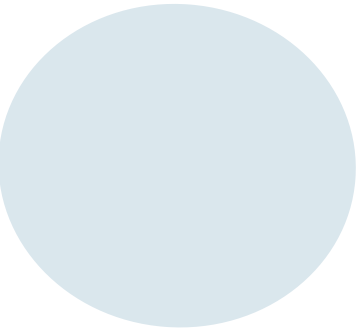




# *Restoring Rest*

A Sleep Management Guide to Support  
Mental Health and Well-being in Adults with  
Spinal Cord Injury (SCI)



Alessia DiBucci, OTDS  
Occupational Therapy Doctoral Student  
New York Institute of Technology

## Purpose of Project

The purpose of this doctoral capstone project is the development of a web-based **sleep management** guide for adults with spinal cord injury (SCI) and their caregivers, aimed at **educating** and **promoting healthy sleep hygiene habits**.

This guide will provide **evidence-based interventions and resources** to enhance sleep quality and support mental health and overall well-being in adults with SCI.

The project further highlights the gap between **rest & sleep** and **mental health** within **adults with SCI** aiming to show the importance of adopting **sustainable sleep strategies** to improve their **physical** and **mental health outcomes**.



*This guide is intended for informational purposes only and is not a substitute for professional medical advice. The information provided should be discussed with a qualified healthcare professional before making any health-related decisions.*

# Spinal Cord Injury

The spinal cord is responsible for sending and receiving signals from the brain to the rest of the body. Damage to the communication by the close-knit bundle of nerves and cells is known as a **Spinal Cord Injury (SCI)**.

A spinal cord injury can be from **trauma, disease, or congenital**.

Following a spinal cord injury, one may experience *loss of motor control and sensation, autonomic dysregulation, spasticity, and pain* **below** the injury level of the spine. Function above the level of injury is spared.

## Complete vs Incomplete

- *Complete*: No sensory or motor function is preserved in the sacral segment's of the spinal cord S4-5 (*the lowest level of your spinal cord-in and around the anal area*).
  - *One may experience some sensation and/or movement below the level of injury however, the signals are not reaching the lowest level of the spinal cord.*
- *Incomplete*: If sensations and movement are present around S4-5.

The degree of impairment depends on the level of injury: damage to **higher levels** (cervical) in the spine can result in **higher impairment**.

## Tetraplegia vs Paraplegia

- Paraplegia: paralysis in the lower extremities and may also impact chest and abdominal muscles as well as bowel, bladder and sexual function
- Tetraplegia (quadriplegia): paralysis affecting all four limbs and torso



# What is Occupational Therapy?

**Occupational therapy (OT)** is a client-centered healthcare profession that enables individuals of all ages to carry out essential **daily living tasks** through the **therapeutic use of meaningful activities** (*or occupations*) that are essential for their well-being, independence, and quality of life.



OTs assess and address the **physical, cognitive, emotional, and environmental** components that impact an individual's ability to functionally perform daily tasks independently.

You can find OT in a variety of settings

- Hospitals
- Outpatient clinics
- Schools
- Nursing homes
- Rehabilitation centers
- Home health care
- Community-based programs
- Mental Health setting
- Sleep clinics
- Non-traditional settings



# Occupational Therapy

**Occupations** are defined as engagement in everyday activities that are meaningful to an individual. This entails things we **want to, have to, and are expected to do daily.**

## 9 Areas of Occupation:

1. ADLs (Activities of Daily Living)
2. IADLs (Instrumental Activities of Daily Living)
3. Social Participation
4. Health Management
5. ***Rest and Sleep***
6. Education
7. Work
8. Leisure
9. Play



# Mental Health

Mental health includes a person's **emotional, psychological, and social well-being**.

This state of well-being enables us to perform effectively at work and in learning, manage life's challenges, recognize our strengths, and engage with others in our community.

*When this state is shifted negatively, it can impair all the domains it encompasses.*

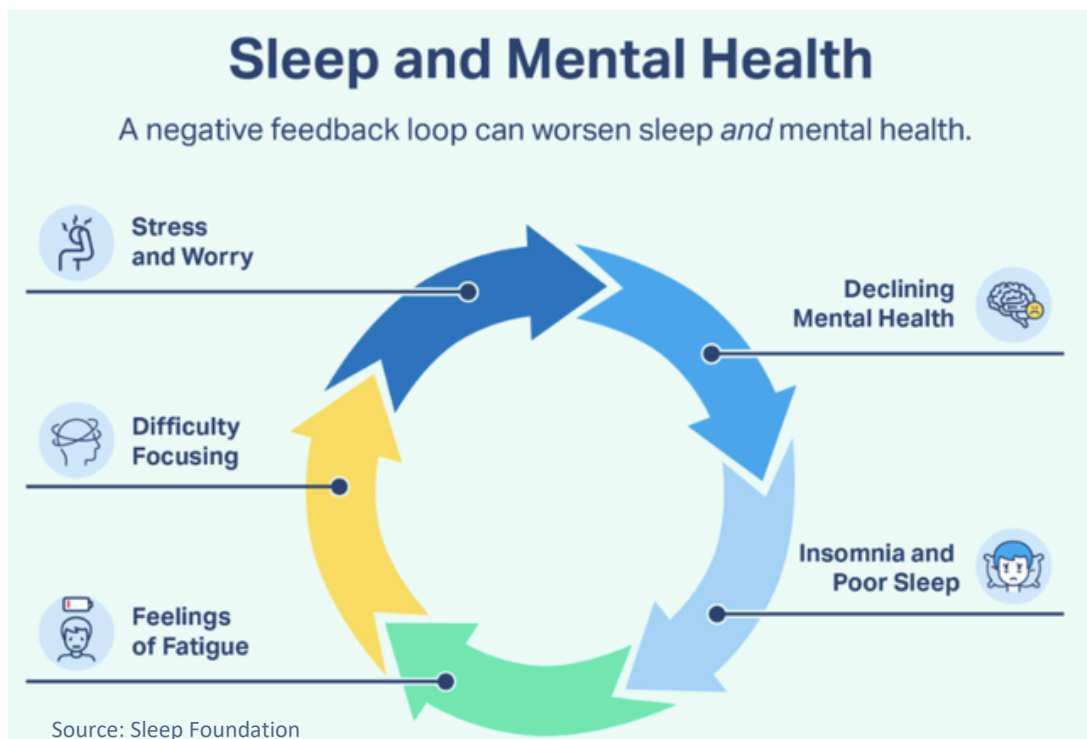
Mental health is influenced by many factors: personal, environmental, biological, health, lifestyle, social, and psychological.

**Mental and physical health are closely connected**



## Quick Facts:

- Approximately **one in three** people with a chronic condition also have a mental health disorder, depression and anxiety being the most prevalent.
- Poor mental health can make it more difficult to cope with a chronic condition and vice versa due to the symptoms and comorbidities associated.
- Depression, anxiety, and post-traumatic stress disorder (PTSD) are highly prevalent mental health disorders among SCI and all demonstrate a **negative feedback cycle** with sleep quality.
- Individuals with SCI show high incidence rates of depression, anxiety, PTSD, and insomnia.



### OTs Role in Mental Health

Poor mental health can impact our engagement and quality of sleep and vice versa. This **reciprocal relationship** can **impair the daily functioning** and **participation in occupations** that give us meaning and **hinder our functional independence.**

OTs can help by...

- Creating a **client-centered** intervention plan- what is most **meaningful** to the patient and what do they want to achieve?
- Working towards **realistic, achievable goals** for the patient to improve and maintain motivation and confidence during tasks. (**Just Right Challenge**)- *therapeutic activities that are the appropriate level of difficulty to create success towards a goal while still being challenged to further improve.*
- Educating on **healthy coping habits** and implementing **routines**
- Teaching **relaxation** and **mindfulness** strategies to overcome negative, overwhelming thoughts or emotions
- Implementing **compensatory** or **restorative** strategies, depending on the patient, to target specific goals they want to achieve to improve self-esteem.

# Rest and Sleep

**Rest and Sleep** is an area of occupation that includes, as per the Occupational Therapy Practice Framework (OTPF4), activities related to obtaining restorative rest and sleep to support healthy, active engagement in other occupations.

This includes

- Rest
- Sleep preparation
- Sleep participation



## Sleep and SCI

- **Poor sleep** is a **common** complaint among adults with SCI.
- **Secondary comorbidities** associated with SCI such as *pain, respiratory and cardiovascular complications, spasticity, autonomic dysreflexia, bowel/bladder dysfunctions, pressure ulcers and skin breakdown* can all impact the occupation of sleep.
  - In turn, sleep disturbances can **exacerbate** these complications, creating a **negative cycle** that impacts overall health and daily functioning.
- Specific **care needs**, like *repositioning for skin maintenance or breathing, catheter management, bathroom assistance, and caregiver disruptions*, can also cause sleep disturbances and poor sleep quality.
- Fatigue, daytime sleepiness, mood changes, and cognitive issues like depression and anxiety are common in SCI adults with sleep problems.
- The most common sleep disorders among adults with SCI are **sleep-disordered breathing (SDB)- sleep apnea, circadian rhythm sleep-wake disorders, and insomnia.**

*For more information on these sleep disorders, use the links below in Additional Resources and the Reference list*



## How OT can play a role in sleep

OT can play a significant role in improving the occupation of sleep. We can accomplish this by addressing the **physical, psychological, and environmental** components that can impact someone's engagement in sleep.

### I. Sleep Hygiene Education

Sleep hygiene is what OTs describe as the habits and practices carried out before sleep that allow us to get a good night's rest. Some healthy sleep hygiene habits include...

- Maintain a consistent sleep schedule: Try to go to bed and wake up at the same time every day, even after a poor night's sleep
- Limit naps: Too long and amount of naps can dysregulate the body's internal clock (*20-30 minutes if necessary*)
- Minimize screen time: Avoid screens for at least one hour before bed
- Avoid caffeine, alcohol, and heavy or sugary meals: Refrain from consuming these 2-4 hours before bedtime
- Exposure to natural sunlight during the day: helps to regulate your body's natural sleep-wake cycle (circadian rhythm)
- Reduce stimulation: Avoid engaging in stressful, over-stimulating tasks before bed and in the bedroom.
  - *Keep the bedroom strictly for sleeping only*
- Unwind with calming activities: Read, listen to soothing music, practice deep breathing or meditation, color, yoga, stretching, etc.
- Utilize a sleep diary: Helps to keep track of and gain more insight into many factors that can influence sleep. Here is a free one you can print!

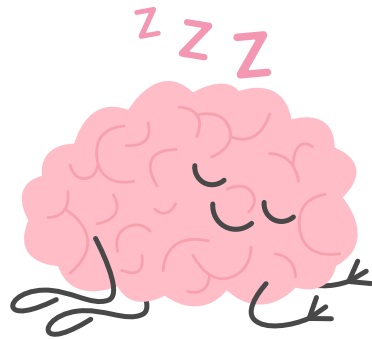
[Sleep Diary](#)



## II. Environment modifications

OTs can help develop a sleep-friendly environment to promote restful sleep by recommending bedroom adaptations. Some recommendations include...

- Lighting adjustments to create a calming/ non-stimulating atmosphere
- Keep the room at a comfortable temperature
- Bed/mattress modifications
- Pressure relief pillows
- Minimize stimulating noise
- Introducing assistive equipment and devices to fit clients needs



*\*Please refer to the Additional Resources page for more specific details and recommendations\**

## III. Cognitive Behavioral Therapy for Insomnia: CBT-I

- CBT and CBT-I are types of therapies that are used to **target** and alter **negative thoughts** and **behaviors**. Its foundation stems from the idea that our thoughts, behaviors, and emotions are interconnected thus, changing the negative thoughts can improve our mood and ways we cope with stressful things leading to improved quality of life.
- CBT-I, derieved from CBT, is used to specifically target insomnia and other sleep disorders by addressing the **thoughts, behaviors, and environmental components** that are contributing to poor sleep outcomes.
- Well trained OTPs that are deemed competent in CBT-I can use these methods as sleep interventions for their clients.

**\*\*Note: The resources and interventions in this guide are evidence-based suggestions and may not be suited for everyone. Be sure to do your own research and talk to qualified healthcare professionals on specifics to find out if any are right for you!\*\***

# Additional Resources

## Apps:

### *Blue= Sleep*

*Sleep sounds and stories, meditations, relaxation techniques, & sleep tracker*

- Calm
- BetterSleep: Relax and Sleep
- Endel: Focus & Sleep Sounds
- ShutEye: Sleep Tracker, Sound
- Hatch Sleep

### *Green= Mental health and wellness*

*Guided meditations, mindfulness techniques, activities & games*

- Happify: for Stress & Worry
- CanMindful
- Wysa: Mental Health Support
- Headspace: Meditation & Sleep
- Medito: Meditation and Wellness

## Adaptive equipment and other devices

- Tubular draw sheet- *Can help with transfers and adjustments in the bed*
- Bed ladder- *Help to sit up, roll over, and slide up in bed*
- Eye mask (weighted or un-weighted)
- Alternating Pressure Mattresses/ Mattress overlays
- Hatch Alarm- *calming white noise, lights, routines and features to help sleep*
- White noise machine
- Blackout curtains
- Pressure relief/ body support pillows
- Smart Home Technology (*Amazon Echo, Google Home*)
- Voice Controlled outlets
- Headboard phone and tablet holders
- Kindle with remote page turners

*Information regarding specific bed/mattress equipment can be found using the links below*

## Organizations

- *United Spinal Association* <https://unitedspinal.org/>
- *American Spinal Injury Association* <https://asia-spinalinjury.org/>
- *The Christopher and Dana Reeve Foundation*  
<https://www.christopherreeve.org/>
- *Kelly Brush Foundation* <https://kellybrushfoundation.org/>
- *National Sleep Foundation* <https://www.thensf.org/>
- *American Sleep Apnea Association* <https://www.sleephealth.org/sleep-health>
- *Circadian Sleep Disorders Network*  
<https://www.circadiansleepdisorders.org/index.php>

## Podcasts

*The podcasts/episodes listed are informative on topics such as sleep, SCI, OT, and mental health that might be helpful or of interest to you!*

- OT Potential- ep. #27, #30, #39, #57
- The Uncommon OT Series- ep. *OT in Sleep Medicine, OT in Teaching Mental Health, OT in Teaching Mindfulness*
- The Adventures of OT- S5 E1
- SCI Science Perspectives- ep. #25
- Mindful In Minutes Meditation
- Change Your Brain Every Day

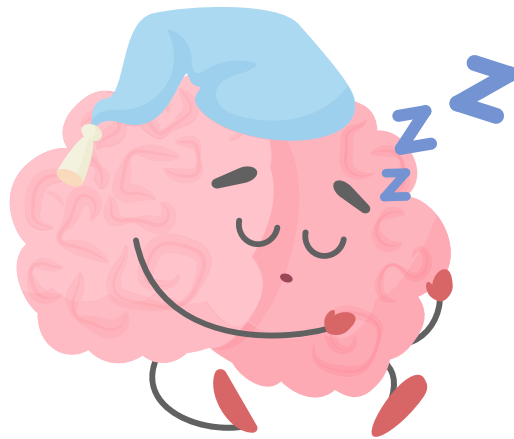


## Other helpful links and information

- *ASIA DME Guide:* <https://asia-spinalinjury.org/dmeguide22/>
- *ASIA Bed/Mattresses:* <https://asia-spinalinjury.org/wp-content/uploads/2023/03/Beds-and-Mattresses-1.pdf>
- *What is Insomnia?:*  
<https://my.clevelandclinic.org/health/diseases/12119-insomnia>
- *Sleep Resources:* <https://www.sleep-ot.com/sleep-resources-blog/>
- *Instagram- @equipmeot:* <https://www.instagram.com/equipmeot?igsh=dGFoa3VrY3lrMXB4>

*Click the link below to view full reference list for this guide*

## [Educational Resource Reference List](#)



*Happy Sleeping!*

*This guide was created for a doctoral capstone project at the New York Institute of Technology's Occupational Therapy Department. May 2025*