

# Evidence-Based Practice: Part 1. The Basics

## PURPOSE

The purpose of this resource is to provide a basic understanding of research principles for the qigong leader/practitioner seeking to understand evidence-based practice (EBP) and to translate research to practice.

### *Why do we need evidence(research)-based practice?*

- ✓ *To legitimize qigong as a health care and wellness intervention within Integrative Modern Western Medicine;*
- ✓ *To make credible claims about its benefits to our clients;*
- ✓ *To justify third-party reimbursement.*

For millennia, best practices in Qigong, as a part of Traditional Chinese Medicine, have been established by Masters. Their vast knowledge came from the wisdom of their teachers as knowledge acquired through years of dedicated clinical practice passed on from one generation to another.

In the 1990s in a desire to establish legitimacy of qigong and tai chi performed as Qigong within the practice of Western medicine, a movement to adopt evidence-based practice (best practice based on research evidence) emerged.

The movement to evidence-based practice has stimulated a dedicated body of research that has grown exponentially over the past 25 years. A recent comprehensive review of body of tai chi research identified over 500 published research studies addressing effectiveness of tai chi practice.<sup>1</sup>

The vast majority of rigorous study was published in the last five years. The path is clear. As more quality research emerges, the benefits of qigong and qigong practiced as tai chi will become accepted in mainstream Western medicine.

As any practice evolves, new skills are required of its practitioners to keep relevant. So it is with Qigong leaders who wish to transform from what has previously been practice based on authority or legacy teaching into evidence-based practice. Thus, a basic understanding of research and the scientific method is needed to legitimize claims of benefit to an informed public and health professional audience.

### ***What is the Scientific Method?***

The principles and empirical processes of discovery and demonstration considered characteristic of or necessary for scientific investigation, generally involving the observation of phenomena, the formulation of a hypothesis concerning the phenomena, experimentation to demonstrate the truth or falseness of the hypothesis, and a conclusion that validates or modifies the hypothesis. (Source: *New Free Dictionary*)

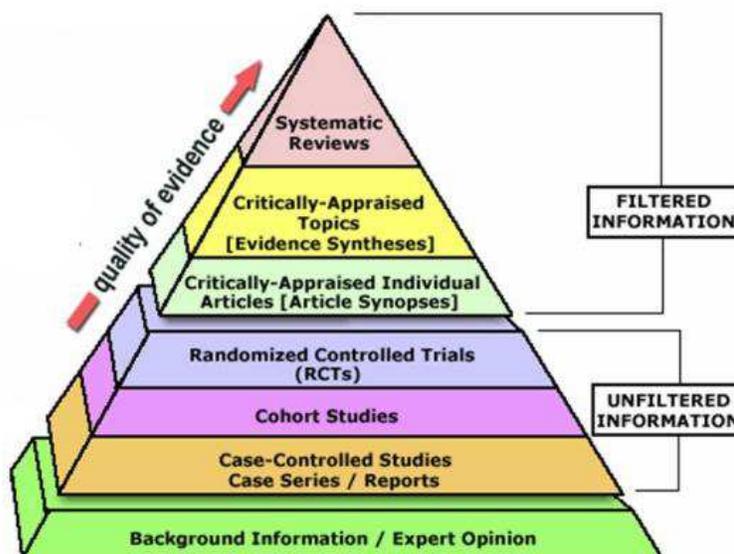
## **USING RESEARCH to EVOLVE to BEST PRACTICE**

### ***Where to find research?***

We hear about new research from authorities in the field, colleagues, clients, news media, dedicated Internet sites (e.g., NQA, Qigong Institute, WorldTaiChiDay.org), blogs, and through newsletters from institutions such as the Mayo Clinic and Harvard Medical School. These are all **secondary sources**. Authors of major studies publish their work for critical peer review in refereed journals. The highest quality studies generally find their way to being posted on the open access **PUB MED** database. You can access this database at <http://pubmed.com>. When you read the original article and comment from that source, it is considered citing the **primary source** of information.

### ***What are the different types of research?***

There are several types of research, and all have their place in aggregating to a body of evidence that points toward or against any particular treatment. As can be seen in the level of evidence pyramid, the quality of the evidence goes up as the type of research gets more rigorous. At the bottom is anecdotal stories and expert opinions. These have very little value as evidence.



A *Case Study* is an in-depth analysis of a single particular case. Cases are particularly helpful in areas where the malady being treated is very rare.

The two major research paradigms are **quantitative** and **qualitative**. Quantitative research asks a question of validation of **outcome effect** using the scientific method: controlling for extraneous influences. Qualitative research seeks to **understand a phenomenon** in its entirety. A qualitative study deals with eliciting and identifying themes from interviews or some other form of data-gathering. It is generally not utilized in medical fields, and not considered scientific enough to provide hard data. The two paradigms are different, but equally important.

Most research studies are *primary research*, which is research conducted by a primary investigator and subjects. A quantitative study follows well-defined rules and criteria. There are two types of quantitative studies: random control studies (also known as experimental studies) and cohort studies (also known as pseudo-experimental studies). The difference is whether or not the subjects can be randomly assigned to groups and have a treatment (i.e., an "experiment") performed on them, or if the subjects are observed, where data is gathered and then tested for relationships.

### ***What are the different types of quantitative research study designs in terms of strength of evidence?***

There are several types of research, and all have their place in aggregating to a body of evidence that points toward or against any particular treatment. As can be seen in the level of evidence pyramid, the quality of the evidence goes up as the type of research gets more rigorous design: meta-analyses and large randomized clinical trials (RCTs). At the bottom of the hierarchy are case studies, anecdotal stories, and expert opinions. While interesting, these have very little value as evidence within the scientific method of inquiry.

Blinded studies are considered the strongest types of research as it takes out any potential bias of the assessor, operator, and the participant. It can help control internal validity. There are other ways to add control as well.

### ***How to recognize common types of study designs and associated strength of evidence?***

Gold Standard (proof positive or debunking)

- Meta-analyses  $\geq 3$  confirming large Randomized Control Trials (RCTs): statistical analysis of size and direction of effect. Strongest proof of or lack of proof of effect.

Higher levels of evidence (Strong)

- Meta-analyses with pooled smaller RCTs and Controlled Clinical Trial (CCTs): statistical analysis of consistent moderate or large size of effect.
- 2 Large RCT ( $\leq 150$  subjects) with consistent findings of medium to large clinical and statistical size of effect. One well-designed, large RCT with robust results is strong evidence (Validated evidence).
- Systematic Review: description of results of an unbiased search of existing body of literature Caveat: statistical analysis, if any, may not weight for size of study

Moderate strength of evidence (Intervention can work and provides justification for funding of larger studies)

- Single large RCT
- Multiple Smaller RCT: random assignment of subjects with at least two groups includes pilot studies. Random assignment attempts to control extraneous influence.
- Controlled-clinical trial (CCT): non-random group assignment, existing groups or self-selection. An attempt is made to match subject characteristics between or among groups. Caveat: influence of extraneous factors is less controlled as compared to RCTs.

Lower levels of evidence (Interesting)

- Cohort Study: one or more existing groups are followed either prospectively or retrospectively.
- Cross-sectional study: a snapshot in time of individuals who practice qigong to assess characteristics.
- Case studies: a story of the experiences of a single person or a grouping of individual stories.
- Descriptive reviews and opinions: summary of literature. Caveat: author bias may be present.

**Note on datedness of research:** Research on therapeutic benefits of qigong and tai chi is growing at a very fast pace. Especially with reviews, date of publication is important. If a review is more than 2-3 years old, it is likely to be outdated. Check for the most current information on a topic.

## TRANSLATING RESEARCH TO PRACTICE

*How to translate ‘research-speak’ in study conclusions into ‘plain speak’?*

- ‘Strong evidence’ = ‘shout it from the rooftops.’ Get programming going, if it doesn’t already exist.

- ‘Some or moderate-level evidence of effect, but cautious interpretation recommended’ = ‘Can work in some individuals with specific conditions and profiles.’ Keep watch for larger confirming or conflicting studies.
- ‘Suggests effect’ = ‘promising - some evidence that it can work, but just not sure.’ A ways to go on the research agenda of proof.
- ‘No evidence’ = ‘might work, might not, not studied in any meaningful way’
- ‘Found to have no effect’ = ‘debunked’ – let it go. There are enough good things to say about qigong and tai chi practice without losing credibility.

### ***How to share research news with your client public?***

The following is a template for how to share research news with your public. You can fill in the generic fields with information from your primary source.

*“Researchers from [primary institution] conducted a [type of study] involving [number of subjects or studies reviewed] and found [cite conclusions of the study – quote their words, if possible].” [Then add how you envision this new information applying to their qigong practice and their lives.]*

The former part of the template statement is the science. The later synthesizing statement is the art. This is where your practical skill and knowledge are realized.

Caution: In your passion, do not overstate.

### ***What if there is not strong evidence (not disproven, just not proven), but, ... intuitively, logically, theoretically, and clinically, we and our clients know it works?***

Say: “The research is not there yet. So, we have to use the mirror test.” Tell your clients to look in the mirror, and ask: “Does it work for me? Is it worth the time and effort?” If the answer is yes, then perhaps that is all the validation that is required.

Published 9/25/2016

This is a report of the NQA Research and Education Committee.

Kathleen Levac, Eric Imbody, Garth Henry, Gary Giamboi, PJ Klein, Lauro Medina, Robert Brown, Tom Rogers, CJ Rhoads

Major Authors: PJ Klein and CJ Rhoads