

ACTION POTENTIAL REHABILITATION
Physiotherapy – Home and Clinic

Including People Living With Stroke in Community Exercise Programs

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We can save lives with aerobic exercise!
J. Eng

.... **but** when should we not exercise?

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When to stop ?


Monitor for:

- Fatigue
- Light headedness, dizziness, confusion
- “Off - colour” cold clammy
- SOB
- Chest pain, heaviness &/or radiation of discomfort into jaw or arm
- Joint or muscle pain
- Nausea or vomiting

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Contra-indications to exercise




- Unstable angina (chest pain)
- Unstable asthma (SOB or wheezing)
- Acute infection (temperature)
- Recent musculoskeletal injury – modify to allow participation?

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Contra-indications to exercise

Blood clot (DVT)

- Uncontrolled heart failure
- Poorly controlled diabetes
- Uncontrolled hypertension > 110 mmHg diastolic or > 180 -200 mmHg systolic
- “Racing” heart - resting tachycardia
- Dizziness



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Contra-indications to exercise


- Open wound / contagious skin condition
- Incontinence (relative)

These are only guidelines, use judgment always and consult a health professional as needed.

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Safety Guidelines


- Gentle warm-up and cool-downs help reduce extreme BP changes
- Rhythmical breathing, avoid Valsalva
- Use frequency and/or duration more than intensity
- Higher number of reps at lower loads
- Avoid over-use of “un-affected side”



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Methods of monitoring

- B.P. and pulse parameters (not if on Beta Blockers)
- Pain scale
- Fatigue levels
- Self-monitoring



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Borg scale – perceived exertion

1-10 Borg Scale of Perceived Exertion	
0	Rest
1	Really Easy
2	Easy
3	Moderate
4	Sort of Hard
5	Hard
6	
7	Really Hard
8	
9	Really, Really Hard
10	Maximal

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Resource
**Canadian Stroke Community based
 Exercise Programs - 2020** (Inness and Salbach)


- Guide to CEP - designing and delivering safe/ effective exercise programs for PLWS (mild to moderate impairment)
- 8 guidelines and recommendations
- Guide to Choosing a Community Exercise Program for PLWS and caregivers to evaluate/identify appropriate exercise opportunities in their communities

<http://ontariostrokenetwork.ca/stroke-qbp-resource-centre/stroke-rehabilitation-resource-centre/clinical-tools-and-resources-for-implementation/clinical-tools-resources-implementation-community-re-engagement/>
<http://canstrokecommunityexercise.ca/>

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Medical Clearance

- Exercise is not without *risks*
- Exercise can be undertaken with a high level of safety by most people including PWS (Inness et al 2020, Marzoli et al 2012, Gordon et al. 2004)
- Premise is - the benefits outweigh the risks
- Major potential health hazard - musculo-skeletal injury, cardiac incidents **and falls**





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Criteria for Participation - who is welcome/able?

Specific inclusion and exclusion criteria need to be developed

Inclusion Examples

- Ability to walk short distances w/wo device
- Ability to perform standing exercises, walk up ramp
- Ability to mimic or follow instructions

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Things to Flag from PAR – Q+

- BP
Contra-indicated : Uncontrolled hypertension > 110 mmHg diastolic or > 180 -200 mmHg systolic
- Diabetes T1 or T2 – insulin or oral meds, glucose source on hand
- COPD – inhalers
- Cardiac status – nitro

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Things to Flag from PAR – Q+


- PVD / circulation
- MSK Diseases e.g. osteoporosis, OA – which joints
- Any restrictions/precautions e.g. THR

What medications need to be accessed during class?

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Class Structure and Supervision
Tailored to inclusion criteria

- Ability of the exercise provider to work with persons with impairments due to stroke
- Staffing ratios, volunteer availability
- Range/level of impairments/ need for assistance
- Placement of PLWS in the class
- Standing/walking programs



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Today is the day that I am going to think about thinking about joining the gym

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Advice to Participants on Exercise Days

- Take meds as usual unless advised otherwise by physician
- "Washroom stop" prior to coming to class
- Wear comfortable clothing and closed shoes
- Bring meds that may be needed in class
- Bring glucose source (for participants with diabetes)

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Exercise Program Principles

- During the warm up, use low intensity many repetitions
- Start with good posture
- Remind participants to breathe
- Progress intensity gradually


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General Principles

- Try exercises that help with bilateral integration, such as the cross over exercises and alternating sides.

When leading the class, remember to



- SLOW DOWN
- MAKE IT FUN



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Exercise Program Principles

- * Specificity – use function based activities with meaning to participant e.g. sit to stand
- * Progressive Overload – increase challenge over time e.g. time or distance walked

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Alignment Matters

Alignment affects anticipatory and reactive core

Patients with decreased alignment compensate for the loss of stability by:

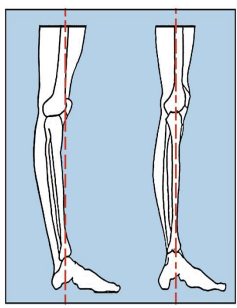
- * breath holding
- * recruiting tone
- * propping on less affected side
- * recruiting neck and shoulder muscles to maintain over BOS
- * fix with their head and eyes

As movement specialists we need to understand what is causing the malalignment & work to change reversible causes in order to optimize movement patterns and function

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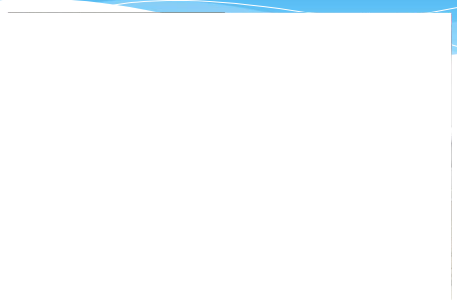
How you do it is important too!

- * Form and posture is important when exercising
- * Repetitive forces at end of joint range can cause damage
- * For example, walking with knee in hyperextension for long periods can damage structures behind the knee




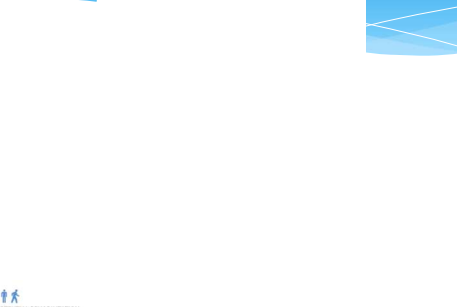
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Postural Alignment



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Standing Alignment



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BL right sided stroke LC left sided stroke

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Where is his trunk in reference to his BOS? How does this affect tone?

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Shoulder Alignment

- * Limited range
- * Painful shoulders or hands
- * Avoid pulleys and activities higher than 90 degrees

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Spasticity (tightness)

* Inability to move in and out of positions with ease


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Know Your Emergency Plan & Equipment

- Phone access
- Standard first aid supplies
- Defibrillator
- Emergency plan (practiced 2 x year)
- Staff roles - incident reports and follow up



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