

**CHAPTER 1**  
**INTRODUCTION OF DISABILITY**

## CHAPTER 1: Introduction of Disability

### 1.1 Problem definition :

All of us are exposed to becoming physically disabled at any stage of our lives, whether as a child or an adult that broke his foot, or one of the parents as a result of disease. All of these events, we do not have any control over. But we can think about how we can adapt the built environment to suit the accident or emergency that resulted in impaired mobility.

Physically disability is one of the main health and social issues in all countries of the world.

Perhaps one of the most important main tasks in social life is insuring the needs of physically disabled people in their homes in order to have the capability to be effective and contribute to the community according to their abilities and physical health.

The idea of considering harmonizing the interior design of the housing spaces with the movement of the physically disabled (Diplopia\limps disabilities) have originated at the outbreak of the 8 -day war on Gaza which left behind unanticipated physical disabilities as a result of increasing Conflicts in the region the Gaza Strip , namely Rafah (study area).

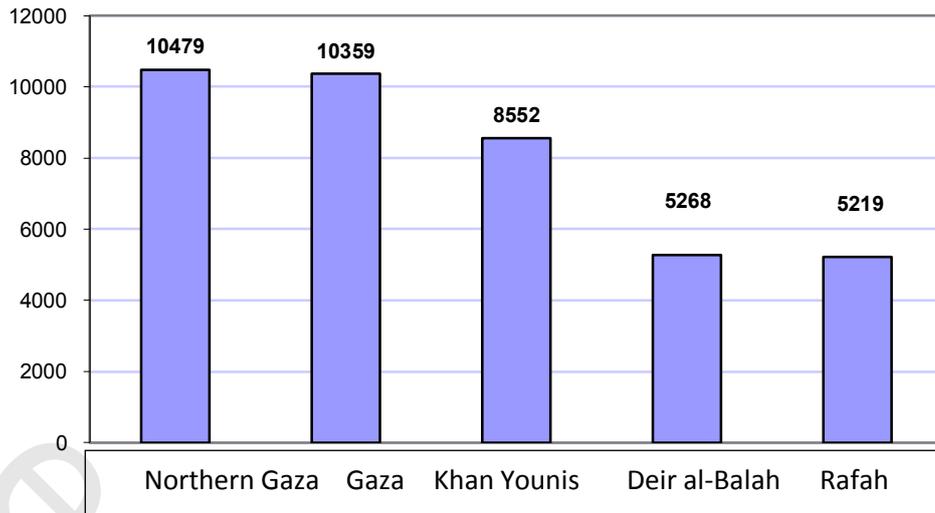
Complaints of the disabled have increased due to neglect and their lack of compatibility with their private life in their own homes. They are a type of people who are eager to live their life without relying on others as much as possible.

Because of the circumstances of the Conflicts in the region and the lack of medical services and care, a marginalized group has emerged in Palestine and particularly at Rafah in the Gaza Strip (the study area); those are the physically disabled and the study aims to find solutions for special cases of motor disabilities.

The Palestinian Central Bureau of Statistics in collaboration with the Qatari Red Crescent and the Palestinian Red Crescent conduct a census on disability in the Gaza Strip during the second quarter of the year, 2012.

This is considered the first census of its kind which included all individuals with disabilities in general and specifically motor disabilities .

During the census the data of 255846 Palestinian families have been collected in the Gaza Strip, showing that 12.5% of the total households in the Gaza Strip have at least one disabled person. The number of individuals with motor disabilities has reached 39877 persons, equivalent to 2.6% of people living in Gaza Strip.



**Figure 1-1 City of Gaza strip- (Source the Central Bureau of Statistics Palestinian)**

The number of physically disabled among total disabilities in the Gaza Strip amounted to 27324 case of all age groups.

Physically disabled precisely in Rafah have reached 3959, with a percentage of 75% of the amount of disability. (الجهاز المركزي للإحصاء الفلسطيني، 2012)

According to the above, it is clear that the physical disabilities constitute the largest burden in terms of disability in Rafah. So it was imperative to focus on seeking to solve that problem through this study.

## 1.2 Research question :

Several questions are addressed in this research, example:

1. What are the architectural modifications of residential buildings?
2. How are the existing modifications of residential buildings for the physically disabled?
3. How to adapt the interior spaces for physically disabled?
4. What are the needs of the physically disabled inside the spaces?
5. How to apply UNIVERSAL DESIGN in the interior spaces?
6. What are the solutions proposed to solve the problem of residential buildings to be compatible with the physically disabled?

## 1.3 Aim and objectives :

Under the evolution of the concepts of human rights, which included the disabled as a human being and assist to prove his existence through concerted efforts towards integration in all aspects of life and the provision of safe ways of life in the apartment building for the disabled people in Rafah (search area) study sought to achieve the following:

### 1.3.1 The main aim:

Re- development and modification of the interior spaces in residential buildings in Rafah to adapt to disability conditions that unexpectedly affects the population.

### 1.3.2 objectives:

1. Aiming at clarifying how to modify architectural spaces for designers.
2. Identify types of disabilities and create new designs for the spaces.

3. Serving the homeland and the citizens in support of the overall development process and construction boom, in Palestine in general and especially in Rafah.
4. A distinctive re- designing of spaces to achieve the basic requirements of the physically disabled.
5. Identifying the reality of the physically disabled depending on the residential buildings and interior spaces that the physically disabled lives in most of the time .
6. Achieving a modified model for a residential home that adapts to the needs of the physically disabled.

#### 1.4 Methodology:

The study is based on a deductive analytical research in order to find solutions for people with disabilities and newly disabled to modify the internal spaces of their homes to accommodate their disabilities.

Steps of Action (أبو زيادة، إسماعيل، بتصرف) جابر ( 2001 ) "

1. Knowing the types and forms of disabilities.
2. Knowing how to re-coordinate residential spaces to cope with physical disabilities.
3. Comparing case studies through UNIVERSAL DESIGN.
4. Conducting a Case Study (Rafah, Gaza Strip, Palestine) to conduct a statistical and analytical study and interviews were analyzed.
5. Arriving at Conclusion, recommendations and solutions to the problems of the people with disabilities and the newly disabled in Rafah.

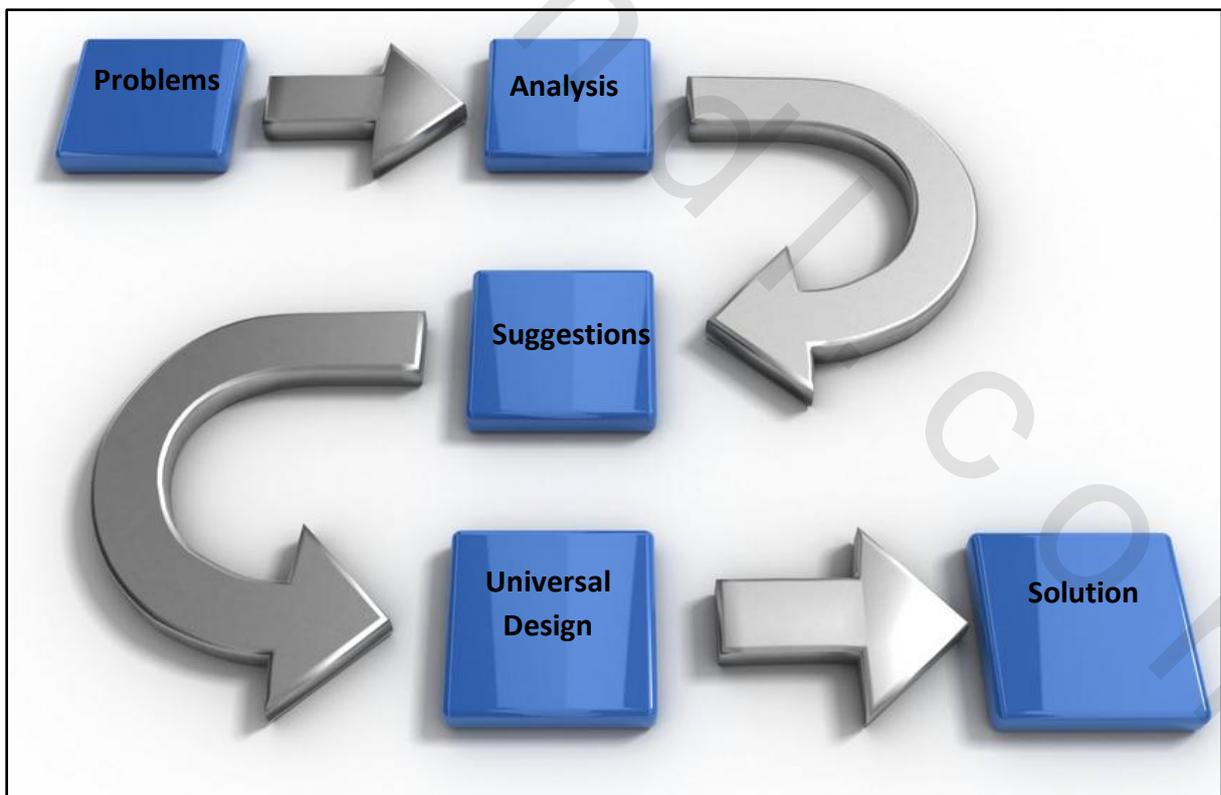


Figure 1-2 Problem - solution diagram

### **1.5 Scope of research:**

1. A sample was taken randomly from Rafah through listing of disability cases in the province. The names of the disabled were obtained through The Society for the Care of Disabled Families in Rafah.
2. The sample included different areas of the province to get a statistical analysis of the disabilities consequences and whatever related to them.
3. The study was conducted in the period between 15 October to 3 December 2013.
4. The sample included 79 cases of physical disabilities indicating the cause of the case and its needs.

1.6 Research structure:

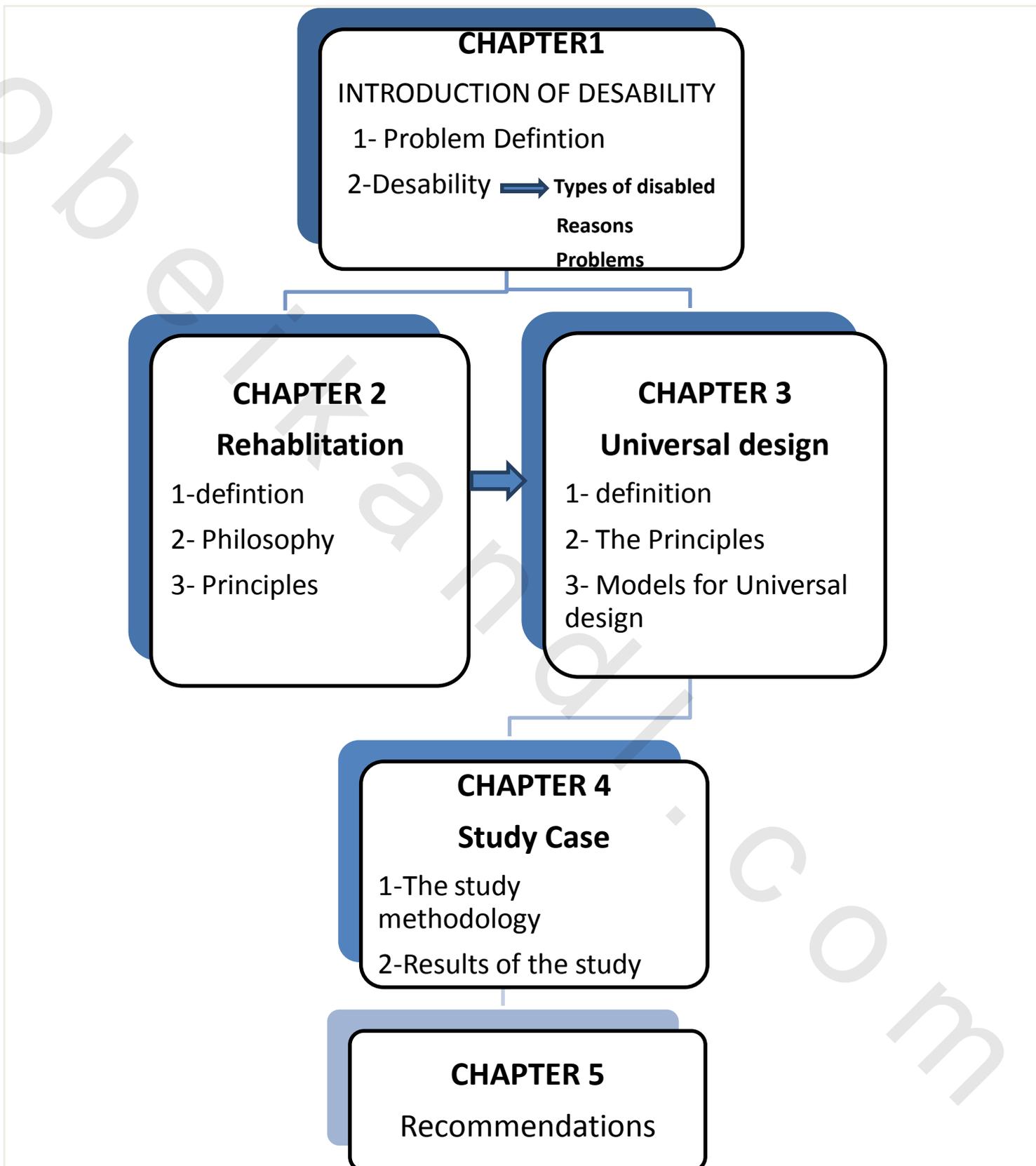


Figure 1-3 Thesis structure diagram

## 1.7 Definition of Disability:

Disability is the consequence of an impairment that may be physical, cognitive, mental, sensory, emotional, developmental, or some combination of these. A disability may be present from birth, or occur during a person's lifetime. (Diane Thompson.2007)

Disabilities are an umbrella term, covering impairments, activity limitations, and participation restrictions. Impairment is a problem in body function or structure; an activity limitation is a difficulty encountered by an individual in executing a task or action; while a participation restriction is a problem experienced by an individual in involvement in life situations. (Disability Rights Commission.2003)

Thus disability is a complex phenomenon, reflecting an interaction between features of a person's body and features of the society in which he or she lives. (Leonard Cheshire Disability, 2010)

Disability defined by the Americans with Disabilities Act of 1990 as "a physical or mental impairment that substantially limits one or more major life activities." An individual may also qualify as disabled if he/she has had impairment in the past or is seen as disabled based on a personal or group standard or norm. Such impairments may include physical, sensory, and cognitive or intellectual impairments. Mental disorders (also known as psychiatric or psychosocial disability) and various types of chronic disease may also be considered qualifying disabilities. A disability may occur during a person's lifetime or may be present from birth. (Farkas, S. (1999)

A disability is a condition or function judged to be significantly impaired relative to the usual standard of an individual or group. The term is used to refer to individual functioning, including physical impairment, sensory impairment, cognitive impairment, intellectual impairment mental illness, and various types of chronic disease.(Gay, L. R. (1992).

A physical impairment is defined by ADA(The American with disabilities act) as "any physiological disorder or condition, cosmetic disfigurement, or anatomical loss affecting one or more of the following body systems: neurological, musculoskeletal, special sense organs, respiratory (including speech organs), cardiovascular, reproductive, digestive, genitourinary, hemic and lymphatic, skin, and endocrine".(N. K. (1990).

Neither ADA nor the regulations that implement it list all the diseases or conditions that are covered, because it would be impossible to provide a comprehensive list, given the variety of possible impairments.(Hoffsette, L. (n.d.).

A mobility disability limits an individual's ability to perform the activities of daily living. The individual may need assistance in moving from one place to another. (Joseph, M. L., & Joseph, W. D. (1986).)

## 1.8 Types of Physical Disabilities:

Types of disabilities include various physical impairments that can hamper or reduce a person's ability to carry out his day to day activities. These impairments can be termed as disability of the person to do his or her day to day activities .(International Braille Research Center. (1997).

Restrict this study just for physically disabled and will explain and clarify this disability as following:

This category of disability includes people with varying types of physical disabilities including:

- Upper limb(s) disability:provides criteria for evaluating the ability to use the upper limb as aole in performing every day activities.(Kaufman-Scarborough, C. (1999)

- Lower limb(s) disability: provides criteria for evaluating the ability to use the lower limbs as a functional unit for performing every day activities such as walking and standing.(Lifchez, R., & Winslow, B. (1979).

Disability in mobility can be either an in-born or acquired with age problem. It could also be the effect of a disease. People who have a broken bone also fall into this category of disability.(Milner, M. (n.d.).

A physical condition, including an anatomical loss, or musculoskeletal, neurological, respiratory or cardiovascular impairment, which results from injury, disease or congenital disorder and which significantly interferes with or significantly limits at least one major life activity of a person.(Lang, S. S. (2002)

People with physical disabilities, also known as disabled people or physically disabled people, have a physical impairment which has a substantial and long term effect on their ability to carry our day-to-day activities. Someone with a moderate physical disability would have mobility problems, e.g. unable to manage stairs, and need aids or assistance to walk. Someone with a severe physical disability would be unable to walk and dependent on a carer for mobility.(Kasturi Mohapatra.2013)

Depending on their individual needs, disabled people may require an accessible home, with aids and adaptations.(Labour Force Survey, Jan–Mar 2009)

A physical disability is one that affects a person's mobility or dexterity. A person with a physical disability may need to use some sort of equipment for assistance with mobility. It also includes people who have lost limbs or who, because of the shape of their body, require slight adaptations to be made to enable them to participate fully in society.(Rosano A, Botto LD2000).

Paraplegia and Quadriplegia are what many people first identify with a physical disability. Paraplegia results from injury to the spinal cord, occurring below the neck, while quadriplegia refers to damage to the spinal cord in the neck. Varying degrees of loss of limb and other mobility may result from either condition. Other forms of physical disability:

**Paraplegia:** In paralysis distinguished by functional loss in the lower limbs and trunk typically due to vehicular or sporting accidents, gunshot wounds, and falls. Nontraumatic causes like spina bifida, neoplasms, or scoliosis can also cause paraplegia.(Yang QH, Houry MJ, Olney RS, & Mulinare J.1997)

## 1.9 Causes of physical disability:

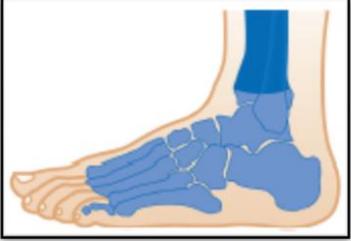
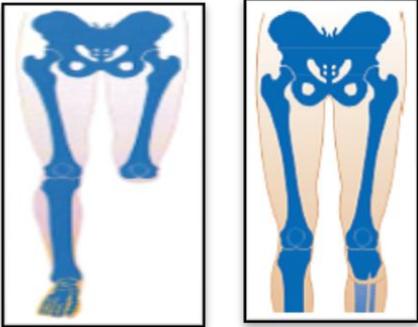
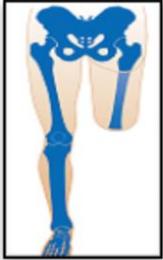
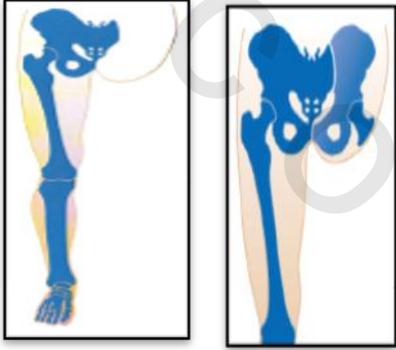
Accidents which could result in:

1. **spinal injury:**The spinal cord contains the nerves that carry messages between your brain and body. The cord passes through your neck and back. A spinal cord injury is very serious because it can cause loss of movement (paralysis) below the site of the injury. A spinal cord injury may be caused by Bullet or stab wound or traumatic injury to the face, neck, head, chest, or back (for example, a car accident) or electric shock or extreme twisting of the middle of the body or landing on the head during a sports injury and fall from a height (Wagner, M. (1992, August)
2. **Amputation:** An amputation is the surgical removal of part of the body, usually an arm or leg. There are three main reasons why an amputation is carried out:
  - The limb has been affected by gangrene (when the body's tissue begins to die as a result of loss of blood supply).(The White House. (2001, February).
  - The limb poses a life-threatening danger to the person's health, for example because it has been affected by cancer or a serious infection.(The White House. (2001, February).
  - The limb has experienced serious trauma, such as a crush or blast wound (Nancy Walker.2010)

### 1.9.1 Lower Limb Amputations:

Lower limb amputations vary from the partial removal of a toe to the loss of the entire leg and part of the pelvis. The following list provides a summary of the typical forms of lower limb amputation:(Leonard Cheshire Disability, 2009)

(Table 1- 1) Lower Limb Amputations

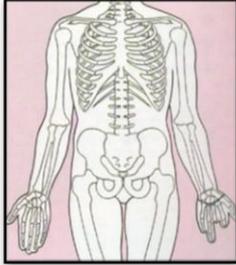
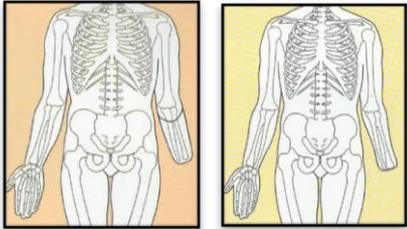
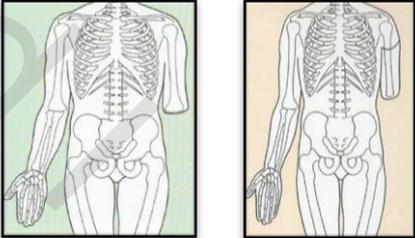
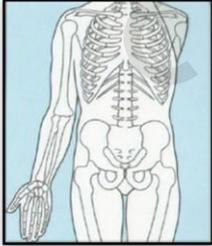
<ul style="list-style-type: none"> <li>• Partial foot amputation – this commonly involves the removal of one or more toes. This amputation will affect walking and balance.</li> <li>• Ankle disarticulation – an amputation of the foot at the ankle, leaving a person still able to move around without the need for prosthesis.</li> </ul> <p>(Educational Facilities Laboratories, &amp; The National Endowment for the Arts. (1975)</p>	 <p><b>Figure 1-4 Partial foot amputation</b></p>
<ul style="list-style-type: none"> <li>• Below knee amputations (transtibial) amputation of the leg below.</li> <li>• the knee that retains the use of the knee joint.</li> <li>• Through the knee amputations – the removal of the lower leg and knee joint. The remaining stump is still able to bear weight as the whole femur is retained.(Leonard Cheshire Disability, 2009)</li> </ul>	 <p><b>Figure 1-5 Below knee amputations</b></p>
<ul style="list-style-type: none"> <li>• Above knee amputation (transfemoral) - an amputation of the leg above the knee joint.</li> </ul>	 <p><b>Figure 1-6 Above knee amputation</b></p>
<ul style="list-style-type: none"> <li>• Hip disarticulation – the removal of the entire limb up to and including the femur. A variation leaves the upper femur and hip joint for better shape/profile when sitting.</li> <li>• Hemipelvectomy (transpelvic) – the removal of the entire limb and the partial removal of the pelvis.</li> </ul> <p>(Dickinson, J. I., Shroyer, J. L., Elias, J. W., Curry, Z. D., &amp; Cook, C. E. (2004, April).</p>	 <p><b>Figure 1-7 the removal of the entire limb up</b></p>

(Source: Limbless Association)

### 1.9.2 Upper Limb Amputations:

Upper limb amputations vary from the partial removal of a finger to the loss of the entire arm and part of the shoulder. The following list provides a summary of the typical forms of upper limb amputation: (Freedman, V. A., Martin, L. G., & Schoeni, R. F. (2004))

(Table 1- 2) Upper Limb Amputations

<ul style="list-style-type: none"> <li>• Partial hand amputation - amputations can include fingertips and parts of the fingers. The thumb is the most common single digit loss. The loss of a thumb inhibits the ability to grasp, manipulate or pick up objects grasping ability. When other fingers are amputated, the hand can still grasp but with less precision.</li> <li>• Metacarpal Amputation – this involves the removal of the entire hand with the wrist still intact. (United States Department of Health and Human Services. (2003))</li> </ul>	 <p><b>Figure 1-8 Partial hand amputation</b></p>
<ul style="list-style-type: none"> <li>• Wrist disarticulation – this form of amputation involves the removal of the hand and the wrist joint.</li> <li>• Below elbow amputation (transradial) – the partial removal of the forearm below the elbow joint. (Regnier and Pynoos 1987)</li> </ul>	 <p><b>Figure 1-9 Partial hand amputation</b></p>
<ul style="list-style-type: none"> <li>• Elbow disarticulation – the amputation of the forearm at the elbow.</li> <li>• Above elbow amputation (transhumeral) - the removal of the arm above the elbow . Brown, K. W., &amp; Cozby, P. C. (1999)</li> </ul>	 <p><b>Figure 1-10 Elbow disarticulation</b></p>
<ul style="list-style-type: none"> <li>• Shoulder disarticulation and forequarter amputation is the removal of the entire arm including the shoulder blade and collar bone.</li> </ul>	 <p><b>Figure 1-11 Shoulder disarticulation</b></p>

(Source: Limbless Association)

### 1.10 The problems of disability:

The disabled constitute a burden on the physically disabled as follows

1. Inability to movement:

(تفعيل لقانون مشروع واللائحة التنفيذية للمعاقين ( 2002 ). بتصرف)

Inability to move this is due not to the ability to control the members of the disabled body responsible for movement either feet or arms.

2. Inferiority direction of society:

(حرامي، عادة). ( 1998 ) بتصرف)

Problems of social class and society's perception of physical disabilities.

3. Deprived of the right to equal work and participation:

(العزة، حسني). ( 2000 ) بتصرف)

Inability to handle a disabled person has natural rights and lives with it and deal with the surrounding environment

4. It is difficult to use the facilities of the residential home especially if uses tools to help the disabled to the movement.

(قطام شرابي). ( 2004 ) بتصرف)