



Physical therapy aims to assist in the development of both fine and gross motor skills throughout a person's lifespan, but *especially* at an early age when a child's brain and body are still developing. They are also trained in pain relief and swelling reduction techniques, which can include therapeutic exercise, heat and cold applications, and electrical stimulation to the muscles. These professionals help increase strength, endurance and coordination to help individuals become more independent in specific tasks. They are in charge of coordinating complete physical therapy care plans, which can include networking with the child's primary care physician, providing services that prevent or slow the onset of health conditions that can stem from a patient's original injury or disease, and helping the patient learn how to use assistive or adaptive devices.

Physical therapy usually consists of sessions in a formal therapeutic environment under the supervision of a certified physical therapist; when children are not at therapy sessions, parents are often given exercises for their children to do at home on a schedule. These exercises can include:



- Range of motion (ROM) exercises for maintaining the mobility of joints and soft tissues and preventing contractures
- Progressive resistance exercises for building muscle strength
- Exercises for strengthening knee extensor muscles improve crouching and stride length
- Postural and motor control exercises help kids control their posture and hold themselves upright

The type of physical therapy a child is enrolled in depends on many factors, including the



child's current abilities and health history. Each physical therapy service provider will be able to provide a different range of services, so not all types of physical therapy will be available everywhere. It is also important to remember that not all physical therapy modalities are equally effective – research surrounding intensive suit therapy is, for example, inconclusive, though this does not *necessarily* discount its usefulness for certain children. For more information on the types of physical therapy that exist, please see the following links:

- [\[National Institute of Health\] Physical Therapy Modalities \[List\]](#)
- [What is Manual Therapy?](#)
- [Physical Therapy: Basic Overview](#)
- [Physical Therapy for Specific Populations](#)
- [Types of Physical Therapy](#)
- [What Kinds of Procedures are Used in Physical Therapy?](#)
- [New Physical Therapy Techniques](#)
- [What Does a Physical Therapist Do?](#)
- [\[Video Library\] Physical Therapy and Adaptive Mobility](#)
- [How can Physical Therapists Help with Cerebral Palsy?](#)

Because children with hypoxic-ischemic encephalopathy are fairly likely to have multiple body systems impacted and are more likely to have secondary impairments, physical therapists who help this population must have a wide variety of techniques and methods available to examine the child and work with them to improve their physical functioning.

### Motion and Gait Analysis

One aspect of certain physical therapy programs is a technologically advanced system of diagnosis called 'motion and gait analysis.' In gait analysis, specialists use advanced computer programs to map out a person's movement, muscle activity and other factors that impact their gait. By **capturing** the coordination of forces that cannot be identified by mere eye alone, gait analysis provides a valuable method of pinpointing problems unique to each individual patient. This in turn allows physical therapists to develop a more targeted and



individualized physical therapy program for maximal effectiveness. There are several motion analysis facilities in the United States – although many of them are housed in children’s hospitals, the vast majority of them work with *both* children and adults. While the following is not a comprehensive list, the following organizations have gait analysis laboratories for the analysis of gait abnormalities:

- Gillette Children’s Hospital (James R. Gage Center for Gait and Motion Analysis) – St. Paul, Minnesota
- [Rehabilitation Institute of Chicago](#) – Chicago, Illinois
- [Nemours Children’s Health System](#)– Wilmington, Delaware
- [Stanford Children’s Hospital](#) – Menlo Park, California
- [Children’s Hospital Colorado Center for Gait and Movement Analysis](#) (CGMA) – Aurora, Colorado
- [Hospital for Special Surgery – Leon Root, M.D. Motion Analysis Laboratory](#) – New York, New York
- [Penn Physical Medicine and Rehabilitation Gait and Biomechanics Laboratory](#) – Philadelphia, Pennsylvania
- [Spaulding Rehabilitation Hospital](#) – Boston, Massachusetts
- [Kennedy Krieger Institute](#) – Baltimore, Maryland
- [Musculoskeletal-Orthopedic Research and Education Foundation](#) – Phoenix, Arizona
- [Children’s Hospital Los Angeles](#) – Los Angeles, California
- [Shriner’s Hospital for Children](#) – Lexington, Kentucky
- [Mayo Clinic](#) – Rochester, Minnesota
- [Connecticut Children’s Medical Center](#) – Hartford, Connecticut
- [Indiana University Motion Analysis Program](#) – Indianapolis, Indiana
- [Northwestern University Feinberg School of Medicine](#) – Chicago, Illinois

For information regarding your local Gait and Clinical Movement Analysis laboratory, contact the [Gait & Clinical Movement Analysis Society](#) directly. Other listings of gait analysis laboratories can be found [here](#).



### Aqua Therapy/Water Therapy

One popular therapy is 'water therapy,' also referred to as 'aqua therapy' or 'swim therapy.' Programs in aquatic therapy can help children with weak muscles or physical limitations exercise while eliminating some of the effects of gravity. Swim therapy provides all the [benefits](#) of traditional exercise regimens, including cardiovascular training, muscular strength training, and increased range of motion. These therapies are conducted in heated pools, helping to increase flexibility, decrease pain, relieve muscle spasms, and improve circulation. There are several different 'schools' of water therapy, including Watsu, Ai Chi, water yoga and water aerobics. Therapeutic programs are conducted by certified physical therapists with further Certificates in Aquatic Physical Therapy Clinical Competency.