

# QUANTITATIVE SENSORY TESTING IN MUSCULOSKELETAL PAIN DISORDERS

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A Thesis Submitted to the School of Graduate Studies in Partial Fulfillment of the Requirements for the Degree  
Doctor of Philosophy, Rehabilitation Science

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McMaster University DOCTOR OF PHILOSOPHY (2014) Hamilton, Ontario (Rehabilitation Science)

TITLE: Quantitative Sensory Testing in Musculoskeletal Pain Disorders

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PAGES: X, 178

## ABSTRACT

Altered nociceptive processing can give rise to an array of sensory findings that can be assessed non-invasively using Quantitative Sensory Testing (QST). Due to the diverse etiopathogenetic basis of musculoskeletal pain disorders, a broad range of reliable and valid QST tests may be needed to analyze the various disease entities. QST evaluated in thesis included different modalities (electrical, vibration, touch, pressure), protocols and test devices. This thesis includes five studies and has evaluated measurement issues of QST (such as reliability and validity) in clinical context and purposes were targeting discrimination, evaluation and prediction in deferent musculoskeletal pain conditions.

Study 1 demonstrated that Current Perception Threshold (CPT) is reliable (consistent across occasions) and valid (associated with neck disability) for assessment of sensory detection threshold in patients with Mechanical Neck Disorder (MND). Study 2 demonstrated that CPT testing has moderate discriminatory accuracy, specificity, and sensitivity for classification of MND categories into neck pain with or without neurological signs. CPT might be useful for screening to classify patients with MND into clinically relevant subgroups. It may play a role in establishing different prognostic or diagnostic subgroups and specifically in assessing prognosis or mechanistic studies that target neurological focused therapy interventions.

Study 3 found that more than 90% of the tests with healthy young participants were reliable and valid in relation to their ability to detect a normal Weinstein Enhanced Sensory Test (WEST) or Pressure Specified Sensory Device (PSSD) within a normal force range. This study supports the reliability and specificity of these 2 QSTs (WEST and PSSD).

Study 4 demonstrated that psychophysical dimensions (QSTs) and patient factors (gender, age and comorbidity) affect self-reported and performance-based outcome measures in shoulder disorder. Study 5 suggests that pressure pain sensitivity may play a role in the self-reported outcome measures (e.g. pain and disability) of neck pain. Study 4 and 5 also indicated that gender and comorbidity were covariants in the relationship between pain detection threshold based QST and disability.

Future research should focus on longitudinal prospective studies with a large cohort of patients are required to justify the prognostic and evaluative properties of different sensory modalities, and to compare different sensory modalities, assessment protocols, indicators, and decision rules.