

Original article

Standardized manual palpation of myofascial trigger points in relation to neck/shoulder pain; the influence of clinical experience on inter-examiner reproducibility

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ABSTRACT

A diagnosis of Myofascial Pain Syndrome (MPS) requires palpation for the identification of at least one clinically relevant trigger point (TP). However, few comparable, high quality studies currently exist from which to draw firm conclusions regarding the robustness of TP examination. An inter-observer agreement study was conducted using two experienced and two inexperienced clinicians. All performed standardized palpation of the upper Trapezius musculature, judging the clinical relevance of TP(s) using clinician global assessment (GA). A random case mix of 81 female participants was examined, 14 asymptomatic and the remainder suffering from neck/shoulder pain. Examiners received psychomotor skills training and video feedback analysis to improve protocol standardization. Kappa co-efficient calculations indicated good agreement between the experienced pairing ($\kappa = 0.63$), moderate agreement between the mixed pairings ($\kappa = 0.35$ and 0.47) and poor agreement between the inexperienced pairing ($\kappa = 0.22$). Inter-observer agreement was not stable with the experienced pairing exhibiting a sharp decline in agreement during the latter portion of the study. Identification of clinically relevant TPs of the upper Trapezius musculature is reproducible when performed by two experienced clinicians, however, a mixed observer pairing can yield acceptable agreement. A protracted period of data collection may be detrimental to inter-observer agreement; more investigation is needed in this regard.

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1. Introduction

A clinical diagnosis of Myofascial Pain Syndrome (MPS) is thought to require the presence of at least one clinically relevant trigger point (TP) (Myburgh et al., 2008). As investigation into various TP phenomena has progressed, so too have the demands for diagnostic accuracy (Lucas et al., 2009). And whilst technological advances in soft tissue imaging are yielding promising results, clinical relevance is still largely determined by means of palpation (Myburgh et al., 2008). Subsequently a steady trickle of TP palpation inter-observer (examiner) agreement studies have been produced (Levoska et al., 1993; Njoo and Van der, 1994; Gerwin et al., 1997; Hsieh et al., 2000; Al-Shenqiti and Oldham, 2005). However, recent systematic reviews indicate that only a limited number of comparable, high quality investigations have been

conducted (Myburgh et al., 2008; Lucas et al., 2009). As no definitive conclusions regarding this protocol can currently be made, the value of standardized palpation in the diagnosis of MPS is still questionable.

The growing clinical relevance ascribed to TPs in relation to conditions such as tension-type and cluster headache, temporomandibular disorders (CMD) and whiplash associated disorders (WAD), therefore requires resolution the status quo in order to further the advancement of practice in this field (Freeman et al., 2009; Calandre et al., 2008; Fernández-de-Las-Peñas et al., 2007, 2010). Thus, with the intent of contributing constructively to the level of existing evidence, we focused on two methodological issues, these being clinician global assessment (GA) and examiner experience.

GA is a process during which the observer collapses a number of criteria, considered relevant for reaching a clinical diagnosis, into a single categorical judgement (Brunse et al., 2009). This approach appears to be particularly useful when the examination protocol aims simply to distinguish whether a disease state is present or not.

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In this regard GA has been applied in a variety of musculoskeletal inter-observer agreement studies, including TP palpation (Gerwin et al., 1997; Stochkendahl et al., 2006; Brunse et al., 2009). However, GA has been under utilized in this context and it is therefore unclear whether this outcome will suffice as a definitive outcome in TP identification protocols.

It has previously been argued that in order for TP palpation protocols to be clinically relevant and representative, the inter-rater agreement should be established with respect to the average, rather than the expert clinician (Lucas et al., 2009). TP inter-examiner agreement studies have, however, for the most part omitted reporting the specific TP examination expertise of the observers used (Myburgh et al., 2008). Consequently, it is similarly unclear what, if any, an appropriate level of experience might be.

With the above in mind, the specific study objectives were 1) to determine the inter-observer agreement of TP examination among four examiners and, 2) to determine whether reproducibility is influenced by examiner clinical experience.

2. Method

2.1. The participants

Through local newspaper advertisements female subjects between the ages of 20 and 45 years, who performed four or more hours a day of office work and suffered from neck/shoulder pain corresponding with the area covered by the upper Trapezius muscle were recruited. Pain free subjects were similarly sampled in order to create a random case mix. During an initial telephonic interview, respondents were provided with information regarding the study and excluded by means of filter questions if the following seemed likely: a) serious systemic pathology, b) clinical depression, c) involvement in legal action in relation to their neck pain, c) pregnancy or d) a body-mass index (BMI) of 31 or higher (calculated at the time of the interview). After agreeing to participate, a letter of

information and background questionnaire were posted to the subjects electronically and a clinical assessment date was scheduled.

Although this study was not designed to establish clinical diagnosis, it was necessary to exclude subjects under suspicion of having pathology capable of altering touch sensation and/or with the potential for serious health consequences. However, in order not to contaminate the subsequent TP examinations, this determination had to be made without palpation. Therefore, respondents who in the opinion of the index clinician could be classified (or required further testing in order to classify) according to the Neck Pain Task Force criteria (Guzman et al., 2008) as either grade 3 or 4, were excluded.

2.2. The examiners

Our study required five clinicians, one to conduct an index clinical evaluation and four examiners to conduct a systematic TP examination. With respect to the latter group, two pairs were required; one inexperienced pairing with less than one year exposure to palpating TPs and diagnosing MPS and a second experienced pairing with more than five years exposure to palpating TPs and diagnosing MPS.

2.3. Examiner training

Three factors were standardized during the TP examiner training, these being 1) the understanding and interpretation of TP criteria and the use of examiner global assessment (GA), 2) the anatomical location of upper Trapezius TPs and 3) the psychomotor skill required during the process of manual palpation.

To address the first factor, examiners were presented with an update of issues relating to TP examiner reliability and clinical diagnosis of MPS. In particular, current views on TP criteria, the concept of (GA) and the notion of clinically relevant TPs were exhaustively discussed. Examiner global assessment (GA) was used to determine the likelihood of clinically relevant TPs (Brunse et al., 2009). In reaching their GA judgement, the clinician considered

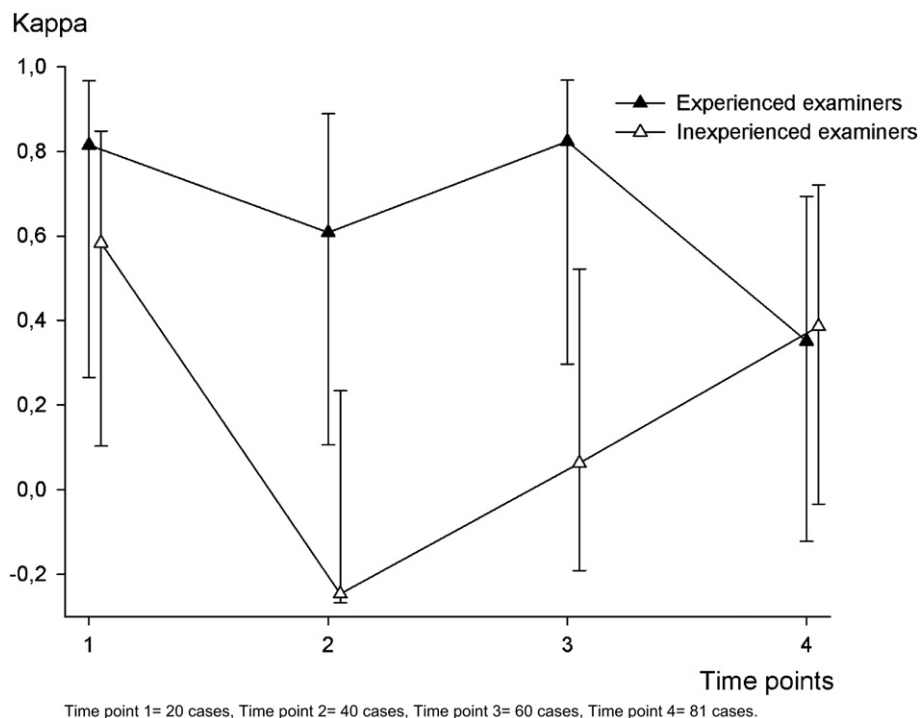


Fig. 1. Paired agreement regarding the presence of trigger points in relation to four selected time-points.

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