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VA



U.S. Department of Veterans Affairs

Veterans Health Administration
Office of Rural Health

8.3 Injuries

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Hearing Loss and Tinnitus

Injuries

Approximately one-quarter of American adults (n=37.5 million) aged 18 and older express hearing trouble. Over half of those are over the age of 75 (National Institute on Deafness and Other Communication Disorders, 2024).

According to the Veterans Affairs (VA), hearing problems— such as tinnitus, are the most prevalent service-connected disability among Veterans. Tinnitus is the perception of sound that does not have an external source; therefore, other people cannot hear it (Veterans Affairs Office of Research and Development, n.d.). It is commonly described as a ringing sound, but it could also be another type of sound, such as roaring or buzzing. When tinnitus lasts for three months or longer, it is considered chronic (National Institute of Deafness and Other Communication Disorders, 2023).

The causes of tinnitus are unclear, but most people who have tinnitus will have some degree of hearing loss. It has been associated with noise exposure, medications, earwax/ear infections, and head/neck injuries (Figure 8.3a).

Some hearing loss can be reversed through surgery or medication. Hearing loss is permanent in other cases but can often be improved through hearing aids. According to the National Institute on Deafness and Other Communication Disorders, people aged 70 and older with hearing loss could benefit from hearing aids. However, fewer than 1 in 3 (30%) have used them (Veterans Affairs Office of Research and Development, n.d.). Many Veterans score normally on hearing tests but have difficulty understanding speech. This condition, called auditory processing disorder, is often associated with blast exposure (Veterans Affairs Office of Research and Development, n.d.).



TINNITUS

- **Noise exposure.** People experience tinnitus after exposure to loud noise in a workplace setting, sporting event, or concert. Tinnitus is also the most common service-related disability among veterans because of loud noise they may have experienced from gunfire, machinery, bomb blasts, or other similar sources.
- **Hearing loss.** Hearing loss, which can be caused by aging or exposure to loud noise, is strongly related to tinnitus. However, some people with hearing loss will never develop tinnitus.
- **Medications.** Tinnitus could be a side effect of certain medications, especially if taken at high doses. Medications associated with tinnitus include non-steroidal anti-inflammatory drugs (e.g., ibuprofen, naproxen, and aspirin), certain antibiotics, anti-cancer drugs, anti-malaria medications, and antidepressants.
- **Earwax/ Ear infection.** Blockage of the ear canal by earwax or by fluid from an ear infection can trigger tinnitus.
- **Head/ Neck injuries.** A head or neck injury can damage ear structures, the nerve that carries sound signals to the brain, or brain areas that process sound, causing tinnitus

Figure 8.3a

Possible Causes of Tinnitus

Source

National Institute on Deafness and Other Communication Disorders, 2023

Treatment options for Veterans with tinnitus

When tinnitus has an underlying physiological cause, such as earwax or jaw joint problems, addressing the cause can significantly reduce or eliminate its symptoms.

Nevertheless, symptoms can persist for months or even years for many people. There are several treatment options to lessen the impact of tinnitus. Some of the treatments that a doctor may recommend are sound therapies, tabletop/smartphone sound generators, hearing aids, wearable sound generators, and combination devices (Figure 8.3b).

TREATMENT OPTIONS FOR TINNITUS

01 Sound Therapy
Evidence suggests that exposure to sound can reverse some neural changes and help silence tinnitus. Sound therapy may also work by masking the tinnitus sounds, helping to grow accustomed to them, or being distracted. There are several devices used in sound therapy

1.a Tabletop/smartphone sound generators
Are typically used to aid relaxation or sleep. Place them near the bed to play pleasant sounds such as waves, waterfalls, rain, or the sounds of a summer night.

1.b Hearing Aids
They amplify external noises, allowing better engagement with the world and making tinnitus less noticeable. Are one of the best options to treat tinnitus

1.c Wearable sound generators
Are small electronic devices that fit in the ear like hearing aids and emit soft, pleasant sounds. Because they are portable, they can provide continuous relief from tinnitus throughout the day

1.e Combination devices
They fit into the ear like hearing aids. They provide sound amplification and sound generation in one device. These devices are another option for treating tinnitus in people with hearing loss.

02 Behavioral Therapy
Evidence suggests that exposure to sound can reverse some neural changes and help silence tinnitus. Sound therapy may also work by masking the tinnitus sounds, helping to grow accustomed to them, or being distracted. There are several devices used in sound therapy

2.a Education
Education about tinnitus can reduce anxiety by helping to recognize that the condition, in most cases, is unlikely to be linked to a severe medical condition. Through counseling, people can learn coping techniques and strategies to avoid worsening symptoms, such as limiting exposure to loud noise.

2.b Cognitive behavioral therapy
Teaches how to identify negative thoughts that cause distress. A counselor will train them to change their response to negative thoughts and to focus on positive changes that can reduce the impact of tinnitus on their lives.

2.c Tinnitus retraining therapy
Uses counseling and sound therapy to "retrain" the brain emotionally and physiologically so people no longer notice their tinnitus. The counseling aims to help reclassify tinnitus sounds as neutral, while the continuous low-level sound from a device worn in the ear helps get used to the presence of tinnitus

03 Medication
There are no medications specifically for treating tinnitus, but a doctor may prescribe antidepressants or anti-anxiety medications to improve mood or help with sleeping problems



Figure 8.3b

Treatment Options for Tinnitus

Source

National Institute on Deafness and Other Communication Disorders, 2023

Musculoskeletal Injuries and Pain

Musculoskeletal (MSK) conditions could be caused by an accident or trauma, wear and tear, repetitive motions, extreme physical training, or carrying heavy gear. It is essential to get help because MSK injuries may cause chronic pain if Veterans do not seek treatment.

Chronic pain is pain that lasts more than six months. Examples of chronic MSK pain include back pain, arthritis, fibromyalgia, and joint problems. Chronic pain can affect mood and make it difficult to work and participate in everyday activities.

Even though some MSK conditions may lead to chronic pain, treatment can help reduce pain and improve function and quality of life

Veterans may be eligible for compensation for conditions that started or worsened in the line of duty, including injuries or disabilities related to MSK conditions. If Veterans have questions, a Veterans Benefits Administration (VBA) representative from the nearest regional office can explain (U.S. Department of Veterans Affairs, n.d.b)

[Closest Regional Office](#)

<https://www.va.gov/find-locations/>



Treatment Options for Musculoskeletal Injuries

Veterans can talk to their primary care provider about their MSK concerns, and get a referral to specialized services.

- ◆ **Physical therapy** might help with the movement and function of body parts. Techniques may include:
 - ◆ Heat treatments, including hot water baths or heating pads
 - ◆ Cold treatments, including ice packs, ice baths, and ice massage
 - ◆ Gentle stretching
 - ◆ Muscle strengthening exercises
 - ◆ Vibration therapy
 - ◆ Aquatic therapy
- ◆ **Occupational therapy** helps with daily tasks such as cooking or dressing, especially using hands and arms
- ◆ **Recreational therapy** uses visual arts and music
- ◆ **Chiropractic treatment** is hands-on treatment to align the spine and restore joint mobility
- ◆ **Rheumatology** treatment can be used for certain MSK conditions like rheumatoid arthritis or lupus
- ◆ **Orthopedics**
- ◆ **Neurology and Neuropsychology**
- ◆ **Physiatry** providers are trained in physical medicine and rehabilitation
- ◆ **Complementary and integrative health services** include acupuncture, massage, yoga, meditation, and relaxation treatments
- ◆ **Medications** such as anti-inflammatory drugs (ibuprofen), pain medications, and some anti-seizure or anti-depressant medications can help with MSK
- ◆ **Pain management injections** such as botulinum toxin and cortisone may also be useful
- ◆ **Cognitive behavioral pain self-management** programs teach relaxation, pacing, and healthy sleep habits and encourage healthy movement
- ◆ **Rehab, Refit, Return to Duty** is a free mobile app to help service members and Veterans recover from MSK injuries and improve overall health and fitness (U.S. Department of Veterans Affairs, n.d.b)

Spinal Cord Injuries and Disorders

What is a spinal cord injury?

The spinal cord is the main pathway for transmitting information between the brain and the nerves that lead to muscles, skin, internal organs and glands. It is a cylindrical structure that runs through the center of the spine, from the brainstem to the lower back. It is one of the main parts of the nervous system (Cleveland Clinic, 2021).

An injury to the spinal cord disrupts movement, sensation and function. These injuries can vary from minor and manageable to severe and permanent injuries. Paraplegia, for instance, results from an injury to the lower part of the spinal cord, causing paralysis of the lower part of the body and affecting the bowel and bladder. People with paraplegia, in general, can do most personal care and daily activities on their own. Tetraplegia, or quadriplegia, results from an injury to the spinal cord in the neck area, causing paralysis to the lower and upper body, including the arms. SCI requires ongoing management of impairments and prevention of related problems like those listed in Figure 8.3c (Military.com, 2013).



Other Possible Consequences of Spinal Cord Injuries

- Autonomic dysreflexia, with injuries at or above T6, the sixth thoracic spinal nerve.
- Spinal (neurogenic) shock
- Nerve pain (neuropathic pain)
- Pneumonia
- Urinary tract infections
- Blood clots in your legs and lungs
- Pressure sores
- Sepsis
- Death, especially if the injury is higher up the spine

Figure 8.3c
Other Possible Consequences of Spinal Cord Injuries
Source
Cleveland Clinic, 2021

Spinal Cord Injuries/ Disorders (SCI/D) and Depression

People with spinal cord injuries and disorders may be at higher risk of developing depression because of the severe changes, stress, and challenges they face. About one in three people with SCI/D will become depressed at least once during their life. If a Veteran thinks they might have depression, it is essential to discuss it with a healthcare provider. With treatment, depression can be improved or cured (U.S. Department of Veterans Affairs, n.d.a).

Alcohol Use and Spinal Cord Injuries

People with SCI are at greater risk for alcohol abuse than the general population. Alcohol slows brain function and can impair memory, judgment, and coordination. This situation makes a Veteran or any other person with a SCI less likely to follow their care program (U.S. Department of Veterans Affairs, n.d.c)

Management and Treatment Options

The VA has the Spinal Cord Injuries and Disorders (SCI/D) System of Care that provides a life-long continuum of coordinated services for Veterans with a spinal cord injury/disorder.

The VA has 25 Spinal Cord Injury and Disorders centers around the country. If a Veteran or family member of a Veteran with an SCI/D has questions about the VA's services, eligibility, or benefits for Veterans with spinal cord injuries and disorders, they should contact the closest VA Spinal Cord Injury and Disorders center.

[Spinal Cord Injury and Disorders Center](https://www.sci.va.gov/Veterans/SCID_Centers.asp)

https://www.sci.va.gov/Veterans/SCID_Centers.asp

Contact the VA for more informaiton

[Contact the VA Via Email](mailto:VHANationalSCIWebmaster@va.gov)

VHANationalSCIWebmaster@va.gov

In order to protect their privacy, the VA will not respond via email. Please leave a phone number they can use to contact you. The VA also recommends caution entering personal information because regular email security cannot be guaranteed.

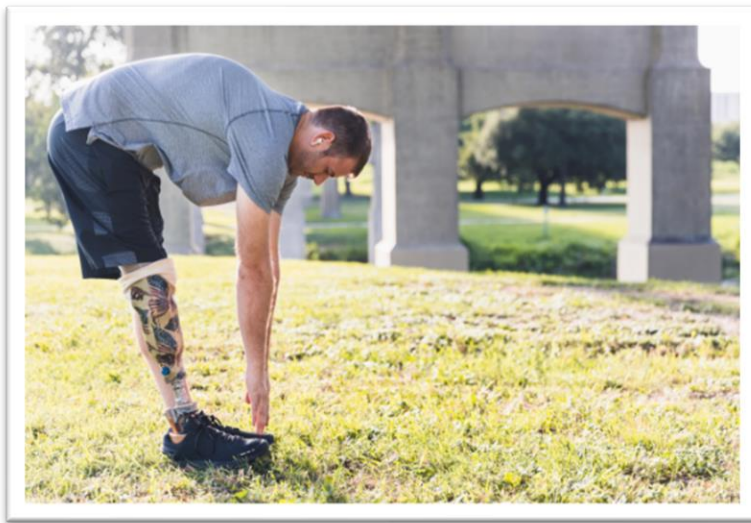
Limb Loss and Veterans

Limb loss is a life-changing and emotional event (Leonard et al., 2022) and is one of the leading causes of disability (Murray et al., 2024).

As a consequence of several military conflicts during the last three decades, there has been an increase in the number of injuries and disabilities for Veterans. More than one-half of Veterans with a major limb loss will also have a traumatic brain injury (Murray et al., 2024). Lower limb amputations are the most common type of amputation among Veterans. Many of them are acquired in combat below the knee (29%), 27% are above the knee, and 21%-30% experienced amputation of multiple limbs. Upper limb amputations, on the other hand, occur in 22% of military amputees (Murray et al., 2024).

Following an amputation, there is a period of adaptation to the new circumstances. Several psychological issues can affect people who just experienced an amputation. According to research, anxiety and depression are relatively common during the first two years following an amputation. Changes to body image and self-esteem are widespread among individuals who have experienced a limb loss, while intimate relationships are often negatively impacted (Murray et al., 2024).

Nevertheless, specific psychological characteristics or attitudes have been found to help people to adapt. For instance, being able to find a new meaning in life, dispositional optimism and



perceived control over the disability, as well as the adoption of goal-setting strategies such as seeking help, being determined, accepting new limitations, and receiving emotional support from friends and family. (Murray et al., 2024).

Rehabilitation and Prosthetic Services

The VA Amputation System of Care (ASoC) has specialized proficiency in amputation rehabilitation while incorporating the latest practices in medical rehabilitation management, rehabilitation therapies, and advances in prosthetic technology. It is a system of care designed to provide Veterans access to the entire continuum of care (U.S. Department of Veterans Affairs, 2023)

[Point of Contact at ASoC](#)

<https://www.rehab.va.gov/PROSTHETICS/asoc/resources/ARC-Contact-List-Map-FY24.pdf>

Athletic and Special Event Opportunities

The Amputation System of Care partners with the National Veterans Sports Programs & Special Events to ensure Veterans with limb loss are aware of the different events' opportunities. There are multiple ways for participants to take part in adaptive sports and special events, such as the Sports4Vets Throwdown or the National Veterans Disabled Golf Clinic (U.S. Department of Veterans Affairs, 2023).

[National Veterans Sports Programs & Special Website https://department.va.gov/veteran-sports/](https://department.va.gov/veteran-sports/)

[National Veterans Sports Programs & Special Events Fact Sheet](#)

<https://www.rehab.va.gov/factsheet/NVSPSE-FactSheet.pdf>

References

Cleveland Clinic. (2021, Oct 7). *Spinal Cord*. Cleveland Clinic. Retrieved Mar 26, 2024, from

<https://my.clevelandclinic.org/health/body/21946-spinal-cord>

Leonard, C., Sayre, G., Williams, S., Henderson, A., Norvell, D., Turner, A. P., & Czerniecki, J.

(2022). Understanding the experience of veterans who require lower limb amputation in the

Veterans Health Administration. *PloS One*, 17(3), e0265620.

10.1371/journal.pone.0265620

Military.com. (2013, Sept 21,). *Veterans with spinal cord injury/disorders*. Military.Com Network.

Retrieved Mar 27, 2023, from <https://www.military.com/benefits/veterans-health-care/veterans-with-spinal-cord-injury-disorders.html>

Murray, C. D., Havlin, H., & Molyneaux, V. (2024). Considering the psychological experience of amputation and rehabilitation for military veterans: a systematic review and metasynthesis of qualitative research. *Disability and Rehabilitation, ahead-of-print*(ahead-of-print), 1-20.

10.1080/09638288.2023.2182915

National Institute of Deafness and Other Communication Disorders. (2023, May 1). *Tinnitus*.

National Institute on Deafness and Other Communication Disorders. Retrieved Mar 26, 2024, from <https://www.nidcd.nih.gov/health/tinnitus>

National Institute on Deafness and Other Communication Disorders. (2024, Mar 20). *Quick statistics about hearing, balance, and dizziness*. National Institute on Deafness and Other Communication Disorders. Retrieved Mar 26, 2024, from

<https://www.nidcd.nih.gov/health/statistics/quick-statistics-hearing#3>

U.S. Department of Veterans Affairs. (2023, Dec 18). *Rehabilitation and Prosthetic Services: Amputation System of Care*. U.S. Department of Veterans Affairs. Retrieved Mar 28, 2023, from <https://www.rehab.va.gov/asoc/>

U.S. Department of Veterans Affairs. (n.d.a). *Depression and spinal cord injuries and disorders (SCI/D)*. Veterans Health Library. Retrieved Mar 27, 2023, from https://www.veteranshealthlibrary.va.gov/RelatedItems/142,41191_VA

U.S. Department of Veterans Affairs. (n.d.b). *Musculoskeletal conditions and pain*. U.S. Department of Veterans Affairs: Women Veterans Health Care. Retrieved Mar 26, 2024, from <https://www.womenshealth.va.gov/WOMENSHEALTH/topics/musculoskeletal-conditions-and-pain.asp>

U.S. Department of Veterans Affairs. (n.d.c.). *Spinal cord injury (SCI) and alcohol use*. Veterans Health Library. Retrieved Mar 27, 2023, from <https://www.veteranshealthlibrary.va.gov/Search/3,41193>

Veterans Affairs Office of Research and Development. (n.d.). *VA research on hearing loss*. Office of Research and Development, U.S. Department of Veterans Affairs. Retrieved Mar 26, 2024, from <https://www.research.va.gov/topics/hearing.cfm>