

# EFFECTS OF IMMOBILITY ON THE MUSCULOSKELETAL SYSTEM

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# OUTLINE

**Introduction.**

**Diagrams of parts making up the musculoskeletal system.**

**Causes of immobility.**

**Effects of immobility on various organ systems making up the musculoskeletal system:**

**The muscles.**

**The bones.**

**The cardiovascular system.**

**The integumentary system.**

**Conclusion.**

## **MUSCULOSKELETAL SYSTEM.**

**Musculoskeletal system or the locomotors system in human beings. Its an organ system which brings a human and other species of animals the possibility of movement. This system organ is consisted of various body parts organs including the body's bones which include the cartilage, skeleton, tendons, muscles, ligaments, joints and other connective tissue that binds and supports tissues and other gathered organs. The skeletal system has its primary functions that entail supporting the body, enabling motion and it also protects the vital organs.**

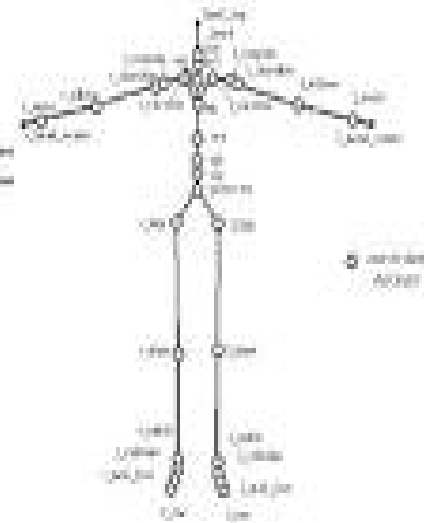
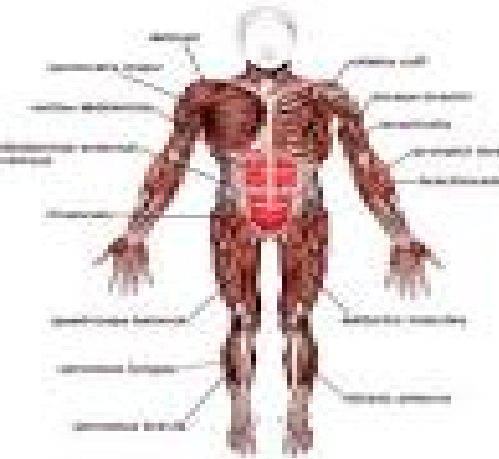
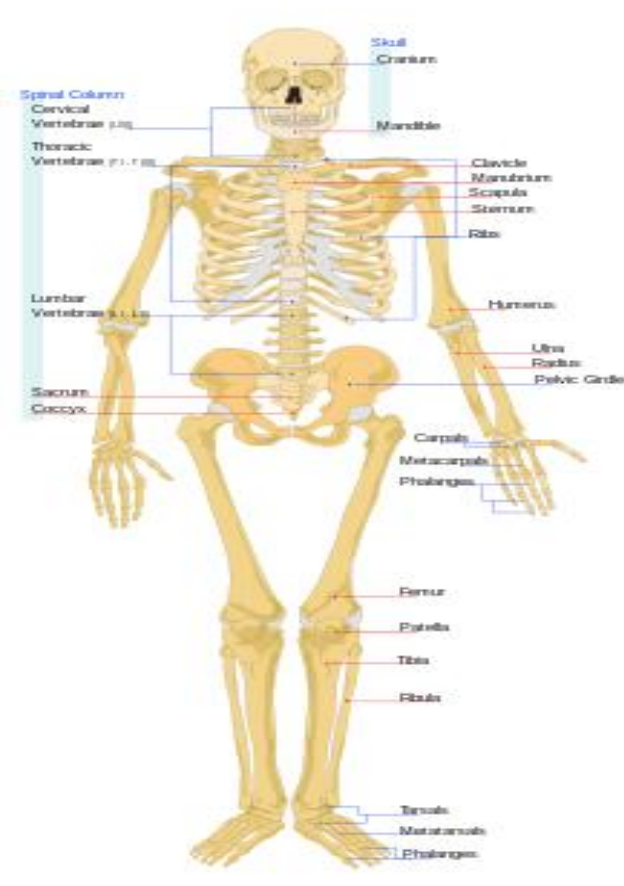
# CAUSES OF IMMOBILITY

**Immobility has various factors that cause it, they are:**

- Physical factor;**
- Neurological factor;**
- Environmental factor;**
- Psychological factor.**

**Physical factors include the aging process, a bone that might be fractured and cancer. The environmental ones include the probability when one is restrained on a bed or a chair or the side rails that can stop one from moving. Sedentary lifestyle, stress, decreased motivation make up the psychological factors whereas brain damage, stroke and spinal injuries yield to the neurological factors (Dewit & O'Neill 57).**

# DIAGRAMS OF PARTS MAKING UP THE MUSCULOSKELETAL SYSTEM.



## EFFECTS OF BED REST (IMMOBILITY) ON THE MUSCULOSKELETAL SYSTEM.

There are various effects that come along with bed rest. The effect is concentrated on various systems that include immune systems and musculoskeletal, skin and self perception. Although bed rest is essential for healing scars or parts of the body that are diseased, it should be noted that when such a rest is overextended it results in harm for other parts of the body. It is in the musculoskeletal system where there is a loss of muscular force and endurance, and weakening of the bones. When bones are exposed to progressing loss of masses such a condition is known as osteoporosis. This is a type of immovability which has connection with the changed integrity of skin and can influence immune system.

The musculoskeletal system through the help of the central nervous system provides mobility and ability of a normal everyday life. Every time when there are any weaknesses of muscles or joints and bones of rigidity which result from an immovability or non-use, it has impact on the body functions and also can increase risk of a trauma or an infection (Jahangir 40).

# THE MUSCLES

**Decrease in tonus is the resting tension in a muscle firmness. Immobility also brings about atrophy which is the decrease in size of a muscle; muscles will loose strength and endurance when inactive. The diagram below shows muscle atrophy.**

**Immobility also causes contracture which is a permanent shortening of a muscle due to prolonged immobility (Jahangir 80).**

## **EFFECTS OF IMMOBILITY TO THE BONES.**

**The process when minerals are removed from the live tissue is called demineralization. A bone is a living tissue which needs muscular activity.**

**The immovability leads to calcium loss in the bones due to the lack of activity and the weight of the bearing leads to osteoporosis and possible fractures of bones. The immovability also causes feet drop, that is a result a from a heavy blanket on a foot rendering the excessive weight on a foot.**

**Ankilosis - results from an immovability which is fixing of a joint owing to abnormal muscle stretching (Jahangir 60) .**



# EFFECTS OF IMMOBILITY ON THE CARDIOVASCULAR SYSTEM

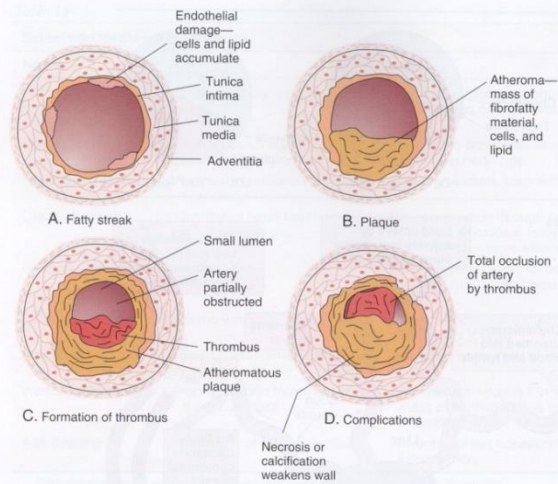
**The musculoskeletal system plays an important role as it provides a form and shape for our body. In addition it gives us support, protection, it allows us gesticulate, and also produces blood for a body which helps with transportation of materials in an organism. Thus it can be seen that immovability impacts on cardiovascular system.**

**In immobilized bodies they originally pull blood pool in a trunk, and as result load of cardiovascular system gets increased, pulse and increase in volume of a stroke increase, the immovability also causes delayed circulation and pooling blood in veins of lower extremities. Phlebitis also comes as a result of immovability which is damaged.**

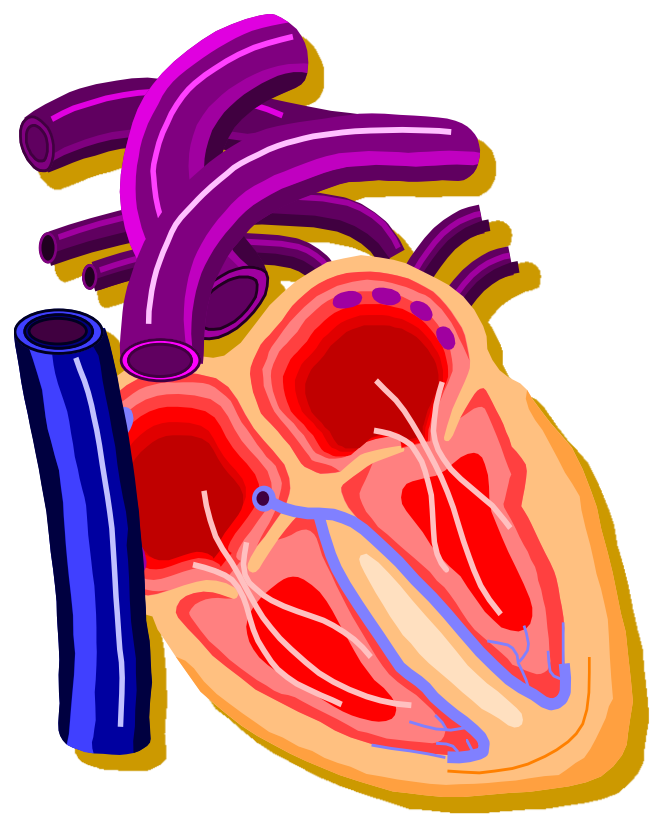
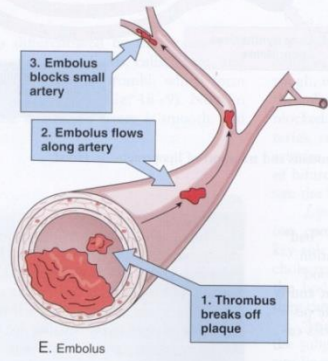
**Immovability also cause orthostatic hypotension, which is a drop in systolic arterial pressure 20mmHg upon moving to an upright position and it results to dizziness, fainting, sweating and fast heart beats.**

**Some types of blood clots are the results of the immovability, like tromp which is the clot of the blood, occurring from an obstruction place. There is also the embolism - a blood clot that is dislodged from a site of origin and moves within the system until it stuck therefore causing an obstruction.**

# DIAGRAMS ILLUSTRATING EMBOLISM, THROMBUS AND THE CARDIOVASCULAR ORGAN



**FIGURE 18-11**  
Development of an atheroma leading to arterial occlusion.



## **EFFECTS OF IMMOBILITY ON THE INTEGUMENTARY SYSTEM**

**The skin easily breaks down when circulation is impaired thus leading to no new cells being generated. Common effects stiffening and decubitus ulcers is a result of compression of soft tissue, decubitus ulcers begin to reddish areas that may lead to a large open wounds.**

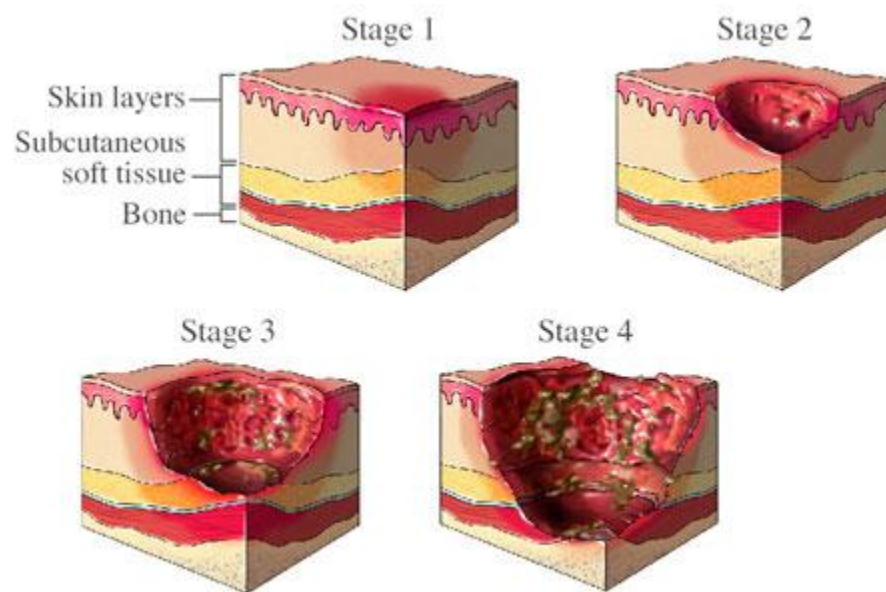
**There are conditions that portray that an outgoing patient is nude. The risks of pressure ulcers include:**

**Paralysis happens because there is an inability to recognize when pressure occurs.**

**Medication also falls under this category because it results to the alteration of the ability of movement and pressure points recognition.**

**Obesity also works as the catalyst of it because there is more than heat and moisture that are created and it can bring to fast disorder of skin, it also happens that the obsessed patient becomes less active and create bigger friction when they move. Malnutrition is one more condition, which causes uncles pressure because with small cells over a bone protuberance areas become subject to risk of uncles pressure.**

## DIAGRAMS SHOWING THE ULCERS PRESSURE ON THE SKIN



# CONCLUSION

**There is a great need to prevent or discourage immobility because of the fatal effects that result from it, there various ways in which prevention can be carried out, include education of the patient and family members on how to prevent effects that come along with immobility, provision of range of exercises that involve a lot of motion according to the MDs orders.**

**Providing instructions on how to carry out regular position changes should also be considered. One should also be conversant with the devices that are used on immobilized individuals/patients, this devices provide comfort and also are essential in reducing pressure areas.**

**These devices include pillows trapeze, bed boards and cradles. All of these devices play an important role in bringing about mobility.**

**Restraints should only be used only where acceptable, for instance when self and others welfare is considered, preventing disruption in**

## WORKS CITED

**Dewit, C. Susan & Patricia A. O'Neill.** *Fundamental Concepts and Skills for Nursing.* Berlin: Elsevier health sciences, 2013. Print.

**Zasler, Nathan & Douglas Katz.** *Brain Injury Medicine: Principles and Practice.* New York : Demos Medical Publishing, 2007. Print.

**Jahangir, Moini.** *Introduction to Pathology for the Physical Therapist Assistant.* New York: Jones & Bartlett Publishers, 2011. Print.