

Improving Sleep through Exercise



IMG Physical Therapy

Do you have difficulty sleeping?

Are you unable to sleep through the night? Do you find yourself becoming sleepy during the day? Do you take naps often? Do you wake up frequently during the night? Do you lie in bed awake before falling asleep? Are you taking sleeping pills on a regular basis to fall asleep at night? Do you wake up early and are unable to go back to sleep?

Sleep deprivation or disturbance can lead to fatigue, difficulty concentrating, decreased memory capacity, emotional uneasiness, daytime sleepiness and increase your risk for falls. Poor sleep quantity and quality have also been shown to increase the risk of falls in older adults therefore negatively affecting morbidity, mortality, and quality of life.

Exercise has been proven to improve quality of sleep and time spent sleeping, as well as decrease the amount of time needed to fall asleep and the number of wake periods after the onset of sleep. If you are new to exercising or practice a steady workout routine, the passive stretching exercises below may help to calm the mind and body just before going to bed.

Poor sleep quality?

Difficulty initiating or maintaining sleep?

Early morning awakening?

Exercise can help!

Yoga for Improved Sleep

Begin the following yoga based exercise program about an hour before bed. Make the exercises a habitual part of your bedtime routine to maximize sleep benefits. The program consists of a **warm up**, several **gentle stretching** postures to improve range of motion, a **relaxation** period, and a **meditation** period. Most sleeping benefits are noticed after 4 weeks, with maximum benefits achieved with long term continuation of the exercise program.

STOP exercise and contact doctor or therapist if you have pain while performing any of the exercises.

Did you know?

Aging causes changes in sleep

Sleep disturbance is common among 40-70% of older persons

Insomnia increases the risk of accidents and falls

Warm Up

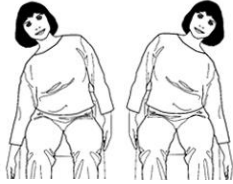
While seated:

1. Move fingers and toes for 30 seconds
2. Circle head 10x to the left and 10x to the right
3. Circle the ankles clockwise and counterclockwise 10x in each direction
4. Bend forward at the waist and reach toward toes for 30 seconds to 1 minute

While standing:

1. Swing both arms in large circles forward and backward 10x in each direction
2. Roll shoulders forward and backward 10x each
3. Place hands on hips and twist at the waist to the right and left 10x each
4. Slowly shift weight backward to raise toes off of the ground and then shift weight forward lifting body up on toes 10x each

Gentle Stretching



1. Side Stretch

Sit on chair, place arms at sides and bend to either side, holding for 30 seconds, repeat to opposite side

Advanced: Stand with feet wide and gently raise right arm over head while leaning trunk to the left



2. Crouch

Keep arms down at sides and slowly bend at knees and hips as if you are sitting back into a chair, hold for 30 seconds at a comfortable height

Advanced: Bring both arms straight up over head and slowly bend legs slightly to a tolerable level



3. Single Leg Bend and Stretch

Stand facing a wall, place both palms on the wall and bring one leg forward, slightly lunge forward into the wall until a light stretch is felt along the front of the back leg and hip, hold for 30 seconds, switch legs and repeat

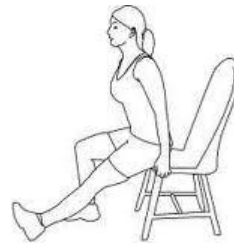
Advanced: Start in kneeling lunge and push hip of back leg forward slightly



4. Spinal Flexion & Extension

Sit in a chair, slowly round back and bring shoulders forward, hold for 5 seconds, release and push stomach forward by arching back

Advanced: Start on hands and knees on the floor and round back up to the sky, hold for 5 seconds, release and push stomach down toward floor by arching the back



5. Seated Forward Bend

Sit in a chair with one leg out and the other leg with the knee slightly bent and bend forward only to a tolerable point, hold for 30 seconds

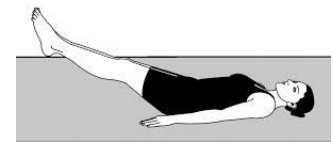
Advanced: Start in a seated position on the floor with legs together and slowly bend forward at waist to feel a comfortable stretch along the backs of legs, keep back straight and hold for 30 seconds



6. Alert Cobra

Lie on stomach, face down, placing elbows on either side of shoulders, with legs apart slightly, lift upper trunk and head off of the floor by pushing into floor, turn head to left and right slowly and then return to starting position on floor

Advanced: Push up on hands from floor, straightening arms and raising entire trunk



7. Rocking Boat

Lying flat on back with legs together, bring arms to either side of body so that palms are touching thighs, slowly raise legs off of the floor and balance here for 10 seconds, relax and repeat two more times. Only raise legs as much as is comfortable

Modification: Raise legs, trunk and arms off of floor only to a comfortable level without excessive strain on neck

Relaxation

1. **Wind Relieving Pose** - lying on back slowly bend both legs up toward head and bring knees to chest, wrap arms around knees or thighs to pull legs closer to chest, bring forehead to knees if able without straining neck, hold for 30 seconds

Modification: Pull one leg up toward chest at a time while leaving the other leg resting with the knee bent and foot flat on the floor to support the lower back

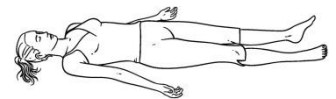


2. **Corpse rest** – lie on back with legs and arms relaxed at sides, close eyes and release all of the tension from every muscle in the body, hold for several minutes

Modification: If lying completely flat on the floor is uncomfortable, place a small bolster, pillow, or rolled up blanket under knees to allow them to rest in a slightly bent position

Meditation

As the body relaxes in corpse pose, close your eyes and slowly remove all thoughts from the mind. Think about a pleasant image, location or thought and relax. With the body and mind relaxed you are now ready to fall asleep.



Aerobic Exercise

Aerobic exercise has been proven to improve sleep response. The following guidelines outline an aerobic exercise program to improve sleep quality.

- Exercise 5 to 6 hours before bedtime but no closer than 3 hours
- If physically able, exercise should last for at least 30 minutes and take place at a moderate to high intensity
 - *Modification:* Light intensity exercise has also been shown to have a positive benefit on sleep and is acceptable for older adults just beginning to exercise. Start by exercising for 30 minutes and work up to exercising for 1 hour over a several week period.

American College of Sports Medicine guidelines for physical activity:



- 150 minutes per week of moderate intensity
OR
- 75 minutes per week of vigorous activity
OR
- A combination of the two

- Exercise should be performed 3-4x/week
- Walking, cycling, calisthenics, or dancing with minimal impact are all aerobic activities that are recommended for older adults

Using the Borg Rating of Perceived Exertion (RPE) Scale:

Moderate intensity = 11-14 RPE

Vigorous intensity = 17-19 RPE

Rating	Perceived Exertion
6	No exertion
7	Extremely light
8	
9	Very light
10	
11	Light
12	
13	Somewhat hard
14	
15	Hard
16	
17	Very hard
18	
19	Extremely hard
20	Maximal exertion

Table 1. The Borg Rating of Perceived Exertion Scale

Endurance Exercise

In older adults, endurance exercise has been shown to have a greater positive effect on sleep. Endurance exercise is classified as moderate intensity exercise that lasts for more than two hours. It is recommended that individuals exercise 3-4x/week at a time of day 5 to 6 hours before bedtime. **Endurance exercise is only advised for fit individuals with sleep complaints.** Individuals participating in an endurance exercise program must be careful not to over train, as increased fatigue can have a negative effect on sleep quality.



Exposure to Sunlight

Added improvements in sleep quality can be achieved by exercising outdoors as there is evidence that any amount of sunlight can enhance sleep. Exposure to light also has mood promoting effects which may help improve overall quality of life.

Exercising with Others

Additional benefits have been observed in studies where participants exercised in a group. This promoted social interaction which increases the likelihood an individual will continue with an exercise program. A lack of social interaction can alter temporal references and lead to a reduction in total sleep time. Exercising with friends also helps with motivation and makes the time pass more quickly while exercising.

Complicating Factors

In addition to exercising, try to reduce the following behaviors to improve sleep quality:

- Smoking
- Caffeine
- Alcohol intake
- Overeating
- Exercising late at night



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