

LETTER TO THE EDITOR

[Translated article] Letter to the editor about the article: “Is the coronal plane alignment of the knee (CPAK) classification useful to plan individualized total knee arthroplasty surgery for the Spanish population? A critical analysis of the CPAK classification”

Carta al director con relación al artículo: «Is the coronal plane alignment of the knee (CPAK) classification useful to plan individualized total knee arthroplasty surgery for the Spanish population? A critical analysis of the CPAK classification»

Dear Editor,

We read with interest the article by Pujol et al., entitled “Is the coronal plane alignment of the knee (CPAK) classification useful to plan individualized total knee arthroplasty surgery for the Spanish population? A critical analysis of the CPAK Classification”, which is currently in press (submitted on 23 December 2024 and accepted on 21 January 2025). The digital object identifier is <https://doi.org/10.1016/j.recot.2025.01.002>.

We applaud the authors’ efforts to classify a sample of the Spanish population according to the CPAK classification system published by MacDessi et al. in 2021 (<https://doi.org/10.1302/0301-620X.103B2.BJJ-2020-1050.R1>). However, we feel compelled to clarify certain statements made in the article. In the introduction, the authors state: “To our knowledge, CPAK distribution in the Spanish population has not been explored yet.” On 2 October 2024, our group submitted an article entitled “The Distribution of Coronal Plane Alignment of the Knee Classification in a Sample of Spanish Southeast Osteoarthritic Population: A Retrospective Cross-Sectional Observational Study”, which was published in the journal *Medicina* (ISSN 1010-660X, EISSN 1648-9144; Q1, IF:



2.4 in 2023) as part of a special issue edited by S.M.P. Rossi and R. Sangaletti entitled “Recent Advancements in Total Knee Arthroplasty”, with digital object identifier <https://doi.org/10.3390/medicina60101612>. In this study, we analysed data from full-leg standing radiographs (using the same evaluation system as in the original work by MacDessi et al.) from 528 cases involving 468 patients in Vega Alta del Segura, Murcia, Spain. We removed outliers outside the interquartile range to improve the measure of dispersion, resulting in a final series of 501 cases. While we acknowledge the authors’ efforts in achieving the primary objective of the study (phenotypic characterisation according to the CPAK criteria of a sample of the Spanish population affected by knee osteoarthritis), we must point out that this objective had already been achieved and published.

We were surprised by the complete absence of cases with a proximal apex in relation to joint line obliquity (JLO) in the study by Pujol et al. Of the various published stratifications, this only occurs in the studies by Toyooka et al. (<https://doi.org/10.1055/s-0042-1742645>) on 500 cases and by Nomoto et al. (<https://doi.org/10.1007/s00167-023-07604-8>) on just 60 cases. Toyooka and Nomoto analysed the Japanese population, in which varus and distal obliquity are characteristic phenotypes (as published by Kubota et al., <https://doi.org/10.1016/j.knee.2024.12.010>). The limited sample size of 120 cases in the Pujol et al. study may explain this complete absence, as these are indeed groups with very few cases in all published series (often <1%). However, the proximal apex does appear to exist (in our sample, we identified 2.4% of CPAK VII cases, 0.6% of CPAK VIII cases, and 0.4% of CPAK IX cases).

In the section on limitations of the CPAK classification, Pujol et al. state “It can explain the rarity of proximal apex cases (MPTA+LDFA>193°)”. However, the error should be corrected, as cases in which the sum of MPTA and LDFA (i.e., the JLO) is greater than 183° and not 193° are considered to have a proximal apex, according to MacDessi et al.

We agree with some of the limitations that the authors point out regarding the CPAK classification, which have also been highlighted by other researchers, including Loddo, Sasaki, Hirschmann, Hsu, and Şahbat. However, we believe

DOI of original article: <https://doi.org/10.1016/j.recot.2025.03.001>

<https://doi.org/10.1016/j.recot.2025.07.016>

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that the CPAK classification's main problems are arithmetic in nature. These include inappropriate limits for stratification based on the mean MPTA and LDFA values of a given sample; failure to consider variability between populations when calculating distributions; and extreme sensitivity to measurement error in the MPTA and LDFA variables.

Therefore, we cannot agree with the conclusion reached by Pujol et al. "No relevant differences were found between the Spanish CPAK distribution and the original study; therefore, no modifications to the classification should be necessary for the Spanish population". One hundred and twenty cases are not representative of the Spanish population. Even our own study, which examined 501 cases (more than four times the sample size of Pujol et al.'s study), is not representative, as we previously mentioned, as it only represents a sample of the population of south-eastern Spain. Furthermore, we believe that the CPAK classification is not perfectly valid in its current form for all populations (including the Spanish population) and that it should be adaptable to the characteristics of each sample. We are currently working on this concept and hope to present our hypothesis in the coming months.

Identificadores ORCID

J. Hurtado-Avilés: 0000-0003-4464-5102
M. López-López: 0000-0001-8751-7544
F. Santonja-Medina: 0000-0002-3593-3287
J. Moya-Angeler: 0000-0002-3520-2521

Level of evidence

Level of evidence v.

Author contributions

The manuscript was written by VLM, and all the authors read and approved the final version.

Ethical considerations

The manuscript complies with ethical considerations. Given its nature, evaluation by the authors' institutional ethics committee was not necessary.

Funding

No specific support from public sector agencies, commercial sector, or not-for-profit organisations was received for this research study.

Conflict of interests

The authors have no conflict of interests to declare.

V.J. León-Muñoz  ^{a,b,c,*}, J. Hurtado-Avilés ^d,
M. López-López ^e, F. Santonja-Medina ^{c,d,f},
J. Moya-Angeler ^{a,b}

^a *Servicio de Cirugía Ortopédica y Traumatología, Hospital General Universitario Reina Sofía, Murcia, Spain*

^b *Instituto de Cirugía Avanzada de la Rodilla (ICAR), Murcia, Spain*

^c *Departamento de Cirugía, Pediatría, Obstetricia y Ginecología, Facultad de Medicina, Universidad de Murcia, El Palmar, Murcia, Spain*

^d *Sports & Musculoskeletal System Research Group (RAQUIS), Universidad de Murcia, El Palmar, Murcia, Spain*

^e *Servicio de Coordinación y Aplicaciones Informáticas, Subdirección General de Tecnologías de la Información, Servicio Murciano de Salud, Espinardo, Murcia, Spain*

^f *Servicio de Cirugía Ortopédica y Traumatología, Hospital Clínico Universitario Virgen de la Arrixaca, El Palmar, Murcia, Spain*

* Corresponding author.

E-mail address: vleonmd@gmail.com (V.J. León-Muñoz).