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## ORIGINAL PAPER

# Scientific production of Sports Science in Iran: A Scientometric Analysis

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### ABSTRACT

**Background:** Physical education and sports science is one of the branches of humanities. The purpose of this study is determining the quantitative and qualitative rate of progress in scientific Production of Iran's researcher in Web of Science. **Methods:** Research Methods is Scientometric survey and Statistical Society Includes 233 Documents From 1993 to 2012 are indexed in ISI. **Results:** Results showed that the time of this study, Iranian researchers' published 233 documents in this base during this period of time which has been cited 1106(4.76 times on average). The H- index has also been 17. Iran's most scientific productions in sports science realm was indexed in 2010 with 57 documents and the least in 2000. **Conclusions:** By considering the numbers of citations and the obtained H- index, it can be said that the quality of Iranian's articles is rather acceptable but in comparison to prestigious universities and large number of professors and university students in this field, the quantity of outputted articles is very low.

**Key words:** Science Production, web of science, Scientometric, Sports science, Iran

## 1. INTRODUCTION

Different studies about scientific production and its importance (1, 2, 3). Physical education and sports science is one of the branches of humanities which have been associated with basic science and health science in different aspects and its effect and role is apparently undeniable in relation to physical and mental rehabilitation and reformation of the people of society. In Islamic Republic of Iran, it has a special position and status. The scope of activity and competency of physical education and sports science in educational affairs and social and individual health is so wide that it includes all ages, from before birth to old age. In addition, physical education and sports has been considered as a preventive factor from the incidence of some diseases and mental and physical complications. It has been proven that it prevents progress of some illnesses including diabetes and cardiovascular failure (4).

Sports science is a science that deals with scientific and specialized affairs of sports. Its aim is to make all who are interested in sports figure out all cases related to sports science and use them so that they will hurt less. In addition, they enhance their skills in each sports event through sports science. Human beings have elevated to the highest ranks in civilization realm and his thought and mind have become brilliant and the result of human's thought, work, and intelligence which is human culture and sciences

has also been developing (5). Even though the fundamental role of sports science has not been reached perfection among all nations yet, it has come to this final result that first: human society has steadily been mobile and perfect just like electron and proton formation and solar system accumulation and has passed different stages, and second: individual's change and movement has been studied not only from spiritual and internal aspects but also scientific stimulations has been regarded for adaptation of mental and physical movements. He has found his life continuation in a way that his body and soul has been matched based on time change and creation system in order to continue his elevated and healthy life by balancing these two tangible and logical criteria which deserve deserves divine justice (6). Nowadays scientific productions are known as a criterion for science evaluation and a society has been considered more developed that is superior than other nations for its information aspects not economical are military power (7). Science is an economical endowment. Its values is determined based on the degree that helps to promote science and influence on others' thinking (8). The scientific power and capacity of each country has been accounted as one of evaluative criterion of development of that nation. Progress in this scope involves improvement of the situation of production of scientific data. Today, studying and producing scientific data has a major role in the country's development and ac-

completing the principle of knowledge essentiality. Information is a phenomenon that has a key role in advance of today's society and is very important in all scientific, economical, industrial, social, and cultural affairs after programming and policy making (9).

In science measurement studies, the study of the quality and quantity of magazines is considered as a media publishing scientific productions which plays a very important part in being seen (10). The situation of indexed scientific production in ISI documentation base is one of the most important indexes that can be regarded as the success of research community of each country in publishing its scientific and research findings in international publications. On the other hand, publishing scientific findings in these international publications can be an explanatory to this fact that the scientific levels of scientific achievements are acceptable. This is the reason why an increase in the number of indexed scientific productions in international bases is one of the indicators that has been considered widely by countries along with other science and technology indexes (11).

Nowadays, measurement and protection of science in different scopes and different subjects in different centers and universities have been paid attention and emphasized for various reasons. Sports science is one of these scopes that have found an important position and rank in the world. Due to the vastness of various subjects' attitudes and its close relation with health and human beings 'quality of life, the position of research in sports science is so important that a great part of research budget in most countries has been specified to it.

Various researches have been conducted in different scientific areas in Iran and abroad. In Iran, science measurement based on documentation base WoS has begun since 1997 (12). For instance, in his research entitled "An examination of the amount of the world's scientific productions in the realm of publication ethics during 1993 to 2010, Yaminfirooz came to this result that the United States, England, Australia, and Canada had the most scientific productions in this area, respectively. By producing 8 documents, Iran and Greece are in the 17th rank in the world (13). In addition, we can point to Arkambalt whose research examined scientific publications of Middle East in the documentation base of WOS. The result showed that the growth of scientific publications in Middle East was very rapid (about twice times faster than global level) and Iran and Turkey have the first rank (14). By attitude of examining Iran's scientific productions in sports science realm from 1993 to 2012, the present study not only intends to introduce science measurement studies as a very important method in evaluation of scientific and research documents, but also wants to trace the structure of Iran's scientific production in sports science realm and identify Iran's scientific information in this base.

## 2. METHODOLOGY

The present study is a kind of science measurement study that has analyzed indexed scientific documents in sports science realm in Iran from 1993 to February 29th, 2012 by using qualitative and quantitative indexes of WOS. The source of data collection is ISI base and statistical society includes 233 recorded documents in this area in Iran during given period. After derogating the related documents and receiving documentary from that base, all the information was entered in special research folder and was analyzed by considering the aims of research in statistical SPSS and Excel software. In addition, the statistical formula was used for determining the growth rate.

$$G = \frac{x_t - x_{t-1}}{x_{t-1}} * 100$$

## 3. RESULTS

The result of documentary analysis from documentation base WOS showed that Iran's scientific production in sports science realm has been 233 documents in this base during a period of 19 years from which 198 have been articles, 17 related to meeting abstract, 7 cases review, 4 cases correction, 3 cases editorial material, 3 cases letters, and 3 cases proceedings paper.

In order to examine the qualitative growth of Iran's indexed articles, H index has been used. The results showed that the number of referring was 1106 times until February 29th, 2012 which 89 cases were self referring. The average of referring to each essay was estimated 4.75. Therefore, H index equals 17, that is, on average 17 published articles of Iran in this area have been referred to at least 17 times.

The other results of this study are related to the best authors of Iran in sports science realm. By considering the amplitude of document production, the best author in this area is related to Dr. HeidarSadeghi with 15 indexed documents in ISI and the rest of authors have been presented in Table 1, respectively.

No.	Author	Number of documents published
1	Sadeghi H	15
2	Allard P	13
3	Salavati M	12
4	Parnianpour M	11
5	Mazaheri M	10
6	Rahnama N	10
7	Rahimi R	8

Table 1. Iran's best researchers in sports science realm based on the number of frequency documents in WOS

The other finding of this study is associated with active institutions in this area in Iran. Tehran Medical School has the first rank with 34 indexed documents and Islamic Azad University with 22 documents, Tehran University with 21 documents has the second and third rank, respectively. Other centers with the number of frequency have been shown in Table 2.

Ranking	Institutes And Universities Active	No. of published documents
34	Univ Tehran Med Sci	1
22	Islamic Azad Univ	2
21	Univ Tehran	3
16	Tarbiat Moallem Univ	4
14	Hop St Justine	5
14	Sharif Univ Technol	6
14	Univ Guilan	7

Table 2. Iran's best institutions in sports science realm for scientific productions

#### 4. THE BEST ARTICLES IN IRAN'S SPORTS SCIENCE REALM

By using the number of referring to the published articles in sports sciences in Iran, the extracted report from the documentation base showed that the following articles were among five so much referring of this area. The most referring has belonged to an article entitled "Symmetry and limb dominance in abled-bodied gait: a review" which has been referred 127 times until the date of writing of this research.

No.	Journal	F
1	British Journal Of Sports Medicine	22
2	Medicina Dello Sport	17
3	Gait Posture	15
4	Journal Of Human Kinetics	13
5	Journal Of Sports Science And Medicine	13
6	Medicine And Science In Sports And Exercise	12
7	American Journal Of Physical Medicine Rehabilitation	10

Table 3. The magazines publishing Iran's scientific documents in sports science realm

Results showed that among 233 scientific documents (articles), 230 documents are related to 2000–2012 and 3 other articles are associated with 1993–1999 which specifies a trivial percentage (1.35%). The results indicates that Iran's scientific article has traversed a progressing process since 2006 in a way that from 2006 to 2010 it had 22% progress but suddenly in comparison to 2011, in 2010, 6.87%, a decline has been observed in Iran's research in this realm.

9	8	7	6	5	4	3	2	1	Rate
New Zealand	South Korea	Finland	France	Australia	Germany	USA	England	Canada	Country
3	4	4	6	9	10	19	25	26	F

Table 4. Nine best cooperator countries in Sports science realm in Iran during 1993-2012

By using this Fig, we can examine the process of Iran's indexed scientific production growth more precisely in sports science realm in WOS base. By considering the given diagram, the process of Iran's scientific production growth has involved in intensity and weakness during a period of 12 years.

As it is noticed the average rate of scientific productions is negative in comparison to the previous year and during other years, we see a percentage of posi-

tive growth rate among which the most part is related to 2007.

By using the extracted information from referring indexes in ISI base, it is concluded that Iran's authors in sports science realm publish their articles in various magazines. But nearly 50% of produced articles by Iranian authors in this area have been published in only 7 publications. By having 22 scientific documents, British Journal of Sports "Medicine" has specified the first rank (Table 3).

Iranian researchers have also cooperated with researchers of other countries in writing their articles. The highest scientific cooperation has been with researchers of Canada, England, and the United States, respectively (Table 4).

#### 5. DISCUSSION AND CONCLUSION

This study has represented an overall picture of Iran's scientific productions in sports science realm in ISI documentation base. The results suggested that despite the existence of ups and downs in the process of publishing the recorded documents, the rate of referring to their articles has ascendant growth. This results have been similar to research findings of Archambault (14) in the scope of scientific production of Middle East (2010), Blin Chen's in the area of the ethic of publication (2007) (11, 12). The results also showed that Iranian researchers produced 233 documents up to 2. 29.2012. The rate of referring to them has been 1106 times. From the total referring, 89 cases have been self referring and the average of referring to each article has been estimated 4.76. Iran's H index in this area has been 17, that is, on average 17 articles published in ISI have been referred at least 17 times. So, although by presence of the number of referring and H index, Iran's indexed articles in sports science realm can be nearly acceptable qualitatively, due to the few numbers of indexed documents during 18 years and by considering the number of faculty members of Iran's sports realm it has been trivial quantitatively. It must be paid attention to by educational and research authorities. YaminFirouz(13) (2011) had come to these results in his investigation of the rate of sci-

ence production in the world in the realm of publication ethic during 1993 to 2010. The United States, England, Australia, and Canada had the most scientific production in this realm, respectively. By producing 8 documents, Iran and Greece have been placed in the rank of 17 in the world.

According to the kind of document, the most scientific productions have been 198 articles, 17 cases related to meeting abstract, 7 cases review, 4 cases cor-

rection, 3 cases editorial material, 3 cases letters, and 3 cases proceedings paper (Figure 1).

In order to examine the qualitative growth of Iran's indexed articles, H index has been used. The results showed that the number of referring was 1106 times until February 29th, 2012 which 89 cases were self referring. The average of referring to each essay was estimated 4.75. Therefore, H index equals 17, that is, at average 17 published articles of Iran in this area have been referred at least 17 times.

The other results of this study are related to the best authors of Iran in sports science realm. By considering the frequency of document production, the best author in this area is related to Dr. Heidar Sadeghi with 15 indexed documents in ISI while the most referring to articles in this area is for him, too. Iranian researchers have had cooperation with the researchers of other countries. By having 26 scientific documents, Canada's share has been more than other countries.

As a whole, it can be concluded that scientific production in sports science realm has had a significant growth. So by considering the findings of this research, the authorities should try in order to promote science production and elevate Iran's rate and by using persuasion policies, encourage researchers to publish their articles in magazines that are indexed by valid informative bases. Therefore, holding educational courses such as the methods of how to write scientific researches, research methods, being familiar with information bases are suggested. In addition, increasing the scientific cooperation and using the experiences of the best universities in Iran and the world, raising the research budget, determining research priorities, and specifying appropriate budget in sports science realm are other suggestions that can be presented so as to promote Iran's scientific rank.

**CONFLICT OF INTEREST: NONE DECLARED.**

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