

Authority – the ‘hands-on-hips-stance’

Medical Sciences and Aerospace



Rickards, Caroline (2004). *The effect of repetitive baroreflex stimulation on orthostatic responses*. PhD Thesis, School of Medical Sciences, RMIT University.

Rickards’ (2004:52) literature review establishes how her research will offer new insights and solutions to a real-world problem. The conclusion to this section points out the relevant knowledge gaps, the importance of filling these gaps, the primary aims of her study and the overall contribution to medical science and aerospace.

1. This concluding section in the literature review allows Rickards to summarise her research without citing. Note how this approach strengthens her voice.
2. Identify two gaps in knowledge that Rickards intends to fill and the rationale for addressing these issues.
3. Find the main aims of the study and the likely contributions to relevant fields.

Comments	1.8 Conclusion (Literature review)
	<p>This review has described the cardiovascular consequences of exposure to varying gravitational environments, from the simple stress of orthostasis to the complex +Gz environment. While the incidence of G-LOC, the extreme end point of high +Gz exposure, has been thoroughly investigated, the incidence of A-LOC has not been adequately quantified in operational fighter pilots. This knowledge is essential to ensure the implementation of effective and up-to-date training and education strategies for the fighter pilot community.</p> <p>Previous studies have also demonstrated the integral role of the baroreflexes in cardiovascular adaptation to repeated +Gz exposure, which contributes to an improvement in G-tolerance in this population. However, current techniques for enhancing cardiovascular regulation in this environment, i.e. in-flight training and centrifugation are extremely expensive and time-intensive. Further investigations into potential alternative ground-based techniques for improving tolerance to the stress of +Gz exposure, via increases in BRS are clearly warranted.</p> <p>The primary aims of this thesis are to better understand the physiological consequences of routine high +Gz exposures in operational fighter pilots and to investigate the effectiveness of a number of non-invasive techniques for improving cardiovascular regulation to the stress of orthostasis. Completion of these studies may contribute to the greater understanding of cardiovascular regulation across the spectrum of +Gz stress, from simple orthostasis to the complexity of high +Gz acceleration.</p>

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Answer Key

1.8 Conclusion (Literature review)

Review issue 1	This review has described the cardiovascular consequences of exposure to varying gravitational environments, from the simple stress of orthostasis to the complex +Gz environment. While the incidence of G-LOC, the extreme end point of high +Gz exposure, has been thoroughly investigated, the incidence of A-LOC has not been adequately quantified in operational fighter pilots. This knowledge is essential to ensure the implementation of effective and up-to-date training and education strategies for the fighter pilot community.
Gap	
Rationale	
Review issue 2	Previous studies have also demonstrated the integral role of the baroreflexes in cardiovascular adaptation to repeated +Gz exposure, which contributes to an improvement in G-tolerance in this population. However, current techniques for enhancing cardiovascular regulation in this environment, i.e. in-flight training and centrifugation are extremely expensive and time-intensive. Further investigations into potential alternative ground-based techniques for improving tolerance to the stress of +Gz exposure, via increases in BRS are clearly warranted.
Gap	
Rationale	
How to fill the gaps – key research question	The primary aims of this thesis are to better understand the physiological consequences of routine high +Gz exposures in operational fighter pilots and to investigate the effectiveness of a number of non-invasive techniques for improving cardiovascular regulation to the stress of orthostasis.
Contribution: ‘super-rationale’	Completion of these studies may contribute to the greater understanding of cardiovascular regulation across the spectrum of +Gz stress, from simple orthostasis to the complexity of high +Gz acceleration.

KEY

- Knowledge gaps in **red**.
- Key rationale and research contributions in **blue**.