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PHYSIOLOGY, COGNITION AND PERFORMANCE
IN TEST ANXIETY

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A thesis submitted for the
degree of Doctor of Philosophy
from the Australian National
University.

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I declare that this thesis reports my original work; that no part has been previously accepted or presented for the award of any degree or diploma from any university; and that, to the best of my knowledge, no material previously published or written by any other person is included, except where due acknowledgement is given.

Crista Wocadlo

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We shall not cease from exploration
And the end of all our exploring
Will be to arrive where we started
And know the place for the first time.

T.S. Eliot

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ABSTRACT

There has been some debate within test anxiety theory as to the importance of physiological arousal and cognition in the maintenance of this emotional state. Recent investigations have emphasised cognitive factors, such as worry, intrusive thinking and cognitive interference. Earlier conceptualizations used the concept of hyperarousal to explain the effects of anxiety on behaviour. These theories do not however explain the relationship between cognitive factors and physiological arousal. A theoretical difficulty then arises when investigators use the arousal concept to explain elements of their findings, with no explicit explanation of how physiological arousal influences cognition or the anxiety state. The following studies examined the relationship of physiological arousal to perceptual and cognitive processes in test anxiety.

Study One aimed to replicate previous findings of cue utilization changes in high test anxious subjects under stress conditions. The assumption being that high anxiety leads to increased physiological arousal, and it is this heightened arousal which changes cue utilization. Study One revealed that increased arousal did change cue utilization, by placing a greater emphasis on peripheral stimuli. This change in arousal however appeared in the low test anxious group.

Studies Two and Three examined the influence of anxiety and arousal on the utilization of visceral cues and the accuracy of visceral perception. Study Two found that high test anxious individuals misperceived their heart rates to a significantly greater degree than low test anxious subjects and this misperception was more related to task demand than actual physiological events. Study Three used propranolol (a beta-blocker) to decrease sympathetic arousal, and found under these conditions, high test anxious subjects became more accurate in their heart rate estimation and their estimations were more related to actual physiological events.

Study Four then investigated the possibility that expectation of task difficulty has a significant effect on the performance of high test anxious individuals. The performance and self-report of highly test anxious subjects were significantly effected by expectation of difficult anagrams. Physiological arousal did not change significantly between anxiety groups or in relation to task difficulty. Cognitive interference however did appear to influence performance, and the report of anxiety.

Studies Five and Six examined the effect of task interfering statements and task facilitating statements on performance, physiology and mood report. In Study Five, task interfering statements did not significantly influence anxious mood report. Physiological and self-report variables did not respond to the statements manipulations. General trends suggested that following task facilitating statements, high test anxious individuals' performance did marginally improve.

Study Six then investigated the effects of reducing arousal on the impact of interfering and facilitating statements. Propranolol-induced arousal reduction did not significantly alter self-report. Propranolol subjects showed improved performance and rated task facilitating statements as more typical of normal performance cognitions than placebo subjects. Both groups were high test anxious.

It was concluded that increased physiological arousal does alter perceptual processing and the manner in which information is utilized both from the environment and from internal cues. Reductions in arousal in high test anxious individuals led to more accurate perception of physiological events and greater accessibility of positive cognitions about task performance and the self.

The clinical implications of beta-blockade for the treatment of test anxiety are discussed along with the importance of a multi-faceted treatment approach.