



## Original article

# Patellar position in patients with patellofemoral syndrome as characterized by anatomico-radiographic study<sup>☆</sup>



Bruno Adelmo Ferreira Mendes Franco<sup>a</sup>, David Sadigursky<sup>b,\*</sup>,  
Gildásio de Cerqueira Daltró<sup>c</sup>

<sup>a</sup> Faculdade de Medicina da Bahia, Universidade Federal da Bahia, Salvador, BA, Brazil

<sup>b</sup> Departamento de Cirurgia do Joelho, Clínica Ortopédica e Traumatológica, Salvador, BA, Brazil

<sup>c</sup> Departamento de Cirurgia Experimental e Especialidades Cirúrgicas, Universidade Federal da Bahia, Salvador, BA, Brazil

## ARTICLE INFO

## Article history:

Received 3 February 2017

Accepted 13 April 2017

Available online 7 July 2018

## Keywords:

Patella

Patellar dislocations

Chondromalacia patellae

Pain

## ABSTRACT

**Objectives:** To determine the prevalence of high patella in adult patients with knee pain, and to correlate patellar height with symptoms of patellar instability, episode of patellofemoral dislocation and anterior pain in the knee; and also verify the concordance correlation between the Insall-Salvati and Caton-Deschamps indices.

**Method:** Cross-sectional study analyzing the medical records of patients with knee pain, using lateral view knee radiographs with 30° degrees of flexion and computed tomography. The values of the Insall-Salvati index and the Caton-Deschamps index were used to determine the patellar height.

**Results:** A total of 756 records were analyzed, resulting in 140 knees studied, 39% men and 61% women. Both indices produced statistically significant associations for the occurrence of high patella and signs of instability and episodes of dislocation, but there was no significant association for anterior knee pain. The Kappa index obtained when analyzing the concordance correlation between the Insall-Salvati index and Caton-Deschamps index points to a regular association between them.

**Conclusion:** Patients with high patella present a higher prevalence of instability. Having a high patella has no significant relationship with the presence of anterior knee pain. The Insall-Salvati and Caton-Deschamps indices demonstrate a regular agreement on the presentation of patellar heights results.

© 2017 Sociedade Brasileira de Ortopedia e Traumatologia. Published by Elsevier Editora Ltda. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

<sup>☆</sup> Study conducted at Clínica Ortopédica Traumatológica (COT), Salvador, BA, Brazil.

\* Corresponding author.

E-mail: [davidsad@gmail.com](mailto:davidsad@gmail.com) (D. Sadigursky).

<https://doi.org/10.1016/j.rboe.2017.05.011>

2255-4971/© 2017 Sociedade Brasileira de Ortopedia e Traumatologia. Published by Elsevier Editora Ltda. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

## Caracterização por estudo anatomorradiográfico da posição patelar em pacientes portadores de síndrome femoropatelar

### R E S U M O

#### Palavras-chave:

Patela  
Luxação da patela  
Condromalácia patelar  
Dor

**Objetivos:** Determinar a prevalência de patela alta em pacientes adultos portadores de dor no joelho, correlacionar a altura patelar com sintomas de instabilidade patelar e dor anterior no joelho. Verificar índice de concordância entre os índices de Insall-Salvati e Caton-Deschamps.

**Métodos:** Estudo de corte transversal, com análise de prontuários de pacientes portadores de dor no joelho e radiografias em perfil do joelho a 30° graus de flexão e tomografia computadorizada. Usadas as medidas do Índice de Insall-Salvati e Índice de Caton-Deschamps para determinar a altura patelar.

**Resultados:** Foram analisados 756 prontuários, 140 joelhos, 39% de homens e 61% de mulheres. Para ambos os índices obtivemos associações estatisticamente significantes para a ocorrência de patela alta e sinais de instabilidade patelar, entretanto não houve associação significativa para a dor anterior no joelho. O índice Kappa obtido para analisar a relação de concordância entre o Índice de Insall-Salvati e Caton-Deschamps aponta para uma associação regular entre eles.

**Conclusão:** Pacientes portadores de patela alta apresentam maior prevalência de instabilidade na população estudada. Ter patela alta não apresenta relação significativa com a presença de dor anterior do joelho. Os Índices de Insall-Salvati e Caton-Deschamps apresentam concordância regular na apresentação dos resultados das alturas patelares.

© 2017 Sociedade Brasileira de Ortopedia e Traumatologia. Publicado por Elsevier Editora Ltda. Este é um artigo Open Access sob uma licença CC BY-NC-ND (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

## Introduction

Patellofemoral pathology manifests itself in different clinical entities and may range from anterior knee pain (AKP) to patellofemoral instability (PFI).<sup>1</sup> PFI is a common lesion that affects young and active individuals in most cases, accounting for 3% of all knee injuries.<sup>2</sup>

Among the anatomical alterations that affect the knee joint, patella alta (PA) is the one that is most associated with instability and recurrent dislocation. Lateral dislocation of the patella frequently occurs during the initial moment of the knee flexion movement, since the patella is less stable in the first degrees of flexion before it is accommodated more congruently in the trochlea.<sup>3</sup> Given the importance of this condition, there are reports of over 100 procedures that aimed to treat and/or prevent PFI.<sup>3,4</sup>

Despite the wide scientific production on painful knee syndromes, recent studies have described lesioned structures after patellar dislocation as well as the contribution of these structures to the control of physiological knee movement.<sup>4</sup> Biomechanical studies have demonstrated that PA is one of the most important factors predisposing to PFI and AKP.<sup>1</sup>

This study is aimed at determining the prevalence of PA in adult patients with knee pain, to correlate patellar height with symptoms of PFI and of AKP for each index, and by verifying the agreement between the Insall-Salvati<sup>5</sup> and Caton-Deschamps<sup>6</sup> indices.

## Material and methods

This is a cross-sectional study with a sample of patients medical records who were followed-up at two outpatient clinics specialized in knee disorders from January 1, 2015 to December 31, 2015. Patients with specific complaints of AKP and PFI were selected. The presence of AKP described in medical records, the existence of a lateral view radiograph of the affected knee, and computed tomography (CT) was verified. In each radiograph, the knee flexion angle was measured using a 20-cm goniometer (Promedix<sup>®</sup>). These images were studied using the Dicom Image Viewer<sup>®</sup> (Pixelmed) image metric analysis software, in accordance with the physical examination technique for the measurement of patellar heights from the Insall-Salvati<sup>5</sup> and Caton-Deschamps indexes.<sup>6</sup> TT-TG distance, patellar height, trochlear groove angle, and supratrochlear spur measurement were evaluated with the help of the institution's radiologist, who followed the protocol for cases of patellar instability and AKP. Patellar height was measured through two indices in patients with 30° angulation. The Insall-Salvati Index<sup>5</sup> was measured by the ratio between the length of the patellar ligament (LT) and the size of the patella (LP). The Caton-Deschamps index<sup>6</sup> was measured by the ratio between the length of the distance from the lower edge of the patellar articular surface to the anterosuperior tibial angle (AT) and the length of the patellar articular surface (PA).<sup>7</sup> The authors complied with the requirements of

Download English Version:

<https://daneshyari.com/en/article/8599668>

Download Persian Version:

<https://daneshyari.com/article/8599668>

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