Reviewer's report

Title: Use of Imaging Biomarkers to Assess Perfusion and Glucose Metabolism in the Skeletal Muscle of Dystrophic Mice

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Reviewer: Chris van der Poel

Reviewer's report:

there is no doubt that this paper addresses a significant problem in the field of DMD and that imaging biomarkers presents a reasonable solution to the problem. however i am concerned with the following.

1, nNOS is indeed mislocalised in mdx and udx muscle however there are fibre type differences in the importance of nNOS. By measuring only the gastroc muscle are the researchers seeing changes in only one fibre type and missing other changes? What about measuring a number of different muscle types? e.g Quad, TA, gastroc etc.

2, conclusions regarding exercise improving pathogenesis are not explored, discussed or referenced previous exercise regimes as therapy in dystrophic models.

3, the authors mention taht the diffences observed at 8-10 weeks are due to the regenerative capacity of the mdx and udx mice which eventually runs out. However, the mdx N.E group shows the same trend, albeit a less pronounced increase at 8 weeks and decrease thereafter, especially in blood flow and SUV values. This result decreases the impact of the exercise factor in the mdx group. It is clea thta the WT group stays fairly normal over the 14 weeks. What are the reasons for the non exercised mdx changes considering the degenerative/regenerative cycle occurs between day 15-25 days of age?

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.