



University  
of Victoria

Graduate Studies

Notice of the Final Oral Examination  
for the Degree of Doctor of Philosophy

of

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M.Sc. (University of Victoria, 2011)  
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**“When Does the Past Become the ‘Good Old Days’?  
Retrospective Recall Biases Caused by Expectations for Increased  
Post-Concussion Symptoms after Mild Traumatic Brain Injury in  
Adolescents”**

Department of Psychology

Wednesday, July 11, 2018  
10:00 A.M.  
Clearihue Building  
Room B007

Supervisory Committee:

Dr. Mauricio Garcia-Barrera, Department of Psychology, University of Victoria (Co-Supervisor)  
Dr. Brian Christie, Division of Medical Sciences, UVic (Co-Supervisor)  
Dr. Chand Taneja, Department of Psychology, UVic (Outside Member)

External Examiner:

Dr. Christopher Abeare, Department of Psychology, University of Windsor

Chair of Oral Examination:

Dr. Ian Putnam, Department of Mathematics & Statistics, UVic

## **Abstract**

**Objectives:** After mild traumatic brain injury (mTBI), psychological factors can contribute to persisting post-concussion symptoms (PCS). Consistent with constructive theories of memory, negative expectations for increased symptoms after mTBI may contribute to misattributing symptoms to the mTBI and/or underestimating pre-injury symptoms, called the “good old days’ bias” (Gunstad & Suhr, 2001). The good old days’ bias is not thought to be a general retrospective recall bias. However, studies to date have not adequately controlled for normative memory processes including those that lead to a biased, more positive recall of the past. Therefore, the current study examined the strength of the good old days’ bias after mTBI above and beyond normal memory biases. The good old days’ bias has been understudied in the acute post-mTBI period and in adolescents. This study addresses the need to examine how soon after mTBI the good old days’ bias affects retrospective recall of pre-injury functioning. This study also examines whether the good old days’ bias causes absolute or relative underestimation of pre-injury symptoms. Finally, the clinical significance of symptom recall biases is investigated.

**Method:** The sample consists of 42 adolescents who sustained an mTBI (ages 13-18 years; 24 males, 18 females) and 42 uninjured adolescents (ages 13-18 years; 24 males, 18 females). The mTBI group rated current and retrospective post-concussion symptom ratings within 1 week post-injury and at one month post-injury. The uninjured control group rated current and retrospective post-concussion symptoms at baseline and one month later. Cross-sectional and longitudinal comparisons using non-parametric statistical tests were used.

**Results:** Wilcoxon signed-rank tests showed that, by one month post-mTBI, adolescents report fewer total, physical, and emotion-related pre-injury symptoms than they had reported within one week of their concussion. The control group did not demonstrate this good old days’ bias. There were no between-group differences in retrospective PCS ratings at either time point. Chi-square analyses found that the mTBI group was as likely as the control group to recall “no” pre-injury/past symptoms one month post-injury after having initially reported some pre-injury symptoms. Only two more adolescents were classified as “recovered” if their one-month PCS ratings were compared with pre-injury PCS ratings made within 1-week post-concussion rather than pre-injury ratings from 1-month post-injury.

**Discussion:** There was mixed evidence for a good old days’ bias by one month post-concussion. This bias was not demonstrated in healthy adolescents, suggesting that the good old days’ bias is related to negative expectations about concussion. During the acute post-injury period, the good old days’ bias may only be apparent by studying changes in concussed individuals’ own PCS ratings. The good old days’ bias leads to underestimating the severity of pre-injury symptoms rather than forgetting them entirely. The good old days’ bias does not cause adolescents to appear to be recovering more slowly from “post-concussion” symptoms by one month post-concussion. Future studies should directly examine expectations about concussion and their effect on current and retrospective symptom reporting.