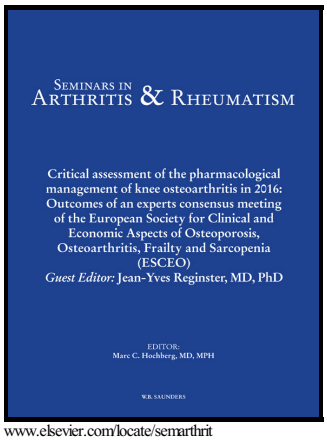

www.elsevier.com/locate/semarthrit

Multivariate Pattern Analysis Utilizing Structural or Functional MRI - In Individuals With Musculoskeletal Pain and Healthy Controls: A Systematic Review

Ashley Smith, Marina López-Solà, Katie McMahon, Michele Sterling

PII: S0049-0172(17)30028-8
DOI: http://dx.doi.org/10.1016/j.semarthrit.2017.06.005
Reference: YSARH51208

To appear in: *Seminars in Arthritis and Rheumatism*

Cite this article as: Ashley Smith, Marina López-Solà, Katie McMahon and Michele Sterling, Multivariate Pattern Analysis Utilizing Structural or Functional MRI - In Individuals With Musculoskeletal Pain and Healthy Controls: A Systematic Review, *Seminars in Arthritis and Rheumatism,* http://dx.doi.org/10.1016/j.semarthrit.2017.06.005

Review Article

Multivariate Pattern Analysis Utilizing Structural or Functional MRI - In Individuals With Musculoskeletal Pain and Healthy Controls: A Systematic Review

Ashley Smith[1], Marina López-Solà[2], Katie McMahon[3], Michele Sterling[1]

[1]Recover Injury Research Centre, NHMRC CRE in Recovery Following Road Traffic Injury, Menzies Health Institute QLD, Griffith University, Gold Coast, Australia

[2] Cognitive and Affective Neuroscience Laboratory, Department of Psychology and Neuroscience Institute of Cognitive Science, The University of Colorado, Boulder, USA

[3]Centre for Advanced Imaging, University of Queensland, Herston, Australia

Keywords: musculoskeletal pain, functional MRI, multivariate pattern analysis, systematic review.

Correspondence concerning this article should be addressed to:

Ashley Smith, Griffith University, Gold Coast Campus, Southport QLD 4125.

E-mail: ashley.smith@griffith.edu.au, T: +61 755 529 564.

1. Introduction

Musculoskeletal pain is highly prevalent and places a huge burden on society (Vos, Flaxman et al. 2012). It is postulated that treatment directed at the underlying mechanisms of pain would assist with more effective therapeutic outcomes (Woolf 2011, Baron, Binder et al. 2012). However, it is challenging to provide appropriately directed specific treatment when the underlying neurophysiological processes are not well understood. Recent studies report that chronic musculoskeletal pain conditions involve morphological (structural) brain changes (Schmidt-Wilcke, Leinisch et al. 2006, Apkarian, Hashmi et al. 2011, Smallwood, Laird et al. 2013) and functional adaptations of brain processing (Flor, Braun et al. 1997, Giesecke, Gracely et al. 2004, Baliki, Petre et al. 2012). As such, various non-invasive structural and functional neuroimaging techniques (e.g.