

## Recreation Therapy Stroke Protocol Series

*“There are more than 400,000 Canadians living with long-term disability from stroke, and this number will almost double in the next 20 years. The effects range from mild to severe disability, and can be obviously physical limitations or more subtle such as memory changes. Recovery can take months or years, even for milder strokes, and many people never fully recover.”*

2017, Heart & Stroke<sup>1</sup>

This first of its kind document is a result of the hard work of various Recreation Therapy and Stroke professionals including individuals from the Recreation Therapy Stroke Professionals Network of the Southwestern Ontario Stroke Network, Georgian College, St. Thomas Elgin General Hospital, Woodstock General Hospital, and the Chatham-Kent Health Alliance.

The need for evidence based recreation therapy has increased as the needs of our clients are becoming continually complex. Evidence based practice (EBP) across professions is known to improve quality of care, provide continuity of care, improve health outcomes, as well as, act as a cost savings measure. EBP provides an opportunity for Recreation Therapists to provide their clients with interventions that are rooted in research. These protocols should be used together with the therapeutic process, and our professional standards of practice.

This document is a compilation of student work from the Georgian College Therapeutic Recreation Post Graduate program which has been vetted by Faculty and professional Recreation Therapists currently working in the field. All of the program protocols were created by the student authors and include research evidence to justify their validity. As always, it is up to you as the Recreation Therapist to use these and other protocols as a tool to create positive change for your individual clients. These protocols, coupled with further research and your clinical judgment should align your clients well for success in their health goals.

This is a living document that will continue to grow and evolve. The committee plans to invite Recreation Therapists on an annual basis, to submit evidence based protocols for consideration for inclusion in this valuable resource. This invitation will occur every February to coincide with both Therapeutic Recreation Awareness Month and Heart and Stroke Month.

We encourage you provide us with feedback or suggestions for protocols for inclusion in future editions of this publication. Feedback can be by emailing [swosn@lhsc.on.ca](mailto:swosn@lhsc.on.ca) .

<sup>1</sup>Heart and Stroke. (2017). Stroke Report. Retrieved from <https://www.heartandstroke.ca>

**Program Protocol – Tai Chi Boost**  
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**Reviewed & Revised: September 2023**

**Program Title:** Tai Chi Boost

**Statement of Purpose:**

- To improve gait, balance capacity, reduce fear of falling and improve muscle strength – resulting in a better quality of life for clients recovering from stroke

**Program Description:**

- Clients will utilize rhythmical Tai Chi movements and deep breathing techniques to improve posture and the maintenance of balance by shifting the body's centre of gravity to and from unilateral and bilateral positions at a smooth and slow movement speed

**Client Needs Program Will Address:**

- Lack of balance
- Low body self-awareness
- Social withdrawal

**Selection/Referral Criteria:**

- 64+ yrs. older adults living with stroke
- Community-dwelling clients and/or residence in the sites in our catchment area
- “Yes” to one or more of the three screening questions below:
  - “Have you fallen in the last 90 days?”
  - “Do you feel unsteady when standing or walking with your walking aid?”  
(\*question can be restated without reference to walking aid)
  - “Are you taking four or more medications?”
- Ability to walk at least 6 meters with or without aids
- Address or be found losing interest in the activities used to enjoy or struggle with feelings of helplessness and hopelessness
- Agreement of client or POA and signed informed consent form
- Able to understand, implement program
- BERG balance minimum determined by therapy staff

**Contradicted Criteria:**

- Vestibular problem
- Receptive aphasia (inability to understand instructions)
- Severe complication after stroke such as severe pulmonary infection, shoulder hand syndrome and lower limb venous thrombosis
- Severe medical condition (e.g. Serious heart disease; heart, liver or kidney failure; malignant tumour; gastrointestinal bleeding)

**Program Outcomes (goals):**

- Improve baseline of BBS (Berg Balance Scale) score
- Improve body self-awareness – represented in breath awareness
  - Perform active relaxation – mindfulness with physical relaxation, alert and calm at the same time, inner stillness while in motion and simultaneous awareness of all parts of the body
- Decrease social withdrawal

**Content and Process:**

<b>CONTENT</b>	<b>PROCESS</b>
<p>Session 1:</p> <ul style="list-style-type: none"> <li>• Welcome clients and program facilitator self-introduction</li> <li>• Have clients introduce themselves</li> <li>• Tai Chi benefits to seniors with stroke</li> <li>• Conduct baseline assessment using Modified Berg balance scale &amp; questionnaire</li> <li>• Practice Tai Chi breathing</li> <li>• Practice Tai Chi greeting gesture and opening form</li> <li>• Program wrap up</li> </ul>	<p>Step 1: Group clients sitting in a circle. Icebreaker “Two truths and a lie”. Staff and clients get to know each other.</p> <p>Step 2: Set up projector to briefly introduce Tai Chi Benefits to stroke and practice tips.</p> <p>Step 3: Let clients know why assessments are necessary to them then conduct assessments with team members’ help.</p> <p>Step 4: Introduce “clock image” to clients for them understanding movements’ directions.</p> <p>Step 5: Describe and demonstrate breathing, greeting and opening form. Divide into a few small steps for clients to follow. After a few times practice, do the continuous movements then also combine the Tai Chi breath with Tai Chi music.</p> <p>Step 6: Thanks to clients’ cooperation. Comment on their performance. Ask for feedback. Well done.</p>
<p>Session 2:</p> <ul style="list-style-type: none"> <li>• Question &amp; answer re: Tai chi benefits</li> <li>• Warm up</li> <li>• Review and practice Tai Chi breathing technique &amp; greeting gesture &amp; opening form learned in session 1</li> <li>• Practice Tai Chi form 1 movement “Repulse Monkey”</li> <li>• Program wrap up</li> </ul>	<p>Step 1: Greetings. Ask questions and quick catch-ups. This will be daily ritual so we take a bit of time just to check in and say hello after one week off class.</p> <p>Step 2: Use 7 movements as AiPing Lai (2015) described as Tai Chi warm up exercise in whole sessions. <i>*See Appendix</i></p> <p>Step 3: Recall the movements learned in session 1, practice with facilitator’s guide.</p> <p>Step 4: Small talk about the name of form 1. Demonstrate footwork and hands form separately. Once clients get familiar, show the complete form. Then practice it combination with breathing.</p>

	<p>Step 5: Summarize the form 1 and give key notes.</p> <p>Step 6: Same as session 1.</p>
<p>Session 3:</p> <ul style="list-style-type: none"> <li>• Small talk re: Tai Chi history</li> <li>• Warm up</li> <li>• Review and practice the movements learned in session 1 &amp; 2</li> <li>• Practice Tai Chi form 2 movement “Brush Knees”</li> <li>• Program wrap up</li> </ul>	<p>Step 1: This session is the time to briefly introduce history of Tai Chi since clients already have a primary sense of Tai Chi after two sessions.</p> <p>Step 2: Same as step 2 in last session.</p> <p>Step 3: Recall the movements learned in session 1 &amp; 2, practice with facilitator’s guide.</p> <p>Step 4: Small talk about the name of form 2. Demonstrate footwork and hand form separately. Once clients get familiar, show the complete form. Then practice it combination with breathing.</p> <p>Step 5: Summarize the form 2 and give key notes.</p> <p>Step 6: Same as previous sessions.</p>
<p>Session 4:</p> <ul style="list-style-type: none"> <li>• Periodic summary and discussion</li> <li>• Warm up</li> <li>• Review and practice all the movements learned in past 3 sessions</li> <li>• Program wrap up</li> </ul>	<p>Step 1: Summarize the past 3 sessions, ask for feedback and discuss the next circle learning. Set up “fun test” to help clients memorizing the movements learned.</p> <p>Step 2: Same as Step 2 in previous sessions.</p> <p>Step 3: Recall the movements learned in previous sessions, “practice with your partner”.</p> <p>Step 4: Give clients prize for their completion and hard working. Good, the progression in your sessions is evident.</p>
<p>Session 5:</p> <ul style="list-style-type: none"> <li>• Small talk re: Tai Chi “Yin- Yang”</li> <li>• Warm up</li> <li>• Pair clients to practice Tai Chi breathing techniques</li> <li>• Practice Tai Chi form 3 movement “Wild horse parting mane”</li> <li>• Program wrap up</li> </ul>	<p>Step 1: Greeting. Show the Yin-Yang symbol and introduction by using simply example.</p> <p>Step 2: Same as Step 2 in previous sessions.</p> <p>Step 3: Ask clients to find a partner and practice breathing techniques to each other.</p> <p>Step 4: Small talk about the name of form 3. Demonstrate footwork and hands form separately. Once clients get familiar, show the complete form. Then practice it combination with breathing.</p> <p>Step 5: Summarize the form 3 and give key notes.</p> <p>Step 6: Same as session 1-3.</p>
<p>Session 6:</p> <ul style="list-style-type: none"> <li>• Small talk re: fall prevention strategies</li> <li>• Warm up</li> <li>• Review and practice form 3 learned in session 5</li> </ul>	<p>Step 1: Greeting. Educate clients about fall prevention strategies and the benefits of Tai Chi to fall prevention.</p> <p>Step 2: Same as Step 2 in previous sessions.</p> <p>Step 3: Recall the movements learned in session 5, practice with facilitator’s guide.</p> <p>Step 4: Small talk about the name of form 4. Demonstrate</p>

<ul style="list-style-type: none"> <li>• Practice Tai Chi form 4 movement “Cloud hand”</li> <li>• Program wrap up</li> </ul>	<p>footwork and hands form separately. Once clients get familiar, show the complete form. Then practice it combination with breathing.</p> <p>Step 5: Summarize the form 4 and give key notes.</p> <p>Step 6: Same as session 1-3 &amp; 5.</p>
<p>Session 7:</p> <ul style="list-style-type: none"> <li>• Warm up</li> <li>• Review and practice all the forms learned in past six sessions</li> <li>• Pair clients to perform Tai Chi movements with the demonstration of program facilitator</li> <li>• Program wrap up</li> </ul>	<p>Step 1: Greeting.</p> <p>Step 2: Same as Step 2 in previous sessions.</p> <p>Step 3: Recall the movements learned in past six sessions and practice with facilitator’s guide.</p> <p>Step 4: Ask clients to find a partner and practice together with the leading of program facilitator.</p> <p>Step 5: Correct clients and give the practice tips.</p> <p>Step 6: Same as session 1-3 &amp; 5-6.</p>
<p>Session 8:</p> <ul style="list-style-type: none"> <li>• Thanks to clients for cooperation</li> <li>• Warm up</li> <li>• Practice movements</li> <li>• Program evaluation, conduct post assessment using Modified Berg balance scale &amp; questionnaire</li> <li>• Registration with next period program</li> </ul>	<p>Step 1: Greeting and thanks to clients for cooperation</p> <p>Step 2: Same as previous sessions.</p> <p>Step 3: Recall all the movements learned and practice with facilitator’s guide.</p> <p>Step 4: Have more RTA help with the questionnaire. RT conduct the assessment to clients.</p> <p>Step 5: Promote next period Tai Chi program learning forms 5 to 8. Encourage clients to register.</p> <p>Step 6: Show appreciation to clients and give “Boost Certificate” to clients (create from internet).</p>

**Staff Requirements and Responsibilities:**

- RT with the qualification of Tai Chi coach
  - Program protocol planning
  - Clients screening and assessment
  - Risk management consideration
  - Program observations
  - Program evaluation
  - Program facilitate, delivery and observation
  - Communicate with inter-disciplinary team about any concerns
- RT Assistant
  - Attendance record
  - Venue setting and music prepare
  - Help client’s performance as needed
  - Distribute handouts

- Program observations
- Program delivery and facilitate

**Program Evaluation:**

- Table 1: Modified Berg Balance Scale

INSTRUCTIONS	DESCRIPTION - always mark the lowest category that applies	Possible Score	Date of asst: dd/m	
"Close your eyes and stand still for 10 seconds" - unsupported	Needs help to keep from falling	0		
	Unable to keep eyes closed x 3 sec, but steady	1		
	Able to stand for 3 seconds	2		
	Able to stand for 10 sec, no supervision	3		
	Able to stand for 10 seconds safely	4		
"Place your feet together and stand without holding on to anything"	Needs help to attain position, unable for 15 sec	0		
	Need help to attain positn, able x15 sec feet together	1		
	Can put feet together indep, unable hold x30 sec	2		
	Puts feet together indep, stand x1 min no supervision	3		
	Puts feet together indep, stand x 1min safely	4		
"Lift your arm to 90 deg, stretch your fingers & reach forward as far as you can" - unsupported	Needs help to keep from falling	0		
	Reaches forward but needs supervision	1		
	Can reach forward > 2" safely	2		
	Can reach forward > 5" safely	3		
	Can reach forward confidently > 10"	4		
"Please pick up the shoe/slipper that is placed in front of your feet" - unsupported	Unable to try/needs assist to keep from falling	0		
	Unable to pick it up & needs supervision when trying	1		
	Unable to pick it up, comes within 1-2",balance indep	2		
	Able to pick it up, needs supervision	3		
	Able to pick it up safely and easily	4		
"Turn your upper body to look over your L shdr. Now turn to look over your R shdr" - unsupported	Needs assist to keep from falling	0		
	Needs supervision when turning	1		
	Turns sideways only but maintains balance	2		
	Looks behind 1 side only; other side less wt shift	3		
	Looks behind both sides, wt shifts well	4		
"Turn completely in a full circle, pause, then turn in a full circle in the other direction" - unsupported	Needs assist while turning	0		
	Needs close supervision or verbal cueing	1		
	Able to turn 360 deg, safely, but slowly	2		
	Able to turn 360 deg to 1 side only in < than 4 sec	3		
	Able to turn 360 deg in < than 4 sec to each side	4		
"Place each foot alternately on the stool. Continue until each foot touches it 4 times" - unsupported	Needs assist to keep from falling/unable to try	0		
	Able to complete < 2 steps; needs min assist	1		
	Able to complete 4 steps, no assist, needs supervis	2		
	Able to stand indep, complete 8 steps, > 20 seconds	3		
	Able to stand indep,safely & do 8 steps,< 20 seconds	4		
"Place 1 foot directly in front of the other (or if can't, step enough so heel is ahead of toes)" - unsupported	Loses balance while stepping or standing	0		
	Needs help to step, but can hold for 15 seconds	1		
	Able to take small step indep and hold x 30 seconds	2		
	Able to place 1 foot ahead indep and hold x 30 sec	3		
	Able to place feet tandem indep and hold x 30 sec	4		
"Please stand on 1 leg as long as you can without holding on to anything" - unsupported	Unable to try or needs assist to prevent fall	0		
	Tries to lift leg, stays standing indep, unable x 3 sec	1		
	Able to lift leg indep and hold up to 3 seconds	2		
	Able to lift leg indep and holds for 5-10 seconds	3		
	Able to lift leg indep and hold more than 10 seconds	4		
<b>TOTAL SCORE</b>		<b>MAX 36</b>		

- Table 2: Evaluation Questions about Body Self-Awareness

Questions	Possible Score				Assess Date	Assess Date
I can feel body's natural movement with each breath	1	2	3	4		
I can use natural diaphragmatic breathing patterns?	1	2	3	4		
I am mindful with physical relaxation	1	2	3	4		
I am alert and calm at the same time	1	2	3	4		

I can be inner stillness while in motion	1	2	3	4		
I am aware of all parts of my body?	1	2	3	4		

- Table 3: Modified de Jong Gierveld's Loneliness Scale- evaluating social withdrawal improvement

	Statements	Y	N	Assess Date	Assess Date
I.	I have a really close friend who I talk to regularly				
ii.	There are plenty of people I can rely on when I have problems				
iii.	There are many people I can trust completely				
iv.	There are enough people I feel close to				
v.	I miss having people around				
vi.	I often feel rejected				
vii.	I can call on my friends whenever I need them				

These are seven statements for self-completion by clients. The statements may also be read to clients to determine their response. Interpretation is left to RT- with a positive answer (Yes) for statements v. and vi. or a negative (No) answer for the remaining statements serving as an indicator of social withdrawal.

### Research:

Stephanie S. Y. Au-Yeung, Christina W. Y. Hui-Chan & Jervis C. S. Tang (2009). Short-form Tai Chi improves standing balance of people with chronic stroke. *Neurorehabil Neural Repair*, 23, 515-522

- 12 weeks of short-form Tai Chi produced specific standing balance improvements in people with chronic stroke
- 136 subjects → 6 months after stroke were randomly assigned to a control group practicing general exercises or a Tai Chi group for 12 weeks of training
- 1-hour of group practice was supplemented by 3h of self-practice
- Short-form of Tai Chi consisting of 12 forms that require whole-body movements to be performed in a continuous sequence
- Blind assessor examined subjects at baseline, 6 weeks, 12 weeks and 18 weeks
- Three outcome measures:
  - dynamic standing balance evaluated by the center of gravity excursion during self-initiated body leaning in 4 directions
  - standing equilibrium evaluated in sensory challenged conditions
  - functional mobility assessed by timed-up-and-go score
- Results: when compared to controls, the Tai Chi group showed greater COG excursion amplitude leaning forward, backward and to the nonaffected side. The Tai Chi group also demonstrated better reliance on vestibular integration for balance and control

Shuri Yoshinaga & Dingfang Cai (2013). Tai Chi Quan and stroke prevention and rehabilitation. *International Journal of Integrative Medicine*, 1, 30

- Review article notes that Tai Chi improves gait, balance capacity and muscle strength while also modifying blood pressure, cholesterol and glucose levels

- Tai Chi is a safe and effective preventative measure that is suitable for stroke primary and secondary prevention
- Tai Chi exercises are very slow and smooth; suitable for stroke patients
- Tai Chi is effective at improving equilibrium and balance, preventing muscle atrophy and improving the difficulties associated with walking

**RT Signature and Date:**

**Appendices:**

- Aiping L. (2015). *Simplified Tai Chi Eight Methods Handbook*. Toronto, Ontario: Riverdale Immigrant Women's Centre in Partnership with Access Alliance.



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