THE ASSOCIATION OF PEOPLE WITH DISABILITY

SINCE 1959

Empowering Lives:

A Comprehensive Guide for Spinal Cord Injury Survivors and Caregivers









THE ASSOCIATION OF PEOPLE WITH DISABILITY

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THE ASSOCIATION OF PEOPLE WITH DISABILITY

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Special Acknowledgements

We extend our sincere gratitude to **Dr. Reuben Daniel, Dr. Heavanna Babu, Dr. Sankar** for their invaluable contributions to the journey of SCIR Programme.

Our deepest appreciation goes to all our SCIR staff-across our centres and in the community - whose dedication, compassion, and perseverance have been instrumental in establishing the department and expanding the SCIR programme over the years.

We are especially grateful to **Mr. Sukanto Aich, Ms. Christabel Kalaselvi, Mr. Sunil Kumar K. P.,** and **Dr. Alice Jeba J.** for their continued guidance, mentorship, and encouragement throughout this journey.

A special note of appreciation to **Mr. V. Vinod Kumar** for his meticulous design, thoughtful compilation, and creative contribution to bringing this book together.

Our SCI Champions

We extend our heartfelt gratitude to our **SCI Champions-Mr. Kantharaj Naik, Ms. Ganga Mandel, Mr. Someshekar, Mr. Naveen, Mr. Venkatesh, Mr. Akshay, Ms. Chaya, Mr. Veda Sai, Mr. Harshwardhan, Mr. Harish, Mr. Manjunath, Mr. Prabhu, Mr. Uchesh, and Mr. Abdul, Mr. Varun** by generously sharing their stories, lived experiences, and photographs, they have given this book its most powerful and human voice. Their journeys reflect courage, resilience, determination, and the possibility of rebuilding life after spinal cord injury.

Their stories are more than memories-they are stories of hope, dignity, independence, and the strength of the human spirit inspiring others on their own journeys forward.

Foreword

Spinal cord injury is a life-changing event-not only for the individual but also for the family and caregivers who walk alongside them. The journey toward recovery, independence, and reintegration is complex, demanding reliable information, practical guidance, and emotional reassurance. It is in this context that “Empowering Lives: A Comprehensive Guide for Spinal Cord Injury Survivors and Caregivers” assumes great significance.

Developed with the vision of reaching and empowering a larger community of persons with spinal cord injury (PwSCI) and their caregivers, this book reflects a deep commitment to enabling informed decision-making, functional independence, and holistic well-being. I commend The Association of People with Disability (APD) for taking this important initiative under their Spinal Cord Injury Rehabilitation (SCIR) program.

Since 2001, APD has been working dedicatedly to transform the lives of thousands of Persons with Spinal Cord Injury across Karnataka and neighbouring states by fostering independence, enhancing access to quality rehabilitation, and promoting social inclusion, socio-economic empowerment, and community reintegration. Their work embodies the belief that with the right support, every person with spinal cord injury can lead a meaningful, productive, and fulfilling life.

This guidebook is a continuation of that mission. It serves as a practical, accessible, and user- friendly resource for both beneficiaries and caregivers. Its strength lies in visually engaging content, including illustrations and step-by-step instructions that simplify complex concepts, insights shaped by real-life experiences of persons living with SCI, ensuring authenticity and relevance and strategies to promote independence, inclusion, and self-confidence, empowering individuals and families to navigate challenges with clarity and optimism.

The decision to translate the book into Kannada further reflects APD's dedication to ensuring that vital knowledge reaches diverse communities in a language that feels familiar and accessible.

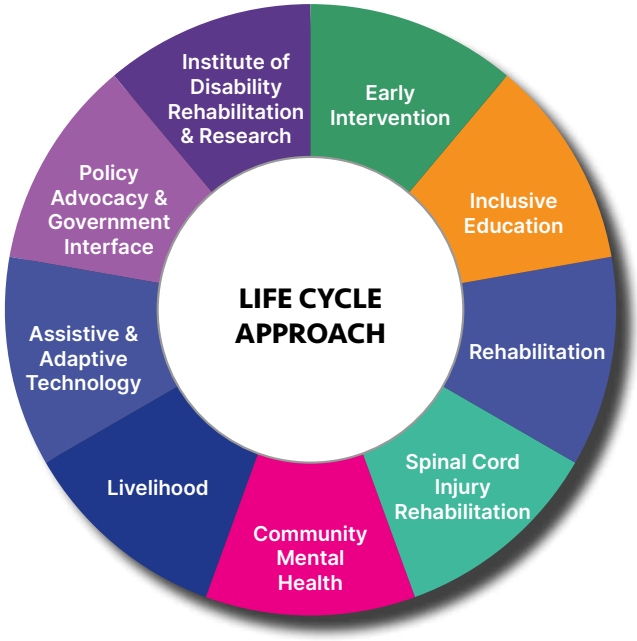
I congratulate the authors, contributors, and the entire APD team for creating a guide that will undoubtedly touch many lives. I am confident that "Empowering Lives" will serve as a valuable companion for PwSCI, their families, and rehabilitation professionals, helping them take meaningful steps toward independence and a better quality of life.

May this book inspire hope, knowledge, and empowerment for all who read it.

Dr. H. S. Chhabra
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Chairman, Spine Wellness & Care Foundation
President, Association of National Board Accredited Institutions (ANBAI)
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Past President, International Spinal Cord Society (ISCoS)
Past President, Association of Spine Surgeons of India (ASSI)
Past President, Spine Society Delhi Chapter
Executive Member, Asian Spinal Cord Network (ASCoN)

The Association of People with Disability

The Association of People with Disability (APD), founded in 1959 in Bengaluru, is a non-governmental organization dedicated to empowering persons with disabilities, especially from marginalized communities. It promotes inclusive development through education, healthcare, rehabilitation, and livelihood support, while advancing disability rights and meaningful participation in decision-making.



Cot To Community Approach

Since 2001, APD has been transforming the lives of over 8,000 Persons with Spinal Cord Injuries (PwSCI) across Karnataka and neighboring states by fostering independence, enhancing rehabilitation access, and promoting social inclusion, socio-economic empowerment, and community reintegration.

This guidebook is intended as a general resource to support persons with spinal cord injury and their caregivers. While every effort has been made to present clear and useful information, individual situations may vary. The guidance provided should be adapted to each person's needs, circumstances, and local context. This guide does not replace professional medical advice, diagnosis, or treatment. Readers are encouraged to consult qualified healthcare professionals for personalized care and decisions related to spinal cord injury management.

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1. Introduction

The nervous system:

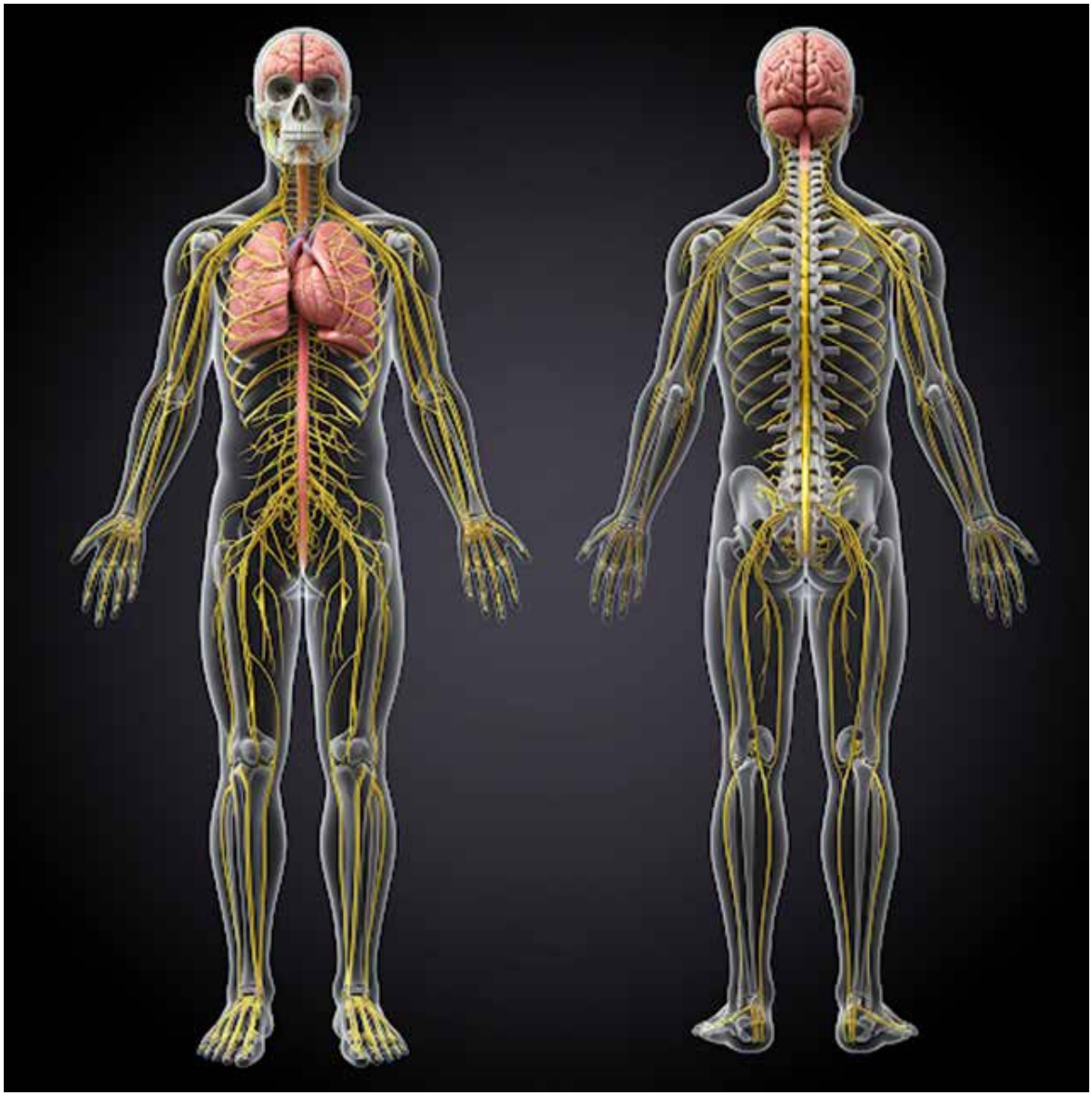


Fig.1.1: A front and back view of the brain, spinal cord and peripheral nerves

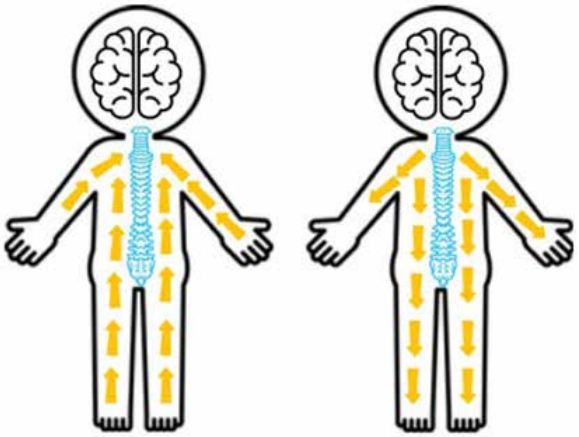


Fig.1.2: Impulses travelling to and from the brain through the spinal cord

The spinal cord is a vital part of the central nervous system, transmitting signals between the brain and the rest of the body.





Fig.1.3 and 1.4 The spine with the vertebral discs in between the vertebral bones

What is spinal cord injury?

A spinal cord injury (SCI) happens when the spinal cord or the nerves connected to it are damaged. This can cause temporary or permanent changes in how a person moves, feels, and how certain body functions work, such as bladder, bowel, and blood pressure control.

In India, the primary causes of spinal cord injuries (SCIs) are:

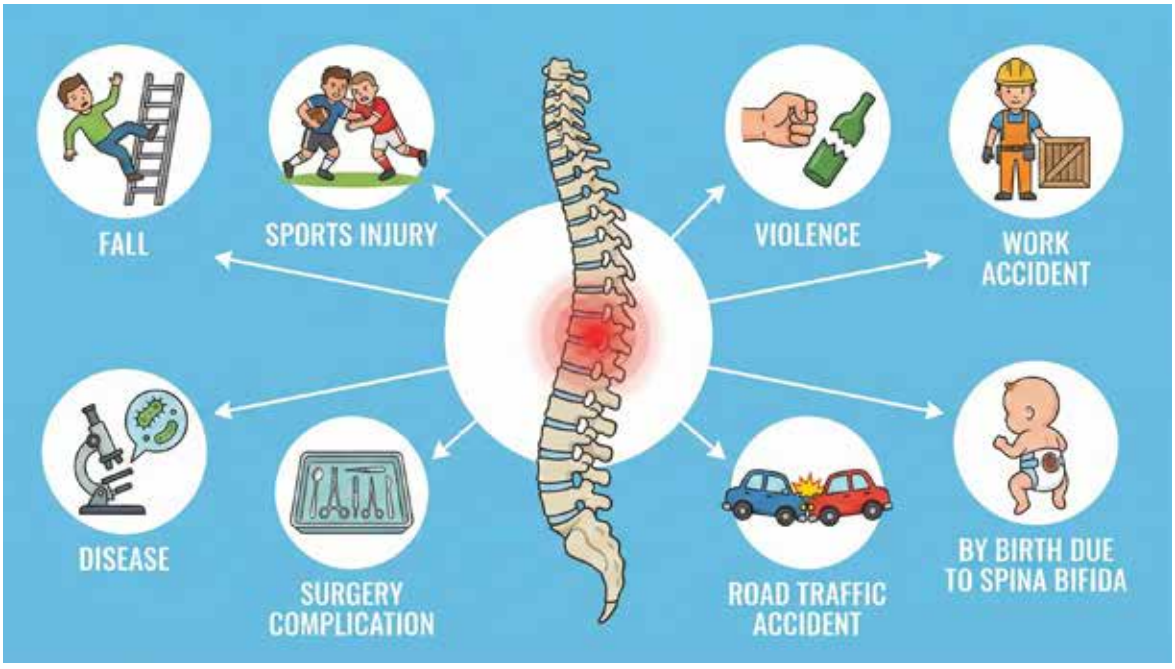
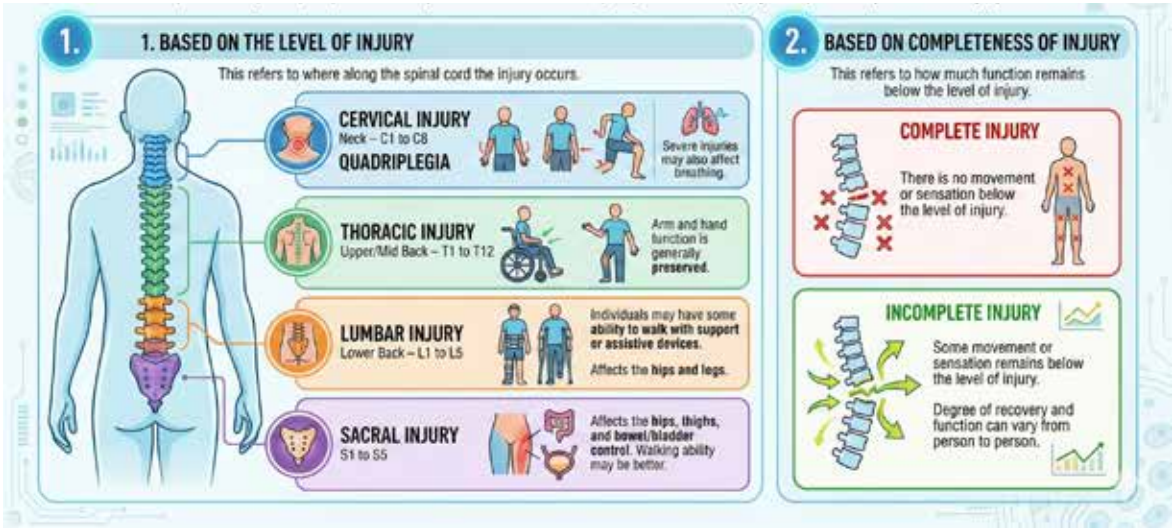


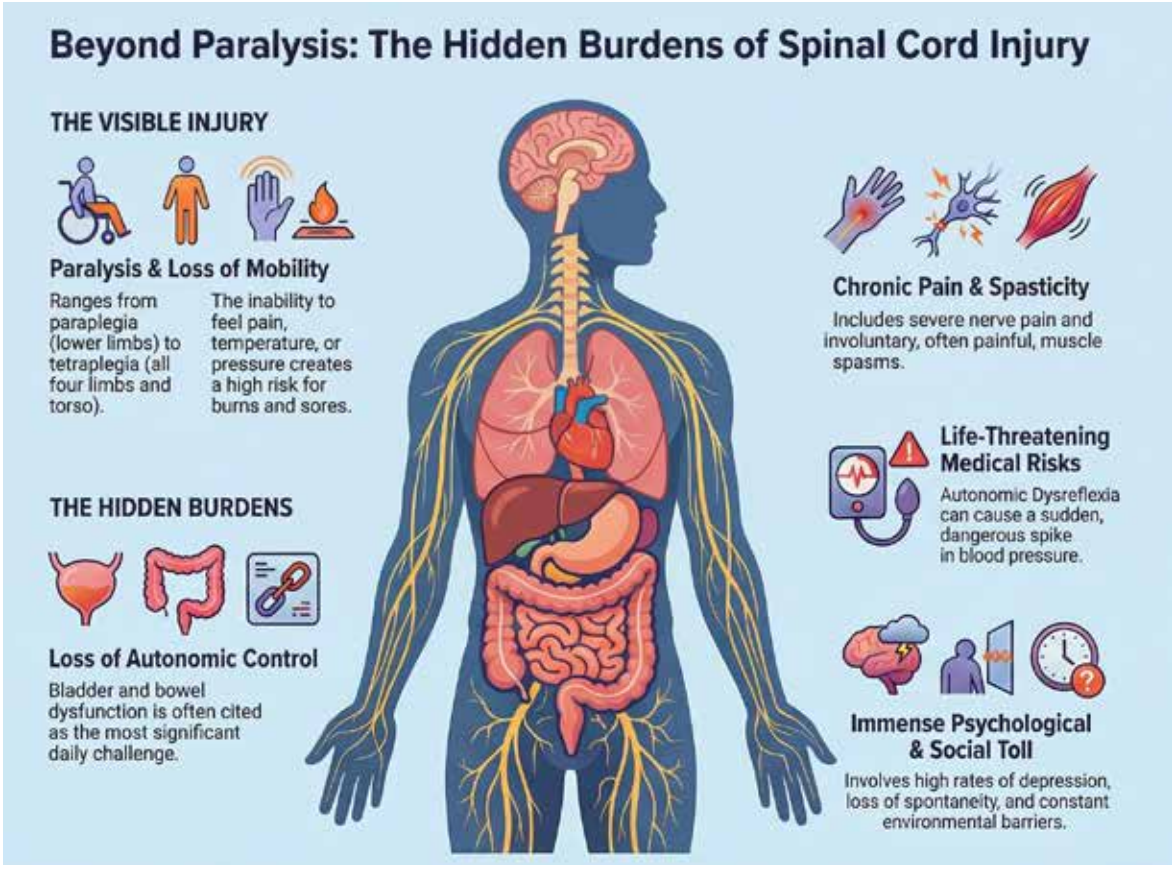
Fig.1.5: Causes of spinal cord injury

Unlike other tissues, such as skin, the nervous tissue of the spinal cord lacks the ability to regenerate after injury. This means damage to the spinal cord can result in permanent changes in strength, sensation, and other bodily functions below the site of the injury.

Types of Spinal Cord Injury



Common challenges faced in SCI



2. Acute Care

Hospitalization

A spinal cord injury (SCI) requires immediate medical attention. Knowing what to expect during hospitalization can help patients and families navigate this period.

Admission & Acute Care: Patients are admitted to the ICU or a specialized spine center, where a medical team stabilizes them and creates a treatment plan.

Diagnostic Tests: X-rays, CT scans, and MRIs assess injury severity and guide treatment.

Medical Interventions: Surgery, medications, and preventive measures help reduce complications and protect the spine.

Early Rehabilitation: Therapists begin exercises to maintain strength, mobility, and independence.

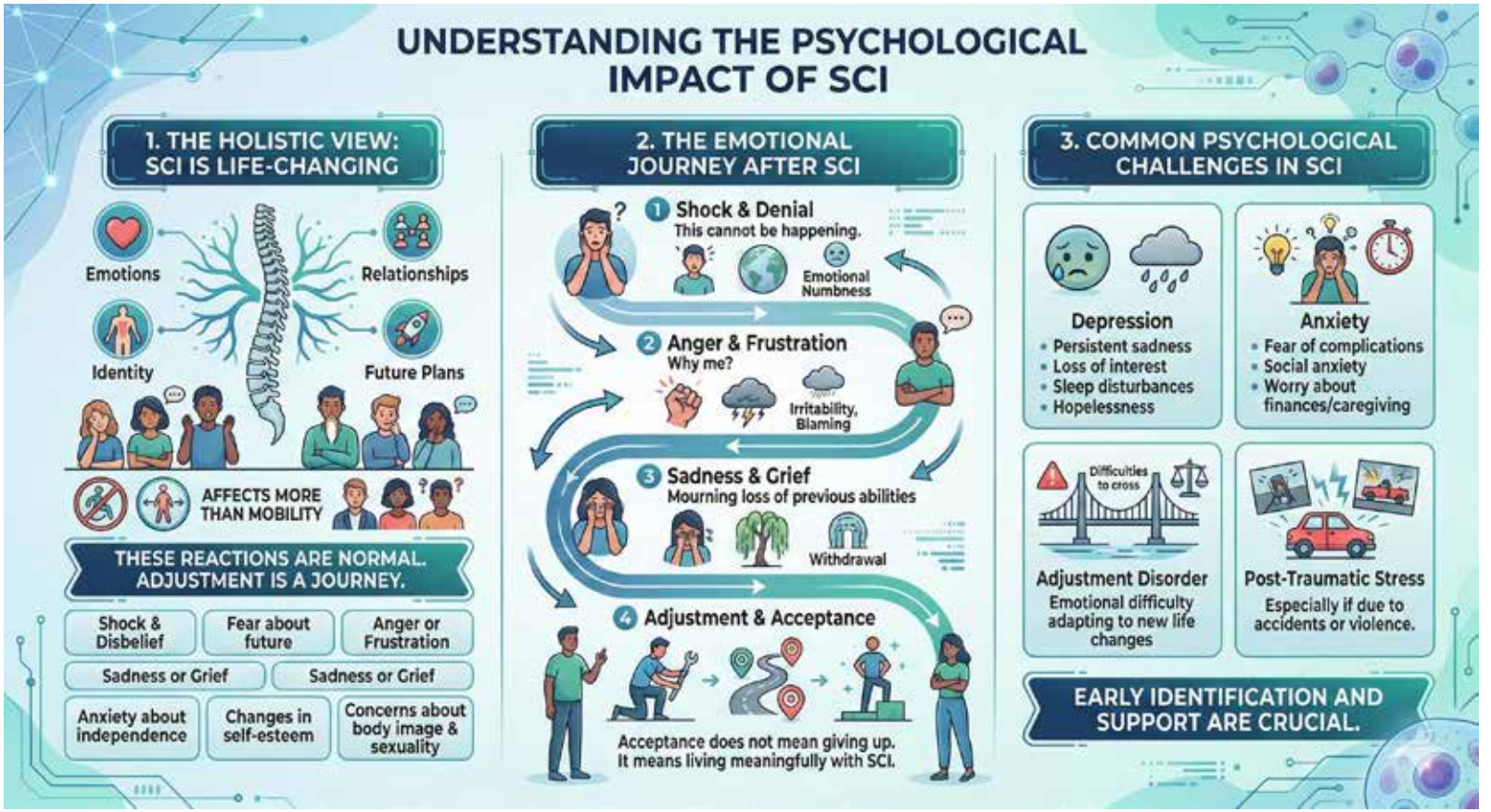
Education & Support: Training on skin care, bowel/bladder management, and assistive devices prepares patients for life after discharge. Counseling and support groups help with emotional adjustment.

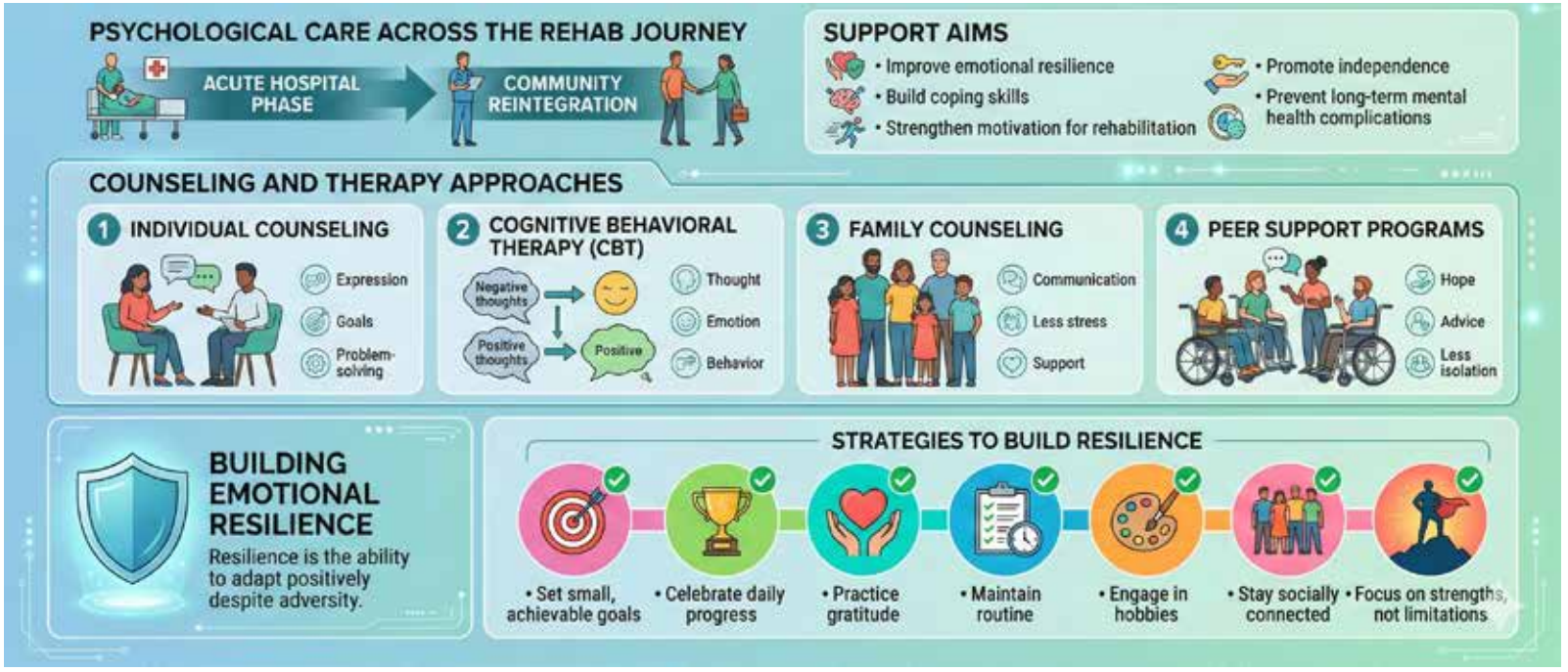
Discharge Planning: The healthcare team develops a personalized plan for continued care, home modifications, and rehabilitation.

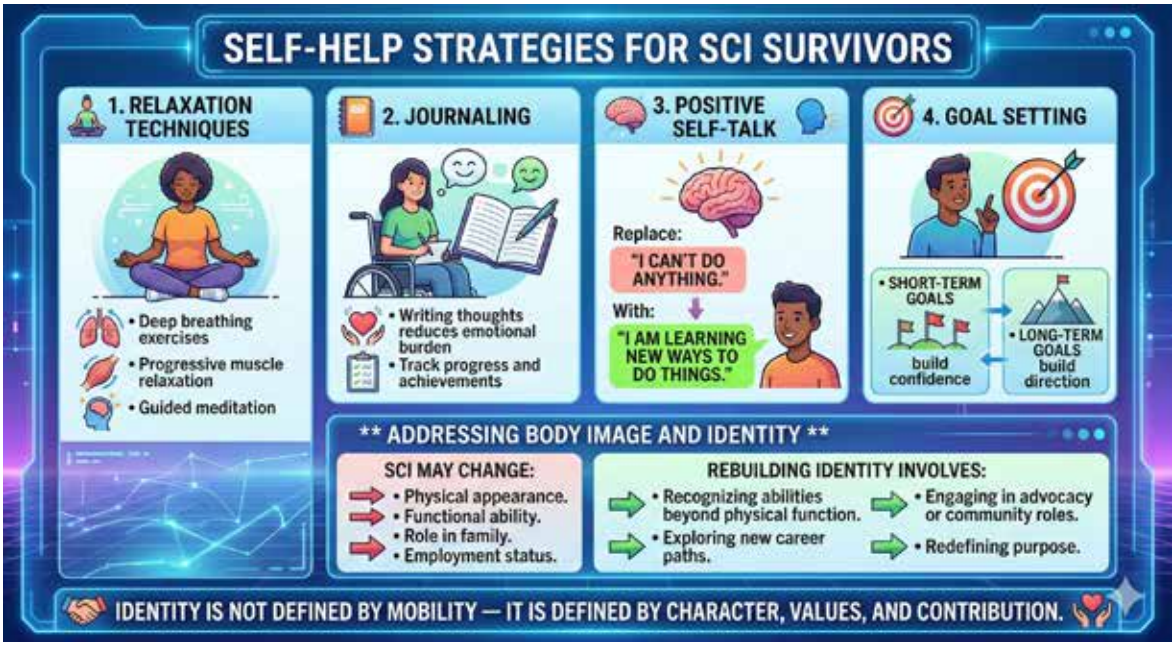
Discharged to go home

Going home after a spinal cord injury can feel challenging. Your daily routine will change, but you'll create a "new normal" by learning new ways to do things.

Everyone adjusts differently-some focus on happiness, others on goals-but living a meaningful life is key. At first, your body may feel different, but with time and self-care, you'll realize you're still the same person. Rehabilitation (rehab) helps you learn new ways to take care of yourself. Over time, you get stronger, gain independence, and adjust to your daily activities. Few things to keep in mind:


UNDERSTANDING THE PSYCHOLOGICAL IMPACT OF SCI
1. THE HOLISTIC VIEW: SCI IS LIFE-CHANGING
Emotions
Relationships
Identity
Future Plans
AFFECTS MORE THAN MOBILITY
THESE REACTIONS ARE NORMAL. ADJUSTMENT IS A JOURNEY.
Shock & Disbelief
Fear about future
Anger or Frustration
Sadness or Grief
Sadness or Grief
Anxiety about independence
Changes in self-esteem
Concerns about body image & sexuality
2. THE EMOTIONAL JOURNEY AFTER SCI
1 Shock & Denial
This cannot be happening.
Emotional Numbness
2 Anger & Frustration
Why me?
Irritability, Blaming
3 Sadness & Grief
Mourning loss of previous abilities
Withdrawal
4 Adjustment & Acceptance
Acceptance does not mean giving up.
It means living meaningfully with SCI.
3. COMMON PSYCHOLOGICAL CHALLENGES IN SCI
Depression
Persistent sadness
Loss of interest
Sleep disturbances
Hopelessness
Anxiety
Fear of complications
Social anxiety
Worry about finances/caregiving
Difficulties to cross
Adjustment Disorder
Emotional difficulty adapting to new life changes
Post-Traumatic Stress
Especially if due to accidents or violence.
EARLY IDENTIFICATION AND SUPPORT ARE CRUCIAL.


PSYCHOLOGICAL CARE ACROSS THE REHAB JOURNEY
ACUTE HOSPITAL PHASE
COMMUNITY REINTEGRATION
SUPPORT AIMS
• Improve emotional resilience
• Build coping skills
• Strengthen motivation for rehabilitation
• Promote independence
• Prevent long-term mental health complications
COUNSELING AND THERAPY APPROACHES
1 INDIVIDUAL COUNSELING
Expression
Goals
Problem-solving
2 COGNITIVE BEHAVIORAL THERAPY (CBT)
Negative thoughts
Positive thoughts
Positive
Thought
Emotion
Behavior
3 FAMILY COUNSELING
Communication
Less stress
Support
4 PEER SUPPORT PROGRAMS
Hope
Advice
Less isolation
BUILDING EMOTIONAL RESILIENCE
Resilience is the ability to adapt positively despite adversity.
STRATEGIES TO BUILD RESILIENCE
• Set small, achievable goals
• Celebrate daily progress
• Practice gratitude
• Maintain routine
• Engage in hobbies
• Stay socially connected
• Focus on strengths, not limitations



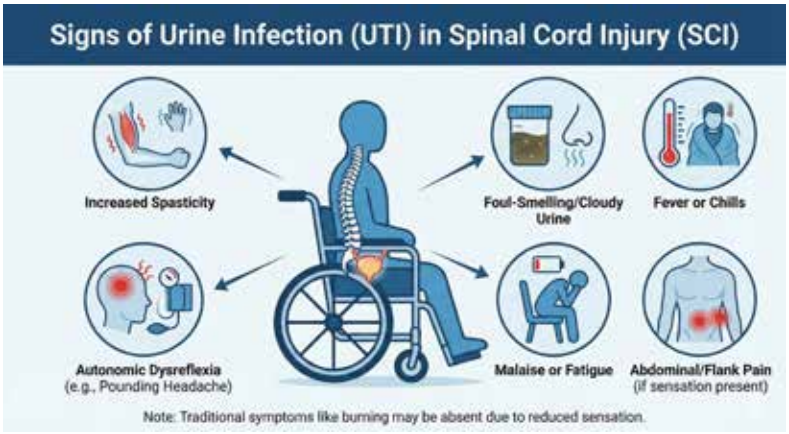


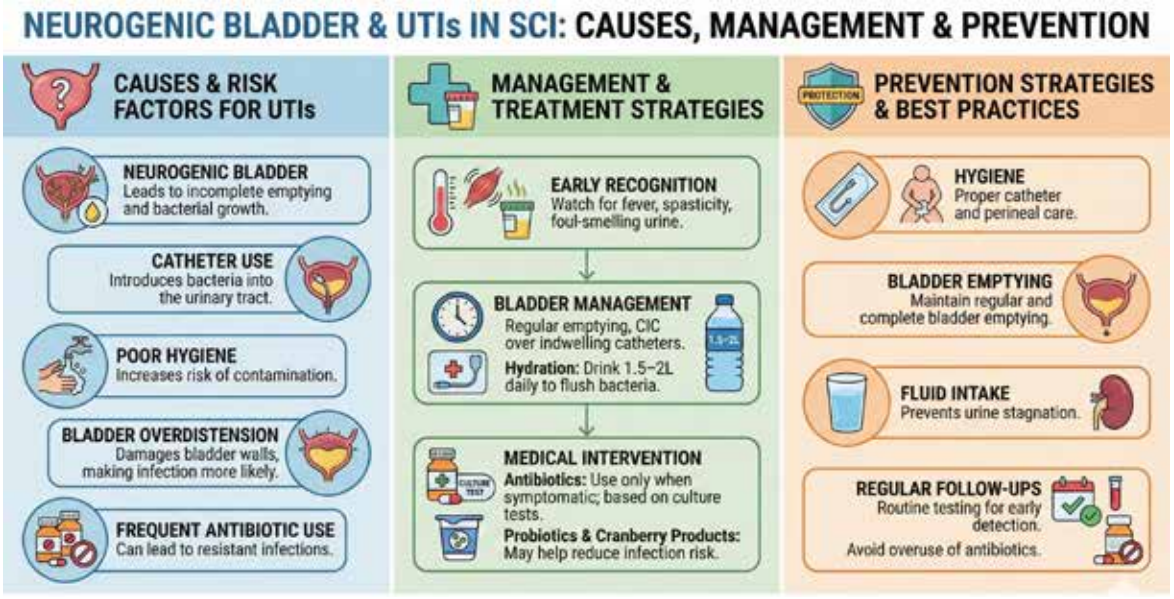
Life continues to be meaningful and full of possibilities after a spinal cord injury. Many people gain new skills, participate in parasports, explore new careers, and benefit from government schemes that provide pension, job opportunities, and education support. With the right resources and determination, people with spinal cord injuries can lead independent and fulfilling lives.

3. Precautions/Preventing Secondary Complications

Urinary tract Infections

It is the most common complication found in people with spinal cord injury





Pressure ulcer/ bedsore

A pressure ulcer, or bedsore, happens when the skin and tissue underneath get damaged due to staying in one position for too long. This constant pressure reduces blood flow, causing the skin to break down slowly.

Common sites for pressure sores



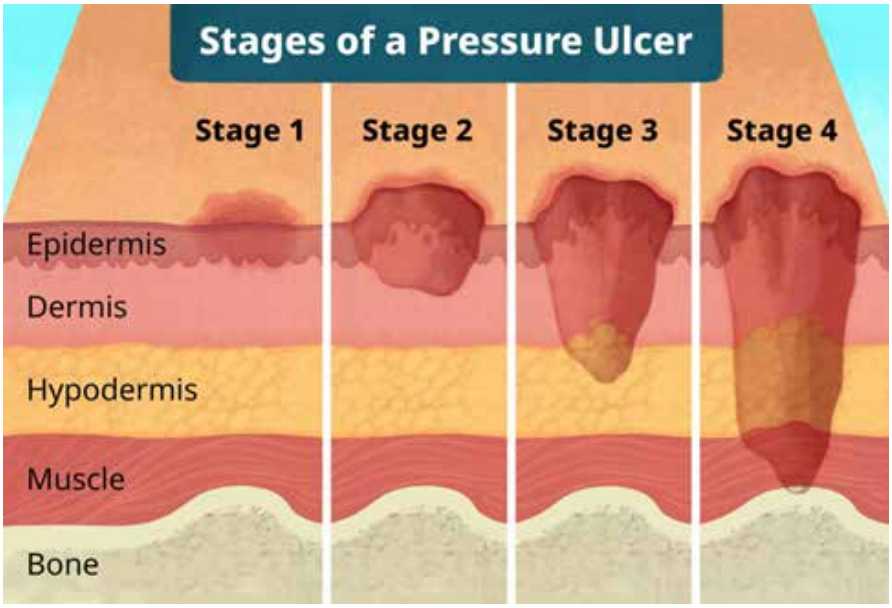


Fig 3.1: Stages of a pressure ulcer

Stages of pressure ulcers

Bedsore dressing procedure

Steps to prepare and sterilize gauze at home in the community

1. Prepare the Gauze – Cut clean, dry gauze into the required size.



2. Sterilization steps





Place in a vessel – Arrange the gauze in a clean metal or heat-resistant vessel.

Steam the gauze – Cover the vessel and steam it for at least 15–20 minutes.

Let it cool – Allow the vessel to cool down completely before opening.

Use safely – Once cooled, use the sterilized gauze for dressing as needed.

Always handle gauze with clean hands or sterilized tools to maintain hygiene

3. Steps of bedsore dressing

1. Arrange all the equipments





2. Handwash



3. Wear gloves



4. Pour saline on cotton/gauze



6.Clean the wound



7. Pour betadine on the cotton



8. Clean the wound



9. Apply prescribed medicine/gel





10. Cover the wound with clean gauze



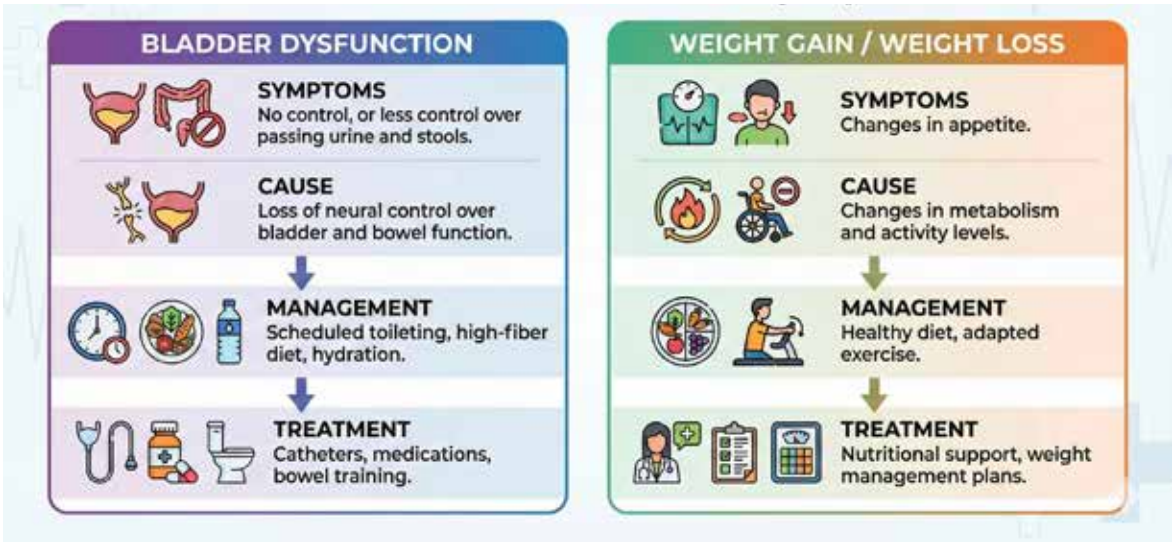
11. Secure the wound with tape

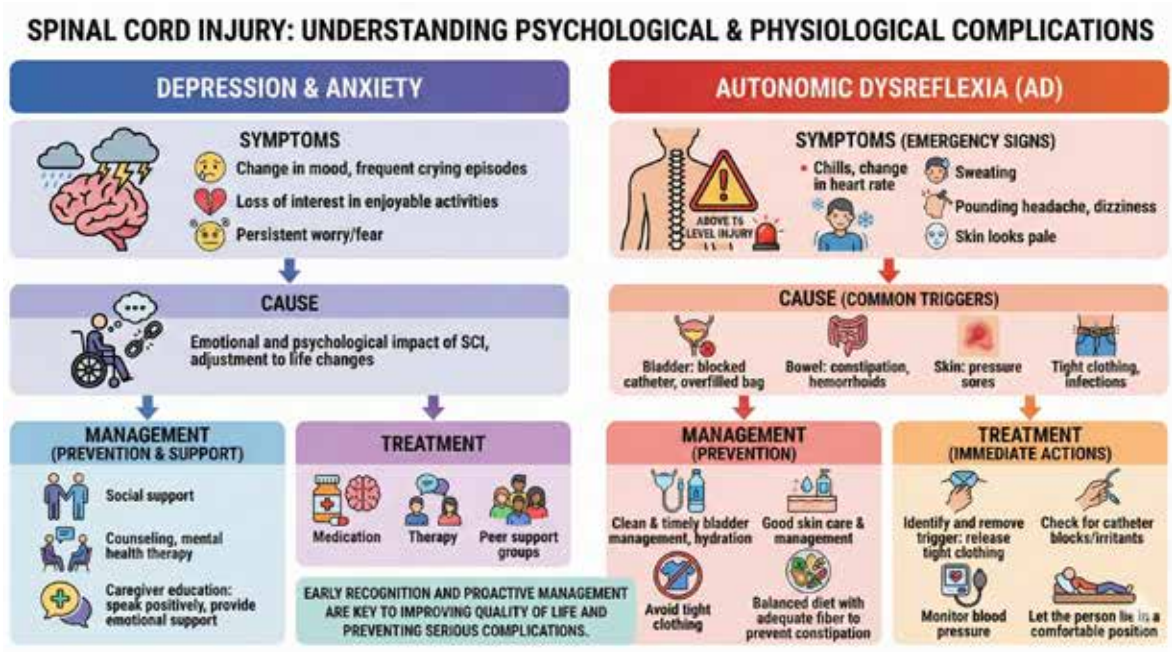


"I developed a bedsore within just one week of my injury and endured six long years of discomfort. However, with the proper knowledge, training, and essential care kits provided to me, along with a minor surgery, I am now completely free of bedsores. Today, I am proud to educate others like me, helping them prevent and manage bedsores effectively."

Akshay

Other complications in spinal cord injury


BLADDER DYSFUNCTION
SYMPTOMS
No control, or less control over passing urine and stools.
CAUSE
Loss of neural control over bladder and bowel function.
MANAGEMENT
Scheduled toileting, high-fiber diet, hydration.
TREATMENT
Catheters, medications, bowel training.
WEIGHT GAIN / WEIGHT LOSS
SYMPTOMS
Changes in appetite.
CAUSE
Changes in metabolism and activity levels.
MANAGEMENT
Healthy diet, adapted exercise.
TREATMENT
Nutritional support, weight management plans.


SPINAL CORD INJURY: UNDERSTANDING PSYCHOLOGICAL & PHYSIOLOGICAL COMPLICATIONS
DEPRESSION & ANXIETY
SYMPTOMS
Change in mood, frequent crying episodes
Loss of interest in enjoyable activities
Persistent worry/fear
CAUSE
Emotional and psychological impact of SCI, adjustment to life changes
MANAGEMENT (PREVENTION & SUPPORT)
Social support
Counseling, mental health therapy
Caregiver education: speak positively, provide emotional support
TREATMENT
Medication
Therapy
Peer support groups
EARLY RECOGNITION AND PROACTIVE MANAGEMENT ARE KEY TO IMPROVING QUALITY OF LIFE AND PREVENTING SERIOUS COMPLICATIONS.
AUTONOMIC DYSREFLEXIA (AD)
SYMPTOMS (EMERGENCY SIGNS)
ABOVE T6 LEVEL INJURY
Chills, change in heart rate
Sweating
Pounding headache, dizziness
Skin looks pale
CAUSE (COMMON TRIGGERS)
Bladder: blocked catheter, overfilled bag
Bowel: constipation, hemorrhoids
Skin: pressure sores
Tight clothing, infections
MANAGEMENT (PREVENTION)
Clean & timely bladder management, hydration
Good skin care & management
Avoid tight clothing
Balanced diet with adequate fiber to prevent constipation
TREATMENT (IMMEDIATE ACTIONS)
Identify and remove trigger: release tight clothing
Check for catheter blocks/irritants
Monitor blood pressure
Let the person lie in a comfortable position

4. Why Rehabilitation?

Rehabilitation is a crucial part of recovery and adjustment for individuals with a spinal cord injury (SCI). It helps people regain physical function, build confidence, and prevent complications that could arise due to inactivity.



Rehabilitation refers to the medical and therapeutic processes designed to help individuals regain as much independence and functionality as possible after an injury or illness. For someone with SCI, rehab focuses on improving mobility, adapting to new ways of performing daily activities, and fostering emotional resilience. The primary goal is to enhance the person's ability to live a fulfilling life despite physical limitations.



"When I first got injured, I thought my life was over. But the APD didn't just treat my injury, it gave me the tools to rebuild my life. It taught me how to manage my physical and mental health, how to be independent, and how to live life beyond my injury, even how to sustain myself financially. Without rehab, I wouldn't have had the confidence to start over-it gave me a new life."

Chaitanya

True Rehabilitation: The Inspiring Journey of Ms. Ganga Mandel

Ms. Ganga Mandel sustained a spinal cord injury at the tender age of 12. For the next decade, she remained confined at home, isolated, and without any knowledge or support to manage her condition. With no access to resources, she spent her days watching life pass her by, enduring an unhealed bedsore for eight long years.

In early 2021, The Association of People with Disability (APD) discovered Ganga with multiple complications, including bedsores and deformities-a stark reminder

of the challenges faced by those left behind by society. Despite her injury being over 10 years old, we began her rehabilitation journey. The first few months were dedicated to healing her bedsores through surgery and intensive care, followed by rigorous rehabilitation. Gradually, she embarked on the path to independence.



Reflecting on her transformation, Ganga shares, "I was waiting for a sign, and APD came into my life and gave me a second life. I am everything I am today because of APD."

In November 2021, after her rehabilitation, Ganga joined APD as a receptionist. By April 2022, she stepped into the role of peer trainer, counseling and motivating others with spinal cord injuries. Over the past three years, Ganga has transformed into a role model, helping others navigate their own rehabilitation journeys. Her efforts include coaching beneficiaries on managing and healing bedsores, conducting webinars, and actively engaging in parasports.

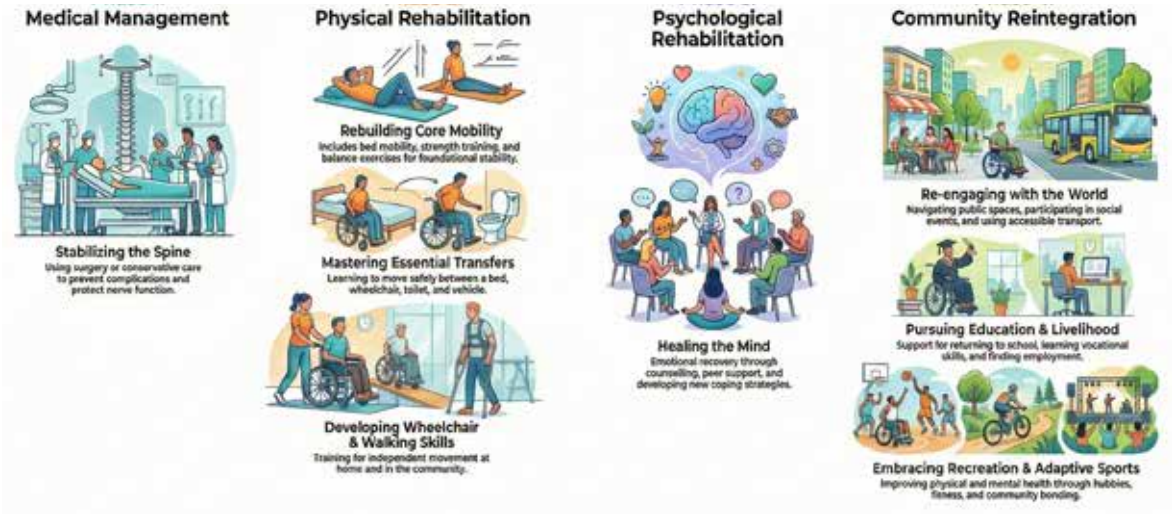
Ganga embraced the wheelchair basketball and quickly excelled. Representing Karnataka, she has won the National Wheelchair Basketball Championship twice in the past two years. She also ventured into para-swimming, proving that barriers can indeed be broken.

Today, Ganga is married to Mr. Murali, another spinal cord injury warrior rehabilitated at APD. Murali now runs a successful stationery shop and shares Ganga's passion for living a meaningful, independent life.

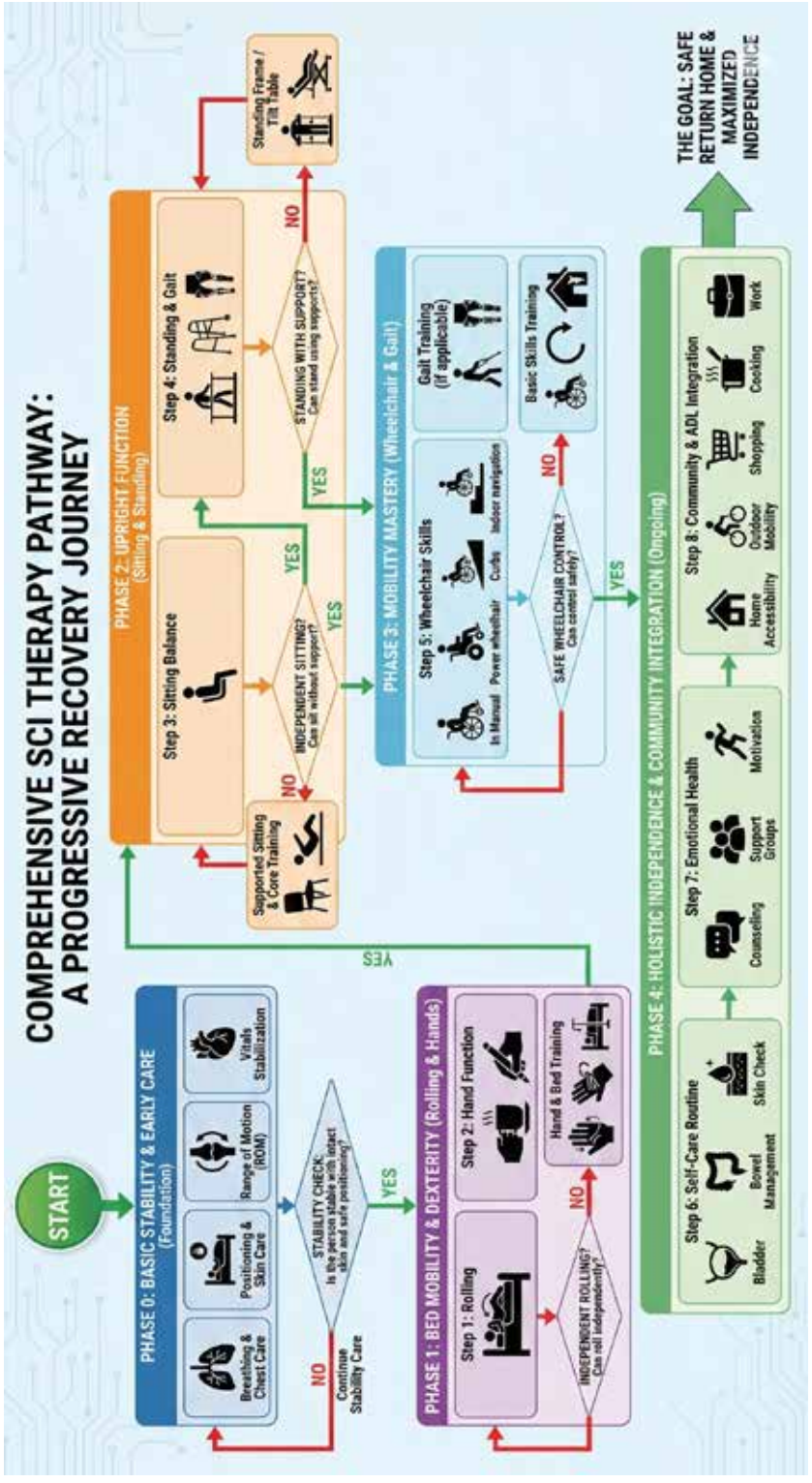
Ganga and Murali's story reflects the essence of holistic rehabilitation. It is a testament to what is possible when individuals are given the tools, support, and belief to rebuild their lives.

Rehabilitation is not just about physical recovery; it is about reclaiming independence, confidence, and quality of life. Embracing rehab is the first step toward a brighter future, allowing individuals to integrate into society as active, valuable, and self-sufficient members of the community.

Path to independent living through rehabilitation



Guide to therapy



5.Hand Functions

People with a cervical spinal cord injury often have difficulty moving and feeling in their arms and hands. The higher the injury, the greater the loss of muscle control, making them more dependent on caregivers.

Those with injuries at C2-C5 may need breathing support, like a ventilator or tracheostomy, especially in the early stages. During this time, they rely completely on caregivers for monitoring and positioning.

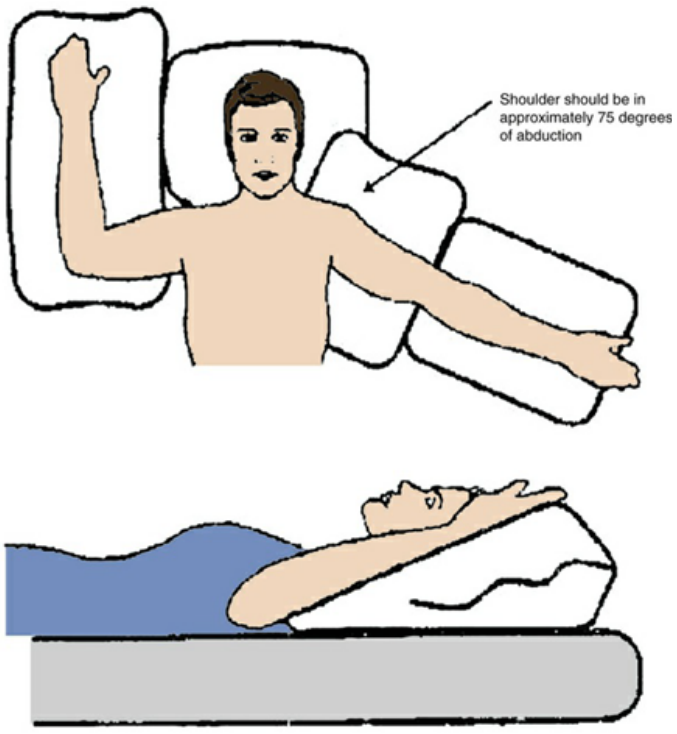


Fig 5.1 Proper positioning

For individuals with tetraplegia, positioning the arms at 80 degrees of shoulder abduction, with external rotation, scapular depression, and full elbow extension, helps prevent stiffness and shoulder pain Therapy can begin with gentle passive movements of the upper limbs, including the small finger joints, to maintain flexibility. Over time, they can progress to active-assisted movements. The person can be positioned at an incline on the bed and encouraged to reach a nearby target. With consistent exercises, mental resilience, and depending on the severity of the injury, functional improvements can be seen within 1–3 months.

With the right support and adaptive devices, individuals can gain independence in daily activities like brushing, grooming, eating, writing, and even dressing, depending on their muscle strength. A functional resting hand splint is recommended to keep the hand in a neutral position when muscle power is insufficient for stabilization.

Individuals with C6 level of injury tend to use tenodesis to perform various ADLs, although, they would also benefit from the use of adaptive equipment and hand splints.

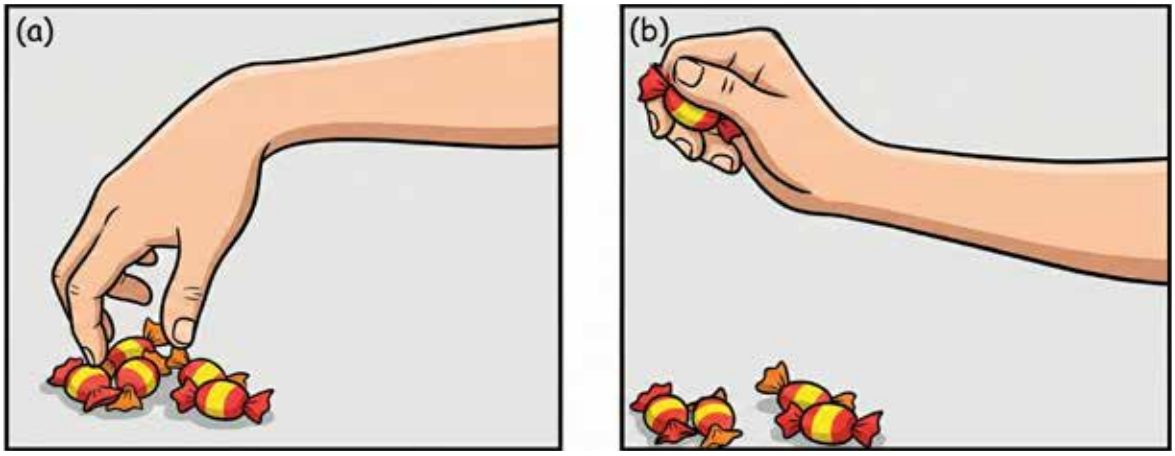


Fig 5.2 Tenodesis grasp and release



Fig 5.3 Various types of grasps and pinches that are used for performing ADLs



Multipurpose splint for grooming-Can be used for brushing, shaving and combing



Pushbuttons for easily shirts- suitable Magnetic buttons are a good option



Modified Fork



Writing Splint



Modified Spoon for Eating



Cup Splint-Used for drinking from the cup



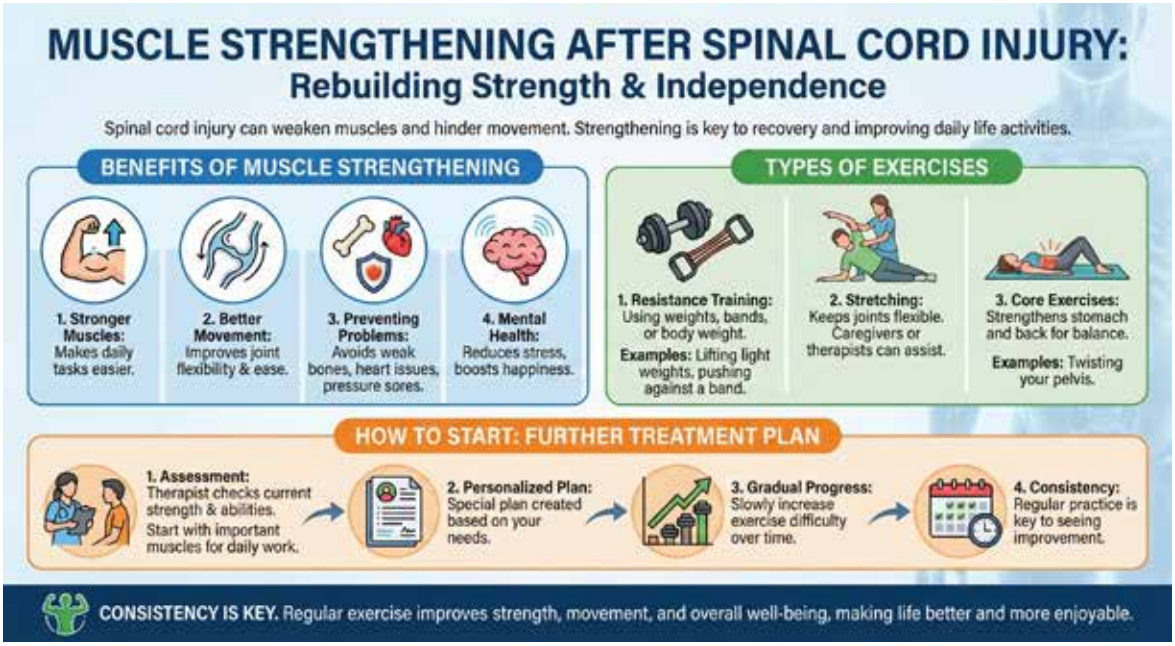
Cup Splint-
Used for drinking from the cup

Fig 5.4 Types of splints

"After the accident, I realized I could no longer move my legs or hands, and my mother had to assist me with even the most basic tasks. During this difficult time, APD came into my life and showed me that, despite the lack of strength in my hands, I could still eat, drink, and work on a laptop with the right adaptive devices. Their support gave me the confidence to reclaim my independence and live a fulfilling life." Veda Sai

6. Muscle Strengthening

When someone injures their spinal cord, it often leads to weak muscles and difficulty in moving. Strengthening these muscles is important in helping them get better and improve their performing activities of everyday life.





Weight Cuff



At home- A sandbag can be made of 1 or 2 kg by adding sand into a bag and a rope around it.



Tyre/Rubber Tube for Strengthening

Fig 6.1 Equipments required for strength training at home



Fig 6.2 Using Multi Gym setup

Strengthening Program for Upper limb

For a person with paraplegia, the upper limbs play a vital role in transfers, wheelchair mobility, pressure relief, self-care, reaching, and community participation. Strengthening should therefore focus not only on muscle power, but also on protecting the shoulders and maintaining long-term function.



Using a sandbag or using a bottle of water
Lie Down: Get comfortable lying on your back.
Start Position: Keep your arm relaxed beside you.
Move Your Hand: Bring your hand up towards your shoulder.
Keep Your Elbow Steady: Make sure your elbow stays close to your side.
15 times then rest then again 1 times- Total 30

Fig 6.3 Using sandbag are a water bottle

Using a rope or a saree
Lie Down: Get comfortable on your back.
Set Up Band: Make sure the theraband is
pulling from under the bed.
Start Position: Keep your arm resting beside you.
Move Your Arm: Lift your arm up above you.
Keep Elbow Straight: Make sure your elbow stays straight the whole time.
15 times then rest then again 1 times- Total 30



Fig 6.4 Using a rope or a saree



Fig 6.5 Using a sandbag or a tyre tube

Using a sandbag or tyre tube.
Lie Down: Get comfortable on your back.
Attach Weight: Secure a weight around your hand.
Start Position: Let your wrist drop downwards.
Move Your Wrist: Pull your wrist upwards.
15 times then rest then again 1 times- Total 30

Perform most activities by using a dumbbell or a sandbag or a water bottle.
Exercise for Elbow Muscles helpful to lift the body and shift the lower body(shifting)-



Fig 6.6 Using dumbell or a sandbag

Lie on Your Stomach: Get comfortable on your stomach with your arm over the edge of the bed.
Start Position: Begin with your elbow bent.
Move Your Arm: Straighten your arm.
Finish Position: Your elbow should be straight.
15 times then rest then again 3 times- Total 60

Exercise for Chest Muscles-
Lie on Your Back: Get comfortable lying on your back with your shoulders out to the side.
Start Position: Begin with your elbows bent.
Lift Weights: Raise the weights above your chest.

Finish Position: Straighten your elbows.
15 times then rest then again 3 times- Total 60



Fig 6.7 Chest exercise with dumbell

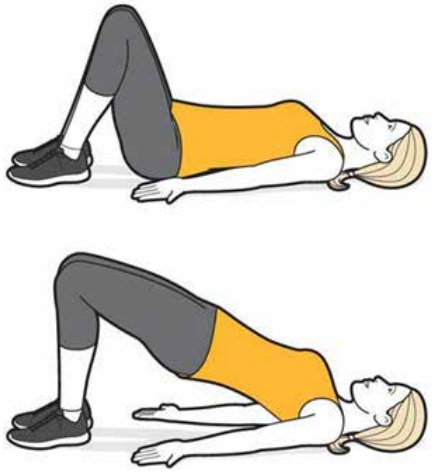


Exercise for Shoulder Muscles(helps in shifting, taking wheelchair forward)
Lie on Your Stomach: Get comfortable lying on your stomach with your arm over the edge of the bed.
Start Position: Point your arm down towards the floor.
Move Your Arm: Bring your arm out to the side.
Keep Elbow Straight: Make sure your elbow stays straight the entire time.
15 times then rest again 3 times- Total 60

Fig 6.8 Shoulder exercise with dumbell

Core and Lower Limb Strengthening for incomplete injury

- Do these exercises only if you can move your legs properly with full control- 10 times at your own will.
- These exercises are meant for people who have power in their limbs and not the ones who want to get power.



Activation of Core(Belly Strength)-

• Compress your belly inside to touch your lower back to on the floor.

• Fold both the legs together with the knees bent and then lift your waist with
out arching your back and hold for 10 seconds.

For People who have power in their lower legs

Hip Strength(Hip Flexor)- Important muscle for standing and to lift our leg for walking.

Lie on Your Back: Get comfortable lying on your back with a weight around your ankle.

Fig 6.9 Core exercise

Knee Strength(Knee Extensor)- Most Important Muscle for Standing and Walking helps to keep the knee straight.



Fig 6.10 Knee exercise



Fig 6.11 Knee exercise

Sit on the Bed: Position yourself sitting with your legs hanging over the side of the bed.

Attach Weight: Secure a weight around your ankle.

Start Position: Begin with your knee bent.

Straighten Your Knee: Move your leg so that your knee is straight. Do this for 20 times 4 = 80 for each leg



Ankle Strength(Ankle Dorsiflexors)-
Important muscle to keep ankle stable.
Sit Down: Get comfortable sitting down.
Attach Weight: Secure a weight around your toes.
Start Position: Keep your toes on the floor.
Lift Your Toes: Raise your toes off the floor.Do this for 20 times 4 = 80 for each leg

Fig 6.12 Ankle exercise

Ankle Strengthening(Ankle Plantarflexors)-
Important Muscle to prevent foot from dropping down and important for walking.
Lie on Your Back: Get comfortable lying on your back.
Set Up Theraband: Wrap the theraband around your forefoot and make sure it pulls from your knee direction.
Start Position: Point your toes upwards.
Move Your Ankle: Push your ankle downwards.
Do this for 20 times 4 = 80 for each leg



Fig 6.13 Ankle exercise

Keeping Track of Tiredness and Injuries in Muscle Strengthening

Understanding Tiredness

Feeling tired is common for people with spinal cord injuries. It can make things harder to do. There are two types of tiredness: physical (body tiredness) and mental (mind tiredness). Both can make exercising difficult.Switch between different exercises on alternate days.

How to Manage Tiredness

1. **Plan Your Day**: Break your activities into small tasks and take breaks often.
2. Eat Well and Drink Water: A balanced diet and staying hydrated help keep your energy up.
3. **Sleep Well**: Get good sleep to feel refreshed and reduce tiredness.
4. **Break** : Take atleast 2-3 minutes of break between two sets.

Preventing Injuries

It's important to avoid getting hurt while exercising. Common injuries include muscle strains and joint problems. Here's how to stay safe:

1. **Use Proper Form**: Learn the right way to do exercises to avoid stress on your muscles and joints.
2. **Take It Slow**: Gradually increase the intensity of your exercises so your body can adjust without getting hurt.
3. **Listen to Your Body**: Pay attention to how your body feels. If something hurts, rest and don't push through the pain.

Conclusion

Monitoring tiredness and injuries is important for safe muscle strengthening if you have a spinal cord injury. By following these tips, you can work on your fitness goals while keeping yourself safe. It's helpful to work with healthcare professionals to create a personalized exercise plan.Please contact a nearby physiotherapist if you want to increase the intensity of exercises

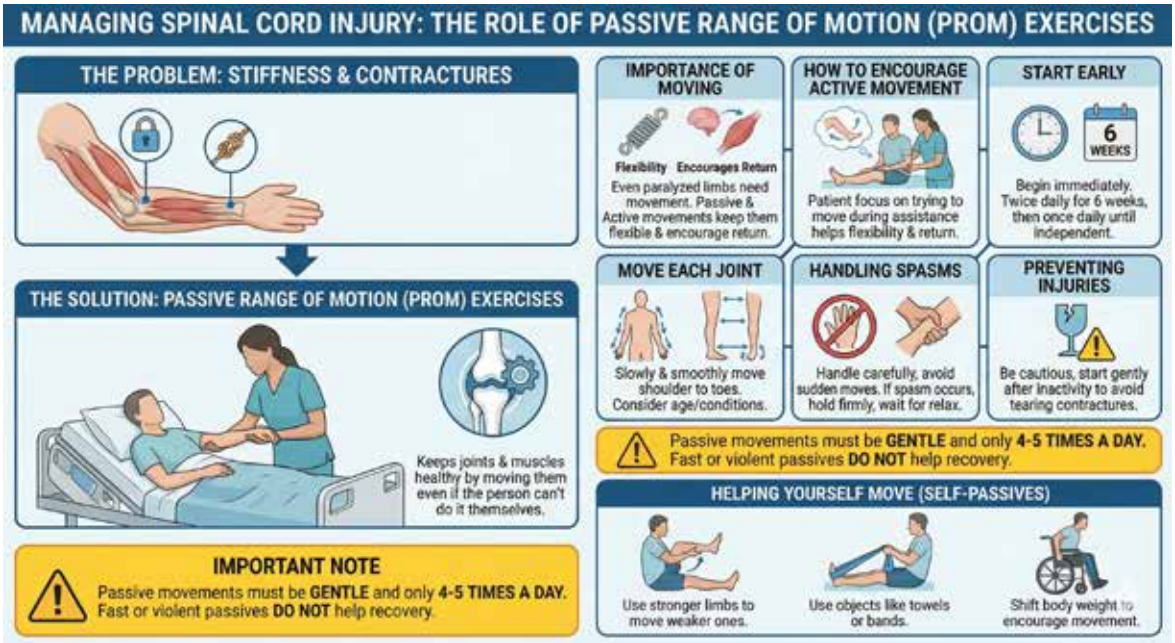
"After my spinal cord injury, I was completely dependent on my family, But through exercises, I can walk and work with confidence. Every day that I exercise, I keep my body flexible and strong, and that keeps me in control of my own life."

Harshwardhan

7. Self Passives

Why Move?

People with spinal cord injuries can have stiff muscles, joints that don't move well, and a higher risk of muscles getting stuck in one position (contractures). To help with this, a passive range of motion (PROM) exercises are important. These exercises help keep joints and muscles healthy by moving them even if the person can't do it themselves.





Legs side to side

Sit on a Bed: Get comfortable sitting on a bed (a raised platform) with your legs straight out in front of you.

Use Your Arms: Practice using your arms to move your legs from one side of the bed to the other. 50 times(2 times)daily for each leg

Fig 7.1 Legs exercise

Hold the leg and then pull it towards your body by folding the knee



Fig 7.2 Knee exercise



Fig 7.3 Ankle exercise

Passive ROM to Ankle joint-

Sit Down: Get comfortable sitting down.

Lift Your Foot: Place one foot on your opposite knee.

Move Your Ankle: Move your ankle up and down and then around in circles.

Benefits of Stretching:

- Keeps joints moving smoothly without stiffness.
- Prevents posture problems by keeping muscles flexible.
- Relaxes tight muscles and reduces the risk of muscle spasms.
- Improves blood flow and prevents skin issues like pressure sores.
- Helps with overall movement, making transfers and daily activities easier.

Preventing Contractures with Self-Passive Exercises Contractures happen when muscles, tendons, and ligaments become permanently shortened and stiff, making movement difficult or impossible. Self-passive exercises help prevent contractures by keeping joints moving and muscles flexible.

Key Areas to Focus On:

- Hips and knees to make sitting and standing easier.
- Ankles to help with walking, using a wheelchair, or standing.
- Wrists and fingers to maintain grip and perform self-care tasks.

How to Prevent Contractures:

- Move each joint through its full range.
- Hold each stretch for 20 to 30 seconds.
- Avoid staying in the same position for too long.

Making PROM a Daily Habit To be effective, self-passive exercises need to be part of a daily routine. Regular movement is essential for keeping flexibility and overall well-being.

Tips for Daily PROM:

1. Start the day with gentle movements of all joints like wrists, ankles, and shoulders before getting out of bed.
2. Do simple exercises like arm circles, leg swings, and neck rotations while sitting in a wheelchair, watching TV, or lying in bed.
3. Passively stretch the neck, wrists, legs, and perform spinal rotations.
4. Set reminders using alarms or apps to stay on track.

Using Adaptive Equipment:

- Slings and straps to help move limbs without external assistance.
- Exercise bands to add resistance and improve strength.
- Wheelchair adjustments to help with natural movement and prevent stiffness.

“After my rehab, when I went home, I stopped exercising. Because of that, my body became stiff again, and I started losing control. The tightness increased, making daily activities difficult. I realized how important these exercises were, so I never skip them now. Today, I work at a hotel for 6–8 hours a day, and thinks to these exercises, I can stay functional and independent. They have truly changed my life.”

Harish

8. Bed Mobility

Why movement matters for Spinal Cord Injury recovery?



Techniques of Rolling and Repositioning-

There are few commonly used ways to roll in bed and change your position to prevent pressure ulcer or other problems in the legs.

Here are some techniques-

1.Rolling sideways using belt for elbow by using shoulder strength-



Fig 8.1 Elbow exercise

Lie Down on Your Back: Get comfortable lying on your back.

Put on Supports: Use supports on your elbows to keep them straight

Connect Your Wrists: Hold your wrists together.

Practice Rolling Over: Quickly move your arms across your body to help you roll over.

Try to roll towards both sides 40-40 times.

2.Rolling sideways using weights(bottle,sandbag) by using shoulder strength-

Lie Down on Your Back: Get comfortable lying on your back.
Add Wrist Weight: Put a weight around one wrist.
Use Elbow Supports: Have supports on your elbows.

Practice Rolling Over: Quickly move your arms across your body to help you roll over.
Try to roll towards both sides 40-40 times.



Fig 8.2 Back exercise

Sitting up in bed with assistance or independently-

There is a sequence of order that we can make the person with spinal cord injury do for them to go from lying down in bed to sitting up and coming to the edge of the bed, which is essential for them to even shift to the wheelchair.

The sequence is as follows:



Fig 8.3.1 Rolling from side to side



Fig 8.3.2 Walking on elbows side to side towards your knees



Fig 8.3.3 Sitting up from side lying position



Fig 8.3.4 Sitting Up from Half sidelying



Fig 8.3.5 Going Forward in Bed with legs being straight.



Fig 8.3.6 Shifting legs from one side to another

Preventing skin breakdown during bed mobility-



Fig 8.4 Push up on the bed



Fig 8.5 Push up on the wheelchair

"After the injury, my family and I believed that since my hands and legs weren't working, I would never be able to do anything and would always have to depend on them. But after rehabilitation, I have learned the right techniques and can now move on the bed, roll over, and sit up by myself. This newfound independence has changed my outlook on life"

Manjunath

9. Balance Training for People with Spinal Cord Injury



Balance training is a crucial aspect of rehabilitation for individuals with spinal cord injuries (SCI). It helps improve stability, strength, and overall quality of life. Here's a comprehensive guide on various balance training techniques and activities that can be beneficial for people with SCI. Please note, balance training changes based on the neurological level of injury. Lower the level of injury, better is the balance capacity of the person.

al Cord Injury: A Comprehensive Guide

ing core strength, and boosting overall quality of life.
al level of injury; lower injury often means better balance capacity.

2 WEIGHT SHIFTING ACTIVITIES: BUILDING DYNAMIC CONTROL



REACHING FOR OBJECTS: Practice reaching in various directions (forward, sideways, diagonally) while seated to adjust center of gravity.



LEANING SIDEWAYS: Carefully lean to one side, maintaining balance, then return. Gradually increase lean distance to challenge stability.



WEIGHT SHIFTING GAMES: Engage in interactive games requiring weight shifts to specific targets for engaging training.

4 DYNAMIC SITTING BALANCE ACTIVITIES: A COMPREHENSIVE GUIDE



SEATED BALLOON VOLLEYBALL: Keep a balloon from touching the ground with a partner or group.

Promotes core strength, hand-eye coordination, quick reflexes, social interaction.



SIT-TO-STAND EXERCISES:
Practice moving from seated to standing without using hands for support (if able).

Builds lower body strength, improves weight shifting, boosts confidence, helps prevent falls.



OBSTACLE COURSE:
Navigate through a custom-designed course using cushions, cones, and objects while seated.

Enhances spatial awareness, adaptability, balance, coordination.



BALANCE BOARDS:
Sit on unstable surface (wobble board/cushion) and perform tasks to maintain balance.

Increases body awareness, strengthens core muscles, improves postural stability.



WEIGHT SHIFTING GAMES:
Play games involving reaching and shifting weight, like bowling, ring toss, bean bag toss.

Improves weight shifting abilities, fine motor skills, overall confidence in balance.



YOGA AND PILATES:
Participate in adapted sessions focusing on strengthening the core and improving overall stability while seated.

Increases core strength, flexibility, balance, promotes relaxation, mindfulness.



Fig 9.1 Balance exercise 1

Here are few examples of balance activities that a person with spinal cord injury can do in sitting-

In this exercise sit on a bed while someone stands behind you.

- Take one hand off the bed at a time to get used to not relying on your arms for support to sit.
- Take both hands off the bed. Start with your hands not too far off the bed so you can put them down quickly to stabilise yourself if needed.



Fig 9.2 Balance exercise 2

- Twist to the left side, then come back to the centre and then twist to the right.
- Start off with small movements. Once you can start to make larger twists, the person helping you should introduce their hand as a target for you to touch at each side.



Fig 9.3 Balance exercise 3

- Hold ball in your hand lift your arms out, lean to one side taking the weight out of the centre and then return to the centre for a rest.
- Do the same on the other side.
- Start with very small movements to each side. The person who is helping you can have their hands by your side to give you a target to aim for.



Move your hand to multiple directions

Fig 9.4 Balance exercise 4

Sit on the bed while someone stands behind you or to the side for support if necessary.
The idea of the exercise is to put rings on a pole/ ball/ building blocks.

To simplify exercise:

- Place the rings or counters close to you
- Place the table/game close to you
- Use one hand to stabilise yourself



Fig 9.5 Balance exercise 5



Fig 9.6 Balance exercise 6

To make exercise more challenging

- Place the rings or counters behind you or to the side of patient
- Move the game further away to chal lenge the core/reaching forward movement



Fig 9.7 Balance exercise 7

- Sit on the bed with someone sitting facing you. Your helper should hold your hands and slowly bring you forward. The aim is for you to bring yourself back up into a straight position.
- To get into position your helper can hold one of your hands. Aim to touch your helper's shoulder as a guide of how much to come forward.
- Your helper can put their hands on your trunk for support and to reassure you that you won't fall forward. Come forwards and touch your helper's shoulders and from there try to sit back up straight.
- Anything that involves bringing a heavy ball higher than head level will test your balance and core.

Here are few examples of balance activities that a person with spinal cord injury can do in standing

In Standing while wearing a caliper various activities can be done to promote stability of the pelvis and locking of the hip.

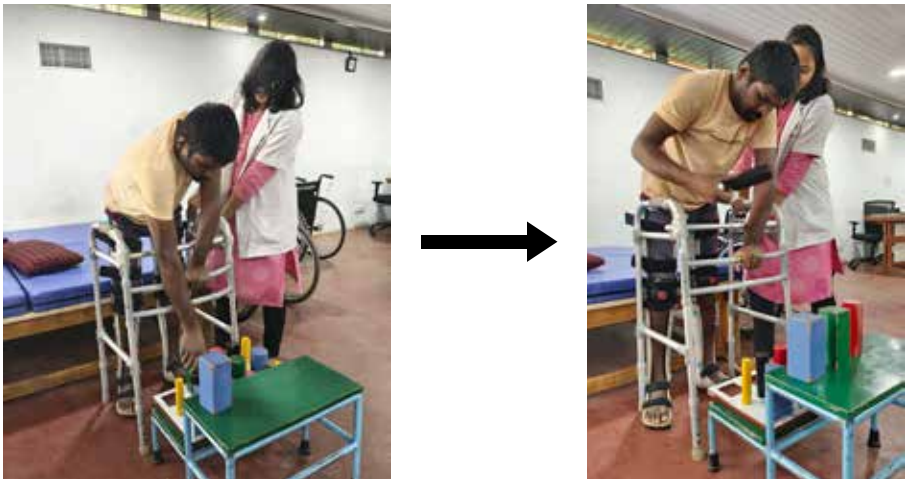


Fig 9.8 To reach for an object pick it up and come back up while holding the walker

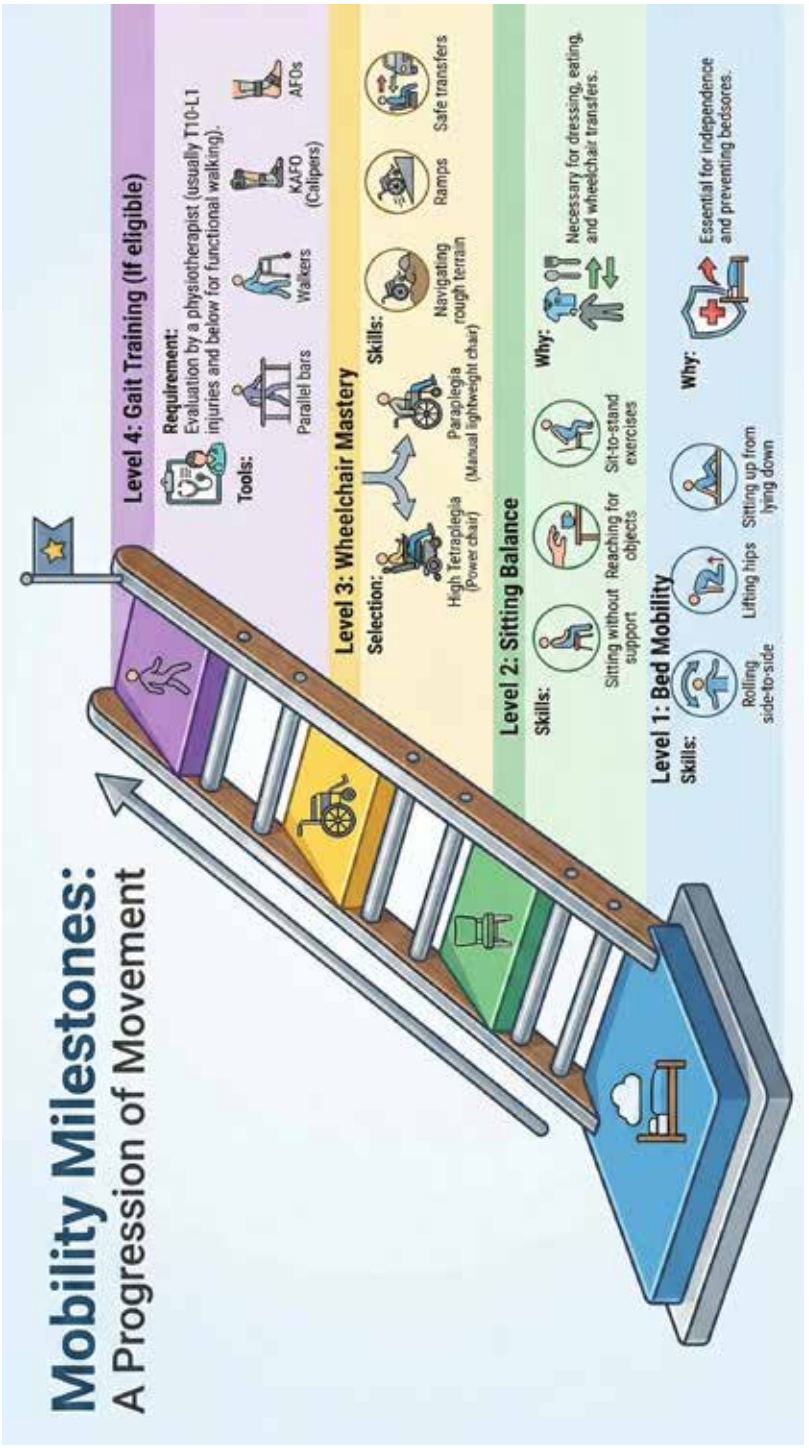


Fig 9.9 First he takes the object above his head,- shifts it to the other hand and takes it behind his body You can repeat this activity many times by increasing the difficulty everytime.

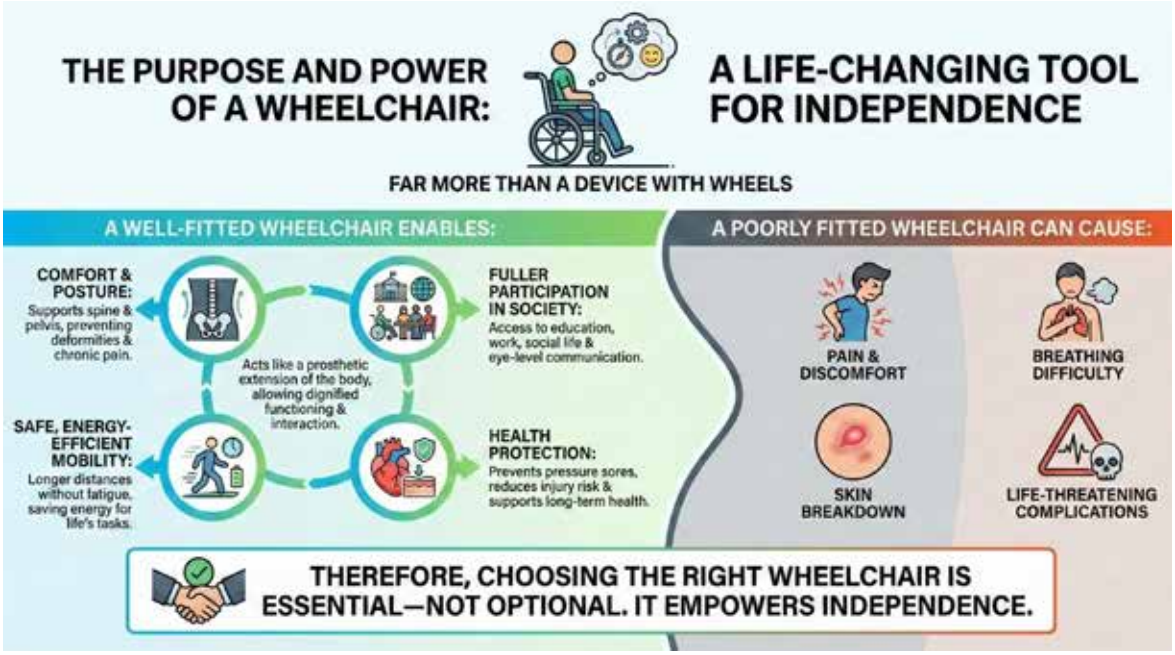
Conclusion

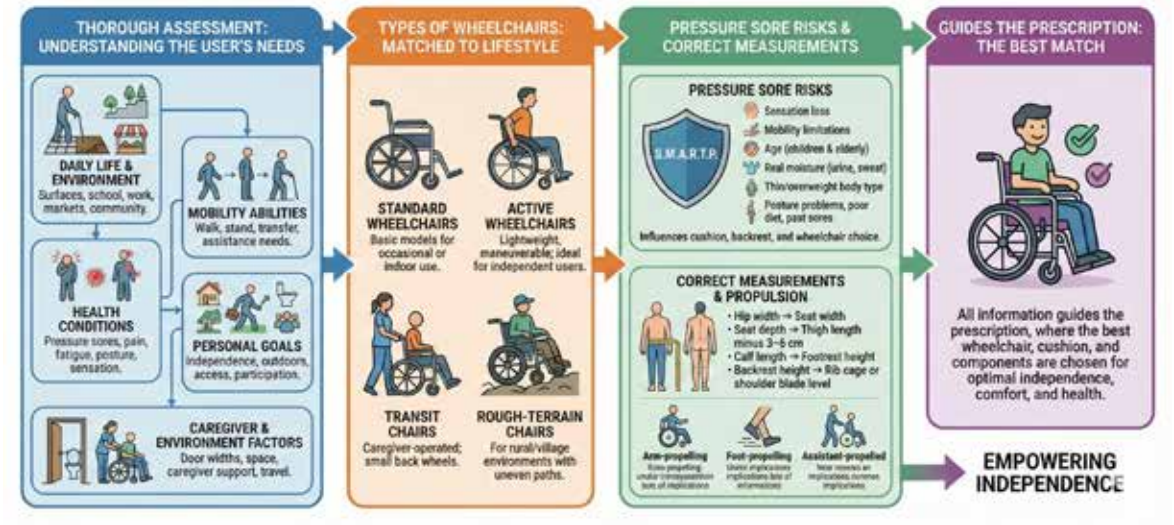
Balance training is essential for individuals with spinal cord injuries as it helps them regain functional independence. By focusing on postural training, weight-shifting activities, environmental modifications, and engaging in dynamic sitting balance activities, individuals can enhance their stability, strength, and overall quality of life. Consistent practice of these activities can lead to significant improvements in dynamic sitting balance and provide a pathway to greater independence and well-being.

10. Mobility


Mobility Milestones:
A Progression of Movement
Level 4: Gait Training (If eligible)
Requirement:
Evaluation by a physiotherapist (usually T10-L1 injuries and below for functional walking).
Tools:
Parallel bars
Walkers
KAFO (Calipers)
AFOs
Level 3: Wheelchair Mastery
Selection:
High Tetraplegia (Power chair)
Paraplegia (Manual lightweight chair)
Skills:
Navigating rough terrain
Ramps
Safe transfers
Level 2: Sitting Balance
Skills:
Sitting without support
Reaching for objects
Sit-to-stand exercises
Why:
Necessary for dressing, eating, and wheelchair transfers.
Level 1: Bed Mobility
Skills:
Rolling side-to-side
Lifting hips
Sitting up from lying down
Why:
Essential for independence and preventing bedsores.

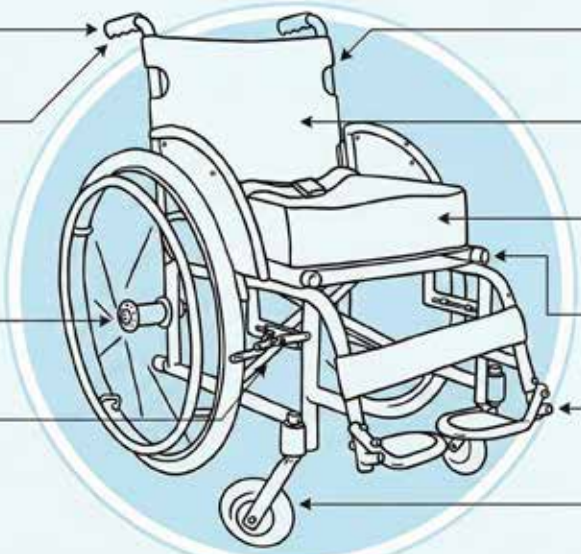
11. Wheelchairs





ANATOMY OF A WHEELCHAIR:
Key Components for Independence and Safety

A breakdown of the essential parts that provide structure, mobility, and support.



9 Push Handles
Located behind the backrest, used by caregivers to push the wheelchair.

12 Seat Belt (optional)
Provides additional safety and stability for users with balance issues.

7 Hand Rims
Metal or coated rings attached to the rear wheels, allowing the user to push and control the wheelchair.

8 Brakes / Wheel Locks
Locks the rear wheels to keep the wheelchair stationary during transfers or parking.

1 Frame
The main structure that holds all components. Can be rigid or foldable.

2 Seat & Backrest
Provides support and comfort. Seat width, depth, and cushion type determine posture and pressure relief.

3 Cushion
A pressure-relieving cushion (foam, gel, air) that protects the skin and prevents bedsores.

4 Armrests
Support the arms and assist with transfers. Fixed or removable, full-length or desk-length.

5 Footrests / Leg Rests
Supports the feet and legs. Swing-away or detachable with footplates and heel loops.

6 Wheels
Rear (big) wheels for self-propulsion; Front (caster) wheels for steering and maneuverability.

ENSURING A SAFE FIT: PREPARATION, FITTING, AND ADJUSTMENTS

Once the wheelchair is selected, it must be prepared and adjusted according to the user's needs.

SAFE & READY CHECKS

Before fitting, staff ensure:

- No sharp edges
- Chair rolls straight
- Castors spin freely
- Rear wheels are secure and tyres inflated
- Brakes work correctly
- Cushion fits properly and covers the entire seat
- Frame opens/closes smoothly

FITTING: MAKING SURE THE WHEELCHAIR BELONGS TO THE USER

During fitting, staff check the user's:

1. Size & Adjustments
- Seat width
- Seat depth
- Footrest height
- Backrest height
- Rear wheel position
- Seat height (for foot-propellers)

2. Posture
- User sits upright
- Pelvis supported
- Balanced trunk
- Shoulders free to move

3. Pressure
- No pressure under seat bones
- Cushion working effectively

4. Movement
- Can the user push, turn, stop safely?
- Is the chair stable when being pushed by a caregiver?
- Are brakes accessible and reliable?

PRACTICAL FITTING CUES

Quick checks for correct fit:

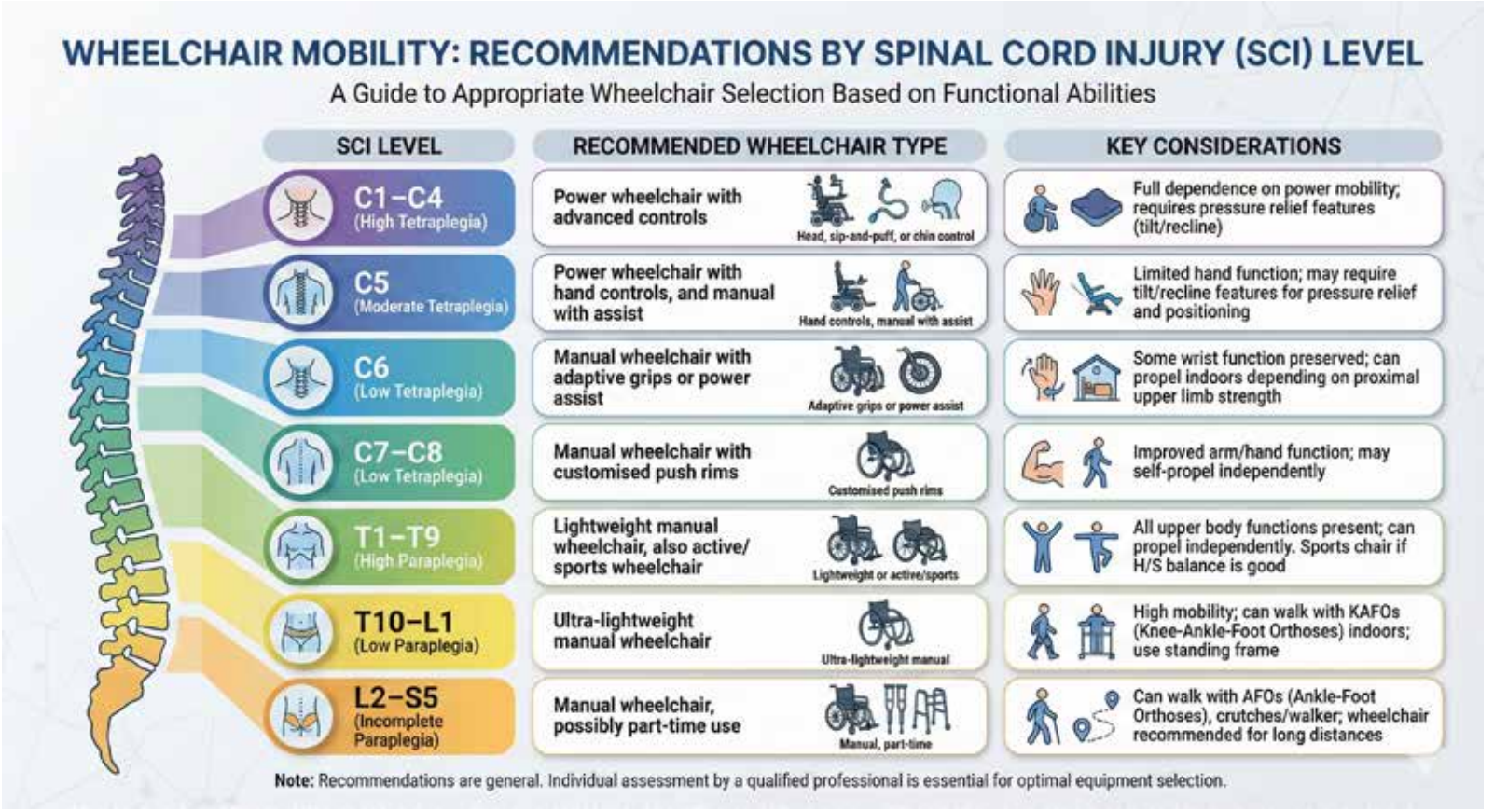
Seat width: Fingers slide easily between thigh and side panel.

Seat depth: Two-finger space behind the knee.

Footrest: Feet fully supported; thighs rest evenly.

Backrest: Supports user but does not block arm movement.

A well-fitted wheelchair feels natural, comfortable, and easy to move in.


WHEELCHAIR MOBILITY: RECOMMENDATIONS BY SPINAL CORD INJURY (SCI) LEVEL
A Guide to Appropriate Wheelchair Selection Based on Functional Abilities
SCI LEVEL
RECOMMENDED WHEELCHAIR TYPE
KEY CONSIDERATIONS
C1–C4 (High Tetraplegia)
Power wheelchair with advanced controls
Head, sip-and-puff, or chin control
Full dependence on power mobility; requires pressure relief features (tilt/recline)
C5 (Moderate Tetraplegia)
Power wheelchair with hand controls, and manual with assist
Hand controls, manual with assist
Limited hand function; may require tilt/recline features for pressure relief and positioning
C6 (Low Tetraplegia)
Manual wheelchair with adaptive grips or power assist
Adaptive grips or power assist
Some wrist function preserved; can propel indoors depending on proximal upper limb strength
C7–C8 (Low Tetraplegia)
Manual wheelchair with customised push rims
Customised push rims
Improved arm/hand function; may self-propel independently
T1–T9 (High Paraplegia)
Lightweight manual wheelchair, also active/ sports wheelchair
Lightweight or active/sports
All upper body functions present; can propel independently. Sports chair if H/S balance is good
T10–L1 (Low Paraplegia)
Ultra-lightweight manual wheelchair
Ultra-lightweight manual
High mobility; can walk with KAFOs (Knee-Ankle-Foot Orthoses) indoors; use standing frame
L2–S5 (Incomplete Paraplegia)
Manual wheelchair, possibly part-time use
Manual, part-time
Can walk with AFOs (Ankle-Foot Orthoses), crutches/walker; wheelchair recommended for long distances
Note: Recommendations are general. Individual assessment by a qualified professional is essential for optimal equipment selection.

The wheelchair and its parts:



Fig 11.1 Wheelchair parts

Wheelchairs for pepole with tetraplegia (All 4 limbs having weakness)-



Fig 11.2
Electric Wheelchair with chin control



Fig 11.3
Electric-Wheelchair with finger control



Fig 11.4



Fig 11.5
Wheelchair with extra grip

For people with paraplegia (Wheelchair which can go at more speed and safety requirement is less)



Fig 11.6
Vermeiren Jazz S50



Fig 11.7
Motivation WM3 -rough terrain



Fig 11.8
Motivation Active folding 4x



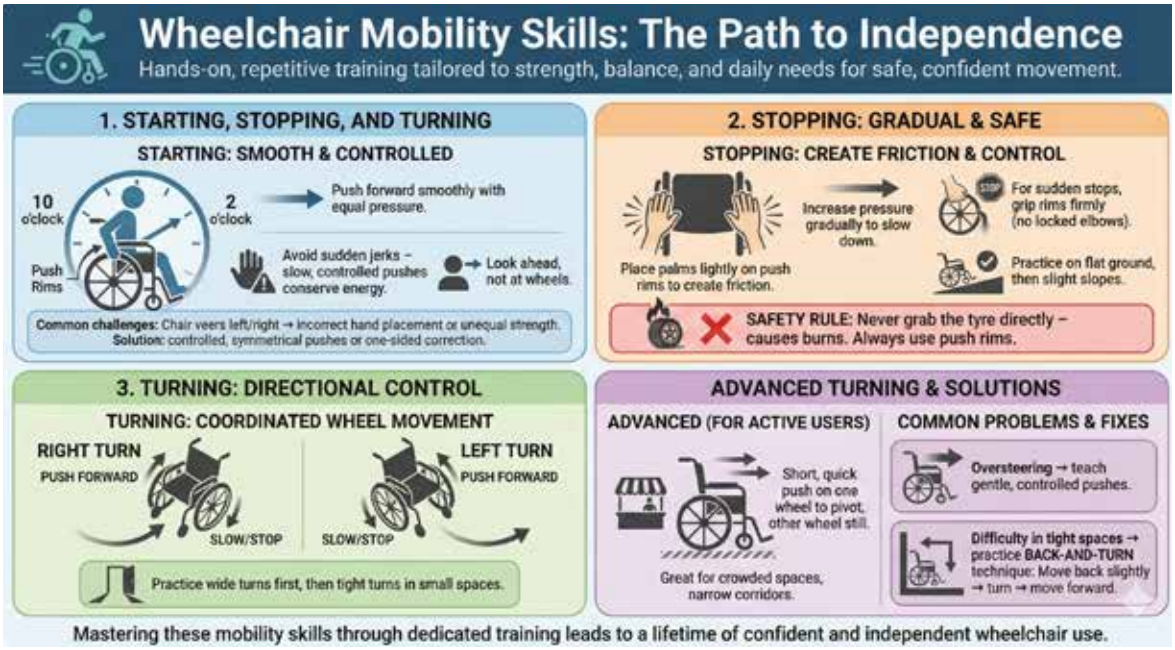
Fig 11.9
Freedom Forza

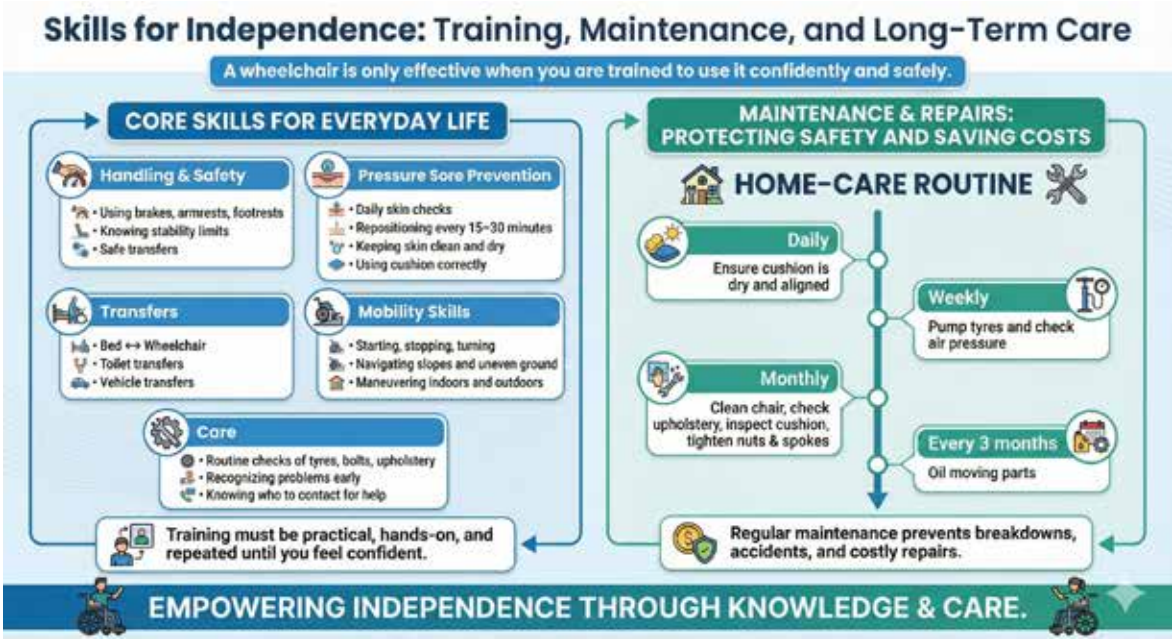


Fig 11.10
Motivation Sports wheelchair



Fig 11.11
Electric wheelchair -Neomotion





"A spinal cord injury may have taken away my ability to walk, but it could never take away my spirit to explore new places and embrace new experiences. My wheelchair became my wings, empowering me to fulfill my dreams and discover the world with renewed freedom."

Naveen

Wheelchair transfers:

People who use a wheelchair often must know how to shift or transfer themselves in and out of the wheelchair. Transfers become easier when the armrest of the wheelchair can be pushed out of the way while moving.

Types of transfers:



Fig 11.12 Transfer from wheelchair to toilet seat.



Fig 11.13 Transfer from bed to wheelchair



Fig 11.14 Transfer from floor to wheelchair



Fig 11.15 Transfer from scooty to wheelchair



Fig 11.16 Transfer from wheelchair to car

Wheelchair-cleaning and maintenance





Fig 11.17 Wheelchair maintenance

12.Gait Training for Spinal Cord Injury

Your level of injury determines whether you can walk or not and whether you require assistive devices, Lower injuries often mean better mobility and less need for assistive devices.







Fig 12.1 Knee Ankle Foot Orthoses (KAFO)



Fig 12.2 Ankle Foot Orthoses (AFO)



Fig 12.3 Walker



Fig 12.4 Elbow Crutches



Fig 12.5 Parallel Bar(made of iron rods you can make these out of bamboos too)



Lift your leg



Put your foot in the Caliper



Put the knee pad



Wear the sandals over the Caliper

Fig 12.6.1 How to wear the Caliper



Lift you leg up using strength from back, hip, arms by bending forward



Lift your leg up using strength from back, hip, arms by standing straight. This is the main technique by which walking will be done.





Back Walking - First take the same side hand back then the leg back



Fig 12.6.2 Activities on parallel bar

Forward Walking- Lift and keep the leg ahead and push the waist in front- Take the next step forward



Fig 12.6.3 Standing Balance Exercise

- After that there is advanced walking training which should be done under the guidance of a physiotherapist.
- The person with spinal cord injury can be trained to do the same in a walker without wheels then move it and walk slowly.
- The person with spinal cord injury can be trained to walk with 2 elbow crutches only if they have very god speed and stamina
- Walking sideways is also possible
- Walking in rough terrain, steps and uphill climb and crossing the road is also possible.
- All the advanced walking should be done after guidance from a physiotherapist or it can lead to fatal injuries.

Common Safety Precautions-

1. At Least one caretaker should be near the person with spinal cord injury.
2. A towel or a cloth can be tied with a big knot around the waist to hold easily in case of loss of balance or possibility of fall.
3. Proper footwear and strong parallel bars should be used.
4. Standing on a leg with no power or strength and standing or walking on it and with it can be fatal and break your bones and cause further complications.



Fig 12.7.1
Start of Elbow Crutch Walking Training in Parallel Bar by Hip Hiking



Fig 12.7.2
Front Walking



Fig 12.7.3
Back Walking



Fig 12.8 Ramp Side Walking



Fig 12.9 Walking with B/L Elbow Crutches





Fig 12.10 Outdoor Walking in Rough Terrain with Calipers

13. Spasticity Management

Understanding Spasticity: What It Is, W

What is Spasticity?

Common in Spinal Cord Injuries (SCI), spasticity is when muscles remain tight or stiff, sometimes moving involuntarily. It can cause sudden jerking, stiffness, or resistance to movement. While sometimes helpful for standing, it can be painful and hinder movement.

How to Redu

Stretching: Key for relaxing muscles & improving flexibility.



Passive Stretching
(Someone else moves limbs)
e.g., Slowly moving leg for hamstrings, holding arm for shoulder.



Active-Assisted Stretching
(Use stronger muscles/equipment)
e.g., Resistance band for calf stretch, using stronger arm to stretch weaker.



Static Stretching
(Hold position 20-60s)
e.g., Sitting and leaning forward for hamstrings, holding wrist stretch.



Weight-Bearing Stretches
(Standing with support)
e.g., Using a standing frame for ankles, knees, hips.



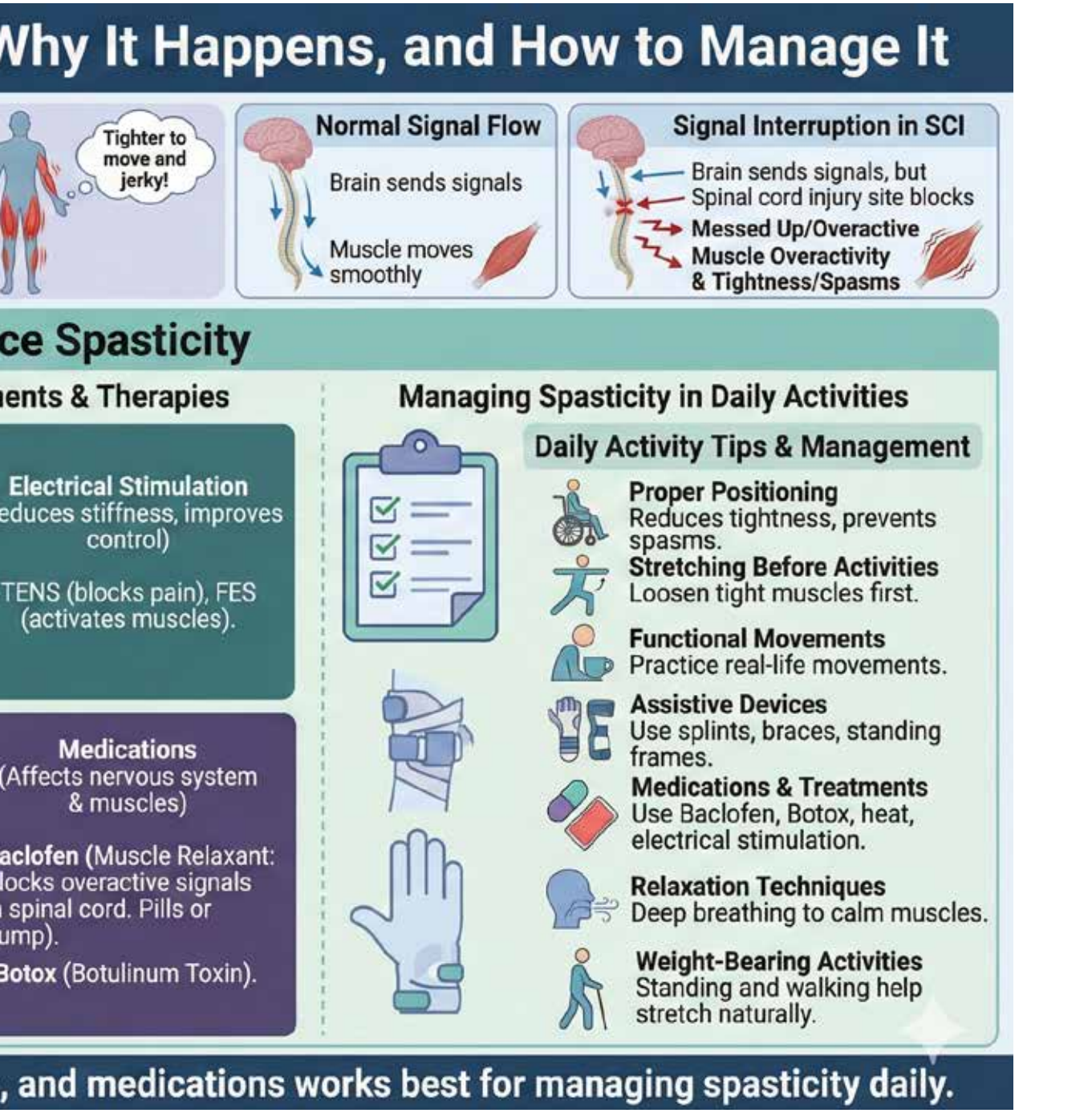
Dynamic Stretching
(Gentle, repeated movements)
e.g., Slowly moving legs, bending/straightening elbow.

Medical Treatm





Combining stretching, proper positioning, assistive devices


Why It Happens, and How to Manage It
Tighter to move and jerky!
Normal Signal Flow
Brain sends signals
Muscle moves smoothly
Signal Interruption in SCI
Brain sends signals, but Spinal cord injury site blocks
Messed Up/Overactive Muscle Overactivity & Tightness/Spasms
ce Spasticity
ents & Therapies
Electrical Stimulation
educes stiffness, improves control)
TENS (blocks pain), FES (activates muscles).
Medications
(Affects nervous system & muscles)
aclofen (Muscle Relaxant: locks overactive signals spinal cord. Pills or ump).
Botox (Botulinum Toxin).
Managing Spasticity in Daily Activities
Daily Activity Tips & Management
Proper Positioning
Reduces tightness, prevents spasms.
Stretching Before Activities
Loosen tight muscles first.
Functional Movements
Practice real-life movements.
Assistive Devices
Use splints, braces, standing frames.
Medications & Treatments
Use Baclofen, Botox, heat, electrical stimulation.
Relaxation Techniques
Deep breathing to calm muscles.
Weight-Bearing Activities
Standing and walking help stretch naturally.
, and medications works best for managing spasticity daily.

Here are few important muscles we need to work on to reduce the tightness-



Fig 13.1 Ankle stretch exercise

Ankle Stretch(Dorsiflexion)-
Lie Down: Have the patient lie on their back.
Support the Knee: Place a rolled towel underneath their knee.
Hold the Heel: Place your hand around their heel.
Push the Ankle: Use your forearm to push their ankle upwards.
Hold the stretch for 15 seconds and do it 20 times/day for both legs.



Fig 13.2 Knee straight exercise

Stretching to make knee straight(Hamstrings)-
Lie Down on Your Back: Have the patient lie on their back.
Bend the Hip: Bend their hip and keep their knee straight.
Rest the Leg on Your Shoulder: Place their leg on your shoulder.
Gently Push Up: Gently push their leg upwards to bend the hip more.
Keep the Knee Straight: Make sure their knee stays straight while you do this.
Hold the stretch for 15 seconds and do it 20 times/day for both legs.

"Spasticity used to control my life, making even sleep difficult. But through passive movements, stretching, and medication, I have learned to manage it. Living alone makes some things harder, but I have found ways to adapt. I now work independently as a Zomato delivery partner. My body still challenges me, but I refuse to let spasticity stop me from living my life."

Venkatesh

14. Bowel & Bladder Management

Why is it important?

A good bowel and bladder programme helps prevent infections, constipation, accidents and kidney problems and improves comfort, dignity and independence.

- Protect Kidneys
- Prevent Complications
- Avoid Accidents
- Promote Independence

BLADDER MANAGEMENT

Goals: Empty regularly • Keep bladder pressure safe • Prevent infection • Protect the kidneys

WHAT YOU CAN DO



- Empty your bladder at the recommended times.
- Use the method taught by your healthcare team (e.g., intermittent catheterisation).
- Wash hands before and after catheterisation.
- Drink adequate fluids according to your plan.
- Attend regular bladder and kidney check-ups.

WATCH FOR

- Fever or chills
- Blood in urine
- New urine leakage
- Difficulty passing the catheter
- Little or no urine
- Repeated catheter blockage
- New or worsening spasms

Seek medical advice if these occur.

BOWEL MANAGEMENT

Goals: Regular • Predictable • Comfortable • Complete bowel emptying

WHAT YOU CAN DO



- Have bowel care at a regular time.
- Follow your prescribed bowel medications or rectal medicines.
- Eat a balanced, fibre-rich diet.
- Drink adequate fluids.
- Stay physically active within your abilities.
- Use the bowel technique taught by your healthcare team.

WATCH FOR

- Severe constipation
- Persistent diarrhoea
- Abdominal pain or swelling
- Blood in stool
- Repeated bowel accidents
- Major change in bowel pattern

Seek medical advice if these occur.

AUTONOMIC DYSREFLEXIA

People with SCI at or above T6 may develop autonomic dysreflexia.



SUDDEN HEADACHE + SWEATING/FLUSHING + FEELING UNWELL = ACT QUICKLY



1. Sit upright if safe.
2. Check the bladder first—look for a blocked, kinked or disconnected catheter.
3. Empty the bladder according to your established programme.
4. If symptoms continue, check for bowel problems and other causes.
5. Do not wait—seek urgent medical help if symptoms persist or are severe.

CAREGIVER TIPS

RESPECT · PRIVACY · HYGIENE · INDEPENDENCE



- Prepare supplies before starting.
- Explain what you are doing.
- Maintain privacy and dignity.
- Encourage the person to do whatever they can independently.
- Never force a catheter or perform unfamiliar procedures.
- Report unusual changes early.

DAILY BOWEL & BLADDER CHECK

BLADDER	BOWEL
☐ Followed emptying schedule	☐ Followed bowel routine
☐ Adequate fluids	☐ Stool passed as expected
☐ Urine draining normally	☐ Stool consistency OK
☐ No unusual leakage	☐ No significant pain/bloating
☐ No fever or new symptoms	☐ No unexpected accidents
☐ Catheter supplies available	☐ Bowel medications taken

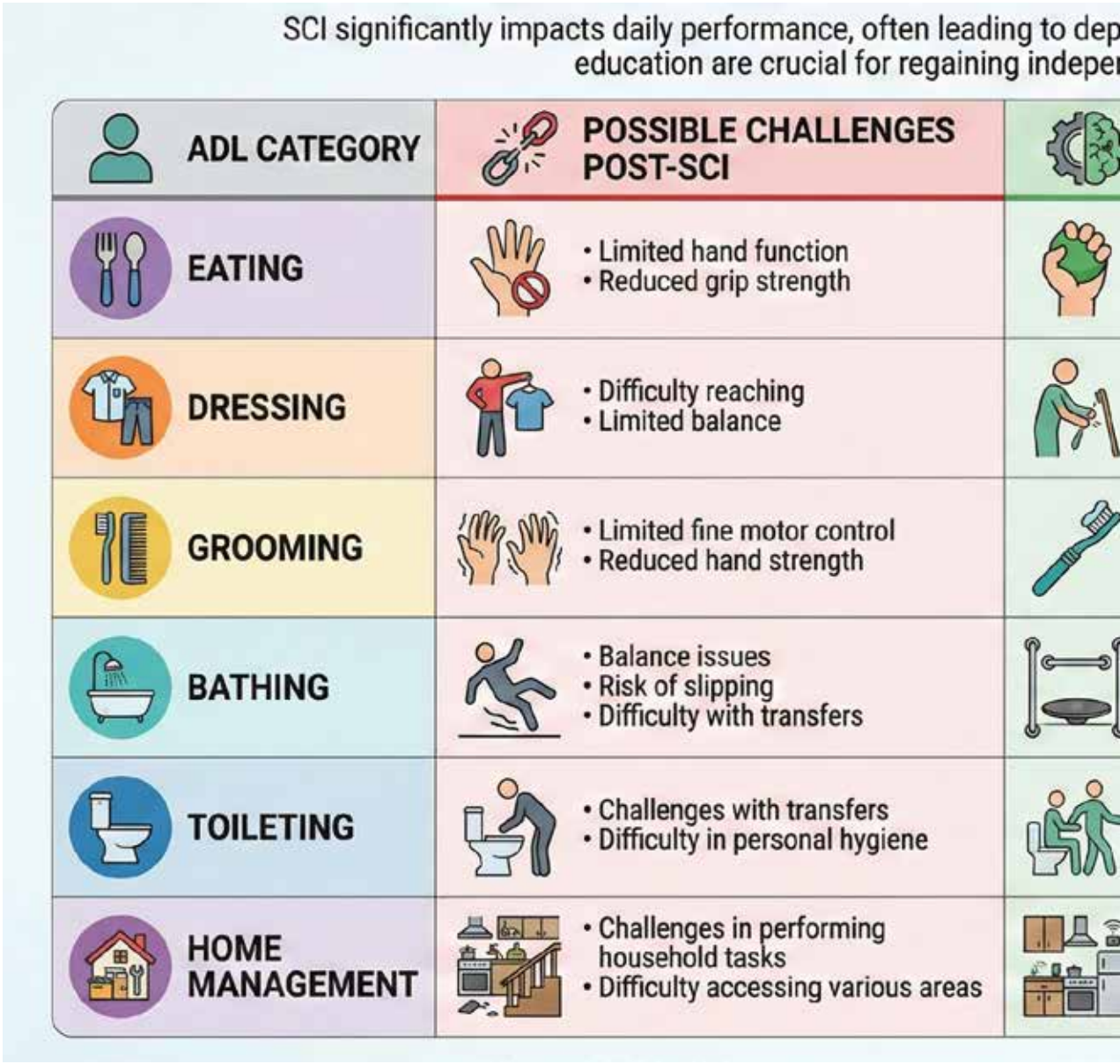
Remember: Consistency is Key!

A good bowel and bladder programme protects your health, prevents complications and helps you live life to the fullest.

Need Help?

Contact your rehabilitation team or healthcare provider whenever you have concerns.

15. Activities of Daily Living



After a spinal cord injury, be it traumatic or non-traumatic, there is a significant change in the status of one's performance in daily activities. While some perform a major part of their activities with some adaptation, most are dependent on others for even tasks that seem basic and natural to all. This can have a detrimental effect upon the self-esteem and morale of the person, and can be quite challenging on a

ɔendence and affecting self-esteem. Rehabilitation and caregiver
ndence in Activities of Daily Living (ADLs).

REHABILITATION STRATEGIES	ASSISTIVE DEVICES
• Occupational therapy to improve fine motor skills • Adaptive techniques for utensil use	 Adaptive utensils with built-up handles  Plate guards  Universal cuffs
• Training in adaptive dressing techniques • Use of adaptive equipment	 Reachers  Dressing sticks  Button hooks  Zipper pulls
• Occupational therapy focusing on hand function • Adaptive strategies for grooming tasks	 Electric razors  Adapted toothbrushes  Universal cuffs
• Physical therapy to improve balance • Environmental modifications for safety	 Shower chairs  Transfer benches  Handheld showerheads
• Training in safe transfer techniques • Use of adaptive toileting equipment	 Raised toilet seats  Grab bars  Commode chairs
• Occupational therapy for task adaptation • Environmental modifications	 Modified kitchen tools  Accessible storage solutions  Automated home devices

long-term basis for their immediate family or caregivers. Therefore, it is necessary to provide an intervention for the same by rehabilitating the person with SCI and educating the caregivers on management and other aspects.

16. Environmental Modifications



Fig 16.1 Table height of a person with wheel-chair



Fig 16.2 Wash basin at the chest level

Modifications: (Table)

Correct the height of the table to accommodate the person's height when seated
Ensure there is adequate space below the table to provide space for the wheelchair

Washbasin

1. Wash Basin height should be at chest level of the person when he is seated on the wheelchair
2. Ensure that the basin is at least 3-4 inches above knee height



Door width:

1. Doors should be wide enough for a wheel chair user to pass through(Minimum of 32in). Measure the width in the position shown in the picture, from elbow to elbow, so that there is enough clearance for the arms as well.
2. It would be best to have a smooth path, without a threshold, so the person can pass easily and safely
3. In case a high threshold is present that makes it difficult to cross over, one can use sand, gravel and cement to construct a small and simple ramp over the threshold

Fig 16.3 Door wide for wheelchair to pass

Ramp:

For every 1 inch of height, there should be 12 inches of ramp length.

Height (inches)	Length (inches)
1	12 (1×12)
2	24 (2×12)
3	36 (3×12)



Fig 16.4 Ramp dimension ratio

"For 20 years after spinal cord injury, I was confined to my but with a wheelchair, and ramp in my house, I have regained my freedom. Now, I go out not just for myself, but to advocate for accessibility. I am working with my local panchayat, raising awareness about the importance of inclusive infrastructure. No one should stay locked inside just because public spaces aren't built for them."

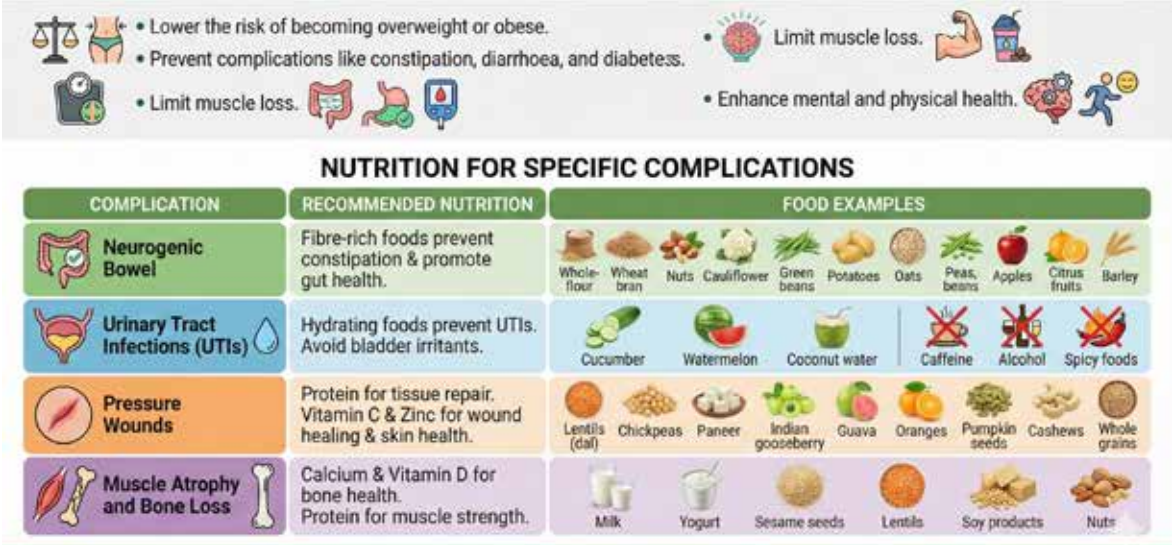
Prabhu

17. Importance of Nutrition

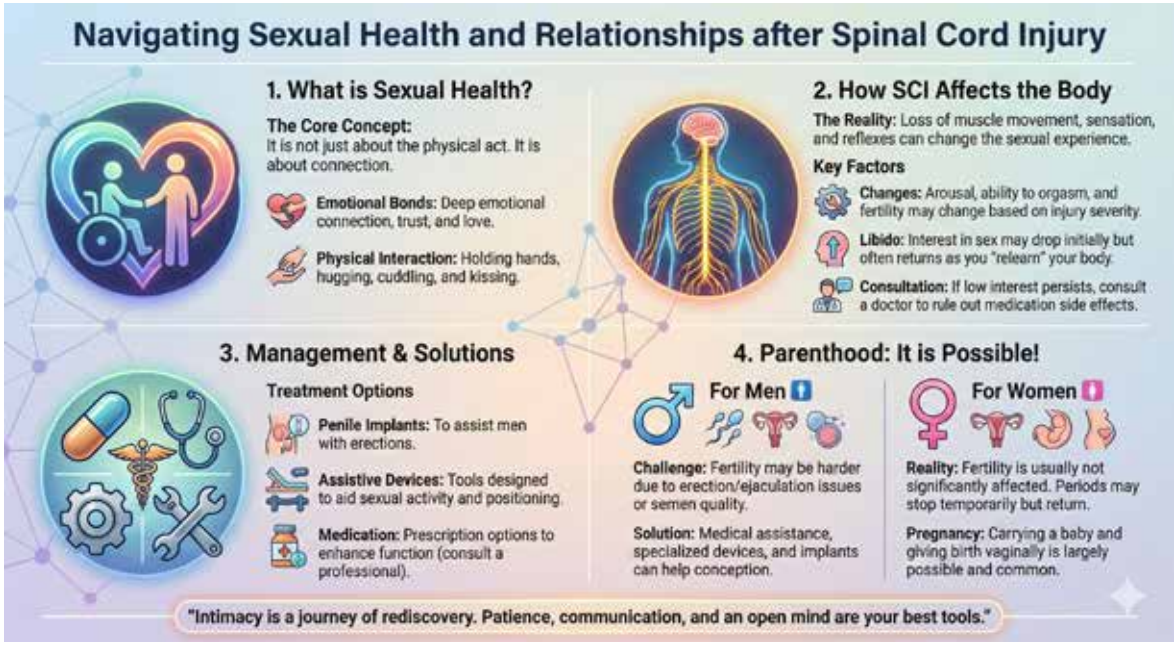
- Lower the risk of becoming overweight or obese.
- Prevent complications like constipation, diarrhoea, and diabetes.
- Limit muscle loss.
- Enhance mental and physical health.



Fig 17 Energy Balance



18. Sexual Health and Relationship

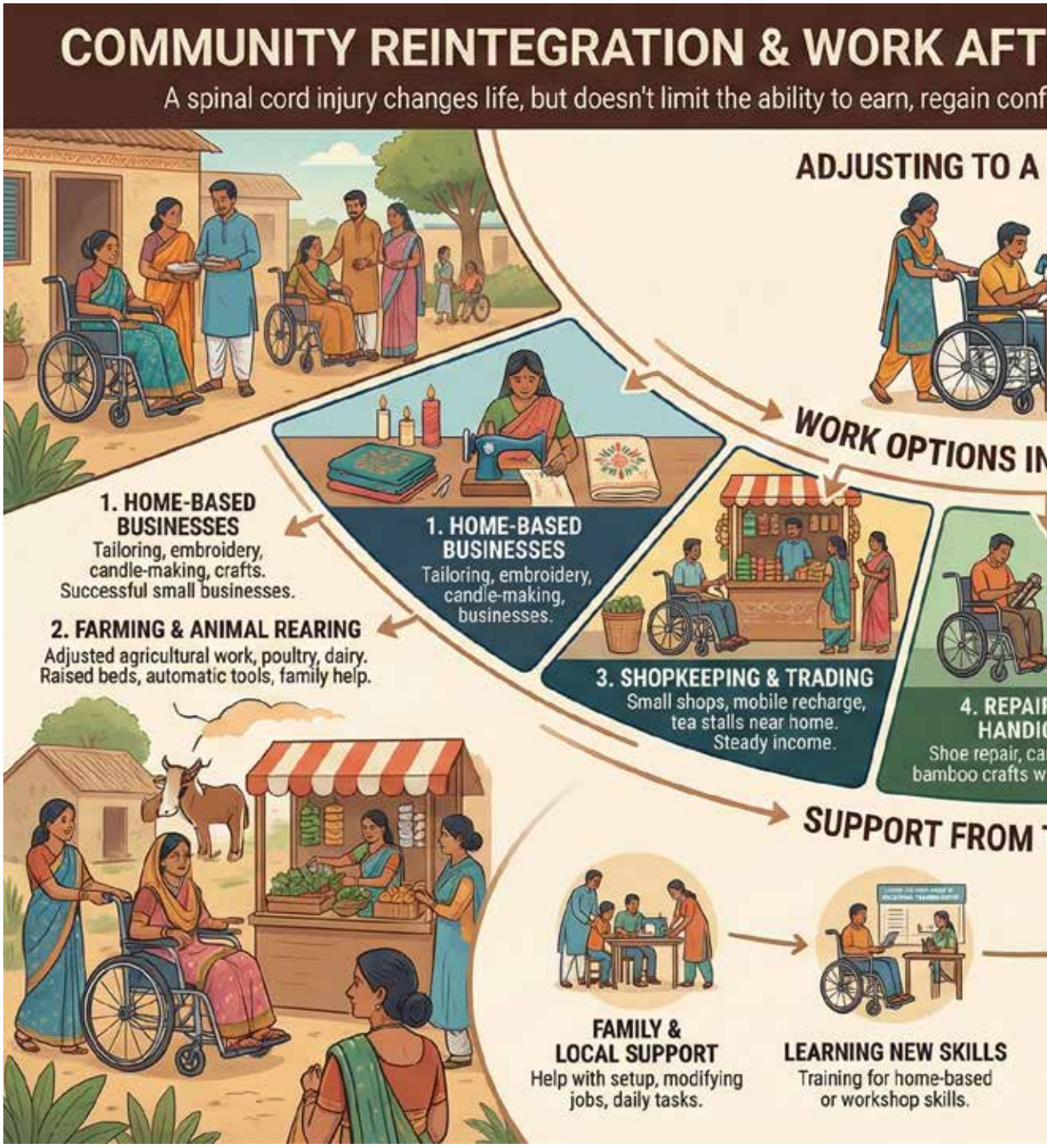


Sexual health includes how you feel physically,
emotionally, and socially about your sexuality.
It's about building connections with others through love, affection, and intimacy.

"After my spinal cord injury, I never imagined I could have a child. But today, I am a mother to a beautiful, healthy daughter. My husband, who has polio, and I faced many challenges, especially balancing myself due to pregnancy weight. But I had a normal delivery, and both my baby and I are healthy."

Chhaya

19. Community Reintegration




ER SCI IN INDIA: Thriving, Not Just Surviving
idence, and live with dignity. Explore opportunities with adaptation and support.
NEW WAY OF LIFE
Daily tasks and work adapted. Modified tools, home-based work, new skills. Family & community support is key.
N THE COMMUNITY
6. ONLINE EARNING
Mobile access: selling homemade products, data entry, teaching local crafts online.
5. TEACHING & COACHING
Home tutoring, teaching sewing, art, local skills to others.
R WORK & CRAFTS
rpentry, pottery, ith modifications.
7. GOVERNMENT SCHEMES & TRAINING
Financial help, skill training, support to start businesses.
THE COMMUNITY
AWARENESS & RIGHTS
AWARENESS & RIGHTS
Workplace rights awareness, accessing government support.
USE OF SIMPLE ASSISTIVE TOOLS
Wheelchairs, adapted tools, easy-to-use machines make work easier.
MOVING FORWARD WITH CONFIDENCE
Work gives purpose & independence. With adaptations, support, and determination, thrive and support family with dignity. SCI changes life, but does not limit success.

“Before rehab, I was dependent on others for everything. I couldn’t even imagine living on my own. But today, I live independently in a PG, without any family support. I work as a food delivery partner, earning 30,000-40,000 INR a month. If I hadn’t learned to be independent in my daily activities, I wouldn’t have had the confidence to even step out of the house.”

Uchesh



Fig 17.1 Auto driver



Fig 17.4 Super Market



Fig 17.3 Food delivery partner



Fig 17.5 Kirana stores

20.Adaptive Sports

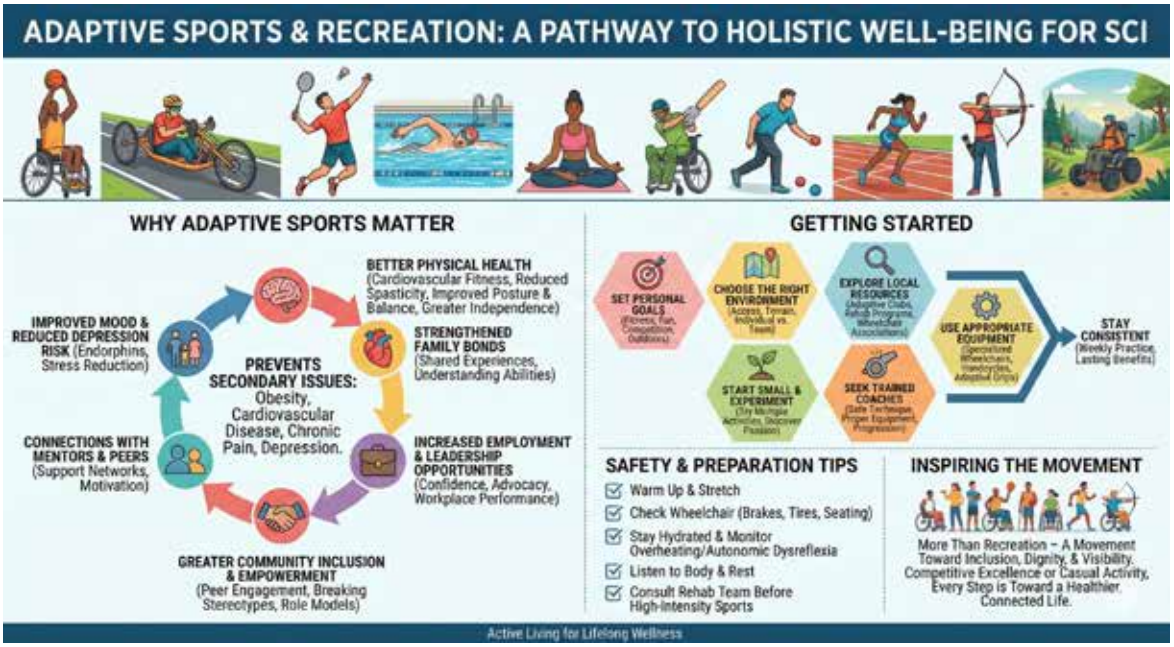




Fig 18.1



Fig 18.2



Fig 18.3

> “Before the injury I never thought of playing sports or couldn’t dream of travelling abroad, today 4 years after injury and being trained by APD, I am international badminton player, in 2024 I went to Uganda and won bronze medal”
>
> Kantharaja

21.Disabled People's Organizations (DPOs)

1 Introduction to DPOs & SCI Program Role

Disabled People's Organizations (DPOs) are community-based groups formed, led, and managed by persons with disabilities. They **protect rights, promote inclusion**, and ensure meaningful participation.

Under the **Spinal Cord Injury (SCI) Rehabilitation Program**, DPOs are vital for supporting persons with SCI through awareness, community mobilization, advocacy, and follow-up support.

2 Structure of DPOs

General Body

- All members with disabilities (village, taluk, district)
- Highest decision-making authority
- Meets at least once a year

Executive Committee (EC)

- Elected for fixed term (2-3 years)
- Oversees planning, management, implementation
- Elected representatives include:
  - President (1)
  - Vice President (1)
  - Secretary (1)
  - Executive Members (5)

3 Objectives of DPOs under SCI Program

- Promote rights and inclusion of persons with SCI and other disabilities
- Create awareness on disability, accessibility, prevention of secondary complications
- Strengthen CBR through mobilisation, referrals and linkages
- Provide peer support to individuals with SCI and families
- Facilitate access to government schemes, entitlements, assistive devices, livelihood
- Build leadership and advocacy skills among persons with SCI

4 Goals of DPOs in SCI Rehabilitation



Empowered and informed persons with SCI making independent decisions.



Stronger **community support systems** for rehabilitation, social reintegration, long-term care.



Improved accessibility in public spaces, transport, offices, community events.



Increased access to health, therapy, and follow-up services at community level.



Greater participation of persons with SCI in livelihood, education, and social development.



Sustainable, autonomous DPOs capable of planning, monitoring, and collaborating with government and NGOs.

5 Roles & Responsibilities of DPOs

Community Mobilization & Awareness

- Create awareness on SCI, prevention, early rehabilitation
- Conduct community meetings, camps, outreach
- Promote accessibility

Identification & Referral

- Identify persons with SCI needing support
- Refer to rehabilitation centers, hospitals, therapy units
- Support baseline surveys and community mapping.

Peer Support & Follow-Up

- Provide emotional and motivational support via peer mentors
- Conduct home visits to monitor progress
- Educate families on home-based care, pressure sore prevention, etc.

Livelihood & Skill Development

- Facilitate skill training, job placement, entrepreneurship
- Link with government programs (NREGA, NRLM, vocational training).

Program Support & Monitoring

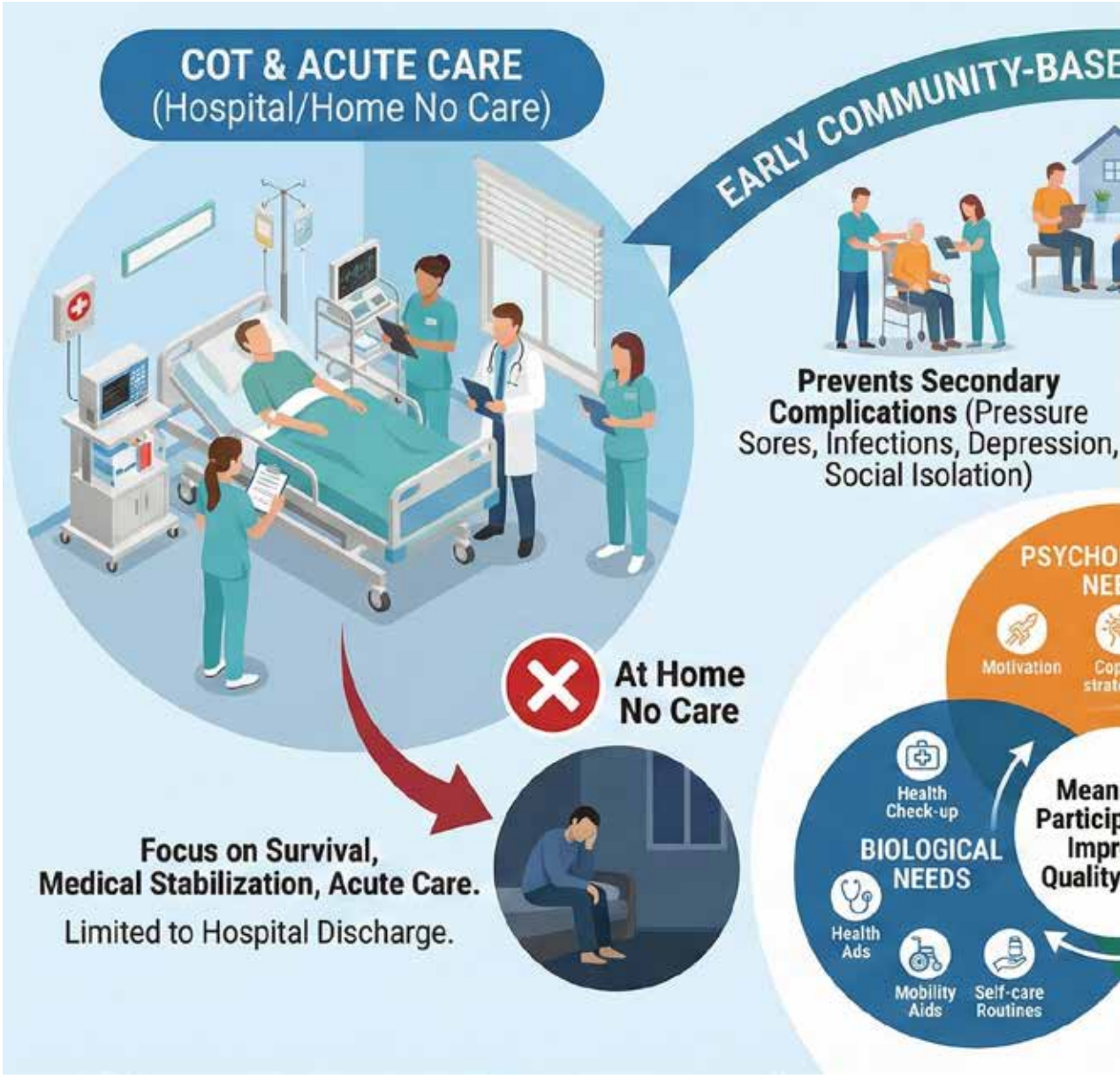
- Participate in planning, implementing, monitoring of SCI program
- Maintain records of beneficiaries, meetings, activities
- Support data collection, documentation.

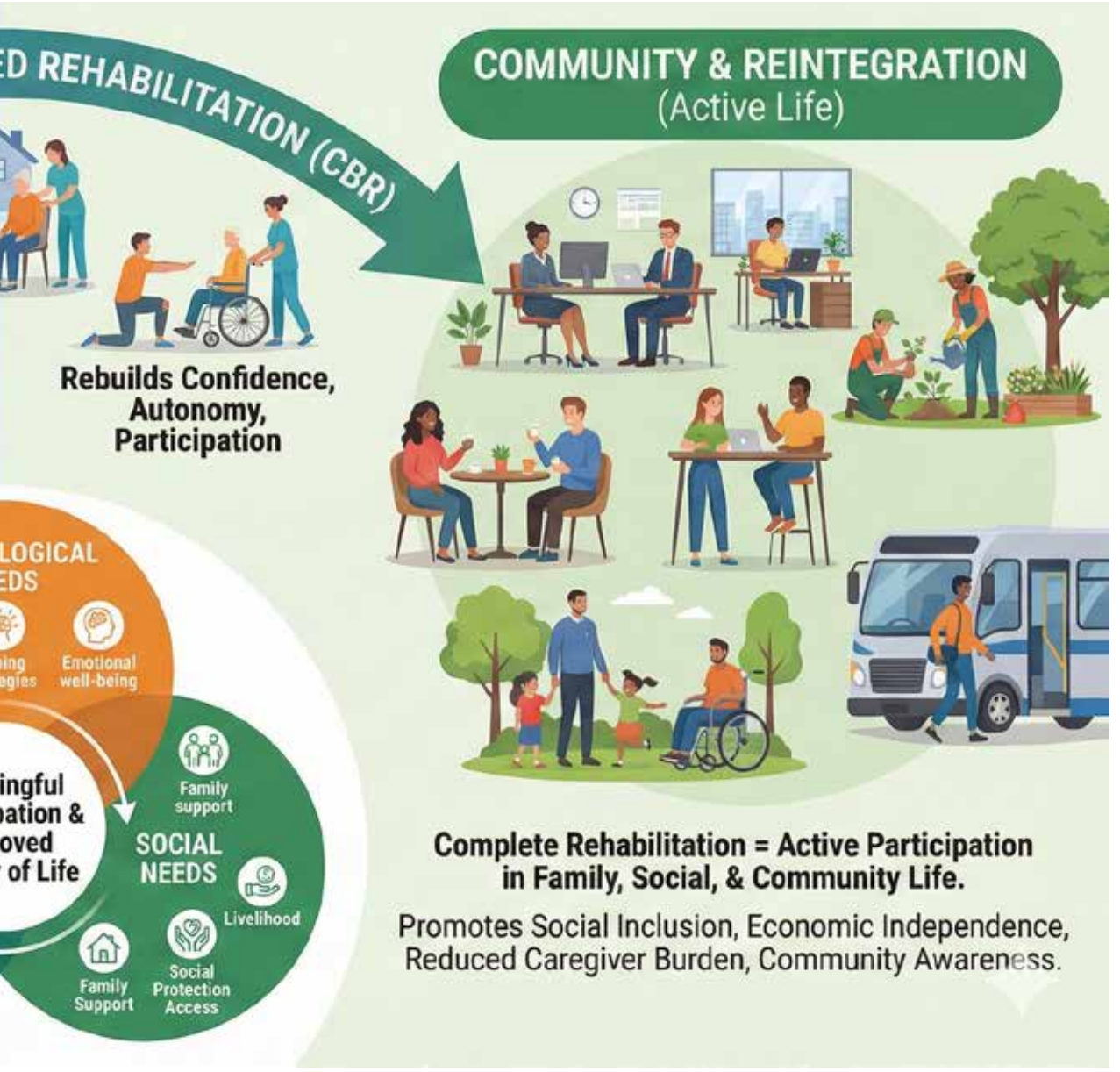
Empowerment & Leadership

- Promote leadership roles among members with SCI
- Organize capacity-building sessions on communication, advocacy, financial literacy, self-governance.

Concludring Text: DPOs are essential partners in SCI rehabilitation, bridging the gap between institutions and the community. They enable persons with SCI to live independently, confidently, and with dignity.

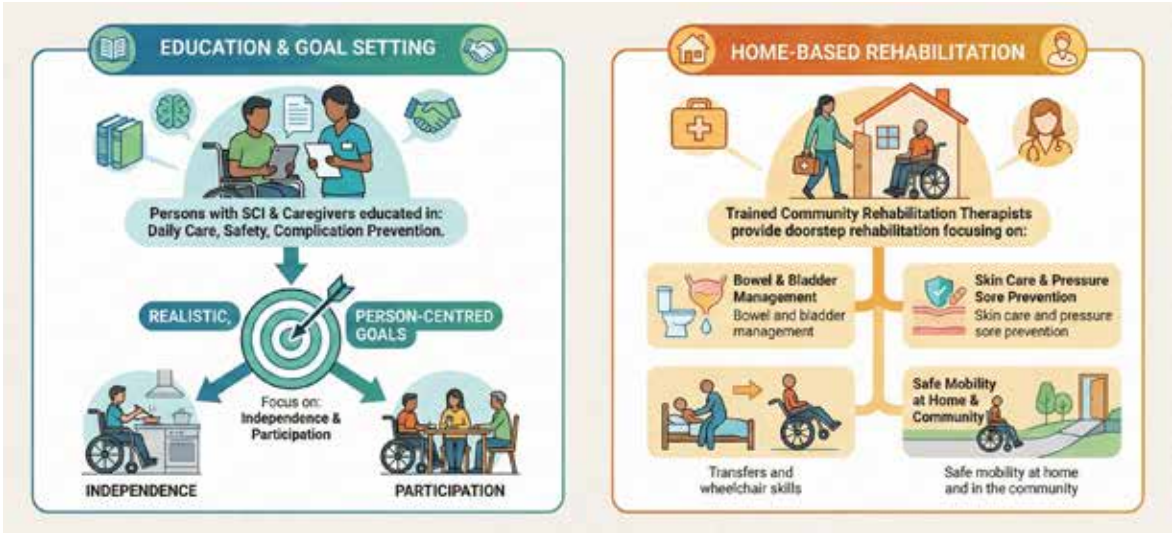
22.Community Based Rehabilitation (CBR) Model of APD



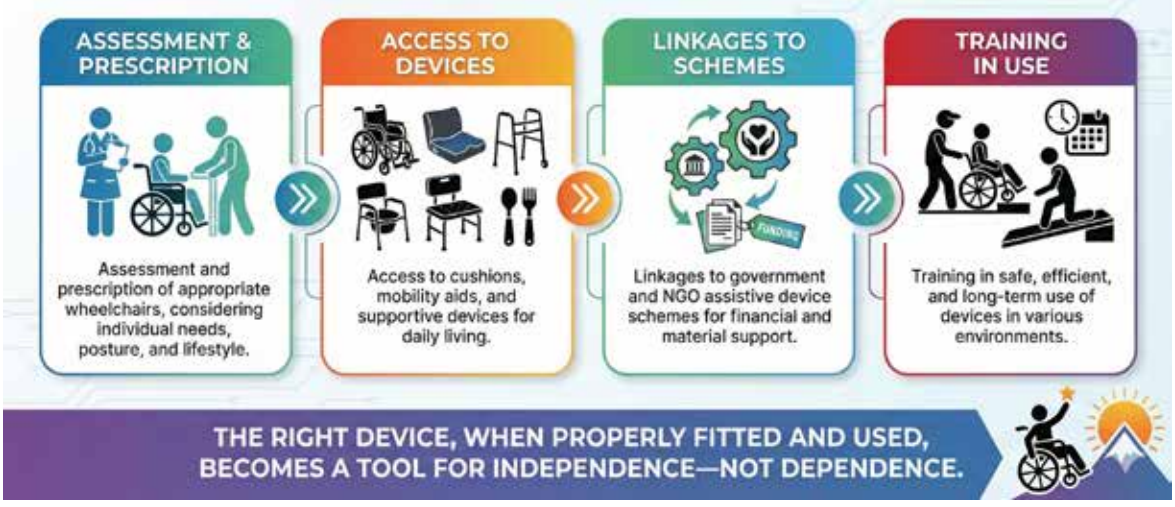

ED REHABILITATION (CBR)
COMMUNITY & REINTEGRATION
(Active Life)
Rebuilds Confidence,
Autonomy,
Participation
LOGICAL
EDS
Emotional
well-being
ingful
pation &
oved
of Life
Family
support
SOCIAL
NEEDS
Livelihood
Family
Support
Social
Protection
Access
Complete Rehabilitation = Active Participation
in Family, Social, & Community Life.
Promotes Social Inclusion, Economic Independence,
Reduced Caregiver Burden, Community Awareness.

Core Elements

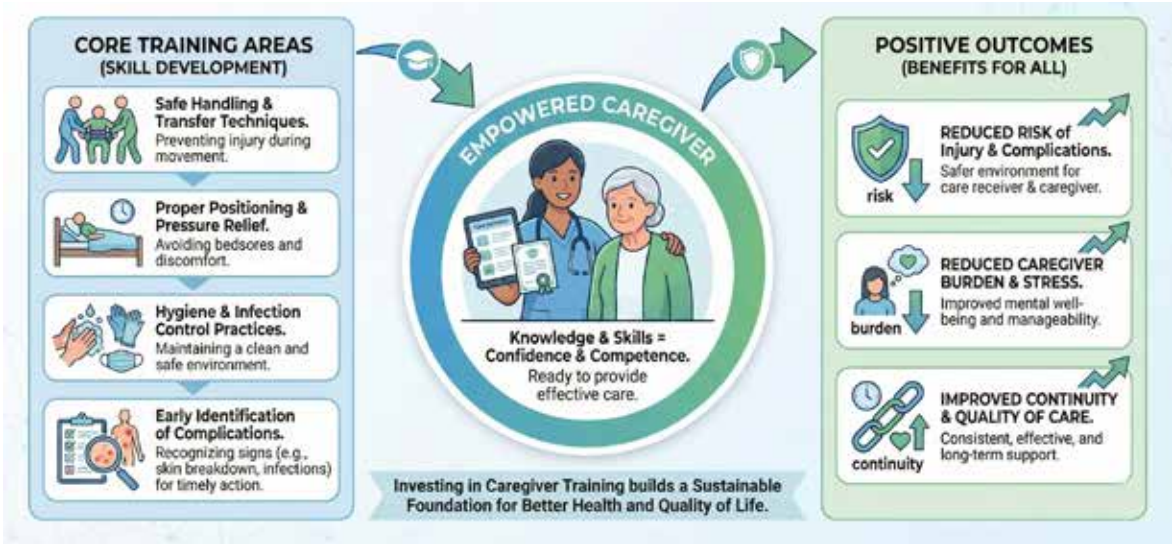
Therapy & Education



Assistive Device



Caregiver Training





Livelihood Support



23. Government Schemes & Entitlements for PwDs in India & Karnataka

People with disabilities (PwDs), including those with spinal cord injuries, can benefit from various government schemes designed to enhance their quality of life, provide financial support, and improve accessibility.
Below is an overview of key schemes at the national and state levels.

1. Essential Documents for Accessing Disability Schemes

To avail of government benefits, PwDs must have the following essential documents:

Document	Purpose & Benefits
Disability Certificate	Official proof of disability (40% or more) required to access government benefits, reservations, and financial assistance.
UDID Card (Unique Disability Identity Card)	A nationwide identification system that streamlines access to various schemes, ensuring transparency and efficiency.

2. Central Government Schemes for PwDs

The Indian government offers several welfare programs to support education, financial security, skill development, and accessibility for persons with disabilities.

Scheme	Key Features
Indira Gandhi National Disability Pension Scheme (IGNDPS)	Provides a monthly pension of ₹300 for individuals with 80%+ disability and ₹200 for those with 40%-79% disability, applicable to those below the poverty line.
ADIP Scheme (Assistive Devices for PwDs)	Offers assistive devices such as wheelchairs, hearing aids, and prosthetic limbs to improve mobility and independence.
District Disability Rehabilitation Centres (DDRCs)	Provides medical, psychological, and vocational rehabilitation services at district-level centers.
Scheme for Implementation of Persons with Disabilities Act (SIPDA)	Supports accessibility improvements, vocational training, and financial aid for PwDs in education and employment.

Pre-Matric Scholarship (Class IX & X)	Offers financial assistance, maintenance allowance, and book grants to students with disabilities, with 50% of scholarships reserved for girls.
Post-Matric Scholarship (Class XI to Post-Graduation)	Covers tuition fees, maintenance, disability allowances, and compulsory fees for higher education.
National Overseas Scholarship	Provides financial support for PwDs pursuing higher education abroad, covering tuition, accommodation, travel, and medical expenses.
Free Coaching Scheme	Enables students with disabilities to access free coaching for competitive exams such as UPSC, JEE, and SSC.
National Action Plan for Skill Development (NAP-PwD)	Offers skill development programs and job opportunities to enhance employability.
SANKALP (Skill Development & Entrepreneurship Program)	Supports vocational training and entrepreneurship for PwDs and marginalized groups.
Rail Travel Concessions	Offers free travel for PwDs above 60 years and a 50% concession for those below 60, subject to a valid disability certificate.
Financial Assistance for Self-Employment (NFSPS)	Provides grants and loans to PwDs for starting their own businesses.
Top Class Education Scholarship	Covers tuition, maintenance allowances, and assistive devices for PwDs pursuing higher education in reputed institutions.

3. Karnataka State Government Schemes for PwDs

Karnataka provides additional support to PwDs through various state-run schemes focusing on education, employment, and social security.

Scheme	Key Benefits
Special Schools for Hearing Impaired	Free education, food, and accommodation for hearing-impaired children in government-run schools across Karnataka.
Special Schools for Visually Impaired	Provides free education, shelter, and food for visually impaired students in various districts.
Scholarship for Students with Disabilities	Available from primary school to postgraduate studies, with no income restrictions.
Incentive Awards for Meritorious PwD Students	Rewards students with disabilities who achieve 60% or above in public exams, extended to teacher training courses like B.Ed. and M.Ed.
Fee Reimbursement for Higher Education	Covers tuition, exams, and other academic fees for students with disabilities pursuing higher and technical education.
Talking Laptop Scheme for Visually Impaired	Provides specially designed laptops with screen readers for visually impaired students in high school and college.
Niramaya Health Insurance Scheme	Provides health coverage of up to ₹1 lakh for PwDs, including treatment, diagnostics, and preventive healthcare.
Unemployment Allowance for PwDs	₹1,000 monthly support for unemployed PwDs who have completed Class 10 and remain jobless for two years, provided they are not receiving a disability pension.
Post-Matric Scholarship for PwDs	Encourages higher education by providing financial assistance to students with benchmark disabilities (40% and above).

Scholarship for Higher Education (Top Class PwD Students)	Supports postgraduate and professional degree students with disabilities by covering education-related expenses.
Aids & Assistive Devices Scheme (State-Level ADIP)	Provides mobility aids, hearing aids, and other assistive devices to enhance the independence of PwDs.
Free Coaching for Competitive Exams	Offers coaching programs for UPSC, SSC, JEE, and other exams, helping PwDs access better career opportunities.
Disability Pension (BOCW)	Provides ₹2,000 monthly pension to PwDs injured at work, with compensation up to ₹2 lakh depending on disability severity.





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