



The Scratch Collapse Test and Evaluation of Patients with Coincident Carpal and Cubital Tunnel Syndrome

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Introduction

- Coincident ulnar compression at the cubital tunnel can coexist with carpal tunnel syndrome, but poses a diagnostic challenge
- The Scratch Collapse Test - somewhat controversial provocative diagnostic tool, strong performance in the hands of experienced practitioners
- May be an excellent adjunct for diagnosing coincident ulnar neuropathy at the elbow in carpal tunnel syndrome patients.

Objectives

- To evaluate the diagnostic performance of the Scratch Collapse Test for patients with simultaneous carpal and cubital tunnel syndromes.
- To evaluate the benefit of incorporating the Scratch Collapse Test into an existing diagnostic scheme

Materials and Methods

- Retrospective Chart Review
- 111 patients with carpal tunnel syndrome with and without coincident cubital tunnel syndrome
- Compared relative diagnostic performance of the Scratch Collapse Test to other metrics
- Re-evaluated the existing Koh-Benhaim Score
 - Original 5 point score – (KB)
 - Modified 6 point score (+ SCT) – (KBS)
 - Modified 5 point score (+SCT/-Tinel's Sign) – (KBT)
- Relative diagnostic performance of each model was compared via area under Receiver Operator Characteristics (ROC) curves

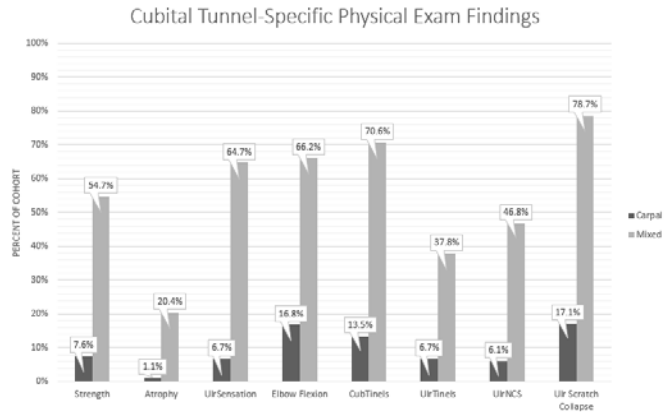


Figure 1. Comparison of Relative Sensitivities of Physical Exam Findings

KB		KBS		KBT	
Parameter	Points	Parameter	Points	Parameter	Points
Intrinsic Strength Loss	1	Intrinsic Strength Loss	1	Intrinsic Strength Loss	1
Ulnar Sensation Loss	1	Ulnar Sensation Loss	1	Ulnar Sensation Loss	1
Elbow Flexion Test	1	Elbow Flexion Test	1	Elbow Flexion Test	1
Cubital Tunnel Tinel's	1	Cubital Tunnel Tinel's	1	Ulnar NCS	1
Ulnar NCS	1	Ulnar NCS	1	Ulnar Scratch Collapse Test	1
		Ulnar Scratch Collapse Test	1		
Total Possible	0-5	Total Possible	0-6	Total Possible	0-5

Table 1. Koh-Benhaim Score Models
 KB: Original 5 point score
 KBS: Modified 6 point score (+Scratch Collapse)
 KBT: Modified 5 point score (+Scratch Collapse, -Cubital Tunnel Tinel's Sign)

Results

- Scratch collapse test outperformed all other tests, with a sensitivity of 78.69%.
- Original KB ROC AUC: 0.9295
- Modified 6 point (KBS): 0.9404
- Modified 5 point (KBT): 0.9539**

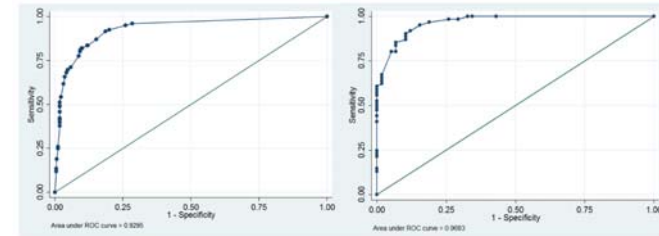


Figure 2. Comparison of ROC curves
 a.) Conventional score system
 b.) Scratch-Collapse modified score systems

Conclusions

- The Scratch collapse test significantly improved the holistic diagnostic evaluation of patients with coincident compression neuropathy.
- Best performance noted with the modified scheme including the scratch collapse test and excluding the cubital tunnel Tinel's sign.

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