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Giant Steps, a new therapy program available at Creative Children Therapy, Inc.

Giant Steps is an innovative, evidence-based, cost-effective physical therapy and fitness program for teens and pre-teens with spastic cerebral palsy or related conditions. We developed **Giant Steps** with Dr. Leonard Elbaum of the Department of Physical Therapy at Florida International University.

Giant Steps is based on recent advances in neuroscience and rehabilitation research that suggest:

- Physical inactivity contributes significantly to the disabilities associated with cerebral palsy, and an increase in the level of physical activity promotes life-long health in children with and without physical disabilities.
- Neural plasticity is much greater than previously thought. People with neurological disorders can show improvement in virtually any physical skill if they practice with sufficient intensity, duration, and frequency.
- It seems reasonable to assume that a program of intense, frequent physical activity that includes training in specific gross motor functions would be beneficial for children and adolescents with neurological disorders.

(A review of supporting literature, including copies of cited articles is available upon request.)

Giant Steps begins with a comprehensive evaluation of strength, flexibility, balance, cardiopulmonary fitness, ability to perform activities of daily living, computer-assisted gait analysis, and the development of specific goals in collaboration with you, the client, and their caregiver(s).

The heart of the **Giant Steps** program is participation in a customized, two-hour per day, five-day per week, six-week program that will include:

1. Traditional, hands-on physical therapy
2. Stationary cycling with the RT300 cycle, a device that creates or supplements muscle activity with computer-controlled electric muscle stimulation.
3. Locomotor training (treadmill walking with assistance to support body weight and or leg movements as needed)

4. Interactive video games (eg. the Wii) modified to challenge specific skills (eg. standing without assist, rapid weight shifting, standing on one leg).
5. Intensive practice towards the chosen functional goal(s).

At the end of the six-week period, a re-evaluation will be performed. Based on the results and discussion with you, the client, and their caregivers, the **Giant Steps** can be repeated, discontinued, or continued on a three-day per week basis.

Participants will be scheduled in groups of 3 to 6, with at least one physical therapist present at all times, and an overall staff to client ratio of 1 to 1.

The cost of the program will be similar to a ½ hour session of traditional physical therapy three times per week, depending on insurance coverage.

We implemented a pilot of the **Giant Steps** program for 8 children this past summer, beginning on June 30 2008, and concluding on August 8, 2008. The success of the program surprised participants, therapists, and caregivers. Seven children were diagnosed with cerebral palsy, and one participant was a non-disabled but obese and sedentary child. The non-disabled participant was a friend of one of the other participants.

All children made significant gains in overall muscle strength and endurance. One participant gained the ability to sit independently for the first time, another walked with a standard walker for the first time in over seven years. One child gained the ability to stand independently for the first time, another child gained the ability to walk with a heel-toe gait without an ankle-foot orthoses for the first time.

Details about the progress for each child in the pilot program are summarized in the table on the next page. We anticipate continuing to develop the **Giant Steps** as a research / demonstration project in the future.

If you would like more information about the **Giant Steps** program; or if you want a copy of the review of literature, please contact the individuals below:

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Table of progress during the **Giant Steps** Pilot Project, Summer, 2008

ID	Age	Diagnosis	On June 30	After Six Weeks: (August 8)
A	12	Spastic quadriplegic CP	Unable to sit independently	Sits on a bench independently without support for >30 seconds
			Unable to assist with transfers	Transfers w/c to standard chair with moderate assist
			Non-ambulatory	Minimally ambulatory on treadmill with weight-supported apparatus; able to take 15 steps x 10.
B	*19*	*Spastic quadriplegic CP*	*See column to the right*	Instrumented manual muscle testing demonstrated strength increases of lower extremity muscles ranging from 13% to 88%, with a mean increase of 33%
			Able to walk only 94 feet in 3 minutes with walker and moderate assist of one person	Able to walk 165 feet in 3 minutes independently with walker, an increase of 76%.
D	*6*	*Spastic quadriplegic CP*	*Unable to attend on last day for re-evaluation-fill in on progress in treadmill walking and observations*	
I	19	Spastic quadriplegic CP	Able to walk 10 feet with maximal assistance of two people and posterior walker, and complaints of feeling unsafe.	Able to walk 40 feet with standard walker and moderate assist of one person, and reported feeling safe.
			See column to the right	Instrumented manual muscle testing demonstrated strength increases of lower extremity muscles ranging from 8% to 143%
J	12	Spastic quadriplegic CP	Independently ambulatory only with posterior walker and two ankle-foot orthoses	Independently ambulatory with crutches and without ankle-foot orthoses
			Unable to stand without assistance or device	Able to stand for 7 seconds without device or assistance.
			Able to walk only 40 feet in 3 minutes	Able to walk 220 feet in 3 minutes; an increase of 267%
L	9	Spastic hemiplegic CP	Right ankle dorsiflexion strength insufficient to ambulate without ankle-foot orthoses on the right (2.8 pounds of force)	Right ankle dorsiflexion strength increased to 4.2 pounds (50%), still insufficient to walk with a heel toe gait without orthosis.
			Unable to ambulate with a normal heel-toe gait without ankle-foot orthoses on the right	Ambulates with a normal heel-toe gait without ankle-foot orthoses on the right
			Able to walk only 750 feet in 3 minutes	Able to walk 940 feet in 3 minutes; an increase of 25.3%
N	9	Spastic monoplegic CP (affecting distal right lower extremeity)	Right ankle dorsiflexion strength insufficient to ambulate without ankle-foot orthoses on the right (0.7 pounds of force)	Right ankle dorsiflexion strength increased to 2.2 pounds (214%), still insufficient to walk with a heel toe gait without orthosis.
			Able to walk only 710 feet in 3 minutes	Able to walk 1240 feet in 3 minutes; an increase of 74%
K	9	Non-disabled, sedentary and obese	Able to walk only 765 feet in 3 minutes.	Able to walk 1620 feet in 3 minutes; an increase of 118%