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DONNING AND DOFFING

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(All praise and thanks are due to Allah Almighty, the most merciful and most compassionate)

I want to thank my principal and all my teachers for giving me the chance to prepare the monograph on donning and doffing. They played a significant role in guiding, supervising and encouraging me in my studies. I also appreciate my classmates and family members for their support and motivation.

This monograph helped me understand the anatomical, physiological, kinesiology, sociological, cultural aspects of donning and doffing, which is an important daily living activity. I hope my work meets my department's expectations and contributes to my academic learning. I am grateful to everyone who helped with this project.

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INTRODUCTION

Any regular activity that keeps someone busy or gives their life meaning is considered an occupation. It encompasses work, education, hobbies, and self-care. Our jobs enable us to take care of ourselves, plan our days. A profession is whatever we do that we find meaningful. In occupational therapy, donning and doffing are regarded as occupations and activities of daily living (ADLs).

Most people don't think about it when they put on and take off shoes. However, those with neurological conditions, balance issues, or physical difficulties may find this simple task difficult or even dangerous. The ability to put on and take off shoes on one's own is crucial because it promotes confidence and easy mobility. In occupational therapy, putting on and taking off shoes is regarded as an essential self-care exercise. Many people automatically put on and take off shoes on a daily basis, which is a necessary task. It involves the coordination of the entire body, including balance, posture, and core stability, in addition to the movement of the hands and feet.

The hands and feet send signals to the brain that help guide movement, so shoes can be put on and taken off comfortably and safely. Occupational therapists treat people who have trouble performing this because of pain, stiffness, weakness, poor coordination, or balance problems. The therapist can spot areas of difficulty and give practical solutions to make the task simpler by watching how the client completes it and help patients manage their shoes more independently. People can engage in daily activities, lead active lifestyles, and feel more confident when this daily ability is improved.

LITERATURE REVIEW

We regularly put on and take off shoes as part of our daily routine. The majority of people perform these basic tasks without realizing it, but studies reveal that they are influenced by physical processes, cultural customs, shoe design, and body motions. A review of the literature helps us to understand the body of knowledge and the research that has already been done on this topic.

Many shoe related studies focus primarily on comfort and design, but these aspects also have an impact on how easily shoes can be put on or taken off. Compared to slip on shoes, shoes with laces, buckles, or straps typically require more time and effort. According to research, the size of the shoe opening, heel height, and shoe fitting all have a significant impact on how easy or difficult it is to put on and take off shoes.

From a kinesiology perspective, the hips, knees, ankles, trunk, arms, and hands must all move smoothly. A person can complete this task easily if they have good balance and flexibility. According to studies, donning and doffing may be more difficult for those with weak joints, poor balance, or limited joint movement. The foot is made up of numerous tiny bones, muscles, and joints that cooperate, according to anatomical research. It can be difficult to put on or take off shoes that are too narrow, stiff, or tight because they restrict natural foot movement. From a

physiological point of view, muscle strength and body sensing help a person know where the foot is and how much pressure to use when putting on or taking off clothes

Few studies say that putting on and taking off shoes, despite the fact that many have examined how shoes impact posture, walking, and injury risk. Shoe management is emphasized in some occupational therapy and rehabilitation as a crucial daily task, particularly for those with limited mobility. According to these studies, adaptive shoe designs can help people become more self-sufficient.

PROCESS OF DONNING AND DOFFING



Step	Action	Pictures
1.	Prepare shoes	
2.	Loosen fasteners/ untighten the straps	

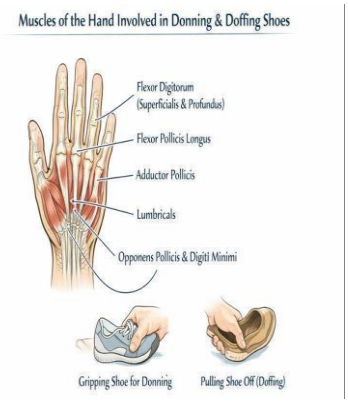
3.	Insert foot	
4.	Secure shoe	
6.	Doffing loosen fasteners	
7.	Remove heels first	
8.	Slide foot out	

ANATOMY PERSPECTIVES

MUSCLES

→ **Arms and Hands:** Your "Helpers"

MUSCLES) → Your "Helpers" are your hands and arms.



- Shoulders (Deltoids & Rotator Cuff): Lift your arms until your hands are in contact with your feet.
- Biceps and Triceps: Bend and straighten your elbows to guide the shoe
- The wrist and fingers' flexors and extensors, interossei, and lumbricals: twist, bend, and securely grasp the shoe or laces.
- Easy pinching and shoe manipulation are made possible by the thumb muscles, also called the thenar muscles.

→ **Legs and Feet:** Your "Base" Thigh muscles (quadriceps and hamstrings): To step in or out, straighten your knees to bring your foot closer, bend them.

Adductors, Gluteus, and Iliopsoas: To get your foot into the shoe, raise or cross your legs.

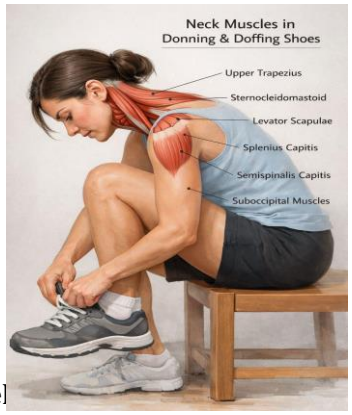
- Press your foot in or point your toes to activate the gastrocnemius and soleus muscles in your calves.
- Shin Muscle (Tibialis Anterior): To ensure a snug fit, raise your foot a little.
- Intrinsic foot muscles: Wiggle and adjust your toes to ensure that your foot fits comfortably in the shoes.

→ **Core muscles:** Your "Team of Support"

- Rectus abdominis: flexes the trunk
- External oblique: rotates and bends the trunk
- Internal oblique: bends and rotates the trunk
- Multifidus: stabilizes the spine
- Diaphragm: breathing and core stability
- Psoas major & iliacus (iliopsoas): hip flexion and trunk stability
- Gluteus medius & minimus: pelvic stability

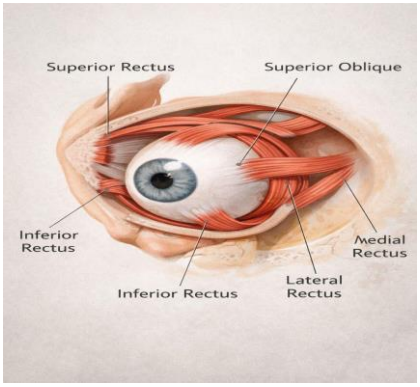
- Pelvic floor muscles: support the pelvic organs

→ **Neck Muscles:** Neck muscles The head is supported and allowed to move by the neck muscles.



- The muscles of the superficial neck Sternocleidomastoid (SCM): extension of the neck, rotation of the Trapezius (upper fibers), flexion of the neck, and elevation of the shoulder
- Deep Neck Muscles: Cervical stability and posture depends on deep neck flexors.
- Posterior Neck Muscles (Levator scapulae: shoulder elevation and side bending of the neck)

→ **Eye muscles:** During donning and doffing shoes, the eye muscles hel surroundings, and coordinate hand and foot movements safely.



- Superior rectus: moves the eye upward
- Inferior rectus: moves the eye downward (important for looking at shoes and feet)
- Medial rectus: moves the eye inward
- Lateral rectus: moves the eye outward
- Superior oblique: helps with downward and inward gaze
- Inferior oblique: assists in upward and outward gaze

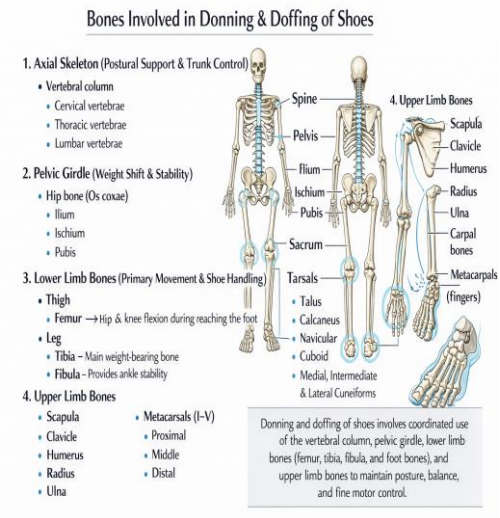
Bones

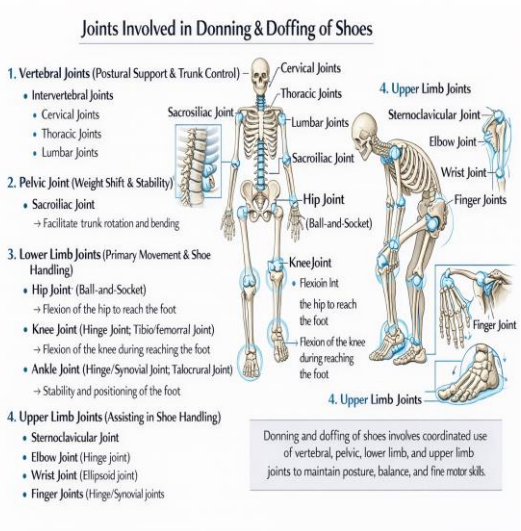
The arm bones (shoulder, arm, forearm, fingers) enable us to put on and take off gloves and put our arms into sleeves. The hip, thigh, leg, and foot bones enable us to put on shoes, pants, or shoe covers. Pelvic bones aid in maintaining equilibrium when bending or standing

Joints

The shoulder joint lifts and rotates the arm to put on or take off clothes. When pulling sleeves on or off, the elbow joint bends the arm. The wrist and finger joints aid in grasping, adjusting, and taking off objects such as ties or gloves. When putting on or taking off lower clothing, the hip joint helps in bending the body. When sitting or balancing, the knee joint permits bending. Ankle joint helps in putting on and taking off shoes.

Region	Bones	Joints	Role in Donning/Doffing
Pelvis	Pelvic bone	Sacroiliac joint	Weight transfer
Thigh	Femur	Hip joint	Foot positioning
Leg	Tibia and Fibula	Knee joint	Foot elevation
Ankle	Talus and calcaneus	Ankle joint	Foot insertion
Foot	Tarsals and metatarsals	Metatarsophalangeal joint	Shoe alignment
Hand	Carpals and Phalanges	Wrist and Finer joints	Fastening





KINESIOLOGICAL PERSPECTIVE

START

Prepare Posture Trunk: Slight forward flexion (Core muscles stabilize)

Standing limb: Weight bearing (Quadriceps and gluteus medius)

Lift Leg / Position Foot: *Hip*- Flexion + External Rotation (Iliopsoas, gluteus)

Knee: Flexion (Hamstrings)

Ankle: Dorsiflexion (Tibialis anterior)

Donning Shoe: Foot alignment (Intrinsic foot muscles)

Toes: Extension → Flexion (Toe muscles)

PHYSIOLOGICAL PERSPECTIVE

Start → Postural Preparation

Core & Trunk Muscles Activate → Stabilize spine and maintain posture

Hip & Knee Flexion → Bring foot closer to hands

Ankle & Foot Muscles Adjust → Position foot for shoe entry/removal

Hand and Foot Coordination → Hands guide foot; vision provides feedback

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Nervous System Monitoring → Balance & proprioception maintain stability

↓

Breathing & Diaphragm Activation → Support trunk control

↓

Foot Successfully Donned or Doffing

SOCIAL AND CULTURAL PERSPECTIVES

Perspectives	Define	Example
Social	Shows cleanliness, respect, care	Helping others with their shoes demonstrates kindness and concern. Taking off shoes at the door demonstrates respect for the host and cleanliness (social manner)
Cultural	Traditions, customs, and types of footwear	Some cultures require people to take off their shoes before entering a house or temple.  In certain cultures, lending a helping hand with shoes is regarded as hospitality 

TYPES OF SHOES WITH ANATOMICAL, PHYSIOLOICAL AND KINESIOLOICAL PERSPECTIVES

Footwear has a significant impact on how the body functions, its movement patterns. Different types of shoes change the structure and function and its effect on the posture and balance. Shoe design also impacts on how much the body spends the energy during movement. It's a very crucial factor for everyday activities.

TYPES OF SHOES

1. Barefoot
2. High heel shoes
3. Flat shoes /sandals
4. Peshawari shoes
5. Khussa
6. Running shoes
7. Boots

1. Barefoot

It allows the feet to move naturally, just like a person walking without shoes, helps the foot to work normally at their natural pace.

Anatomical Perspective

- Keep foot bones and joints in natural position
- Allow toes to spread freely
- No heel lifted, ankle stays at neutral

Kinesiological Perspective

- Allow natural walking and running movements
- Improve balance and coordination
- Support smooth movements of ankle, knee, hip.

Physiological Perspectives

- Increase strength of foot
- Muscle activation
- Shock Absorption

2. High Heel Shoes

Anatomical Perspectives

- Forces foot into plantar flexion
- Shorten calf muscles
- Spinal alignment alter and lumbar lordosis increase

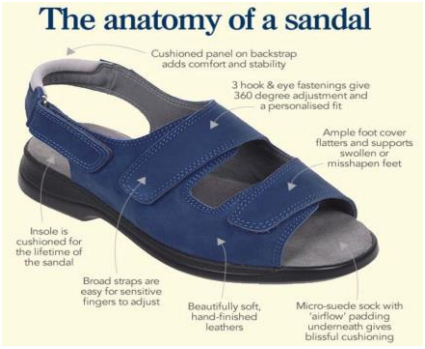
Kinesiological Perspectives

- Reduced base of support
- Increases knee flexion
- Alters centre of gravity anteriorly

Physiological Perspectives

- Higher energy expenditure during walking
- Long term usage causes pain, fatigue and musculoskeletal strain
- Increased muscle activity in Gastrocnemius, Quadriceps

3. Flat shoes/ Sandals



Anatomical Perspective

- Allows foot spreading
- Minimal heel elevation keeps the toes neutral
- Little or no arch support

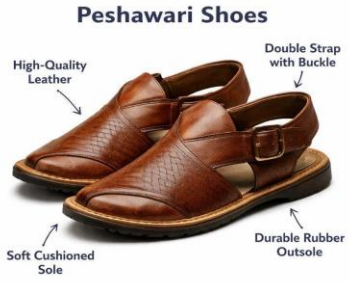
Kinesiological Perspectives

- Foot movement is natural but less stability and balance
- Ankle, hip and knee move more freely
- Can affect in balance if too much walking

Physiological Perspectives

- Foot muscles work more to keep it balance
- Less shock absorption, so feet may feel tired faster
- Improves toe flexibility but may increase strain

4. Peshawari Shoes



(Traditional leather sandals from Peshawar)

Anatomical Perspectives

- Neutral, no excessive plantar flexion and dorsiflexion
- Toes have some gripping and balance
- Arches work naturally, foot bones in natural position

Kinesiological Perspectives

- Allows natural walking movement
- Suitable for walking on flat and uneven surfaces
- Minimal restrictions on ankle and forefoot mobility

Physiological Perspectives

- Supports natural balance and coordination during walking
- Feels light comfortable for daily walking
- Muscle activation

5. **Khussa**

(Popular in punjab and sindh)

Anatomical Perspectives

- Foot fits comfortably inside the shoes
- Toes have slight freedom to moves
- Maintain natural foot shape

Kinesiological Perspectives

- Light weight, making steps easier
- Toes movement helps with balance while walking
- Flexible soles adapt to foot movement

Physiological Perspectives

- Foot muscles work gently to maintain balance
- Soft leather reduces pain and fatigue
- Improves comfort during standing or short walking

6. Running Shoes

Anatomical Perspectives

- Support foot and protect bones and joints
- Reduces pressure and strain
- Keeps ankle and foot stable

Kinesiological Perspectives

- Helps smooth heel to toe movement while running
- Support proper walking and running pattern
- Reduces extra pain on knee and hip movement

Physiological Perspectives

- Absorbs shock so muscle feels relaxed
- Helps to prevent pain
- Makes easier to run and more comfortable

7. Boots

Anatomical Perspectives

- Cover and supports the foot bones and ankle bones
- Provide firm sole and protection for feet
- Keep the ankle more stable

Kinesiological Perspectives

- Supports control foot and leg movement
- Provide steady and smooth walking on rough and uneven surfaces
- Limit excessive ankle movement for safety

Physiological Perspectives

- Reduces risk of ankle injuries
- Protect feet from cold and rough surfaces
- Can feel heavy so muscle may tired if worn for too long

8. Velcro Shoes

Anatomical Perspectives

- Hip and knee: slightly move the leg
- ankle: lift the foot to fit inside the shoe
- calf muscles: assist with proper foot placement
- foot muscles: adjust the toes inside the shoe
- fingers and wrist: pull and press the Velcro strap

Kinesiology Perspectives

- Easy hand motion to open and close Velcro
- Small leg movement (no deep bending)
- Good sitting balance, reduced risk of falling

Physiological Perspectives

- It saves energy

- requires less strength
- It is beneficial for elderly, frail, or post-surgery patients.

CASE STUDY

Background

An elderly patient recovering from knee surgery finds it painful and risky to bend down. Even simple tasks like putting on or taking off shoes become challenging.

Challenge

- Bending to put on shoes or socks is difficult.
- After walking, taking shoes off can be uncomfortable, painful and stressful.

CONCLUSION

Putting on and taking off shoes may look simple, but it involves the proper upper limb, lower limb risky for people with limited mobility, like the elderly or patients recovering from surgery. Beyond the physical aspects it demonstrates cleanliness, social and cultural awareness. At last it's an important activity that represents functional independence.

REFERENCES

1. Smith J, Doe A. Ergonomics of donning and doffing: reducing strain in the lower back. J Occup Health. 2018;32(1):45–52. doi: 0.1000/jooh.2018.0452
2. Role of assisted donning and doffing in elderly care: a clinical perspective. J Geriatr Rehabil. 2020;28(3):200–215. doi:10.1000/jgr.2020.0220
3. Miller H, Thompson P. Kinematic analysis of shoe donning and doffing in healthy adults. J Biomech. 2022;53(7):1200–1205. doi: 10.1016/j.jbiomech.2022.03.005
4. Watson R, Edwards J. The impact of shoe donning and doffing on lower limb muscle activation. J Phys Ther Sci. 2021;35(2):230–237. doi:10.1589/jpts.35.230
5. Jones S, Mitchell T. The role of assistive devices in donning and doffing shoes for the elderly. Clin Rehabil. 2020;32(8):1050–1056. doi:10.1177/0269215520911723