FAME

Fitness And Mobility Exercise Program:
A community-based Group Exercise Program for People Living with Stroke

GUIDELINES & MANUAL

October 2006

The FAME Program was developed in Vancouver, Canada by Janice Eng, PhD, PT/OT with invaluable assistance from Andrew Dawson, MD, FRCP, Daniel Marigold, PhD and Marco Pang, PhD, PT.
with funding from the Heart and Stroke Foundation of BC and Yukon.

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Reasons to exercise if you are living with a stroke

Stroke is the number one cause of neurological disability in Canada today. Although some people with stroke will have received some rehabilitation after their stroke, residual physical impairments such as muscle weakness, pain, spasticity and poor balance, as well as cognitive impairments can lead to a reduced tolerance to activity and further sedentary lifestyle. Activities which promote fitness and mobility are imperative for the prevention of further pathological events such as falls resulting in fracture, recurrent strokes or heart attacks. Heart disease is the leading cause of death in people with chronic stroke. People living with stroke have higher than normal incidences of conditions such as diabetes and high blood pressure. Physical inactivity and poor cardiovascular fitness are major occurrences in persons with stroke and are risk factors associated with heart disease. However, these risk factors are modifiable and can be improved with exercise.

Stroke is also one of the top risk factors for incurring fractures as a result of a fall with a 3 to 7 fold increase in fracture risk following a stroke. Causes of fractures are multi-factorial, but improving balance and bone density can significantly reduce one's risk for a fall and subsequent fracture. The FAME Program has been designed to improve mobility, fitness and fall-risk. The FAME Program can serve as a complement to healthy living. We also advocate that people with stroke ensure they have appropriate pharmacological management if required (e.g., for heart disease, high blood pressure, osteoporosis) and suitable nutritional diet.

Research evidence behind the FAME program

Eng JJ, Chu KS, Kim CM, Dawson AS, Carswell A, Hepburn KE (2003). A community-based group exercise program for persons with chronic stroke. Medicine and Science in Sports and Exercise, 35, 1271-1278.

Marigold DS, Eng JJ, Dawson AS, Inglis JT, Harris JE, Gylfadóttir S (2005). Exercise leads to faster postural reflexes, improved balance and mobility, and reduced falls in older persons with chronic stroke. Journal of the American Geriatrics Society, 53, 416-423.

Pang MYC, Eng JJ, Dawson AS, McKay HA, Harris JE (2005). A community-based Fitness and Mobility Exercise (FAME) program for older adults with chronic stroke: A randomized controlled trial. Journal of the American Geriatrics Society, 53, 1667-1674.

The FAME Program was developed in Vancouver, Canada by Janice Eng, PhD, PT/OT with invaluable assistance from Andrew Dawson, MD, FRCP, Daniel Marigold, PhD and Marco Pang, PhD, PT. It has been tested in three trials with people with chronic stroke. The trials have shown improvements in balance function, balance confidence, walking speed, leg muscle strength, and quality of life. Trial 1 was an 8 week program and found that the program was effective in multiple health domains and people reported meaningful improvements in pain, muscle strength, walking endurance, activities of daily living, energy levels, mobility and self-perceived quality of life. Trial 2 was a 10 week program which tracked the number of falls in the

following 12 months once the program ended. The FAME group resulted in faster postural reflexes (reflexes that the body uses as a first-line defence to recover from a fall). In addition, the FAME group had a 30% reduction of falls in participants who had fallen prior to the trial (therefore, those at most risk) compared to the control group (slower moving program with weight-bearing and stretching exercises). Trial 3 was a 5 month program and found that bone density was lost over the 5 months in the control group, but maintained in the FAME group. In addition cardiovascular fitness was improved in the FAME group. We caution users about trial 3 as participants were screened by a standard cardiovascular stress test which permitted a higher intensity of training compared to the other trials. Nevertheless, walking endurance, mobility and fall risk was improved in all 3 trials. A variety of programs for people living with chronic stroke have been developed, but the FAME program stands alone in showing that it is effective for so many health domains.

Facilities and equipment

The FAME program has been undertaken in a community centre multi-purpose room, church hall and hospital multi-purpose room. Other ideal settings might be a hospital gym or daycare if available in the evenings. The only required equipment are stable chairs and standard exercise steppers. Weights or theraband can be added to the program, especially for participants of higher levels to provide increasing challenge. Heart rate monitors should be used if a cardiovascular component is implemented. The size of the room will be dependent on the number of participants. The room should comfortably fit a chair and stepper for each person and sufficient room to walk around the chairs and steppers with arms out wide.

Program summary

The purpose of the FAME Program is to optimize the physical ability of people living with a stroke and to minimize the risk of secondary complications such as falls, fractures and heart disease. The FAME Program was developed to address multiple domains, including balance, muscle strength, bone health, mobility, cardiovascular fitness and depression. The FAME Program was developed as a group program because our participants told us that this was the most important aspect that enhanced their adherence to the program. They said that the group setting was motivating, as well as socially stimulating. Given that depression can occur in up to 30% of people living with stroke, we feel that the social aspect of the program is a core element of the program. Component 1 is a short **warm-up** followed by a component of **stretching** exercises. A loss of joint range is common following stroke due to weakness, muscle stiffness, spasticity and inactivity. The third component is designed to address muscle weakness through **functional strengthening**. Altered motor coordination is evident following a stroke and improvements in movements are best accomplished by utilizing functional movements and postures under challenging conditions. Thus, most of the functional strengthening exercises are done in standing which has advantages in forcing weight-bearing and muscle activity through the limb affected by the stroke, improving bone density through limb loading, and challenging balance. The fourth component focuses on **agility and fitness** with quick repetitive movements. The fifth and last component challenges **balance** with slower exercises.

Who is appropriate for this program?

Participants in the research trials have involved people with stroke with mobility problems ranging from very slow walking speeds of 0.3 m/s to fairly normal walking speed of 1.0 m/s. All participants have been ambulatory to some extent. Many of the participants require the use of assistive devices such as canes, walkers and/or ankle-foot orthoses. A few used a power wheelchair for mobility, but could walk short distances (e.g., 3 metres) with minimal supervision. Thus, they could participate in the exercises using a hand support of a chair or wall. On the other hand, we have had a participant with mild stroke who played tennis regularly and another who skied, and both felt they benefited from the specific conditioning of the program for their stroke impairments. Although such varying levels can appear unmanageable in a group setting, our experience is that such diversity is helpful for many reasons. It creates a culture of encouragement among the varying levels of people. In addition, the instructor can often get a higher functioning group started on an exercise set and then spend more time with those who may need assistance on some exercises.

An individual who cannot perform standing exercises while holding onto a support is not appropriate for this program. However, the individual may have a caregiver who is trained and willing to assist with the exercises. This would need to be assessed on an individual basis.

We've had participants who did not speak the language of instruction (in our case, English) but some communication is necessary (perhaps through a family member) to ensure that the participant is not experiencing any adverse effects such as pain or fatigue.

Our participants were required to have "near-normal" cognition as assessed by the Folstein mini-mental test, but this was in part due to the requirement of completing the numerous study evaluation forms. Participants will need to be able to pay attention, follow instructions and mimic exercises for one hour. In addition, participants need to be aware of their safe bounds of ability. Thus, a person with impulsive tendencies may not be appropriate in this group program. It is important if a cardiovascular component is used that participants have sufficient language skills and cognitive function to understand the concept of "perceived exertion" and "target heart rates" so that overexertion does not occur.

We do recommend that a clinician (e.g., physical therapist, occupational therapist, nurse) who has experience in stroke be directly involved in the program as there will be some subjectivity as to who should participate in the program depending on the physical and cognitive abilities of the clients, the instructor:client ratio and caregiver assistance.

Duration of program

Each session lasts 1 hour. The program has been tested with a frequency of 3X/week and has been successfully tested with durations of 8-19 weeks. Ideally, a 3-4 month program is recommended to achieve sustainable benefits. We recommend a minimum of 8 weeks if undertaken 3X/week and a longer duration (12 weeks) if only 2X/week. In addition, we recommend an additional home exercise day if the group program is only 2X/week. If appropriate screening (e.g., stress test) and a cardiovascular component is used (e.g., training

intensity greater than 60% of heart rate maximum is used), we recommend a longer program duration of at least 4 months so that there is a gradual increase in training intensity.

Participant safety

We recommend that potential participants take a letter to their family physician which describes the program and asks for any information as to contraindications. The participant should return the signed letter to the instructor prior to commencing exercise activities. The level of screening will be dependent on the intensity of the program. If a significant cardiovascular component is present in the program, a screening stress test will be warranted given that people with stroke have a high incidence of heart disease.

Instructors and participants should be aware of signs and symptoms of when to stop the exercise. Participants should consult their physician if dizziness, chest pain or shortness of breath occurs. Participants with pain should have the exercises modified to work in a pain free range. Any participant who falls in the program should be referred to their physician or emergency if any discomfort is present. Hip protectors are highly recommended for all participants, and particularly for any participants who have fallen in the past. Remember that people with stroke have poor balance and often have osteoporosis on their stroke affected side, and this is a major risk for hip fracture.

Our experience is that the program can be done safely in a controlled environment. A competitive milieu is not encouraged as such spontaneity can lead to falls. In our trials, falls occurred in tasks involving ball tossing, walking relays, or walking on foam. Significant gains can still be made in this controlled environment which minimizes risks.

Our first program had more free walking activities (step over obstacles, walk on foam, figure of 8 walking), however, these are high fall risk activities and required one-on-one spotting or were not always possible for some individuals. The current program has options for arm support (wall/chair) for the most part. Your program may include these more difficult walking activities if you have sufficient staffing to be able to individually “spot” the more difficult tasks.

Instructors

All instructors and volunteers should have first aid and CPR. The ratio of instructor: client will depend on the level of participants but our trials ran with 1 instructor + 1 assistant/volunteer for 10 participants (1:5 ratio). The published clinical trials used lead instructors that were physical therapists or occupational therapists with clinical experience with stroke. The supporting assistants were kinesiologists, recreation therapists, fitness instructors, students and volunteers. We recommend that the lead instructor be an individual who has some clinical experience in stroke, as well as exercise prescription. The lead instructor should have an understanding of issues specific to stroke (e.g., presentation of stroke, transfers, spasticity, assistive devices, physical and cognitive impairments, co-morbidities). The lead instructor should be able to make judgments as to whether a participant should be excluded from the program or should be referred to seek their physician for advice. In addition, the lead instructor should be able to progress the exercises safely to avoid falls, excessive muscle soreness or fatigue and cardiovascular stress.

Depending on the experience of the assistants, the lead instructor will need to provide some training on the organization of the program, role the assistants should undertake and information on the presentation of stroke.

Individualization and progression

- The program is designed to require minimal "hands-on" assistance to encourage independent ability and to reduce resources needed for "spotting".
- Exercises are graded in their levels and progressed according to ability.
- Check regularly for excessive fatigue (fatigue that interferes with daily activity or sleep)
- Check regularly for any pain. Knee joint pain is common in older adults and modifications may be required for the repetitive sit to stand tasks.
- Any participants with known osteoporosis or osteopenia should avoid spine flexion and twisting exercises (rounding of the back during any exercise, knee to chest stretch, side stretch).
- All exercises can be modified by holding the back of a chair or side of the wall. Stacking 2 chairs can provide a higher hand hold (check chair stability!) for use during the stepper exercises.
- Rest as necessary

Re-assessing

A number of valid clinical tests exist to measure progress. Two simple tests are the Timed up and Go Test (Time to stand up from a chair, walk 3 meters, turn around and walk back to the chair and sit down) or the longer 6 Minute Walk Test (distance walked over 6 minutes using a long hallway or rectangular path).

Strategies for grouping participants

The first day will likely be the most difficult for the instructor(s) especially if a pre-assessment was not possible. We have run the class in two different formats. With a small class, a single group format can be used where all participants move through the components together. In larger groups with multiple instructors, the class can be run as a circuit where there is a common warm-up and stretching period, but then participants are divided into groups and go to the functional strengthening station, balance station or agility station. Each instructor is then designated a station and the participants rotate from station to station upon the lead instructor's call. With the circuit, you may have a limited number of specialized equipment such as weights or theraband which you can locate at a particular station (e.g., the functional strengthening station). If the room is restrictive in space, it is difficult to have all participants doing exercises like the traveling side step and thus, the circuit may provide a space solution. Specific grouping of participants in the circuit may also be beneficial. For example, our instructors found that they preferred a mixture of low and high functioning participants in one group as that allowed them to provide more supervision to the low functioning participants. If you choose a circuit format, it is important to bring the group back together at the end (can be done as a cool-down) to acknowledge the whole group and close the session. We usually ran the first class (and sometimes second class) as a single group format and then grouped participants into the circuit

format after that. Groups were never rigid as participants were sometimes absent/late or because an instructor felt a different grouping was appropriate due to personalities or physical abilities.

Maximizing adherence and having fun

Adhering to regular exercise is difficult for everybody. There is no doubt that a charismatic instructor can make a huge difference in motivating participants. However, a number of initiatives can be done to maximize adherence.

Encourage socialization! Encourage fun!

Have participants wear name tags for the first few sessions. Plastic pin-on badges are inexpensive and can be re-used. Have participants leave the name badges with the instructor at the end of class else they get lost. Encourage the instructors to say the names of participants so people hear the names and can learn them quicker.

Use the warm-up at the beginning to generate a short dialogue on one topic. "Anyone going to the Garden Show this weekend?" "Did you hear that Gail is a new grandmother" "Did you know that instructor Bill just got engaged?" "Did you know that Vancouver set a new record for rain last month?"

Transportation is often the top barrier to attending an exercise program. If participants are agreeable, post a sheet where participants can record their home location and look for car pool partners. Encourage people to car pool with participants who drive or with caregivers.

Have a potluck tea (cookies, snacks) after the mid-way class and after the final class.

Set up a venue where participants can exchange phone/e-mails if in agreement.

Take a group photo and e-mail to the class.

Distribute a 1 page weekly newsletter if resources are available. We presented Healthy Heart recipes, announcement of local events (e.g., local flower show), gardening tips, health tips (e.g., benefits of calcium on bone) and the occasional personal announcement (participant announced a new grandchild).

We found that many participants enjoyed background music, especially if they were familiar with the music. But they did not want loud music as in a typical aerobic class (disaster for those with hearing devices), nor do they want to attempt to do their exercises to any regimented musical "beat". In one class, participants brought their favorite CDs or tapes which were played and this created a focal point of discussion for the classes.

Some partners/spouses wanted to participate in the program to get some exercise themselves (may be dependent on your space and their abilities). Others appreciated the extra time to themselves.

Our older adult participants like the predictability and repetition of the program. They felt that knowing the program made them feel comfortable and less stressed. Thus, new exercises or variants of exercise can be introduced, but should be done slowly with the majority of the program remaining the same.

Tips about the program

The manual provides pictures and instructions for each exercise. Not all exercises should be done at the beginning as participants will need several sessions to become familiar with them and to increase their tolerance to exercise. In slower groups, you can reduce the program content by eliminating redundant exercises. For example, only do the sit-to-stand and walk around the chair and not the sit-to-stand exercise alone. All participants should have screening by their physician. If cardiovascular screening (stress test) is not performed, a moderate intensity should be undertaken in the program. This would involve exercise which would commence at levels just above resting heart rate and work towards intensities of 50-60% age-predicted heart rate maximum, perceived exertion of “fairly light” to a maximum of “somewhat hard” and participants should be able to converse comfortably with little effort. In addition, exercise should be intermittent with rests and gradually increase to continuous. In our published third trial, participants were screened by a stress test and the protocol commenced at 40-50% heart rate reserve, with increments of 10% heart rate reserve every 4 weeks, up to 70-80% heart rate reserve, as tolerated.

Health Screening Form

Name: _____ Date: _____

Address: _____

Phone: _____

Emergency Contacts (names, phone numbers):

_____

_____

1. Are you currently exercising or physically active?

   Yes_____ No_____

2. Describe your current exercise program or physical activities.

_____

_____

3. Do you use any of the following:

   Cane_____ Walker_____ Manual wheelchair_____ Power/electric wheelchair_____

4. Can you stand up from a chair by yourself?

   Yes_____ No_____

5. Can you stand by yourself without holding on to anything?

   Yes_____ No_____

The Canadian Society for Exercise Physiology recommends consulting your doctor before increasing your activity level.

Medical Information Form

Dear Doctor:

Your patient _____wishes to participation in the Fitness and Mobility Exercise Program (FAME) for People with Stroke. This program will include a 5 minute warm-up, 5 minute stretching component, 15 minute functional strengthening (e.g., repetitive sit-to-stand), 15 minute fitness and agility (e.g., step up stepper while holding onto support) and a 15 minute balance component (e.g., standing and reaching). The intensity will be gradually increased to a moderate intensity of 60% age-predicted heart rate maximum (i.e., able to still converse comfortably with little effort).

By completing this form, you are not assuming any responsibility for the exercise. However, this information will help us to determine whether your patient is appropriate for the program.

I consent to and authorize _____to release to _____, health information concerning my ability to participate in the exercise program. Authorization is not valid beyond 6 months from the date of signature. Further disclosure of release of my health information is prohibited without specific written consent of person to whom it pertains.

Participant's signature:	Date:
Instructor's signature:	Date:

Physician's Recommendation (please check 1 box)

	I am not aware of any contraindications toward participation in this program
	I believe the applicant can participate, but urge caution because:
	The applicant should not engage in the following activities:
	I recommend the applicant **NOT** participate in the above exercise program.

Physician's signature:	Date:
Physician name (print):	
Address:	

Modified Physical Activity Readiness Questionnaire (PAR-Q)

Name:	Date:
DOB:	Age:

Regular exercise associated with many health benefits, yet any change in your activity level may increase your risk of injury. Completion of this questionnaire is a first step when planning to increase the amount of physical activity in your life. Please read each question carefully and answer every question honestly:

Yes	No	1) Has a physician ever said you have a heart condition and you should only do physical activity recommended by a physician?
Yes	No	2) When you do physical activity, do you feel pain in your chest?
Yes	No	3) When you were not doing physical activity, have you had chest pain in the past month?
Yes	No	4) Do you ever lose consciousness or do you lose your balance because of dizziness?
Yes	No	5) Do you have a joint or bone problem that may be made worse by a change in your physical activity?
Yes	No	6) Is a physician currently prescribing medications for your blood pressure or heart condition?
Yes	No	7) Have you been diagnosed with Osteoporosis or had any fractures?
Yes	No	8) Do you have any lung or breathing problems?
Yes	No	9) Do you have insulin dependent diabetes?
Yes	No	10) Do you know of any other reason you should not exercise or increase your physical activity?

If you answered yes to any of the above questions, if you are over 40 years of age and have been inactive, or if you are concerned about your health, talk with your doctor BEFORE you participate in a fitness test or become substantially more physically active. Tell your doctor your intent to exercise and to which questions you answer yes.
If you answered no to all questions you can be reasonably positive that you can safely increase your level of physical activity **gradually**.

Signature:	Date:

FAME

Fitness and Mobility Exercise Program

Warm-up - 5 minutes

- Slow marching
- Slow marching and swinging arms
- Knee circles
- Ankle circles

Slow Marching

Alternate knee raises.
Steady yourself with a chair or wall if needed.

Slow Marching and Swinging Arms

Alternate arm and knee raises.
Steady yourself with a chair or wall if needed.

Knee Circles

1. Bend your both knees together.
2. Hold your knees with your both hands.
3. Move your both knees at the same time in a circle.
4. Switch directions.

Ankle Rotations

OR

1. Sit on a chair or stand on one foot and hold onto wall or chair.
2. Make a full circle of your ankle.
3. Switch ankles.

Stretching – 5 minutes

3 stretches on each side

- Trunk side stretch
- Trunk and head rotation stretch
- Calf muscle stretch
- Thigh muscle stretch
- Buttocks muscle stretch
- Hamstrings muscle stretch

Trunk Side Stretch

1. Place your right arm over your head, bending your trunk to the left.
2. Hold for count of 5.
3. Change to the other side.

Trunk and Head Rotation Stretch

1. Keep your hips facing forward and just turn your upper trunk and head to the right. Hold for count of 5.
2. Switch sides.

Calf Muscle Stretch

1. Steady yourself with a chair or wall.
2. Keep your feet pointed forward with right knee in front and left knee straight.
3. Slowly bend your right knee until you feel a stretch in the back of your left calf.
4. Make sure you keep your left heel on the ground.
5. Hold for count of 10.
6. Switch your left leg to the front and repeat.

Thigh Muscle Stretch

1. Using a chair or wall for balance, bend your left knee and hold your left foot with your left hand. Keep your thighs together, and your left knee pointing towards the ground.
2. Maintain a straight back during the stretch. You should feel a stretch in the front of your left thigh.
3. Hold for count of 10.
4. Switch to the opposite side.
5. If you cannot reach your foot, you may need a helper to apply the stretch.

Buttocks Muscle Stretch

1. Sit on a chair.
2. Pull shin as close to the chest as possible.
3. Hold for count of 10.
4. Change to the opposite leg.

Hamstrings Muscle Stretch

1. Sit on a chair with one leg straight.
2. Lean forward, try to reach the front foot.
3. Hold for count of 10.
4. You should feel the stretch in the back of the leg.
5. Change to the other leg

Functional strengthening – 15 minutes

Start with 2 sets of 5 reps and increase gradually to a maximum of 3 sets of 10 reps

- Heel-toe raises
- Chair push-ups
- Sit-to-stand
- Sit-to-stand & walking around a chair
- Wall push-ups
- Wall sit

Toe Raises



1. Stand up tall beside a chair or wall.
2. Use the chair for balance only and look ahead.
3. Raise the heels off the floor to balance on toes and hold for count of 3.
5. Lower the feet to the ground.

Grading: Increase to 3 sets of 10. Progress to one foot and/or reduce hand support.

Level 1: With hand support.
Level 2: 1 foot with hand support.
Level 3: Additional set with 2 feet without hand support.

Heel Raises

Grading: Increase to 3 sets of 10. Reduce hand support.

Level 1: With hand support.

Level 2: No hand support.

OR

1. Stand up tall beside a chair or wall.
2. Use a chair for balance only and look ahead.
3. Left the toes off the floor to balance on heels. Upper body lean forward to keep balance. Hold for count of 3.
3. Lower the feet to the ground.
4. A light chair can tip if pulled. Use a wall or banister as an alternative.

Chair Push-Ups



1. Sit on a chair, place the hands on the armrest.
2. Push up your upper body (with your both hands if possible) and hold for count of 3. Keep back straight.
3. Sit back down.

Grading: Increase to 3 sets of 10.
Level 1: Arms take some weight, but buttocks remain on chair. If affected arm is unable to take weight, use unaffected arm and legs to lift buttocks.
Level 2: Use legs and arm to lift buttocks
Level 3: Take the weight only through the arms.

Sit-to-Stand



1. Sit on a chair.
2. Place the feet behind the knees.
3. Lean forwards over your knees.
4. Push off with or without your hands to stand up.

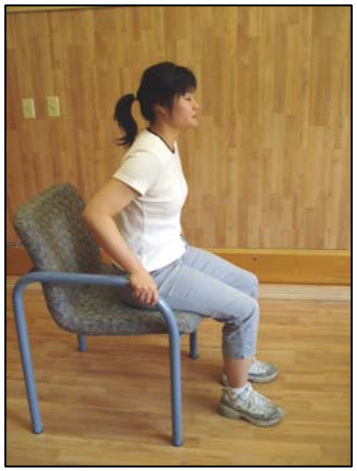
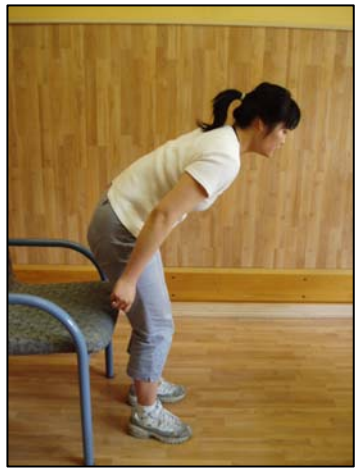
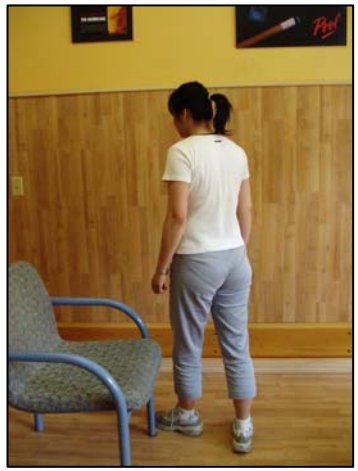
Grading: Increase to 3 sets of 10.

Level 1: Use arm rests to assist movement or introduce trunk rocking and forward . swinging motion of arms (unaffected hand can grasp affected hand). Ensure that the affected leg is not ahead of the unaffected leg.

Level 2: No arm use to assist movement.

Level 3: Combinations of the following can be used to increase difficulty and variety of task, 1) use a low chair or place a low stepper under the feet, 2) place the feet further ahead and not under the chair, 3) repeat at fast speed and 4) repeat with fast motion up and slow motion down.

Sit-to-Stand & Walking around a Chair



1. Sit on a chair.
2. Stand up with or without hand support.
3. Walk around the chair.
4. Sit back down.
5. Repeat again but walk towards the other side.

Grading: Increase to total of 5 in each direction.
Level 1: Use hand hold (the chair).
Level 2: No hand support.

Wall Push-Ups



1. Place hands on the wall.
2. Bend your arms and lean your upper body forward slowly.
3. Straighten your arms and push your upper body back.
4. Keep your body in a straight line.

Grading: Increase to 3 sets of 10.
Use stomach muscles and keep back straight.
A pelvis tilt during the push up can help to focus on the trunk

Level 1: Stand ½ arm length away from the wall and perform push up. Can use just the unaffected arm if the affected arm cannot be placed on the wall.

Level 2: Increase the distance from the wall to a maximum of shoulder to finger tip length away from the wall and perform push up.

Level 3: Bend one leg and perform push up (very difficult).

Wall Sits



1. Lean your body against the wall. Look forward.
2. Bend your knees and move your body downwards while keeping your back against the wall.
3. Hold for count of 3.
4. Stand up.

Grading: Increase to 3 sets of 10.
Use stomach muscles to keep the back straight. A pelvis tilt during the squat can help to back against the wall and to use the stomach muscles.

Level 1: Bend the knees slightly to a comfortable position.

Level 2: Bend the knees to 90 degrees.

Level 3: Bend the knees to 90 degrees and lift the heels off the ground (very difficult).

Balance – 15 minutes

- Slow weight-shift
- Forward reach
- Heel to toe standing
- Heel to toe walking
- Standing on one leg

Slow Weight-Shift

1. The feet are 1.5 times shoulder-width apart.
2. Bend left leg and shift weight to the left leg for a count of 5.
3. Back to the initial position and repeat to the right side.
4. Repeat with right foot ahead and then left foot ahead of the other.

Grading: Increase to total of 5 weight-shifts to right side, left side, forward and backward with right foot ahead, forward and backward with left foot ahead.

Level 1: Use hand hold (wall or chair).
Level 2: No hand support.
Level 3: Add arm reach.

Forward Reach



1. The feet are shoulder-width apart.
2. Raise right arm to the shoulder level if possible.
3. Lean forward as far as possible for a count of 5.
4. Back to the initial position.
5. Switch side.

Grading: Increase to total of 10 reaches (5 on each side).

Level 1: Use hand hold (wall or chair).
Level 2: No hand support.
Level 3: Both arm reach forward.

Heel to Toe Standing

1. Place one foot directly in front of the other so they form a straight line.
2. Hold this position for 10 seconds.
3. Change position and place the foot behind directly in front.
4. Hold this position for 10 seconds.

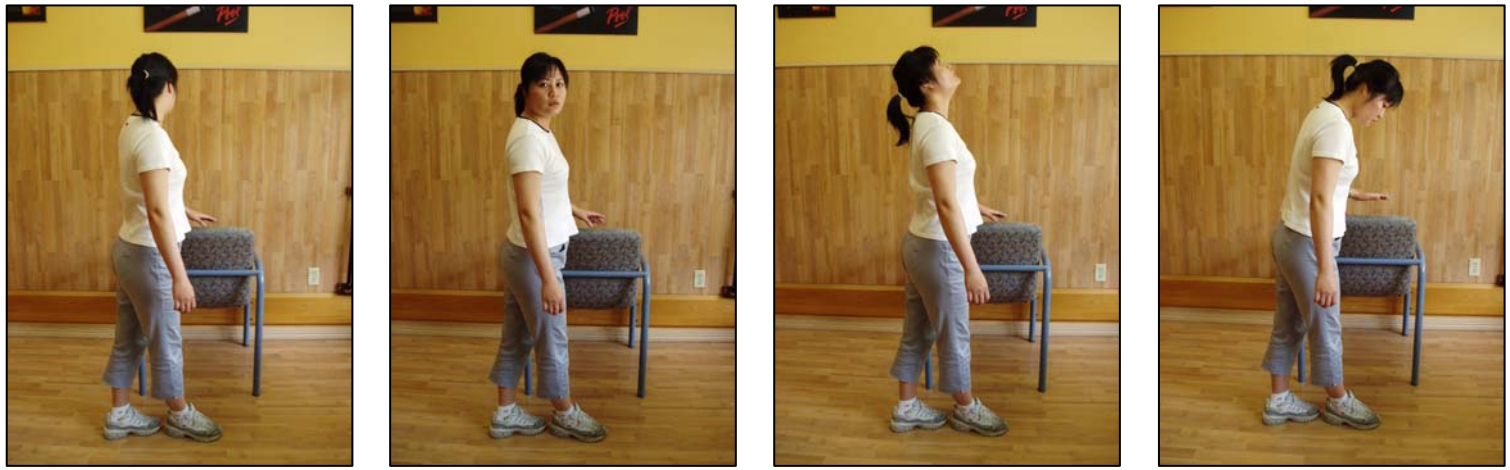
Grading: Increase to 3 sets with right foot in front and 3 sets with left foot in front. Narrow the stance and reduce hand support.

Level 1: Wider stance and use hand support (wall or chair).

Level 2: No hand support but wider stance.

Level 3: Narrow stance.

Heel to toe standing (Advanced)



1. Place one foot directly in front of the other so they form a straight line.
2. Turn head slowly to different directions (left, right, up and down).
3. Hold each direction for a count of 3.

Grading: Increase to 3 sets with right foot in front and 3 sets with left foot in front. Narrow the stance and reduce hand support.

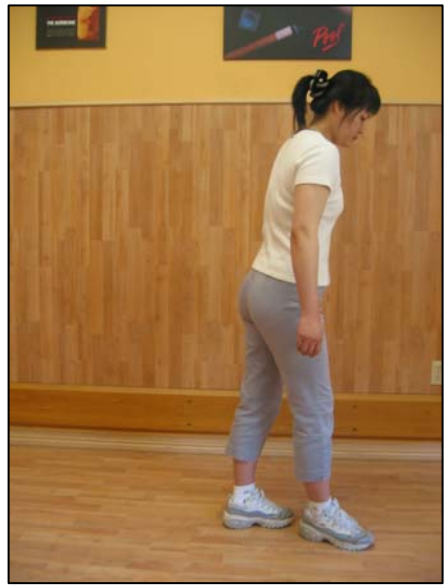
Level 1: Use wide stance and hand support (wall or chair).

Level 2: No hand support but wider stance.

Level 3: Narrow stance.

Forward & Backward Heel to Toe Walking





1. Place one foot directly in front of the other so they form a straight line. Take 10 forward steps.
2. Place one foot directly behind the other so they form a straight line. Take 10 backward steps.

Grading: Increase to 3 sets of forward and backward steps. As arm support is difficult for this exercise, this should not be attempted if the heel-toe standing cannot be done. Two lines of chalk or tape can create wider or narrower widths.

Level 1: Wide base of support.

Level 2: Narrow space between toe/heel in forward/backward and side to side direction.

Standing on One Leg

1. Stand beside a chair or a wall.
2. Raise one leg.
3. Hold for a count of 3.
4. Switch to another leg.

Grading: Increase to 3 sets of 10.

Level 1: Use hand hold with wall or chair.
Level 2: No hand hold.
Level 3: Heel raise with one leg standing (very difficult).

Agility and Fitness – 15 minutes

Start with 5 minutes of exercises (e.g., 1 minute of an exercise followed by 1 minute rest for each of the 5 exercises for a total of 10 minutes). Gradually increase to continuous exercise. Perceived exertion should be Borg 4-5 out of 10 (“fairly light to somewhat hard”) and can still converse comfortably with little effort.

- Front stepper to back stepper
- Side Stepper
- Traveling side & forward step
- Fast Marching
- Quick weight-shift

Forward Backward Stepper

1. Move one foot forward up the stepper and other foot joins.
2. Move one foot forward down to the ground and the other foot joins.
3. Then step backward up the stepper and the other foot joins.
4. Move one foot to the ground and other foot joins.

Level 1: Use hand hold with wall or chair.
Level 2: No hand hold.
Level 3: Use higher stepper or double stepper.

Note: A simpler version can be done with just a forward placing step to the top and same foot comes down again. Switch feet.

Side Stepper

1. Move your left leg to the stepper with or without hand hold.
2. Move your right leg up to the stepper.
3. Move your left foot to the ground.
4. Move your right food to the ground.
5. Double-stacked chairs can provide a higher hand hold if necessary.

Level 1: Use hand hold with wall or chair.
Level 2: No hand hold.
Level 3: Use higher stepper or double stepper.

Traveling Side Step




1. Left leg makes a big step to the left into a lunge. Join right leg and then make another large left step.
2. Continue across the room.
3. Switch so the right leg leads.

Level 1: If arm support is needed, a wall or long table can be used and alternate between a right and left step.

Level 2: No hand hold.

Traveling Forward Step

1. Left leg makes a big step to the front into a lunge. Join right leg and then make another large forward step start with left leg.
2. Continue across the room.

Level 1: If arm support is needed, a wall can be used.

Level 2: No hand hold.

Fast Marching

Alternate knee raises.
Marching as fast as possible but safely.
Steady yourself with a wall if needed.

Quick Weight Shift




1. The feet are 1.5 times shoulder-width apart.
2. The instructor will say right or left in a random sequence. As fast as possible, lean and shift weight to the designated leg as far as possible when you hear the direction.
3. Repeat in a forward lunge position (lean forward or backward) and then switch feet.

Level 1: Use hand hold (wall or chair).
Level 2: No hand support.
Level 3: Advance to step with weight shift.

Cool-down – 5 minutes

Can repeat any of the warm-up or stretching exercises.