

Active Movement Scale (AMS)

Purpose: This is a brief, non-diagnostic series of active movements to assess musculoskeletal fitness.

Set-up:

- It is recommended that the client being tested wearing loose-fitting clothing and non-skid shoes.
- Place an 8" step and sturdy chair close to a stable table or plinth as shown in the set-up for standing movements.
- The client will sit to perform Active Movements 1-6.



Standard Set-up

Initial Instructions: Introduce the scale as follows by saying:

- *This is a test of your ability to perform active movements.*
- *After each movement is demonstrated, perform the movement to the extent you safely can in a controlled manner.*
- *We will skip any movements that you feel unsafe to perform.*
- *After each movement, let me know if you felt pain that limited your ability to move by pointing to any body areas where you felt pain.*
- *The first set of movements will be performed while you are sitting on the front part of the chair. Do not lean against the back of the chair.*



Step Accommodation

Mechanics Rating: Observe and rate subject's mechanics as each movement is performed based on consideration of the specific endpoint criteria provided for each movement and applying the following scale:

- 4 = Normal (completes the full movement pattern to its specified endpoint in smooth and controlled manner)
- 3 = Guarded (completes full movement to its endpoint with minor mechanics deficits, such as hesitation, guarding, or grimacing)
- 2 = Fair (completes most of movement with only minor mechanics deficits, such as hesitation/inconsistent speed)
- 1 = Poor (completes some of expected movement sequence or exhibits major mechanics deficits, such as poor motor control)
- 0 = Unable or Unwilling to perform the expected movement sequence to any substantial extent.

Documentation:

- If the participant reports any areas of pain for a given movement, check the box for "Pain" next to the movement.
- Under comments, describe the area of pain and identify each area of pain that limited movement followed by numbers to indicate the affected movements. For example, "Lower back pain limited movements 7, 8, and 12. Right wrist pain limited movement 3."
- Subtotal the ratings for seated upper body movements 1-6 and divide by 48 possible points.
- Subtotal the ratings for lower body movements 7-13 and divide by 52 possible points.
- Total ratings for upper and lower body movements 1-13.

ACTIVE MOVEMENT SCALE			
1. Adduct thumbs	R ___/4	L ___/4	<input type="checkbox"/> Pain?
2. Flex fingers 2-5	R ___/4	L ___/4	<input type="checkbox"/> Pain?
3. Extend wrists	R ___/4	L ___/4	<input type="checkbox"/> Pain?
4. Flex elbows back	R ___/4	L ___/4	<input type="checkbox"/> Pain?
5. Elevate shoulders	R ___/4	L ___/4	<input type="checkbox"/> Pain?
6. Diagonal neck bend	R ___/4	L ___/4	<input type="checkbox"/> Pain?
7. Extend neck up		B ___/4	<input type="checkbox"/> Pain?
8. Forward bend over		B ___/4	<input type="checkbox"/> Pain?
9. Rotate torso in stand	R ___/4	L ___/4	<input type="checkbox"/> Pain?
10. Single leg stance	R ___/4	L ___/4	<input type="checkbox"/> Pain?
11. Step up and over	R ___/4	L ___/4	<input type="checkbox"/> Pain?
12. Heel walk	R ___/4	L ___/4	<input type="checkbox"/> Pain?
13. Lunge back to kneel	R ___/4	L ___/4	<input type="checkbox"/> Pain?
14. Active squat down		B ___/4	<input type="checkbox"/> Pain?

Sample Data Sheet

1. Adduct Thumbs (Identifies thumb movement problems)

Instructions (as the examiner demonstrates)

- Say: Begin by placing your *hands on your knees, with your palms facing up and fingers spread.*
- *Then try to touch the tips of your thumbs to the bottom of your pinky fingers.*

Rating Performance Criteria:

- 4-Normal:** 0cm for thumb to pinky base in a controlled, coordinated manner (no movement deficits)
- 3-Guarded:** 0cm for thumb to pinky base, but with minor coordination deficits, guarding or grimacing
- 2-Fair:** thumb >0cm to 1cm from pinky base, with no more than minor coordination deficits
- 1-Poor:** thumb >1 to 2cm from pinky base or exhibits major coordination deficits
- 0-Unable:** thumb \geq 2cm from pinky base or unable to touch tip of thumb to the tip of pinky.



4-Normal



2-Fair



1-Poor

2. Flex Fingers 2-5 (Identifies movement problems with fingers 2-5)

Instructions (as the examiner demonstrates)

- Say: *Next, open your thumbs and try to flex the other fingers to touch the middle of your palms.*

Rating Performance Criteria:

- 4-Normal:** 0cm for all digits to palm in a controlled, coordinated manner (no movement deficits)
- 3-Guarded:** 0cm for all digits to palm, but exhibits minor coordination deficits, guarding or grimacing
- 2-Fair:** average digit closure >0cm to 1cm from palm, with no more than minor coordination deficits
- 1-Poor:** average digit closure >1 to 2cm from palm or exhibits major coordination deficits
- 0-Unable:** average digit closure is \geq 2cm from palm or no functional movement is possible



4-Normal



2-Fair



1-Poor

3. Extend Wrists (Identifies finger, wrist and elbow movement problems)

Instructions (as the examiner demonstrates)

- *Next, keep your palms together next to your chest and lower your hands down as far as you can.*
- Test right and left movements separately if client can't complete the full movement on both sides. This is done by instructing the client to place the palm of the tested side against the inside of opposite forearm, or having the client place the palm of the tested side against the examiner's palm.

Rating:

4-Normal: extends wrist(s) to 90° (forearms parallel to floor) in a controlled, coordinated manner.

3-Guarded: completes movement to endpoint with minor coordination deficits, hesitation or grimacing.

2-Fair: extends wrist(s) 45° to <90°, with no more than minor coordination deficits.

1-Poor: extends wrist(s) 0° to < 45° or exhibits major coordination deficits.

0-Unable: if unable to extend wrist(s) to 0° or no functional movement possible.



Both Wrists
4-Normal



Right Wrist Only
4-Normal



Both Wrists
2-Fair



Both Wrists
1-Poor



Right Wrist Only
1-Poor

4. Flex Elbows Back (Identifies shoulder, elbow, and wrist movement problems)

Instructions (as the examiner demonstrates)

- *Say: Next, spread your elbows back and try to touch the top of your shoulders with your fingertips.*
- Test right and left movements separately if client can't complete the full movement on both sides.

Rating:

4-Normal: fingers touch top of shoulder with full retraction in a controlled, coordinated manner.

3-Guarded: completes movement to endpoint with minor coordination deficits, hesitation or grimacing.

2-Fair: fingers > 0 to <15cm (6in) from AC joint, with no more than minor coordination deficits.

1-Poor: fingers 15 to < 30cm (12in) from AC joint or exhibits major coordination deficits.

0-Unable: fingers ≥ 30cm (12inches) from shoulder or no functional movement is possible

Note: The movement rating should be lower if elbow(s) are not spread back to midline of the trunk.



4-Normal



2-Fair



1-Poor

5. Elevate Shoulders (Identifies shoulder and thoracic spine movement problems)

Instructions (as the examiner demonstrates)

- Say: *Next, extend your elbows and try to raise only your right arm from the side to place your arm against your head. Then perform the same movement with only your left arm.*

Rating:

4-Normal: abducts shoulders to place arms next to side of head in a controlled, coordinated manner.

3-Guarded: completes movement to endpoint with minor coordination deficits, hesitation or grimacing.

2-Fair: abducts arm 135° to <180°, with no more than minor coordination deficits.

1-Poor: abducts arm(s) 90° to <135° or exhibits major coordination deficits.

0-Unable: abducts arm(s) < 90° or no functional movement possible.

Note: The movement rating should be lowered if the upper arms are in front of the side of the head.



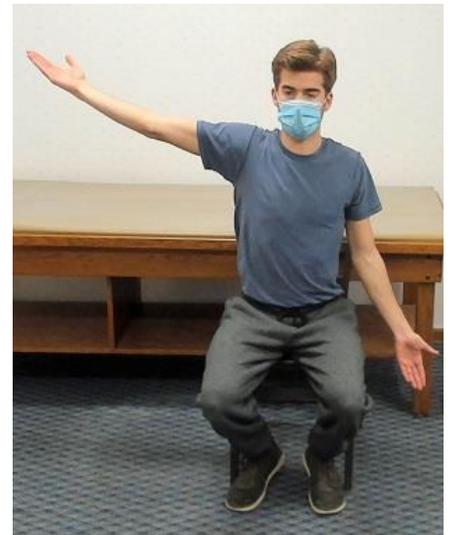
Start



Right 4-Normal



Right 2-Fair



Right 1-Poor

6. Diagonal Neck Bend (Identifies neck and thoracic spine problems)

Instructions (as the examiner demonstrates)

–With arms lowered down and hands on thighs

- Say: *Next, turn your head to the right as far as you can, pause, and then try to lower your chin to touch the shoulder.*
- *Then turn your head as far as you can to the left, pause and try to touch your chin to the other shoulder.*

Note: Movement rating should be lower if the client raises the shoulder to complete the movement.

Rating:

4-Normal: rotates head $\geq 70^\circ$ before lowering chin to touch the distal clavicle in a coordinated manner.

3-Guarded: completes movement to endpoint with minor coordination deficits, hesitation or grimacing.

2-Fair: Rotates head $\geq 50^\circ$ to $<70^\circ$ before lowering chin to ≤ 2 in (5cm) to touch the distal, with only minor coordination deficits.

1-Poor: Rotates head $\geq 30^\circ$ to $<50^\circ$ before lowering chin to ≤ 4 in (10 cm) from of distal clavicle or exhibits major coordination deficits.

0-Unable: Rotates head $<30^\circ$ before lowering chin to >4 in (10 cm) from distal clavicle or no functional movement is possible.



4-Normal (Right Rotation shown)



2-Fair (Right Rotation shown)



1-Poor (Right Rotation shown)



4-Normal (Left Rotation shown)



2-Fair (Left Rotation shown)



1-Poor (Left Rotation shown)

7. Extend neck up

(Identifies neck problems)

Instructions (as the examiner demonstrates)

- Say: *Next, turn to sit sideways in the chair. Then extend your head back as far as you can to look up.*

Rating: (Neck extension is illustrated in pictures)

4-Normal: Sits upright without lumbar support and extends head to 60° to look up in a controlled, coordinated manner.

3-Guarded: completes movement to endpoint with minor coordination deficits, hesitation or grimacing.

2-Fair: Sits upright without lumbar support and extends head to 30° to < 60° to look up with no more than minor coordination deficits.

1-Poor: Sits upright without backrest and extends head < 30° to look up or exhibits major coordination deficits.

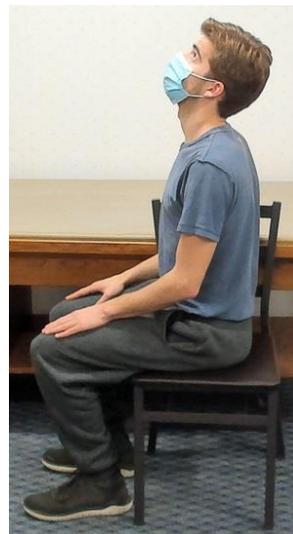
0-Unable: Unable to extend neck up without loss of sitting balance.



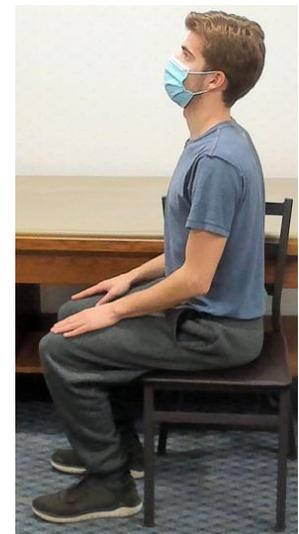
Sitting start



4-Normal



2-Fair



1-Poor

8. Forward bend over (Identifies back and pelvis problems)

Instructions (as the examiner demonstrates)

- Next, stand up with your feet even and about shoulder width apart.
- Then bend over at the waist while keeping your knees straight or slightly bent and slide your hands down your legs as far as you can to touch the floor in front of your toes.

Rating:

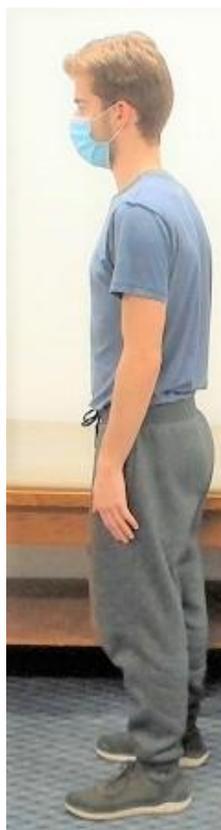
4-Normal: touches floor in front of feet with knees nearly straight in a controlled, coordinated manner.

3-Guarded: completes movement to endpoint with minor coordination deficits, hesitation or grimacing.

2-Fair: touches legs below mid-shin to top of foot, with no more than minor coordination deficits.

1-Poor: touches legs between lower thighs to mid-shin level or exhibits major coordination deficits.

0-Unable: unable to bend to touch lower thighs without loss of balance or use of an upper extremity assistive device for safe performance.



Standing start



4-Normal



2-Fair



1-Poor

9. Rotate Torso in Stand (Identifies back, hip, knee, or ankle problems)

Instructions (as the examiner demonstrates)

- Next, face forwards with your feet about shoulder width apart. Then keep your arms at your sides and rotate your shoulders and hips as far as you can to the right. Then rotate as far as you can to the left.

Rating: (Right rotation is illustrated in pictures)

4-Normal: Stands with feet together and rotates hips $\sim 45^\circ$ while upper torso (shoulders) rotates shoulders 90° or more with respect to the feet in a controlled, coordinated manner.

3-Guarded: completes movement to endpoint with minor coordination deficits, hesitation or grimacing.

2-Fair: Stands with feet together and rotates upper torso 45° to $< 90^\circ$ with respect to the feet without loss of balance, with no more than minor coordination deficits

1-Poor: Stands and rotates with torso $< 45^\circ$ or exhibits major coordination deficits.

0 –Unable: Unable to stand to turn head, shoulders and hips without loss of balance or use of an upper extremity assistive device for safe performance.



Starting Posture



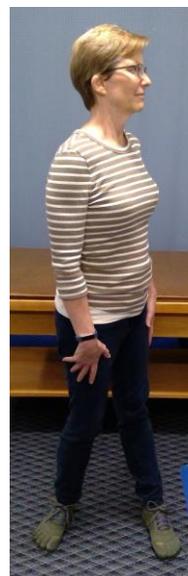
4-Normal Right



4- Normal Left



2-Fair Right



2-Fair Left



1-Poor Left

10. Single Leg Stance (Identifies leg weakness that limits balance)

Instructions (as the examiner demonstrates)

- Next, cross your arms and try to stand on the right leg only with your legs apart until I count to 10.
- Then try to standing on the left leg only with your legs apart until I count to 10.

Rating:

4-Normal: Stands on one leg for 10 sec without moving support foot in a controlled, coordinated manner.

3-Guarded: Stands on one leg for 10 sec with no more than minor coordination deficits or hesitation.

2-Fair: Stands on one leg for 5 to- <10 sec and returns to a static stand with minor coordination deficits.

1-Poor: Stands on one leg for <5 sec. or returns to static standing with major coordination deficits.

0-Unable: Unable to stand on 1 leg without contact guarding to prevent loss of balance or requires use of an upper extremity assistive device to enable safe performance.



Right Single Leg Stance



Left Single Leg Stance

11. Step Up and Over (Identifies hip, knee, and ankle problems)

Instructions (as the examiner demonstrates)

- Next, try to step up and over the step by placing only your right foot on the step. Then turn around and repeat this movement to step back across by placing only the right foot on the step.
- Then try to perform this movement by placing only your left foot on the step.
- You may hold onto the table for support if needed for safety when stepping up and over.

Rating:

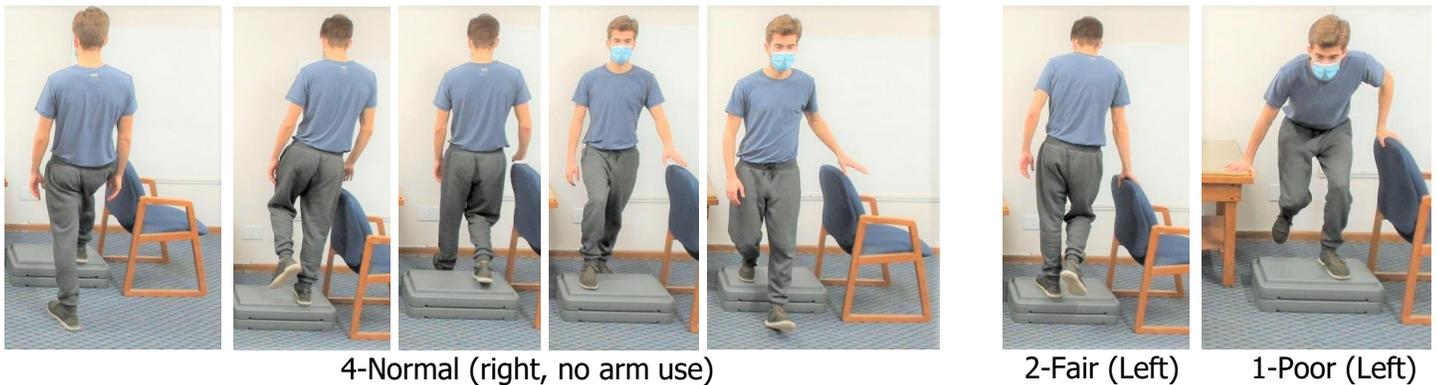
4-Normal: step up and over with no arm support in a controlled, coordinated manner.

3-Guarded: completes movement to endpoint with minor coordination deficits, hesitation, grimacing.

2-Fair: steps to 20cm (8") with no more than minor arm use or minor coordination deficits.

1-Poor: steps to 20cm (8") with major arm(s) use, or exhibits major coordination deficits.

0-Unable: if unable to step up & over even with substantial arm support



12. Heel Walk Forward (Identifies weak/limited ankle dorsiflexion problems)

Instructions (as the examiner demonstrates)

- Next, walk several steps on the right heel only and return as you try to keep your right toes off the ground as high as possible.
- Then try to walk on the left heel only with your left toes off the ground.

Having the subject turn around and return after several steps during the allows the examiner to observe the heel walk from each side. If the subject was unsteady during the Single Leg Stance movement, then instruct subject to walk close to a table or wall on the other side to guard against loss of balance.

Rating:

4-Normal: maintains front of toes/forefoot 5cm (2") or more above the ground while stepping forward with feet even for a few steps in a controlled, coordinated manner.

3-Guarded: completes movement to endpoint with minor coordination deficits, hesitation, grimacing.

2-Fair: full weight bearing with front of foot/toes < 5 cm (2") held above ground.

1-Poor: substantial limp, foot drop or must keep lead foot flat to safety step forward a few steps.

0-Unable: if unable to step forward without loss of balance or upper extremity assistive device.



13. Lunge Back to Kneel (Identifies hip and knee problems)

Instructions (as the examiner demonstrates)

- Next, step back to kneel with your left knee behind your right foot and pause with your trunk upright before standing up. Then step back to kneel with your right knee behind your left foot.
- You may assist with your arms on the chair or ground to get up or down if needed for safety.

Note: The movement is named by the side of the lunge leg, not by the side of the kneeling leg.

Rating:

4-Normal: kneels completely down without use of arms in a controlled, coordinated manner.

3-Guarded: completes movement to endpoint with minor coordination deficits, hesitation, grimacing.

2-Fair: kneels w/ minor use of arm(s) for assist and no more than minor coordination deficits.

1-Poor: kneels w/ major use of arm(s) for assist, or exhibits major coordination deficits.

0-Unable: unable to kneel behind the lunge leg even with substantial arm support.



Start Position



4-Normal (Right lunge to left kneel)



2-Fair (Left lunge back, Minor Arms Assist)



1-Poor (Left lunge back, Major Arms Assist)

14. Active Squat Down (Identifies leg weakness and flexibility problems)

Instructions (as the examiner demonstrates)

- Next, squat to lower your bottom as low to the ground as you can without using your arms.
- Pause briefly to hold this posture before standing back up.

Rating:

4-Normal: squats without arm use with knees flexed to 120° or more.

3-Guarded: full active motion without arm use, minor coordination deficits, hesitation, or grimacing.

2-Fair: squats without arm use with knees flexed 90° to < 120°, and no more than minor coordination deficits.

1-Poor: squats without arm use with knees flexed 60 to < 90° or exhibits major coordination deficits.

0-Unable: unable to actively squat without arm use or active squat limited to knees flexed less < 60°.

Note: A goniometer may be used to validate the degree of knee flexion during active squat.



Starting Position



4-Normal (Knees =>120°)



2-Fair (Knees 90 to <120°)



1-Poor (knees 60 to <90°)

Sample Data Sheet

Name _____ Date _____ Rater _____

ACTIVE MOVEMENT SCALE (AMS)

ACTIVE MOVEMENT SCALE (AMS)				COMMENTS
1. Adduct thumbs	R____/4	L____/4	<input type="checkbox"/> Pain?	_____
2. Flex fingers 2-5	R____/4	L____/4	<input type="checkbox"/> Pain?	_____
3. Extend wrists	R____/4	L____/4	<input type="checkbox"/> Pain?	_____
4. Flex elbows back	R____/4	L____/4	<input type="checkbox"/> Pain?	_____
5. Elevate shoulders	R____/4	L____/4	<input type="checkbox"/> Pain?	_____
6. Diagonal neck bend	R____/4	L____/4	<input type="checkbox"/> Pain?	_____
7. Extend neck up	B____/4		<input type="checkbox"/> Pain?	_____
8. Forward bend over	B____/4		<input type="checkbox"/> Pain?	_____
9. Rotate torso in stand	R____/4	L____/4	<input type="checkbox"/> Pain?	_____
10. Single leg stance	R____/4	L____/4	<input type="checkbox"/> Pain?	_____
11. Step up and over	R____/4	L____/4	<input type="checkbox"/> Pain?	_____
12. Heel walk	R____/4	L____/4	<input type="checkbox"/> Pain?	_____
13. Lunge back to kneel	R____/4	L____/4	<input type="checkbox"/> Pain?	_____
14. Active squat down	B____/4		<input type="checkbox"/> Pain?	_____
Right Arm____/20 Left Arm____/20 Upper Body____/52 Lower Body____/48 Total____/100				

FOLLOW-UP ACTIVITY RECOMMENDATIONS

FOLLOW-UP ACTIVITY RECOMMENDATIONS			COMMENTS
1. Keep up the good work!	<input type="checkbox"/> YES	<input type="checkbox"/> NO	_____
2. Modify physical activity	<input type="checkbox"/> YES	<input type="checkbox"/> NO	_____
3. Supervised fitness training	<input type="checkbox"/> YES	<input type="checkbox"/> NO	_____
4. Weight loss management	<input type="checkbox"/> YES	<input type="checkbox"/> NO	_____
5. Physical therapist consult	<input type="checkbox"/> YES	<input type="checkbox"/> NO	_____
6. Other health consultation	<input type="checkbox"/> YES	<input type="checkbox"/> NO	_____

Interpretation of Movement Ratings:

- 4 = Normal (full movement performance to endpoint in controlled and coordinated manner)
- 3 = Guarded (full movement to endpoint with minor mechanics deficits, such as hesitation)
- 2 = Fair (completes most of movement with no more than minor mechanics deficits, such as hesitation)
- 1 = Poor (completes some of expected movement sequence, or demonstrates major mechanics deficits)
- 0 = Unable (or unwilling)

Scoring:

- Right Arm Score = total for movements 1-5 on right. A perfect Right Arm Score is 20 points.
- Left Arm Score = total for movements 1-5 on left. A perfect Left Arm Score is 20 points.
- Upper Body Score = total for movements 1-7. A perfect Upper Body Score is 52 points.
- Lower Body Score = total for movements 8-14. A perfect Lower Body Score is 48 points.
- Total Score = total of all ratings for movements 1-14. A perfect Total Score is 100 points.

Summary of Examiner Instructions for Active Movement Scale

Introducing the AMS:

- *This is a test of your ability to perform active movements.*
- *Wait for me to demonstrate each movement, and then try to perform it in a controlled manner to the extent that you safely can.*
- *We will skip any movements that you feel unsafe to perform.*
- *After doing each movement, let me know if you felt any pain that limited your movement by pointing to any areas where you felt pain.*
- *The first series of movements will be done while sitting on the front part of the chair. Do not lean against the back rest of the chair.*

1. Adduct Thumbs

- *Begin with your hands on your knees, with your palms up and fingers spread.*
- *Then try to touch the tips of your thumbs to the bottom of your pinky fingers.*

2. Flex Fingers 2-5

- *Next, keep your thumbs open and try to flex the other fingers to touch the middle of your palms.*

3. Extend Wrists

- *Next, keep your palms together next to your chest as you lower your hands as far as you can.*

4. Flex Elbows Back

- *Next, spread your elbows back and try to touch the top of your shoulders with your fingertips.*

5. Elevate Shoulders

- *Next, keep your elbows extended and try to raise only your right arm from the side to place it against your head. Then lower your arm and perform the same movement with only your left arm.*

6. Diagonal Neck Bend

- *Next, turn your head to the right as far as you can and try to touch your chin to your shoulder.*
- *Then turn your head as far as you can to the left and try to touch your chin to the other shoulder.*

7. Extend neck up

- *Next, turn to sit sideways on the chair. Then extend your head back as far as you can to look up.*

8. Forward bend over

- *Next stand up with your feet even and about shoulders width apart.*
- *Then bend at the waist with your knees straight or slightly bent and try to slide your hands down your legs as far as you can to touch the front of your toes.*

9. Rotate Torso in Stand

- *Next, face forwards with your feet shoulder width apart. Keep your arms at your sides and rotate your shoulders and hips as far as you can to the right. Then rotate as far as you can to the left.*

10. Single Leg Stance

- *Next, cross your arms and try to stand on the right leg only with your legs apart until I count to 10. Then try to stand on the left leg only with your legs apart to perform the same movement.*

11. Step Up and Over

- *Next, try to step up and over the step by placing only your right foot on the step.*
- *You may hold onto the table or chair for support to the extent needed for safety.*
- *Then turn around and step back across to return by placing only your right foot on the step.*
- *Then try to perform this movement by placing only your left foot on the step.*

12. Heel Walk Forward

- *Next, take several steps on the right heel only and try to keep your right toes as high as possible as you turn and return. Then try to walk on the left heel only with your left toes as high as possible.*

13. Lunge Back to Kneel

- *Next, step back to kneel with your left knee behind your right foot and pause with your trunk upright before standing up. You may use your arms on the chair or floor to get up or down if needed for safety. Then step back to kneel with your right knee behind your left foot.*

14. Active Squat Down

- *Next, squat to lower your bottom as low to the ground as you can without using your arms. Pause briefly in this posture before standing back up.*