Assessing the effects of age and sex on mTBI severity

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Background

- Soldiers experience mTBI primarily as a result of being exposed to blasts during training and deployment.
- According to the DOD, > 80% of all TBI between 2000–2018 were mTBI.
- There is no treatment, but early detection could improve outcome for comorbidities.

Material & Methods

- Mice were exposed to a single blast of 350g C4 spaced 3 meters from mouse cages.
- Mice were evaluated daily for the week following the blast and then once a week for a month.
- Mice were evaluated with traditional behavior testing methods by 3 blinded investigators and also recorded with a GoPro for 5 minutes at each time point and then evaluated with MATLAB.

Sex/Age Differences in mTBI Severity

- Gender and age have been shown to affect outcomes in different neurodegenerative disease.
- There are sex & age differences in human TBI population outcomes.
- However, TBI research rarely consider sex or age differences.

Results

- Age had a bigger difference on outcomes than gender.
- Differences between blasted mice and controls, genders, and age groups were identified in both traditional and tracking methods.
- Tracking methods were able to detect differences after 20 days when traditional methods were not.

Conclusion

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References