

Why should I assess my current level of physical fitness?

Assessing your current level of physical fitness can tell you two important things:

1. **Your starting point or baseline:** Whether you are new to exercise or returning from some time off, an initial assessment can help you determine how hard to work at the beginning of your new program and let you choose areas that you feel need improvement, and how much.
2. **Your progress:** You can see how much you have improved by repeating an assessment periodically and comparing your results each time. We encourage you to repeat the assessment at the end of the 14 weeks, as well as at different points throughout the program (for example, you may want to repeat the assessment every 4 weeks or halfway through the program). Please be aware that there are some things that do not change very quickly (i.e. body weight), so assessing too often may be a little discouraging if you are looking to see significant changes.

What are the different components of physical fitness?

Each of the components of health-related fitness should be assessed separately.

- Body composition
- Cardiovascular fitness
- Muscular endurance
- Muscular strength
- Muscular flexibility
- Balance

It is possible, and likely, that you may have a high level of one type of fitness while you have a low level of another. All of these components are important to your health, so knowing your baseline and progress in each of them gives you a well-rounded picture of your overall health.

What is an “assessment”?

An assessment is simply a way for you to measure different aspects of your fitness level. An “assessment” does not have to follow a formal protocol, though there are standardized assessments and tests that can be used. We have given you some examples that you can do, but if you would like more options or have trouble finding ones that work for you, please contact a **NCPAD 14-Week** coach for modifications or additional resources.

How hard should I push myself during an assessment?

The nature of an assessment can sometimes involve pushing yourself beyond what you would usually do in one exercise session. Because of this, it is particularly important that you are familiar with the information and signs or symptoms that indicate when you should stop the assessment and stop exercising in general.

It is important that you stop exercising immediately if you feel any of the following:

- Chest pain or discomfort
- Breathlessness
- Flu-like symptoms (specifically nausea, clamminess or cold sweats)
- Unexplained fatigue
- Weakness or dizziness
- Pain in upper back, shoulders, neck, or jaw
- Feelings of anxiety

If you experience these signs and symptoms, please consult with your physician, as they may be signs of a serious medical condition.

How do I record results to my physical fitness assessments?

- As you perform each test, write down numbers and/or any other details (such as if/when you feel pain) that may be important for you to know, or let others know that may be assisting you, during your workouts. The more details you can record, the better!
- Save your initial results to compare it to later results to see your progress.
- Because we are all different, the best use of an assessment is NOT to compare yourself to other people. Instead, track your own progress throughout the program.
- To be able to compare, it is important to do the exact same test. Make sure to record as many details as needed to repeat the identical test the next time.

Test/Measurement	Date	Results	Notes (i.e. Equipment used, test details, test modifications, how you felt, etc.)
Body Composition			
Weight (pounds)			
Height (inches)			
Waist circumference			
Body Mass Index			
Other			
Cardiovascular Fitness			
Resting heart rate			
Set distance test			
Set time test			
Steps in place			
Other			
Muscle Endurance			
Core exercise			
Upper body exercise			
Lower body exercise			
Other			

Muscle Strength			
Perceived exertion test			
Other			
Muscle Flexibility			
Sit and reach			
Back scratch			
Groin flexibility			
Other			
Balance			
Timed test			
Sitting arm raise test			
Other			

Assessing Your Body Composition

Definition of Body Composition:

The ratio of how much lean body mass (muscles, bones, water, etc.) you have compared to how much fat mass you have.

Body Weight

To assess body weight, you can use a scale.

1. Always measure your weight at the same time of day, preferably before breakfast.
2. Remove your shoes and any excess layers of clothing (i.e. coats) and empty pockets.
3. Step on scale and record your body weight.

Note: If you have difficulty or are unable to step onto a scale independently (for example: if you use a wheelchair), ask your doctor or a local hospital to help you find a wheelchair scale or other accessible scale. If you have access to a wheelchair/accessible scale but still need some guidance on using it, please contact a **NCPAD 14 Week Coach**.

Height (option 1) - Standing

To assess height, you can use a vertical ruler mounted on a wall at a known height.

1. Set up measuring device.
 - a. If using a ruler, measure (i.e.) 5 or 6 feet on the wall and then mount the ruler to the wall at the 5 or 6 foot mark.
 - b. If using a tape measure, drop one end to the ground and bring the other end up above the head.
2. Remove shoes.
3. Stand with heels together.
4. Take a deep breath, stand tall, and mark at the top of your head.
5. Record your height as indicated by the measuring device.
 - a. If using a mounted ruler, record the additional number of inches on the mounted ruler. Add these inches to the base height you used (i.e. 5 or 6 feet) to get your total height.

Height (option 2) – Lying down

1. Lay down on a flat surface.
2. Using a tape measure or other measuring device, have an assistant measure the distance from your heel to the top of your head.
3. Record your height.

Height (option 3) – Body segments

If you are unable to stand, do not have an assistant, or cannot use the above methods for another reason, you can measure each segment of your body and add it together to estimate your height.

1. Measure from your heel to your knee and record.
2. Measure from your knee to your hip and record.
3. Measure from your hip to the top of your head and record.
4. Add all measures together.
5. Record estimated height.

Body Mass Index (BMI)

To assess risk for cardiovascular disease and to get an estimate of body size, you can use Body Mass Index (BMI).

1. Measure and record your height.
2. Measure and record your body weight.
3. Enter these values into a BMI calculator [<http://www.nhlbisupport.com/BMI/>] which calculates your BMI using the following equation:

$$\text{BMI} = \text{Body Weight (kg)} / (\text{Height (m)})^2$$
4. If calculating by hand, use these conversions:
 1 pound = 0.45359237 kilograms
 1 inch = 0.0254 meters
5. Record your calculated BMI.

Note: BMI is not the best tool to use for individuals with certain disabilities. Many body composition changes occur with disabilities (i.e., spinal cord injury). A decrease in muscle mass (especially below the level of injury) and bone density often accompanies an increase in body fat, making BMI unreliable

Waist Circumference

To assess waist circumference, you can use a flexible yet inelastic tape ruler, like a cloth tape measure.

1. Measure waist circumference at the same time during the day, preferably before breakfast.
2. Relax abdomen.
3. Place one end of the tape measure in the center of your torso, just above the belly button.
4. Wrap the other end of the tape measure around your torso like a belt, bringing it together with the end being held at the center of your torso.
5. Record your waist measurement.

Assessing Your Cardiovascular Endurance

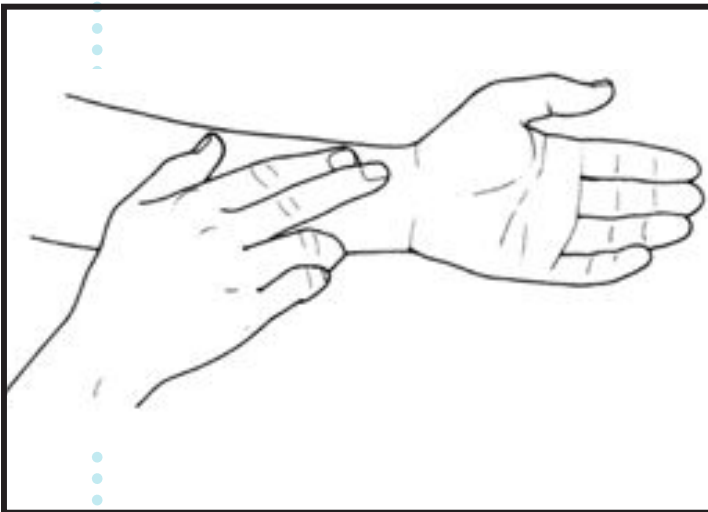
Definition of Cardiovascular Endurance:

The ability of your lungs and heart to deliver the necessary oxygen and nutrients to your working muscles.

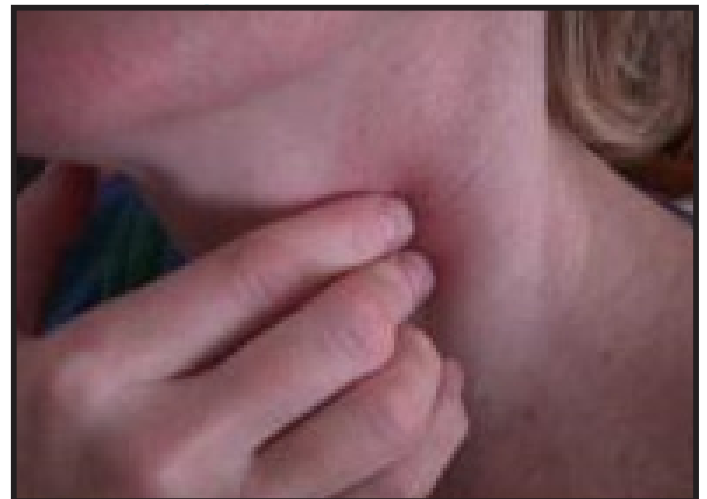
Resting Heart Rate

1. Sit in a chair or wheelchair.
2. Find the pulse at one of two places: wrist on the thumb side (radial pulse) or the side of your neck (carotid pulse).
3. Press your index and middle finger gently (avoid excess pressure) against the radial pulse or carotid pulse.
4. Count the pulse for a full minute. Each time you feel a slight thump, count that as one.
5. Record the number as your resting heart rate.
6. As you improve your cardiovascular endurance, your resting heart rate will decrease, meaning your heart doesn't have to work as hard to deliver the nutrients to the rest of your body.

Radial Pulse



Carotid Pulse



Assessing Your Cardiovascular Endurance cont...

Cardiorespiratory Endurance (option 1) – Set time

1. Choose an area that you would be able to track the distance.
 - a. Do Laps - walking/rolling/jogging around either your block or a track.
 - b. Use a piece of exercise equipment such as treadmill, bike or arm ergometer that indicates distance covered.
2. Set a timer for a specific amount of time.
 - a. 5, 10, or 15 minutes would all be appropriate.
3. Record the distance that you cover in that amount of time.
4. Record the intensity level that you worked at by using either your heart rate or rating of perceived exertion.
5. Use this same location and/or equipment for future assessments so you can compare your results and see your progress.
6. As your cardiorespiratory endurance improves, you will be able to cover a longer distance in the same amount of time.

Least effort		
6		
7	very, very light	
8		
9	very light	
10		
11	fairly light	ENDURANCE TRAINING ZONE
12		
13	somewhat hard	
14		
15	hard	STRENGTH TRAINING ZONE
16		
17	very hard	
18		
19	very, very hard	
20		
Maximum effort		

Cardiorespiratory Endurance (option 2) – Set distance

1. Choose an area with a known distance that is challenging, yet feasible and safe to cover.
 - a. A track, a certain number of blocks in your neighborhood, or a piece of equipment that indicates distance covered such as a treadmill, bike, or arm ergometer.
2. Start a timer and attempt to cover the distance as quickly as possible.
3. Stop the timer when you have reached the end.
4. Record the time.
5. Record the intensity level that you worked at by using either your heart rate or rating of perceived exertion.
6. Use this same location for future assessments so you can compare your results and see your progress.
7. As your cardiorespiratory endurance improves, you will be able to cover the same distance in a shorter amount of time.

Cardiorespiratory Endurance (option 3) – Step in place test

1. Stand up straight, using a balance support (walker, cane, table top, wall) as needed.
2. Begin to march in place, lifting each leg as high as possible (the goal is for the knee to get to the same height as the hip).
3. Set a timer for 2 minutes (or the length of time you choose).
4. Count the number of steps in place that you take and record this number.
5. Allow yourself to take a rest if needed and remember to hold onto a balance support as needed.
6. As your cardiorespiratory endurance improves, you will be able to do a greater number of steps in the same amount of time.

Assessing Your Muscular Endurance

Definition of Muscular Endurance:

Muscle's ability to exert force against resistance repeatedly or over a period of time.

To assess muscular endurance, you can use any of the strengthening exercises provided below, but are not limited to only these. If you are unable to perform any of the exercises or their modifications below, please call a NCPAD 14 Week Coach for one that works for you.

Maximum Repetitions Before Fatigue

1. Choose the exercise to perform.
2. Following the steps outlined for each exercise below, count the number of times you are able to do the exercise before fatiguing and record the number.
3. Over time you will be able to do a higher number before fatiguing.

Maximum Repetitions in Time Limit

1. Choose the exercise to perform.
2. Set a timer for a specific amount of time (i.e. 30-60 seconds)
3. Record both the time and the number of times you complete the exercise.
4. Over time, you will be able to do a higher number in that same amount of time.

Exercise Options for Muscular Assessment

Option 1: Core - Lying Abdominal Crunch

1. Lie down on your back on the floor with knees bent and feet flat on the floor. Place your hands behind your head or across your chest, whichever is most comfortable.
2. Keep your neck straight and your chin up (not crunching head forward), and pull your belly button in toward your spine, flattening your lower back against the floor.
3. Slowly contract your stomach, bringing your shoulder blades off the floor one or two inches, exhaling as you come up.
4. Hold at the top of the movement for a 1-2 seconds, breathing continuously.
5. Slowly lower back down, inhaling as you go, but not relaxing all the way to the floor.
6. Repeat.

Assessing Your Muscular Endurance cont...

Option 2: Core - Seated Abdominal Crunch

1. Sit tall in a straight-back chair or wheelchair. If you can, slide forward to front edge of chair or as far as possible. Make sure wheelchair wheels are locked.
2. Keep feet intact with the floor or an object throughout exercise and abdominal muscles tight.
3. Keeping your back as straight as possible, slowly bend backwards to about a 45 degree angle or until your back touches the back of the chair. Attempt to just barely touch the back of the chair and then start slowly returning to the start position.
4. Repeat.

Option 3: Lower body - Squat

1. Begin by standing with your feet apart, knees slightly bent, hands on your hips.
2. Use a chair nearby if needed for balance.
3. Slowly bend your knees and lower your body as if you were going to sit into a chair.
4. Make sure to keep your knees aligned with your ankles throughout the movement.
5. Hold this bent position for a moment, and then slowly return to your standing position.
6. Repeat.

Option 4: Lower body - Sit to Stand

1. Sit tall in the chair of your choice. Slide forward as far as possible. Move your feet back so your heels are lined up with the front edge of the chair.
2. Take a breath in, then keeping your spine straight and long; breathe out while you use your butt and legs to stand up. Lightly use your hands on the chair, only if necessary.
3. Return to the beginning seated position.
4. Repeat.

Assessing Your Muscular Endurance cont...

Option 5: Upper body - Standing or Seated Ballet Arms

1. Stand or sit tall with your feet shoulder-width apart, arms relaxed at your side, and stomach muscles tight. If you are sitting, keep your feet firmly planted on the ground or on an object in front of you.
2. Keeping your neck relaxed and shoulders down away from your ears, lift your arms up in front of you at chest level so they are parallel to the ground this is the center position, then open them out to the sides making a T shape with your body.
3. Slowly lift them over your head, then bring them back to center.
4. Repeat movement back out to sides, overhead, back to center, and continue.

Option 6: Upper body - Pushups

1. Start on all fours with hands a bit wider than the shoulders. *If possible, you can push the knees up to the sky so that you are resting on your hands and toes. Otherwise, stay on your hands and knees.
2. Walk the knees back a bit in order to lean your weight on the hands and flatten the back into a straight line from the head down to the back of the knees.
3. Inhale, pull the stomach muscles in and, keeping back straight, bend the elbows and lower body toward the floor until elbows are at 90-degree angles.
4. Exhale and push back up.
5. Repeat.

Option 7 – Upper body - Wall Push Up

1. Stand approximately 1-2 feet away from the wall keeping your feet together. If you stand too far away, you will have to bend to reach the wall, creating poor posture. If you stand too close to the wall, it will not allow you to extend your arms far enough.
2. Place your hands flat on the wall. Your arms should be straight out at shoulder height and slightly more than shoulder width apart from each other.
3. Lean towards the wall while keeping your elbows tucked in until your nose is almost touching the wall. Hold this position and focus on your posture before finishing the push-up. Check to ensure that your body is in a straight line all the way from head to toe.
4. Return to your starting position slowly.
5. Repeat.

Assessing Your Muscular Strength

Definition of Muscular Strength:

Your muscles' ability to exert force against a set resistance or the maximum amount of weight you are able to lift.

Muscular strength can be difficult to assess on your own and may not be appropriate for everyone. You can still get a clear picture of your level of physical fitness without measuring muscular strength. Read the tips and instructions below and decide whether or not these tests are appropriate for you. If you have any questions, please feel free to contact us.

These tests can be performed with any strength training exercise. Common exercises used are with gym equipment such as the bench press, leg extension, and leg press. If you have access to these equipment and need more information than what is below for your assessment, please contact a **NCPAD 14 Week Coach**. If you do not have access to this type of equipment, the muscular endurance tests are a more appropriate option and can give you equally as valuable information.

The Borg Category Rating Scale

Least effort		
6		
7	very, very light	
8		
9	very light	
10		
11	fairly light	ENDURANCE TRAINING ZONE
12		
13	somewhat hard	
14		STRENGTH TRAINING ZONE
15	hard	
16		
17	very hard	
18		
19	very, very hard	
20		
Maximum effort		

Perceived Exertion Test

1. Choose the exercise you would like to perform.
2. Choose a weight that is about what you think you are able to lift 10 times in a row.
3. Attempt to do the chosen exercise with the chosen weight for 10 repetitions, remembering to use good form throughout each movement.
4. Using the Rating of Perceived Exertion scale record how hard you were working while doing this exercise.
5. Record the weight that you chose and the number of repetitions you completed.
6. As you progress, you should be able to lift this weight for these repetitions at a lower level of perceived exertion.

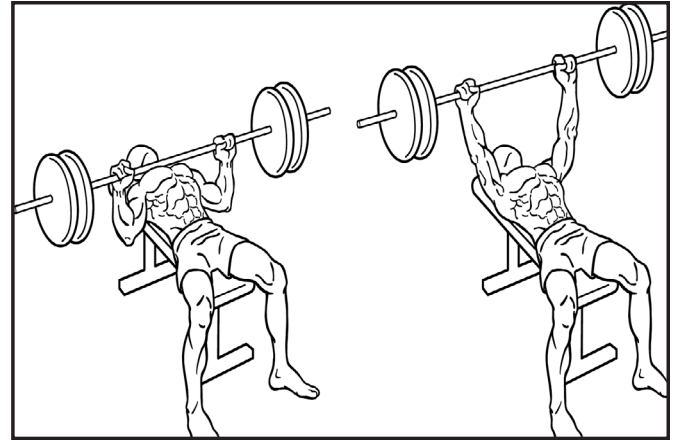
CAUTION: For both safety and accuracy, at no point during any assessment should you sacrifice proper form for another repetition or to be able to lift more weight.

Assessing Your Muscular Strength cont...

Exercise Options for Muscular Strength Assessment

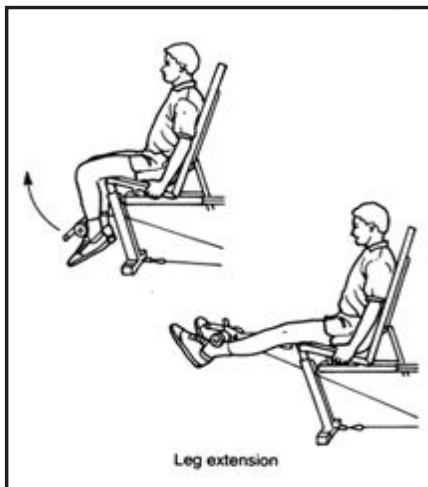
Option 1: Bench Press

1. Keep your back planted firmly against the bench pad and your feet on the ground.
2. Grip the bar tightly with both hands with fingers and thumb wrapped around the bar.
3. Push the bar up away from your body (toward the sky) in a smooth, slow, controlled manner.
4. *You can also do this with free weights (i.e. dumbbells) if you are able to do the motion slow and controlled and do not have any balance issues in this position.



Bench Press

Leg Extension



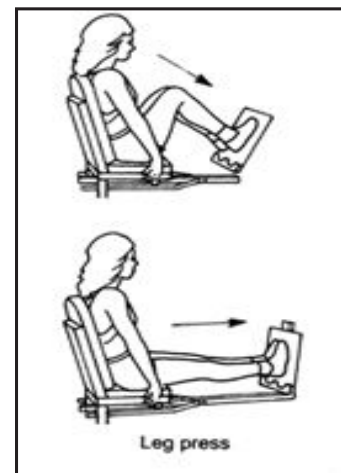
Option 2: Leg Extension

1. Begin with one leg extended with the foot behind the padded bar of the leg extension attachment.
2. Hold the bench or side handles with your hands and slowly lower your leg about 45 degrees before lifting again.
3. Avoid lowering it all the way down because this puts too much strain on knee ligaments.
4. Do not assist the movement by swinging your upper body.
5. Repeat with the other leg.

Option 3: Leg Press

1. Sit up tall and place your feet flat on the foot rests of the machine. Your legs should be bent at 90 degrees at the knee and your hands should be grasping the seat handles.
2. Fully extend your legs and thighs then return to the start position.
3. Keep your backside on the seat and your back against the backrest throughout the exercise.

Leg Press



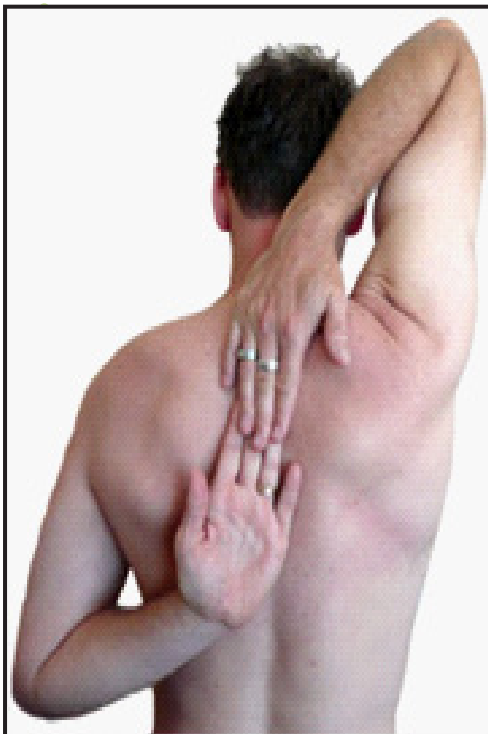
Assessing Your Muscular Flexibility

Definition of Muscular Flexibility:

Your ability to move a joint through its full range of motion.

Sit and Reach Test

1. Sit on the ground with your legs together and extended in front of your body.
2. Bend forward as far as you are able, reaching towards your toes.
3. You can use a measuring stick or tape to see how far away from your toes you are or how far past your toes you are able to reach.
4. Record this measurement.



Chair Sit and Reach Test

CAUTION: If you do not have full control of your trunk muscles, we advise that you DO NOT choose this alternative.

1. Sit on the edge of a chair. Be sure the chair is placed against a wall to prevent it from tipping over.
2. Place one foot flat on the floor.
3. Extend the other leg making the knee straight and placing the heel on the floor.
4. Bend forward as far as you are able, reaching towards your toes.
5. You can use a measuring stick or tape to see how far away from your toes you are or how far past your toes you are able to reach.
6. Record this measurement.

Assessing Your Muscular Flexibility cont...

Back Scratch Test

1. Sit or stand up tall
2. Place one hand behind the head and back over the shoulder, and reach as far as possible down the middle of your back, your palm touching your body and the fingers directed downwards (see image).
3. Place the other arm behind your back, palm facing outward and fingers upward and reach up as far as possible attempting to touch or overlap the middle fingers of both hands.
4. If you have an assistant, have them measure the distance between your fingertips. If you do not have an assistant, estimate the distance.
5. If the fingertips touch then the score is zero.

Groin Flexibility Test

1. Sit on the floor with your knees bent, feet flat on the floor, and legs together.
2. Let your knees drop sideways (out) as far as possible keeping your feet together. The soles of your feet should be together and facing each other.
3. Hold on to your feet with both hands, and pull you ankles as close to your body as possible.
4. Measure the distance from your heels to your groin.

Definition of Balance:

Enables us to know where our bodies are in the environment and to maintain a desired position.

Sitting Arm Raise Test

1. Sit on a firm, level chair, with no back support if possible.
2. Place feet on the floor and hands on lap.
3. Lift one arm (either left or right) all the way up and back down, through the full range of motion (i.e., lift overhead and down to touch the chair).
4. Repeat this movement as many times as possible in a 15 second period.
5. Count and record the number of times you are able to lift your arm up and down within the 15 second time frame.
6. As your balance improves, you will be able to increase the number of times you are able to lift your arm up and down.

Timed Test

1. Choose a position that challenges your balance, a position you would only be able to hold for less than 30 seconds.
 - a. i.e. Standing on two feet, standing on one foot, sitting with only one foot touching the ground, tandem standing (one foot in front of the other), sitting and closing your eyes, etc. Make note of the position you choose so you can repeat the test later.
2. Get into position and start a timer.
3. Stop the timer when you have to change your position from a loss of balance.
4. Record the time.
5. If you are able to hold the position for longer than a minute, try a more challenging position.
 - a. i.e. Try putting feet close together, lifting one foot, or closing your eyes.
6. As your balance improves, you should be able to maintain this position for a longer period of time.



References and Resources

Thomas, W. R., Gordon, N. F., Pescatello, L. S., & American College of Sports Medicine. (2010). *Guidelines for Exercise Testing and Prescriptions* (8th ed.). Baltimore, MD: Lippincott Williams & Wilkins.

<http://www.nhlbisupport.com/BMI>

<http://www.topendsports.com>

<http://en.wikipedia.org/wiki/File:Bench-press.png>

<http://www.answers.com/topic/>