

Rheumatology intervention1



Occupational performance can be affected by limited:

- knowledge of the condition and its progress
- knowledge and skills to adopt ergonomic approaches during occupational performance to reduce pain, fatigue, and joint strain
- energy to manage a full day of activity and ability to balance rest and activity
- range of movement and deformity
- muscle strength and endurance
- self-efficacy to use self-management approaches and to redesign lifestyle

Comprehensive OT programs sustain improvements in function and increase self-management in early RA .

Typically, key interventions are:

- ❑ ergonomic approaches and fatigue management,
- ❑ self-management education,
- ❑ psychosocial support and cognitive-behavioural approaches to improve coping and reduce stress,
- ❑ hand and upper limb exercise,
- ❑ orthoses.

Ergonomic Approaches

Ergonomic approaches include

- altering movement patterns and use of proper joint and body mechanics.
- restructuring activities, work simplification, and altering the environment.
- using ergonomic equipment and assistive technology.
- activity pacing, planning, prioritizing, and problem solving to modify activities and routines.
- joint protection and energy conservation techniques .

Aims of Ergonomics

In inflammatory and degenerative rheumatic conditions (e.g., RA and OA), the aims of the ergonomics approach are to:

- **reduce pain during activity, and at rest**, resulting from pressure on nociceptive endings in joint capsules, caused by inflammation and/or mechanical forces on joints.
- **reduce forces on joints: internal** (i.e., from muscular compressive forces, e.g., during strong grip) **or external** (i.e., forces applied to joints whilst carrying or pulling/pushing objects).
- **reduce secondary inflammation and subsequent strain on soft tissues** resulting from excess (i.e., beyond tolerability) force on already inflamed and/or disrupted joints.
- **reduce loading on articular cartilage and subchondral bone.**
- **help preserve joint integrity and reduce risk of development and/or progression of deformities.**

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- **reduce pain resulting from overuse** (i.e., beyond tolerability) of deconditioned muscles.
 - **reduce fatigue**, by reducing effort required for activity performance.
 - **improve or maintain function**.

Ergonomics must be combined with **exercise** in order to maintain or improve muscle strength and endurance. Additionally, in RA and OA, exercise increases joint stability and improves the shock-absorbing capabilities of joints.

Ergonomic Methods

Hand ergonomics in RA includes **changing movement patterns to limit:**

- ✓ strong grips.
- ✓ twisting movements, and sustained grips;
- ✓ lifting heavy objects and sustained wrist positioning to reduce wrist forces;
- ✓ tight, prolonged key, tripod, and pinch grips to reduce forces on the MCP, IP, and CMC joints.



Approaches are similar in OA, although there is no need to emphasize reducing ulnar forces on the second through fifth MCPs, because these are not affected.

There is no need to “protect joints” in FM, because these are not affected, but ergonomic approaches help reduce forces on the hand that cause pain and help to compensate for weak grip.

Ergonomic Principles

- ✓ Altering Movement Patterns and Use of Proper Joint and Body Mechanics .
- ✓ Restructuring Activities, Work Simplification, and Altering the Environment .
- ✓ Using Ergonomic Equipment and Assistive Technology .



Altering Movement Patterns and Use of Proper Joint and Body Mechanics .

- In hand activities, two hands can be used, and the load can be spread over the palmar surface.
- Movement patterns can be changed by, for example, turning a jar lid using the thumb, index, fingers, and thumb web space.
- The fingers are kept in correct anatomic alignment, and ulnar forces are avoided.









- Objects should be kept closer to the body when lifting and carrying, and/or a stronger larger joint can be used.

(For example, avoid carrying a shopping bag using a hook grip in the hand. Instead use a bag with longer handles and put it over the shoulder)



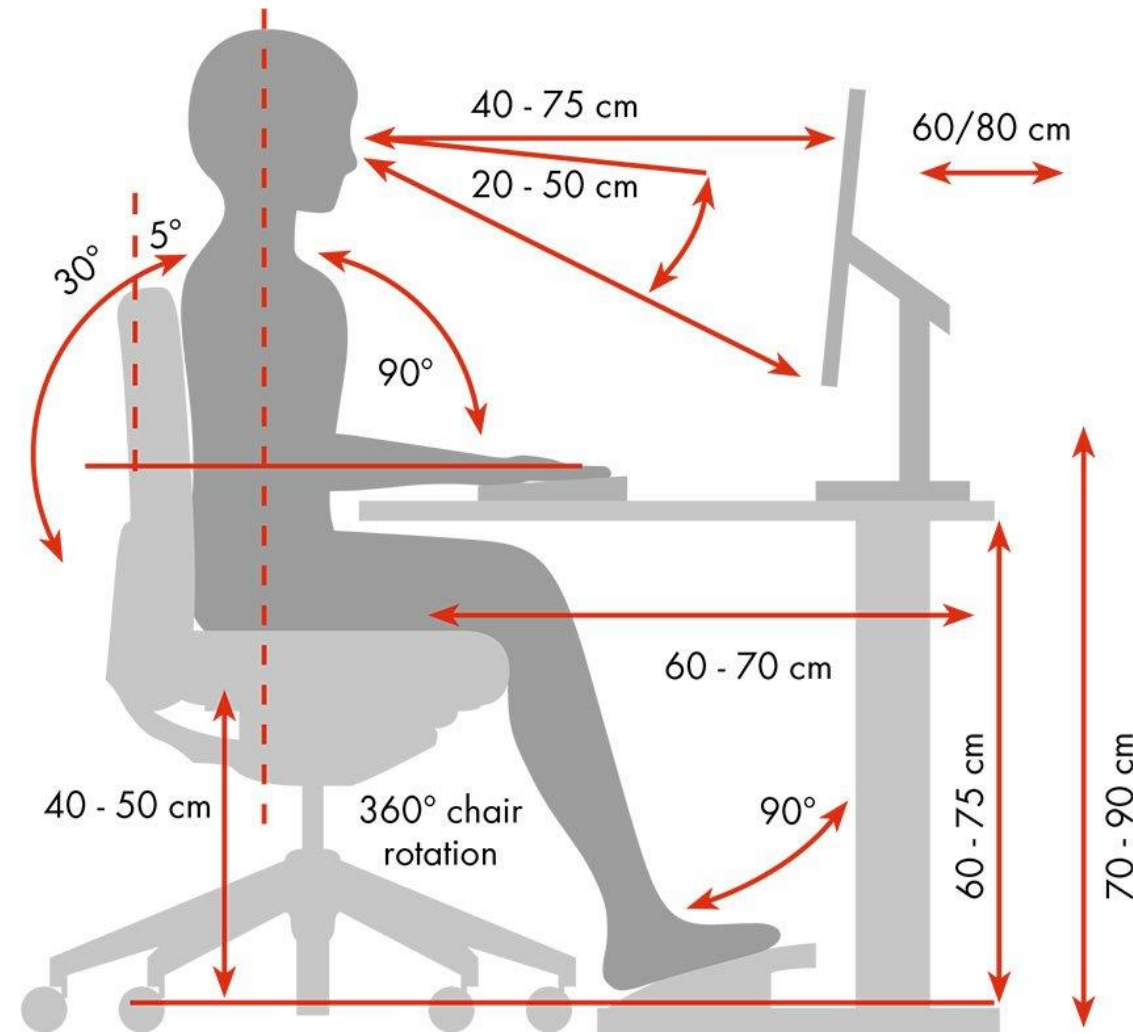
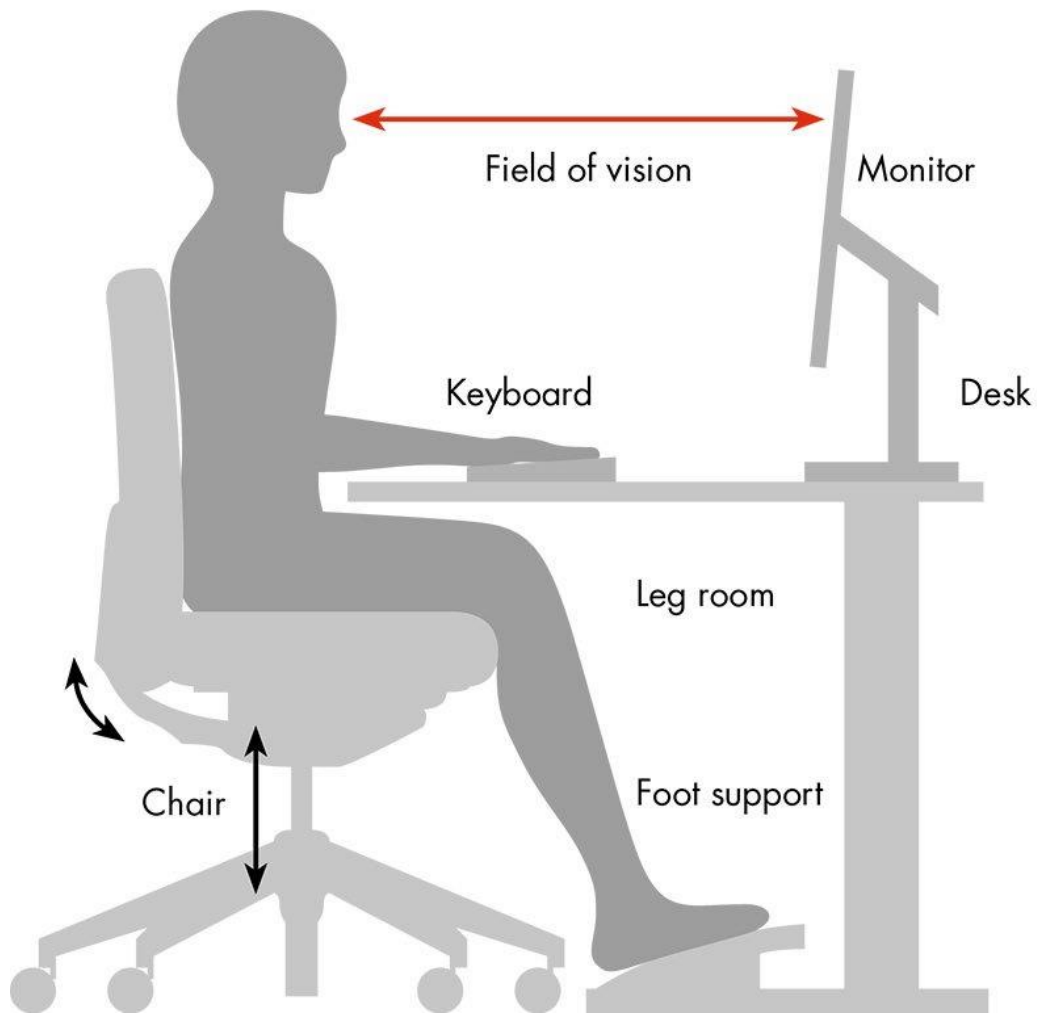
- Avoid prolonged sitting and standing. Change position regularly. For people with knee and foot pain, a perch stool reduces standing when preparing food or ironing.



- Work surfaces are within the reach envelope of the arms.
- Maintain efficient postures when working, e.g., avoid sitting with the head poking forward whilst working at a desk or reading. Book stands, writing slopes, and document holders help.
- Keep the back straight using supportive seating such as ergonomic office chairs and higher back, supportive sofas.
- Poor posture and positioning increases muscle fatigue and pain because greater energy is used to maintain biomechanically inefficient postures.

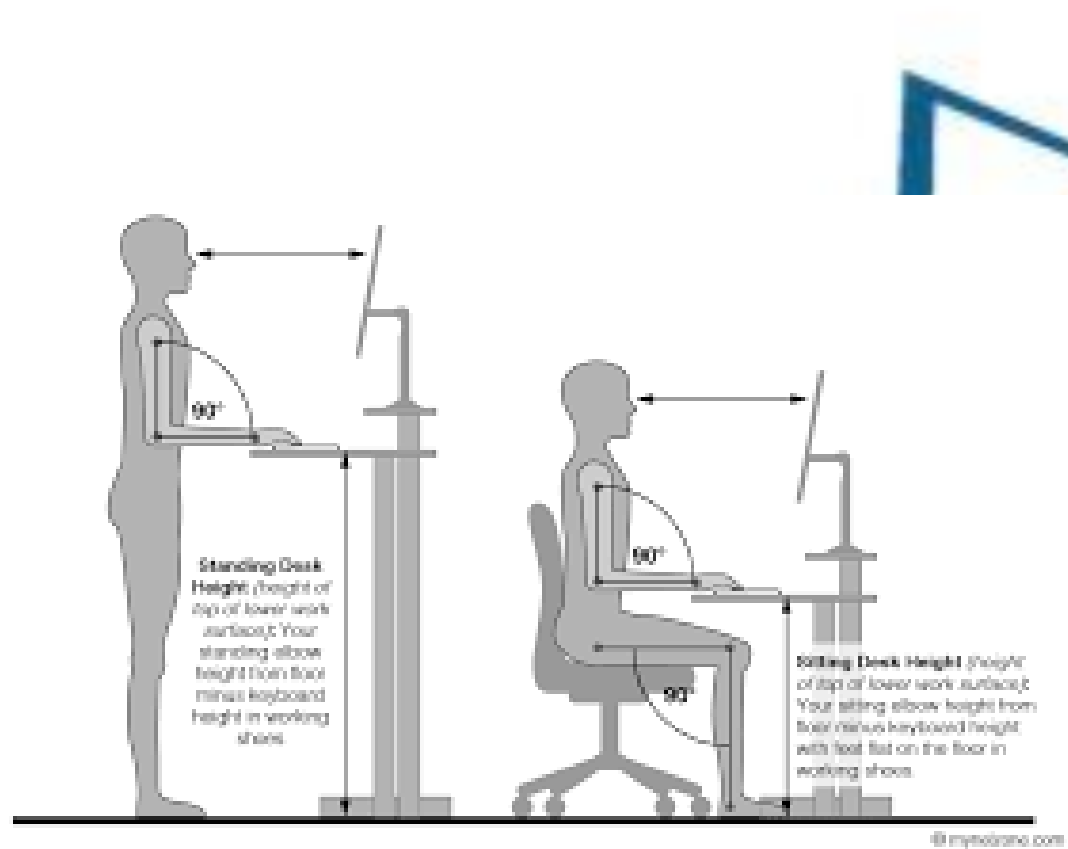






HEIGHT-ADJUSTABLE TABLE POSTURE

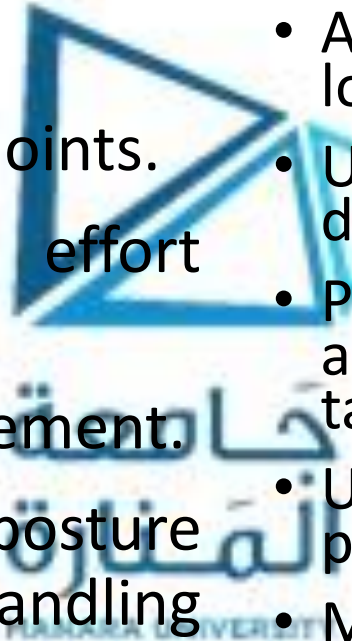








Ergonomic (Joint Protection) Principles

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- Respect pain.
 - Distribute load over several joints.
 - Reduce the force and effort required in activities.
 - Use correct patterns of movement.
 - Use good body positioning, posture and moving and handling techniques.
 - Use the strongest, largest joint available for the job.
 - Avoid staying in one position for too long
 - Use ergonomic equipment, assistive devices, and labor-saving gadgets
 - Pace activities: balance rest and activity, alternate heavy and light tasks, take micro breaks
 - Use work simplification: plan, priorities, and problem solve
 - Modify the environment and equipment location to be ergonomically efficient
 - Maintain muscle strength and range of movement

- **Restructuring Activities, Work Simplification, and Altering the Environment.**

Can an activity be done differently? For example, rather than taking a kettle to the tap, holding it whilst it fills and carrying it back across the kitchen, fill it with a lightweight jug instead.

Could shopping be done via the Internet to save driving, walking, and carrying bags? Reorder the sequence of tasks within activities to increase efficiency.

Eliminate unnecessary tasks: Do all those items need to be ironed? Keep frequently used equipment within the reach envelope.

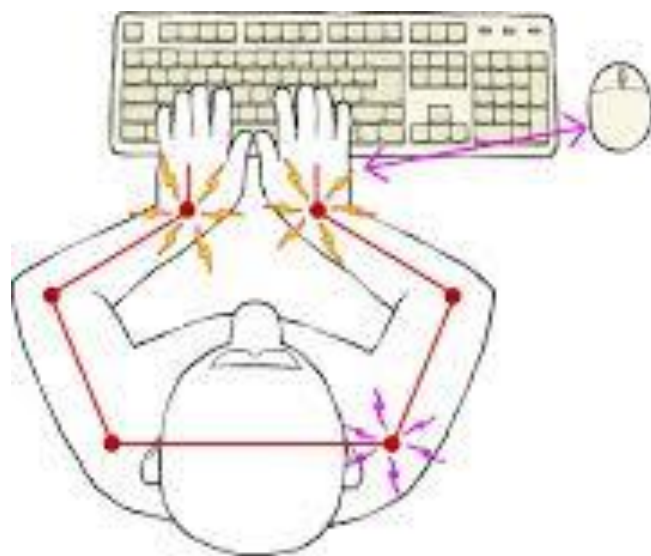


- Reorganize work areas to streamline work processes. Make work areas uncluttered. Locate equipment to promote correct joint positioning, e.g., keyboards.
- Raise or lower work surfaces to maintain good posture. Ensure storage is efficient, e.g., use stepped shelves in cupboards and sliding racks so jars, cans, and boxes are easily reached.



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- **Using Ergonomic Equipment and Assistive Technology .**

Reduce the effort required by using ergonomic equipment or products with universal design, i.e., designed to be easy for all to use. There are many kitchen and household products available in stores and via the Internet. Encourage people to consider features of good design when selecting products.

For example, to avoid bending and kneeling, sit on a garden kneeler/stool when weeding. Wear cushioned, shock absorbing insoles in shoes to reduce pressure on foot and knee joints when walking and standing. At work, use voice activated software to reduce keyboarding and a wireless telephone headset or hands-free mobile instead of a handset.



Selecting Ergonomic Products

- Lightweight, durable, compact
- Larger, nonslip handles
- Comfortable to hold and easy to maneuver
- Attractive and acceptable to the user
- Simple to operate; multipurpose (if appropriate)
- Reduces stress to all joints needed to operate the device
- Affordable









Fatigue Management

Causes can be

- Physical: pain, inflammatory process.
- Deconditioning because of insufficient physical activity.
- Overdoing activities.
- Psychosocial factors e.g., depression, anxiety, helplessness, stress, poor self-efficacy, and poor social support (e.g., lack of understanding from family and friends).
- Work pressures

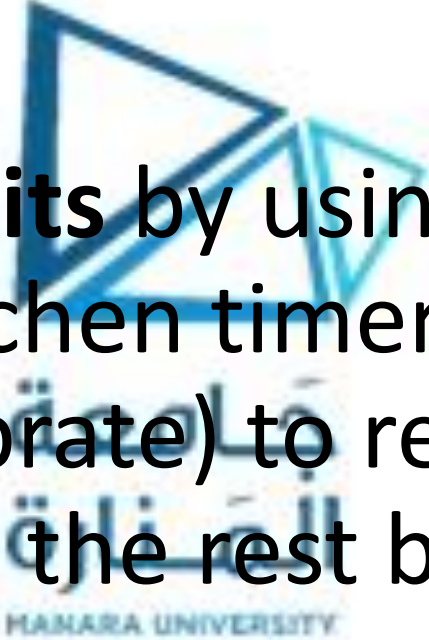
A variety of **strategies** help reduce fatigue, including:

- ✓ Ergonomic approaches at home and work.
- ✓ Activity pacing.
- ✓ Exercise.
- ✓ Stress management.



Activity Pacing, Planning, Prioritizing, and Problem Solving

- **Pacing.** Many find taking a **rest break** difficult because it can be seen as “giving in.” Rest “recharges the batteries,” allowing people to keep going for longer.
- Rest recommendations include taking micro breaks for 30 seconds every 5–10 minutes or so, stretching and relaxing joints and muscles being most used, or taking a rest break for up to 5 minutes every 30–60 minutes.

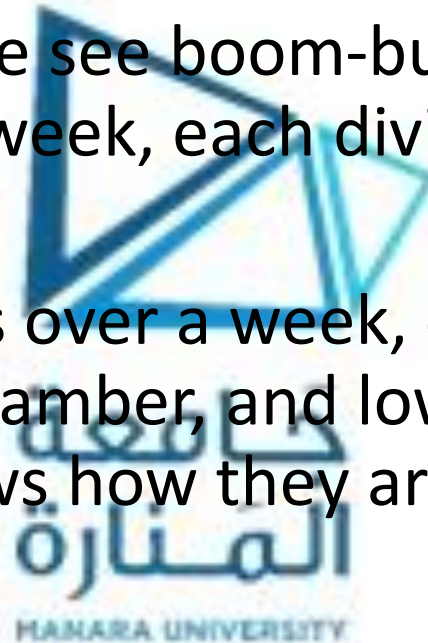
The logo of Manara University is centered in the background. It features a blue geometric design consisting of several overlapping triangles that form a larger, abstract shape. Below this graphic, the university's name is written in Arabic script 'جامعة المنارة' and English 'MANARA UNIVERSITY'.

Help **develop habits** by using computer screen prompts or a kitchen timer or mobile phone alarm (or set to vibrate) to remind the person to take the rest break.

- **Planning.**

- Balance activities to alternate between light, medium, and heavy tasks during the day and week.
- A “boom bust” cycle is common, with people doing too much on good days and suffering the consequences for the next few. Breaking this habit requires attitudinal change.
- Many fear the consequences of failing to meet responsibilities.

- Activity diaries help people see boom-bust patterns. Use a diary with a line for each day of the week, each divided into 24 hours, showing 7 days on one page.
- The person completes this over a week, coloring the hours of high activity in red, medium in amber, and low in green, with rest colored blue. This graphically shows how they are overdoing activity and why they are fatigued.



- **Sleep Hygiene.**
- A sleep diary helps identify why sleep is problematic.
- Solutions depend on problems and can include:
 - Having a more supportive mattress and pillow (e.g., memory foam).
 - Establishing a regular bedtime and relaxing evening routine (e.g., listening to a relaxation recording, warm bath, or hot milky drink).
 - Avoiding stimulants (coffee, tea, alcohol, nicotine, and caffeinated soft drinks) several hours before bedtime.
 - Reducing stimuli in the bedroom (e.g., no TV or computer use).
 - Muted colors.

- Fatigue can also be aided by reducing stress and increasing physical activity.
- At 6-month follow-up, an RCT of a multimodal fatigue management program in moderate to severe RA showed significant reductions in fatigue.



Thank you

