UNIT NO. 3

REHABILITATION AND COPING IN ADULTS WITH DISABILITIES

Dr Peter AC Lim

ABSTRACT

Rehabilitation has optimal functioning and independence of the patient as the ultimate goal. It is holistic in nature and addresses restoration where possible or compensation where necessary, not only of the physical but also psychological, social, educational, vocational, and recreational abilities of the individual. Rehabilitation Medicine is the medical field specialising in care of patients with disabling disease or injury.

The person with disabilities has to cope with many changes including physical, psychological and cognitive. They go through an adjustment or crisis-coping process, and there are many strategies and philosophies that help with healthy coping.

An understanding of the options and processes involved in rehabilitation, as well as how patients cope with adversity, is important to the family practitioner as the aging of Singapore will result in increasing numbers of patients presenting with disabilities needing more than medicines.

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INTRODUCTION AND OVERVIEW

It has been estimated that between 10-20% of a population will have some form of disability. The US Census 2000 counted 49.7 million or 19.3% of the 257.2 million aged five years and older in the civilian non-institutionalised population as having some type of long lasting condition or disability[1]. The World Health Organization 2006 estimated that 600 million or approximately 10% of people around the world live with disabilities[2]. Disability in these situations is defined universally and refers to limitations in daily activities, functioning or work ability that may result from congenital causes, disease, or injury processes. Hence, besides the hearing, visual, and mentally impaired, it may include the patient with cerebral palsy, stroke, or fracture. The family practitioner is often at the forefront of contact with these patients, and having a good understanding of the rehabilitation process and options available, as well as how people cope with a disability is essential.

Healthcare may be divided into three categories: Preventive, Curative, and Rehabilitative. Although society's emphasis of these three areas may vary at different times, e.g. during epidemic or wartime, the third is unfortunately often last in priority and consideration. Nevertheless, it is a reality that disability can strike anyone at anytime and it has been said, "becoming disabled is like belonging to a club that nobody wants to join, but one that anyone could end up joining". Another thoughtful viewpoint is that being able-bodied is only transitory, as one is "disabled" in the initial stages of life, and having a disability is almost inevitable as one gets old.

The fact that Singapore is one of the fastest aging countries in the world has been well-publicised. As per the 1999 Report on the Inter-Ministerial Committee on the Ageing Population, 19% of the population, or about one in every five, will be 65 years and older by 2030[3]. Singapore also has a high life expectancy of 78 years for males and 82 for females[4]. These are important considerations as there is a strong correlation between age and disability. Only 5% of those aged 18 years and younger have some activity limitation. This goes up to 40% in those 65-69 years, and is almost 60% in those 85 years and older. Depending on the age, the activity involved may be ability to attend school, play, work, keeping house, and being able to take care of oneself[5].

Plummeting Singaporean birthrates, estimated at 1.07 per woman of childbearing age in 2007 (1.24 in 2005)[4], greater female participation in the labor force, smaller families to share the caregiving burden, and modern day individualistic expectations, have resulted in the tradition of families available to take care of their infirm and disabled difficult, if not impossible. The patient's expectations regarding independence and quality of life have also changed, and the disabled rightfully desire full participation in as many aspects of society as possible.

Although much has been added over the last decade, the systems of rehabilitation and care for the disabled are still developing in Singapore. Many of the basics are in place, including medical rehabilitation units at the acute hospitals, rehabilitative therapy programs at the community hospitals, day rehabilitation and daycare centers, nursing homes, as well as some home-based rehabilitation. However, issues that still need address include changing the older generation's perceptions on the importance of rehabilitation towards self-independence, rather than merely relying on the daughter-in-law, unmarried daughter, or the maid. It also includes discrimination towards the disabled, accessibility, lack of transportation, vocational, educational, recreational, and possibly insurance programs for rehabilitative and long-term care.

The family practitioner may be presented with a sick patient in the clinic whose problems go beyond the medical. It will be useful to have a good understanding on the assessment process, rehabilitation principles, options and services available, as well as the coping strategies of patients and families with disabilities.

I. REHABILITATION[6]

There are various definitions of Rehabilitation, but ultimately the goal of optimal rehabilitation is to restore as maximal a functioning as possible under the circumstances/ limitations posed by residual impairments and the environment.

PETER AC LIM, Head and Senior Consultant, Department of Rehabilitation Medicine, Singapore General Hospital

The International Classification of Impairments, Disabilities and Handicaps (ICIDH): World Health Organization, 1980,[7] is relatively dated but remains a simple and useful way to view areas for rehabilitation intervention. These terms have been replaced by Impairment, Activity, and Participation, with addition of contextual factors in the ICIDH-2, 2001 to address newer points of view and development in healthcare philosophies on management of chronic illness and disability.

Although the terms impairment, disability and handicap are often used interchangeably, they actually differ. It is useful to think of a continuum and how one affects the next. The terminologies in italics added are not part of the classification as such but help to complete the picture:

i) *Disease, Pathology, or Injury*
ii) **Impairment:** Any loss or abnormality of psychological, physiological or anatomical structure or function.
iii) **Disability:** Any restriction or lack (resulting from an impairment) of ability to perform an activity in the manner or within the range considered normal for a human being.
iv) **Handicap:** A disadvantage for a given individual, resulting from an impairment or a disability, that limits or prevents the fulfillment of a role that is normal (depending on age, sex, and social and cultural factors) for that individual.

Thus, diabetes can lead to a stroke (disease, pathology), resulting in hemiplegia (impairment), affecting ability to walk (disability), preventing easy access to a non-lift landing flat for this wheelchair user (handicap).

Rehabilitation would hence include management of the diabetes by the rehabilitation physician, therapies to strengthen and improve control of the hemiplegic arm, trunk and leg, and assisting with discharge to a lift-landing home or teaching a different technique of descending steps, e.g. in a seated position.

Benefits of Rehabilitation

Rehabilitation results in fewer complications, better functional outcomes, a better quality of life and lower medical costs. Patients/families who have received rehabilitation are typically more aware of characteristics of the illness, and how to better take care of themselves. They have better mobility, ability for activities of daily living, and are more reintegrated into their surroundings and society. Complications get recognised and taken care of sooner and at earlier stages. Long-term rehabilitation follow-up minimises functional deterioration and maximises potential for functional improvement.

Examples of Patients who can Benefit from Rehabilitation

Neuro-rehabilitation:
Stroke
Spinal Cord Injury (traumatic, tumor, ischemic)
Brain Injury (traumatic, tumor, anoxic, infective)
Neurological Dysfunction (e.g. Multiple Sclerosis, Parkinson's Disease, Guillain-Barre Syndrome)

Musculoskeletal Rehabilitation:
Amputation (lower limb, upper limb)
Arthritis (degenerative, inflammatory)
Orthopedic (fractures, soft-tissue injuries, joint replacements)

Others:
Deconditioning (medical and post-surgical)
Pulmonary (COPD, infective, transplants)
Cardiac (myocardial infarction, bypass surgery, transplant)
Chronic Pain (back, others)

The Rehabilitation Team

Some patients require comprehensive multidisciplinary rehabilitation intervention. This multidisciplinary team is commonly led the rehabilitation physician, and includes the rehabilitation nurse, physiotherapist, occupational therapist, speech therapist, and medical social worker. The neuropsychologist may be involved, as may the prosthetist, orthotist, clinical pharmacist, dietician, vocational rehabilitation specialist, and medical equipment salesperson. In the US, there is also the kinesiotherapist, therapeutic recreation specialist, child-life specialist, music or dance therapist, etc.

Principles of Comprehensive Multidisciplinary Rehabilitation

i) Rehabilitation physician-led team approach
ii) Intensive, goal-oriented treatment
iii) Towards functional independence

The Rehabilitation Physician

i) Physician specializing in physical medicine and rehabilitation or physiatry, is sometimes known as a "doctor for the disabled"
ii) Has special training in diagnosis and management of issues and complications relating to immobility, impairment and disability
iii) Treats a wide range of problems from sore shoulders to strokes and spinal cord injuries, all age groups, all major body systems
iv) Focuses on restoring function to people

The rehabilitation physician also receives training in principles of therapeutic exercise, physical modalities (heat, cold, electrical, traction, etc), prosthetics, orthotics, durable medical equipment, gait analysis, diagnostic and therapeutic injections, urodynamics, electrodiagnosis (EMG/NCS), and comprehensive rehabilitation team management.

Referrals to Rehabilitation Medicine

i) Patients with functional deficits, e.g. difficulty with swallowing, speaking, transferring, walking
ii) For management of complications of immobility or chronic disease, e.g. bowel and bladder dysfunction, contractures,

spasticity, neuropathic and musculoskeletal pain
iii) Need for assistive and other devices, e.g. special wheelchairs, braces, prostheses

Clinical Services of a Rehabilitation Medicine Department

i) Provides comprehensive, multidisciplinary, intensive, goal-oriented, inpatient rehabilitation for patients with potential for significant functional gains, towards an optimal level of independence
ii) Consultation service to other departments and doctors to assess and recommend level of rehabilitation needed and options available
iii) Specialist outpatient clinics to follow-up discharged patients, and new referrals for patients with functional deficits needing therapeutic exercise, modalities, orthotics or prosthetics, wheelchairs and assistive equipment
iv) Performs procedures such as urodynamics, electrodiagnostics tests, soft tissue and joint injections

Good Candidates for Comprehensive Inpatient Rehabilitation

i) Medically stable, e.g. afebrile, disease or injury work-up completed, resolved or adequately managed
ii) Presence of persistent functional deficits, typically two or more, e.g. in self-care abilities, bladder/bowels, swallowing, communicating, transfers, locomotion (single disabilities may not need entire rehabilitation team/multidisciplinary program)
iii) Physical endurance adequate to participate actively in rehabilitation to some extent
iv) Cognition and motivation adequate to learn, and to carry-over what was learnt in previous sessions (i.e. not forgotten right away)
v) Achievable rehabilitation goals

Guidelines for Inpatient Rehabilitation[8]

Assessment
Initial assessment includes: neurological and musculoskeletal deficits, medical co-morbidities, cognitive, emotional deficits, speech-language disabilities. Also look for impediments to community reintegration such as the living environment (e.g. lift to home level), family dynamics, community supports.

Continuity of care
The rehabilitation patient typically goes through multiple settings during the course of recovery, e.g. acute care -> inpatient rehabilitation -> outpatient/home rehabilitation. Hence, transfer of clinical information from stage to stage is important.

Patient and family involvement
Rehabilitation involves not only the patient but also the family. They need to be informed and involved in decisions, including selection of rehabilitation setting, goals and interventions, discharge disposition.

Support and Education
Emotional support, education, and counselling as to main features of the disease/surgery including cause and manifestations, treatment, and prognosis are initiated. Once again, patient and family involvement are intrinsic to the rehabilitation program.

Discharge planning
The post-discharge setting needs to be decided on early in the rehabilitation process as it forms an important part of the goal. Caregiver training may be needed and also the training on assessment of equipment needs, e.g. a wheelchair. Continuity of care should be ensured.

What Happens during Comprehensive Inpatient Rehabilitation

Initial Assessment and Management:
When the patient is first transferred to Rehabilitation Medicine, a detailed assessment is done and immediate issues are managed including swallowing and communication, bladder and bowel management, nutrition, hydration, and skin breakdown. The medical, physical, psychological, socio-economic, and functional abilities of the patient are also assessed.

Therapy and Education of Neurological/Musculoskeletal Condition:
Therapies for motor strengthening, sensory re-education or compensation, balance and posture restoration, coordination drills, strategies to improve or compensate for visual-spatial and cognitive deficits are instituted. The education and training process into the disability and rehabilitation plan are started.

Compensation Strategies:
Frequently, there are severe or permanent impairments that may require modified sequences or strategies to carry out a previously routine functional task, e.g. donning of clothes. Equipment may also be used to compensate for the impairment including prostheses, orthoses, and mobility devices such as wheelchairs and walking aids.

Management of Complications:
The patient is at risk for complications that have to be managed on the rehabilitation unit such as skin breakdown, spasticity, contractures, venous thromboembolism (DVT and PE), musculoskeletal and neurogenic pain, depression, autonomic dysfunction, reflex sympathetic dystrophy, infections especially pulmonary and urinary, seizures, falls, malnutrition, cardiac events, and recurrent stroke.

Discharge Planning:
Planning is done early on for discharge destination and post-discharge care. Continuity of care may include arrangements

for follow-up therapy and subsequent outpatient care. The patient may need a home visit and recommendations for renovations/modifications. Avocational (recreational) issues are important for quality of life. Vocational issues are relevant in some patients and may involve liaison with the employers, workplace adaptations, and job retraining. Other adjustments that may be need attention are sexuality, issues of self-worth, and identity.

Stratification for Rehabilitation[8]

Medically unstable
Generally not suitable for any type of rehabilitation program.

Medically stable with complex medical problems
Hospital inpatient rehabilitation facility with full-time rehabilitation physicians, nurses, and availability of other medical specialists.

Moderate to severe disabilities
Intensive rehabilitation program if tolerating three or more hours of physical activity per day; and less intensively in a nursing facility, outpatient facility, or home-based rehabilitation if not able to.

Supervision or minimal disabilities, unable to live independently
Home-based or outpatient rehabilitation if home environment and support adequate; inpatient hospital or nursing facility if not.

Mild disabilities, able to live independently
Has difficulties with complex activities such as housekeeping, meal preparation, public transportation, leisure activities or return to work. May benefit from rehabilitation services targeted at problem areas, either as outpatient or home-based. If inadequate home support, may need nursing facility or supervised living setting.

Rehabilitation Prescription

In rehabilitation medicine, the prescription goes beyond medications for the disease or surgery for the injuries. The rehabilitation physician also has ability to prescribe therapeutic exercise, modalities of various forms, types and specifications of prosthetics, orthotics and other equipment.

Therapeutic Exercise
There are various types of exercise including Active (done by patient), Active-asssisted (partially done by patient, assisted by therapist/helper), or Passive (done by therapist/helper). It may also be Isotonic (either Concentric or shortening exercises, and Eccentric or lengthening exercises), Isometric (static or non-shortening exercises), or Isokinetic (constant velocity or accommodating resistance exercise). Open kinetic Chain (force adequate to overcome resistance, e.g. leg-press, cycling) and Closed kinetic Chain (force not great enough to overcome resistance, e.g. squats, running), Aerobic and Anaerobic, Power and Endurance-building, Strengthening and Fitness exercises. Low-repetition, high-resistance exercise produces Power, whereas high-repetition, low-resistance exercise produces Endurance. Specificity Training is another consideration - exercising muscles of ambulation are important, but it is still necessary to work on actual walking to best regain this function. Other aspects of exercise may include restoring balance, posture, crutch and cane usage, wheelchair skills, and gait retraining.

Heat Modalities
Heat may be delivered via hot packs, paraffin wax bath, fluidotherapy, infrared radiation, shortwave diathermy, and ultrasound. Thermal properties include analgesia/sedation (decreases pain and spasms, aids relaxation, general stimulant), improved blood flow increases nutrient inflow and waste removal, increased capillary permeability may either increase or decrease interstitial fluid/oedema. Increased non-elastic tissue extensibility allows elongation/stretching of tendons or scars with increased range of movement. Increased peripheral nerve conduction velocity and motor nerve activity increases transmission speed, and motor function as a whole.

Cold Modalities
Cold may be delivered via ice massage, chemical cold packs, ice towels, ice packs, or vapocoolant sprays. Cold has thermal properties of analgesia/sedation, decreasing pain, spasms, and aiding relaxation. Decreased peripheral nerve activity may reduce spasticity. Lower joint tissue and fluid temperature decreases activity of enzymes that may damage the joint.

Hydrotherapy
Swimming pool or whirlpool tub hydrotherapy allows delivery of hot or cold treatment modalities. Buoyancy, hydrostatic pressure, surface tension, cohesion, and turbulence create environment for therapeutic exercise including muscle strengthening, balance, range of motion activities, reduced-weight ambulation. Thermal properties and hydrostatic pressure improves circulation and reduces oedema.

Pressure factors, fluidity, and turbulence are useful for skin problems and open wounds, including debridement, removal of dressings, application of medications or lubricants. Hydrotherapy is also relaxing and produces psychological benefits.

Electrical Stimulation
Direct stimulation of spastic muscles, antagonistic muscles, or by reciprocal stimulation of both decreases spasticity. Muscle irritation, spasm and pain may respond to high-frequency intermittent stimulation. Use of electrical stimulation to increase circulation and nutrition to denervated muscle is

controversial as it retards atrophy, but may interfere with peripheral nerve regeneration. It decreases oedema by improving circulation with muscle-pumping action, accelerates healing by retarding bacterial growth, and enhancing natural tissue repair.

Iontophoresis
Is the use of electric current to drive ions of medications through skin into the underlying tissue. Substances or medications include steroids, lidocaine, salicylate, zinc oxide.

Transcutaneous Electrical Nerve Stimulation (TENS)
Application of low-voltage electrical pulses to nervous system through the skin may change pain perception as per the Gate-Control Theory whereby high-frequency stimulation of non-nociceptors or axons interferes with relay of pain sensations to higher brain centres. TENS may also be effective via natural opiates from the pituitary gland (beta-endorphins) and spinal cord (enkephalins) released by low-frequency stimulation of sensory nerves.

Ultraviolet Irradiation (UV)
UV produces vasodilatation that stimulates granular tissue formation leading to tissue repair. Bacterial destruction occurs from stimulation of reticuloendothelial cells, increasing circulatory antibodies, and associated wound healing promotes tissue growth. Psychological benefits include a sense of well-being.

Light Amplification by Stimulated Emission Radiation (LASER)
Low-powered Helium-Neon lasers of 1 mW or less have physiological effects that include pain reduction and accelerated tissue healing from increased collagen synthesis, vascularisation, and decrease in microorganisms. They may be used for promotion of tissue healing, and management of pain associated with muscle spasm, headaches, local and systemic inflammation.

Biofeedback
Immediate information returns about physiological functions that one might otherwise be unaware, which allows active self-control over the function being monitored. It may be through aural or visual feedback, skin thermal feedback, skin electrical conductance, or electromyographic (EMG) feedback for muscle activity.

Traction/Distraction
Application of forces to the spine or limbs separate vertebrae and elongate surrounding tissues such as muscles and ligaments, increase space between vertebrae, articulating facets, and intervertebral foramen. This may result in relaxation of paraspinal muscles, and diminution of bulging herniated discs or pressure on nerve roots in the intervertebral foramen.

Intermittent Pneumatic Compression
Pumps can be utilised to intermittently force air into inflatable sleeves or boots around an upper or lower extremity. Resultant increased interstitial space fluid pressure encourages fluid return to the venous or lymphatic vessels, helping control and reduce oedema.

Orthoses (Braces)
Orthoses may be used for the upper limb, lower limb, neck and back. Upper limb braces include resting hand splints, e.g. for carpal tunnel syndrome, functional splints to allow immobilisation of affected joints yet maintain hand function, and corrective splints, e.g. those that ostensibly "pull back" contractures, etc. Lower limb splints include the ankle-foot-orthosis (AFO), that may also be used for resting/positioning/protecting the ankle (e.g. pressure-reducing AFO), for function (walking AFO, sole to patella-tendon weight-bearing displacement AFO), or corrective (tone-reducing AFO). Many braces are available for the knee such as the straight canvas, articulated free-angle knee, elastic knee braces, and adjustable-angle braces. The neck orthoses include the Halo, SOMI (sterno-occipital manibular immobilizer), 4-poster, stiff collars such as the Aspen and Philadelphia, soft-neck braces. Back braces include the plastic body-jackets, the CASH (cruciform anterior spinal hyperextension), and Jewett contra-flexion brace.

Prostheses
Upper limb prostheses include the below-elbow (or trans-radial) and above-elbow (trans-humeral), but are relatively uncommon due to lower frequency of upper limb amputations compared to lower limb. In addition, there are issues of prosthetic acceptance and functionality that lead to rejection of these replacement limbs. Lower limb prostheses on the other hand are much more prevalent, although these also have a significant rate of rejection or non-use after fabrication. These include the common below-knee (trans-tibial), above-knee (trans-femoral) prostheses, as well as the less frequent Syme's, through-knee, and hip-disarticulation prostheses.

Equipment
The proper prescription of a wheelchair takes into consideration the patient's needs such as whether electric or manual, light-weight or regular, fixed or removable arm rests and leg-rests, pneumatic versus hard rubber tires, and other specifications and components. The patient's functional ability may depend on a properly prescribed and sized wheelchair with an appropriate foam, air, or gel cushion. Assistive devices for ADLs include reachers, large-handled utensils, and other adaptive devices for self-care. Walking devices include walking frames, quadrilateral canes/sticks, axillary or forearm crutches, walking canes. Assistive technology such as voice synthesizers and environmental control units may be prescribed.

Medications Common in Rehabilitation
i) Spasticity: Baclofen, diazepam, gabapentin, and less frequently clonidine, tizanadine, dantrolene sodium, carisprodol, cyclobenzaprine
ii) Autonomic dysreflexia: Topical lidocaine, nifedipine, nitrates (nitroglycerine paste), propanolol, and also

phenoxybenzamine, terazosin, diazoxide, hydralazine
iii) Neuropathic pain: Amitriptyline, nortriptyline, trazadone, gabapentin, carbamazepine, also baclofen, tizanidine, clonidine, mexiletine, lidocaine, capsaicin
iv) Depression: Fluoxetine, fluvoxamine, sertraline, escitalopram, also paroxetine, amitriptyline, nortriptyline
v) Psycho-modulation: Methylphenidate, valproate, bromocriptine, propanolol, risperidone, haloperidol, lorazepam, also chloral hydrate, zolpidem, nortriptyline, fluvoxamine
vi) Bladder management: Tolterodine, oxybutinin, baclofen, terazosin, also propantheline, amitiptyline, flavoxate, ephedrine, bethanecol, prazosin, dantrolene, tizanidine
vii) Bowel management: Psyllium, isphagula, lactulose, senna, bisacodyl, also docusate, gylcerine, and paraffin.

II. COPING WITH DISABILITIES

The process of coping with disabilities is different for an adult than for a child. The child has to contend with issues of growing-up physically and mentally, and development of functional or social skills and relationships. The adult presumably has already attained these and the challenges of coping include changes to previously intact abilities, life-roles, and yet-to-be achieved life-goals. The process will again vary depending on the age, as a young adult might have concerns about his family and providing for their future, whereas the elderly might have greater concerns about abandonment and death.

An understanding of the processes and issues involved in coping with disabilities will help equip the medical practitioner to better provide practical and emotional support, as well as possible strategies to patients.

Changes with Disability

Following the event causing the acquired disability, the patient may have changes in different areas:

Physical changes
i) Mobility may be affected and ambulation is either with difficulty or an abnormal gait, and the patient may require a wheelchair.
ii) Self-care ability is often affected or there may be safety concerns, e.g. fall risk, or it takes significantly more time to perform it.
iii) Where the patient may have previously been very articulate, speech disabilities could now produce the opposite picture.
iv) Loss of bowel, bladder, and swallow function requiring diapers, urine and feeding tubes.
iii) There may be actual changes in the patient's anatomy and body appearance from the trauma or disease. Prostheses may look unnatural and be a problem from a cosmetic viewpoint.

Psychological changes
i) Emotional changes are common and include anger, grief, depression, guilt, anxiety, fear, stress, dysphoria, etc.
ii) Changes in life-role may take place, viz. that of being the bread-winner, home-maker, decision-maker, husband or wife, father, mother, son or daughter.
iii) Changes in body-image and loss of self-esteem, from that of a fit, "normal" person to now possessing paralysed, possibly deformed or atrophied limbs and body.
iv) Loss of dignity, and embarrassment with incontinence of bowel and bladder functioning – even the fear of this occurring may be paralysing.
v) There may be turning towards unhealthy means of coping, including development, or exaggeration of a pre-existent problem of chemical addiction including to alcohol and drugs.

Cognitive changes
i) Executive function may be impaired with deficits in problem-solving ability, good evaluation and judgment skills, memory.
ii) Ability to concentrate, proper attention spans, and delay in processing speed of information.
iii) Language may also be affected, over and beyond speech difficulties
iv) There may be behavioral issues with personality changes, unusual impatience, impulsivity, and easy agitation.

Other changes
i) Responsibilities and relationships: With family, friends, socially and vocationally.
ii) Society and the environment: This includes acceptance of patient's new disability by the employer due to concerns regarding ability to perform, medications, and time-off for medical appointments. Other challenges may include social isolation, transportation difficulties, public curiosity (staring, commenting), stigma, and disempowering language/ terminologies ("crippled by"), paternalism, over-protectiveness, and control issues.
ii) Financial and Legal: There may be a need for the family/state to take Power of Attorney for medical and financial decisions. Other issues include Workers' Compensation disputes, critical illness and disability insurance, and pending litigation. There may be concerns about loss of income, taxes, medical costs, housing needs, equipment and homecare costs.

Adjustment Dynamics[9]

Patients go through an adjustment process following a new disability or loss that includes several if not all of the stages below. Although they may fluctuate between stages and even return to a previous after seemingly being past it, ultimately most do attain the goal of coping. The patient also has to contend and cope with developmental transitions over time, varying challenges and stress, not forgetting the aging process coupled with a disability.
i) Shock (denial, bargaining, fear of realities and implications)
ii) Partial acceptance (of some realities)
iii) Depression (inward)
iv) Anger (outward)
v) Coping (recognise and accept limitations, make the best possible)

Coping Skills Model[10] (based on Crisis Theory, Lindemann E, 1944)

i) Denying or minimising seriousness of crisis
ii) Seeking relevant information
iii) Requesting reassurance and emotional support
iv) Learning specific illness-related procedures (e.g. rehabilitation therapy)
v) Setting concrete limited goals
vi) Rehearsing alternative outcomes
vii) Finding a general purpose, or pattern of meaning, in course of events

Reaction to Disabilities[11]

It has been proposed that a Rule of Thirds applies to coping:

- A third cope very well due to previously established skills, personality traits, and support of significant people in their lives
- Another third have greater difficulties, but with minimal professional or psychotherapeutic assistance, are able to successfully get through the crisis
- The last third, however, have significant coping difficulties, require a large amount of professional intervention, and often have a history of adjustment issues, e.g. chemical abuse, mental disease, low tolerance for structure and limitations.

Healthy Coping

There are many strategies and philosophies for coping with adversities in life. A guiding principle should be that each person is different, and what may be effective for one is not for another. Nevertheless, at each level there are strategies that may be helpful:

Personal
Acknowledgment/acceptance of loss, express grief, sharing, keep interested in life, humor, exercise, massage, meditation, relaxation, patience, perseverance, tolerance

Family and Friends
Support system, listening, encouragement, unconditional acceptance, affirmation

Professionals
Treatment, interventions, information, encouragement, psychotherapy, medications, coordination, resources.

Peer Support Group and Counseling
Mutuality of situation, understanding, support, forum for expression, sharing information

Religion and Personal Beliefs
Faith, strength, peace, tranquility, hope

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LEARNING POINTS

- **The goal of optimal rehabilitation is to restore as maximal a functioning as possible under the circumstances/ limitations posed by residual impairments and the environment.**
- **Benefits of rehabilitation include fewer complications, better functional outcomes, a better quality of life and lower medical costs.**
- **The rehabilitation team is multi-disciplinary led by the rehabilitation physician providing intensive, goal oriented treatment working towards functional independence.**
- **Patient and family involvement are intrinsic to the rehabilitation programmes.**
- **Caregiver training may be needed as does assessment of equipment needs, e.g. wheelchair. Continuity of care should be ensured.**
- **An understanding of the processes and issues involved in coping with disabilities will help equip the medical practitioner to better provide practical and emotional support, as well as possible strategies to patients.**