

Career of the Month

October 2008, Science in the Workplace: Based on Interviews

Megan Sullivan

Infant Physical Therapist

From a sprained ankle to a brain injury to a total hip replacement, when something limits our ability to move or perform daily activities, life can be miserable. This is where physical therapists (PTs) step in. PTs help people—from the very young to the very old—restore function, improve mobility, relieve pain, and prevent or limit permanent physical disabilities. As Director of University of Delaware's Infant Motor Behavior Lab, PT Cole Galloway helps infants born at high risk for movement problems learn to coordinate head, arm, and leg actions. Within a few days of working with very young infants, he realized he had found his niche.

Overview of the field.

PTs help people with physical disabilities, caused by a range of conditions, improve mobility and relieve pain. The conditions PTs treat may be orthopedic (bone-, joint-, and muscle-related) such as a fracture, dislocation, or osteoporosis; neurological (brain-related) such as a stroke, traumatic brain injury, or Parkinson's disease; or cardiopulmonary (heart- and blood vessel-related) such as congestive heart failure or chronic obstructive pulmonary disease. PTs work in a variety of settings, including hospitals, private practices, home-health agencies, schools, sports-and-fitness facilities, company offices, nursing homes, and research labs within universities.

Finding a niche.

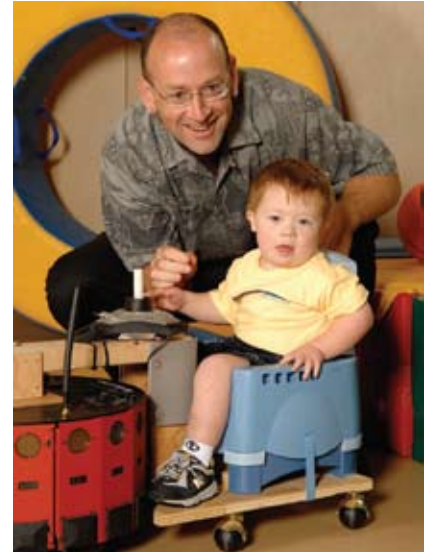
I love movement—whether through playing sports or dancing—so it seems natural to have a career that allows me to help people who have significant problems moving. I began my path with an undergraduate degree in biology and exercise science, followed by an additional bachelor's degree in physical therapy (at the time, a graduate degree was not required). I then went to work at a wonderful rehab hospital for several years, helping adults with severe brain and

spinal cord injuries. I really enjoyed my work there, but at the same time, it led me to consider a whole host of research questions about the brain and how best to help people relearn to use their arms and hands after brain injuries. So, I went back to school for a doctorate in neurophysiology (basically, how the brain works). From that experience, I realized I was very interested in the control of reaching movements, so I started at the very beginning—studying how reaching first emerges in infants.

Helping babies move.

I run a research lab within the Department of Physical Therapy. We help infants born with injuries—usually of the brain or spinal cord—who have difficulty learning to use their hands for reaching or their legs for walking. For instance, we create specific play activities for babies with reaching problems, which allow families to help their children learn to use their arms and hands. To enable babies with leg-movement problems to explore their worlds, we are developing robot-assisted power wheelchairs (also called power chairs). This project is especially exciting as we get to work with engineers to develop a vehicle that is fun and functional for very young infants.

To develop the right tools for each



UNIVERSITY OF DELAWARE PUBLIC RELATIONS

Galloway's patient learns to drive a power chair.

infant and family, my team first determines abnormalities in a baby's movements using biomechanical observation techniques, such as high-speed motion capture and surface electromyography (or EMG, which involves testing the electrical activity of muscles). We also perform a qualitative analysis of infants and their families in natural settings, such as their homes.

Advice for students.

To become a PT, students need to be interested in science but should also enjoy working with people. We use the math, physics, biology, and psychology that students are taking right now—so students should keep that in mind when their peers ask "When will we use this in real life?" It is important to get experience working with people in need. For instance, students can volunteer in fitness centers, nursing homes, hospitals, or clinics. PTs can be found wherever people need help moving (or moving better). Students should also talk with nurses, doctors, and

therapists to learn about the similarities and differences in a typical day. For example, although doctors and PTs both help similar types of patients, PTs tend to spend more one-on-one time with their patients and focus on strengthening, coordination, and activities of daily living.

To become a PT entails the completion of an undergraduate degree—usually in a science major such as psychology, biology, or exercise science—followed by a master’s or doctoral degree in physical therapy. A two- to three-year doctoral program in physical therapy is a doorway to a number of careers, including working in a clinic, running a research lab, becoming a healthcare policy maker, or teaching. There are also many op-

portunities within the field of physical therapy that do not require doctorate-level training (see “Bonus Points”).

Inspirational moments.

Many experiences stand out in my career—most are happy, many are sad, and all are inspirational. For instance, a patient’s first time being able to stand unsupported after having a brain injury...a daughter crying when her father is able to sit up in bed without help...the look in a mother’s eyes when her baby smiles and reaches for a toy during a training session...the squeal from a little child as he or she drives the robotic power chair around a room. These are the moments that remind me that I chose the right path.

BONUS POINTS

Galloway’s education:

BS, biology and exercise science; BS, physical therapy; PhD, neurophysiology

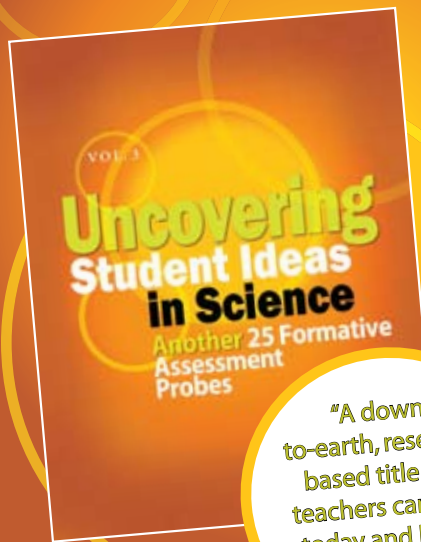
On the web:

American Physical Therapy Association (www.apta.org); Galloway’s website (www.udel.edu/PT/faculty/galloway_CV.html)

Related careers:

Orthopedic surgeon, nurse, PT assistant, PT aide, athletic trainer, health and fitness instructor, exercise physiologist, sports biomechanist

Find out what **your students** really know about **science!**



“A down-to-earth, research-based title that teachers can read today and begin using tomorrow.”

- Lesson plans and teaching strategies that dispel students’ misconceptions about science
- Easy-to-administer questionnaires, or “probes,” that focus on fundamental ideas in science
- Offers an alternative look at student thinking that is often missed in standard assessment questions
- New probes cover life science, Earth and space science, physical science, and the nature of science
- Ideal for classroom teachers, preservice teachers, professional developers, and college science and preservice faculty

Save
when you buy all
three volumes!
Stock # PK193X3
Member \$58.22
Nonmember \$72.77

Grades K-12
Stock # PB193X3
ISBN 978-1-93353-124-3
Member \$21.56
Nonmember \$26.95

To read a free chapter or to order, visit
www.nsta.org/store or call 1-800-277-5300
Source Code: **U3ST08**

