

## Research Matters

by Janet Kahn, Ph.D.

In this column, researcher and massage therapist Janet Kahn, Ph.D., visits the major issues, organizations and people involved in research into complementary health care, especially massage, and updates readers on policies related to such research. In this issue: A recap of the Conference on the Biology of Manual Therapies.

For years I, and some of my colleagues have said that the National Institutes of Health (NIH) should pay more attention to massage and other touch therapies. I have said it so often I probably unknowingly spout it in my sleep. Imagine, then, my surprise and delight at its happening now. In June the NIH and the Canadian Institutes of Health Research (CIHR) co-sponsored the two-day Conference on the Biology of Manual Therapies. The purpose of the conference was to point the way toward looking at how manual therapies work.

Before discussing details of the conference, I want to explain why I talk about conferences in this column. I know there is a hunger in some readers simply for more data, more results of more studies—more ammunition in the fight to prove that massage is effective. That information certainly has value; however, every study, including both its design and its results, sits in the context of the existing body of scientific literature on its topic. There is a periodic summing up that is necessary, and a conference such as this one can provide that.

If someone were to do a study on massage and low-back pain today, for instance, it would be wasteful for them to design it without being familiar with the three studies that have been published on that topic in the past few years. Looking at them allows a researcher to see what is already known or suggested about the topic by the prior research. It lets us know whether our best contribution might be to replicate an important study that is so promising that we need to see whether, tested again, that intervention protocol would produce similar results. Or, alternatively, whether given the existing literature it is time to head in a slightly different direction and look at something in the terrain of massage and low-back pain that has not been examined yet. (For example, researchers Dan Cherkin and Karen Sherman are joining me in a study to compare two very different massage protocols as potential treatments for people with low-back pain.)

## **Dissolving boundaries**

When submitting a proposal, researchers have to provide a review of the existing literature and point out how their proposed study will fit into, add to, or further test what is already known or believed. The Conference on the Biology of Manual Therapies served that purpose, on a grand scale. The NIH and CIHR—the premier scientific institutes of the United States and Canada, respectively—collaborated to set the research agenda to really explore the biology of manual therapies. They pulled together people from many disciplines to discuss how best to research what happens in a human body in response to manual treatments of various sorts.

Both the NIH and CIHR are made up of individual institutes with specific foci. It is worth noting which ones co-sponsored this conference, because sponsorship indicates some level of interest in this topic; thus they might be future funders of related research. At CIHR the co-sponsors were the International Relations Branch, the Institute of Musculoskeletal Health and Arthritis, and the Institute of Neuro-sciences, Mental Health and Addiction. At NIH sponsorship came from the National Center for Complementary and Alternative Medicine, the National Institute of Neurological Disorders and Stroke, the National Institute of Arthritis and Musculoskeletal and Skin Diseases, the National Institute of Child Health and Human Development, and the National Institute for Biomedical Imaging and Bioengineering.

An important feature of this conference is that it dissolved, at least for two days, boundaries between manual-therapy disciplines. The term manual therapies were defined for this conference as “techniques that focus primarily on the structures and systems of the body, including the bones and joints, the soft tissues, and the circulatory and lymphatic systems.” The phrase includes at least massage, chiropractic and osteopathic manipulative therapy. (I believe it should also include physical therapy, although physical therapists were notably absent from the conference, as was discussion of the research in that field, which is certainly more substantial than that on massage.) In addition to researchers in these various therapies, conference participants included researchers in immunology, endocrinology, neuro-imaging, neuroscience and biomechanics.

Prompting conversations across disciplinary lines is wonderful because it allows our thinking to be informed by many perspectives, in contrast to the narrower thinking that tends to occur when massage therapists only talk with massage therapists and chiropractors only talk with chiropractors. In intellectual matters, as in nature, the greatest fertility is often at the boundaries—whether they are intellectual or ecological boundaries. And what appears as a boundary from one perspective is a meeting ground in another.

## **Mechanisms in action**

The Conference on the Biology of Manual Therapies focused on the question of mechanism of action: How does a particular manual technique prompt the results we see?

For example, how does massage result in relaxation? We all know relaxation occurs, but we don't really know how this occurs. And how does massage mitigate pain? There are theories, such as the gate-control theory, that would say that we produce a positive sensation that overpowers and/or moves more quickly than painful signals. But there are other theories as well—and the truth is that we do not know.

The research done by the Touch Research Institutes on adolescents institutionalized for depression and anxiety is a case in point. That research indicates that periods of brief, daily seated massage prompted decreased anxiety, decreased acting out (as reported by nurse observers), and a tendency toward more normalized sleep patterns. Only when we understand how these changes are prompted by massage (and when the results have been replicated, so we know that they are predictable) will we know for whom else massage might have comparable or related benefits. Certainly sleep disturbance is a problem for many; when we understand how massage improves the sleep patterns of some we can think intelligently about how else to apply it.

The conference Web site stated, "There is increasing evidence that manual therapies may trigger a cascade of cellular, biomechanical, neural, and/or extracellular events as the body adapts to the external stress."

The National Center for Complementary and Alternative Medicine (NCCAM) staff explained the decision to emphasize mechanism of action research in their most recent five-year strategic plan, by saying that "Elucidating the underlying mechanisms of action of CAM therapies will facilitate their integration into conventional medical care." They also believed that "mechanistic studies of CAM therapies will improve the identification of key study endpoints and thus strengthen the design of CAM clinical trials," according to the Expanding Horizons of Health Care: Strategic Plan, 2005-2009. All of this is true, and we do these studies to better understand the human body and human beings as exquisite, intricate systems that respond (to touch, to stress, to nuance) in ways not yet unraveled.

The essential purpose of this conference was to suggest the research agenda for exploring the mechanisms of action of the various manual therapies so widely used by the American and Canadian public. To design the research agenda we needed to summarize what is already known or suspected, as well as what light may be shed on these questions from key disciplines. To that end, the conference began with overviews of what we know about the use of manual therapies and the training of therapists in both Canada and the United States. That was the social-science portion. Then began the real science.

## Future research

There were three sessions at the conference—one each on neuroscience, immunology/endocrinology, and biomechanics and imaging—that introduced us to the cutting edge of those fields as they might apply to research on manual medicine. Each session was three hours long and comprised about six individual presentations. Some presentations gave overviews while others gave an in-depth look at a particular issue within a field. Some described animal models that may shed light on human responses to manual therapy. Others described studies with humans.

While some presentations addressed a modality in particular, most strove to elucidate some principle likely to be active in many techniques, or in the conditions that could be treated by various techniques. Such were the presentations by James L. Henry, Ph.D., on “Spinal Processing of Sensory Inputs—Lessons from Animal Models”; and by Firdaus S. Dhabhar, Ph.D., on “A Hassle a Day May Keep the Doctor Away: Enhancing Versus Suppressive Effects of Stress on Immune Function.” The former sought to explain how some types of chronic pain may be a result of a loss of buffering capacity in the neural substrate of pain transmission and integration in the spinal cord. The latter, as the title indicates, presented data detailing the neuro-endocrine-immune responses in positive and negative stress states. This can certainly help us understand what might serve as outcome measures indicating a stress-reduction response to manual therapy.

After one-and-a-half days of sharing information, the presenters and audience went into breakout sessions on the areas of neuroscience, immunology/endocrinology, and biomechanics and imaging, to talk with one another and to develop recommendations for NIH and CIHR about research they feel should be pursued. Their job was to frame questions and name goals that will be used by NIH and CIHR to guide the development of requests for research applications and proposals in the coming years.

They range from the broad to the specific, and include the following:

- Does applying very superficial manual therapies, such as light massage, that mainly activate skin afferents, produce different effects on the nervous system, immune system and endocrine system compared with manual therapies that also involve activation of muscle afferents?
- Identify valid, reliable biomechanical measures (e.g. posture, kinematics, kinetics, functional imaging) that can be used to: distinguish between healthy and non-healthy tissues; and subcategorize clients with musculoskeletal disorders.
- Develop imaging techniques that can be used to capture dynamic responses to biomechanical signals in healthy and non-healthy tissues.
- Determine how different types of manual therapies affect the signaling properties of neurons in the central nervous system or autonomic nervous system. I.e., do they produce long-lasting changes?

Two presentations offered preliminary attempts to organize the various forms of manual therapies according to how we think they work. While these attempts are imperfect and incomplete, they show important movement forward.

In particular, they honor the fact that as bodies, or body-minds, we don't really care about the profession of the person treating us—we respond to the treatment, one important aspect of which may be certain characteristics of the person offering it, and the extent to which s/he consciously engages us in that treatment.

In many ways, this conference asked us to step out of our individual disciplines and look together at what we collectively know about the effects of manual therapeutic techniques. While we know more collectively than we do individually, the great promise of this conference is that it will organize and prompt research that lets us know much more in five or 10 years. It is an important door that NIH and CIHR have opened.

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To Learn More ...

The Conference on the Biology of Manual Therapies' agenda, including abstracts for many of the sessions, can be viewed online at <http://nccam.nih.gov/news/upcomingmeetings/agenda.htm>. NIH's recommendations for future research are at [http://nccam.nih.gov/news/upcomingmeetings/final\\_recommendations.htm](http://nccam.nih.gov/news/upcomingmeetings/final_recommendations.htm).

National Institutes of Health: (301) 496-4000; [www.nih.gov](http://www.nih.gov)

The Canadian Institutes of Health Research: (613) 941-2672; [www.cihr-irsc.gc.ca](http://www.cihr-irsc.gc.ca)

National Center for Complementary and Alternative Medicine: (301)519-3153; <http://nccam.nih.gov/>

<http://www.massagemag.com/Magazine/2005/issue118/Research118.1.php>