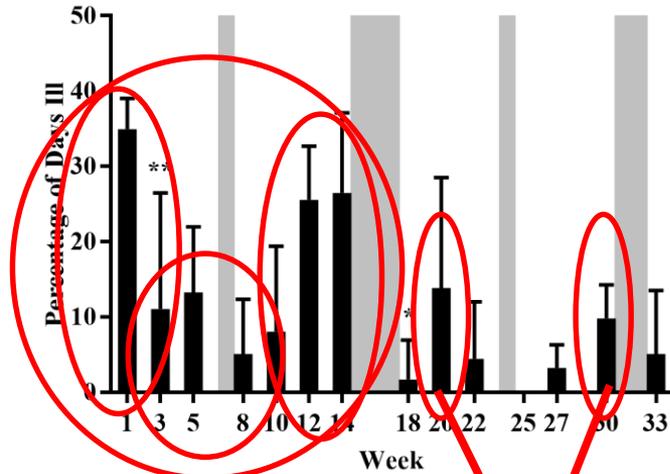


Daily wellness questionnaire

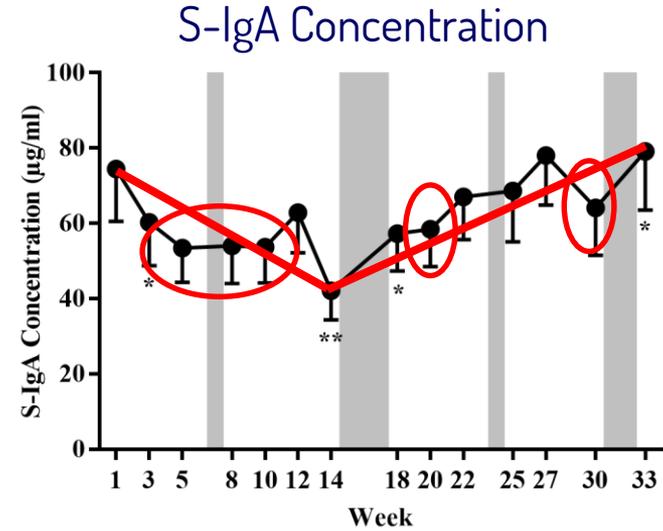
- SARS-CoV-2 IgG (Antibody) (2021)
- Wellness questionnaire and individual sleep quality measure (Percentage of 2019; Sawczuk et al 2018)
- Self-reported illness in the following weeks



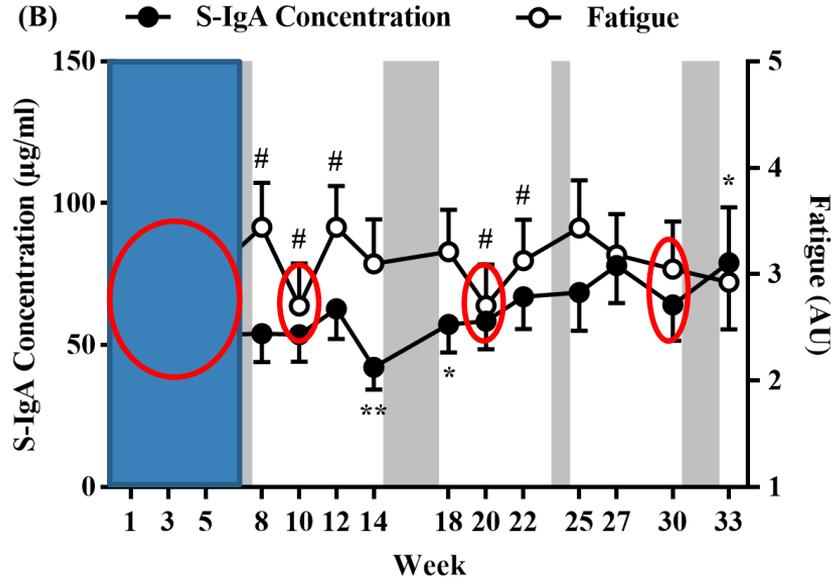
# Salivary IgA and self-reported illness



Academic stress



# Fatigue



## Related to recovery but not load

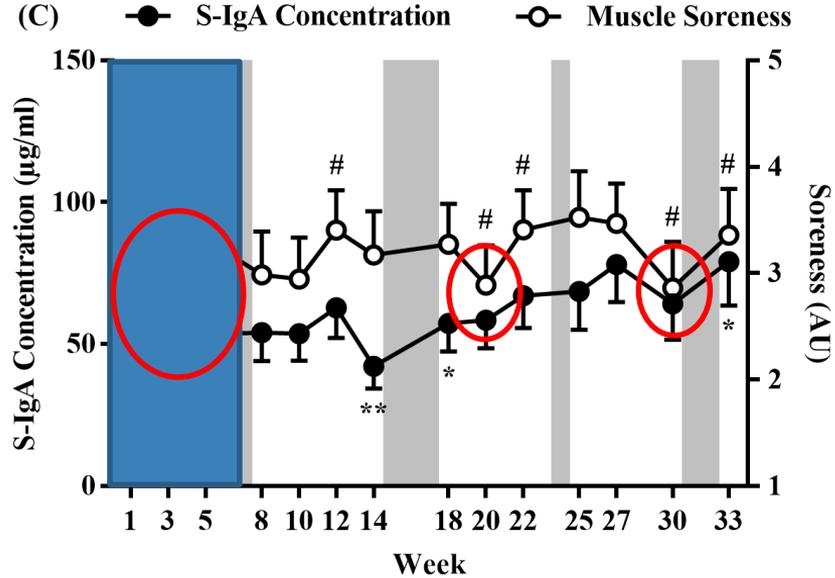
Fatigue improves as athletes adapt to school demands

Sharp drop for mock exams, less obvious for coursework deadlines

Unexpected sharp drop before high illness incidence



# Muscle Soreness



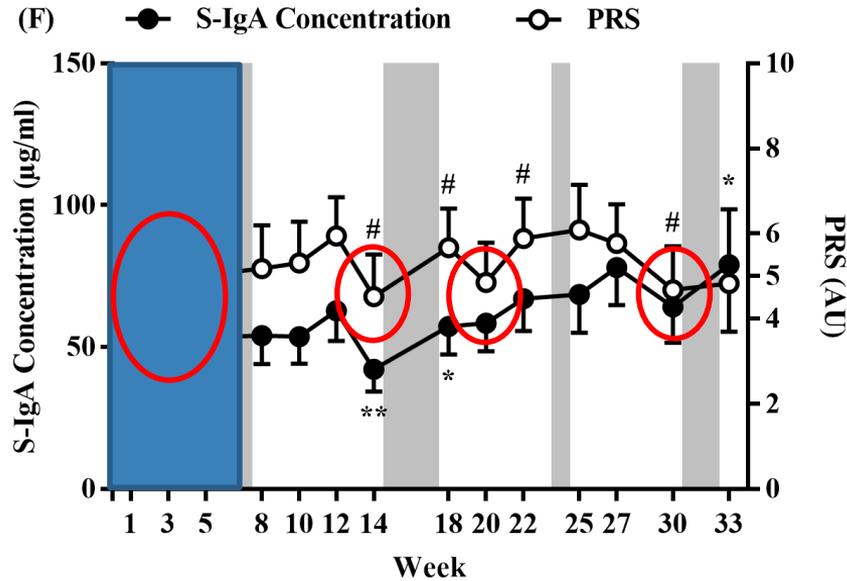
## Related to load but not recovery

Clearly shows athletes adapting to training load

Muscle soreness greater during periods of academic stress



# PRS



## Related to load and recovery

Less responsive than fatigue/muscle soreness to start of academic year

Less responsive to mock exams, but responsive to coursework

Reactive(?) drop following high illness incidence



## *Take home messages*

- ☒ Greater illness incidence before Christmas than after
  - ☒ Reflected by general trend of changes in salivary IgA, but not wellness
  
- ☒ Fatigue, muscle soreness and PRS appear to change in a similar manner to salivary IgA measures
  - ☒ But have a greater response to acute stressors (e.g. adapting to increased training load, or academic stress)
  
- ☒ Future research may wish to consider predictive capabilities of changes in fatigue



Thank you

Any questions?

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