**TRENDS IN REHABILITATION NURSING HOME CARE**

MR. RAVIKANT SHARMA

MEDICAL SURGICAL NURSING (CVTS)

COLLEGE OF NURSING, AUTONOMOUS STATE MEDICAL COLLEGE, FIROZABAD, UTTARPRADESH, INDIA

rvkntsharma03@gmail.com

**INTRODUCTION**

Rehabilitation nursing home is an application that aims to improve the quality of life of people with disabilities or chronic diseases. The role of the rehabilitation nurse is to improve the quality of the work that disabled or chronic patients do at home and in the community.

The purpose of this job description is to define and clarify the clinical nurse's role in the hospital and to encourage nurses to high-perform in patient-based needs and standards for clinical practice in hospitals. Buildings provided by the Medical Association.

In this document, the term "customer" means a person who is injured or ill and receiving medical care. The word family refers to important people and relatives.

The term "caregiver" refers to any paid or unpaid person who provides care.

Rehabilitation nursing home is an application aimed at increasing the quality of life of people with disabilities or chronic diseases. The role of the rehabilitation nurse is to improve the quality of the work that disabled or chronic patients do at home and in the community. The goal of the recovery process is to work with an integrated medical team that includes the client to provide an effective care approach that allows the client to be independent and knowledgeable about self-care. Physical, emotional, social, cultural, educational, developmental and spiritual dimensions are taken into account when partners create goals for clients.

**REHABILITATION NURSE**

Rehabilitation nurses work to support clients and their families during re-entry from the hospital to the home and into the community.

Rehabilitation nurses coordinate services from the healthcare team and develop care plans developed by the client, doctor, and medical team. In this role, recovery nurses serve as clinical assistants, care managers, advocates, therapists, educators, counselors, and team members. Home care nurses use their knowledge of rehabilitation to develop individualized plans for patients and their families or caregivers.

Inpatient rehabilitation nurses provide patient care as part of the continuum between other healthcare facilities and the patient's family. The aim is to secure the client's autonomy in the home environment and restore relations with the client's family and others in the community.

The Rehabilitation Nurses Association believes that the role of the rehabilitation nurse is a critical one in the continuity of care. The cost of doctors can be achieved by increasing the cost of customer service, increasing hospice specific treatment knowledge and skills, reducing the frequency of medical users' set problems and readings, improving the quality of care and reducing costs.

Rehabilitation Nursing Home Nursing at home is very special; however, in this setting, Medical Nurses are helping other people. Infants, children, teenagers, young adults, the elderly, and the elderly with disabilities can receive special care from nurses in Chinese centres, at home, in other residences, and at home. After completing the transition to the community, returning nurses may also take on a case management role.

**TRENDS REHABILITATION NURSING HOME CARE:**

1. [Immersive Technologies](https://www.startus-insights.com/innovators-guide/rehabilitation-technology-trends/#it)
2. [Telehealth](https://www.startus-insights.com/innovators-guide/rehabilitation-technology-trends/#tr)
3. [Rehabilitation Wearables](https://www.startus-insights.com/innovators-guide/rehabilitation-technology-trends/#rw)
4. [Rehabilitation Robotics](https://www.startus-insights.com/innovators-guide/rehabilitation-technology-trends/#rr)
5. [Personalized Pre-rehab Diagnostics](https://www.startus-insights.com/innovators-guide/rehabilitation-technology-trends/#ppd)
6. [Photo- and Electro-Therapy](https://www.startus-insights.com/innovators-guide/rehabilitation-technology-trends/#pet)
7. [Artificial Intelligence](https://www.startus-insights.com/innovators-guide/rehabilitation-technology-trends/#ai)
8. [Neurofeedback](https://www.startus-insights.com/innovators-guide/rehabilitation-technology-trends/#nf)
9. [Lightweight Technology](https://www.startus-insights.com/innovators-guide/rehabilitation-technology-trends/#lt)
10. [Big Data & Analytics](https://www.startus-insights.com/innovators-guide/rehabilitation-technology-trends/#bda)

**1. Immersive Technology**

The field of immersive technology is expanding every year, especially in healthcare. Both professionals and patients are looking for solutions for better treatment. For this reason, the industry has started to offer virtual solutions and augmented reality (VR/AR) with software and hardware suitable for every treatment. For example, AR/VR therapy includes rock climbing games for people with upper body rehabilitation. Also, participating in a virtual environment with a virtual trainer can make it easier for patients to immerse themselves in the treatment process.

Removing the first barriers to access, technology has now become the most important factor in rehabilitation.

* 1. **Dynamics VR is specifically designed for rehabilitation**

Spanish start-up DYNAMICS-VR makes physical therapy possible by creating dedicated spaces for medical patients and professionals. Software solutions are used with VR products. It provides its customers with affordable, easy-to-use and complete technology for successful results. The first solution aims to reduce kinesiphobia and pain by 37% and 60%, respectively. The solution also prolongs the recovery time, making it beneficial for the patient in the long run.

* 1. **Improfit gamifies Rehabilitation**

Spanish startup Improfit is using AR to make recycling more efficient and fun. Improfit gamifies rehabilitation exercises using AR programs and computer vision technology. The program can also provide feedback to all patients by identifying management and evaluating it in a timely manner. Also, Improfit helps the body to heal and move again as it moves, allowing the body to heal better.

**2. Telehealth (Tele-rehabilitation)**

The need for telemedicine has increased significantly during and after the COVID-19 pandemic, especially for ordinary patients and non-emergency patients. It also forces physiotherapists to shift their offerings to remote services. Online consultation with a physical therapist about the patient's physical health and telekinesis treatment can help heal the disability. There is also a need and interest among physicians and patients for telemedicine services such as physical therapy, telediagnosis and telepharmacy.

**2.1. Phyt. Health develops Online Physiotherapy Software**

Indian startup Phyt. created a platform and an app to make online physical therapy more convenient for patients. Their solutions focus on home renovations, but there are also small exercises in the office setting. The approach is divided into four phases that each patient reaches, namely Pain Management and Prevention, Stabilization, Exacerbation, and Continual Prevention. At each stage and during treatment, artificial intelligence algorithms guide patients remotely to achieve desired results.

**2.2. Telewecure facilitates E-Rehabilitation and Networking**

Iranian startup Telewecure provides users with telerehabilitation services as well as social networking sites. Telewecure's telerehabilitation solution allows patients to easily connect with physical therapists, exercise and get equipment advice from their platform. They also enhance the experience by providing patients and professionals with a network of social media sites. This makes it possible to communicate and exchange information in groups and forums in the Telewecure network.

**3. Rehabilitation Wearables**

The use of health care products and equipment in rehabilitation has proven to be an important factor in improving treatment and counseling. Wearable devices provide greater flexibility in collecting and analyzing patient data used by healthcare facilities and professionals. Additionally, the integration of wearables with mobile devices has led to the growth of smartphone and tablet apps that provide time guidance through rework and services.

**3.1. Ntse MS3 produces wearable EMG sensor**

In the USA, start-up Smart MS3 produces electromechanical (EMG) sensors that monitor patients' condition over time. Wearable electromyography and musculoskeletal (MSK) sensors provide information about muscle activation patterns. These sensors are wireless and can track every muscle group in the patient's body. Now Smart MS3 has apps for knee, back and shoulder.

**3.2. DENTON creates 3D Movement Tracking**

British startup DENTON uses 3D trackers to monitor patients' precise movements. 3D sensors can be easily attached using strings of large bodies such as legs, trunk and head. The remote connection between the sensor and its application provides information about the patient's level of compliance, range of motion, motion patterns and pain intensity throughout the treatment program.

**4. Rehabilitation Robotics**

Robotics offers many solutions for the recovery of patients. In particular, the use of robots facilitates the reproduction and repair of programs. For example, robotic exoskeletons allow patients to move on their own and do their daily work painlessly while re-establishing their nerve connections. Startups are developing lightweight wearable robots to ease the burden of people with physical disabilities who need support.

**4.1 Nureab develops Exoskeleton Hands**

Egypt-based startup Nureab creates exoskeleton hands that provide rehabilitation and mobility for patients. Their products consist of five robotic fingers with a wide range of motion. The device has active, passive and preventive treatment services. Physiotherapists, in particular, use preventative measures to treat conditions such as quadriplegia, hemiplegia, tendinitis, fractures and injuries. The tracking direction of the device is very sensitive up to 1 degree.

Also, Nureab's medicine is lightweight, suitable for different hand sizes and easy to use.

**4.2 Fleming MedLab develops Soft Robots**

Fleming MedLab, a start-up company in China, has launched a new type of soft robot to solve the problems of the costly and demanding work of traditional medicine workers. Robotic solutions are used in wearable products such as suits or clothes. This allows doctors to focus on the patient rather than using the device and is easy to use at home. Fleming MedLab focuses on the neuroplasticity of its robotic solutions to accelerate patient recovery. One of the applications of this technology includes people who have had a stroke or heart attack.

**5. Personalized Pre-rehab Diagnostics**

In order to improve the treatment process, the current condition of the patient should be checked. Movement and neural connections are often examined during tests such as gait analysis or brain scans. To do this, startups are especially using new technologies such as sensor-mounted insoles and AI-powered CT scans. These solutions provide accurate measurement and measurement time to meet an individual's diagnostic needs. These solutions also pave the way for better self-diagnosis, increasing patient recovery and profitability.

**5.1. LAAF Development Active Walk Test**

US start-up LAAF has developed a solution for gait self-diagnosis and root cause analysis of pain. The startup has developed smart insoles that measure ankle strength, stride length, pronation, cadence, and foot movement, among other things. LAAF uses its apps to analyze data to provide insights to patients and help them improve their performance and processes.

**5.2. Voxel AI Advances in Multimodal Imaging**

Canadian startup Voxel AI evaluates the brain structure, function and body of patients with injuries or illnesses to guide patient care. It does this using advanced neuroanalysis and multimodal imaging. Voxels can provide in-depth information about a patient's individual brain health, including small brain models that differentiate outcomes and treatment needs. The solution provides accurate diagnosis of brain damage, making recovery easier and faster for patients.

**6. Photo- and Electro-Therapy**

Light therapy and electrotherapy have long been used in rehabilitation, but recent technological advances have made treatment more affordable and accessible for those who need it. Electric and light therapy help stimulate muscle and blood flow. For example, start-ups use signals and devices with electrodes to facilitate recovery, strengthen muscles and reduce recovery time.

**6.1. NEURO20 Creates Muscle Enhancement Products**

US startup NEURO20 has developed a device with electronic devices that can increase muscle strength in patients. NEURO 20 supports electrotherapy by treating patients with a form that fits Lycra. These suits provide electrical muscle stimulation and use biosensors to collect data. This information can be retrieved from the remote control. Specifically, in exercise, twenty stimulating electrodes are embedded in the large muscles that cover the motor points and produce involuntary contractions.

This relieves the user's pain and strengthens the back muscles.

**6.2. LUMINOSRED advances Red Light Therapy**

Austrian start-up LUMINOSRED has developed a new solution for red light rehabilitation. LUMINOSRED has developed an FDA-approved method for the manufacture of lighting therapy using low-energy products and anti-vibration technology. This treatment facilitates blood flow and strengthens the muscles. It specializes in the production of indoor lighting with high efficiency (100w/cm²) and different wavelengths (660nm + 850nm).

**7. Artificial Intelligence**

Patients receiving care from medical professionals often benefit from using skills in rehabilitation. The number of startups working in computer vision and machine learning solutions has grown exponentially in recent years. AI can now provide real-time and valuable insights to improve operational efficiency and future physical planning. The AI-powered platform provides personal and remote monitoring with recommendations for further development. Machine learning-powered tools further support patients at every step of the way to recovery.

**7.1. Breathing supports intelligence-based remote patient management**

German startup Breathment has developed an artificial intelligence system to help professionals monitor patients' performance remotely. Each expert can be adjusted using exercises. Breathing has developed a way of keeping distance, self-organizing an exercise program, and providing patient information.

**7.2. Rooting out AI-driven rehabilitation maps**

Rootally, a Singapore-based business, is trying to make recycling at home more common and affordable. Its product, called AllyCare, is an artificial intelligence-driven solution that uses mobile devices for healthcare. By revealing the movement patterns created by artificial intelligence, the treatment is facilitated by simultaneously monitoring the patient's strength. Monitoring and analyzing the healing process can help you understand patient progress. The solution does not require sensors to be attached to the patient's body, making AllyCare more user-friendly.

**8. Neurofeedback**

Neurofeedback is one of the newest developments in the medical industry. The human brain processes electrical signals, and new initiatives are examining these electrical signals to restore them in a more efficient and non-destructive way. It includes the use of portable devices and electronic devices, especially for patients after stroke, concussion rehabilitation or pain management. These solutions also have the potential to improve brain and nerve function in people with chronic neurological diseases.

**8.1. Divergence Neuro develops tele-neuro feedback solutions.**

Canadian startup Divergence Neuro brings neurofeedback to online therapy. Their solutions provide real-time neurofeedback on patients' brain function and pain. The headset is suitable for all users and works with starter platform and mobile app. The platform provides physicians with medical design services that include pre-planning or treatment, as well as many quantitative and qualitative measures. The mobile app allows patients to access treatment plans provided to them by professionals.

It also guides patients on a neurofeedback or neuro-meditation protocol their doctor wants them to complete.

**8.2. Exsurgotsim neurostimulation headset**

New Zealand startup Exsurgo has developed a new wearable device for pain and healing management. AXON is a product that uses electroencephalography (EEG) and artificial intelligence to monitor brain data and display the data on the user's mobile phone. Through real-time visual feedback, users learn how to manage pain by recognizing pain and changing their response, reducing pain intensity. AXON allows patients to continue their treatment in their own homes.

**9. Lightweighting/Unweighting Technology**

During the recovery period, for the treatment to be effective, it is necessary to gradually bring the body weight to the end during the movement. Various methods such as water, vacuum, corsets that transfer energy without harming the body are used to reduce body weight. In this way, interventions make vacuum treadmills to reduce the height of the forelegs or use a walker as support during treatment.

**9.1. MEBSTER creates a lightweight, passive exoskeleton**

Czech start-up MEBSTER has developed a weight loss system. The startup UNILEXA is a non-robotic exoskeleton equipped with many sensors. The device can help patients move around more easily, helping them eliminate their lower back. The aim of the initiative is to make affordable and accessible household appliances that will get people walking again. UNILEXA is currently used in clinics to monitor patients and recovery.

**9.2. Boost Treadmill Enhancement Micro Gravity Treadmill**

US start-up Boost Treadmills offers a vacuum weight loss treadmill to support the body's recovery. Boost 1 provides a flexible force that must arise from the patient's legs and back, which affects recovery time and is very painful. Boost's solution creates a vacuum that reduces gravity, which is a way to promote physical healing. The company is currently developing Boost 2, which simplifies the management, analysis and management of advanced operations.

**10. Big Data & Analytics**

Medical and physical therapy knowledge can influence many decisions throughout a patient's life. Big data collected with the help of machine learning algorithms can provide specialists with an understanding of how the patient progressed through various procedures at different times and in different situations. The information extracted from the data package is also used to drive sales of precision medicine and medical aids such as exoskeletons and crutches. Initiatives in this area solve the problems of managing big data by providing new healthcare systems that facilitate access to data while ensuring safety and hearing.

**REFERENCES**

**JOURNAL: -**

1. Stephanie Vaughn, Kristen L. Mauk, Cynthia S. Jacelon, Pamala D. Larsen, Jill Rye, Wendy Wintersgill, Christine E. Cave7, David Dufresne. The Competency Model for Professional Rehabilitation nursing. Association of Rehabilitation Nurses Rehabilitation nursing. June 8, 2015: 1–12. doi: 10.1002/rnj.225.

**BOOKS: -**

1. Jacelon, Cynthia S. (Ed.). (2011). The Specialty Practice of Rehabilitation Nursing: A Core Curriculum (6th ed.), Glenview, IL: Association of Rehabilitation Nurses.https://rehabnurse.org/advance-your-practice/practice-tools/the-specialty-of-rehabilitation-nursing-a-core-curriculum.
2. Garvin Higgins, Grace Campbell, Jeanne Mervine, Maria Radwanski, Matthew Sorenson. ARN's Standards & Scope of Rehabilitation nursing Practice. 6th Edition. Chicago. Association of Rehabilitation Nurses; 2021.
3. Brunner &Suddarth. Textbook of medical surgical nursing. 15th edition. Philadelphia. Wolters Kluwer Lippincott Williams & Wilkins; 2021.
4. Suresh K. Sharma. Manual of medical surgical nursing. 10thediton. New Delhi, India. Wolters Kluwer India pvt. Ltd; 2016.