Predicting aerobic fitness in bariatric populations
Are we getting it right?

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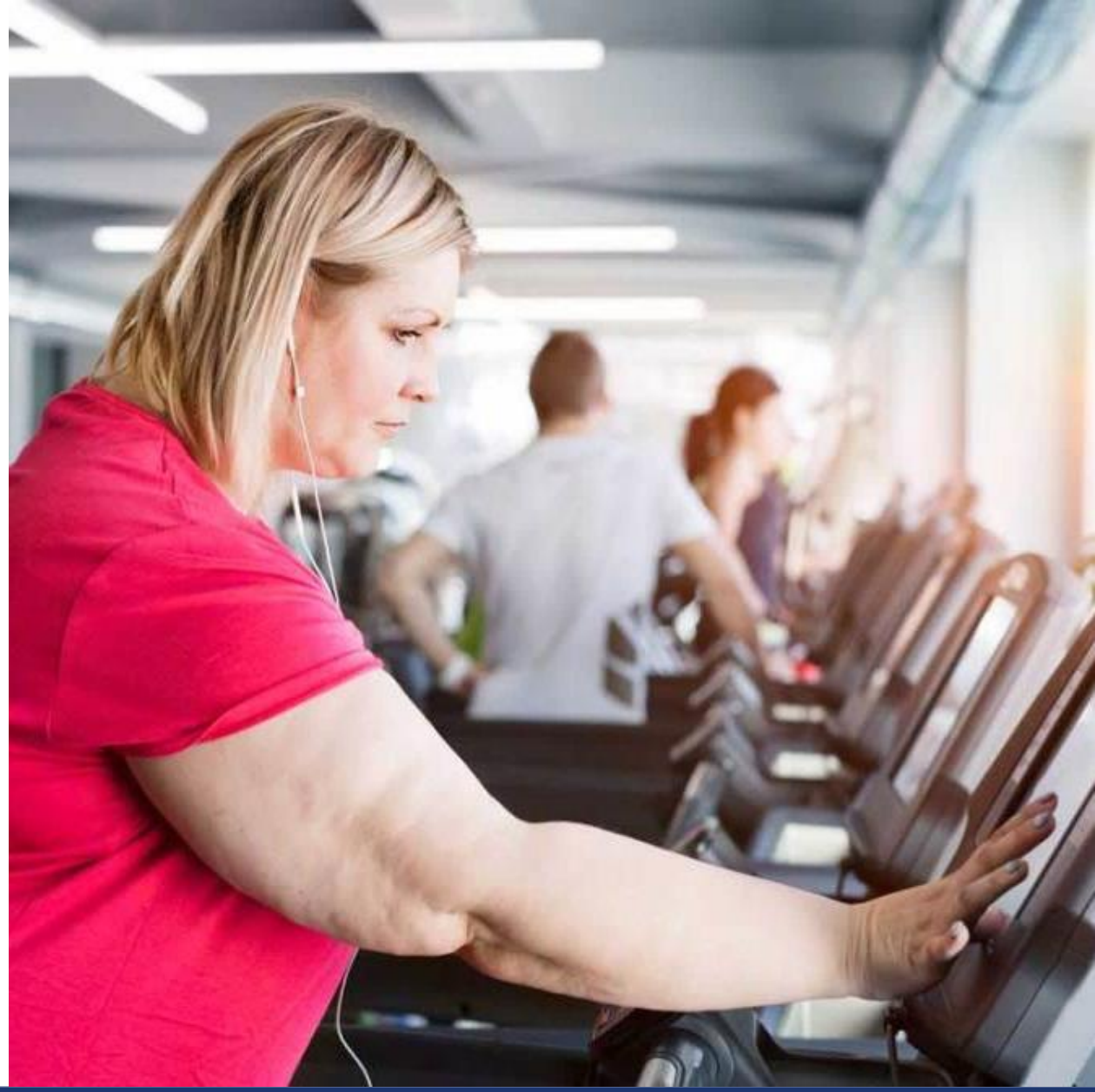
BACKGROUND

- Prevalence of obesity ↑ & bariatric surgery ↑
- Aerobic assessments are used pre-surgery
- Aerobic assessments are often reported relative to body mass
- Potentially problematic in this population due to excessive fat mass, as less active tissue like fat mass does not affect VO2 in the same manner and therefore may underestimate their aerobic capacity
- Is there a better way?

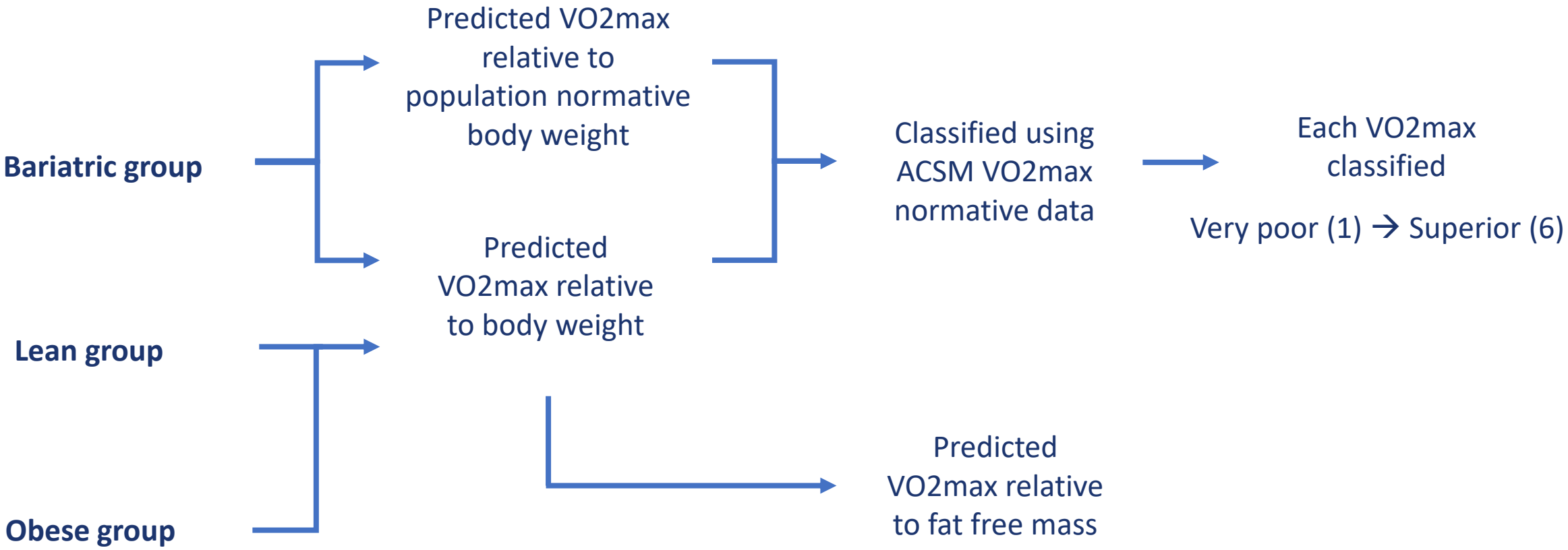


AIM

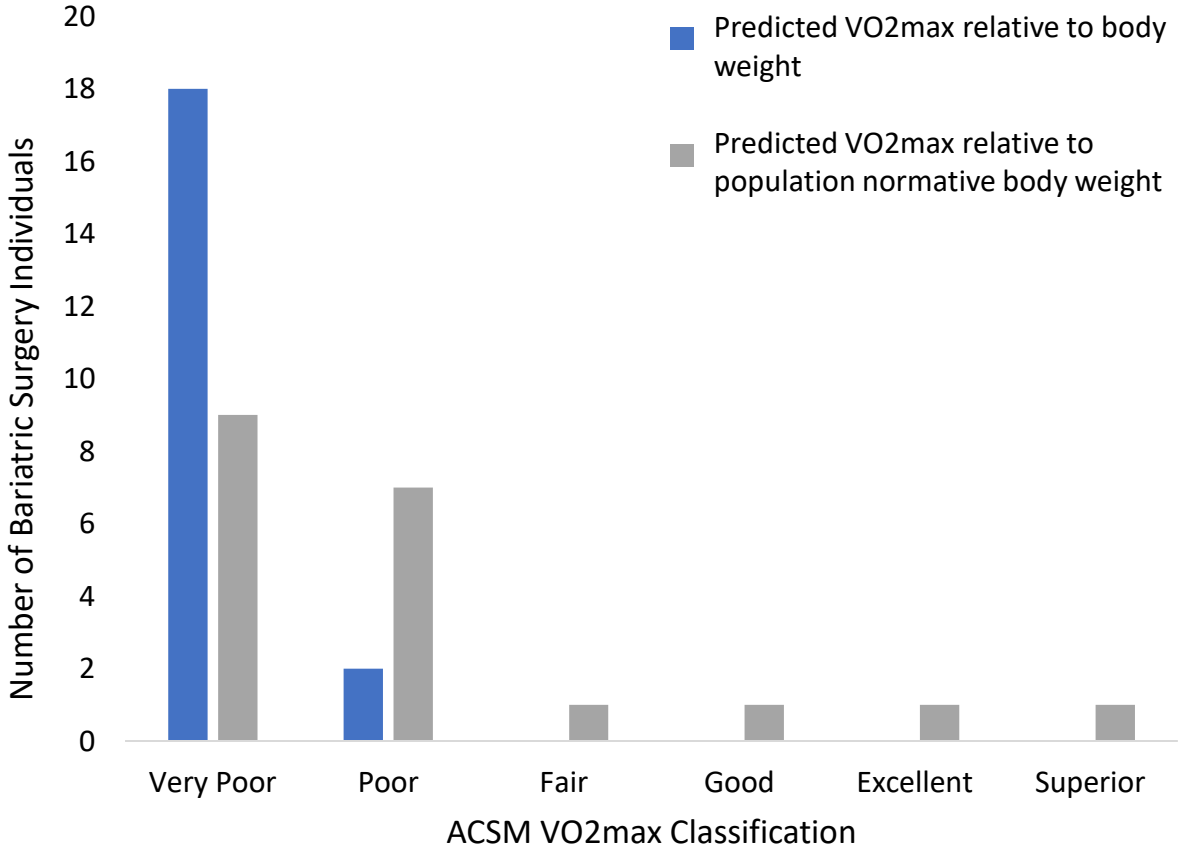
1. To determine how changing the expression of predicted VO2max results influence the reported outcome
    - Predicted VO2max relative to;
        - measured body weight (mL/kg/min)
        - “normative” body weight (mL/kg/min)
        - fat free mass (mL/kgFFM/min)

2. Make recommendations

METHOD


Bariatric group
Lean group
Obese group
Predicted VO2max relative to population normative body weight
Predicted VO2max relative to body weight
Classified using ACSM VO2max normative data
Each VO2max classified
Very poor (1) → Superior (6)
Predicted VO2max relative to fat free mass

FINDINGS



Variable	Bariatric group (n = 20)	Obese group (n = 27)	Lean group (n = 26)
Age (yrs)	43.2 ± 11.8	49.6 ± 1.6†	50.1 ± 1.3†
Measured BMI (kg/m2)	40.6 ± 4.9	35.3 ± 0.9†	22.5 ± 0.3†
Body Fat (%)	**47.3 ± 4.8**	**43.5 ± 1.2†**	**27.2 ± 1.6†**
Predicted absolute VO_2max (L/min)	2.3 ± 0.6	2.3 ± 0.2	1.8 ± 0.1†
Predicted VO_2max relative to BW (ml/kg/min)	20.1 ± 5.0	23.0 ± 1.4†	27.9 ± 1.1†
Predicted VO_2max relative to FFM (ml/kgFFM/min)	**38.6 ± 9.1**	**44.4 ± 1.7†**	**42.0 ± 1.4**

† = $p < 0.05$ (reference group is bariatric group)

CONCLUSION

- Various ways of expressing predictions of VO2max
- Correcting for fat free mass may provide a better representation
- Future research: adjusting predicted VO2max for fat free mass and surgical complications?