

Appendix A: Movement Pattern Training Patient Education Document

Hip joint pain

- Hip joint pain may be due to one of more of the following:
 - o Trauma, such as an accident or a fall.
 - o Related to repetitive movement patterns used during daily activities, including work and fitness.
- Factors that may also contribute to why you have hip joint pain include:
 - o Bony abnormalities of the femur or pelvis that affect the amount of motion at your hip.
 - o Hip muscle imbalances (weakness, stiffness) due to performance of repetitive movement patterns.

Overall Goals of treatment

- Reduce stresses on the hip joint by optimizing biomechanics during functional tasks.
- Improve muscle performance through active practice of functional tasks.
- Modify abnormal movement and alignment performed during symptom-aggravating tasks.

Education

- Pain management
 - o Ice
 - o Rest
- Pain-relieving medications
- Activity modification based on the best positioning and movements of the hip joint

Exercises

You will be receiving exercises to improve lower extremity alignment during daily activities. These exercises may result in muscle soreness, however the exercises should not increase your hip joint pain. If any exercise increases your hip joint pain, try the following:

1. Review exercise handout to be sure you are performing correctly. If you were performing incorrectly, correct performance. If pain is decreased with corrected performance, continue with exercise as instructed.
2. If you are performing correctly, and you are
 - a. experiencing pain at the very end of the motion, reduce the range of motion that you are performing. Continue to perform the exercise with the limited motion until you see your physical therapist.
 - b. experiencing increased pain after a certain number of repetitions, perform only the number you can perform without increased pain. Continue to perform the exercise at this reduced number of repetitions until you see your physical therapist.
3. If pain is not alleviated with the above corrections, discontinue the aggravating exercise until you see your physical therapist.

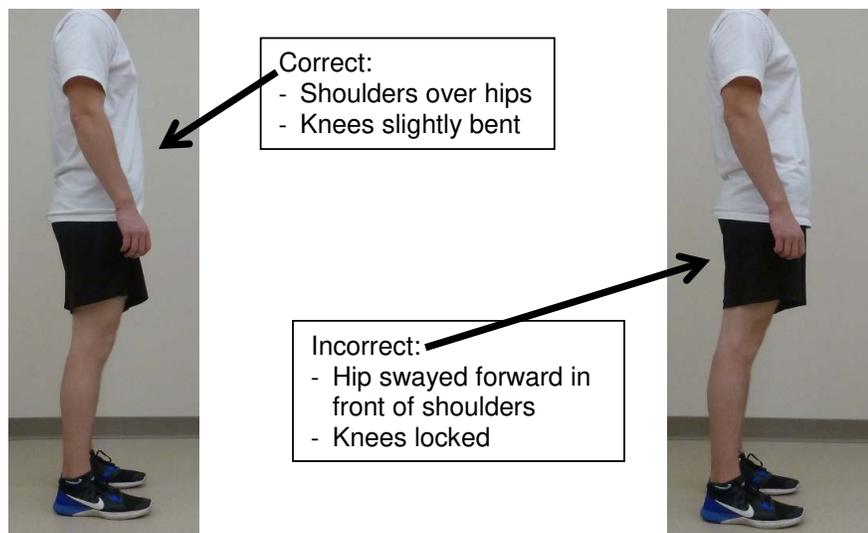
Activity modifications

1. Painful postures and movements may be due to an abnormal alignment between your pelvis, knees and feet while you are performing your regular daily activities. The exercises that you will be receiving will directly address any abnormal alignment or movements that you may demonstrate while you are moving throughout your day. Every move without pain causes less irritation and leads to the road to recovery!
2. See below for modifications for positions, such as standing, sitting and sleeping that may also reduce stresses to the hip joint structures and help to decrease your pain.

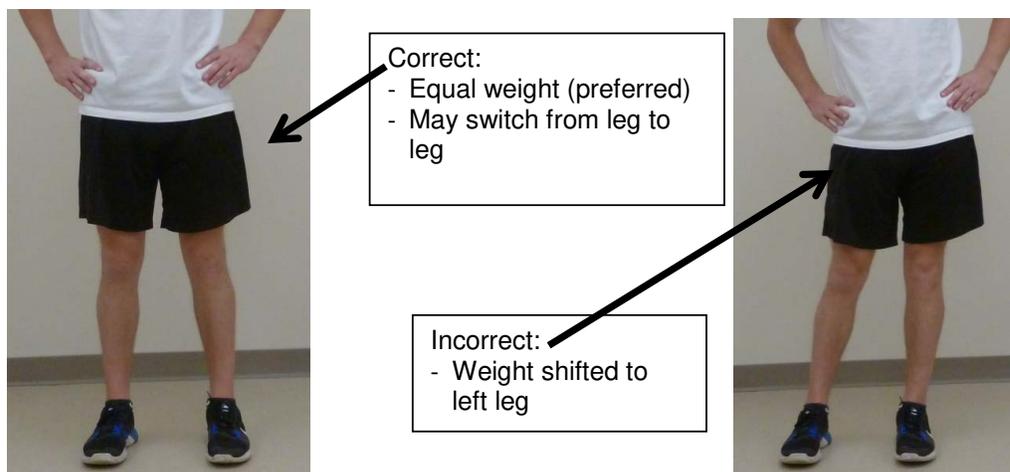
STANDING

Key concepts

- Avoid prolonged periods of standing if possible.
- Allow there to be a slight bend in your knees. Don't stand with your knees locked.
- Keep your shoulders over your hips. Don't stand with your hip swayed forward.



- Stand with equal weight on both legs. Don't stand with weight on one leg for prolonged period of time.



SITTING

Key concepts

- Position yourself so that your knees are aligned with your ankles. While sitting, your feet should be supported (flat on the floor). Back should be supported, with shoulders positioned over hips.
- Limit amount of time sitting. At minimum, get up out of chair every 30 minutes. During times of prolonged sitting, set a timer to provide a reminder.



Correct

- Sit with your hips slightly higher than your knees. You may need to raise your chair or use a pillow or wedge in your chair.



Correct

- Do not cross your legs: leg around leg, thigh over thigh, ankle over knee, or sit on one leg/having one leg pulled up under you.



Incorrect



Incorrect



Incorrect



Incorrect

DRIVING: use the above concepts for sitting to adjust your seat for driving

- o If your car has bucket seat, a pillow may be placed in the seat to raise the hips.
- o Don't allow the thigh to roll in for prolonged periods of time.
- o If you have pain when you lift your leg to change pedals, try to keep heel on the floor and pivot your foot from pedal to pedal.

SLEEPING

Key concepts

- Avoid extreme hip flexion or rotation:



Incorrect



Incorrect



Correct

- When sleeping on your *side*, use pillows between your knees to keep your legs parallel to the floor.



Correct



Incorrect

SLEEPING cont.**Key concepts**

If you have pain in the following positions, try these modifications:

- When sleeping on your stomach, place a pillow under your hips.



- When sleeping on your back, place a pillow under your knees.



- When sleeping on your side, you may reduce pressure on your hip by
 - placing towel rolls above and below the hip bone.
 - a towel roll under the waist.

**MOVING IN BED**

- ___ When getting out of bed, roll to your side first, then sit up from the side lying position. Do not sit straight up.
- ___ When rolling on to your side, keep your hips in line with your shoulders. Do not twist. Roll like a log. It may be helpful to place a pillow between your knees.

RETURN TO FITNESS

It is important to participate in physical activity to maintain or improve your overall health. Because of your injury, you may need to refrain from or limit your activities to allow for healing. Once you and your physical therapist have determined that it is time to return to your fitness routine, your physical therapist will assist you in designing a program to gradually return to your activity. Below is an example of a return to running program. Please discuss with your physical therapist prior to initiating the running program or other physical activity.

Example program to progress running:

Basic instruction for progressing program

- stay at each level for 2 runs minimum
- if pain is experienced during a level, go down to the previous level

___ Level 1: 15 seconds run/45 seconds walk x 4

___ Level 2: 30 seconds run/1 minute walk x 4

___ Level 3: 1 minute run/1-2 minutes walk x 4 building up to 10 (4-10 minutes total of running)

___ Level 4: 2 minutes running/1 minute walk x 5 building up to 12 (10-24 minutes total of running)

___ Level 5: 3 minutes running/1 minute walk x 8 (24 minutes running)

___ Level 6: 4 minutes running/1 minute walk x 6 (24 minutes running)

___ Level 7: 6 minutes running/1 minute walk x 4 (24 minutes running)

___ Level 8: 8 minutes running/1 minute walk x 3 (24 minutes running)

___ Level 9: 12 minutes running/1 minute walk x 2 (24 minutes running)

___ Level 10: 15-20 minute solid run

___ Level 11: Build by 1-3 minutes per run until you are at your goal distance

Movement Pattern Training – Treatment Progression For use by treating physical therapists					
Task – Movements*	Level 1	Level 2	Level 3	Level 4	Level 5
1. Sit to Stand Stand to Sit	Sit to Stand	Slow lowering to seat w/o resistance	Slow lowering to seat with resistance	Slow lowering to seat progress resistance	Slow lowering to seat (tap only) with resistance
2. Single leg activities	Weight shift	Single leg stance with hold	Single leg squat with hand support	Single leg squat	Single leg squat with resistance
3. Ascending stairs(6-8") Goal: 8 inch height	Step up with upper extremity support	Step up w/o upper extremity support	Step up with resistance (increase height or theraband)	Step up progress resistance (increase height or theraband)	Step up with increased speed, no resistance
4. Side stepping	Swing leg to side and tap (hip abduction)	Side step	Side step with resistance	Side step progress resistance	Side step progress resistance
5. Walking	Weight shift, advance opp foot, tap heel (midstance)	Stance (Heelstrike to toe off) while advancing opp foot	Practice walk 30 seconds	Increase time	Increase speed
6. Descending stairs (6-8") Goal: 8 inch height	Step down with upper extremity support	Step down w/o upper extremity support	Step down with resistance (increase height or theraband)	Step down progress resistance (increase height or theraband)	Step down with tap. Goal to tap heel, but may start with tapping toe
7. Forward bending	Forward bending with support	Forward bending w/o upper extremity support	Forward bending with resistance	Forward bending with resistance	Forward bending with resistance
8. Stance with movement	Stand on step, swing opp leg, small arc	Stand on step, swing opp leg, large arc	Stand on step, swing opp leg, large arc fast	Stand on step, swing opp leg, large arc fast (compliant surface)	
Task – Position					
Standing	Participant will be provided instruction during the initial 2 visits. Each activity will be assessed during follow up visits, until the participant is independent in the task. To be independent in the task, the participant must verbalize and demonstrate proper performance. Once the participant is independent in a positioning task, they no longer need instruction, unless upon patient request.				
Sitting					
Sleeping					
Patient-specific	Tasks will be identified by the participant during their baseline assessment using the Patient Specific Functional Scale. Activities				

tasks†	typically include work-related activities such as standing and sitting or fitness/sport activities. Tasks will be practiced and progressed in difficulty based on participant performance. See example of Return to Running program below. Similar concepts may be used for other tasks
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* **The goal of exercises 1-8:** To improve impaired movement pattern of the lower extremity during functional tasks. The primary movement impairments targeted during these exercises are movements of excessive hip adduction and internal rotation. Excessive hip extension should also be addressed. The treating physical therapist may use verbal cues, demonstration, mirrors or tactile cues to assist the patient.

***To assess for appropriate level at the initial visit (Ex 1-8):** For each task, first observe the participant's natural movement pattern. Note any excessive movement impairments such as excessive hip adduction (medial collapse pattern or excessive pelvic drop) or hip and knee hyperextension.

- If impairment is present, educate the participant in the corrected movement pattern and determine if participant can perform the corrected task independently. Key concepts for each task are provided on the exercise handouts.
 - o If the participant has difficulty with correcting the movement pattern, they will likely begin with level 1.
 - o If the participant is able to correct the impaired movement pattern easily, they will likely begin with a higher level; start assessment for repetition prescription at level 2 or 3.
- If no impairment is present, educate the participant in the key concepts for that movement and assess for repetition prescription. They will likely begin with a higher level. Start assessment for repetition prescription at level 3.

***Prescription for repetitions (Ex 1-8):** The appropriate level of exercise is one in which the participant fatigues between 8-25 reps. Beginning with level determined in the previous step (appropriate level). At each tested level, if participant is able to complete > 25 reps without fatigue and using the appropriate movement pattern, assess the next level. Repeat until the appropriate level is determined. Use the same procedure to determine level of resistance. The number of repetitions the person can perform will be used to determine the exercise parameters. **Parameters:** Perform 2-3 sets, 8-10 reps 1x/day. Resistance can be provided with theraband, ankle weights or weight equipment. Participant is progressed to the next level when they can perform 3 sets of 8-10 repetitions with ease and demonstrating good mechanics at the hip and knee.

If patient experiences a production of or an increase in hip joint pain compared to at rest with a specific exercise, modify exercise by

1. Ensuring the patient is performing correctly.
2. Regressing to an exercise of a lower level.
3. Limit the range of motion the patient is performing.
4. If neither of the above modifications result in reduction of hip joint pain experienced, do not assign the exercise. Try the exercise the following week.

†**Patient-specific tasks:** The primary goal for patient-specific tasks is to improve an impaired movement pattern during performance of the task. First observe the participant's natural movement pattern. Note any excessive movement impairments such as excessive hip adduction (medial collapse pattern or excessive pelvic drop) or hip and knee hyperextension.

- If impairment is present, educate the participant in the corrected movement pattern and determine if participant can perform the corrected task independently. Key concepts will be task-specific, using similar key concepts provided for the daily task.

- If the participant has difficulty with correcting the movement pattern, break down the movement and have them practice specific phases of the task. Once they are able to perform the task correctly, encourage to continue to use key concepts during performance of the task. The task is then progressed by increasing the time participating in the task to reach the participant's goal.
- If the participant is able to correct the impaired movement pattern easily or if no impairment is present, encourage the participant to use the key concepts during performance of the task. The task is then progressed by increasing the time participating in the task to reach the participant's goal.
- In addition to addressing movement impairments, patient-specific activities can be modified (progressed or regressed) using the general principles of loading, increasing/decreasing intensity, frequency and/or duration of the activity.

Movement Pattern Training Exercises Patient instruction

Sit to Stand – Level 1 Movement performance

Purpose: To optimize the lower extremity movement pattern during sit to stand.

Key Concepts

- Slide to edge of seat
 - Keep knees in line with feet
 - Don't allow the knees to roll in
1. Scoot to the front of the chair. Position your feet slightly behind your knees.
 2. Use your thighs and gluteal muscles to lift your body up off the chair while shifting weight forward. Avoid pulling your knees back to meet your body.
 3. Final position of your knee should be relaxed with a slight bend.
 4. Keep the knees aligned with the toes. Do not allow the knees to roll in.

Perform: _____ sets, _____ reps, 1x/day

Goal: 3 sets, 8-10 reps, 1x/day

____ Option: if difficult to perform correctly, use hands to push in to the armrests.

Use this strategy when you perform sit to stand during the day.



Correct

Incorrect

Sit to Stand – Level 2 Lowering slowly

Purpose: To optimize the lower extremity movement pattern during sit to stand.

Key concepts

- Slide to edge of seat
 - Keep knees in line with feet
 - Don't allow the knees to roll in
1. Stand with feet hip-width apart.
 2. Bend at your hips and knees while simultaneously contracting your thigh and gluteal muscles to slowly lower yourself onto the chair.
 3. Keep the knees aligned with the toes. Don't allow knees to roll in.
 4. Return to the starting position.

Perform: _____ sets, _____ reps, 1x/day

Goal: 3 sets, 8-10 reps, 1x/day

Continue to use the instructed strategy (level 1) when you perform sit to stand during the day.



Correct

Incorrect

Sit to Stand – Level 3 and 4

Lowering slowly with resistance

Purpose: To optimize the lower extremity movement pattern during sit to stand.

Key concepts

- Slide to edge of seat
- Keep knees in line with feet
- Don't allow the knees to roll in

1. Place theraband around both legs, just above the knee (see picture). Theraband should be snug.
2. Stand with feet hip-width apart.
3. Bend at your hips and knees while simultaneously contracting your thigh and gluteal muscles to slowly lower yourself onto the chair.
4. Keep the knees aligned with the toes. Don't allow knees to roll in.
5. Return to the starting position.

Theraband: yellow red green blue black grey yellow
(canary) (gold)

Perform: _____ sets, _____ reps, 1x/day

Goal: 3 sets, 8-10 reps, 1x/day

Continue to use the instructed strategy (level 1) when you perform sit to stand during the day.



Correct



Incorrect



Sit to Stand – Level 5

Slowly lower with resistance + tap

Purpose: To optimize the lower extremity movement pattern during sit to stand.

Key concepts

- Slide to edge of seat
- Keep knees in line with feet
- Don't allow the knees to roll in

1. Place theraband around both legs, just above the knee (see picture) Theraband should be snug.
2. Stand with feet hip-width apart.
3. Bend at your hips and knees while simultaneously contracting your thigh and gluteal muscles to slowly lower yourself towards the chair.
4. **Tap the buttocks** to the chair and return to the starting position. Do not sit.
5. Keep the knees aligned with the toes. Don't allow knees to roll in.

Theraband: yellow red green blue black grey yellow
(canary) (gold)

Perform: _____ sets, _____ reps, 1x/day

Goal: 3 sets, 8-10 reps, 1x/day

Continue to use the instructed strategy (level 1) when you perform sit to stand during the day.



Correct



Incorrect



Walking – Level 1

Weight shift, advance opposite foot and tap

Purpose: To optimize the lower extremity movement pattern during walking.

Key concepts

- Contract gluteals on the stance limb
 - Don't let your knee roll in or your pelvis tilt
 - Increase push off, keeping knee flexed
1. From standing positing, shift your weight to one leg and tighten the gluteals of the stance limb (right side demonstrated).
 2. Swing your opposite leg forward and place your heel on the ground.
 3. Bring your leg back to the starting position.
 4. Don't allow the stance knee to roll in.
 5. Repeat.

Perform: _____ sets, _____ reps, 1x/day

Goal: 3 sets, 8-10 reps, 1x/day

Repeat exercise shifting onto the opposite side.

Practice the instructed strategy (level 1-2) during the day when you are walking.



Walking – Level 2

Stance (heel to toe) while advancing opposite foot

Purpose: To optimize the lower extremity movement pattern during walking

Key concepts

- Contract gluteals on the stance limb
 - Don't let your knee roll in or your pelvis tilt
 - Increase push off, keeping knee flexed
1. Just like walking, practice performing a roll from the heel to the toe.
 2. From standing position, step forward with one foot (left side demonstrated)..
 3. As you accept weight onto the foot, tighten your gluteals.
 4. Step through with your opposite leg.
 5. Return the opposite leg to the starting position.
 6. Don't allow the stance knee to roll in.
 7. Repeat.

Perform: _____ sets, _____ reps, 1x/day

Goal: 3 sets, 8-10 reps, 1x/day

Repeat exercise shifting onto the opposite side.

Practice the instructed strategy (level 1-2) during the day when you are walking.



Correct start position



Correct



Correct

Walking – Level 3

Walking 30 seconds

Purpose: To optimize the lower extremity movement pattern during walking

Key concepts

- Contract gluteals on the stance limb
- Don't let your knee roll in or your pelvis tilt
- Increase push off, keeping knee flexed

1. Using cues from level 1 and 2, practice walking for 30 seconds
2. Use heel to toe pattern (right side demonstrated).
3. Tighten gluteals as you step onto the foot.
4. Don't allow the stance knee to roll in.
5. Relax 30 seconds
6. Repeat.

Perform 5 sets, at least 1x/day. This can be performed more often during the day.

Practice the instructed strategy (level 1-2) during the day when you are walking.



Walking – Level 4

Increase time walking

Purpose: To optimize the lower extremity movement pattern during walking.

Key concepts

- Contract gluteals on the stance limb
- Don't let your knee roll in or your pelvis tilt
- Increase push off, keeping knee flexed

1. Using cues from level 1 and 2, practice walking
2. Use heel to toe pattern(right side demonstrated).
3. Tighten gluteals as you step onto the foot.
4. Don't allow the stance knee to roll in.
5. Walk 5 minutes without stopping.

Perform: 2-3 sets, 1x/day.

Practice the instructed strategy (level 1-2) during the day when you are walking.



Walking – Level 5

Increase speed of walking

Purpose: To optimize the lower extremity movement pattern during walking (left side demonstrated).

Key concepts

- Contract gluteals on the stance limb
- Don't let your knee roll in or your pelvis tilt
- Increase push off, keeping knee flexed

1. Using cues from level 1 and 2, practice walking
2. Heel to toe pattern
3. Tighten gluteals as you step onto the foot.
4. Don't allow the stance knee to roll in excessively.
5. Walk 5 minutes at a faster pace without stopping.

Perform: 2-3 sets, 1x/day.

Practice the instructed strategy (level 1-2) during the day when you are walking.



Ascending Stairs – Level 1

Step up with hand support

Purpose: To optimize the lower extremity movement pattern while using stairs.

Key concepts

- Contract gluteals on stance limb
- Don't let your knee roll in or your pelvis tilt

1. Use a handrail to assist with the movement
2. Lean forward and use your thigh and gluteal muscles to move your body forward onto the next stair.
3. Don't let your knee roll in or your pelvis tilt.
4. Avoid pulling your knee back to meet the body. Instead propel the body forward on to the next stair.

Perform: ____ sets, ____ reps, 1x/day

Goal: 3 sets, 8-10 reps, 1x/day

____ Option: if difficult to perform correctly, a smaller step height may be used.

Repeat for the opposite side.

Practice the instructed strategy (level 1) when you are using the stairs during the day.



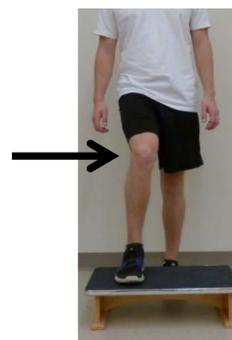
Correct



Correct



Correct



Incorrect

Ascending Stairs – Level 2

Step up without hand support

Purpose: To optimize the lower extremity movement pattern while using stairs.

Key concepts

- Contract gluteals on stance limb
 - Don't let your knee roll in or your pelvis tilt
1. Lean forward and use your thigh and gluteal muscles to move your body forward onto the next stair.
 2. Don't let your knee roll in or your pelvis tilt.
 3. Avoid pulling your knee back to meet the body. Instead propel the body forward on to the next stair.

Perform: _____ sets, _____ reps, 1x/day

Goal: 3 sets, 8-10 reps, 1x/day

___Option: if difficult to perform correctly, a smaller step height may be used.

Repeat for the opposite side.

Continue to use the instructed strategy (level 1-2) when using the stairs during the day.



Correct



Correct



Correct



Incorrect

Ascending Stairs – Level 3 and 4

Step up with resistance

Purpose: To optimize the lower extremity movement pattern while using stairs.

Key concepts

- Contract gluteals on stance limb
 - Don't let your knee roll in or your pelvis tilt
1. Use taller step or place theraband around the leg to be exercised (see picture). Theraband should be snug.
 2. Lean forward and use your thigh and gluteal muscles to move your body forward onto the next stair.
 3. Don't let your knee roll in or your pelvis tilt.
 4. Avoid pulling your knee back to meet the body. Instead propel the body forward on to the next stair.

Theraband: yellow red green blue black grey yellow
(canary) (gold)

Perform: _____ sets, _____ reps, 1x/day

Goal: 3 sets, 8-10 reps, 1x/day

Repeat for the opposite side.

Continue to use the instructed strategy (level 1-2) when using the stairs during the day.



Correct



Correct



Incorrect

Ascending Stairs – Level 5

Step up – increase speed (no resistance)

Purpose: To optimize the lower extremity movement pattern while using stairs.

Key concepts

- Contract gluteals on stance limb
 - Don't let your knee roll in or your pelvis tilt
1. Perform step up with increased speed.
 2. Lean forward and use your thigh and gluteal muscles to move your body forward onto the next stair.
 3. Don't let your knee roll in or your pelvis tilt.
 4. Avoid pulling your knee back to meet the body. Instead propel the body forward on to the next stair.

Perform: _____ sets, _____ reps, 1x/day

Goal: 3 sets, 8-10 reps, 1x/day

Repeat for the opposite side.

Continue to use the instructed strategy (level 1-2) when using the stairs during the day.



Correct



Correct



Correct



Incorrect

Descending Stairs – Level 1

Step down with hand support

Purpose: To optimize the lower extremity movement pattern while using stairs.

Key concepts

- Contract gluteals on stance limb
 - Don't let your knee roll in or your pelvis tilt excessively
1. Use a handrail to assist with the movement
 2. Use your thigh and gluteal muscles to slowly lower yourself onto the next stair.
 - Don't let your knee roll in or your pelvis tilt excessively.
 3. Use your hand to assist returning to the top of the step.
 4. Do not use momentum to perform the activity.

Perform: _____ sets, _____ reps, 1x/day

Goal: 3 sets, 8-10 reps, 1x/day

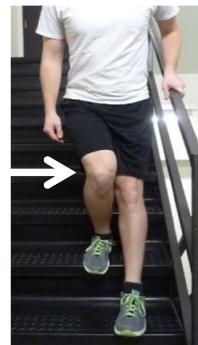
____Option: if difficult to perform correctly, a smaller step height may be used.

Repeat for the opposite side.

Practice the instructed strategy when using the stairs during the day.



Correct



Incorrect



Incorrect

Descending Stairs – Level 2

Step down without hand support

Purpose: To optimize the lower extremity movement pattern while using stairs.

Key concepts

- Contract gluteals on stance limb
- Don't let your knee roll in or your pelvis tilt excessively

1. Use your thigh and gluteal muscles to slowly lower yourself onto the next stair.
2. Don't let your knee roll in or your pelvis tilt excessively.
3. Return to the top of the step. You may use your hand on the rail if needed to return.
4. Do not use momentum to perform the activity.

Perform: _____ sets, _____ reps, 1x/day

Goal: 3 sets, 8-10 reps, 1x/day

___ Option: if difficult to perform correctly, a smaller step height may be used.

Repeat for the opposite side.

Practice the instructed strategy (level 1) when using the stairs during the day.



Correct

Incorrect

Incorrect

Descending Stairs – Level 3 and 4

Step down with resistance

Purpose: To optimize the lower extremity movement pattern while using stairs.

Key concepts

- Contract gluteals on stance limb
- Don't let your knee roll in or your pelvis tilt excessively

1. Use a taller step or place theraband around the leg to be exercised (see picture). Theraband should be snug.
2. Use your thigh and gluteal muscles to slowly lower yourself onto the next stair.
3. Don't let your knee roll in or your pelvis tilt excessively.
4. Return to the top of the step. Do not use momentum to perform the activity.

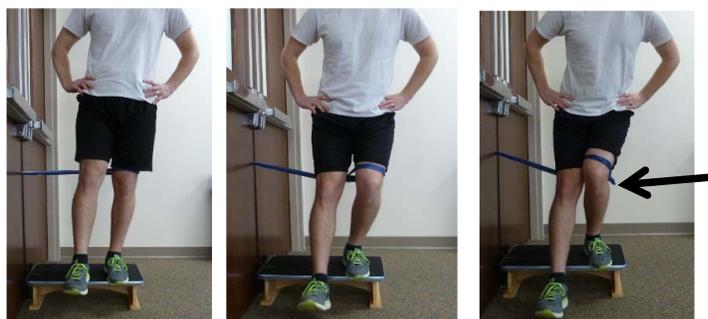
Theraband: yellow red green blue black grey yellow
(canary) (gold)

Perform: _____ sets, _____ reps, 1x/day

Goal: 3 sets, 8-10 reps, 1x/day

Repeat for the opposite side.

Continue to use the instructed strategy (level 1-2) when using the stairs during the day.



Correct

Correct

Incorrect

Descending Stairs – Level 5

Step down with tap (no resistance)

Purpose: To optimize the lower extremity movement pattern while using stairs.

Key concepts

- Contract gluteals on stance limb
 - Don't let your knee roll in or your pelvis tilt excessively
1. Use your thigh and gluteal muscles to slowly lower yourself onto the next stair.
 2. **Tap your toe (easiest) or heel (harder)** onto the next stair and return to the starting position.
 3. Don't let your knee roll in or your pelvis tilt excessively.
 4. Return to the top of the step. Do not use momentum to perform the activity.

Perform: _____ sets, _____ reps, 1x/day

Goal: 3 sets, 8-10 reps, 1x/day

Repeat for the opposite side.

Continue to use the instructed strategy (level 1-2) when using the stairs during the day.



Correct with
toe tap



Correct with
heel tap

Single Leg Activities – Level 1

Weight Shift

Purpose: To optimize the lower extremity movement pattern while performing single limb activities.

Key concepts

- Contract gluteals on stance limb
 - Don't let your knee roll in, your pelvis tilt or trunk lean
1. Stand with both feet relatively close together.
 2. Both knees should be “unlocked”.
 3. Shift your weight to one leg.
 4. Tighten your gluteal muscle on the side of your stance leg.
 5. Repeat to the opposite leg.
 6. Alternate the weight shift from one leg to the other.
 7. Keep your pelvis level and trunk upright.
 8. Don't let your knee turn inward or your pelvis tilt.
 9. You may place your hands on your pelvis to monitor your motion.

Perform: _____ sets, _____ reps, 1x/day

Goal: 3 sets, 8-10 reps, 1x/day



Correct

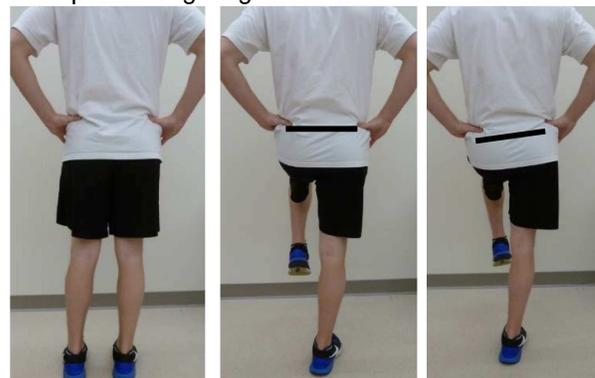
Single Leg Activities – Level 2

Single leg stance

Purpose: To optimize the lower extremity movement pattern while performing single limb activities.

Key concepts

- Contract gluteals on stance limb
 - Don't let your knee roll in, your pelvis tilt or trunk lean
1. Perform weight shift (level 1) to one leg.
 2. Tighten your gluteal muscle on the side of your stance leg.
 3. Lift your opposite leg in front of you as if marching in place.
 4. Repeat to the opposite leg.
 5. Alternate the weight shift from one leg to the other.
 6. Keep your pelvis level and trunk upright.
 7. Don't let your knee turn inward or your pelvis tilt.
 8. You may place your hands on your pelvis to monitor your motion.



Correct shift

Correct
Note hands at
same level

Incorrect
Note pelvis tilt
left hand
lower than right

___ Option: Hold onto countertop for balance.

___ Option: If hip pain is reproduced during hip flexion, flex knee behind you.

Perform: ___ sets, ___ reps, 1x/day

Goal: 3 sets, 8-10 reps, 1x/day

Single Leg Activities – Level 3

Single leg squat with hand support

Purpose: To optimize the lower extremity movement pattern while performing single limb activities.

Key concepts

- Contract gluteals on stance limb
 - Don't let your knee roll in, your pelvis tilt or trunk lean
1. Hold onto countertop for balance.
 2. Perform single leg stance (level 2).
 3. Slowly lower self into a squat (like you are going to sit in a chair). Do not allow the knee you are standing roll in.
 4. Once lowered, push back up to start position by squeezing your gluteals. Again it is important to not let the knee roll in.
 5. Only go deep enough where the movement is controlled on the way down and up.

Perform: ___ sets, ___ reps,
1x/day

Goal: 3 sets, 8-10 reps, 1x/day

Repeat for the opposite side.



Correct
Start

Correct

Incorrect

Incorrect

Single Leg Activities – Level 4

Single leg squat without hand support

Purpose: To optimize the lower extremity movement pattern while performing single limb activities.

Key concepts

- Contract gluteals on stance limb
 - Don't let your knee roll in, your pelvis tilt or trunk lean
1. Perform single leg stance (level 2).
 2. Slowly lower self into a squat (like you are going to sit in a chair). Do not allow the knee you are standing on to collapse in or rotate toward your other leg.
 3. Once lowered, push back up to start position by squeezing your gluteals. Again it is important to not let the knee collapse in or rotate.
 4. Only go deep enough where the movement is controlled on the way down and up.

Perform: _____ sets, _____ reps, 1x/day

Goal: 3 sets, 8-10 reps, 1x/day
Repeat for the opposite side.



Correct



Correct



Incorrect

Single Leg Activities – Level 5

Single leg squat with resistance

Purpose: To optimize the lower extremity movement pattern while performing single limb activities.

Key concepts

- Contract gluteals on stance limb
 - Don't let your knee roll in, your pelvis tilt or trunk lean
1. Place theraband around the leg to be exercised (see picture). Theraband should be snug.
 2. Slowly lower self into a squat (like you are going to sit in a chair). Do not allow the knee you are standing on to collapse in or rotate toward your other leg.
 3. Once lowered, push back up to start position by squeezing your gluteals. Again it is important to not let the knee collapse in or rotate.
 4. Only go deep enough where the movement is controlled on the way down and up.

Theraband: yellow red green blue black grey yellow
(canary) (gold)

Perform: _____ sets, _____ reps, 1x/day **Goal:** 3 sets, 8-10
reps, 1x/day

Repeat for the opposite side.



Correct



Correct



Incorrect

Side Stepping – Level 1

Initial step with tap

Purpose: To optimize the lower extremity movement pattern while performing activities with lateral movement.

Key concepts

- Contract gluteals on stance limb
 - Don't let either knee roll in or your pelvis tilt
1. Stand with both feet relatively close together.
 2. Both knees should be "unlocked".
 3. Shift your weight to one leg.
 4. Tighten your gluteal muscles on the side of your stance leg.
 5. Lift your opposite leg out to the side, tap the toe on the ground and return to the starting position.
 6. Don't allow the knee to roll in or your pelvis tilt.
 7. Repeat



Correct

Correct

Incorrect

Perform: _____ sets, _____ taps, 1x/day

Goal: 3 sets, 8-10 taps, 1x/day

Repeat exercise on the opposite side.

Side Stepping – Level 2

Side Step

Purpose: To optimize the lower extremity movement pattern while performing activities with lateral movement.

Key concepts

- Contract gluteals on stance limb
 - Don't let either knee roll in or your pelvis tilt
1. Stand with both feet relatively close together.
 2. Both knees should be "unlocked".
 3. Shift your weight to one leg.
 4. Tighten your gluteal muscles on the side of your stance leg.
 5. Step to the side with the opposite foot.
 6. Bring the stance leg toward the stepping foot.
 7. Keep your pelvis level and trunk upright.
 8. Don't allow the knee to roll in or your pelvis tilt during stance of either limb.
 9. Repeat

Perform: _____ sets, _____ steps, 1x/day

Goal: 3 sets, 8-10 steps, 1x/day

Repeat exercise in the opposite direction.



Correct

Correct

Incorrect

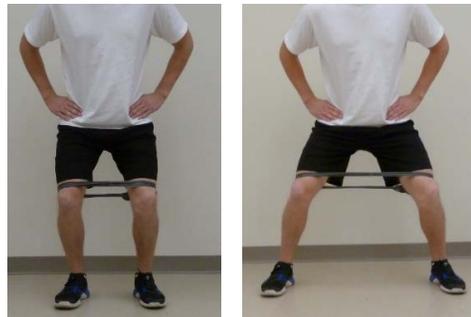
Side Stepping – Level 3, 4 and 5

Side Step with resistance

Purpose: To optimize the lower extremity movement pattern while performing activities with lateral movement.

Key concepts

- Contract gluteals on stance limb
 - Don't let either knee roll in or your pelvis tilt
1. Wrap theraband around both legs, just above the knee (see picture) or ankle. Theraband should be snug.
 2. Stand with both feet relatively close together.
 3. Shift your weight to one leg.
 4. Tighten your gluteal muscle on your stance leg.
 5. Step to the side with the opposite foot.
 6. Slowly bring the stance leg toward the stepping foot.
 7. Don't allow the knee to roll in or your pelvis tilt during stance of either limb.
 8. Repeat, maintaining pressure against theraband.



Theraband: yellow red green blue black grey yellow
(canary) (gold)

Perform: _____ sets, _____ steps, 1x/day

Goal: 3 sets, 8-10 steps, 1x/day

Repeat exercise in the opposite direction.

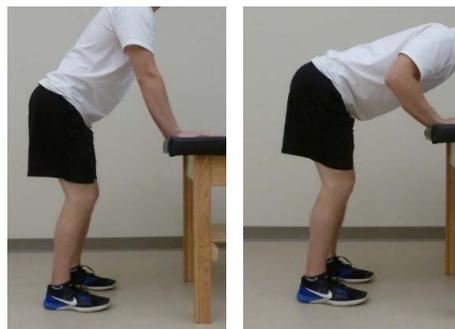
Forward Bending – Level 1

Forward Bend with Hand Support

Purpose: To optimize movement of hip and pelvis during forward bend.

Key concepts

- Contract gluteals during motion
 - Maintain neutral trunk alignment
1. Stand with feet hip-width apart, knees slightly bent.
 2. Place your hands on a table or counter.
 3. Bend at your hips, keeping your knees in the slightly bent position.
 4. Keep your back straight. Don't bend or arch your back.
 5. Tighten your gluteal muscles to return to the starting position.



Perform: _____ sets, _____ reps, 1x/day

Goal: 3 sets, 8-10 reps, 1x/day

Forward Bending – Level 2

Forward Bend without Hand Support

Purpose: To optimize movement of hip and pelvis during forward bend.

Key concepts

- Contract gluteals during motion
- Maintain neutral trunk alignment

1. Stand with feet hip-width apart, knees slightly bent.
2. Bend at your hips, keeping your knees in the slightly bent position.
3. Keep your back straight. Don't bend or arch your back.
4. Tighten your gluteal muscles to return to the starting position.
5. Repeat.

Perform: _____ sets, _____ reps, 1x/day

Goal: 3 sets, 8-10 reps, 1x/day



Forward Bending – Level 3+

Forward Bend with Hand weights (Option 1)

Purpose: To optimize movement of hip and pelvis during forward bend.

Key concepts

- Contract gluteals during motion
- Maintain neutral trunk alignment

1. Stand with feet hip-width apart, knees slightly bent.
2. Holding weight in your hands, bend at your hips
3. Keeping your knees in the slightly bent position.
4. Keep your back straight. Don't bend or arch your back.
5. Tighten your gluteal muscles to return to the starting position.
6. Repeat.

Perform: _____ sets, _____ reps, 1x/day

Goal: 3 sets, 8-10 reps, 1x/day



Forward Bending – Level 3+

Forward Bend with Theraband (Option 2)

Purpose: To optimize movement of hip and pelvis during forward bend.

Key concepts

- Contract gluteals during motion
- Maintain neutral trunk alignment

1. Stand with feet hip-width apart, knees slightly bent.
2. Place theraband as pictured below. Theraband should be snug.
3. Starting in the hip flexed position and holding theraband in your hands.
4. Tighten your gluteal muscles to come to standing.
5. Slowly flex the hips to return to the starting position.
6. Keep your back straight. Don't bend or arch your back.
7. Repeat.

Theraband: yellow red green blue black grey yellow
(canary) (gold)

Perform: _____ sets, _____ reps, 1x/day

Goal: 3 sets, 8-10 reps, 1x/day



Stance with movement – Level 1

Small arc

Purpose: To optimize movement of hip and pelvis during walking/running.

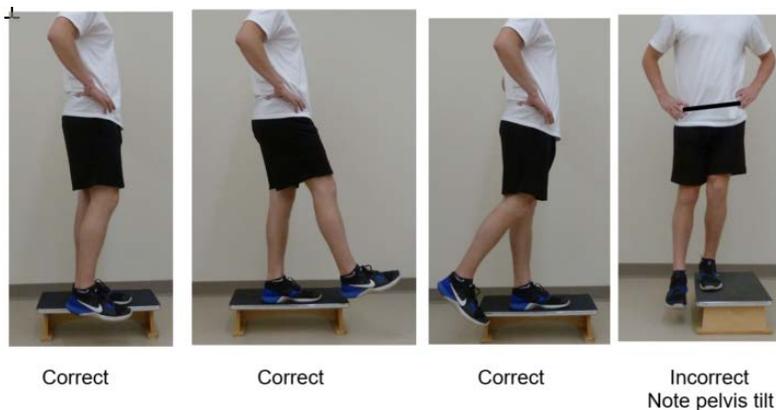
Key concepts

- Contract gluteals on the stance limb
 - Don't let your knee roll in or your pelvis tilt
1. Stand with one foot on a sturdy step.
 2. Tighten the gluteal muscles on the stance limb.
 3. Using a small arc of motion, swing the opposite leg forward as if taking a step.
 4. Then swing the leg back behind you.
 5. Don't let your knee roll in or your pelvis tilt.
 6. You may place hands at pelvis to monitor movement.
 7. Repeat.

Perform: _____ sets, _____ reps, 1x/day

Goal: 3 sets, 8-10 reps, 1x/day

___ Option: For safety, may use light touch for balance



Stance with movement – Level 2

Large arc

Purpose: To optimize movement of hip and pelvis during walking/running.

Key concepts

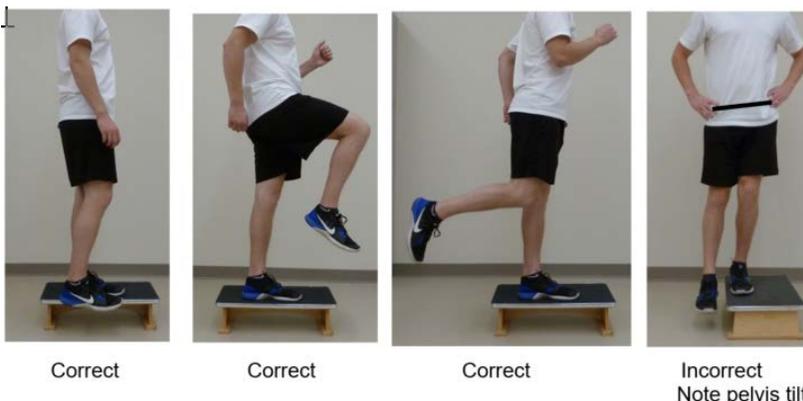
- Contract gluteals on the stance limb
- Don't let your knee roll in or your pelvis tilt

1. Stand with one foot on a sturdy step.
2. Tighten the gluteal muscles on the stance limb.
3. Using a large arc of motion, swing the opposite leg forward as if taking a step.
4. Then swing the leg back behind you.
5. Don't let your knee roll in or your pelvis tilt.
6. Repeat.

Perform: _____ sets, _____ reps, 1x/day

Goal: 3 sets, 8-10 reps, 1x/day

___ Option: For safety, may use light touch for balance



Stance with movement – Level 3

Large arc, fast speed

Purpose: To optimize movement of hip and pelvis during walking/running.

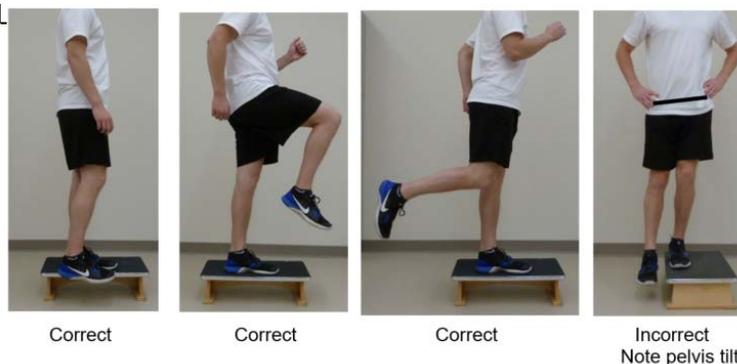
Key concepts

- Contract gluteals on the stance limb
- Don't let your knee roll in or your pelvis tilt

1. Stand with one foot on a sturdy step.
2. Tighten the gluteal muscles on the stance limb.
3. Using a large arc of motion, swing the opposite leg forward as if taking a step.
4. Then quickly swing the leg back behind you.
5. Don't let your knee roll in or your pelvis tilt.
6. Repeat maintaining faster speed.

Perform: _____ sets, _____ reps, 1x/day

Goal: 3 sets, 8-10 reps, 1x/day



Stance with movement – Level 4

Large arc, fast speed, compliant surface

Purpose: To optimize movement of hip and pelvis during walking/running.

Key concepts

- Contract gluteals on the stance limb
 - Don't let your knee roll in or your pelvis tilt
1. Stand with one foot on a pillow, foam or balance disk.
 2. Tighten the gluteal muscles on the stance limb.
 3. Using a large arc of motion, swing the opposite leg forward as if taking a step.
 4. Then quickly swing the leg back behind you.
 5. Don't let your knee roll in or your pelvis tilt.
 6. Repeat maintaining faster speed.

Perform: _____sets, _____res, 1x/day

Goal: 3 sets, 8-10 reps, 1x/day



Correct



Correct



Correct



Incorrect
Note pelvis tilt

