

# Benefits of Hippotherapy Proven By Washington University Research Team

Researchers from the Washington University Program in Occupational Therapy, funded by a grant from HHRF, recently completed a breakthrough study on the therapeutic impact of equine therapy for children with cerebral palsy.

The study found that hippotherapy, the use of the rhythmic movement of a horse to effect therapeutic gains, improves both head and trunk stability and upper extremity function in children with spastic diplegia cerebral palsy.

*“These findings will go a long way in getting hippotherapy the esteem it deserves.”*

“Beliefs about the positive effects of hippotherapy are strongly held, but not yet fully supported by objective evidence,” reports Tim Shurtleff, occupational therapist and lead researcher. “We have shown that hippotherapy is a therapeutic tool that makes a measurable and visible difference in basic skills that form the foundation of most functional activities of everyday life.”

The year-long study primarily involved measuring stability changes in children with cerebral palsy after 12 weeks of hippotherapy treatments. The team used a motorized barrel and Video Motion Capture to challenge and measure the changes in motor control that might have been learned on a horse.

Molly Sweeney, President of HHRF, was most impressed that children actually sustained the benefits of hippotherapy for several months after their riding sessions stopped. “The subjects were incorporating improvements from hippotherapy into their daily life,” says Sweeney. “They actually maintained a continuum of measurable improvement—better head and trunk stability and improved control of their arms as they reach—even months after their hippotherapy sessions ended. That was a really exciting revelation for us!”

Shurtleff, on the other hand, was most surprised at the magnitude of the “effect sizes”, a statistic that compares results of

interventions across different types of experiments. “It is often difficult to say that statistical significance is equal to clinical significance. With effect sizes this large, the changes are visible to casual observation and likely indicative of clinical change.”

“These findings will go a long way in getting hippotherapy the esteem it deserves,” says KC Henry, Executive Director of the Horses & Humans Research Foundation. “The Washington University project is our first funded project, and has set an impressive standard, with their rigorously developed research design leading to impactful objective results. We were thrilled to have solid evidence substantiating what so many therapists already believed.”

The research team reports that they plan to follow up this study by conducting a randomized clinical trial (RCT) of hippotherapy. “A RCT is the gold standard for evidence of medical treatment efficacy. If we can pull off a successful RCT, the efficacy of hippotherapy will no longer be in question,” says Shurtleff.



The changes observed by the Washington University team were confirmed by anecdotal evidence from families of subjects. “One mother told me that her five year old son no longer hangs out at the edge of the playground watching when the other kids are climbing the slide and playing on the equipment,” says Shurtleff. “He was always too unstable and afraid of falling...after his 12 week hippotherapy intervention he now climbs up the slide and plays more on the equipment than before. Without any urging from anyone, he just started doing it.”

“If this and other studies can produce the evidence to convince more insurance companies that kids with this disability can benefit from using horses as a therapy tool, more kids will be able to gain from it and become more functional as they mature into adults,” concludes Shurtleff. “This is a therapy tool that makes a difference. While it is fun, it is not recreation. It is therapy disguised as fun.”

NEXT GRANT DEADLINE: MAY 15, 2009

Inside: President's Perspective, Pilot Study Article, New BOD & Adv. Members

## Does HHRF accept applications from other countries?

Yes! HHRF absolutely encourages international teams to apply for funding. See the research section of [www.horsesandhumans.org](http://www.horsesandhumans.org) for guidelines.

## SPRING '08 RESEARCH GRANT APPLICATIONS:

We received 18 proposals for the May 15, 2008 deadline. From the initial screen, the investigation effort/focus areas are: Mental Health (8), Hippotherapy (5), Therapeutic riding (2), Education/Recreation (2) and one other. Three of the applications were from outside the United States.

# President's Perspective

A few years ago, the mother of a 13-year-old rider with cognitive disabilities who rides at my local therapeutic equestrian center, emailed me the following story:

*Sherry came down for breakfast this morning and announced that she was going to have a GREAT DAY! She said she would have a test at school today and she was going to get 100%. When I asked her how she knew that, she answered; "Well, I went riding yesterday, and I rode Robert. And Robert makes my brain work better." Sure enough, she came home with 100% on her test. Molly, is there any research about this?*

I had to respond that no, there was no research about that at this time.

Stories like this have inspired the work of the Horses and Humans Research Foundation. As the field of Equine Assisted Activities and Therapies grows, we must find ways to investigate the power of the horse to influence people.

We need to be able to document, analyze and consistently reproduce positive improvements for our clients. Their families, their doctors and their insurance companies need to understand the unique value of the horse in the learning and healing process.

Someday soon, we will understand why "Robert makes my brain work better."

-Molly Sweeney

## Board of Directors, Advisory Council and Scientific Advisory Membership Growth

**Michael Kaufmann**, (pictured at right) of New Milford, Conn., is HHRF's newest Board member. He has been recognized as a resource in Animal Welfare, Animal Assisted Activities/Therapy and in Humane Education for 20 years and is currently the Farm and Wildlife Director of Green Chimneys Children's Services/Green Chimneys School. He is a past member of the board of the North American Riding for the Handicapped Association (NARHA) and a founding board member and committee chair for the Equine Facilitated Mental Health Association (EFMHA).



**Harry Swimmer** (pictured at left), is our newest member of the Advisory Council. Founder of Charlotte, North Carolina's Swimmer Insurance Agency, Inc., Mr. Swimmer also founded Misty Meadows Mitey Riders, an equine assisted activities program on the Swimmers' farmland estate. Harry, now retired, is involved with the Jewish Community Center and Temple Israel Synagogue and has held offices in the past with NARHA and the Charlotte Independent Insurance Agents. Under his leadership, Misty Meadows Mitey Riders has grown to serve 75+ 'Mitey Riders' per week.

## Take Off with a Pilot Study First

By Renee L. Casady, PT MS HPCS

Since it is said that research is 1% inspiration and 99%

perspiration, ambitious researchers should consider sparing themselves a degree of perspiration by carefully planning a pilot study. Pilot studies improve the likelihood of answering a research question. A pilot study may be designed to provide a preliminary test of the presumed hypothesis and an investigation of the feasibility of a larger protocol. The purpose of a pilot study may also be to test treatment protocols, test methods or data collection procedures, sample recruitment strategies, uncover sensitivity of outcome measures, or determine statistical needs to interpret data collected with the selected test or measure. Investigations in a pilot study will likely focus on novel, untested, complex or innovative treatments or techniques that have not been attempted by other researchers. Pilot stud-

ies can be vital stepping stones to acquiring foundation or grant support. If funds are needed for a pilot, it should be made clear how the pilot may lead to a larger, significant EAA/EAT project. The pilot study should have a concrete relationship to a subsequent larger scale research project. In summary, pilot studies :

**Validate** the scientific approach and methods to investigate a research question. Present relevant findings from the pilot in any research proposal.

**Evaluate** the total cost of a research plan. How much time does it take to run the test procedures on one single subject? How much money does it cost to provide intervention or treatment for a single subject? The answers to these questions are critical for preparing an honest budget. A pilot study can reveal deficiencies in the design of a proposed experiment or procedure. Address problems before time and resources are expended on a large scale.

**Analyze** power and sample size. Justify the number of subjects required in a clinical trial. Use pilot results along with a systematic review of the relevant literature to formulate an informed hypothesis and an estimate of the number of subjects (n) to be recruited. Sample size is important to demonstrate clinical or statistical significance. One of the most critical pieces of data from a pilot study can be the standard deviation of the outcome measure. However, pilot studies can also use case study methodology, which, when properly applied, control and test-retest data on a smaller number of subjects.

**Test** the sensitivity of the selected outcome measure/s. Run the pilot subjects through test procedures and the EAA or EAT intervention. Discover if the test or measure shows change. How well did the test or measure detect change? Use the instrument as it was designed to be used.

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Four new Scientific Advisors are also on board: **Peter C. Dedon, M.D., Ph.D.**, (pictured at right, top) of Newton, MA, is Professor of Biological Engineering and Toxicology in the Department of Biological Engineering at the Massachusetts Institute of Technology. He currently serves as Associate Department Head, Deputy Director of the MIT Center for Environmental Health Sciences and Chair of the MIT Committee on Radiation Protection. Prof. Dedon's research program addresses the fundamental chemistry of cancer and other human diseases, with a focus on the chemical mechanisms that link inflammation to disease.



**Debbie Silkwood-Sherer, DHS, PT**, (pictured at left) of Holt, MI, has bachelor and advanced Doctoral degrees in Physical Therapy and a master's degree in Rehabilitation Administration. She has approximately 30 years of experience as a physical therapist, including 10 years of supervisory experience and 12 years providing hippotherapy services to both adults and children. Of five hippotherapy research projects she has completed, one has been published and three others are expected to be in the future.

**Therese Schmalbach, M.D., Ph.D.**, (not pictured) of Newton, MA is an Independent physician consultant to biopharma companies with over 15 years of medical drug/biologic/device clinical development experience in the biotechnology/pharmaceutical industry. She has participated in meetings with FDA, expert clinicians and investigators, scientists, and investors, supervised and directed clinical, biostatistical, data management, project management and medical writing departments, and has been responsible for data interpretation and reports including peer-reviewed publications.

**Renee Taylor, PhD**, (pictured at right, bottom) of Chicago, Illinois, wrote the article printed below. She is a professor of occupational therapy at the University of Illinois at Chicago and an internationally-recognized researcher on the psychobiological aspects of post-infectious fatigue and chronic fatigue syndrome. Currently, she is completing an NIH-funded, prospective study of post-infectious fatigue following acute Epstein-Barr infection in adolescents. Taylor has published over 70 peer-reviewed articles on fatiguing conditions and five books.



Adjust the next study timeline according to the sensitivity of the instrument/s. Change inclusion/exclusion criteria as necessary. For example the age range of subjects may need to be younger/older, narrow/wide. Gain valuable information about intervention response.

*"Something will inevitably happen in a pilot study that makes one say 'I never thought about that!'"*

**Compare** several outcome measures to compare reliability, validity and clinical responsiveness. Select the best measure for the proposed subject population. Eliminate tests or measures which are difficult to use, complex to train testers, or require an inor-

dinate amount of time on test dates.

**Establish** rationale for the choice of intervention of EAA/EAT. Find out through a pilot study if comparison treatment with a control group design may make the hypothesis more conclusive. The pilot design may be markedly different from the final design or methods. Use pertinent findings acquired through the pilot study in any publications or reports or grant proposals to support the design and methods of the full-scale study.

**Familiarize** everyone on the research team with the procedures of testing dates and the implementation of equine assisted activities or therapy. Something will inevitably happen in a pilot study that makes one say "I never thought about that!"

**Discover** the advantages and disadvantages of the test site and equine-assisted intervention facility. Change the location of the test site if it is inconvenient for subjects to attend test dates. Arrange the room or test equipment to make test dates flow quickly. Subjects are more likely to return for testing. A subject with an unpleasant test experience may become a dropout that could have been saved or avoided.

**Answer** the question "Is a trial/experiment worth pursuing?" Find out the true feasibility of a dreamy full-scale study. In some cases, the study plan may be abandoned. In most cases, taking the lessons learned in the pilot study will allow a larger-scale study to become a reality. *Email info@horsesandhumans.org to contribute your article!*

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*We extend our special gratitude to the individuals, foundations, therapeutic riding programs and businesses who have given their financial support to HHRF. You have made this research possible. Thank you. Please let us know if you have contact information for a person or business who may be interested in supporting or collaborating on research initiatives.*

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