

**The Chinese University of Hong Kong  
The Nethersole School of Nursing  
CADENZA Training Programme**

**CTP 003: Chronic Disease  
Management and End-of-life Care**

**Web-based Course for  
Professional Social and Health Care  
Workers**

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# Chapter 3

## Rehabilitation of Older People with Chronic Diseases



# Lecture Outline

1. The definition and principles of rehabilitation
2. Team work in rehabilitation
3. Rehabilitation settings for older people with chronic illnesses in Hong Kong
4. Rehabilitation processes
5. Outcome measures in rehabilitation
6. Psychological issues in rehabilitation of older people with chronic illnesses
7. Future trends in rehabilitation for older people with chronic illnesses

# The Definition and Principles of Rehabilitation

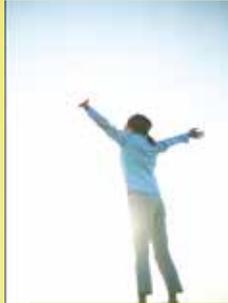


# Definition of Rehabilitation

- Existing rehabilitation programmes are based on Dr. Howard A. Rusk, the founding father of rehabilitation medicine, and pioneering efforts which he developed in 1942 to assist injured World War II personnel.  
<http://shs.umsystem.edu/manuscripts/invent/3981.html>
- “Rehabilitation of people with disabilities is a process aimed at enabling them to reach and maintain their optimal physical, sensory, intellectual, psychological and social functional levels. Rehabilitation provides disabled people with the tools they need to attain independence and self-determination.” (World Health Organisation WHO, 2010)  
<http://www.who.int/topics/rehabilitation/en/>
- Many definitions are available in literature, but all highlight similar defining attributes.

# Attributes of Rehabilitation

(Davis, 2006)



Autonomy

Learning and teaching



Restoration



Rehabilitation

Process



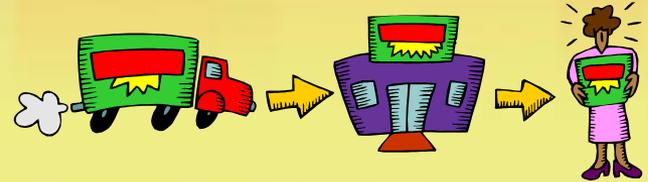
Effectiveness



Enabling and facilitating



# Attributes of Rehabilitation



## 1. Process

- Rehabilitation is an active, dynamic, continuing process concerning 3 main aspects: physical, social and psychological.
- 'Rehab Cycle'
  1. Identifying problems and needs
  2. Relating the problems to factors that are limiting and can be modified
  3. Selecting appropriate measures
  4. Planning, implementing and coordinating interventions
  5. Evaluating by assessing effects



# Attributes of Rehabilitation

## 2. Restoration

- Enabling the individual to regain the lost elements of their life, e.g., physical functioning, family or social role
- Individuals adapting to changed circumstances and learning new skills in order to regain the lost functions

# Attributes of Rehabilitation

## 3. Effectiveness

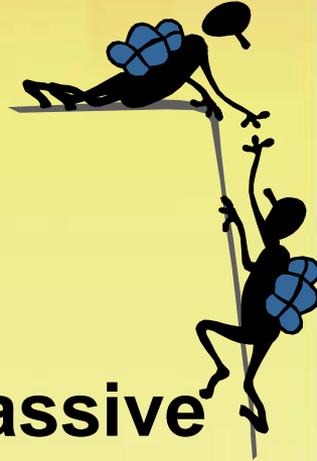


- **Optimal functioning: functioning (physical, emotional and psychological) that can be achieved given any limitations the individual may have**

# Attributes of Rehabilitation

## 4. Enabling and facilitating

- An active process rather than a passive process
- The relationship between health care professionals (HCPs) and the individual may need to be different



# Attributes of Rehabilitation

## 5. Learning and teaching



- **An educational process that enables patients and carers to learn new skills**
- **Increase an individual's activity and participation**



# Attributes of Rehabilitation

## 6. *Autonomy*

- **Enabling individuals to achieve goals that are important to them**
- **It is suggested that autonomy should be the ultimate aim of rehabilitation (Cardol et al., 2002)**

# Stages of Rehabilitation

**Rehabilitation includes 4 stages (Davis, 2006)**

## **Stage 1**

- initial critical stage when individual is unconscious
- the main goal at this stage is to preserve life

### **Interventions involve:**

- stabilising the primary problem(s)
- preventing complications such as bedsores, pneumonias, contractures, etc.
- providing verbal and tactile stimulation
- supporting relatives



# Stages of Rehabilitation

## Stage 2

- individual has recovered consciousness
- goal of rehabilitation depends on the needs of individual

### Interventions involve:

- assessing the individual's functional and cognitive abilities
- establishing everyday activities, e.g., eating at a table
- giving choices to the individual, e.g., clothes, diet
- managing challenging behaviours
- establishing alternative forms of communication
- supporting and involving relatives



# Stages of Rehabilitation



## Stage 3

- more active rehabilitation programme
- goals focused on the level of participation

### Interventions involve:

- facilitating and enabling individuals to achieve their maximum potential in daily tasks like mobility, feeding, dressing, etc.
- ensuring the continuity of therapy programmes between different professional groups
- empowering individuals by giving them informed choices, especially in goal setting
- providing psychological support to the individuals and their families
- providing supportive, structured environment for the individuals and their families

# Stages of Rehabilitation

## Stage 4



- Clients reach their full potential at this stage
- Goal should be enabling them to live with the disabilities

### Interventions involve:

- help individuals to maintain quality of life
- further assessment and intervention may be needed at follow-up appointments with the rehabilitation team



# Principles of Rehabilitation of Older People with Chronic Illnesses

Three major principles are considered in the rehabilitation of older people (Bottomley & Lewis, 2003):

1. *Variability of older people*
2. *Activity versus inactivity*
3. *Optimal health*



# Principles of Rehabilitation of Older People with Chronic Illnesses

## 1. Variability of older people

- Unlike any other age group, older people are more variable in their level of functional capabilities.
- Variables like strength, visual capabilities, mental ability, etc. may vary significantly between older people.
- Thus a wide range of rehabilitative services and interventions must be available to address the various needs of older people in different care settings.



# Principles of Rehabilitation of Older People with Chronic Illnesses

## 2. Activity versus inactivity

- Inactivity/immobility and ageing independently lead to osteoporosis, decreased exercise endurance, impaired mobility, increased fall risks, deep venous thrombosis, sensory deprivation and pressure sores, etc.
- Bed rest should be prescribed wisely; be aware of its potential complications and preventive exercise should be prescribed

# Principles of Rehabilitation of Older People with Chronic Illnesses

## 3. Optimal health

- Health is a state of complete physical, mental and social well-being, not merely the absence of disease or infirmity. This definition has not been amended since 1948. (WHO, 2003)
- Preventing impairment and disability is a key principle in geriatric rehabilitation.
- Therefore, preventing complications that could result from suboptimal health is important.
- Encouraging healthy behaviours like increasing activity levels, reducing obesity and stopping smoking are necessary to maintain health.
- HCPs should be able to detect minor problems which may develop into major problems.



# Do You Know?



- Can you think of any examples of preventive intervention to maintain optimal health in the case of an older woman suffering osteoporosis?
- Is there any difference in the rehabilitation of persons A and B if A suffered from fractured hip only and B suffered from fractured hip and osteoporosis?



# Team Work in Rehabilitation



# Team Work in Rehabilitation

- Due to its complex nature, rehabilitation cannot be achieved by one professional group alone.
- Rehabilitation needs to involve a group of professionals all working with the same purpose of meeting the individual's goal in individual centred care. (Davis, 2006)
- The approach to rehabilitation should be multidisciplinary as well as interdisciplinary.



# Multidisciplinary

- *Multi-* means that there are a number of different professional groups working together.
- It usually includes professionals from Physical Therapy (PT), Occupational Therapy (OT), Speech Therapy, Vocational Rehabilitation, Therapeutic Recreation, Psychology, Social Services, Gerontology and Nursing



# Interdisciplinary

- *Inter-* means that there are a number of different professionals working together and cooperatively to achieve an agreed individual-centred goal. (Davis, 2006)
- All disciplines and members of the team recognise the abilities, skills and critical contributions of each other. (Squires & Hastings 2002)
- Effective group interaction, cohesive working relationships and mutual evaluation will produce greater results than each discipline functioning independently. (Melvin, 1980)

# Outcomes of Team Working

Proctor-Childs et al (1998) identified six outcomes of interdisciplinary team working that have the potential to enhance an individual's progress.

1. *Continuity:* professionals carry over skills and knowledge learnt from each other into their own practice.
2. *Consistency:* professionals recognise how other team members interpret events, assimilate individuals' views and act in a similar way to colleagues.



# Outcomes of Team Working

3. *Reduction of ambiguity:* same messages conveyed to individuals and their families due to joint working, discussion and evaluation.
4. *Appropriate referrals:* professionals understand each other's roles better in a team.
5. *Holistic information:* holistic picture of the individual obtained , so decisions are made from a wider knowledge base.
6. *Problem solving:* joint strategies are developed and appropriate decisions can be made.

# Rehabilitation Settings for Older People with Chronic Illnesses in Hong Kong





# Hospital Settings

- Rehabilitation starts early in the acute phase once the medical condition has been stabilised and is delivered by multidisciplinary professionals in the hospital setting
  - e.g., since 2002, Hospital Authority (HA) has set up 14 stroke units in acute hospitals to enhance stroke care management



# Hospital Settings

- HA also provides specialty-led rehabilitation programmes in its extended care hospitals, day or outpatient settings for patients who require a medium-term period of functional and psychosocial training
  - services like pulmonary, orthopaedic, geriatric and cardiac rehabilitation



# Community settings

To assist older people in staying in the community for as long as possible

## **Patient Resource Centers (PRC)**

- Total of 35 PRC in public hospitals providing patient and carer empowerment as well as disease prevention programmes to support chronically ill patients and their carers.
- Over 200 patient mutual help groups for various chronic illnesses
- Government has subvented 6 Community Rehabilitation Network centres across Hong Kong to enhance the quality of life for people with visceral disability and their families

# Community settings

- The following community settings/services offer rehabilitation services for older people (include PT and/or OT services)
  - **Day Care Centre for the Elderly**
  - **Integrated Home Care Services**
  - **Enhanced Home and Community Care Services**
  - **Care and Attention Homes for the Elderly**
  - **Nursing Homes**

[http://www.swd.gov.hk/en/index/site\\_pubsvc/page\\_elderly/sub\\_csselderly/id\\_daycarecen/](http://www.swd.gov.hk/en/index/site_pubsvc/page_elderly/sub_csselderly/id_daycarecen/)



# Rehabilitation Processes



# Rehabilitation Processes

Rehabilitation processes in older people include:

1. Interdisciplinary assessment  
(using standardised assessment measures where relevant)
2. Problem identification
3. Goal setting
4. Clinical interventions (based on evidence based practice where reported)

# (1) Assessment

- Assessment for older people with chronic illnesses includes not only clinical diagnosis but also the evaluation of physical and mental function, as well as the social circumstances of older people
- Is a continuous process
- WHO recommends the following domains for assessment of older people:
  - ADL
  - physical health functioning
  - mental health functioning
  - psycho-social functioning
  - social, environmental and economic resources
- These dimensions are reflected in the International Classification of Functioning, Disability and Health (ICF) (WHO, 2001) (<http://www.who.int/classifications/icf/en/>)

## *(2) Problem identification*

- Problems can be identified as:
  - active: something that concerns the patient and can be worked on
  - inactive: an impairment/disability that cannot be resolved or does not affect the patient





## (3) Goal setting

- Goals are the purpose of subsequent intervention
- Should be specific, measurable, achievable (or agreeable), realistic and time bounded (SMART principle)
- Facilitated by setting both short-term and long-term goals
- Always related to the older person's informed expectations
- Team members may have different aims for their own intervention, but those should also contribute to the ultimate goal

## *(4) Intervention*



- Having agreed the goals with the older person and carer, an intervention plan will be agreed by members of the team
- The plan should focus on problems and have specified evaluation intervals
- Specific outcome measures should be employed to assess the effectiveness of the rehabilitation interventions in achieving the expected goal (Bowling, 1997)

# Outcome Measures in Rehabilitation



# Outcome Measures

- Outcome measures are used to assess the relative changes within the rehabilitation process
- The purpose of outcome measures are:
  - to reveal the overall impact of an intervention on a client
  - to identify the specific impact of an intervention or approach in response to a client's needs
  - to find out relative outcomes in similar clients in order to identify the extent of benefit achieved from the services provided (i.e., those who benefit most and least)
  - to assess productivity in order to determine the effectiveness and efficiency of the services provided
  - as a component of planning for rehabilitation services to achieve client goals, service delivery goals and system goals



# Outcome Measures

- Due to the complexity of interdisciplinary rehabilitation, usually a range of outcome measures are adopted.
- They are designed to monitor overall disability and/or quality of life that are useful for assessing progress towards long-term goals.
- Short-term goals often need more specific outcome measures.



# Outcome Measures

- The principles are:
  - needs to be specific to the outcome it is measuring and be both valid and reliable
  - should not be complicated or time-consuming
  - should not be allowed to override the opinions, perceptions and wishes of the older person with the disability – the older person should be the central figure in the setting of goals and their appropriate measurement



# Outcome Measures

Using stroke as an example, the following outcome measures may be used during rehabilitation:

- Impairment level
  - arousal: **Glasgow Coma Scale (GCS)**
  - motor: **Ashworth Scale** (measuring of spasticity)  
**Manual Muscle Testing** (measuring of muscle strength)
  - cognition: **Mini-Mental State Examination (MMSE)**
  - psychological: **Geriatric Depression Scale (GDS)**, **Beck Depression Inventory (BDI)**

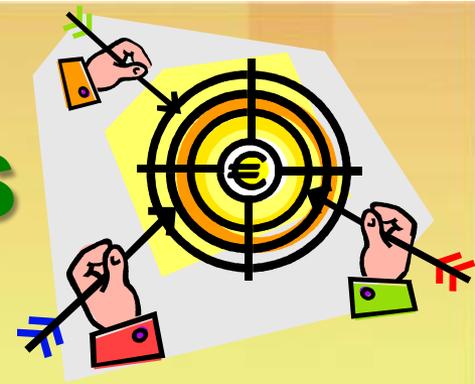
# Outcome Measures

- Activity level
  - physical interaction (mobility and personal care):  
Barthel Index(BI), Functional Independence Measure (FIM), Elderly Mobility Scale (EMS)
- Participation level
  - London Handicap Scale, Edinburgh Rehabilitation Status Scale
- Quality of life
  - SF-36, Quality of Life Well-being Scale, Life Satisfaction Index



# Outcome Measures

## Goal Attainment Scaling (GAS)



- First introduced by Kiresuk and Sherman (1968) for assessing outcomes for complex interventions in mental health setting
- It scores the extent to which patient's individual goals are achieved in the course of an intervention
- GAS has been proved to be useful in measuring the functional gains in treatment of spasticity. Compared with Barthel index, GAS is shown to be more sensitive. (Ashford & Turner-Stokes, 2006)

# Outcome Measures

Score	Goal
-2	Current status and ability
-1	Improved but has not achieved set goal
0	Specific goal achieved
+1	Somewhat better
+2	Much better

- Goals are rated by multiplying the factor of importance x difficulty where
  - importance of the goal to the patient was graded as 1 = fairly important, 2 = very important and 3 = extremely important
  - Difficulty of achieving the goal was rated according to the team's perception of likelihood of success as 1 = probable, 2 = possible, 3 = doubtful

# Psychological Issues in Rehabilitation of Older People with Chronic Illnesses





# Psychosocial Adaptation to Chronic Disabilities and Illnesses

- The process in which older people react to chronic illness or disability may follow a stable sequence of phases or stages, which are hierarchically and temporally ordered.
- The most frequently identified phases in the adaptation to chronic disease are *shock, anxiety, denial, depression, internalised anger, externalised hostility, acknowledgment and adjustment*. (Livneh & Antonak, 1997)



# Psychosocial Adaptation to Chronic Disabilities and Illnesses

## *Shock*

- Usually occurs as the initial reaction to a psychological trauma or severe and sudden physical injury

## *Anxiety*

- Once the magnitude of the disability is comprehended, anxiety in the form of a panic-stricken reaction may occur
  - marked by compulsive activity, confusion, increased pulse rate, difficulty in breathing and cognitive flooding



# Psychosocial Adaptation to Chronic Disabilities and Illnesses

## *Denial*

- Often used as a defence mechanism to alleviate the anxiety and pain associated with disability or illnesses

## *Depression*

- It occurs as denial lessens, allowing a greater awareness of one's losses
  - it is a reactive response to bereavement, impending death, suffering or the loss of body functions



# Psychosocial Adaptation to Chronic Disabilities and Illnesses

## *Internalised Anger*

- Anger occurs in reaction to anxiety, misperception, threats of abandonment, feelings of helplessness, etc.
- If not expressed, it is termed internalised anger – arising from fear of losing loved ones or social isolation, cultural restraint, lack of awareness, fear of losing control, etc.
- It can result in depression, suicidal tendencies or psychosomatic complaints

# Psychosocial Adaptation to Chronic Disabilities and Illnesses

## *Externalised Hostility*

- Anger directed toward other people or objects in the environment; it is an attempt to retaliate against functional limitation
- It may be triggered by challenges encountered during rehabilitation



# Psychosocial Adaptation to Chronic Disabilities and Illnesses

## *Acknowledgement*

- It is the first sign that the patient has accepted or recognised the permanency of the condition and its future implications
  - at this phase, the patient accepts him or herself as a person with disability, develops a new self-concept, reassesses values, searches for new goals and meanings



# Psychosocial Adaptation to Chronic Disabilities and Illnesses:



## *Adjustment*

- Final phase of adaptation which involves the development of new ways of interacting successfully with others and the environment
- Patient regains self-worth, understands that new potentials are possible, pursues vocational and social goals and overcomes obstacles that arise during goal attainment



# Psychosocial Adaptation to Chronic Disabilities and Illnesses

- Older people with chronic illnesses may adapt differently when compared with those suffering from traumatic response
- Shock may not be experienced by people with gradually deteriorating medical conditions
- In chronic illnesses, anxiety and depression relate more to the future (e.g., fear of death and unknown, feelings of hopelessness)
- Acknowledgement and adjustment phase may be more difficult to achieve in chronic, life-threatening conditions
  - these conditions require internalisation and acceptance that the conditions may worsen and result in death



# Common Defence Reactions to Disability

- Defence mechanisms are coping styles that people use to defend against internal and external stressors.
- Patients may use different defence mechanisms throughout their lives (see following slides) which may affect the outcome of rehabilitation.
- The goal is not to change or modify these defence mechanisms.
- Instead, identify them to understand patient's psychological processes that underlie certain behaviours and resistance, so as to motivate or redirect patients in a better way

# Anxiety and Rehabilitation

- Different levels of anxiety have different impacts on patients
  - **without anxiety**, patients may not be motivated to achieve treatment goals
  - **mild anxiety** can be motivating if directed toward rehabilitation
  - **severe anxiety** can impair all aspects of the patient's life, including rehabilitation outcome
- When a patient is anxious, concentration decreases
  - learning decreases as the patient is unable to concentrate on instructions
  - safety risks increase due to alternating attention
- **Fearful, anxious patients are reluctant to try new things**
- **Patients who express anxiety through over-activity may attempt to progress through rehabilitation too quickly**



# Anxiety and Rehabilitation

- HCPs need to help patients to control anxiety so they can proceed with intervention
- Patients with real and imminent crises may benefit from assistance in problem solving
  - it can help them realise that they can survive and lead meaningful lives despite the occurrence of feared events
- Intervention should be conducted in a setting that is familiar, calm and comfortable
- Stress management techniques are useful



# Anxiety and Rehabilitation

- Patients who have panic attacks - or if the anxiety lasts more than a week and interferes with the patient's performance in rehabilitation - should be referred to a psychiatrist for medication.
- Those who continue to experience anxiety from phobias despite use of medication should be referred to a psychologist for a more in-depth exploration of their fears.
- Referral to social workers can be helpful if the reasons for anxiety might involve family members or the lack of necessary resources.

# Depression and Rehabilitation

- Depressed patients may not be motivated to attend rehabilitation.
- Even if they do attend, they may lack energy and interest and believe that they are unable to progress in rehabilitation, resulting in low self-esteem and feelings of hopelessness.
- Depressed patients often become immobilised and may not engage in the prescribed treatment.



# Depression and Rehabilitation

- HCPs can facilitate motivation by providing encouragement, emphasising strengths, offering positive feedback, addressing values and mobilising guilt into goal acquisition.
- It has been shown that providing activities that offer opportunities for self-control and success can decrease depression. (Precin, 2007)
- Choose treatments that provide opportunities for progressive successful experiences and avoid feelings of failure.



# Depression and Rehabilitation

- If the client has never been treated for depression and is experiencing symptoms of depression that markedly impair life roles or induce suicidal ideation
  - HCPs should refer the patient to a psychiatrist for possible medical management
- Patients with less severe symptoms and not suicidal can be referred to a psychologist



# Future Trends in Rehabilitation for Older People with Chronic Illnesses



# Chronic Disease Self-Management Program (CDSMP)

- Developed at Stanford University (Lorig et al., 1999)
- It assists participants in developing self-efficacy and self management behaviours to manage their illnesses
  - instead of curing chronic diseases, it enables participants to live with their diseases
- Programme is led by professionals and/or lay persons (with chronic diseases) and covers:
  - diet, exercise, medications, fitness, emotion management, problem-solving skills, and communication with health professionals



# Chronic Disease Self-Management Program (CDSMP)

## Participants in group sessions can:

- be guided to experience and master self-management behaviour
- learn to set realistic self-management goals
- learn from the vicarious experiences of leaders who act as role models in self-management
- have peers to monitor their progress toward the goals through weekly reviews, sharing and group problem-solving
- gradually acquire self-management skills and improve efficacy in managing their illness





# Chronic Disease Self-Management Program (CDSMP)

- A local study was conducted to evaluate the efficacy of CDSMP in the Chinese population
- Method: 148 subjects with chronic illnesses were randomly allocated to experimental (CDSMP) and comparison (Tai-Chi class) groups
- It revealed that CDSMP participants demonstrated
  - significantly higher self-efficacy in managing their illness
  - used more cognitive methods to manage pain and symptoms
  - felt more energetic than the subjects in Tai-Chi class
- The findings are comparable with those found in studies in western cultures

(Siu et al., 2007)



# Tele-rehabilitation

- Tele-rehabilitation is "the assessment, diagnosis, direct therapy, education, monitoring and support of patients at remote sites via telecommunication methods" (Hui, 2005)
- Ranges from the use of telephone to videoconferencing through the internet or dedicated digital links
- Particularly, it was developed to provide care to disabled patients living in remote areas who had difficulty in travelling to urban rehabilitation units

# Tele-rehabilitation

- As the availability and affordability of home computers and internet connections improves, the cost of tele-rehabilitation has fallen markedly
- Chronic disease management using tele-rehabilitation has also been reported in a number of studies (Brignell et al., 2007)
  - including diabetes, arthritis, stroke, dementia and urinary incontinence (Hui, 2008)
- You may refer to this link to find more examples of tele-rehabilitation services for older people in Hong Kong:  
<http://www.ha.org.hk/haconvention/hac2008/proceedings/pdf/Special%20Topic/ST3-3%20Hui.pdf>

# Tele-rehabilitation

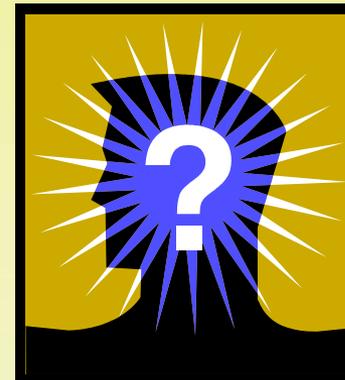
- Besides remote accessibility, advantages of tele-rehabilitation also include:
  - more cost-effective – can deal with multiple patients who may or may not be at the same venue
  - allows interaction
  - group intervention possible – has advantages over 1:1 intervention

(Hui, 2008)





*Can you think of the limitation of tele-rehabilitation?*

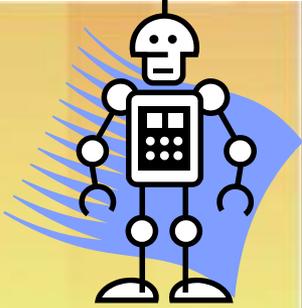




# Tele-rehabilitation

- Limitations:
  - inability to elicit physical examination findings, e.g., chest auscultation, palpation, etc.
  - client's ability to use communication tools; refuse/inability to use technology
  - application of physical modalities, environment modification and prescription of walking aids not possible

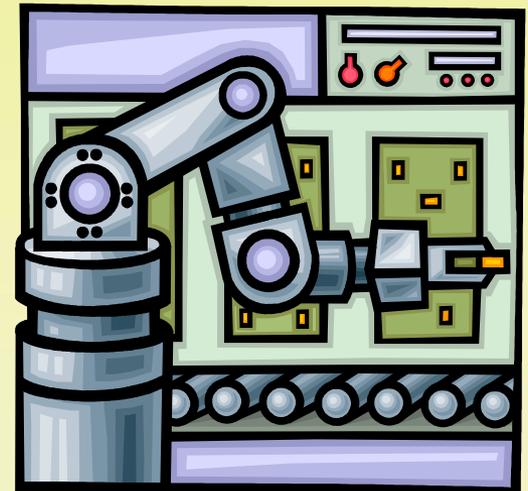
# Rehabilitation Robotics



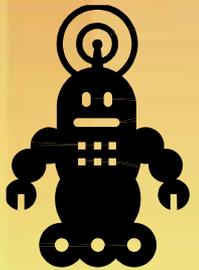
- Rehabilitation robots (RR) are expected to play an important role in furthering the independent life of older people with disability.
- The idea of rehabilitation robots evolves with the recent development of relevant technology.
- It is expected that RR will have a strong positive emotional impact on older people, improving their quality of life, increasing their movement independence and giving them privacy. (Stefanov & Bien, 2004)

# Area of RR application

- Robotic systems for movement assistance
  - *desktop-mounted robots*: robot is fixed to a desk or to the floor. The operator is located in a suitable position near the worktable and controls the robot in performing pick-and-place ADL tasks



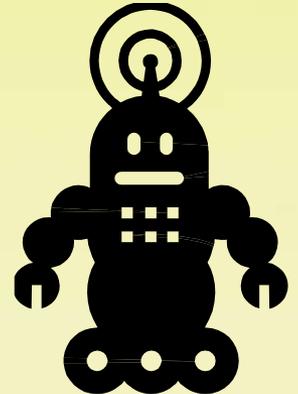
# Area of RR application



- *Wheelchair-mounted robots: robot is attached to the wheelchair*
  - user can move freely to different locations in the house and can perform manipulative tasks in each position with the help of the rehabilitation robot
- *Mobile robots*
  - remotely controlled devices that navigate autonomously through the home environment and serve the user who is located at a certain position (bed, chair, etc.)

# Area of RR application

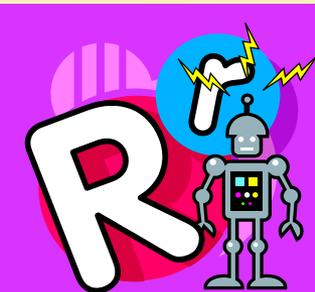
- **Robotic systems for Physical Support and Indoor Navigation**
  - assist users with movement weakness and/or visual impairments
  - machines are usually designed as motorised base that gives physical support to the user



# Area of RR application

- **Robots for Physical Rehabilitation**

- these robotic systems can be easily programmed to implement different rehabilitation exercises
- fit the needs of the particular users and offer flexible adjustment of various movement parameters such as range of flexion and extension, pause between the sequential motions, force, speed, etc.





# Summary

- The definitions, principles, teamwork, and processes of rehabilitation for older people with chronic illnesses have been examined.
- The psychological implications of rehabilitation and future developments in rehabilitation for older people with chronic illnesses are highlighted

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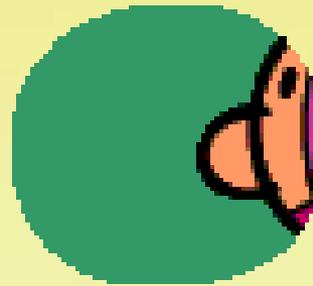
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# End of Chapter 3



Thank You!