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Publications in Dance Medicine and Science:

A Bibliographer's Perspective

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Abstract—The purpose of this study was to provide a statistical review of trends in dance medicine and science research over the last 38 years with regard to how much is being published, where it is being published, and what subject matter is attracting the most attention. All data were compiled through computer tabulations of entries in the authors' *Dance Medicine & Science Bibliography, Third Edition*. When viewed in three-year intervals, the number of publications was seen to increase dramatically between 1977 and 1988, and decrease steadily at each interval through 2003. Over the time span in question, 141 authored books, 36 edited books, and 321 chapters have appeared, along with 405 articles in periodicals (led by *Medical Problems of Performing Artists* and the *Journal of Dance Medicine & Science*, with 151 and 136 articles, respectively). Eleven research subjects can be identified which have produced at least 100 references; the 3 most prolific subjects are Psychology/Personality/Perception/Memory/Stress, psychological (308); Technique/Teaching/Training (284); and Stress fracture/Overuse injury (241). Publications over the last 38 years in dance medicine and science portray it as a vigorous and diverse field, although there is potential cause for concern in the (at this time unexplained) decrease in number of publications since 1989. *Med Probl Perform Art* 2004; 19:167–169.

An “enumerative” bibliography (as distinguished from the “descriptive” or “analytical” approach to publishing, which rose to prominence in the early decades of the last century) is essentially a record of who has published what, where, when. It is intended to serve as a guide for researchers of a given author, subject, or field of study to what like-minded scholars have previously written. Such bibliographies are seldom themselves objects for study; nonetheless, they can yield valuable information about the directions taken and even the levels of vitality achieved by the research they catalogue.

As compilers of the *Dance Medicine & Science Bibliography*,¹ which references and cross-indexes the English-language literature in the field for the past 40+ years, we have had the unique opportunity to deal with this material on a daily basis. In this study we use our bibliographer's perspective to offer a statistical review of trends in research with regard to how much is being published, where it is being published, and what subject matter is attracting the most attention.

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HOW MUCH RESEARCH IS BEING PUBLISHED

When the Second Edition of the *Bibliography* was published in 2001, it contained 2,006 entries. The Third Edition will appear in December 2004 and contain 2,311 entries. For this study we were able to break down the entries by year of publication through 2003. We then divided them for the sake of analysis into 3-year intervals to form the data reproduced here as Table 1 and Figure 1.

On the occasion of publishing the Second Edition of the *Bibliography* several years ago, we offered the following comment on its contents: “Neither the total output nor the rate of growth reflected here impresses us as cause for overly robust celebration; especially, there is worrisome evidence of declining productivity in the last few years. Nonetheless, this is obviously the picture of a small field that has proven worthy of attention to an increasing number of researchers.”¹ In retrospect, these observations appear to undervalue the truly dramatic surge in productivity that took place roughly between 1977 and 1988 and to understate the decline in productivity between 1992 and 2003. With the addition of the most current entries, it is clear that over that period of time there has been a consistent decrease in the quantity of published research—this despite indications that the number of participants in the field, as demonstrated, for example, by the slowly but steadily increasing membership in the International Association for Dance Medicine & Science and the Performing Arts Medicine Association, has continued to

TABLE 1. Dance Publications of the Last 38 Years in 3-year Intervals

Years	Publications
1965–1967	22
1968–1970	12
1971–1973	27
1974–1976	34
1977–1979	91
1980–1982	134
1983–1985	211
1986–1988	359
1989–1991	339
1992–1994	328
1995–1997	283
1998–2000	247
2001–2003	183

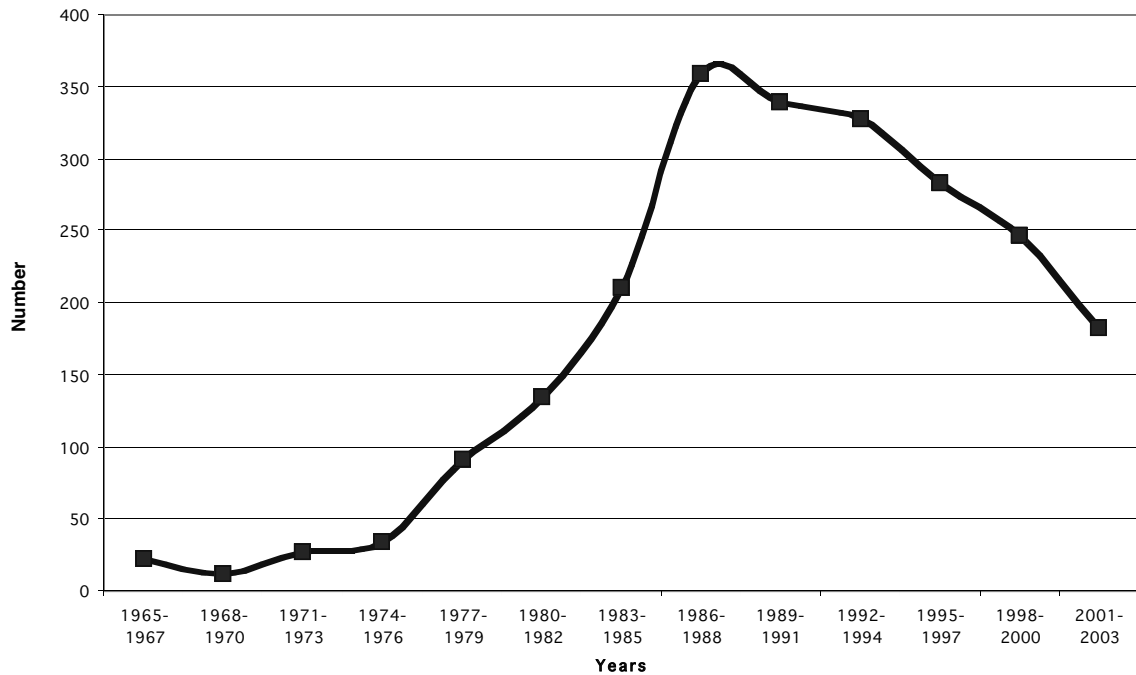


FIGURE 1. Dance publications of the last 38 years in 3-year intervals.

grow. While quantity is only a secondary measurement of what scholars are communicating to one another (quality, the primary measurement, is quite another, much-harder-to-assess matter), one wonders what this trend portends.

WHERE THE RESEARCH IS BEING PUBLISHED

The number of options available for publishing one's research is another sign of vitality in a field. During the last 40 years, 141 authored books (91 between 1964 and 1983; 50 between 1984 and 2003) and 36 edited books (3 between 1964 and 1983; 33 between 1984 and 2003) have appeared that contain material germane to dance medicine and science. A few of these (e.g., Laws [2002]²; Huwyler [1999]³) are extensive studies of the subject. Others (e.g., Bejjani [1993]⁴; Geeves [1997]⁵) are collections of articles by various authors, most of which are pertinent. Still others (e.g., Jahss, [1991]⁶; Mueller and Ryan [1991]⁷) may mention dancers only in passing. Of particular interest in the data is the obvious reversal in productivity after 1983 of authored and edited books.

Where shorter studies over the last 40 years are concerned, there have been 321 chapters in books. The field's unequivocally most important periodicals, the *Journal of Dance Medicine & Science* (in circulation since 1997) and *Medical Problems of Performing Artists* (in circulation since 1986), have produced 136 and 151 articles, respectively. Other periodicals with at least 40 articles are listed in Table 2. Approximately 395 other periodicals worldwide have made contributions to the literature, of which 84 are published outside the United States.

We would like to make the point here, as both bibliographers and researchers in dance medicine and science, that

many of the periodicals publishing articles in our field (e.g., *MPPA* and *JDM&S*) are not included in either PubMed or Medline, the two primary indexes of medical publications. Therefore, researchers cannot rely on those indexes alone for references, as is the case with most other medical specialties; they must be unusually diligent in exhaustively researching their area of interest. This was one of our reasons for compiling the *Dance Medicine & Science Bibliography* (as well as one of the challenges in fulfilling this assignment) and, we believe, a valid indicator of its usefulness.

WHAT SUBJECT MATTER IS ATTRACTING THE MOST ATTENTION

When we cross-index an item for inclusion in the *Bibliography*, it is not uncommon for as many as 10–20 index headings to be required to fully represent its subject matter. Hence, describing even the briefest article as dealing with a single subject usually involves significant oversimplification. Nonetheless, in the interest of providing at least some indication of what the most popular research subjects are, in Table 3 we have listed those that have produced more than 100 index referrals. It should be noted that one category of subjects, anatomic sites of injury (foot, ankle, knee, hip, etc.), all of which are very large indeed, have not been included in this table because they are too general.

To this we would add an anecdotal observation that over the last five years or so the "hottest" topics seem to be Psychology, Training (especially as it utilizes an ever-expanding variety of equipment), and Nutrition/Diet (or, more generally, the Female athlete triad). This diversity of subject matter

TABLE 2. Periodicals with at Least 40 Dance Medicine and Science Articles, 1964–2003

<i>Periodical</i>	<i>No. Articles</i>
<i>Medical Problems of Performing Artists</i>	151
<i>Journal of Dance Medicine & Science</i>	136
<i>Dance Magazine</i>	103
<i>Kinesiology and Medicine for Dance*</i>	92
<i>Physician and Sportsmedicine</i>	87
<i>Medicine and Science in Sports and Exercise</i>	66
<i>Journal of Physical Education, Recreation and Dance</i>	64
<i>American Journal of Sports Medicine</i>	58
<i>Impulse*</i>	44
<i>Clinics in Sports Medicine</i>	42

*No longer in publication.

appears to us accurately to reflect the wide range of interests that have been accommodated within the field.

AFTERWORD

In preparing this article, we consciously set out to be as concise and objective as possible. We wanted to *review*, not *analyze*, our data. By analogy to the form of a full-scale scientific report, we originally thought to write a “Results” section without the “Discussion” and “Conclusion” that would normally follow. This seemed to us appropriate to the nature of the material.

That having been done, however, we found one of our results to be of such significant interest as to demand some discussion. The “trend in research” presented as “How much research is being published,” and displayed graphically in Table 1 and Figure 1, indicates that between 1988 and 2003 the number of publications in dance medicine and science has decreased by almost exactly 50%. Further, when broken down into regular (3-year) intervals, the angle of decline is seen to be quite consistent. How to explain these apparent facts?

At the most general level, one possible explanation is that the data on which these findings are based have somehow been corrupted. Perhaps our data-gathering techniques have changed, or, after doing this job for so many years, our energy and attention levels have flagged. Anything of this sort we categorically deny; indeed, the use we have been able to make of the technological advances in information dissemination over the years in question enhances our confidence that we are eventually finding virtually all of the relevant data.

Again, at the most general level, this leaves the near certainty that the trend we think we are seeing is real. So, in more specific terms, how is it to be explained? For the sake of

TABLE 3. Research Subjects with More Than 100 References

<i>Research Subject</i>	<i>No. References</i>
Psychology/personality/perception/memory/ Stress, psychological	308
Technique/teaching/training	284
Stress fracture/overuse injury	241
Aerobics	205
Conditioning/cardiorespiratory/cardiovascular/ VO ₂ max/heart rate	199
Eating disorders/anorexia nervosa/bulimia	193
Nutrition/diet	167
Menstruation/amenorrhea/oligomenorrhea/ menarche	156
Alignment/malalignment/posture	135
Rehabilitation/physical therapy/physiotherapy	125
Turn out	112

argument we offer a few suggestions. (1) The field may be experiencing a state of entropy; that is, after expanding rapidly over a number of years, the energy and enthusiasm generated within the field may now be contracting. (2) Although the field continues to attract new participants, the newer members may, for reasons unknown, be less inclined, or have fewer incentives, to publish. (3) There may be some feeling that the most important issues raised by this field of inquiry have already been “used up” by prior research.

As these suggestions clearly demonstrate, we do not know the answer to the question we have posed. However, the relevance of the question itself should be equally clear: If the field continues to generate fewer and fewer publications, it is in danger of losing much of its vitality. We welcome further discussion.

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