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STEPS TO IDENTIFY THE RESEARCH ARTICLE THAT IS BENEFICIAL TO YOU

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INTRODUCTION

This paper describes one approach to assessing clinical research articles. The approach is for the busy therapist who is striving to keep abreast of important advances in clinical practice. Important advances in clinical practice include new assessment tools, new insights into the clinical course and prognosis of rehabilitation, breakthroughs in our understanding of the etiology of disease, and clinically significant improvements in therapeutics.

The approach described is a set of common sense steps for assessing clinical articles for closer examination. One of the major results of the application of these common sense steps is the *early rejection* of many, indeed most, clinical articles. No doubt, with the application of this approach some meritorious publications will be eliminated. Nonetheless, the subset of clinical articles that survive this approach will be the most valid, the most relevant, and the most applicable to your physical therapy clinical practice; thus will merit the increased attention that the busy therapist can pay them.

How do we get a research article?

First, the article can be brought to our attention as a result of subscribing to its journal or because a colleague gave it to us. Second, we can search for it, as a result of trying to track down information that will assist us to treat a particular patient. Both ways reflect our priority for keeping up with new developments in physical therapy practice. As professionals, the essence of sensing and responding to the need to change our approach to evaluation and treatment is always at the forethought.

Why do we read research articles?

1. We read articles to better understand new insights into the pathophysiology of clinical problems.
2. We read articles to find out how a widely respected therapist treats a specific diagnosis, especially if the diagnosis is one that we do not encounter.
3. We read clinical research articles to find out whether a new or existing assessment tool will improve the accuracy, comfort, safety, or efficiency with which we evaluate our patients.
4. We read scientific articles to learn more about the course and prognosis of musculoskeletal and neurological disorders. The disorder might be a well-known one whose course and prognosis is now changing. On the contrary, it might be a new disorder.

5. We read clinical research articles to determine etiology and causation, both to better advise our patients about whether, for example, lifestyle attributes, such as obesity, lack of exercise, and job stress, really constitute health risks.
6. We read articles so that we can distinguish the preventive, therapeutic and rehabilitative treatments that really do benefit patients from those that either simply waste our time or actually produce more harm than good.

Three ways to approach a clinical research article

1. The browsing or surveillance approach. With this approach, we read or scan simply to keep abreast of developments in some specialty area of physical therapy. This is the approach we use for most of the articles that we find by virtue of appearing in our professional, subscribed journals. When in the browsing mode, we want to decide whether to file the article away for later, detailed appraisal.
2. The problem-solving approach. With this approach, we read the article very carefully, in order to generate a more precise way to evaluate a patient or treat a specific patient. This approach begins by tracking down the article. When in the problem-solving mode, we usually use a literature search, such as Medline.
3. The exhaustive approach. With this approach, we read all we can find on a topic in order to assess and synthesize the article for teaching, class, or review.

The following steps recommend disregarding an article as not worth reading on the basis of very preliminary evidence. Only through early rejection of most articles can the therapist focus on the few that are both valid and applicable to evaluations and treatments in their particular clinical setting.

Five Important Steps in Identifying an Article for Closer Reading

STEP 1. Look at the title.

Is it potentially interesting or possibly useful in your clinical practice? If not, reject it and go on to the next article.

STEP 2. Review the authors.

In addition to occasionally recognizing a former classmate, the reader will now track the record of many authors. If this track record is one of careful, thoughtful work that has stood the test of time, read on.

STEP 3. Read the summary or abstract (whichever comes first).

The main point here is to decide whether the conclusion, if valid, would be important to you as a therapist. However, sometimes you will be lucky and the abstract will tell you enough about the study's design (eg, a randomized trial) to permit you to make a judgment to read further on or not. At issue here is not so much whether the article's results are true (for often you cannot tell this by reading an abstract) but whether the results, if true are useful for your practice or clinical setting.

STEP 4. Consider the site or clinic.

You can identify the site by examining the authors' affiliations or, if this fails, by scanning the "Methods and Materials" section. Is the site sufficiently similar to your own so that its results, if valid, would apply to your patients in your setting? First, do you have access to the required facilities, expertise, and technology sufficient to permit the implementation of the evaluation or treatment described in the article? Second, are the patients at the facility where the article originated likely to be similar to your patients in disease severity, treatment, age, sex, race, or other key features that have an important bearing on their clinical outcomes?

STEP 5. Ask the question: does the study focus on what physical therapists actually do?

By restricting your selection of articles to those that report on clinical processes or actions that therapists actually carry out you already will have eliminated the large number of articles that focus exclusively on structure or outcome, or on processes that are not relevant to you as a therapist.

After you are satisfied with the title, authors, summary, site, and practice it is necessary to invest time reviewing the Methods and Materials section of the article. Examining the Methods and Materials section produces great rewards. This examination can lead to a substantial jump in the efficiency and effectiveness with which you keep abreast of the real advances in physical therapy practice. The hasty therapist who accepts the conclusions of an article after reading only its summary does so at considerable risk. Although reading an article's summary can sometimes tell you that it is invalid (such as basing the efficacy of treatments on the testimonials); such an inspection is unlikely to tell you whether the article is valid. This crucial judgment of validity requires a combination of skepticism and common sense.

Paying Attention to the Materials and Methods Section: Questions to consider when reading an article to distinguish useful from useless or even harmful therapy. Delve deeper into the article by asking the following questions:

1. Was the assignment of patients to treatments really randomized? Every patient who entered the study should have had the same known probability of receiving one or the other of the treatments being compared; thus, assignment to one treatment or another should have been carried out by a system analogous to flipping a coin. It is usually easy to decide whether this was done, since key terms such as "randomized trial" or "random allocation" would appear in the abstract, the methods section, or even the title of such articles. You have the option of applying this guide rigorously. If you are reading in the surveillance mode to "keep up with the clinical literature" (rather than searching the clinical literature to decide how to treat the problem presented by a specific patient) discard at once all articles that are not randomized trials. If the article states that the assignment of patients to treatments really was randomized, you should also find confirmation that the randomization did its job properly and produced comparable groups of experimental and control patients. Usually there will be a

table of “baseline” or “entry” characteristics for both groups accompanied by a statement about their similarity.

2. Were all clinically relevant outcomes reported? How do you decide which outcomes would be clinically relevant and therefore ought to be included in the article? First, picture yourself using the assessment tool or therapeutic treatment with a patient. What outcomes, good and bad, would you need to know about the assessment tool or treatment? Having identified these, you then can check to see whether they were included in the article. The description of how the measurement of the outcomes was performed must be explicit, comprehensive, and flexible. The actual criteria or detailed step by step directions for measurement evaluation must be available; ideally they will be included in the article, an appendix, a repository, or are available from the author.
3. Were the patients in the study recognizably similar to the patients in your own clinical setting? First, the study patients must be recognizable; that is their socio-demographics status must be described in sufficient detail for you to be able to recognize the similarity between them and your own patients. Second, the study patients must be similar to patients in your clinical setting. To put it another way, you should ask yourself “Are the patients in this study so different from my patients that I could not apply the study results in my clinic?”
4. Were both clinical and statistical significance considered? Clinical significance here refers to the practical importance of a difference in clinical outcomes between treated and control patients, and is usually described in terms of the magnitude of reduction in the risk of an important clinical outcome. From these questions we can derive 2 very useful guides for interpreting an article on a clinical trial. First, if the difference is statistically significant, is it clinically significant as well? Second, if the difference is not statistically significant, was the trial big enough to show if clinically important differences occurred?
5. Is the therapeutic treatment feasible in your practice? First, the therapeutic treatment has to be described in sufficient detail for readers to replicate it with precision. Second, the therapeutic maneuver must be clinically and biologically sensible. Third, the therapeutic treatment has to be available. Fourth, when reading the description of the treatment, readers should note whether the authors avoided two specific biases in its application. The first potential bias is contamination. With this bias control patients inadvertently receive the treatment, which results in a reduction in the difference in clinical outcomes between the experimental, and control groups. The second potential bias is co-intervention or the performance of additional diagnostic or therapeutic acts on experimental but not control patients which result in an increase in the difference in clinical outcomes observed between experimental and control groups.
6. Were all patients who entered the study accounted for at its conclusions? The canny reader will note how many patients entered the study (usually the numbers

of experimental and control patients will be almost identical) and will tally them again at its conclusions to make certain that they correspond.

In summary, this paper is intended to help the busy therapist afford time for the proper evaluation of a subset of the clinical literature most likely to yield valid, useful new knowledge. Although it would be naïve for us to expect the application of this approach to result in a great acceleration in the acquisition and clinical application of useful new knowledge, the adoption will ensure that whatever momentum is achieved will be in a forward direction.

Although the specific steps have been present for use in the surveillance approach, these steps have other uses as well. For example, in the exhaustive approach, the steps can aid a literature review, focusing the search and assisting in the identification of the most potentially useful articles. Moreover, in problem-solving discussions in the clinic, they can be applied to statements about therapy to test their validity and to identify their shortcomings. Thus, these steps can be used in organizing and presenting evidence about evaluation and treatment to students and colleagues. In this manner, they can help teach as well as learn.

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