

## A magical way to move kids

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Dr. Dido Green uses magic to help a young patient regain movement in her left arm. Credit: Guy's and St. Thomas' Hospital Charity

It's often hard to motivate youngsters with physical disabilities. But a new approach from a Tel Aviv University researcher bridges the worlds of behavior and science to help kids with paralysis and motor dysfunction improve their physical skills and inner confidence -- using a trick up her sleeve called "magic."

Dr. Dido Green of Tel Aviv University's School of Health Professionals developed an innovative yet remarkably simple series of therapeutic exercises for children and young adults based on sleight-of-hand tricks used by professional magicians. Dr. Green and her magicians used

sponge balls, elastics and paper clips to teach the children how to perform the challenging, fun and engaging exercises.

She started her foundational research at the Evelina Children's Hospital funded by the Guy's and St. Thomas' Hospital Charity, Performing Arts Programme in London.

## **Making physical therapy fun**

"Children with motor disorders like hemiplegia -- or paralysis on one side of the body -- perform routine exercises with their hands and wrists to be able to carry out basic functions such as opening a door, doing up their zipper, or closing buttons," explains Dr. Green, an occupational therapist with a masters degree in clinical neuroscience and a Ph.D. in psychomotor development of children. "Not only did the kids get a kick out of the [magic tricks](#), they loved doing the exercises every day."

Dr. Green hopes to create summer "magic camps" for [disabled children](#) in both the U.K. and Israel, and will further investigate the benefits of magic for improving motor development of children with disabilities.

Her initial research, now in the process of publication in a peer-reviewed journal, looked at a sample of nine children. "We had a hunch that learning magic tricks could do wonders for kids' movement problems, but we wanted to see if the kids would actually practice them," says Dr. Green.

The children practiced ten minutes a day over four to six weeks, resulting in a significant and measurable change in motor skills. "It was a big enough effect to make us want to marry the concept of magic with more specific treatment regimes important for motor learning," says Dr. Green.

In the next part of the study, Dr. Green will bridge the worlds of behavioral therapy with science. She plans not only to give a large group of U.K. and Israeli kids intensive magic training to help improve their motor skills, but also to look into their brains to see if there is a neurological effect.

## **Magic meets magnetic resonance imaging**

"We'll be using functional MRIs to see how extensive practice -- using the magic tricks as motivators -- affects centers in the brain. Having information from the MRI can help us see what works, and for how long a treatment regime will need to be carried out to have sustained changes," says Dr. Green. One of the things she will be measuring is the "plasticity" of the brain to see if activity of different brain areas changes over time as a result of the exercises.

Movement problems can occur in children with autism, spinal cord injuries, diseases affecting the central nervous system, or cerebral palsy. Some of these conditions can lead to hemiplegia. When Dr. Green retired from the stage following a career as a ballerina for the National Ballet of Canada and the Sadlers Wells Royal Ballet in London, she determined to inspire less fortunate [children](#) to gain or regain levels of basic functioning.

Provided by Tel Aviv University

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