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Inspiratory muscle training and its effect on oxygen saturation and perceptions of effort and dyspnoea during a trek to Everest Base Camp

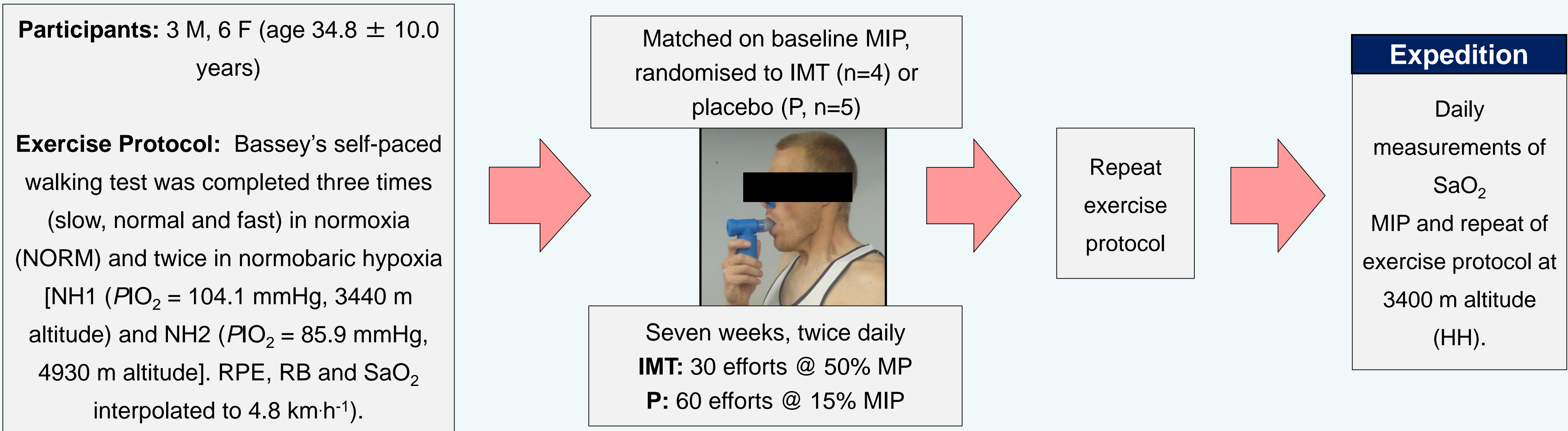
Amanda L. Seims, John P. O'Hara, Roderick, F.G.J. King and Carlton B. Cooke.

AIM: To evaluate the effects of inspiratory muscle training (IMT) on oxygen saturation (SaO₂), rating of perceived exertion (RPE) and rating of breathlessness (RB) during exercise in normobaric hypoxia (NH) and then an 11-day trek to 5300 m

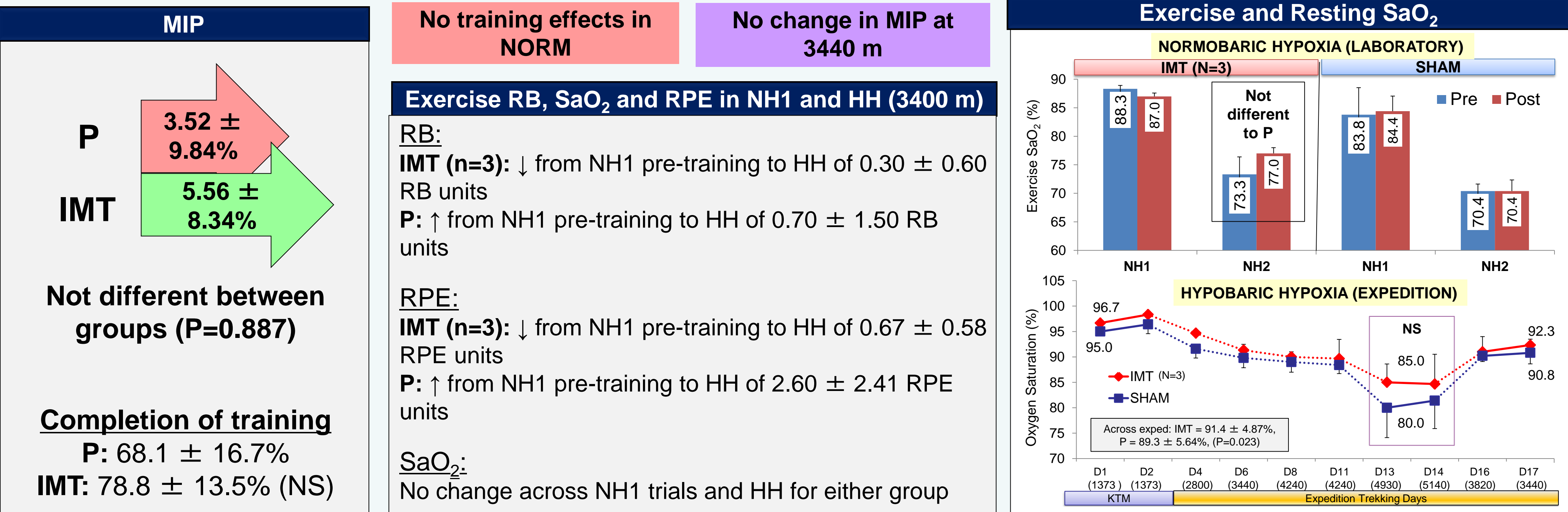
Introduction

Increasing ascent during high-altitude expeditions is typically associated with a significant 16% decrease in SaO₂ and inspiratory muscle strength (MIP) which can exacerbate breathlessness (1). Weaker inspiratory muscles are associated with greater inspiratory muscle fatigue (2) which exacerbates physiological and perceived stress during exercise (3). IMT has been shown to attenuate the fall in MIP with ascent to 5050 m altitude and reduced breathlessness associated with daily activities (4). Resting SaO₂ between 4800 and 5550 m altitude was 6% higher following IMT compared to placebo, but RB at rest was not different between groups (5). Increased SaO₂ during high-altitude expeditions following IMT may attenuate physiological and perceptual stress during exercise.

Methods



Findings



Conclusions

IMT may attenuate the expected decrease in resting SaO₂ with ascent to altitude above 4900 m similarly to previous research. Large variability and small sample sizes, along with sub-optimal completion of IMT may have negated the training response. Further research should evaluate effects of IMT on exercise SaO₂ and other responses during trekking expeditions above 4900 m altitude. Supervised IMT may enhance the training response.

References

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