The field of performing arts medicine has grown significantly over the last few decades. While we still have a long way to go before we can confidently state that we know how to prevent and treat the maladies that interfere with artistic performance, we are making progress on several fronts. In preparation for giving one of the keynote addresses at the 2015 University of South Florida–Performing Arts Medicine Association Conference titled “Caring for Artists and Arts that Heal,” I reviewed the types of articles that have been published in Medical Problems of Performing Artists over the last 10 years. I also did a comparison of those articles to articles published in the Journal of Dance Medicine and Science and in the American Journal of Sports Medicine. In this editorial, I will present my findings.

My first task was to devise a classification system that would be applicable to our field and might help us identify research strategies for the future. Publications in biomedical journals fall into several categories, all of which are in some way related to the basic steps in scientific research. Those steps can be described as follows:

1. Observation and description of a phenomenon or group of phenomena.
2. Formulation of a hypothesis to explain the phenomena.
3. Use of the hypothesis to predict the existence of other phenomena (which might include methods to reduce the frequency of the observed phenomenon) or to predict quantitatively the results of new observations.
4. Performance of experimental tests of the predictions by several independent experimenters and properly performed experiments.

In clinical research, we have several ways of observing and describing things that happen to our patients and clients, and in some cases we can gain a better understanding of what is happening in living human beings by studying animal models or by doing research on human cadaveric specimens. Of course, our options for doing research on people are limited by ethical considerations, resources and time. Some of the more commonly used clinical research designs are:

- Case reports
- Case series
- Case-control studies
- Cohort studies
- Randomized controlled trials
- Systematic reviews of clinical research.

The first four categories relate mainly to step 1 mentioned above: they allow us to observe and describe phenomena that occur as performing artists dance, make music, act, etc. In general, case reports and case series are considered a somewhat less robust level of research than are case-control studies and cohort studies. Randomized controlled trials are the clinical research version of step 4 above, and systematic reviews of randomized controlled trials provide the highest level of “proof” in human health care by showing how consistent the findings are from one study to another. We also need to include one other special category, that being studies designed to determine the validity of a diagnostic test. Therefore, I put the articles published in MPPA for the last 10 years into these categories:

- diagnostic tests
- case reports and case series
- descriptive and comparative studies
- epidemiologic studies
- intervention studies, including randomized controlled trials
- literature reviews
- laboratory studies.

Here is a table showing the distribution of the types of studies for 2005–09, 2010–14 and the totals for all 10 years. No laboratory studies were published in MPPA during this time span.

<table>
<thead>
<tr>
<th>Type</th>
<th>2005–09</th>
<th>2010–14</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dx test</td>
<td>3</td>
<td>8</td>
<td>11</td>
</tr>
<tr>
<td>Case rep/series</td>
<td>17</td>
<td>12</td>
<td>29</td>
</tr>
<tr>
<td>Comp/descr</td>
<td>41</td>
<td>57</td>
<td>98</td>
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<tr>
<td>Epidemiology</td>
<td>20</td>
<td>27</td>
<td>47</td>
</tr>
<tr>
<td>Intervention</td>
<td>10</td>
<td>18</td>
<td>28</td>
</tr>
<tr>
<td>Lit review</td>
<td>9</td>
<td>20</td>
<td>29</td>
</tr>
</tbody>
</table>

The two largest categories are comparative/descriptive studies and epidemiologic studies. This is appropriate, as we are still in the process of collecting data that provide quantitative and qualitative accounts of the phenomena that occur as artists perform. Smaller numbers of case reports and case series were published; while providing less robust data, they still provide important information. Similar numbers of intervention studies (most of which were not randomized controlled trials) and literature reviews were published, and the number of both was greater in the last five years than in the previous 5 years. A total of 242 research articles were published in MPPA over the last 10 years.

MPPA is not the only peer-reviewed performing arts healthcare journal. The Journal of Dance Medicine and Science (JDMS) is the official journal of the International Association for Dance Medicine and Science and has been published quarterly since 1997. I did the same classification of the articles published in JDMS and came up with the following distribution.
Again, the largest category is comparative and descriptive studies, but the second largest category was literature review articles. Smaller numbers of intervention (mostly not randomized controlled trials), case report/series and diagnostic test articles appeared in JDMS, with two each in the epidemiology and laboratory study categories. In all, 160 research articles were published in the last 10 years.

I thought it would be illuminating to do the same analysis for a sports medicine journal. I chose the American Journal of Sports Medicine (AJSM), which is the official journal of the American Orthopedic Society for Sports Medicine. Six issues were published each year from 1972–2004; since then 12 issues are published annually with 15 to 29 articles/issue. Due to the larger numbers, I reviewed only the January issues for the years 2005–14. Here is what I found.

Note that the largest category is case reports and case series, which are mainly series of surgical patients who were followed for a period of time post-operatively. The second biggest category was laboratory studies, which were either animal investigations or human cadaver studies. Comparative/descriptive studies and intervention studies were the next most common types; the large majority of the latter category was randomized controlled trials. Each issue typically has one article that is a review of the literature on a particular topic.

Due to the much larger number of studies published in AJSM—almost certainly over 2,500 research studies published in the last 10 years—we need to convert these raw counts into percentages in order to compare the types of publications in the three journals.

What can we learn from this comparison? First, the larger number of sports medicine research studies is impressive, as there are several other prominent sports medicine journals besides AJSM. Second, the large number of laboratory studies should make us consider whether there are animal models or cadaver studies that might add to our understanding of performing artists’ problems. Finally, the number of randomized controlled trials that are being done in sports medicine is one reason why there are published recommendations regarding the prevention of sports injuries. The complexity of human artistic performance is daunting, and trying to isolate single variables that can be studied scientifically is exceedingly difficult. However, the field of performing arts medicine is making progress. We need to do more research that is theory-based and rigorously designed. That will require funding, and the current political-economic climate is not likely to produce increased funding for biomedical research anytime soon. Nonetheless, our requests for funding will be more likely to be successful if our research is theory-based and well designed. Laboratory studies and the use of technology to measure what performing artists are doing may be useful, and it’s time to design more randomized controlled trials of interventions that may benefit performing artists. MPPA is proud to be part of this process.

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