

LETTER TO THE EDITOR

Scientific research on orthopedics in Colombia over the last decade: a brief exploratory bibliometric analysis based on data from Web of Science

Producción científica sobre ortopedia en Colombia durante la última década: un breve análisis bibliométrico exploratorio con base en datos de Web of Science

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Palabras clave: Ortopedia; Procedimientos Ortopédicos; Colombia; Bibliometría (DeCS).

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Dear editor,

Biometric analysis of orthopedic scientific production in Colombia is essential to understand the current state of this specialty in the country. It helps guide significant advances in this field, as well as identify emerging research topics and gaps in knowledge. In addition, studying biometric analysis facilitates the formulation of relevant research questions adapted to the local context.¹⁻⁵ This type of analysis also makes it possible to acknowledge author networks, allowing the recognition of potential collaborations between researchers, institutions and countries.¹

Moreover, we aimed to explore the scientific production in orthopedics in Colombia between 2015 and 2024 (defined as articles published by authors with at least one affiliation with a Colombian institution during this period). We propose an exploratory bibliometric analysis using data available in Web of Science applying the following search strategy: (((TS=(Orthopedics)) OR TS=(Orthopedic Procedures)) AND TS=(Colombia)) AND PY=(2015-2024). Statistical analysis of the data was performed using *RStudio*; *Bibliometrics* and *Biblioshine*. A total of 100 publications were identified, of which 83% corresponded to original articles and 17% to systematic and literature reviews. Table 1 presents the overall characteristics of the publications found.

The most frequent topics published during the study period (2015-2024) were, in descending order of frequency, enzyme replacement therapy, total arthroplasty, septic arthritis, hydroxyapatite, femoroacetabular impingement, intervertebral disc, radiation dose, anterior cruciate ligament, and pulmonary embolism (Figure 1).

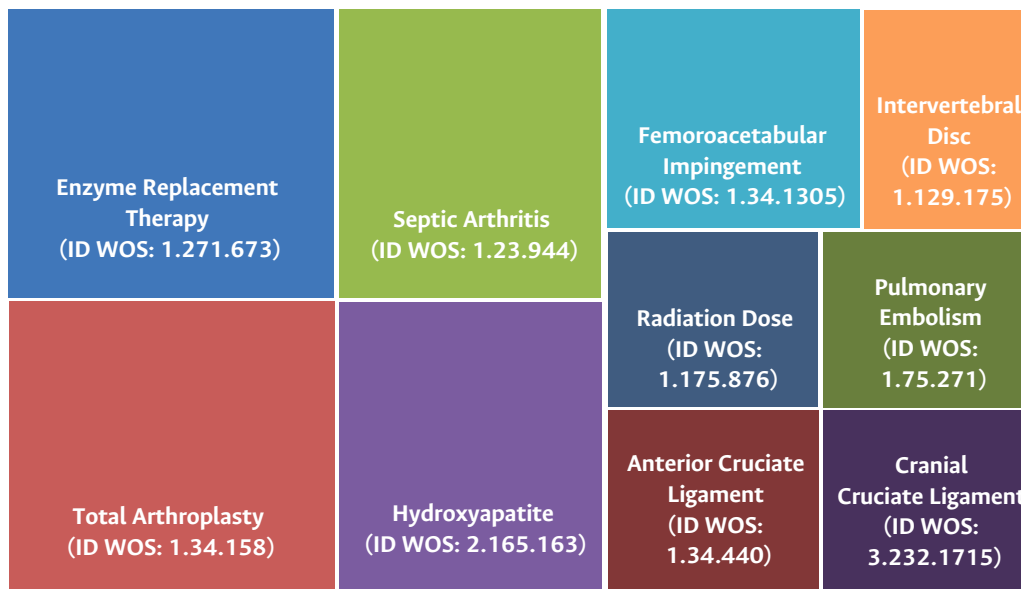
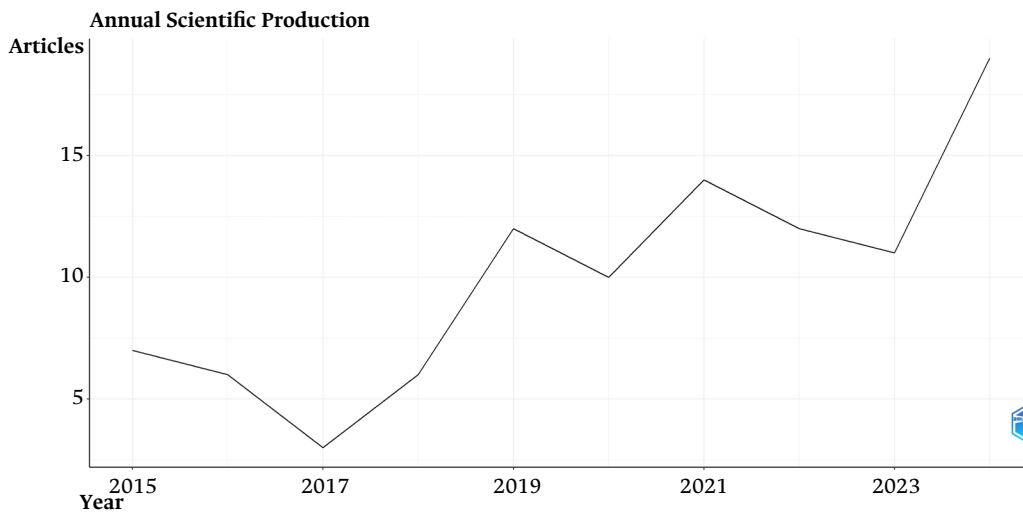


Figure 1. Most frequent topics in orthopedic publications indexed in Web of Science (2015-2024)
Source: Own elaboration.

Note: The search strategy applied did not allow differentiation between human orthopedics and veterinary orthopedics. One of the most frequent topics corresponded to veterinary medicine (cranial cruciate ligament). This aspect should be considered in future bibliometric analyses in Web of Science to improve the accuracy of the search strategy.

Regarding year of publication, 2021 and 2024 were the years with the highest number of published documents (14 and 19 publications, respectively), whereas 2017 showed the lowest scientific production, with only 3 publications (Figure 2).

Figure 2. Annual scientific production on orthopedics in Colombia indexed in Web of Science (2015-2025).

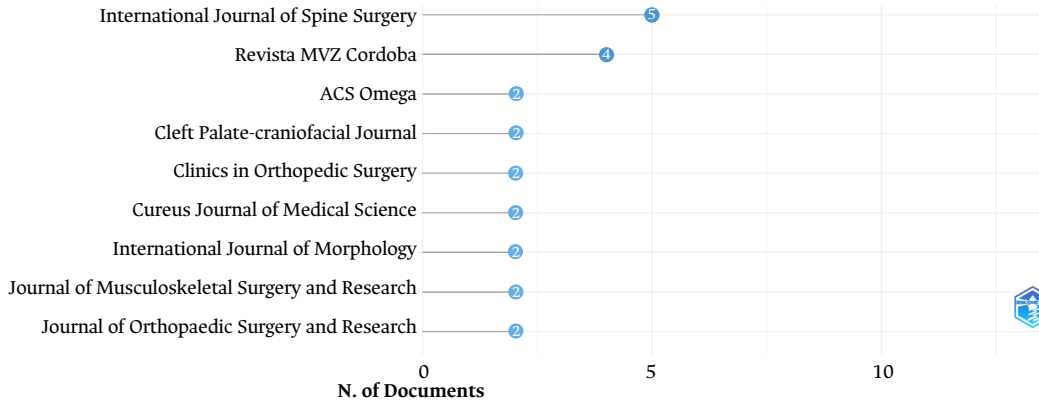


Source: Own elaboration.

The journals with the highest number of publications were *International Journal of Spine Surgery* and *Revista MVZ Cordoba*, with 5 and 4, respectively (Figure 3). In terms of author affiliations, *Universidad Nacional de Colombia* was the most frequent institution (20 publications with at least one affiliated author), followed by *Pontificia Universidad Javeriana* (16 publications), and the *Universidad CES* (13 publications). Finally, the most

frequently used keywords were *growth* (6 articles), *management* (6 articles), and *diagnosis* (5 articles) (Figure 4).

Figure 3. Most frequent publication sources in orthopedic research indexed in Web of Science (2014-2025)



Source: Own elaboration.

Figure 4. Most frequently used keywords in orthopedic publications indexed in Web of Science (2014-2025)



Source: Own elaboration.

Even though Web of Science is one of the most important databases worldwide due to its extensive journal indexing,^{4,5} peer-reviewed content, and the availability of detailed bibliographic information for each publication,^{6,7} it is necessary to perform a bibliometric analysis on a larger scale, including additional databases and search engines such as PubMed/PubMed Central, Scopus, Redalyc, Google Scholar, and SciELO. In this regard,

the bibliometric analysis presented above has limitations, such as relying on a single database and using a search equation that does not exclude publications on veterinary orthopedics; these aspects should be taken into account in future research. Although the present analysis provides an approximation to the characterization of orthopedics scientific production in Colombia, a broader search including multiple sources would provide a more comprehensive overview of orthopedic and orthopedic surgery research in the country. Such an approach, in line with the arguments presented above, would benefit professionals in these medical fields by supporting the development of relevant research according to the local context, facilitating continuous updating of medical knowledge, and enabling the analysis of academic collaboration networks.

Table 1. Overall characteristics of the scientific production on orthopedics in Colombia published between 2015 and 2024.

Characteristics	n
Total publications on orthopedics with Colombian authors published between 2015 and 2024 and indexed in WoS	100
Number of sources (journals, books, etc.)	71
Annual growth rate (%)	11,73
Average years since publication	4,45 years
Average citation per document	12,94
Total number of references	4306
Total number of keywords in all documents	344
Total number of Keywords Plus terms in all documentsa	415
Number of authors	732
Single-authored documents	0
Average number of co-Authors per document	8,18
Proportion of documents with international collaboration (%)	61
Document type (n=100)	
Original articles	83
Articles; early access	1
Editorial material	1
Letters to the editor/correspondence	1
Review	14

Source: Own elaboration.

Conflicts of interest

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Use of Artificial Intelligence

None reported by the authors.

References

1. Manoj Kumar L, George RJ, PS A. Bibliometric Analysis for Medical Research. *Indian J Psychol Med.* 2023;45(3):277-82. <https://doi.org/10.1177/02537176221103617> PMID: 37152388; PMCID: PMC10159556.
2. Donthu N, Kumar S, Mukherjee D, Pandey N, Lim WM. How to conduct a bibliometric analysis: An overview and guidelines. *J. Bus. Res.* 2021;133:285-96. <https://doi.org/10.1016/j.jbusres.2021.04.070>
3. Gürbüz Y, Sügün TS, Özaksar K. A bibliometric analysis of orthopedic publications originating from Turkey. *Acta Orthop Traumatol Turc.* 2015;49(1):57-66. <https://doi.org/10.3944/AOTT.2015.14.0044> PMID: 25803255.
4. Fanfan D, Larios F, Gonzalez MR, Rodriguez A, Nichols D, Alvarez JC, et al. A Bibliometric Analysis of the 500 Most Cited Papers in Orthopaedic Oncology. *J Am Acad Orthop Surg Glob Res Rev.* 2024;8(1):e23.00223. <https://doi.org/10.5435/JAAOSGlobal-D-23-00223> PMID: 38236058; PMCID: PMC10796143.
5. Preut J, Frosch KH, Debus ES, Grundmann RT. Bibliometric Analysis of Research Areas, Publication Hierarchy and Gender Authorship in German University Orthopaedic Surgery. *Z Orthop Unfall.* 2023;161(5):516-525. <https://doi.org/10.1055/a-1735-4110> PMID: 35272383.
6. Falagas ME, Pitsouni EI, Malietzis GA, Pappas G. Comparison of PubMed, Scopus, Web of Science, and Google Scholar: strengths and weaknesses. *FASEB J.* 2008;22(2):338-42. <https://doi.org/10.1096/fj.07-9492LSF> PMID: 17884971.
7. Kulkarni A V., Aziz B, Shams I, Busse JW. Comparisons of citations in web of science, Scopus, and Google Scholar for articles published in general medical journals *JAMA.* 2009;302(10):1092-6. <https://doi.org/10.1001/jama.2009.1307> PMID: 19738094.