

# Outcome after Mild Traumatic Brain Injury: the Interplay of Concussion and Post- traumatic Stress Symptoms

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Submitted by Luke Timothy Allan Mounce to the University of Exeter as a thesis for the degree of Doctor of Philosophy in Psychology, June 2011.

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# Abstract

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## *Background and aims*

The provenance of post-concussion symptoms (PCS) and post-traumatic stress (PTSD) after mild traumatic brain injury (mTBI) is controversial. This thesis investigated factors influencing these two conditions separately, as well as the interplay between PCS and PTSD, in individuals with mTBI and a control sample without mTBI (orthopaedic injuries).

## *Method*

Consecutive adult attendees of an Emergency Department with mTBI or orthopaedic injury were prospectively recruited and completed the Rivermead Post-concussion Questionnaire (RPQ) and Trauma Screening Questionnaire (TSQ) for PTSD at two weeks (T1) and three months (T2) post-injury. The sample at T1 consisted of 34 with complicated mTBI, 76 with uncomplicated mTBI and 47 with orthopaedic injury, and 18 with complicated mTBI, 43 with uncomplicated mTBI and 33 orthopaedic controls at T2.

## *Results*

Although there were no differences in overall PCS symptomology between groups, a subset of PCS symptoms (headaches, dizziness and nausea) was found to be specific to mTBI at both time points. These symptoms are proposed to have a neurological basis, as opposed to a psychological basis. PTSD interacted with PCS, particularly in mTBI, such that PTSD was associated with

greater “neurogenic” and “psychogenic” symptomology in this group, but only a moderate increase in psychogenic symptoms for controls. A model of the influence of PTSD on PCS is presented. PTSD was influenced by poor memory quality for the traumatic event and attribution of blame to others, but not by mTBI.

### *Discussion and conclusions*

Though mTBI may set the scene for at least neurogenic symptoms of PCS to occur, psychological mechanisms, particularly PTSD, have a significant role in the persistence of PCS. Our findings suggest the need for a clear story and sense of meaning for a traumatic event for good recovery from PTSD. Taken together, the results suggest that psychological interventions, particularly aimed at PTSD, may be most effective after mTBI.

*For my wonderful wife, Ruthie.*

# Acknowledgements

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Although this thesis is all my own work, in one sense that is not true. This submission would not be possible without the help and support of supervisors, peers, friends and family. I would like to take this opportunity to thank those who have contributed to my life and PhD here.

I would like to thank Huw Williams, my primary supervisor, for his intellectual guidance of my research and for his practical support in carrying it out. I have struggled with disability and ill health throughout my doctorate, but Huw has always understood, always shown grace and always helped me overcome my obstacles. I would also like to thank Alan Slater, my second supervisor, for his great help in commenting on drafts and helping me refine articles for publication.

Special thanks must also go to my wife, Ruthie, who has literally helped me get out of bed when the going was tough and has worked so hard to support me in every way possible, emotionally and practically. My parents, Peter and Karen, and my friends Dave Pegg, Ed Brewer, Ben Evans, Derek Burnside, Sue and Mike Cox, as well as my whole church family, have kept me as close to sane as possible and made my life a joy, even when times were hard, as well as Helen Ryland and Nicola Gregory who shared the tumultuous ups and downs of PhD life with me. Finally, I give thanks to my God who gives me the strength I need and whose faithfulness knows no bounds.

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