



**GIVINGCARE**  
Empowering Caregivers

A2.2 – Educative resources for teachers

# MANAGEMENT IN CAREGIVING

Module: 4

Sub-Module: 4.6



# Introduction

**Module** 4. MANAGEMENT IN CAREGIVING

**Sub-module** 4.6. Ergonomics & Assistive technology

**Lesson nr.** #1

**Duration** (minutes)

**Date**

# Goals

1. To identify the **main assistive technology** used during the tasks of caregiving.
2. To know the **specific characteristics of the application and management** of these assistive devices.
3. To know and understand the **steps and services** involved in the assistive technology intervention, and to know how to manage the specific related concerns.
4. To apply the **ergonomic principles** during the performance of the tasks of caregiving.
5. To be able to **adapt the space requirements** to improve the distribution of the room in which the care is offered.

# What is the Assistive Technology?

any product (including devices, equipment, instruments and software), especially produced or generally available, used by or for persons with disability:

**Norm ISO  
9999:2016**

for **participation**

to **protect, support, train, measure or substitute** for body functions and structures and activities

to **prevent** impairments, activity limitations or participation restrictions



Person



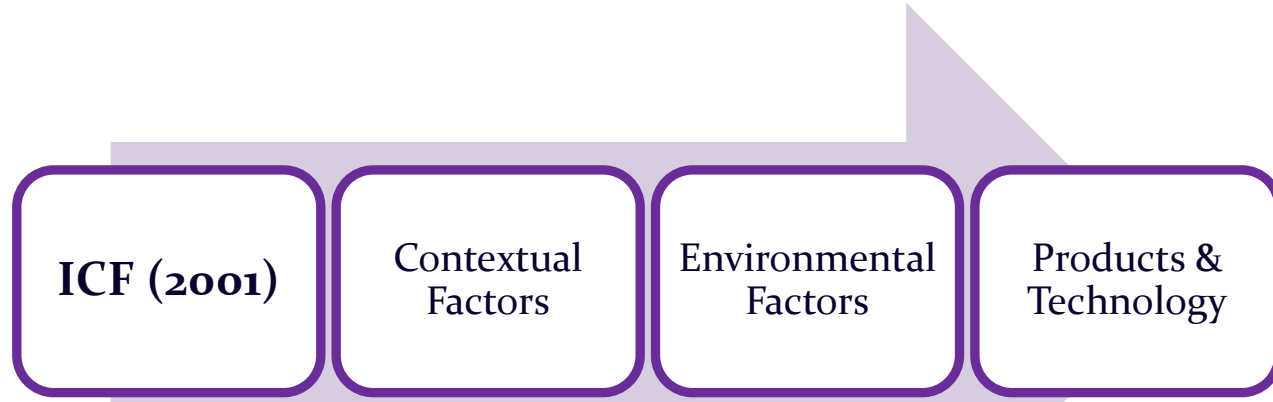
Caregiver



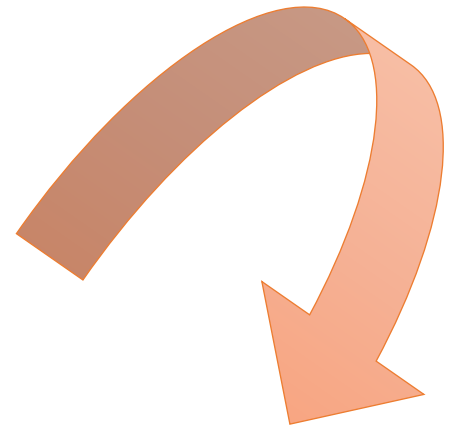
Professional



# Purpose of Assistive Technology



Facilitation

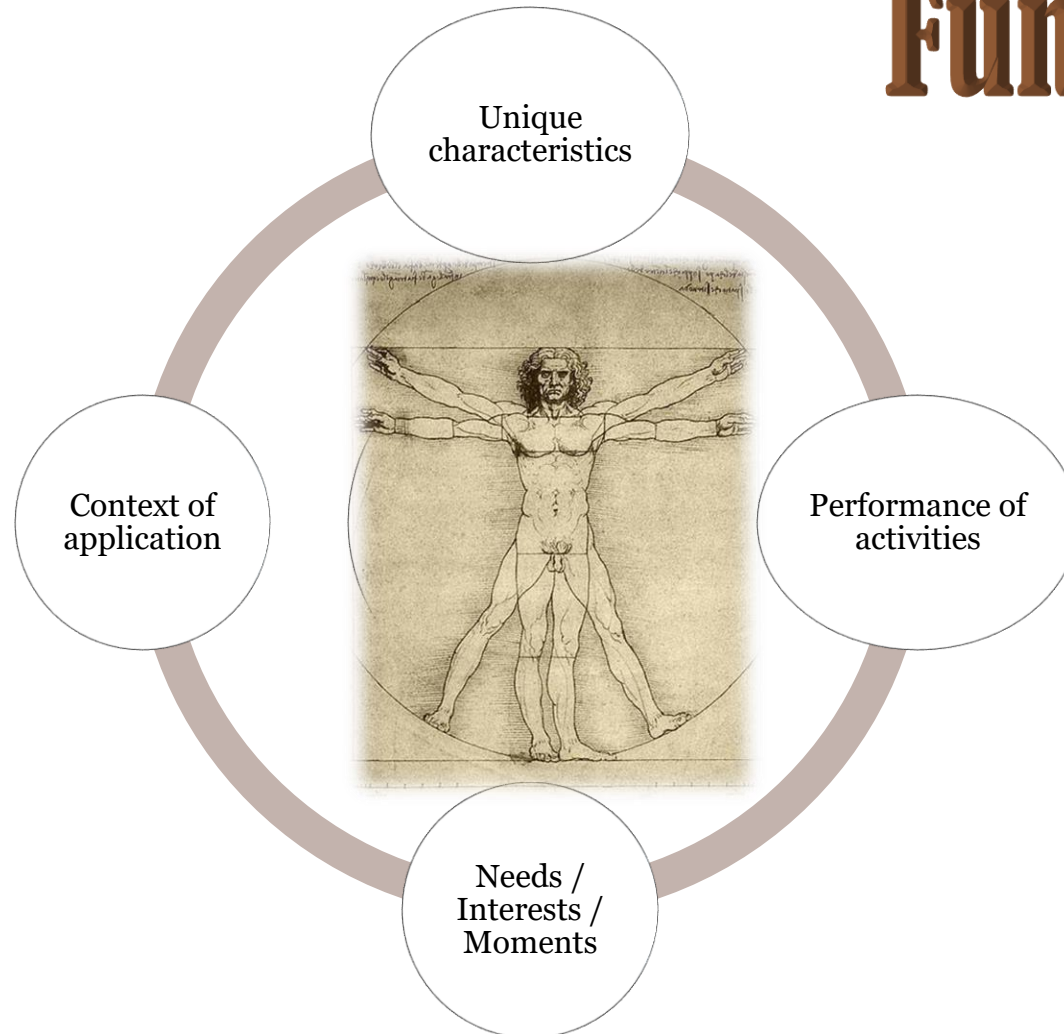


**Personal Autonomy**



# Purpose of Assistive Technology

## Functionality



# What is the AT for?

HELP / SUPPORT during the performance of different activities



# Types and classification of Assistive Technology

## Standardization

### Norm ISO 9999:2016

- AT for measuring, supporting, training or replacing body functions
- AT for education and for training in skills
- Orthoses and Protheseses
- AT for self-care activities and participation in self care
- AT for activities and participation relating to personal mobility and transportation
- AT for domestic activities and participation in domestic life
- Furnishings, fixtures and other assistive products for supporting activities in indoor and outdoor human-made environments
- AT for communication and information management
- AT for controlling, carrying, moving and handling objects and devices
- AT for controlling, adapting or measuring elements of physical environments
- AT for work activities and participation in employment
- AT for recreation and leisure

### Codification System

- **Three Ierarquic Levels:**
- 1st Level - Classe: 2 digits
- 2nd Level: Subclasse: 2 digits
- 3rd Level: Divission: 2 digits
- Each AT has a **code of 6 digits**
- Example: Motorized wheelchair
  - Classe (12): AT for personal mobility
  - Subclasse (23): Powered wheelchairs
  - Divission (06) Electrically powered wheelchairs with electronic steering
- Code: 12 23 06

[Access to the ISO Classification](#)



# The main Assistive Technology



- Mobility and transfers
- Self-care and bathing
- Dressing
- Feeding
- Housework
- Rest and positioning
- Leisure
- Information and Communication

# Mobility and Transfers

## Canes and Walkers



Folding poles

English walking stick



Walkers without  
Wheels

Walkers with  
Wheels



Tripods and  
Quadrupeds



Walkers and crutches with seat

# Mobility and Transfers

## Wheelchairs

### Manual Wheelchair not propelled



Small rear wheels.  
For people who  
cannot handle the  
chair  
independently

### Manual Wheelchair SelfPropulsed



Large, rimmed  
rear wheels. For  
people with good  
arm strength and  
ability to move

### Electric Wheelchair



With electric  
motor for people  
with autonomy  
but without  
enough strength in  
the arms to push  
the chair

# Mobility and Transfers

Other Wheelchair



Amphibious beach wheelchair



Wheelchairs for sports



# Mobility and Transfers

## AT for transfers and care of caregiver



**Mobile Hoist:** The wheels facilitate the movement of the person. Can be folded and attached and can be combined with different types of harness



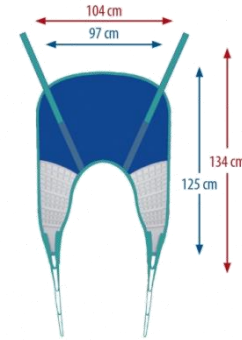
**Mobile standing Hoist:** It facilitates the incorporation of the person, reproducing the natural movement. Optimizes the hygiene of areas of the body that are difficult to access.



**Ceiling / Fixed Hoist:** Requires home installation. Rail system. Displacement between rooms. Little burden on the caregiver.

# Mobility and Transfers

**AT for transfers and care of caregiver**



## Harnesses and their importance



# Mobility and Transfers

## AT for transfers and care of caregiver

**Transfer table:** It is placed between the two seating surfaces and makes it easy to slide from one to the other. It can be fixed or mobile



**Akuakalda:** It is used for short trips with minimal effort for the caregiver. The movement is in 3 phases: support, rotation and descent

# Mobility and Transfers

## AT for transfers and care of caregiver

### Caterpillar stair climber:

Makes it easier for the caregiver to get on or off a wheelchair on a flight of stairs



### Price aprox:

2500 – 3500 €

<https://www.youtube.com/watch?v=bsQDtdHTKd8>



### Evacuation chair:

To move people in an emergency or through narrow or inaccessible places. The chair has triple and swivel rear wheels.



# Mobility and Transfers

## AT for transfers and care of caregiver



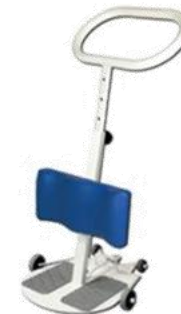
**Lifting cushion - compressor:**  
The cushion is inflated with an air compressor that is activated with a knob.



**Elevator seat:** Facilitates incorporation with a hydraulic elevation system. It can be placed on any seat.



**Steady Stander:** Facilitates the incorporation of the person from sitting to standing. Requires very good trunk control and leg strength



**Transfer stand:**  
With rotation system and knee support

# Mobility and Transfers

## AT for transfers and care of caregiver



**Incorporation devices:**  
They consist of a fixed element on which the person leans and helps to get out of bed



### **Sliding sheets:**

It is placed under the bedridden person and makes it easier for the caregiver to carry out rotations, mobilizations and postural changes

**Transfer:** Rigid table to facilitate the change from a stretcher to bed (hospital)



# Mobility and Transfers



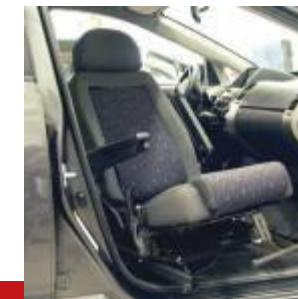
**Adapted motorbikes**

**Handbikes**



**Assisted bikes**

**Adaptions for cars: Access and Drive**



# Self-Care and Bathing



# Self-care and Bathing



## **Long-handled combs or brushes:**

Ergonomically designed handle makes it easy for people who have difficulty raising their arms against gravity



## **Dryer holder:**

With this mechanism you can dry your hair without having to hold the dryer



## **Headwash:**

They are a simple anchoring system, it allows to wash the head of people with low mobility or bedridden



## **Shampoo Applicator:**

Its head is removed to be able to fill it with shampoo or cream and, later, apply it to the hair or the body.

# Self-care and Bathing

Body care

**Lotion applicator:** Its roller and long handle make it easy to apply creams or lotions to the distal parts of the body.



**Flexible long-handled sponges:**  
The long handle allows hygiene of the most distal areas. Some handles are flexible and can be shaped into any desired shape

**Intimate hygiene aid (Easywipe):**  
This product facilitates the cleaning of the perineal area



**Double cord towel:**  
Facilitates drying of the body in distal and hard-to-reach areas

Face, hands  
and feet

# Self-care and Bathing



## **Adapted nail clippers:**

A long handle allows you to cut your toenails. An increase in the pressure surface facilitates the cutting of the fingernails.



## **Tooth tube emptier:**

The pressure mechanism of this device allows the content of tube-type containers to be expelled, without having to exert force to empty it.

## **Nail cleaners:**

These brushes allow you to clean the nails thanks to the suction cup adaptations



# Self-care and Bathing

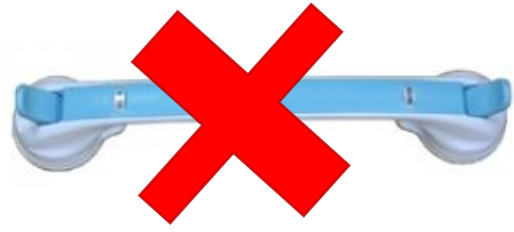
Sitting in the bathroom





# Self-care and Bathing

Security and accessibility in the bathroom



# Dressing



Dressing and undressing

# Dressing



**Clips for pants:** The clips facilitate the placement of the legs of these garments, especially for those with less mobility in the legs and trunk

**Closing aids (button - zippers):**

For people with fine motor skills, this device allows one-handed buttoning at one end. On the other, the hook helps to raise zippers



**Dress Stick:** Wooden utensil with a hook at one end and a rubber band at the other. Used to put on and take off clothes that cannot be easily reached

Footwear and  
socks

# Putting on shoes



**Long-handled shoehorn:** The placement of the shoes can be done remotely through the elongation of the handle of this shoehorn



**Shoehunters:** It is not necessary to bend over or bend the trunk to take off shoes since this aid allows the action to be carried out with the support of the opposite foot



**Stockings / Socks:** Designed for people with limited trunk, hip, or knee movement. The socks / stockings are placed on the support and, with the help of the tape or stick, they are raised until the garment covers the entire foot.



# Feeding



# Feeding

## Eating aids



**High-rimmed plates:** You can add a rim to a regular plate or buy a plate with a high rim that prevents food from spilling out.



### **Adapted cutlery:**

The use of ergonomic, long or thickened handles, combined with the angulation of the cutlery improves independence in activity, especially for people with reduced fine motor skills or with hemiplegia



## Drinking Aids

# Feeding



### Straws and straw holders:

They are very easy to use by people with little head control or with difficulty to properly hold the glass. The clips hold the paddle to the rim of the glass and prevent it from moving.



**Adapted glasses:** The adaptation can be a double handle, a cannula or a cut edge, which reduces to the maximum the movements and effort required to drink



# Housework





# Housework

## Turntables



### **Turntables for taps:**

These devices allow them to be attached to crosshead or knob type taps, transforming them into mixer taps. This makes it easy to open and close. The long handle improves your grip.



### **Key Turner:**

The small size of the keys makes it difficult to handle and turn. This aid allows to attach up to three keys, providing a handle that facilitates the grip and use of these.





**Knob swivel:** This adapter for the slide knob transforms it into a handle, reducing the degree of movement in pronosupination necessary to operate it.



**Universal turner:** The design and functionality of this spinner allows it to be used with different buttons and switches with a round shape. Thus, it reduces the degree of movement in pronosupination necessary, for example, the controls of a kitchen.



## Handling aids

# Housework



### **Plug puller:**

With this adapter for plugs, the necessary force is reduced while improving the grip on the object, facilitating the grip to pull it.



### **Non-slip jar and bottle opener:**

Non-slip material molded in a conical shape that allows a correct lever arm to be made to facilitate the opening of jars.



## Handling aid

# Housework

**Universal openers:** Thanks to their design and characteristics, they allow opening containers of different sizes and opening systems: jars, bottles, cans ...



### Strip rings:

With an ergonomic system, the ring strips facilitate the opening of cans of drink or preserves



# Housework



## Cooking



### **Kitchen table to prepare food:**

This is a sturdy cutting board that holds your food. The plastic clamp holds items like cans or cups and the stainless steel tines hold vegetables for peeling.



**Adapted Spatula:** Its light T-shaped handle makes it easy to handle



## Cooking

# Housework



### Plate holder:

This device has a grip to facilitate grip on the plate and a handle, so that it can be held and transported more easily.



### Orange peeler:

It has a finger ring that allows you to remove the skin of the fruit in sections without risk of cuts with the knife.



### Support for tetrabriks:

The support adapts to the shape of the tetrabrik, allowing it to have a handle that improves its grip.

### Pitcher pourer:

It offers security and stability to serve hot or cold liquids, with hardly any weight lifting.



# Housework



## Bag holders:

With this help, plastic bags can be better grasped and transported, without the risk of breaking them and avoiding damage to the soft tissues of the hand.



## Extendable broom and dustpan:

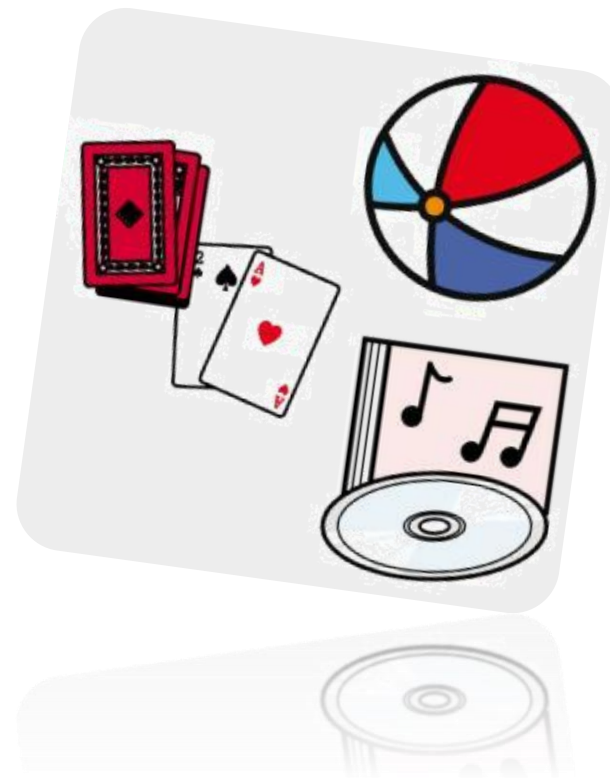
The handle of these utensils is adjustable in height, so that its use can be adapted to the anthropometric characteristics of any person.

## Long reach clamp:

Lightweight long-handled device with ergonomic trigger. It is used with the whole hand, facilitating its use by people with diminished manipulative force.



# Rest and Leisure





# Rest

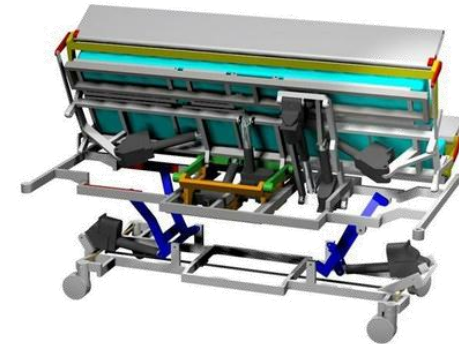


## Lift chair:

Allows the backrest and footrest to be reclined electronically.



The resting surface is adjustable in height.



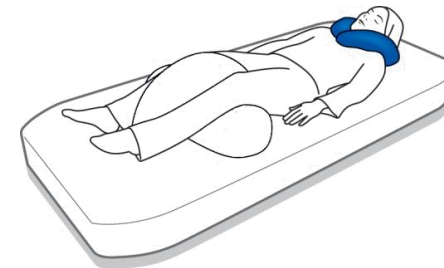
## Tilting Armchair:

Suitable for people who spend a lot of time sitting, to release pressure and make postural changes

# Rest

## Anti-decubitus protectors:

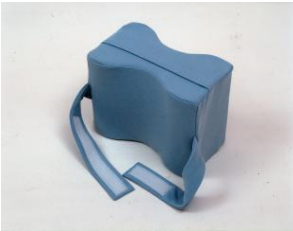
The material is diverse, being able to be of sheepskin or silicone and there are specific ones to adapt to different parts of the body.



# Rest



**Footrest:** There are different systems to facilitate the rest of the legs and feet, such as height-adjustable or inflatable ones.



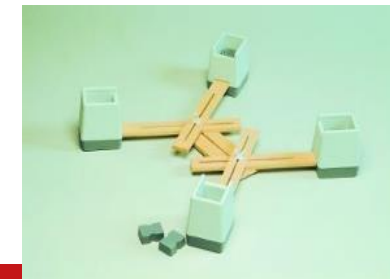
**Positioning cushion:** For leg abduction



**Seating Systems (seat + backrest):** Jay



**Lifting blocks:**  
To increase the height of tables and chairs



# Leisure



## **Magnifying glasses:**

They have a cord that is placed on the neck and a frame to place it against the body without having to hold it while the person is reading.



## **Folding Lectern:**

Holds books or magazines open and upright without the need to grasp them with your hands to read.



## **Handheld page flipper:**

With a handle to improve handling and non-slip material on the tip to facilitate turning each page one by one

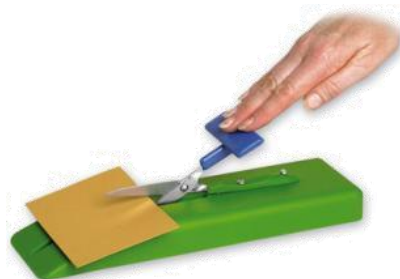
# Leisure



**Fishing rod adaptation**

## **Adapted scissors:**

Suitable for people with poor fine motor dexterity Pressure,  
automatic, training



# Leisure



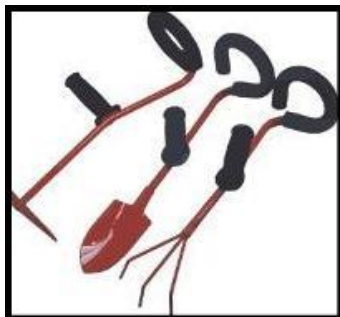
## **Needle threader:**

Through a simple click, the device allows easy threading, even in conditions of impaired vision or trembling hands.



## **Card Holder:**

Allows you to hold the cards in an upright position while the person is playing.



## **Orchard / Gardening:**

Adaptations for different tools used in horticulture



# Communication and Information



# Communication & Information

## Writing Aids



### Adaptations for writing

All these devices facilitate the grip of pencils / pens, reducing in turn the degree and number of movements necessary to manipulate them.





# Communication & Information

## Aids for computer



### Adapted mouse:

Mouse emulators and ball mice make it easier for people with reduced mobility to access the computer.



# Communication & Information

## Access to the computer



**Switches:** simplify the effect of a conventional left mouse button click



### **Case for keyboard:**

Protects the keyboard and guides people with reduced mobility (reduced fine motor skills) when pressing the keys.



**Flexible and ergonomic keyboard**



# Communication & Information

## Warning and alarm systems



### Telecare



### Botones de emergencia



tipo bolsillo



tipo reloj



tipo colgante

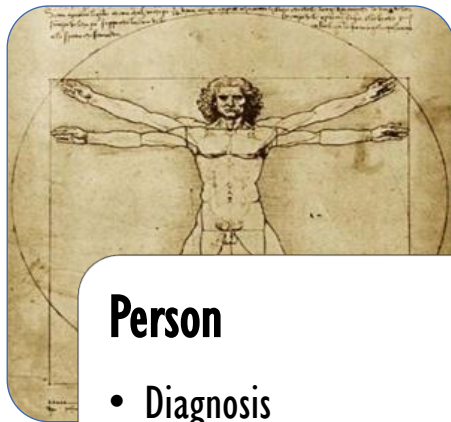
### Pillboxes



# Are all assistive technology useful for all people?

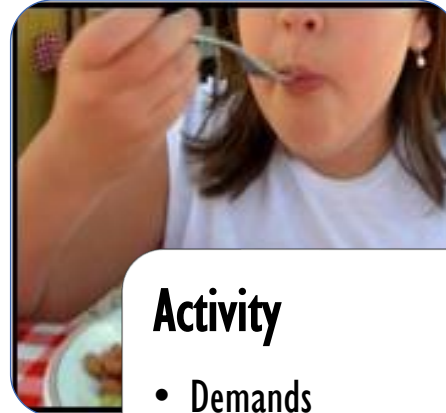
- Not all devices on the market are suitable for people with functional diversity
- Two people with the same condition may have different needs and different realities

**Occupational  
Therapy**



## Person

- Diagnosis
- Resources
- Skills
- Expectations and Priorities



## Activity

- Demands
- Tasks
- Frequency
- Significance



## Contexts

- Physical
- Social
- Cultural
- Politics and priorities

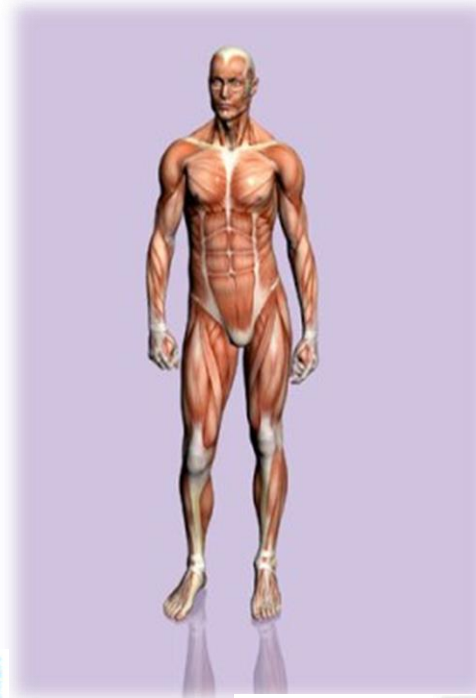
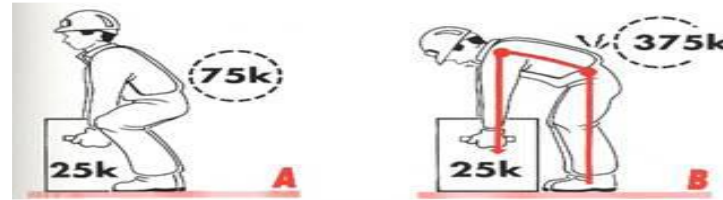


# The importance of caring our body

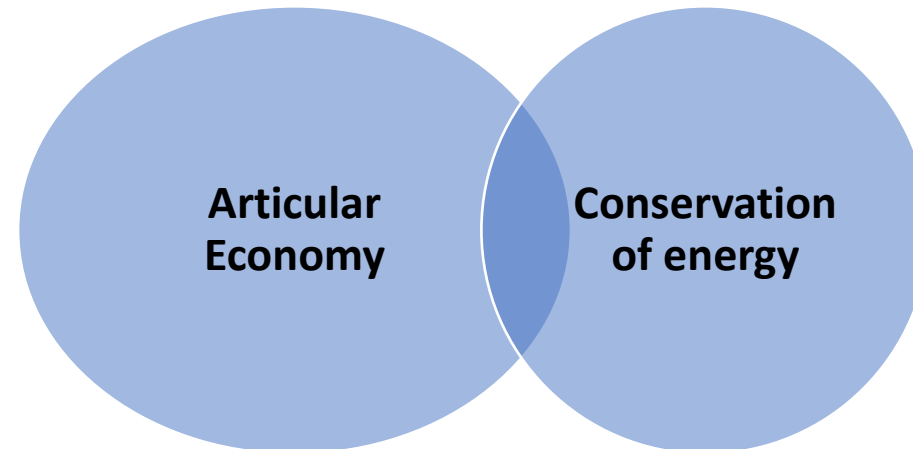
What activities we do on a daily basis can negatively influence or damage our body?

What are the possible solutions or changes that we can make?

# The importance of caring our body



# Care our body: Load Handling



# Care of our body: Load handling

## Norms For Energy Conservation

- Activity-rest balance
- Use of correct body positions
- Change of position and body support
- Suitable working height
- Avoid activities that cannot be interrupted
- The closer the object is to the center of gravity of the body, the less effort will be
- Sequence activities

## Norms for Joint Economy

- Work with good posture and support
- Support the forearms when possible
- Use suitable work plans
- Using forearms for weight bearing
- Get up with forearm support
- Using both hands
- Use a low pillow and a hard bed



# Postural Hygiene: Take care of our body daily

Applicable to the person we care for

Ideal Posture



Minimum tension



Minimum stiffness



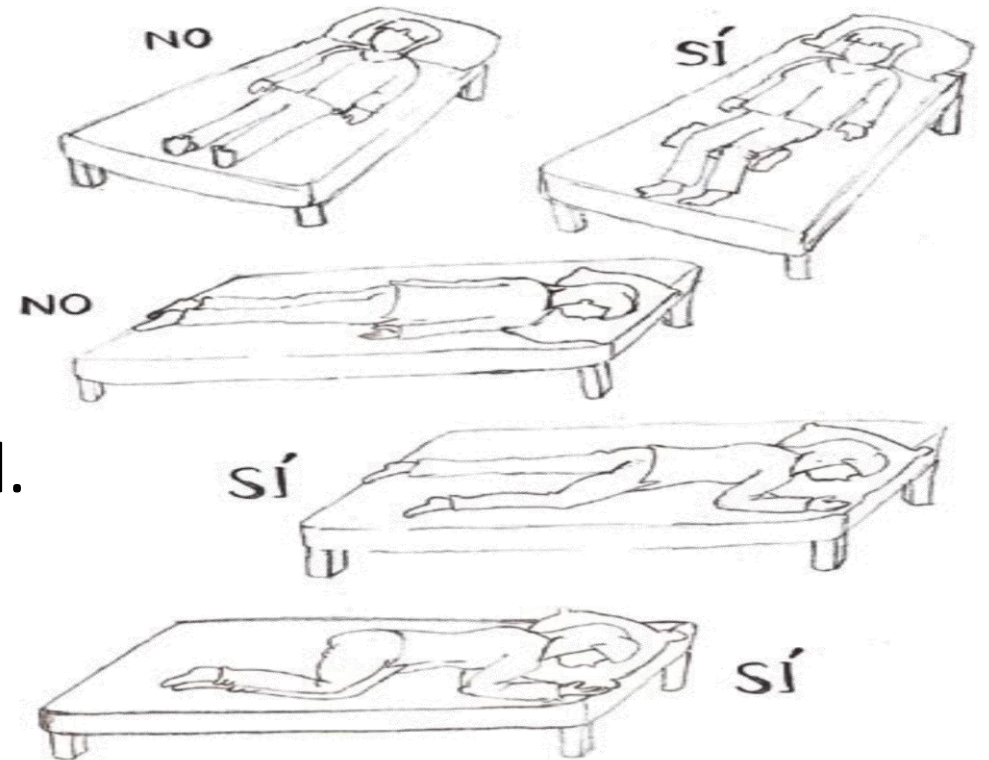
Maximum efficiency

To lie down: Sleep in good posture

**Face up:** Neck pillow  
cushion under legs

**Lateral (fetal):** legs bent  
lower leg outstretched and over flexed.

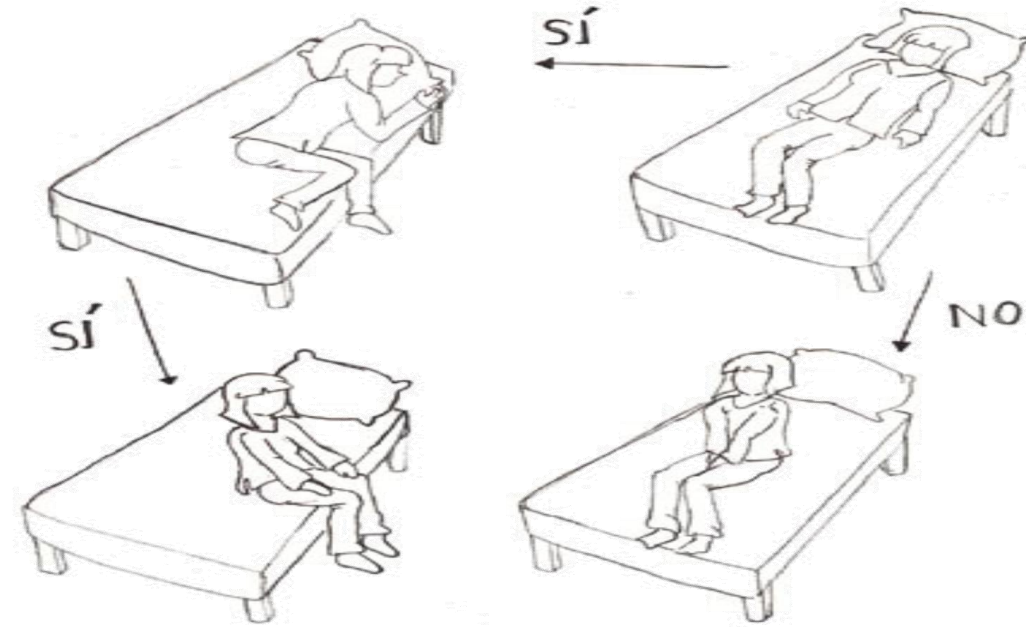
**Prone:** not advised



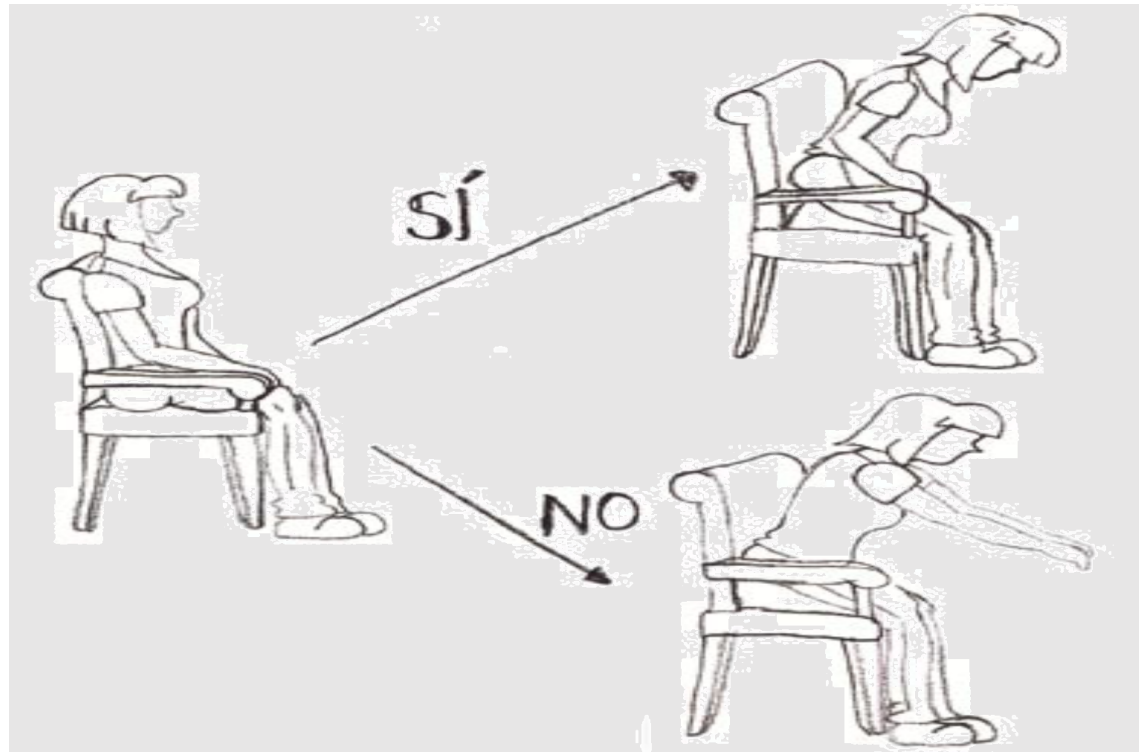
# Take care of our body daily

## Get out of bed

- Lie on your side (on your side).
- Run your feet over the edge of the bed.
- Support your elbow on the bed and sit up.



# Take care of our body



## Get up from a seat

- Rest your hands on your thighs or armrests
- Slightly shift the trunk forward
- Foot delay: as support and momentum

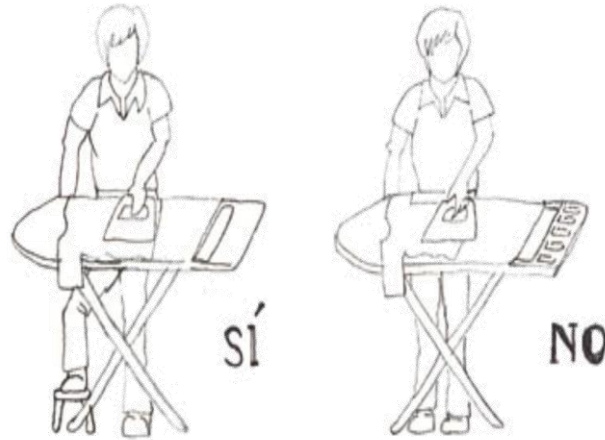
# Take care of our body

## Sit well

- Straight back over the backrest
- Buttocks glued without leaving a gap
- Spread weight: two ischial tuberosities
- Knees: right angle
- Feet: well supported on the ground. Use of stool if necessary



# Take care of our body



## Standing on feet

- Change posture frequently
- Legs: toggle support
- Arms: never above the shoulders

# Care of others

*Basic Guidelines: Mobilizations and Transfers*

# Cuidar a los demás

**Mobilizations**

**Transfers**

**Pressure ulcer prevention**

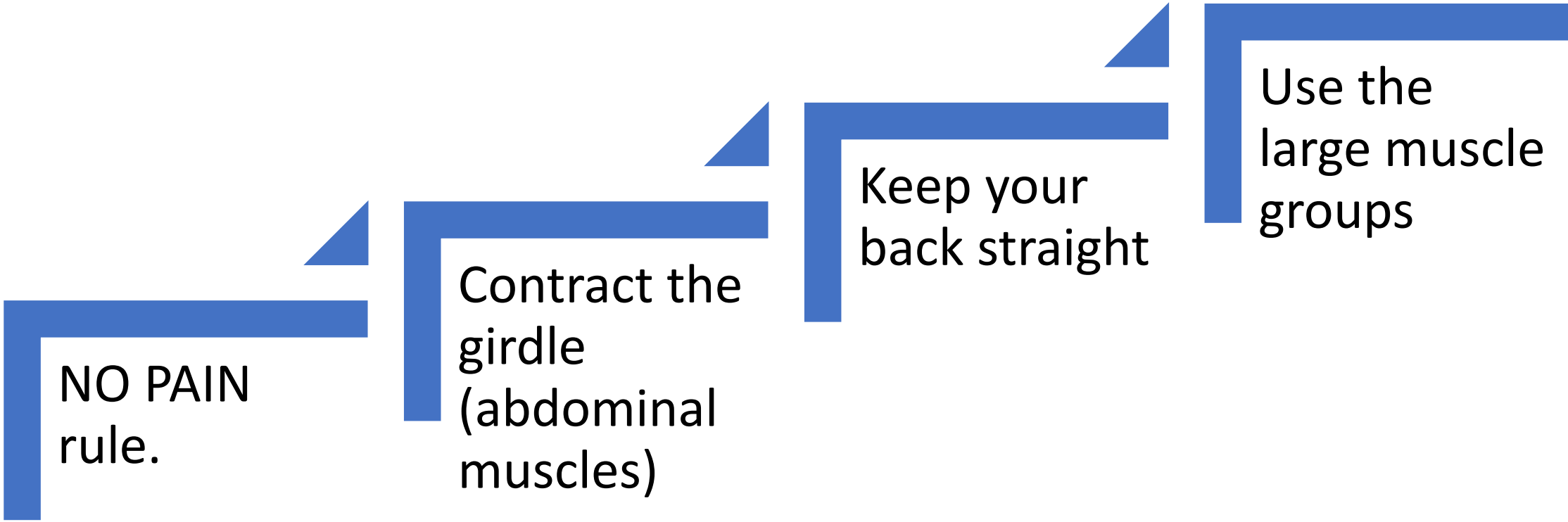


Movements carried out on the same surface to achieve a change in position

Actions to move the person from one surface to another, for example, from bed to chair.

# Remember:

Applying joint economy and conserving energy



NO PAIN  
rule.

Contract the  
girdle  
(abdominal  
muscles)

Keep your  
back straight

Use the  
large muscle  
groups



# What is to be done

Load distribution: Bring the body closer to the person being helped.

Grip security

Use palms

Extend base of support (feet)

Synchronize movements: Application of counterweight when transferring the person

# Assistive Technology for Transfers

Furniture

Aids to mobilize and to transfer



# Use of Assistive Technology

## Tipos de grúas

- Elegir la más adecuada.
- Grúas de bipedestación: personas que se mantienen en pie con ayuda, no solas, y con control del tronco.
- Grúas tipo cigüeña: personas con poca o ninguna movilidad.

Informar siempre y pedir su colaboración. Transmitir tranquilidad

## Grúa tipo cigüeña 1

### Colocación del arnés en la cama

- Cama horizontal, frenada.
- Persona de lado. Arnés: el lado más próximo estirado, el otro enrollado bajo su cuerpo.
- Girarle al lado contrario y estirar el arnés.
- Las bandas por debajo de las piernas.
- Colocar los enganches y elevar.

Supervisar el traslado. Vigilar que quede bien sentado



## Grúa tipo cigüeña 2

### Colocación del arnés en la silla

- Colocar en la espalda hasta la cintura.
- Las bandas de las piernas por debajo de los muslos.
- Acercar la grúa con cuidado y enganchar las bandas.
- Elevar con suavidad.

Abrir las patas de la grúa aumenta su estabilidad

## Grúa tipo bipedestación

- Aproximar la grúa, pies en la plataforma (tibia en contacto con el soporte vertical), poner la cincha de sujeción.
- Agarrado a la barra frontal e inclinado adelante.
- La cincha superior por debajo de las axilas y enganchar.
- Accionar el mando y levantar.

Para aceptar la grúa dar argumentos reales y convincentes





Thank you!

Teachers' name

Teachers' e-mail

Date of the session

