Rehabilitation of Common Diseases

常见疾病康复

Chief Editor: CHU Xiaoyi, TIAN Ye, LI Yali

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Chief Editor: CHU Xiaoyi, TIAN Ye, LI Yali
Deputy Chief Editor: LIANG Guang, JIANG Pingyin
Editorial Board: LI Yuru, LI Dongqian, SHI Jipeng, WU Zhenkun

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Preface

Against the backdrop of the intensifying global aging population and the growing burden of chronic diseases, rehabilitation medicine has emerged as a core pillar of the modern healthcare system. Moreover, the advancement of the Belt and Road Initiative further highlights the urgency of cultivating rehabilitation talents with an international perspective. To fill the existing gaps in existing textbooks regarding cross-cultural adaptability, the integration of traditional Chinese and Western medicine, and practical guidance, we have compiled this book *Rehabilitation of Common Diseases*. Grounded in the internationally recognized framework of the International Classification of Functioning, Disability and Health (ICF), this book systematically integrates modern rehabilitation technologies with distinctive traditional Chinese medicine (TCM) therapies. This approach forges an international curriculum system that blends three dimensions: theory–skills–culture. The book comprises eight project-based units that cover rehabilitation pathways for common conditions in neurology, orthopedics, internal medicine, and other specialties. It features a distinctive integration of Chinese and Western medical approaches. Instead of relying solely on theoretical explanations, the book systematically blends modern rehabilitation technologies with traditional therapies through real-case-driven learning, flowchart illustrations, and instructional videos—all designed to strengthen students' clinical practical skills. Additionally, the project-based curriculum design thoughtfully balances internationally recognized standards with local cultural practices. Supported by digital resources and an online-offline hybrid teaching model, this book help readers bridge the gap between theory and practice in training rooms, cooperative hospitals, and virtual scenarios. It serves not only as a response to the Health Silk Road initiative but also demonstrates a commitment to constructing a global bridge in rehabilitation medicine. It aims to nurture versatile talents with both professional competence and international outlooks, thereby promoting the global reach of Chinese rehabilitation expertise.

前言

在全球人口老龄化加剧与慢性病负担加重的背景下，康复医学已成为现代医疗体系的核心支柱，而“一带一路”倡议的推进更凸显了国际化康复人才培养的紧迫性。为填补当前教材在跨文化适应性、中西医融合及实践指导方面的空白，我们编写了《常见疾病康复》一书。本书以国际通用的《国际功能、残疾和健康分类》（ICF）框架为基石，系统整合现代康复技术与中医特色疗法，形成“理论—技能—文化”三维融合的国际化课程体系。全书八个项目内容涵盖神经科、骨科、内科等常见疾病的康复路径，以中西医结合为特色，系统融合现代康复技术与传统疗法，通过真实病例驱动、流程图解及操作视频强化临床实践能力，并采用项目化设计兼顾国际通用标准与本土文化实践。配套的数字资源与线上线下混合教学模式，助力读者在实训室、合作医院及虚拟场景中实现从理论到实践的跨越。本书不仅是对“健康丝绸之路”倡议的积极回应，更致力于架设康复医学的全球桥梁，助力培养兼具专业素养与国际视野的复合型人才，推动中国康复智慧走向世界。

Content

Project 1 Overview of Rehabilitation Medicine

[Project Introduction]

As the population ages at an accelerated pace and the public's demand for diverse and multi-level rehabilitation services continues to rise, achieving the best possible rehabilitation results and ensuring comprehensive medical care for the sick, effective treatment for the injured, and proper rehabilitation for the disabled hinge on a scientific understanding of rehabilitation and rehabilitation medicine. Compared with traditional health management, rehabilitation medicine prioritizes individualized, functionally-oriented recovery protocols. In this regard, this project is designed to enable students to systematically understand the essence of rehabilitation and rehabilitation medicine, thereby helping them establish a modern conceptual framework for the field.

[Learning Objectives]

1. Technical Knowledge

(1) Master the concepts of rehabilitation and rehabilitation medicine, as well as their working principles

(2) Become familiar with commonly used rehabilitation treatment methods and the rehabilitation workflow

2. Operational Proficiency

(1) View functional impairments caused by diseases from a rehabilitation perspective

(2) Provide patients with health education related to rehabilitation

3. Workplace Ethic

(1) Establish a "people-oriented" rehabilitation concept and be able to guide patients towards self-rehabilitation

(2) Possess compassion, patience, responsibility, and empathy

[Project Scenario]

Case:

Mr. Zhang has a history of lumbar disc herniation. His lower back pain was alleviated through conservative treatment, but he continues to experience radiating pain and numbness in his left lower limb, which worsens with walking, requiring him to use a cane for assistance. Mr. Zhang resides in an urban area and has a busy job. His condition has negatively impacted his work efficiency. Recently, due to a job transfer to a new city, Mr. Zhang lives alone. Faced with a new living environment and work pace, he finds it challenging to cope. Due to the recurring symptoms in his lower back and leg, he has gradually reduced his daily activities and even spends long periods of time lying in bed. Lacking necessary rehabilitation guidance and exercise, Mr. Zhang's symptoms have progressively worsened, with a noticeable decrease in left lower limb muscle strength and limitations in his activities of daily living (ADL). In order to seek professional rehabilitation treatment, Mr. Zhang visits the hospital.

Scenario Tasks:

(1) Discuss whether rehabilitation therapy can help the patient improve functional impairments and enhance quality of life.

(2) Based on the case, discuss the rehabilitation assessments and treatments the patient may require.

(3) Discuss the rehabilitation process Mr. Zhang would follow after seeking medical attention.

[Project Implementation]

Class		Name		Student ID	
Group Number		Leader		Instructor	
Group Members				Date	

1. Discuss whether rehabilitation therapy can help the patient improve functional impairments and enhance quality of life.

Guiding Question 1: What is rehabilitation? What is rehabilitation medicine? How does it differ from clinical medicine?

_____

Guiding Question 2: What role does rehabilitation play for this patient now? If rehabilitation therapy had been initiated early in the disease course, would the outcome be different?

_____

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2. Based on the case, discuss the rehabilitation assessments and treatments the patient may require.

Guiding Question 3: What are the commonly used rehabilitation assessment and treatment methods, and which patient populations are they primarily indicated for?

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3. Discuss the rehabilitation process Mr. Zhang would follow after seeking medical attention.

Guiding Question 4: What do the work content and workflow include for rehabilitation wards, rehabilitation outpatient clinics, and community rehabilitation?

_____

_____

4. Evaluation and Reflection

A. Excellent B. Good C. Average D. Poor (Mark "√" in the corresponding position.)

(1) Instructor's Summary & Evaluation

Evaluation Criteria	A	B	C	D
Participation in Discussion				
Task Completion Quality				
Suggestions for Improvement				

(2) Peer Evaluation Within Group

Evaluation Criteria	A	B	C	D
Participation in Discussion				

Contribution to Teamwork				
Comments & Suggestions				

(3) Self-Evaluation & Reflection

Evaluation Criteria	A	B	C	D
Theoretical Knowledge				
Task Completion				
Questions & Reflections				

Task 1 Understanding Rehabilitation and Rehabilitation Medicine

1. Rehabilitation

(1) Concept

Rehabilitation, derived from the English word “Rehabilitation”, originally refers to the restoration of certain abilities, qualifications, or the return to a normal social life. The WHO defines rehabilitation as “the use of all measures aimed at reducing the impact of disability and enabling individuals with disabilities to reintegrate into society.” Furthermore. “rehabilitation is not only about training individuals with disabilities to adapt to the surrounding environment, but also requires adjusting the environment and social conditions around them to facilitate their return to society.” Therefore, rehabilitation refers to the comprehensive and coordinated application of medical, social, educational and vocational measures to mitigate physical, psychological, and social dysfunction experienced by individuals with illnesses, injuries, or disabilities, with the ultimate goal of enabling them to maximize their potential, reintegrate into society, and improve their quality of life.

(2) Categories

Rehabilitation goes beyond merely treating diseases; it takes a holistic approach, targeting the individual as a whole. It aims to facilitate a patient’s comprehensive

recovery across multiple dimensions, encompassing physical, psychological, social, and economic aspects through various approaches, including medical rehabilitation, rehabilitation engineering, educational rehabilitation, vocational rehabilitation, and social rehabilitation.

1) Medical Rehabilitation It refers to the application of all available medical means within the medical field to promote the recovery of individuals with illnesses, injuries, or disabilities. It encompasses both clinical treatments, such as surgery and pharmacotherapy, and rehabilitation therapies, including physiotherapy (PT), occupational therapy (OT), speech-language pathology (SLP), and traditional Chinese rehabilitation therapy. Medical rehabilitation forms the foundation of the entire rehabilitation process and is essential for achieving rehabilitation goals.

2) Rehabilitation Engineering It refers to the application of modern engineering principles and methods to study engineering problems in the comprehensive rehabilitation of individuals with disabilities. By studying the functional limitations and social disadvantages they face, and by utilizing prosthetics, orthotics, assistive devices, or environmental modifications, it aims to maximize the restoration, compensation, or reconstruction of their physical functions.

3) Educational Rehabilitation It refers to the utilization of various assessment, educational, counseling and training methods to promote the rehabilitation of individuals with disabilities such as cerebral palsy, hearing and speech impairments and intellectual disabilities, thereby enhancing their competencies and overall ability.

4) Vocational Rehabilitation It refers to assessing the vocational capabilities of individuals with disabilities to identify suitable occupations that fully tap their potential. It provides vocational training and guidance to help them regain employment skills, secure job opportunities, achieve self-reliance, and realize personal value and dignity.

5) Social rehabilitation From a sociological perspective, it refers to reducing or eliminating various barriers that hinder the reintegration of individuals with disabilities into society. It relies on societal support and the efforts of individuals themselves, enabling them to fully participate in social life and make contributions to

social development within their capabilities.

2. Rehabilitation Medicine

(1) Concept

Rehabilitation medicine is a vital branch of the medical field. It focuses on preventing, assessing, and treating functional impairments in individuals with illness, injuries, or disabilities. The primary goal is to promote the recovery process after disease or injury, prevent or mitigate the degree of dysfunction, help these individuals reintegrate into society, and improve their quality of life.

(2) The Relationship Between Rehabilitation Medicine and Clinical Medicine

Rehabilitation medicine and clinical medicine are both essential components of the modern medical system. Although distinct from each other, they are closely interrelated. Clinical medicine primarily focuses on diseases and ensuring patients' survival, whereas rehabilitation medicine aims to improve patients' functional abilities and quality of life. For example, consider a patient with cerebral infarction. Clinical medicine primarily employs methods such as pharmacological treatments and surgical procedures to save their lives and cure or mitigate their symptoms. In contrast, rehabilitation medicine conducts functional assessments if the patient's vital signs have stabilized, and formulates targeted rehabilitation training plans, aiming to optimize the improvement or compensation of the affected limbs' function. Through approaches such as ADL training, provision of wheelchairs and orthoses, it enables patients to independently complete daily activities and restore their self-care ability to the greatest extent, improves their quality of life, and prevents complications caused by functional impairments, allowing patients to live with quality and dignity. The specific differences between the two are shown in Table 1-1.

Table 1-1 Differences Between Rehabilitation Medicine and Clinical Medicine

Category	Rehabilitation Medicine	Clinical Medicine
Target	Functional impairment	Disease
Objective	Functional recovery	Cure disease or stabilize

		condition
Diagnosis	Functional assessment	Diseases diagnosis
Treatment	Active rehabilitation training（e.g., physical therapy, occupational therapy, speech therapy, prosthetics & orthotics, psychotherapy, etc.）	Passive medical interventions(e.g., medication, surgery)
Work Model	Team-based approach (rehabilitation physicians, rehabilitation nurses, physical therapists, occupational therapists, speech therapists, prosthetists & orthotists, psychotherapists, etc.)	Specialized division of labor, no formal organization
Outcome	Improvement across three functional levels	Improvement, cure, no effect, death
Social Aspect	Sociological perspective	Medical perspective

(3) Service Recipients

The primary recipients of rehabilitation medicine are individuals with functional impairments. These impairments may result from injuries, acute or chronic diseases, aging, or congenital developmental disorders. Such impairments can be potential or existing, reversible or irreversible, partial or complete, and may accompany diseases or persist as sequelae of diseases. People in this group often have difficulty performing daily activities, occupational tasks, or participating in social life as normal.

(4) Fundamental Principles

The three fundamental principles of rehabilitation medicine are “functional training, comprehensive rehabilitation, and social reintegration”.

1) Functional Training Rehabilitation medicine does not focus on the injury or illness itself, but rather on the functional changes caused by the injury or illness, with an emphasis on restoring normal bodily functions. This represents a completely new

perspective compared to the traditional medical model, which has always concentrated on the injury or illness itself. Therefore, rehabilitation medicine is also referred to as "functional medicine." The principle of functional training is to use various methods to enhance patients' abilities in areas such as movement, perception, psychology, speech, daily living, occupational activities, and social participation, thereby creating conditions for their reintegration into society.

2) Comprehensive Rehabilitation Comprehensive rehabilitation is the guideline and policy of rehabilitation, aiming to achieve overall and holistic recovery of patients' psychological, physiological, and social functions. It encompasses two aspects: first, multidisciplinary collaboration at the medical level to address various problems caused by injuries and illnesses; second, utilizing medical, educational, vocational, and social rehabilitation measures to help patients fully restore their physiological and social capacities.

3) Social Reintegration The ultimate goal of rehabilitation medicine is the reintegration of patients into society. As pointed out by the World Health Organization: "Health is a state of complete physical, mental, and social well-being, and not merely the absence of disease or infirmity." Rehabilitation medicine, which takes social reintegration as its fundamental objective, is the best embodiment of the new "biopsychosocial" medical model.

3. Main Tasks in Rehabilitation Medicine

(1) Rehabilitation Prevention

Rehabilitation prevention refers to the measures taken before and after the occurrence of diseases, injury, or disabilities, aiming to prevent the occurrence of disabilities and reduce the degree of functional impairment. It is classified into three levels.

1) Primary Prevention This involves measures taken to effectively prevent the occurrence of diseases and disabling injuries, including immunization, preventive health care, counseling, prenatal and postnatal care, and safety protection, etc.

2) Secondary Prevention This involves measures taken to prevent diseases and injuries from resulting in disabilities, including regular physical examinations, control

of risk factors, and early rehabilitation treatment, etc.

3) Tertiary Prevention This involves measures taken to prevent more severe disabilities after the occurrence of a disability, including rehabilitation treatment, provision and fitting of assistive devices, and rehabilitation consultation, etc.

(1) Rehabilitation Assessment

Rehabilitation assessment is a comprehensive evaluation based on clinical examinations of the functional status and capacity of individuals with diseases, injuries, or disabilities, coupled with the interpretation of results. It can be categorized into initial, mid-term, and final assessments. The assessment process includes medical history collection, analysis, discussion, and treatment plan formulation. Common rehabilitation assessment methods include:

1) Physical Function Assessment It includes assessments of muscle strength, muscle tone, joint range of motion, sensation, balance, coordination, gait, cardiopulmonary function, etc.

2) Cognitive Function Assessment It includes assessments of attention, memory, calculation ability, thinking ability, orientation, etc.

3) Speech Function Assessment It includes assessments of aphasia, dysarthria, language development delay, swallowing disorder, etc.

4) Psychological Function Assessment It inculdes assessments of behavior, intelligence, personality, emotion, etc.

5) Social Function Assessment It includes assessments of social communication, interpersonal communication, organization and planning ability, etc.

(3) Rehabilitation Treatment

Rehabilitation treatment refers to the comprehensive and coordinated application of various therapeutic approaches to promote the recovery of patients' functional impairments. Commonly used rehabilitation treatment techniques include:

1) Physical Therapy (PT) It is divided into physical agent therapy and therapeutic exercise.

a. Physical Agent Therapy Also known as physiotherapy, it refers to the application of physical agents such as electricity, light, sound, magnetism, cold, heat,

and water acting on the human body to treat diseases. It is effective in reducing inflammation, alleviating pain, inhibiting spasm, preventing scar formation, and promoting local blood circulation.

b. Therapeutic Exercise Based on kinesiology and neurophysiology, it uses equipment, manual assistance, or body weight to perform active or passive movements, aiming to prevent, improve, or restore physical dysfunction and functional limitations.

2) Occupational Therapy (OT) To restore function in patients with illnesses, injuries, or disabilities, occupational therapy involves the purposeful and selective use of activities from daily living, work or labor, and leisure to train patients. This helps alleviate symptoms and improve physical, psychological, and social functioning. The ultimate goal of occupational therapy is to enable those with functional impairments to achieve maximum independence in daily activities, enhance their quality of life, and facilitate their reintegration into society.

3) Speech therapy (ST) It refers to targeted intervention for individuals with speech and language disorders through various methods to improve communication abilities and swallowing function.

4) Other Treatment Methods In addition to the above, there are psychological therapy, recreational therapy, traditional Chinese rehabilitation, and rehabilitation engineering. Rehabilitation medicine promotes a comprehensive rehabilitation approach through multidisciplinary collaboration (including medicine, psychology, sociology, and others) to jointly maintain and improve the functional abilities of service recipients, support their holistic recovery, and enable their integration into social life.

Task 2 Understanding the Rehabilitation Workflow

Modern medicine considers rehabilitation as a systematic process that follows objective medical principles. Rehabilitation therapy for patients must be carried out in a step-by-step and well-planned manner. There has been a shift from the previous approach, which separated clinical treatment and recovery, to a current model that integrates rehabilitation concurrently with clinical intervention. Clinical practice has proven that the earlier rehabilitation begins, the better the functional recovery. Therefore, rehabilitation must start in the early stages of disease to help patients maximize their potential, regain optimal activity capacity, and restore social participation, ultimately enabling their return to family or society. Acute-phase rehabilitation typically lasts 1–2 weeks, followed by systematic rehabilitation that may continue for several weeks to years until patients achieve independence in daily living. Further progress may enable a return to family, resumption of work, and reintegration into society.

Rehabilitation outcomes vary significantly among individuals. Some may regain work ability after a single phase, while others may require lifelong assistance despite prolonged efforts. Therefore, comprehensive rehabilitation facilities and services must be established across all types of rehabilitation institutions to meet the needs of patients at different stages. From an institutional perspective, rehabilitation wards, outpatient rehabilitation clinics, and community-based rehabilitation each have distinct focuses, and their respective workflows and responsibilities also differ.

1. Rehabilitation Ward Workflow

Rehabilitation wards serve as comprehensive platforms for inpatient rehabilitation in hospitals. They are typically staffed by specialized rehabilitation teams with a clear division of labor, high technical proficiency, and strong capabilities in rehabilitation diagnosis and treatment. Patients admitted generally have unstable medical conditions and severe functional impairments.

The workflow from admission to discharge follows established rehabilitation protocols and includes the following stages: Admission → Information Collection →

Medical Record Establishment → Initial Assessment → Plan Formulation → Plan Implementation → Interim Assessment → Plan Revision → Final Assessment → Discharge. Upon admission, rehabilitation physicians collect information to gain a comprehensive understanding of the patient's overall condition, psychological status, and general health to establish medical records and form a rehabilitation team. Before formulating a rehabilitation plan, an initial functional assessment is conducted to evaluate the patient's degree of various functional impairments, causes of disability, residual functions, and rehabilitation potential. Based on this assessment, a rehabilitation prognosis is predicted, a rehabilitation plan is formulated, with clear long-term and short-term rehabilitation goals and a personalized and effective rehabilitation treatment plan is developed. The rehabilitation team is then organized to implement systematic rehabilitation therapy. After a period of rehabilitation treatment, an intermediate assessment is conducted to evaluate the effectiveness of the previous treatment, adjust short-term rehabilitation goals, modify the rehabilitation plan, and develop a new treatment strategy. The team continues to implement the revised rehabilitation therapy. Through repeated reassessments, the patient's recovery is confirmed to have reached its optimal state. Upon completion of treatment, a comprehensive final assessment (terminal assessment) is conducted to determine the patient's future direction. If functional recovery allows the patient to engage in a certain occupation, they can return to society; otherwise, they may return to family life. Additionally, some patients may be transferred to outpatient rehabilitation or community-based rehabilitation after their condition stabilizes.

2. Rehabilitation Outpatient Workflow

Rehabilitation outpatient clinics, along with inpatient rehabilitation wards, are integral components of hospital-based rehabilitation services. Outpatient clinics primarily serve patients with milder functional impairments and stable conditions who do not require hospitalization, as well as those transitioning from inpatient rehabilitation for continued care. The main difference between outpatient rehabilitation and inpatient rehabilitation lies in whether the patient is hospitalized, while their workflows—including assessment, plan formulation, and treatment

implementation—are fundamentally consistent.

The workflow of inpatient rehabilitation and outpatient rehabilitation is illustrated in Figure 1-1.

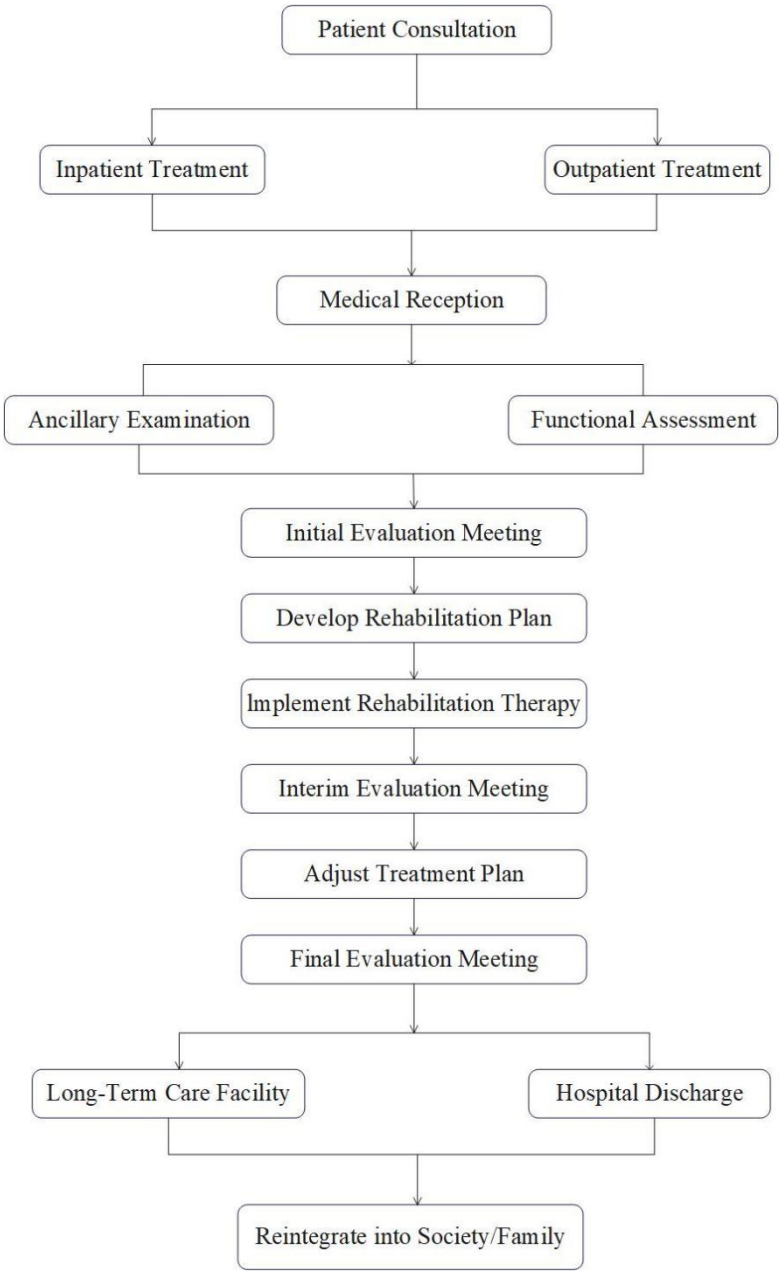

Figure 1-1 Workflow of Inpatient and Outpatient Rehabilitation

3. Community-Based Rehabilitation Workflow

Community-based rehabilitation (CBR) is carried out at the community level, leveraging primarily local human, material, and financial resources to provide rehabilitation services. Compared to hospital-based rehabilitation, CBR adopts a more holistic approach, covering physical, psychological, educational, vocational, and

social rehabilitation. A defining feature of CBR is the active participation of patients and their families in both planning and implementing rehabilitation plans. The main target groups of CBR include persons with disabilities, the elderly, individuals with chronic functional impairments, and other community members in need of rehabilitation services. Therefore, successful CBR requires government leadership, multi-sectoral collaboration, clearly assigned responsibilities, goal management, and broad societal participation with all parties fulfilling their roles to drive progress.

Whether CBR plans and services are effectively implemented directly influences the provision of comprehensive and efficient rehabilitation services for persons with disabilities and other recipients. The key to effective community-based rehabilitation training and services lies in properly managing all operational steps and linkages of work and carrying out work in an orderly manner. The general workflow of CBR includes the following steps: establishing a community-based work system → formulating a work plan → building a rehabilitation team → training community rehabilitation personnel → assessing community rehabilitation resources and the rehabilitation needs of persons with disabilities → implementing rehabilitation programs → monitoring and evaluation.

Project 2 Stroke Rehabilitation

[Project Introduction]

In the field of stroke rehabilitation, rehabilitation therapists carry significant responsibility. They must collaborate with the team closely, conduct comprehensive functional assessments of patients, accurately identify various impairments, and fully understand their expectations. Based on the assessment results, rehabilitation therapists collaborate to formulate scientific and reasonable rehabilitation goals and plans, utilize multiple technologies to deliver treatment, and closely monitor the patient's response to adjust the plan promptly. Through continuous and systematic rehabilitation therapy, they help patients improve or maintain function, promote rehabilitation, enhance quality of life, and return to family and society.

[Learning Objectives]

1. Technical Knowledge

(1) Acquire the fundamental knowledge of stroke rehabilitation.

(2) Acquire the interviewing skills for communicating with stroke patients.

2. Operational Proficiency

(1) Apply appropriate rehabilitation assessment methods to evaluate the function of stroke patients.

(2) Formulate suitable rehabilitation treatment plans for stroke patients.

(3) Employ appropriate treatment methods to provide rehabilitation therapy for stroke patients.

3. Workplace Ethic

(1) Communicate intimately and effectively with patients and their families, demonstrating humanistic care.

(2) Cultivate strong teamwork spirit, high professional ethics, and a spirit of selfless dedication.

[Project Scenario]

Case:

Li, male, 61 years old. Admitted to the hospital due to "sudden right-sided limb

weakness accompanied by numbness for over one month." One month prior to admission, while doing morning exercises in the park, the patient suddenly experienced dizziness, followed by right-sided limb weakness, inability to stand, and slurred speech, without loss of consciousness or incontinence of urine and stool. He was urgently sent to our hospital. A head CT scan performed in the emergency department indicated "left thalamic hemorrhage." He was subsequently admitted to the neurosurgery department. He received two weeks of treatment including hemostasis, dehydration to reduce intracranial pressure, and neuroprotection. During treatment, the rehabilitation department was consulted and provided 10 days of rehabilitation therapy. After his condition stabilized, he was discharged, but continued to have right-sided limb movement difficulties accompanied by numbness. At present, he can walk short distances indoors with assistance. For further rehabilitation, he was admitted again with a diagnosis of cerebral hemorrhage. The patient is currently in fair spirits, has control over urination and defecation, sleeps moderately well, has an average appetite, and no significant recent weight loss.

Physical Examination Temperature 36.6°C, pulse 80 beats/min, respiration 19 breaths/min, blood pressure 130/80 mmHg. The patient is conscious and cooperative during examination; speech is relatively clear; answers questions appropriately; enters the ward with support. Breath sounds are slightly coarse bilaterally, with no dry or wet rales heard. Cardiac borders are not significantly enlarged, heart rate is 80 beats/min, and rhythm is regular. Abdomen is soft, with no tenderness or rebound tenderness. No edema in the lower limbs.

Medical History Hypertension for 10 years, with suboptimal blood pressure controlled. No history of chronic diseases such as diabetes or coronary heart disease. No history of infectious diseases, trauma, surgeries, or blood transfusions.

Personal History Divorced, long-term local resident, no prolonged residence elsewhere. No history of toxic exposure, no special habits. Right-handed.

Rehabilitation Assessment Conscious; speech is relatively clear. Memory and orientation are intact. The right nasolabial fold is shallow, tongue deviates to the right, and the pharyngeal reflex is present. Brunnstrom Stages: right upper limb 5, right

hand 5, right lower limb 5. Superficial sensation is reduced on the right compared to the left, and there is loss of proprioception on the right. Muscle tone is normal in all four limbs; tendon reflexes are symmetric; right Babinski's sign (+). Sitting balance: Grade 2; standing balance: Grade 2. Barthel Index (60/100): Feeding (10) + Bathing (0) + Grooming (0) + Dressing (5) + Bowel Control (10) + Bladder Control (10) + Toileting (5) + Transfers (10) + Mobility (10) + Stairs (0) = 60.

Scenario Tasks:

(1) Conduct a role-play interview with the patient.

(2) Conduct a rehabilitation assessment for the patient.

(3) Provide rehabilitation treatment for the patient.

[Task Implementation]

Class		Name		Student ID	
Group Number		Leader		Instructor	
Group Members				Date	

1. Role-Play: Conduct an interview with the patient

Guiding Question 1: What are the typical steps in a rehabilitation interview? What content should be covered?

_____

_____

2. Conduct a rehabilitation assessment for the patient

Guiding Question 2: What are the key aspects of stroke rehabilitation assessment? What should be assessed for this patient?

_____

_____

Guiding Question 3: Stroke rehabilitation assessment involves six steps: ( ) ( ) ( ) ( ) ( ) ( )

3. Provide rehabilitation treatment for the patient

Guiding Question 4: Which Brunnstrom stage is the patient currently in? What rehabilitation treatments are appropriate for this stage?

_____

_____

4. Evaluation and Reflection

A. Excellent B. Good C. Fair D. Poor (Mark "√" in the appropriate box.)

(1) Instructor's Summary & Evaluation

Evaluation Criteria	A	B	C	D
Participation in Discussion				
Practical Performance				
Task Completion Quality				
Suggestions for Improvement				

(2) Peer Evaluation Within Group

Evaluation Criteria	A	B	C	D
Participation in Discussion				
Practical Performance				
Contribution to Teamwork				
Comments & Suggestions				

(3) Self-Evaluation & Reflection

Evaluation Criteria	A	B	C	D
Theoretical Knowledge Mastery				
Technical Skills Proficiency				
Task Completion				
Challenges & Reflections				

Task 1 Clinical Interview

1. Key Points of the Interview

The key points of the early rehabilitation interview with stroke patients primarily include the following aspects:

(1) Symptoms at Onset: Such as headache, projectile vomiting, limb numbness and weakness, impaired mobility, unsteady gait, communication difficulties, slurred speech, impaired consciousness, attention deficit, memory impairment, depression, choking on liquids, dysphagia, or urinary and fecal incontinence.

(2) Early-stage Complications: Common conditions include epilepsy, acute hydrocephalus, and infections; however, complications can arise in any body system in the early stage of stroke.

(3) Early Rehabilitation Intervention and Recovery Progress: This includes the time rehabilitation was initiated, main rehabilitation methods and their effectiveness, as well as the recovery of neurological functions such as consciousness, mental and psychological status, cognition, language, motor function, sensation, balance, and bladder and bowel control. It also includes the recovery of ADL, social participation, and ability to return to work.

(4) Medical History and Family History: Inquire about the patient's previous health status, past illnesses, history of infectious diseases, tuberculosis prevention history, surgical and trauma history, allergy history, and family history of diseases, with particular attention to conditions requiring ongoing treatment and those potentially affecting prognosis.

(5) Personal History: It includes social experience, marital and family status, occupation, work environment, personality, residence/travel history, smoking and alcohol habits, any history of smoking or alcohol cessation, high-risk sexual behavior, and exposure to radiation or toxic substances. Additionally, attention should be given to caregivers, financial resources, insurance coverage, the patient's expectations and attitudes toward rehabilitation.

2. Interview Procedures

(1) Self-introduction This is the beginning of the communication, where you introduce yourself and explain the main purpose of the interview.

[E.g.] Therapist: Hello, sir. I am your primary therapist. I have a general understanding of your condition, but I'd like to confirm some details with you. Is that OK?

(2) Information Verification Confirm the patient's basic information with the patient or caregiver, including name, gender, age, occupation, admission date, dominant hand, ethnicity, language, place of birth, marital status, educational level, type of medical coverage, and the source and reason for referral (or transfer).

[E.g.] Therapist: Sir, is your name Li xx? You are 61 years old and a retired teacher, right?

(3) History of Illness Onset This includes the time of onset, cause or precipitating factors, the process of initial symptom appearance, the patient's diagnosis and treatment process, factors that worsen or alleviate the condition, the patient's treatment goals, and opinions from other healthcare providers.

[E.g.] Therapist: Sir, when did your symptoms start?

Therapist: What do you think caused it?

Therapist: What treatments have you received? Have they helped?

Therapist: Did you receive any rehabilitation during this period? When did you start, and how effective was it?

(4) Medical History This includes the patient's previous health status and any major illnesses prior to the current event.

[E.g.] Therapist: Do you have a history of hypertension? What anti-hypertensive medications do you usually take for it? How well is your blood pressure controlled?

Therapist: Besides hypertension, do you have any other diseases? Are your blood sugar or cholesterol level high? How well are they controlled?

(5) Social/Health Habits This includes the patient's alcohol consumption, smoking, and exercise habits.

[E.g.] Therapist: Do you drink alcohol or smoke? (If so, ask about the daily

consumption and whether the patient has tried to quit.) Do you exercise regularly? (If so, ask for what kind of exercise and the daily duration.)

(6) Dysfunction Assess the patient's current abilities in bed mobility, transfers, walking, self-care, household management, community activities, and work activities.

[E.g.] Therapist: How are you doing now? What things can you do by yourself? Are there any areas where you are still having difficulties?

Therapist: Do you need help from your family with daily activities such as eating, dressing, washing, or using the toilet?

(7) Functional Impact This includes the disease's main impact on the patient.

[E.g.] Therapist: What are the main impacts of this illness on your daily life?

(8) Supporting and Limiting Factors This includes social history, such as cultural or religious beliefs that may affect treatment; caregivers before admission, currently, and after discharge; and the socioeconomic support available to the patient both now and after discharge.

Occupational history covers whether the patient works full-time or part-time, whether the workplace is inside or outside the home, and whether the patient is retired. Living environment includes information about the devices and environment the patient uses, the type of housing, and other relevant factors, such as the presence of stairs, ramps, community services, housekeeping services, medical assistance, and rehabilitation services in the patient's residence.

(9) Rehabilitation Expectations and Goals Understand the patient's expectations for recovery, and the specific goals they aim to achieve through rehabilitation.

[E.g.] Therapist: How long do you expect to stay in the hospital this time? What level of recovery do you hope to achieve through rehabilitation during this period?

Patient: I expect to be hospitalized for about a month. I hope to be able to dress myself, use the toilet, and go up and down stairs (I live on the second floor).

(10) Interview Closure Summarize the patient's main rehabilitation issues and expectations, confirm these with the patient, thank the patient for their cooperation, encourage them to actively participate in treatment, and explain the next steps in the

assessment process.

3. Task Assessment

Assessment requirements and scoring criteria—Appendix A: Clinical Interview.

Task 2 Rehabilitation Assessment of Stroke Patients

1. Content of Rehabilitation Assessment

(1) Medical Condition Assessment

Assessment of the degree of neurological deficit and the severity of the condition in stroke patients (see Appendix 2-2-1).

(2) Rehabilitation Assessment

Based on the theoretical framework of ICF (Figure 2-1), the evaluation is conducted focusing on three levels of disability: body functions, activity abilities and social participation. For details, see Table 2-1.

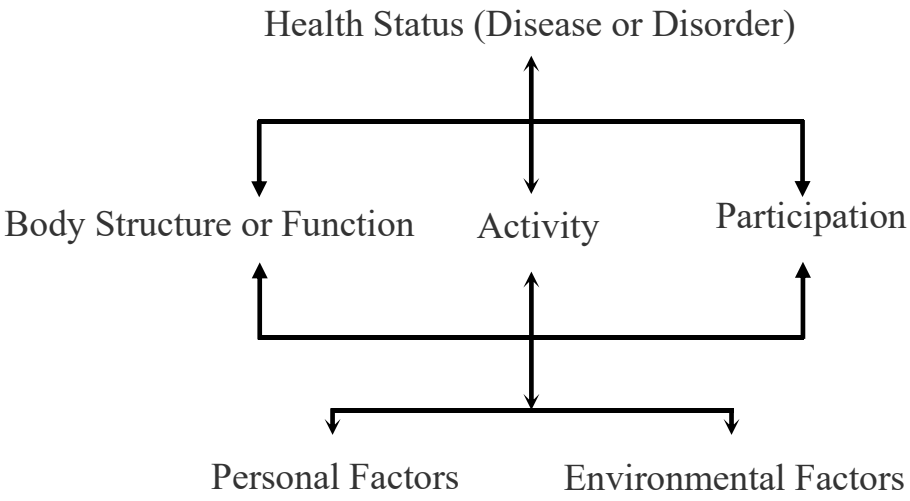

Figure 2-1 Theoretical Model Diagram of ICF (WHO, 2001)

Table 2-1 Assessment Items for Stroke

Assessment Direction		Assessment Items
Body Structure and Function	Motor Function	Comprehensive Motor Function: Brunnstorm Recovery Stages (Appendix 2-2-2); Fugl-Meyer Assessment (Appendix 2-2-3);
		Muscle Strength: Manual Muscle Testing (MMT);
		Range of Motion (ROM);

		Muscle Tone & Spasticity: Modified Ashworth Spasticity Scale (Appendix 2-2-4); Composite Spasticity Scale;
		Balance Function: Postural Assessment for Stroke; Fugl-Meyer Balance Scale (Appendix 2-2-5); Berg Balance Scale (Appendix 2-2-6); Computerized Dynamic Posturography Assessment;
		Walking Ability: Hoffer Ambulation Scale, Holden Functional Ambulation Classification, Timed Up & Go Test, 6-Minute/10-Minute Walk Test, Instrumented Gait Analysis;
	Sensory Function	Sensory Function Assessment Scale (Appendix 2-2-7); Superficial Sensation: Light touch, pain, temperature, and pressure sensation; Deep Sensation: Joint position sense, vibration sense, and kinesthesia; Combined Cortical Sensation: Tactile localization, two-point discrimination, graphesthesia, stereognosis, and barognosis;
		Special Sensory Impairment Assessment: Hemianopsia assessment (e.g., confrontational visual field testing, perimetry);
	Cognitive Function	Assessment of attention, memory, thinking, agnosia, and apraxia;
		Mini-Mental State Examination (MMSE) (Appendix 2-2-8); Montreal Cognitive Assessment (MoCA); Neurobehavioral Cognitive Status Examination (NCSE);

		Loewenstein Occupational Therapy Cognitive Assessment (LOTCA);
	Language Function	Aphasia screening test; Western aphasia battery; Chinese aphasia battery; Boston diagnostic aphasia examination
		Frenchay Dysarthria Assessment (Appendix 2-2-9);
		Swallowing Disorders: Repetitive saliva swallowing test, water swallow test/modified water swallow test, clinical swallowing examination, videofluoroscopic swallowing study, fiberoptic endoscopic evaluation of swallowing;
	Psychological and Mental State	Depression: Hamilton Depression Rating Scale;
		Anxiety: Hamilton Anxiety Rating Scale;
	Secondary or Complicating Disorders	Shoulder subluxation, shoulder-hand syndrome, apraxia syndrome, misuse syndrome, joint contractures;
Personal Activities	ADL Ability	Barthel Index or Modified Barthel Index (Appendix 2-2-10); Functional Independence Measure (FIM);
		Short-Form 36 Health Survey (SF-36); Quality of Life Inventory (QOLI); Stroke-Specific Quality of Life Scale (SS-QOL);
Social Participation	Environment	Environmental factors assessment;
	Quality of	World Health Organization Quality of Life Assessment

	Life	(WHOQOL-100) or its abbreviated version (WHOQOL-BREF); Health Status Survey SF-36;

2. Rehabilitation Assessment Procedures

(1) Determine Assessment Content Based on the results of clinical interviews and a review of the patient's medical records, analyze potential functional impairments the patient may have—such as motor function, sensory function, speech, swallowing, cognition, psychological status, and secondary complications—in order to identify the key areas for assessment.

(2) Select Assessment Methods Choose appropriate assessment methods according to the patient's condition, the required assessment content, the available practical resources.

[E.g.] The interview suggests the patient may have problems with motor and sensory function, speech, swallowing, cognition, psychology state, and complications. The following assessments are therefore indicated:

For motor function assessment, use the Brunnstrom Stages of Motor Recovery for assessment. For muscle tone, assess with the Modified Ashworth Scale. For balance function, employ the Fugl-Meyer Balance Scale.

For speech, swallowing, cognition, and sensation, considering the patient's slurred speech at onset, assess speech and swallowing functions to determine if there is aphasia or dysphagia. Use the Water Swallow Test for swallowing screening. Aphasia should be assessed by a speech-language pathologist. Stroke patients often have cognitive impairments, so it is necessary to determine if aphasia indicates a concurrent cognitive dysfunction. After the above speech function assessment, administer the Mini-Mental State Examination (MMSE) to screen for potential cognitive disorders.

For psychosocial state, utilize the Hamilton Depression Rating Scale.

For ADL, apply the Barthel Index or the Modified Barthel Index.

(3) Conduct Functional Assessment When performing assessments, conduct

the assessment proficiently in accordance with the operation norms and requirements. Ensure both the patient and the therapist are in appropriate positions and maintain clear communication throughout. The operation time should not be too long.

[E.g.] Specific assessment operation steps are as follows:

1) Communicate with the patient: Hello, I am your assessment therapist. Now, I am going to conduct the [Name of Assessment] on you. If you feel any discomfort during the assessment process, please let me know immediately.

2) Start the assessment.

3) Conclude the assessment: The assessment is now complete. Thank you for your cooperation. Your rehabilitation treatment plan will be arranged for you later based on the results.

(4) Record and Analyze the Assessment Results Accurately document the assessment results and produce an analysis report.

(5) Interpret the Assessment Results and Formulate a Rehabilitation Diagnosis

[E.g.] Rehabilitation Diagnosis of the Patient

1) Cerebral hemorrhage (left thalamus)

- Right-sided motor dysfunction
- Right-sided sensory dysfunction
- ADL impairment

2) Hypertension (Stage 3, very high risk)

(6) Set Rehabilitation Goals and Formulate a Rehabilitation Treatment Plan

[E.g.] Based on the assessment results, formulate the patient's rehabilitation goals.

Short-term rehabilitation goals: Improve the motor function of the affected limb, enhance balance and walking ability, and ameliorate sensory impairment in the affected limbs.

Long-term rehabilitation goals: Improve coordination of the affected limbs and alleviate sensory impairments of the affected side, enhance transfer and walking abilities, increase independence in ADL, and achieve reintegration into family and

society.

3. Task Assessment

Assessment requirements and scoring criteria—Appendix B: Rehabilitation Assessment.

Task 3 Rehabilitation Treatment for Stroke Patients

1. Rehabilitation Programs for Motor Disorders at Different Stages of Stroke Patients

Details are provided in Table 2-2.

Table 2-2 Stroke Rehabilitation Programs

Rehabilitation Treatment Stage	**Rehabilitation Treatment Items**	
Acute Stage Brunnstrom Stage I-II	Motor Therapy	Maintain joint range of motion maintenance training: passive and active movements of each joint; Improve flaccid paralysis: Rood techniques, Bobath techniques, Brunnstrom techniques; Orthostatic hypotension adaptive training: position change training from recumbent to sitting position, electric standing bed;
	Occupational Therapy	Proper limb positioning, rolling, transfer training; Compensatory use of assistive devices: ankle-foot orthosis, shoulder sling, etc.;
	Physical Agent Therapy	Functional electrical stimulation, electromyographic biofeedback, medium-frequency electrotherapy, drug iontophoresis, traditional Chinese medicine

		fumigation therapy, localized air pressure therapy;
	Traditional Rehabilitation	Acupuncture, therapeutic muscle massage;
	Rehabilitation Education	Educate on proper limb positioning; Delay muscle atrophy and abnormal postures; Provide psychological counseling; Control risk factors; Prevent complications;
Early Recovery Stage Brunnstrom Stage II-III	Motor Therapy	Inhibit spasticity: rotation training of bilateral shoulders and hips, bridge exercise, active rolling, range of motion maintenance, anti-spasmodic limb positioning; Neurophysiological therapy: Rood techniques, Bobath techniques, Brunnstrom techniques, PNF techniques; Bed exercises: rolling, affected upper limb training, affected lower limb training (hip and knee flexion training, knee flexion in hip extension training, ankle dorsiflexion, affected lower limb control training); Supine-to-sit transfer: sitting up from unaffected side, sitting up from affected side; Sitting training: maintaining correct sitting posture, sitting balance training; Sit-to-stand transfer: assisted standing,

		active standing, standing-to-sitting transition; Standing training: correct stance, bilateral weight-bearing, affected lower limb weight-bearing, unaffected side support during affected leg movement, standing balance training;
	Occupational Therapy	Dressing training; Feeding training; Personal hygiene training; Transfer training;
	Physical Agent Therapy	Functional electrical stimulation; Electromyographic biofeedback; Low/medium frequency electrical stimulation;

Middle Recovery Stage Brunnstrom Stage III-IV	Motor Therapy	Spasticity inhibition; Sitting trunk control training: spinal flexion and extension exercises, trunk rotation exercises, weight shifting to hemiplegic side; Balance training; Hemiplegic upper limb functional activities: unaffected arm-assisted movement of affected arm, movement control of affected upper limb, independent movement training of affected limb, wrist and finger joint training; Hemiplegic lower limb functional activities: heel-to-strike with ankle dorsiflexion, voluntary movement control of affected limb; Walking training: walking decomposition training, pelvic and shoulder girdle rotation, automatic hip extension, affected leg swing phase training, walking within parallel bars; Stair climbing (up and down);
	Occupational Therapy	Sensory function training: hemianopsia training, stereognosis training, deep sensation training; Cognitive training: agnosia training, apraxia training;
	Traditional Rehabilitation	Acupuncture, Tui Na;
	Other	Speech and swallowing training;

	Therapies	
Late Recovery Stage Brunnstrom Stage V-VI	Motor Therapy	Upper limb and hand training: forearm pronation and supination, wrist extension, thumb function training, hand fine motor skills training; Indoor walking and outdoor activities; Walking aid and wheelchair application;
	Occupational Therapy	ADL training, work and productivity activity training, recreational activity training; Application of assistive devices: walking stick, walker, wheelchair;
Sequelae Stage	Motor Therapy	Joint range of motion training; Balance and coordination training; Muscle strength training; Tone reduction: stretching, heat therapy, joint mobilization, etc.; Standing and walking training;
	Occupational Therapy	ADL training; Assistive device compensation training; Cognitive training; Vocational retraining;
	Traditional Rehabilitation	Acupuncture, Tui Na; Baduanjin, Tai Chi;
	Environmental Modification	Environmental modification;
	Rehabilitation Education	Healthy lifestyle promotion, regular and consistent exercise;

2. Rehabilitation Treatment Steps and Procedures

The general steps of rehabilitation intervention after stroke are illustrated in Figure 2-2.

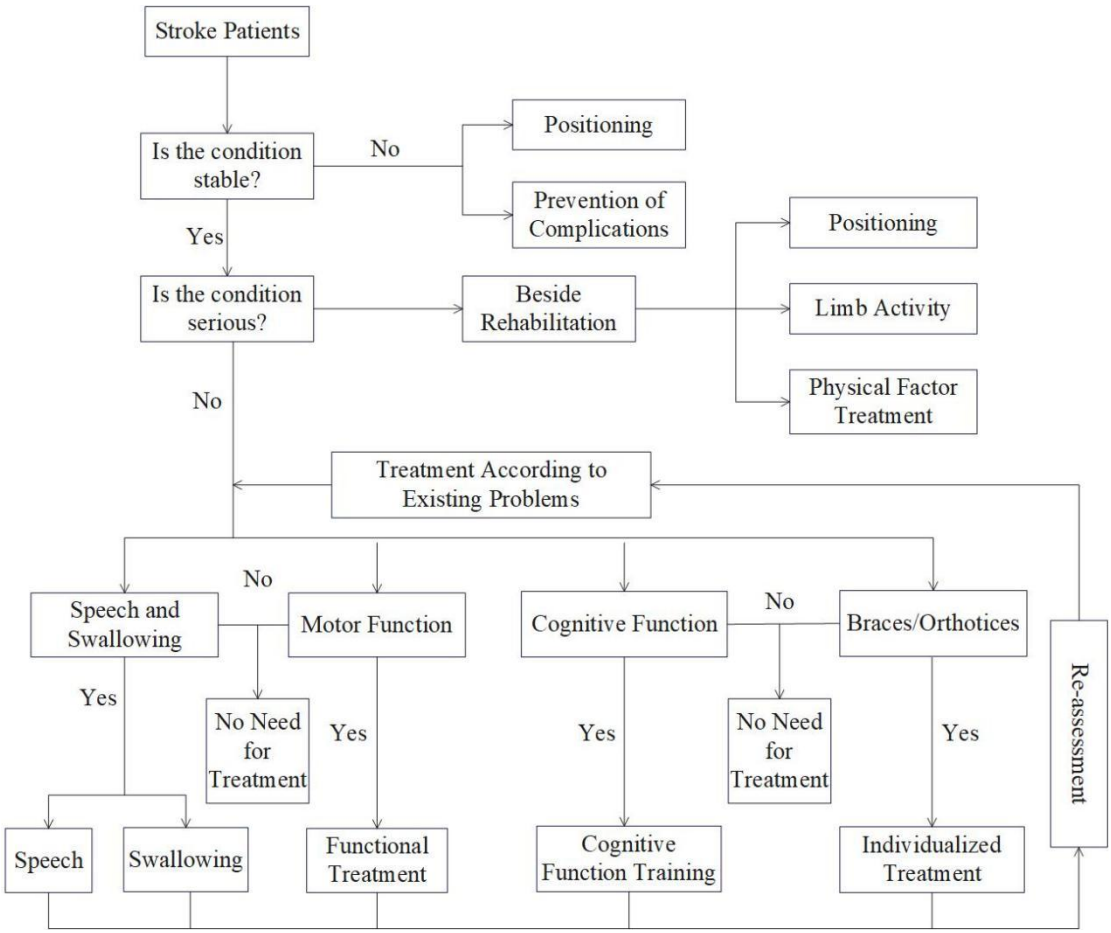

Figure 2-2 General Steps of Rehabilitation Intervention after Stroke

(1) Identify rehabilitation problems

(2) Determine a rehabilitation treatment approach

(3) Formulate a rehabilitation treatment plan

(4) Implement the rehabilitation treatment

(5) Evaluate the effect of the rehabilitation treatment

(6) Provide rehabilitation education

Examples of rehabilitation treatment demonstrations are as follows:

[E.g.] Main problems identified for the patient:

Motor Function: The patient's right upper and lower limbs are both at Brunnstrom Stage V, demonstrating isolated movements. The sitting-balance is at level 2, and the standing-balance is at level 2. The next step involves comprehensive

training for the hemiplegic limbs and balance training to improve sitting and standing balance. Therapeutic exercise will be used to improve the lower-limb weight-bearing ability and walking ability.

Sensory Function: The patient exhibits diminished superficial sensation on the right side compared to the left side, with a loss of position sense on the right. The sensory input to the patient can be increased to heighten the excitability of the damaged nerve structure or promote the formation of new pathways, so as to restore normal function. For example, transcutaneous electrical stimulation can be used to promote sensory recovery; through occupational therapy, the patient can operate objects of different properties (shape, size, texture) to rehabilitate superficial sensory disorders.

ADL: The patient's Barthel Index score is 60. When tidying up the room, attention should be paid to the placement of items. Items used daily should be positioned on the patient's affected side to prevent long-term unilateral neglect. Through occupational therapy, the patient's upper-limb coordination and ability to perform ADL can be improved.

Psychological Status: The patient is an elderly divorced male with a poor relationship with his children. The main manifestations include low mood—such as depression, absence of smiling, and lack of optimism; slowed and impoverished thinking, slow comprehension, and minimal speech throughout the day; and psychomotor retardation, characterized by reduced activity, slow movements, and lack of interest in daily life.

3. Task Assessment

Assessment requirements and scoring criteria—Appendix C: Treatment.

Appendix 2-2 Common Assessment Scales for Stroke Rehabilitation

Appendix 2-2-1 Clinical Neurological Deficit Scale for Stroke Patients (1995)

Name: Gender: Age: Department: Bed No.: Inpatient No.:

Chief Complaint:

Diagnosis: Rater: Date of Assessment:

Assessment Item			Scoring Criteria
I. Consciousness（Maximal Stimulation, Best Response）	1. Two Questions： (1) Age (Normal if within ±2 years or 1 month) (2) Current month	Both correct	0
		One correct	1
		Neither correct → Proceed to the next test	
	2.Two Commands (Demonstration Allowed): (1)Make a fist, then extend (2) Open eyes, then close	Both completed	3
		One completed	4
		Neither completed → Proceed to the next test	
	3. Intense Local Stimulation (Non-Paretic Limb)	Directional withdrawal (Avoidance movement)	6
		Directional limb retraction (Reflex movement to stimulation)	7
		Limb extension	8
		No response	9
II. Horizontal Gaze Function	Normal		0
	Limited lateral gaze movement		2
	Forced eye deviation		4
III. Facial Palsy	Normal		0
	Mild weakness (movement preserved)		1
	Complete paralysis		2
IV. Speech	Normal		0
	Mild difficulty in conversation; can express with facial expressions and actions or fluent speech but difficult to understand, with many paraphasias.		2
	Can manage simple conversations but has difficulty in retelling; speech is circumlocutory, with naming difficulties.		5