



POSTURAL EVALUATION OF ADOLESCENTS

Reproducibility of the low back clinical postural grouping in adolescents



Ney Meziat-Filho, PT, PhD ^{a,*}, Roberta Mendonça, PT ^b,
Adriano Pezolato, PT, MSc ^c, Felipe J.J. Reis, PT, PhD ^d,
Leandro Alberto Calazans Nogueira, PT, PhD ^e

^a Department of Rehabilitation Sciences, Centro Universitário Augusto Motta (UNISUAM), Rio de Janeiro, Brazil

^b Department of Rehabilitation Sciences, Centro Universitário Augusto Motta (UNISUAM), Department of Physical Therapy, Brazilian Naval Academy, Rio de Janeiro, Brazil

^c Centro Especializado em Coluna e Dor, Ribeirão Preto, São Paulo, Brazil

^d Instituto Federal do Rio de Janeiro (IFRJ), Department of Clinical Medicine, Universidade Federal do Rio de Janeiro (UFRJ), Rio de Janeiro, Brazil

^e Department of Rehabilitation Sciences, Centro Universitário Augusto Motta (UNISUAM), Instituto Federal do Rio de Janeiro (IFRJ), Rio de Janeiro, Brazil

Received 24 April 2015; received in revised form 13 October 2015; accepted 30 October 2015

KEYWORDS

Posture;
Spine;
Reproducibility;
Physiotherapy

Summary Objective: The purpose of this study was to analyze the intra- and inter-rater reliability of the Low Back Clinical Postural Grouping (LBCPG).

Methods: Fifty-eight school adolescents were evaluated by lateral photography. The examiners classified the posture of the participants as: hyperlordotic, sway back, flat back or neutral. The intra- and inter-rater reliability were quantified by the percentage agreement between clinicians and the kappa coefficient with 95% confidence intervals (95% CI).

Results: The intra-rater percentage agreement was 91.4%, $k = 0.87$ (95% IC 0.77–0.98, $p < 0.001$) for the more experienced rater, and 86.2% $k = 0.79$ (IC 95% 0.62–0.96, $p < 0.001$) for the less experienced rater. The percentage agreement between clinicians was 55.17% $k = 0.39$ (95% CI: 0.23–0.55, $p < 0.001$). The agreement rose to 70.69%, $k = 0.58$ (95% CI 0.41–0.74, $p < 0.001$) when an optional second opinion of the raters was also considered. **Conclusion:** The LBCPG was reliable when used by the same clinician. The strategy of a second opinion could be used to improve the inter-rater reliability in epidemiological studies with large samples.

© 2015 Elsevier Ltd. All rights reserved.

* Corresponding author. Department of Rehabilitation Sciences, Centro Universitário Augusto Motta, Praça das Nações 34, 3° andar, Bonsucesso, Rio de Janeiro, RJ, 21041-010, Brazil. Tel.: +55 21 3882 9797.

E-mail address: neymeziat@gmail.com (N. Meziat-Filho).

Introduction

Considering the biopsychosocial model, many factors are involved in the etiology and perpetuation of low back pain (LBP) (O'Sullivan, 2012). Although the type of posture of the adolescents does not seem to be a risk factor for low back pain, when the posture is associated with some different movement and pain patterns, it seems to have an important role in the therapeutic strategies (Smith et al., 2008; Widhe, 2001). A few studies showed that the initial position of the lumbopelvic region is related to the way the body moves while bending over in low back pain subjects (Dankaerts et al., 2006a, 2006c). Valid and reliable assessment methods are important to the clinical practice. For epidemiological studies, such methods must be pragmatic and cost-effective.

There are many different methods used to evaluate posture. These can be divided into six categories: radiographic analysis (roentgenography) (Jackson et al., 2000), three-dimensional cinematic analysis with electromagnetic or optic devices (Straker et al., 2008), rasterstereography (Asher et al., 2004), photographic analysis with angles measures (Perry et al., 2008; Saad et al., 2012), posture monitor ("BodyGuard") (O'Sullivan et al., 2011), and manual measuring (Hart and Rose, 1986). The last consists of many different methods: manual goniometry, electrogoniometry, flexible ruler ("Flexicurve") and the measurement of horizontal displacement of spinal landmarks from a vertical plumb line (Fortin et al., 2011).

Radiographic analysis has been shown to be a valid and reliable tool and is considered the gold standard method because it allows clear visualisation of the bone landmarks (Sprigle et al., 2002). However, the high level of radiation hazards prevents its use in large scale studies. All the other forms of posture assessment are also not ideal for epidemiological studies because of difficulties in application or expenses.

Another important method that has been developed by Smith et al. (2008) is the clinical postural grouping. The tool consists of a photographic analysis, but the classification is done by the choice of one of the four types of posture (hyperlordotic, swayback, flat back and neutral) (Seah et al., 2011). The advantage of this method is that it reproduces the posture analysis of the clinical practice, as well as being very cheap and quick. Seah et al. (2011) showed that the inter-rater reliability of the clinical postural grouping was moderately reliable and reasonable for epidemiological studies. However, the authors did not present the data of the agreement for each category of posture and also the intra-rater reliability. Taking this into account, the present study aimed to analyse the intra- and inter-examiner reliability of the low back clinical postural grouping in school adolescents.

Methods

Participants

The sample size was calculated and the number of participants needed was 55, considering a k of 0.45, with the 95%

CI lower value of 0.27. The exclusion criteria were pregnancy and spinal surgery or any kind of musculoskeletal or neurological diseases that did not allow standing posture.

The research was approved by the Social Medicine Institute of the Rio de Janeiro State University. All the participants and their parents were informed of the objectives and procedures of the study, and signed the informed consent form, including consent to use the image.

Procedures

All the participants answered questions regarding socio-demographic data in the classroom. The lateral photography was taken in an appropriate room with the presence of the researchers of both sexes. Subjects dressed in shorts (boys) and gymnastic pants and crop tops (girls) were asked to stand in their normal posture at a mark on the floor. Following Perry et al. (2008) the verbal command was: "feet slightly apart, stand normally, relax, and look straight ahead." Flash photographs (3648 × 2736 pixels) were taken with a digital camera (Sony DSC-H55, Japan) placed on a tripod 80 cm high and 250 cm lateral to the participant. The photographs were digitalised and sent to both raters with 15 years of clinical experience in musculoskeletal physiotherapy and to one rater with seven years of clinical experience. The raters were instructed to classify the subject, by the image, as one of the four postural groups: hyperlordotic, sway back, flat back and neutral (Fig. 1) (Smith et al., 2008). Hyperlordotic was defined as an increased thoracic kyphosis and lumbar lordoses with anterior pelvic tilt. Sway back was defined as a posterior displacement of the thorax as regards the pelvis, with a long thoracolumbar kyphosis and low lumbar lordosis, posterior pelvic tilt and extended hip joints. Flat back was defined as a flattened thoracic and lumbar spine, and neutral or posterior pelvic tilt. Neutral posture was considered a normal thoracic kyphosis and lumbar lordosis, and a neutral pelvic position.

The decision regarding the allocation of the different profiles in each group was based on independent clinical judgement. In case of uncertainty between two different profiles, both the more experienced raters were instructed to give a first and a second opinion about the classification



Figure 1 In sequence, from left to right, the posture profile examples: hyperlordotic, sway back, flat back and neutral.

Download English Version:

<https://daneshyari.com/en/article/2618581>

Download Persian Version:

<https://daneshyari.com/article/2618581>

[Daneshyari.com](https://daneshyari.com)