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Top 10 scientific production countries on aerobic training: A bibliometric analysis

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Abstract

Background: This study was designed to investigate the top 10 scientific production particularly in the field of aerobic training in Web of Science Data base by using the R studio.

Methods: MeSH terms such as “Aerobic Training”, “Aerobics Training”, “Aerobic Exercise”, “Aerobics Exercise”, “Aerobic”, and “Aerobics” are used to collect the data. Based on the Inclusion and exclusion criteria we sort 843 articles from 3241 documents, all the articles published from 1989 to 2022. R studio Software used to analysis the export data.

Results: It was concluded that the USA, Brazil, and China are doing more research in the field of aerobic exercise.

Keywords: Aerobic, bibliometric analysis

Introduction

Aerobic exercise is also known as endurance activities (National Institute of Aging, 2021). According to Cooper & Thoenes (1998) [3], the term "aerobic" refers to the usage of oxygen to effectively supply energy demands during activity through aerobic metabolism (McArdle, Katch, & Katch, 2006) [8]. Aerobic exercise comprises innumerable forms (National Library of Medicine, 2018) [11]. In Sports Aerobic training is traditionally an important component of physical training in soccer (Bangsbo, & Lindquist, (1992) [2]; Impellizzeri, Rampinini, & Marcora, (2005) [6]; Krstrup, Mohr, Amstrup, Rysgaard, Johansen, Steensberg, & Bangsbo, (2003) [7]. A high maximal aerobic power has been correlated with work-rate during a game and a high aerobic capacity is reported to aid recovery during high-intensity intermittent exercise, typical of soccer performance and training (Reilly, 1997) [12]; Impellizzeri, Marcora, Castagna, Reilly, Sassi, Iaia, & Rampinini, (2006) [5].

A technique known bibliometrics uses statistics and information retrieval to quantitatively examine variables and indicators in a certain literary field (Ahmad, Asif, Alam, & Slots, 2020; Huang, Zhu, Xu, Zhu, & Chen, 2022) [1, 4]. A bibliometric method is a tool used to assess the academic institutions' quantitative output in scientific research (Sillet, 2013; Sethu, & Ramakrishnan, (2018); Muthappan, Ilangoan, Subramanian, Durairajan, & Elumalai, 2020) [13, 14, 9].

The purpose of the bibliometric analysis is to analysis the top 10 Scientific Production countries on aerobic training.

Methods

Source of Database

In this Bibliometric analysis Web of Science Core Collection on the website also provides the basic features of search results, such as the document types, source, number of papers, citations, authors, countries, references, etc. Therefore, we used Web of Science Core Collection for the primary analysis of the top 10 scientific production countries in the field of aerobic training (Huang, Zhu, Xu, Zhu, & Chen, 2022) [4].

Searching Strategies

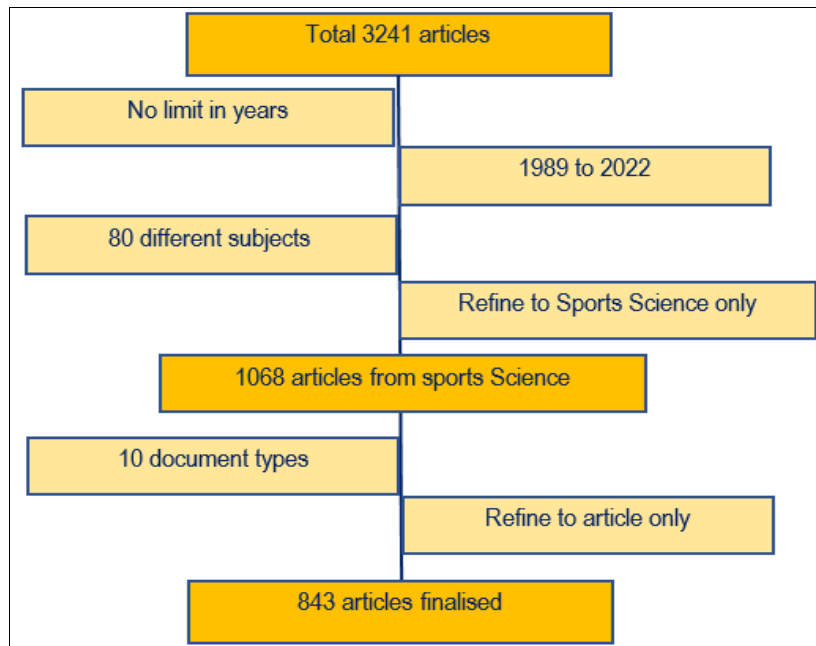
Search strategy using MeSH terms such as “Aerobic Training”, “Aerobics Training”, “Aerobic Exercise”, “Aerobics Exercise”, “Aerobic”, and “Aerobics”. The Web of Science (WoS) electronic database was searched on July 2022.

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Inclusion and Exclusion Criteria

In this bibliometric analysis we did restrict the publication years, however we include for the analysis only Sports

Science subject other than are excluded also, article document type are included other than all are excluded from the analysis part.



Analysis of Data

In primary analysis we got 3241 documents in the WoS on Aerobic training. The first document was published in the year of 1989 and the latest years of the publishing document in the year of 2022. 3241 documents from 80 different subjects. In which under the Sports Sciences subject 1068 documents were found. It consists of 843 articles, 116 meeting abstract, 99 review articles, 14 proceeding papers, 8 early access, 5 letters, 2 corrections and 1 Editorial materials. Further we refine by document type “Articles” in that finally included 843 articles into the analysis.

Results

In 843 articles 3735 authors are involved, however only 20 articles worked by single author. 2103 keywords plus and 1776 authors keyword were used in the selected articles. The

top 10 scientific production countries table shows below table 1 & Figure 1.

Table 1: Top 10 scientific production countries

Rank	Country	Articles	Percentage
1	USA	166	19.69%
2	Brazil	149	17.67%
3	Canada	62	7.35%
4	France	54	6.41%
5	Italy	42	4.98%
6	Spain	40	4.74%
7	United Kingdom	31	3.68%
8	Japan	29	3.44%
9	Australia	24	2.85%
9	Iran	24	2.85%

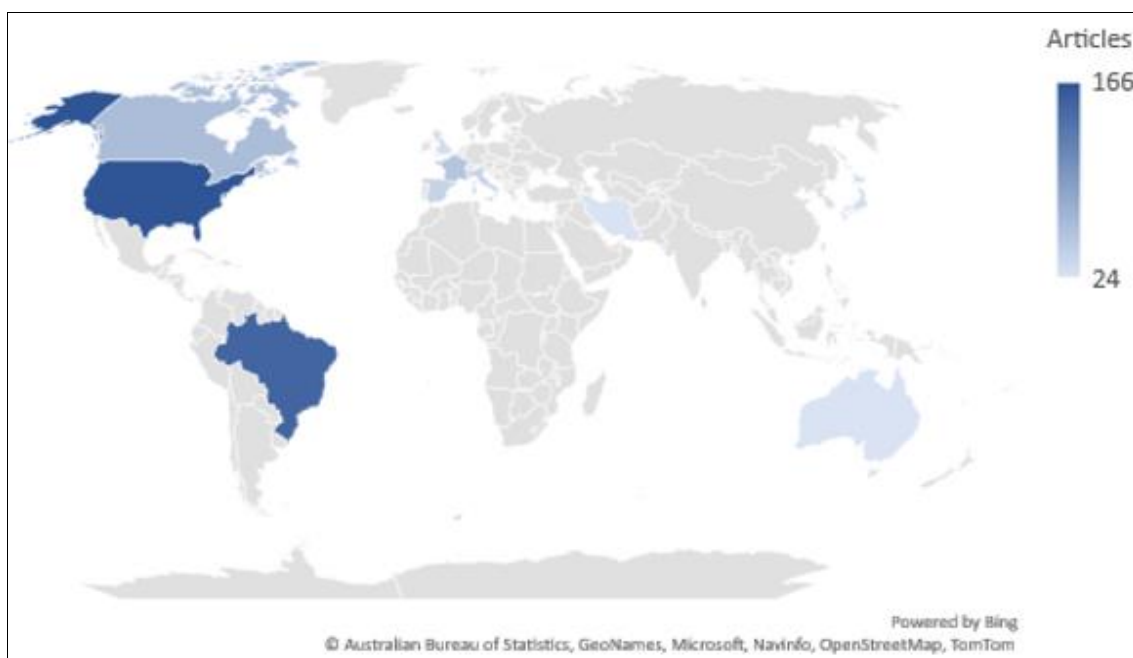


Fig 1: Top 10 Scientific Production Countries

Conclusion

From table 1 shows that USA lead by doing research in aerobic with 166 (19.69 %) articles were produced. Followed by Brazil 149 (17.67%) of articles, Canada 62 (7.35%), France 54 (6.41%), Italy 42 (4.98%), Spain 40 (4.74%), United Kingdom 31 (3.68%), Japan 29 (3.44%), Both Australia 24 (2.85%) and Iran 24 (2.85%). Concluded that still in India need to do more research in the filed of aerobic by publishing in the quality journal data base such as WoS, Scopus etc.

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