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Morse, CI , Orme, P and Edwards, BT (2019) Reply- Focus on left ventricular systolic and diastolic function in the assisted 6-minute hand bike cycle test in muscular dystrophy. *Muscle and Nerve*, 59 (6). E47-E48. ISSN 0148-639X

DOI: <https://doi.org/10.1002/mus.26466>

Publisher: Wiley

Version: Accepted Version

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Reply- Focus on left ventricular systolic and diastolic function in the assisted 6-minute hand bike cycle test in muscular dystrophy

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Conflict of interest

None of the authors has any conflict of interest to disclose.

There was no funding associated with this work

Word count 377 words

“We confirm that we have read the Journal’s position on issues involved in ethical publication and affirm that this report is consistent with those guidelines.”

We thank Dr Faysoil for his interest in our manuscript¹. Following a review of the participants' medical histories from the physiotherapy centre where this work was conducted, we are now able to add information on the use of cardiovascular specific medication from our adult participants with muscular dystrophy (MD) who undertook the assisted six minute cycle test (A6MCT). Four, all of who had Becker muscular dystrophy (BMD), were prescribed beta blockers. ACE inhibitors were used by 3 of 9 with BMD, 2 of 11 with limb girdle (LG)MD and 2 of 9 with facioscapulohumeral dystrophy (FSHD). There was no use of ACE inhibitors or beta-blockers by the Duchenne (D)MD participants. Regarding cardiac dysfunction, 2 of those with BMD had previously been diagnosed with cardiomyopathy.

Given the relatively high prevalence of echocardiographic abnormalities in DMD patients², the low number of DMD participants reporting either cardiac dysfunction, or currently using cardiac medication in our study, is initially surprising. It has however been speculated that as adults with DMD have very limited mobility, cardiomyopathy related symptoms are often absent³. The fact that none of our DMD participants are currently medicated with either beta-blockers or ACE inhibitors is unlikely to influence the data presented from the A6MCT, as none of those with DMD have sufficient strength to produce a metabolic response during the hand cycling, and remained largely passive to the movement.

Within BMD there was no statistical difference in any exercise variable during the A6MCT between those with BMD using beta-blockers and those not using beta-blockers (Mann-Whitney U). It should be noted however, that three of the participants not using beta-blockers achieved the highest exercising heart rates of BMD participants during the A6MCT (Figure 1). Of course, our study was not powered in a way to establish a difference between the users and non-users of these drugs, but the point raised by Dr. Faysoil seems to be pertinent based on the data presented in Figure 1. Future studies describing exercise heart rate in adults with MD (particularly BMD) should consider the prevalence of beta-blockers within this population. As with a range of outcome measures from adults

with MD undertaking exercise, the description of cardiopulmonary function (even simple ECG) is particularly lacking, and we welcome the interest in our article.

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Figure

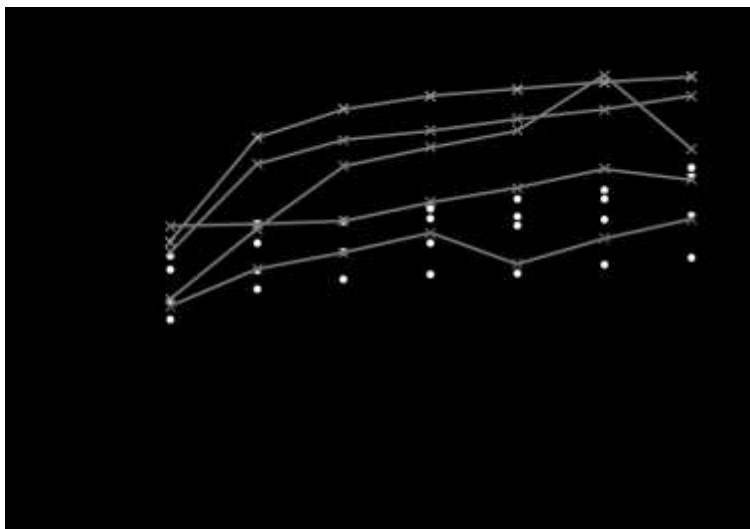


Figure 1: Heart rate recorded during the assisted six minute cycle test in adults with Becker muscular dystrophy who were currently using beta-blockers (dashed lines) and not using beta blockers (solid lines).