Exploring IL-6 Mediated Effects of Exercise on Children with Chronic Inflammatory Disorders

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Background

- Interleukin-6 (IL-6) mediates exercise's anti-inflammatory effects *and* sustain s inflammation in chronic inflammatory disorders (CID)[1-6].
- These complex opposing effects are enabled by differential interaction between IL-6 and its pathway mediators in classical- (stimulated by exercise) and trans-signalling (present in CID)[6-10].
- Data from adults (healthy and CID) show that in response to exercise, IL-6, sIL-6R, and sgp130 are all upregulated[6,11].
- Data on the levels of IL-6 and its pathway mediators, especially the IL-6/sIL-6R complex, in response to exercise, is significantly lacking in children with CIDs[12].

Objectives

1. Assess how the concentrations of IL-6, sIL-6R, sgp130 and the IL-6/sIL-6R complex are impacted by acute moderate-intensity exercise in children with CIDs, compared to healthy controls.
2. Compare these differences across sexes and different CIDs (i.e. JIA, CF, CD and ALL).

Methods

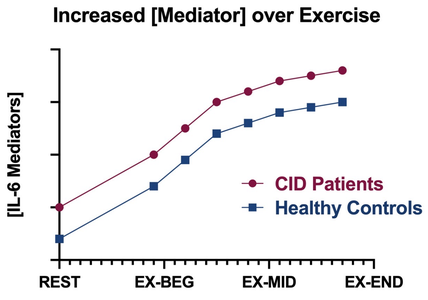
- ELISA-based secondary analysis of serum samples pre- and post-exercise, in children with CID compared to healthy age-matched controls.

	JIA	Control	CF	Control	CD	Control	ALL	Control
N	7	6	12	12	15	15	15	N/A
Age (years)	13.4±2.6	14±2.3	14.7±2.3	13.9±2.1	14.5±2.4	13.9±2.2	12.5±5.5	N/A
Sex (f/m)	4/3	5/1	2/10	2/10	2/13	2/13	0/15	N/A

Sample Characteristics

Anticipated Results

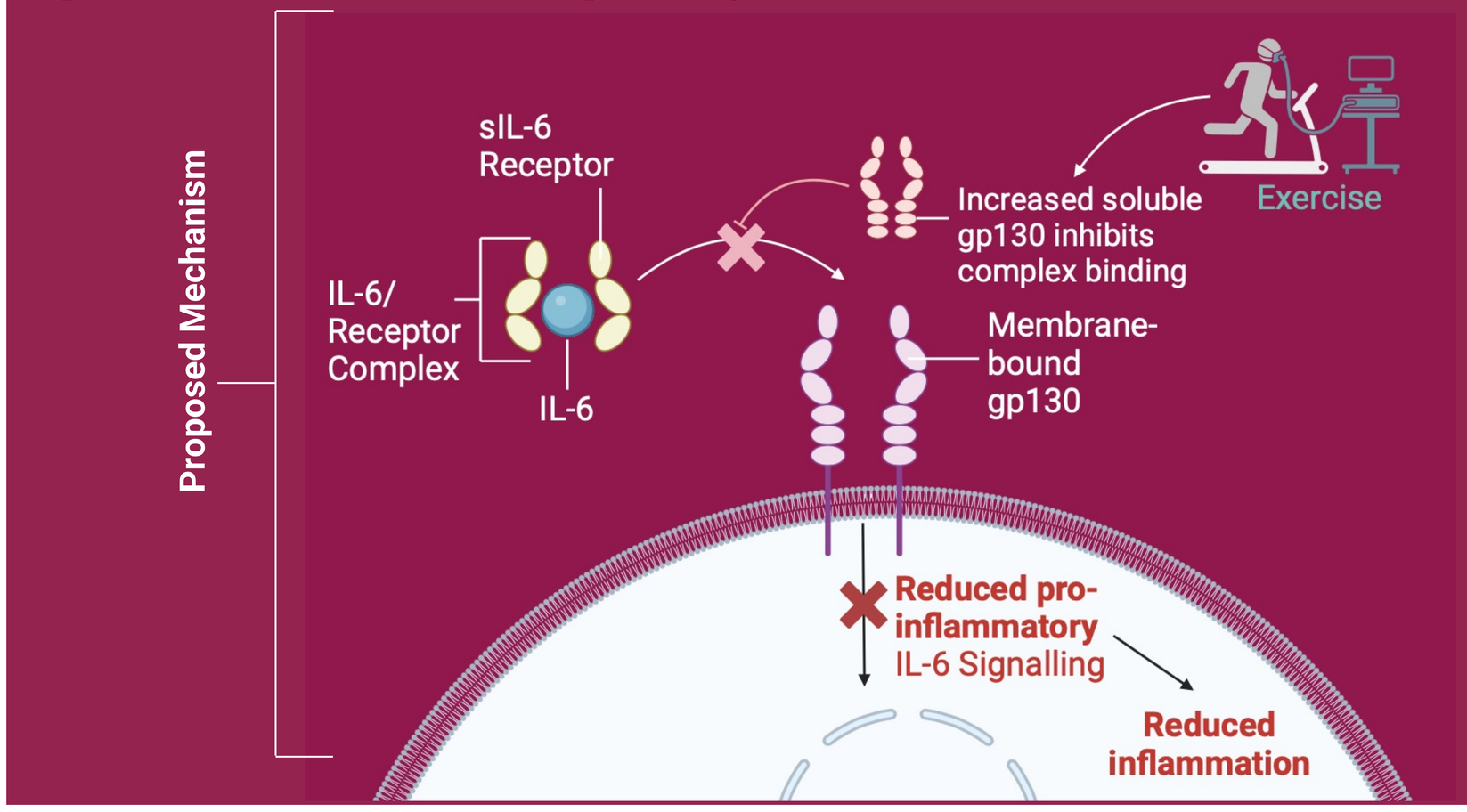
- CID patients will present with higher [mediator] at baseline and post-exercise
- [Mediator] among controls and CID patients will increase post-exercise



Discussion

- Soluble mediators cannot reveal their cellular origins, preventing conclusions on their inflammatory nature.
- Concentrations of these mediators will inform future research into the inflammatory interplay between CID and exercise among children.
- This exploration holds implications for the optimal provision of evidence-based and CID-specific exercise interventions[13].

It can be anticipated that **sgp130**, an inhibitor of pro-inflammatory IL-6 signalling, will be **upregulated to a greater extent among CID** patients than controls.



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