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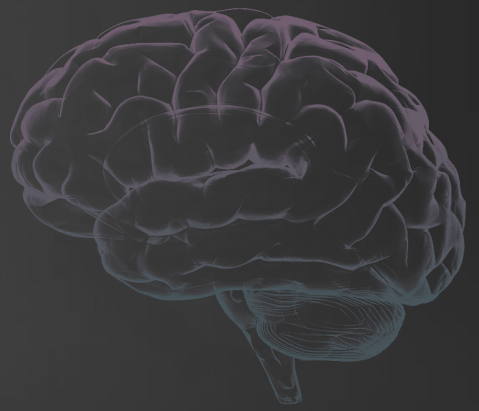
STROKE CASE STUDY 1



THE EFFECTS OF BOBATH AND NEURODEVELOPMENT TREATMENT ON FUNCTIONAL MOTOR MOVEMENTS POST-STROKE

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Propel Physiotherapy provides personal and professional treatment for people of all ages whether you have suffered a stroke or traumatic brain injury; experienced a complex orthopedic injury caused by a motor vehicle accident, workplace accident or sports; are recovering from childbirth, illness, a simple strain or sprain; or you are looking to improve your performance in your daily activities.

Our integrated healthcare team serves the Greater Toronto Area from our two convenient locations in Etobicoke and Pickering, and also provides mobile services that will come to your home, place of business or other location in the community that best suits your needs.

INTEGRATED HEALTHCARE PROGRAMS

EVIDENCE-BASED TECHNIQUES

PROFESSIONALLY TRAINED THERAPISTS

COMPREHENSIVE CLIENT-CENTRED CARE

THE EFFECTS OF BOBATH AND NEURODEVELOPMENTAL TECHNIQUE ON FUNCTIONAL MOTOR MOVEMENT POST-STROKE

By Registered Physiotherapist Hoong Phang

Hoong holds a Bachelor Honours Health Sciences from the University of Western Ontario (2008). He has also completed a Master of Science in Health and Exercise Psychology (2010) from McMaster University, and Master of Physiotherapy (2012) from McMaster University.

Hoong is currently published in the academic journals “Disability and Rehabilitation” and “Spinal Cord.” His education has continued post-graduation with additional certifications in manual therapy, soft tissue release, neuro-developmental treatment, therapeutic functional athletic taping, and contemporary medical acupuncture.

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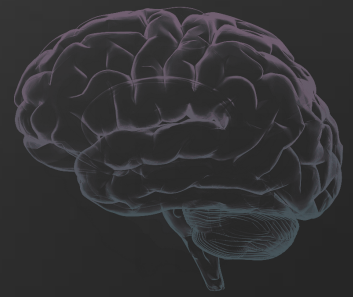
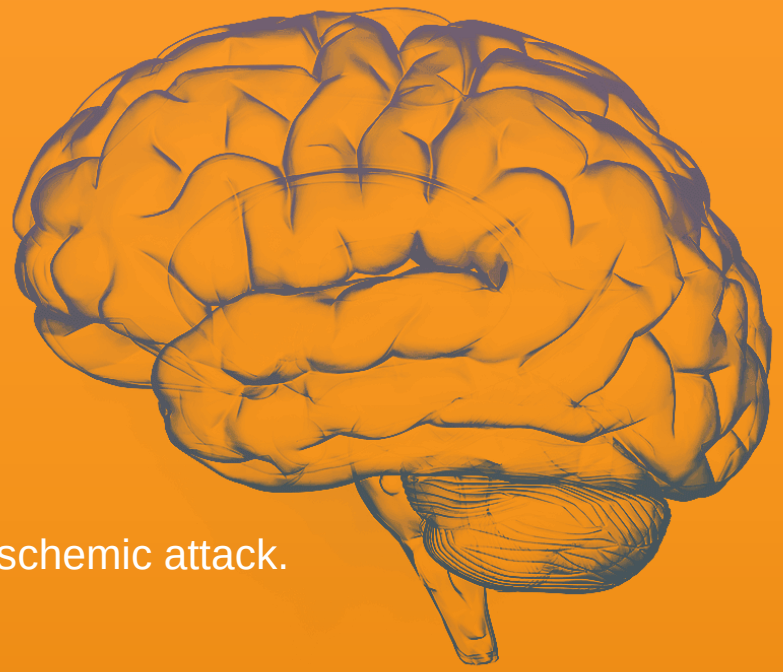


INTRODUCTION



According to the Heart and Stroke Foundation of Canada, a stroke occurs when blood flow to the brain is interrupted and causes cell damage. The extent of a stroke depends on the location of cell damage and type of stroke.

The main classifications of stroke are ischemic, haemorrhagic, and transient ischemic attack.

ISCHEMIC: blockage of an artery located in the brain.

HAEMORRHAGIC: a rupture of a blood vessel located in the brain.

TRANSIENT ISCHEMIC ATTACK (TIA): a smaller, brief, blockage of an artery to the brain, also known as a mini stroke. TIA may also be a predictor of a more serious stroke in the future.

THERAPEUTIC OPTIONS & GOALS

After a stroke, many people present with one-sided weakness and sensation changes. Many others experience neuromuscular weakness, fatigue, decreased ambulation / walking ability, altered sensation, decrease speech ability, cognitive changes, and balance issues. These changes to the body require a neurological physiotherapy approach to improve recovery and restoration of the losses a person sustains after a stroke.

Stroke rehabilitation involves a specific, individualized treatment approach tailored to each clients needs. Evidence suggests that functional movement based treatment after the acute phase of a stroke is needed. At Propel Physiotherapy, we complete a full sensorimotor and functional assessment involving the whole body, then set goals with the client that are realistic and time sensitive. Our physiotherapists will use a **Bobath** and **Neurodevelopment Treatment** approach to improving one's ability to perform functional motor movements as:

Standing

Walking

Bed Mobility

Balance

Stair Climbing

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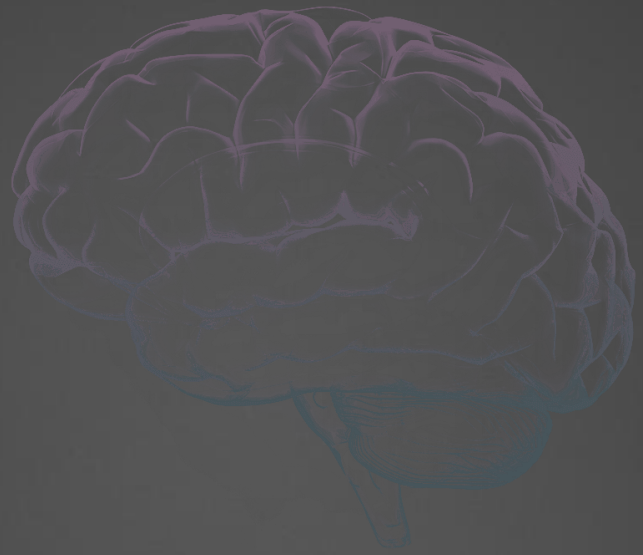

CLIENT CASE

LEFT SIDED HAEMORRHAGIC STROKE AT THE MIDDLE CEREBRAL ARTERY

IMPAIRMENTS

Left sided haemorrhagic stroke at the middle cerebral artery, causing:

- Right sided weakness (hemiparesis)
- Right sided foot drop
- Decreased right upper extremity function and dexterity
- Decreased active range of motion for upper and lower extremities
- Increased muscle tone through right shoulder joint and right elbow
- Increased muscle tone through right lower ankle and foot, trunk/low back
- Increased fatigue throughout the day

PROBLEM LIST

- Right-sided weakness and decreased active and passive range of motion
- Decreased sensation to light touch on right side of body
- Decreased walking independence
- Decreased ability to perform stairs into and out of home
- Increased tone in upper and lower extremities
- Increased fatigue during activities of daily living
- Decreased independence in activities of daily living (e.g., dressing, grooming, toileting, transportation)

GOALS

1. Improve walking independence (e.g., get rid of the rollator / walker)
2. Improve strength and range of motion for right side of body
3. Participate more in activities of daily living without getting fatigued

OUTCOME MEASURES

- Timed Up and Go
- 2-Minute Walk Test
- Dynamic Gait Index
- Berg Balance Scale
- Manual Muscle Testing / Goniometric Measurements for Range of Motion
- Disability of Arm Shoulder and Hand (DASH Questionnaire)

INTERVENTIONS (IN ORDER OF PROGRESSIONS)

The basis of our programs at Propel are movement, and we have a host of skilled professionals that we use to incorporate movement – kinesiologists, exercise physiologists, registered massage therapists, yoga therapists and mindfulness practitioners. We also have a full complement of specialized and adapted equipment that we use to help our clients get the most out of their rehab programs.

1. Neurological physiotherapy approach to restoring normal movement e.g. NDT and Bobath techniques
    a) Supine, prone, side-lying, and seated trunk control
    b) Forward lean sit postural activation
    c) Prone standing with assistance of plinth
    d) Sensory stimulation through right upper and lower extremities
2. Gait aid progressions
    a) Two-wheeled walker to rollator to 4-point cane to single point cane
    b) Use of foot-up stimulation devices and Ossur Foot-Up® brace
3. Modified exercises and kinesiology sessions
4. LiteGait
5. Body-weight supported treadmill training (BWSTT)

RESULTS

1. Improved gait aid independence - progressed to single point cane and OSSUR foot up only
2. Significant improvements in functional outcome measures:
    a) Timed Up and Go
    b) 2-minute Walk Test
    c) Berg Balance Scale
3. Increased strength in right lower extremity; improved function in right upper extremity as self-reported on the DASH questionnaire

SUPPORTING MEDIA

Video of client with therapist

- Overground gait training using body weight support allows the client to walk without a gait aid and explore the limits of his postural control in standing

- Progression
  - Decrease the amount of support or unloading
  - Increasing the speed of walking
  - Increase environmental stimuli – people or obstacles around

TAKEAWAYS

After a stroke, many people present with one-sided weakness and sensation changes. Many others experience neuromuscular weakness, fatigue, decreased ambulation / walking ability, altered sensation, decrease speech ability, cognitive changes, and balance issues. These changes to the body require a neurological physiotherapy approach to improve recovery and restoration of the losses a person sustains after a stroke.

- Bobath and NDT approach fosters a platform for assessment and treatment of stroke
- Listen to your client's goals. They may surprise you and/or differ greatly from your expectations
- Get creative with treatment sessions and don't be afraid to mix things up

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We have set ourselves apart by the quality of care our clinicians provide and the unique setting we provide to meet the individual of these clients. Our comprehensive client-centered approach allows each clinician to spend valuable and meaningful time with each client. This is especially important for people who have sustained a brain or spinal cord injury. To accommodate these complexities, we will see some of our clients for an hour to an hour and a half for assessments and treatment sessions; and there is additional preparation time that goes into each appointment.

All of the physiotherapists at Propel Physiotherapy have training in the Bobath Concept or Neuro-Development Treatment and have completed post-graduate certifications and course work in the specialty area of neurology. We consider current principles of neurophysiology, motor learning and the capacity of the nervous system to change through neuroplasticity when treating each client.

We take a hands-on approach to treatment. Our therapists have specific training required to address the needs for this type of clientele, which includes manual therapy, soft tissue release, NDT/ Bobath assessment and treatment techniques, normal movement, vestibular rehabilitation, acupuncture, massage therapy, chronic pain management, exercise programming, and mindfulness.

After a full assessment, we develop a customized treatment program to meet each client's specific goals. We work together with Case Managers, Occupational Therapists, Speech Language Pathology, Social Work, Psychology and a number of other healthcare professionals to provide comprehensive care in the clinic and community.

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LIFE IN FORWARD MOTION

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