

## THE MEMORY DIVISIONS OF TULVING VERSUS SQUIRE – ADVANTAGES AND DISADVANTAGES FOR NEUROPSYCHOLOGY AND MEMORY ASSESSMENT

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### Abstract

Though already at the beginning of the 20<sup>th</sup> century first attempts on long-term memory subdivisions had been proposed, it was only in the 1970ies and 1980ies that such divisions were recognized by a wide audience. From Endel Tulving came in 1972 the division of memory into episodic and semantic memory, from Mishkin and Petri in 1984 that on a ‘memory’ and a ‘habit’ system. Larry Squire then a bit later suggested a very elaborated outline of memory subdivisions. Commonalities of all proposals are the distinction between simple and complex, or unconsciously/implicitly versus consciously/explicitly acting. Tulving – in interaction with one of the authors (HJM) – nowadays divides into five long-term memory systems, of which two are unconscious (“anoetic” in his terminology), two conscious (“noetic”) and one self-conscious (“autonoetic”). These are – from simple to complex: ‘priming’, ‘procedural memory’, ‘perceptual memory’, ‘semantic memory’ and ‘episodic memory’. Squire’s subdivisions of memory are – compared to Tulving’s – both more simple in one way and more complex in another way: As a more simple distinction he uses the terms ‘declarative’ (consciously processed) and ‘nondeclarative’ (unconsciously processed) memory. He then divides ‘declarative memory’ into semantic and episodic memory, or memory for facts versus for events. ‘Nondeclarative memory’ he divides – similarly to Tulving – into ‘procedural’ and ‘priming’ memory, but then in addition into ‘simple classical conditioning’ and ‘nonassociative learning’. Advantages of Tulving’s model are the simpler divisions, and – above all – the clear separation of ‘episodic’ from ‘semantic’ memory. This last distinction is of major importance, as both neurological and psychiatric are usually not disturbed in ‘declarative memory’ in general, but only in its episodic part, while semantic facts are preserved. Therefore, to speak of impairment in ‘declarative memory’ is not useful. The further detailed diversification of ‘nondeclarative memory’ in Squire’s model is theoretically relevant, but of not much use in the general clinical practice (and is rarely ever tested in patients). Therefore, Tulving’s model of memory subdivisions is recommended from a practical-clinical point of view.

**Keywords:** *Episodic memory, semantic memory, procedural memory, priming.*

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## NATURE OF BODY IMAGE DISTORTION IN EATING DISORDERS

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### Abstract

Body size estimation of healthy women is driven by independent attitudinal and perceptual components. The attitudinal component represents psychological concerns about body. The perceptual component is perception of body size that seems to follow a bias known as contraction bias, and is dependent BMI. Women with a BMI less than the population norm tend to overestimate their size, while women with a BMI greater than the population norm tend to underestimate their size. Women whose BMI is close to the population mean are most accurate.

It is well established that people with eating disorders have attitudinal distortion. However, debate persists as to whether women with eating disorders may also suffer a perceptual body distortion. Here we ask whether women with eating disorders exhibit the normal contraction bias when they estimate their own body size. If they do not, this would suggest differences in the way that eating disordered process the perceptual aspects of body size in comparison to healthy controls.

We recruited 100 healthy controls and 33 women with a history of eating disorders. Critically, we ensured that both groups of participants represented comparable and adequate ranges of actual BMI (e.g. ~18 to ~40). 87.5% of the women with a history of eating disorders self-reported that they were either recovered or recovering, and 89.7% had had one or more instances of relapse. The mean time lapsed since first