

Ergonomics and Sleep



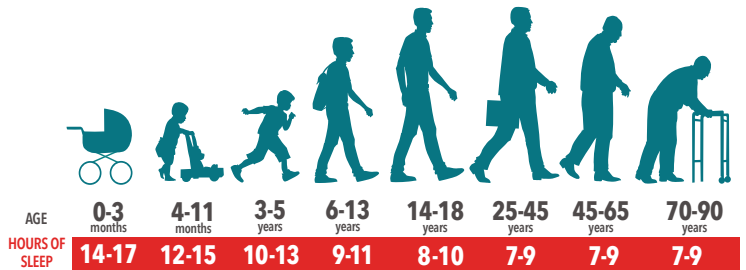
Sleep is essential for total repair. It helps the body recharge physically and mentally.

When we sleep

- The brain is eliminating waste products
- The muscles, bones, and organs are repairing and rebuilding
- The immune system is strengthening

Most people do not get enough sleep

- 25 - 40% of people do not get enough quality sleep
- Recommendations for sleep are generally based upon age



Sleep deprivation (lack of quality sleep) may lead to

- Decreased mental and physical alertness
- Poor decision making
- Decreased coordination and reaction time
- Increased stress levels
- Increased illness
- Increased injury – musculoskeletal disorders (MSDs)
- Increased sensitivity to pain

Posture

Sleeping posture is essential to decrease chances of sleep induced MSDs.

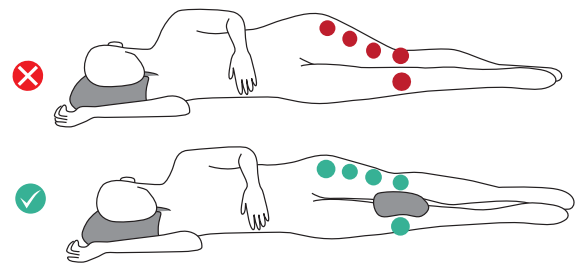
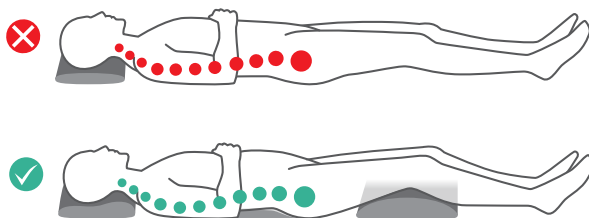
- Maintain neutral neck, back, and shoulder postures as often as possible

Back

- The head/neck pillow should fill and support the natural curvature of the neck to ensure neutral posture and spinal alignment
- If forehead tilts up the pillow is too high; if chin tilts up the pillow is too low
- Place a pillow under knees and low back to help maintain natural curvature of the lower back

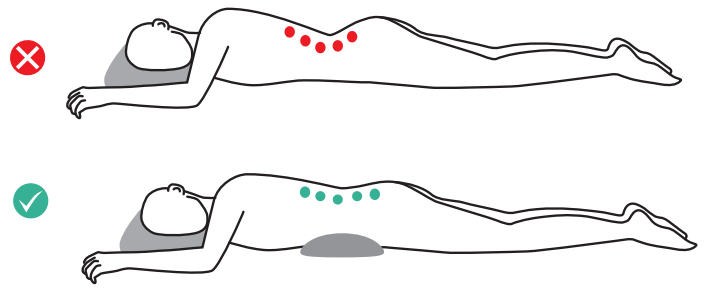
Side

- The head/neck pillow should fill the natural space between the shoulder and neck to ensure neutral posture and spinal alignment
- Place a pillow between knees
- Avoid lifting arm overhead or resting head upon arm
- An additional pillow beneath the top arm may help maintain correct alignment



Front

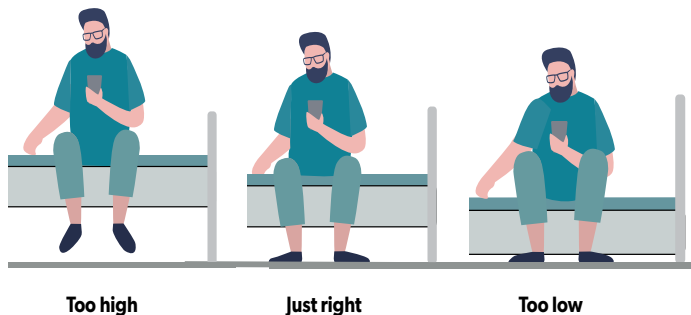
- Not ideal – should be avoided if possible
- Does not allow proper spinal alignment (increases low back sway) and may lead to neck and back pain
- Requires excessive neck rotation
- Place small pillow beneath abdomen to reduce excessive low back arch
- Place thin pillow beneath head to help reduce neck rotation
- Avoid resting head on arms



Bed

Bigger beds are generally better

- To adjust posture
- To support the limbs
- When more than one person - less disturbance while altering postures



Height

- Feet should be flat while sitting on edge of bed
- Higher beds are easier to get out of but harder to get on to
- Lower beds are easier to get on to but more difficult to get up from
- Low beds are worse for individuals with hip or back issues

Mattress

Firmness

The best mattresses are designed to conform to the spine's natural curves and keep the body in neutral posture. The following should be considered when selecting a mattress:

- Personal - preference, body type, sleep postures, etc.

- Firm enough to support the body adequately, soft enough to be comfortable
- Too firm may create pressure points and too soft may create uneven support — both can cause deviations from neutral postures



The Right Firmness (Contour to body shape)

- Excellent body support
- Natural Spinal alignment
- Optimal pressure distribution
- Good blood circulation



Too Firm

- Distorts your back
- Pressure concentrated in two areas: shoulders and pelvic area



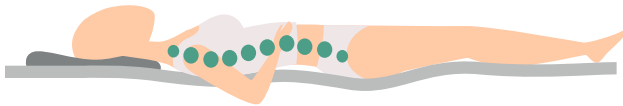
Too Soft

- Sagging
- No proper back support
- May cause back pain

Proper Firmness Based on Sleeping Posture

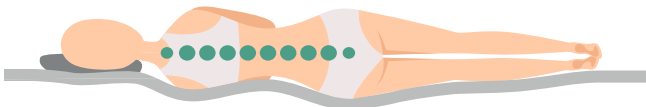
Back sleeper

- While lying on back – slide hand between low back and mattress
- Hand slides through easily with no gap - mattress has proper firmness
- Hand slides through with clear gap - mattress is too firm
- Hand must be forced through - mattress is too soft



Side sleeper

- If the mattress touches the body all the way from the ribs to the pelvis with similar pressure — firmness is alright
- If there are gaps or areas of substantially less pressure - mattress is too firm
- If there are areas with substantially more pressure or one or more body areas are lower — mattress is too soft



Improving Sleep

1. Develop a sleep routine



2. Avoid caffeine & alcohol



3. Avoid using technology in bed



4. Eat well throughout the day: don't go to bed on an empty or full stomach

5. Be active during the day



6. Reduce fluid intake directly before bed



7. Keep the bedroom dark and noise free

Two sleepers

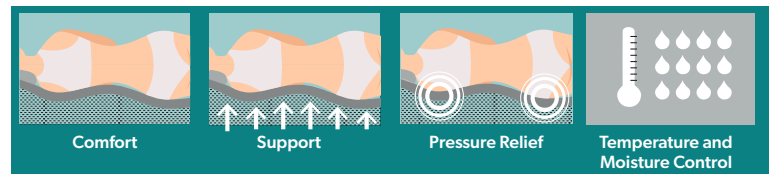
- If both are not similar build and weight – firmness is difficult to individualize
- Compromise or accommodate for only one
- Some mattresses allow for different firmness ratings on each side – ideal

Mattress Construction and Maintenance

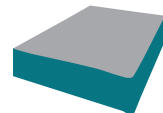
Composition and quality of the mattress is very important

Memory foam mattress

- Full memory foam mattress (not a topper) will conform to the body as it reacts to both pressure and temperature
- Returns to its original shape after use
- Helpful when more than one person on same bed
- “Turning” or “rotating” newer models may not be recommended
- Lifespan = 5-8 years



8. Choose the correct bed and mattress



9. Utilize internal clock opposed to alarm clock

10. Utilize relaxation techniques

