Exploring Contextual Moderators of Acute Affective Responses to Physical Activity in Young Adults

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UCL

Introduction:

Physical activity (PA) offers a low-cost way to support wellbeing, yet its benefits appear to be context-dependent, changing with exercise type, environment, motivation, and social dynamics. Understanding these relationships can clarify how PA best promotes mental health, facilitating the development of more effective, targeted interventions.

Research Questions:

1. Does engaging in PA lead to measurable changes in **positive** and **negative mood**?
2. How do these effects differ according to **PA type intensity**, **environment** and **social context**?

Methods:

Participants: Young adults (18–34); informed consent obtained; ethics approved (UCL).

Design: 8-week repeated-measures study with continuous **Garmin tracking** and **mood surveys** three times daily.

Exercise details: type, setting, social context, and self-reported intensity **(RPE 0–10)** recorded.

Mood ratings: 5 positive emotions, 5 negative emotions on a **1–100 scale**.

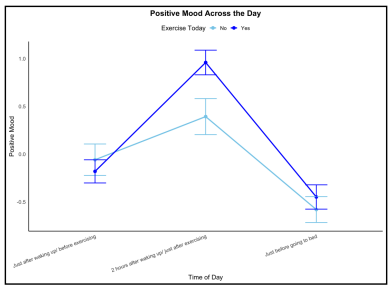
Factor analysis produced three mood dimensions: ***Serenity*** (low-arousal positive), ***Drive*** (high-arousal positive), ***Anxiety*** (negative).

Analysed with two-way **ANOVAs** and **mixed-effects models** ($p < 0.05$).

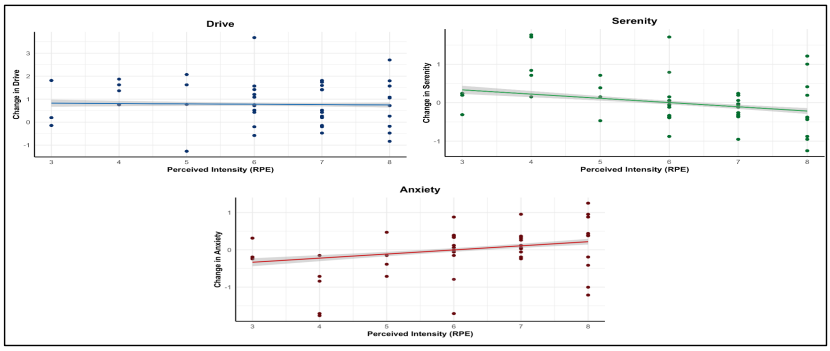
Future Research:

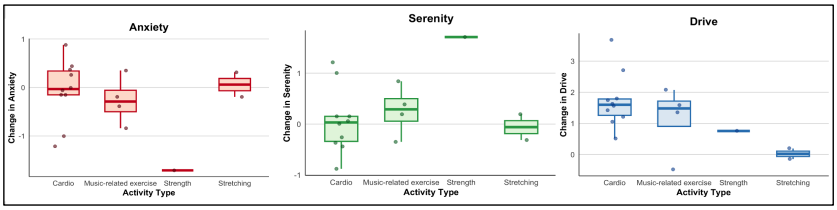
- Conduct **larger RCTs** testing combinations of exercise type, intensity, environment, and social context.
- Include **physiological measures** (e.g., heart rate, cortisol) alongside self-reported mood.
- Use **standardised PA protocols across all participants** and **longitudinal designs** to assess sustained effects.
- Examine **detailed social interactions** (cooperative vs. competitive, meaningful vs. incidental)
- Test interventions in **clinical populations** (MDD, GAD) using mood factors alongside clinical measures to assess immediate and lasting effects

Results:



- **Days with PA** → more positive mood ($p < .001$)
- **High intensity** → more Anxiety, less Serenity ($p < .001$)
- **Cardio & music-based PA** → biggest Drive increase (ns); **strength training** → lower Anxiety (ns)
- **Outdoor > gym > home** for mood gains (ns)
- **Social vs. solo PA** = no mood difference





Conclusions and Clinical Recommendations:

Mental Health Target	Recommended Exercise Type	Intensity	Duration	Environment	Social / Instructor Context	Expected Affective Outcome
Major Depressive Disorder (MDD) • **Low Drive** (high-arousal positive mood)	• Aerobic • Dance/ music-based physical activity	• Moderate	• 20-30 min	• Outdoor environment (green space)	• Group-based • Autonomy-supportive	↑ Drive ↑ Serenity
Generalised Anxiety Disorder (GAD) • **Low Serenity** (low-arousal positive mood) • **High Anxiety**	• Strength training • • Stretching	• Low-moderate	• 20-30 min	• Private setting • Calm green space	• Solo, small non-competitive group	↑ Serenity ↓ Anxiety,