

AFK!

Gamer's guide for injury prevention and optimal performance



TABLE OF CONTENTS

3 About

4 Exercise

5 Hand and wrist exercises

8 Neck exercises

10 Shoulder girdle, back and core exercises

13 Lower limb exercises

16 Ergonomics

20 Recovery and sleep

ABOUT

This guidebook is based on a thesis, with the aim to provide an understanding of ergonomics, physical exercise, and sleeping habits for esports players. The ultimate goal is to prevent physical and mental strain that can result from prolonged gaming sessions.

The objective was to create a comprehensive guidebook that provides guidance on exercise, ergonomics, and healthy habits tailored to the unique needs of esports players.

Research has shown that excessive training and long gaming can significantly increase the chances of an esports-related injury. As a result of musculoskeletal pain, players tend to decrease their training volume, dramatically affecting their performance and even their careers.

Even though most esports players are reportedly physically active, it does not change the fact that esports is a predominantly sedentary activity.

Neck, shoulder, hand/wrist, and back pain have been reported as the most common complaints among gamers. The main reasons behind MSD in gaming are poor ergonomics, repetitive movements, prolonged sitting, mood and sleep disturbances, and lack of physical activity.

EXERCISE

- Lowers the risk of chronic disease and premature mortality.
- Reduces the risk of hypertension, heart attack, and dyslipidemia.
- Decreases the likelihood of obesity, some cancers, stroke, and type 2 diabetes.
- Enhances bone density, reducing the risk of osteoporosis.
- Improves well-being by promoting bone health, body composition, and glucose homeostasis.
- Enhances overall mood and may prevent depression or anxiety or alleviate symptoms.

The recommended amount of physical activity for adults is at least 150–300 minutes of moderate-intensity physical activity or 70–150 minutes of vigorous physical exercise per week, including both aerobic and anaerobic training.



According to studies, physical exercise may have a positive impact on esports performance.

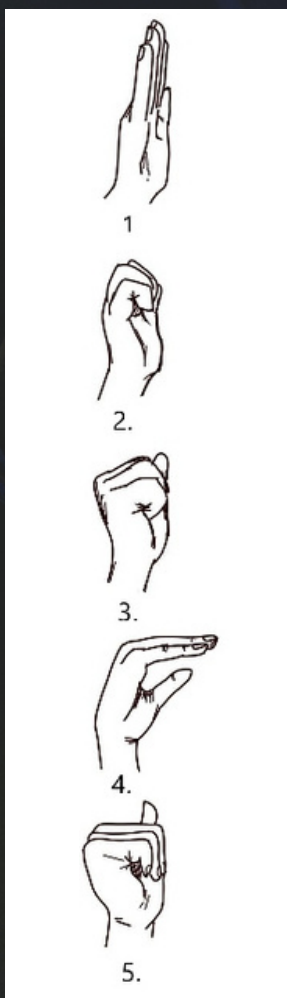
Exercise may improve muscle strength, cardiovascular endurance, flexibility, mobility, balance, stability, or coordination. However, bear in mind that each of these interventions requires specific knowledge of proper posture, intensity, speed, duration, and correct movement patterns to avoid injury or fatigue.

The following part of this guide includes exercises specifically picked to match the physical demands of gaming and to prevent overuse injuries. You can perform the exercises every day. It is enough to pick 1–2 exercises from each group, however, feel free to do as many as you want. The exercises can be done also as a warm-up before a game or during breaks in between gaming sessions. If you feel pain or suffer from an injury, discuss the exercises with your doctor or physiotherapist first.

Hand and wrist exercises

Hand and wrist exercises may have a positive impact on blood circulation, muscle strength, and tendon health. These exercises can also aid in stabilizing the hand and enhancing joint mobility. Performing these exercises into a daily routine may prevent common gaming overuse injuries such as CTS, De Quervain's tenosynovitis, and lateral epicondylitis.

Tendon gliding



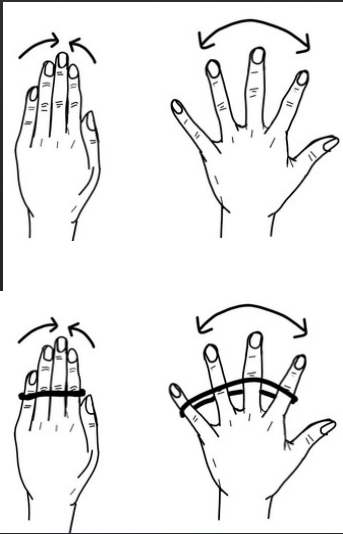
INSTRUCTIONS

1. Keep your palm and fingers all aligned in a straight line.
2. Bend your knuckles and middle finger joints by curling your fingers downwards.
3. Make a complete fist with your hand, thumb over your fingers.
4. Bend your hands at the third knuckle to curve down toward the wrist, forming an upside-down "L."
5. Bend your hand down to form an upside-down "U." Try touching the base of your hand with your fingertips.

PURPOSE: Improving the movement of the tendon through the tendon sheath. Finger mobilization.

INTENSITY: 3 sets of 8 repetitions.

Finger abduction



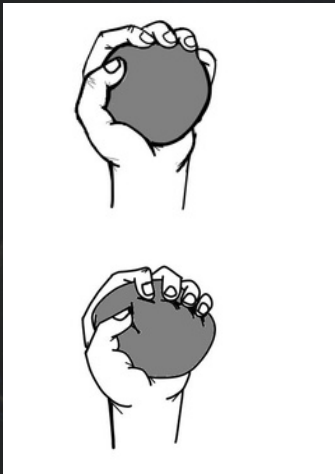
INSTRUCTIONS: Place your hand on the table with your elbow flexed. Abduct and adduct the fingers without moving any other part of the arm.

PURPOSE: Strengthening the finger abductors. Finger mobilization.

INTENSITY: 3 sets of 8 repetitions.

VARIATIONS: Use a rubber band to increase resistance.

Finger flexion with a ball



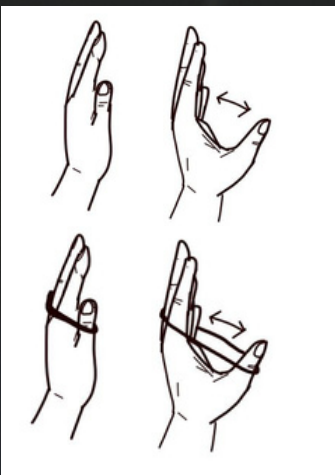
INSTRUCTIONS: Place your forearm on a table and hold a soft ball. Squeeze the ball.

PURPOSE: Strengthening the finger flexors. Finger mobilization.

INTENSITY: 3 sets of 8 repetitions.

VARIATIONS: Use balls of various resistances to increase difficulty.

Thumb abduction



INSTRUCTIONS: Abduct your thumb away from the palm.

PURPOSE: Strengthening the thumb abductors. Thumb mobilization.

INTENSITY: 3 sets of 8 repetitions.

VARIATIONS: Use a rubber band to difficulty.

Wrist flexion



INSTRUCTIONS: Place the forearm on a table with the wrist hanging over the edge, palm facing upwards. Move the wrist up and down while keeping the forearm stable.

PURPOSE: Strengthening the wrist flexors.

INTENSITY: 3 sets of 8 repetitions.

VARIATIONS: Use a resistance band or hand weights to increase difficulty

Wrist extension



INSTRUCTIONS: Place the forearm on a table with the wrist hanging over the edge, palm facing downwards. Move the wrist up and down while keeping the forearm stable.

PURPOSE: Strengthening the wrist extensors.

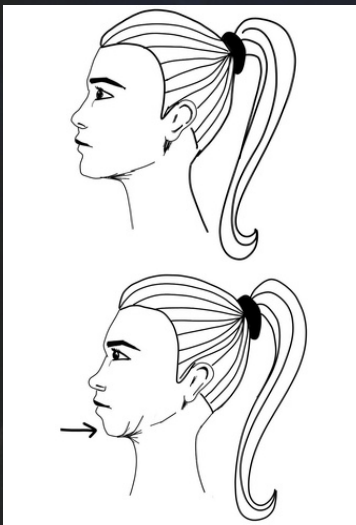
INTENSITY: 3 sets of 8 repetitions.

VARIATIONS: Use a resistance band or hand weights to increase difficulty

Neck exercises

The purpose of strengthening the neck muscles is to stabilize the cervical spine and improve muscle balance in the neck. This will help prevent or reduce postural problems such as forward head posture. Additionally, an exercise intervention may prevent or reduce neck pain or headaches stemming from neck tension.

Chin tuck



INSTRUCTIONS: Sit or stand with good posture, gently pull your head back, and tuck your chin in.

PURPOSE: Strengthening the deep cervical flexors. Stabilizing the cervical column.

INTENSITY: Hold this position for 5 – 10 seconds, then relax and repeat 5 – 10 times.

VARIATIONS: Put your hand on your chin for a guide if needed.

Isometric neck flexion



INSTRUCTIONS: Place your hand on your forehead and push against it using your neck muscles.

PURPOSE: Strengthening the head and neck flexors. Stabilizing the cervical column.

INTENSITY: Hold this position for 5 – 10 seconds, then relax and repeat 5 – 10 times.

VARIATIONS: Use a resistance band instead of hands.

Isometric neck extension



INSTRUCTIONS: Place your hand on the back of your head and resist your head as you attempt to extend it back.

PURPOSE: Strengthening the head and neck extensors. Stabilizing the cervical column.

INTENSITY: Hold this position for 5 – 10 seconds, then relax and repeat 5 – 10 times.

VARIATIONS: Use a resistance band instead of hands.

Isometric neck lateral flexion



INSTRUCTIONS: Place your hand on the side of your head and push your head into it, using neck muscles.

PURPOSE: Strengthening the neck lateral flexors. Stabilizing the cervical column.

INTENSITY: Hold in this position for 5 – 10 seconds, then relax and repeat 5 – 10 times on each side.

VARIATIONS: Use a resistance band instead of hands.

Shoulder girdle, back and core exercises

Exercises of the shoulder girdle, back, and core help achieve correct posture by strengthening the muscles supporting these structures. Stretching and mobility exercises improve ROM and reduce tension in the muscles. These interventions may help prevent or reduce musculoskeletal problems such as forward head posture, hyperkyphosis, back pain, or rounded shoulders.

Shoulder elevation



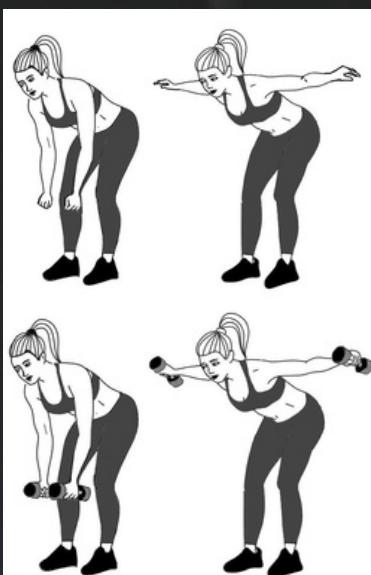
INSTRUCTIONS: Stand or sit upright and elevate your shoulders, bringing them up towards your ears.

PURPOSE: Strengthening the trapezius and levator scapulae muscles.

INTENSITY: 3 sets of 8 repetitions.

VARIATIONS: Use hand weights or a resistance band to increase difficulty.

Bent over fly



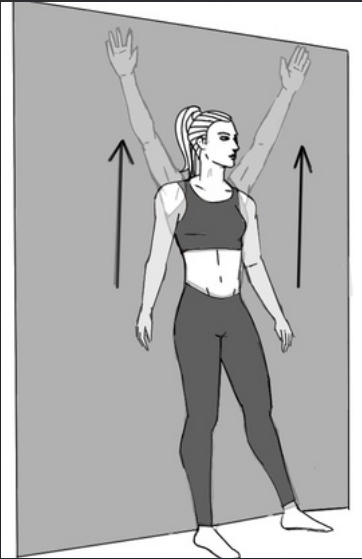
INSTRUCTIONS: Stand with slightly bent knees, keeping your back straight. Bend forward at the hip joint and lift both arms out to the sides. Squeeze your shoulder blades together.

PURPOSE: Strengthening the upper back and shoulder girdle.

INTENSITY: 3 sets of 8 repetitions.

VARIATIONS: Use hand weights or a resistance band to increase difficulty.

Back to wall shoulder flexion



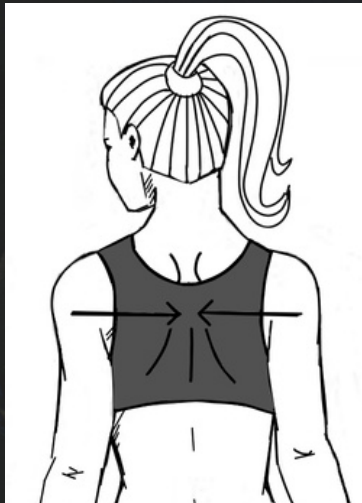
INSTRUCTIONS: Stand with a back against a wall, feet approx. 15–20cm away from the wall. Slowly raise the arms up, keeping the core and back stable. Lower the arms down and repeat.

PURPOSE: Improving shoulder girdle stability, strength and control.

INTENSITY: 3 sets of 10–15 repetitions.

VARIATIONS: Use hand weights or a resistance band to increase difficulty.

Scapular retraction



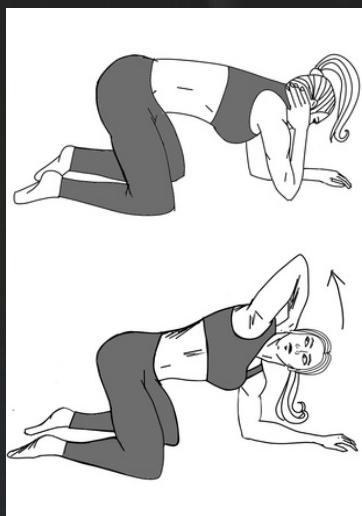
INSTRUCTIONS: Sit or stand in a neutral position. Pull your shoulder blades together without lifting the shoulders. Relax and repeat.

PURPOSE: Strengthening and stabilizing the scapular region.

INTENSITY: 3 sets of 10–15 repetitions.

VARIATIONS: Pull a resistance band to increase difficulty.

Thoracic rotation



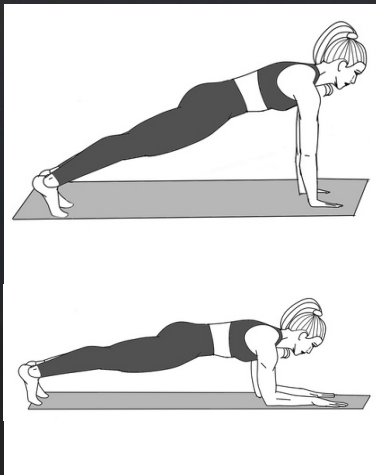
INSTRUCTIONS: Get onto all fours, knees under the hips, and hands under the shoulders, and the spine in a neutral position. Place your hand on the back of the neck and rotate the thoracic spine, keeping the opposite arm stable. Keep the spine aligned. Return back to the starting position and repeat.

PURPOSE: Improving mobility and strengthening the upper back.

INTENSITY: 3 sets of 8 repetitions on each side.

VARIATIONS: Pull a resistance band to increase difficulty.

Plank



INSTRUCTIONS: Start on the floor on all fours, and keep the wrists, hands, and shoulders aligned. Step the feet back, shoulder width apart. Maintain a straight line from the head to your feet. Keep your core and glutes tight.

PURPOSE: Strengthening and stabilizing the core.

INTENSITY: Hold the plank for 30-60 seconds and repeat 2-3 times.

VARIATIONS: You can try an easier version with elbows flexed.

Chest stretch



INSTRUCTIONS: Place both arms on the other side of the door frame. Step forward through the door frame with one leg and feel the stretch in your chest muscles.

PURPOSE: Stretching the chest muscles and improving mobility.

INTENSITY: Hold for 20-30 seconds and repeat 2-3 times.

VARIATIONS: Stretch different parts of the chest by positioning your arms higher or lower on the door frame.

Lower limb exercises

The sedentary nature of gaming requires exercises of the lower limbs in order to improve blood circulation, strengthen and stretch the muscles, and enhance mobility. These exercises may help prevent pain in the lower back and lower extremities and pressure on the sciatic nerve.

Knee extension



INSTRUCTIONS: Sit with spine in neutral positions, knees and ankles aligned. Flex the knee.

PURPOSE: Strengthening the front thigh (quadriceps femoris and tensor fascia lata).

INTENSITY: 3 sets of 8 repetitions.

VARIATIONS: Use ankle weights or a resistance band to increase difficulty.

Squat



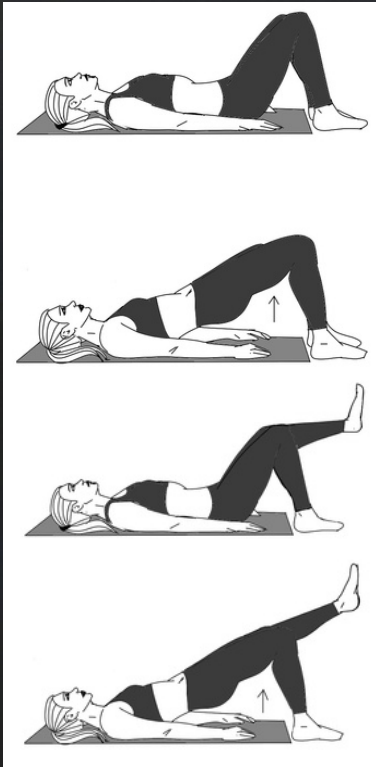
INSTRUCTIONS: Stand with feet shoulder-width apart, spine in a neutral position. Bend your knees and lower down, with the movement starting from your hip joints. Keep your head up, core tight, back straight, and knees and ankles aligned. return back to the starting position and repeat.

PURPOSE: Strengthening primarily the glutes, quadriceps femoris, and hamstrings, stabilizing the core.

INTENSITY: 3 sets of 8 repetitions.

VARIATIONS: Use hand weights or a resistance band to increase difficulty. Choose the depth of the squat according to your abilities.

Bridge



INSTRUCTIONS: Lie down on your back and flex your knees to approx. 90 degrees. Slowly lift your pelvis up while keeping the core tight and knees and ankles aligned. Lower the pelvis back down and repeat.

PURPOSE: Stabilizing the pelvic girdle. Strengthening the glutes, hamstrings, and quadriceps femoris. Improving trunk stability.

INTENSITY: 3 sets of 10–15 repetitions on each side.

VARIATIONS: Keep one leg lifted up.

Ankle pumps



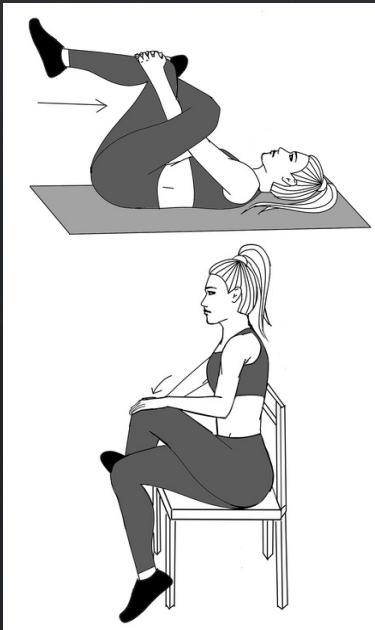
INSTRUCTIONS: Sit in a neutral position, straighten your leg, and start pumping the ankle up and down.

PURPOSE: Strengthening the calves. Improving ankle mobility and blood circulation in the feet.

INTENSITY: 3 sets of 10–15 repetitions on each side.

VARIATIONS: Use a resistance band to increase difficulty.

Glute stretch



INSTRUCTIONS: Lie on your back and bend both knees. Cross the right leg over the left and bring the knees toward your chest. Lightly pull the left leg toward you. Feel the stretch, return back to starting position and switch legs. The stretch is not supposed to not cause any pain.

PURPOSE: Stretching the glutes and piriformis.

INTENSITY: Hold for 20–30 seconds and repeat 2–3 times on each side.

VARIATIONS: This stretch can be done seated.

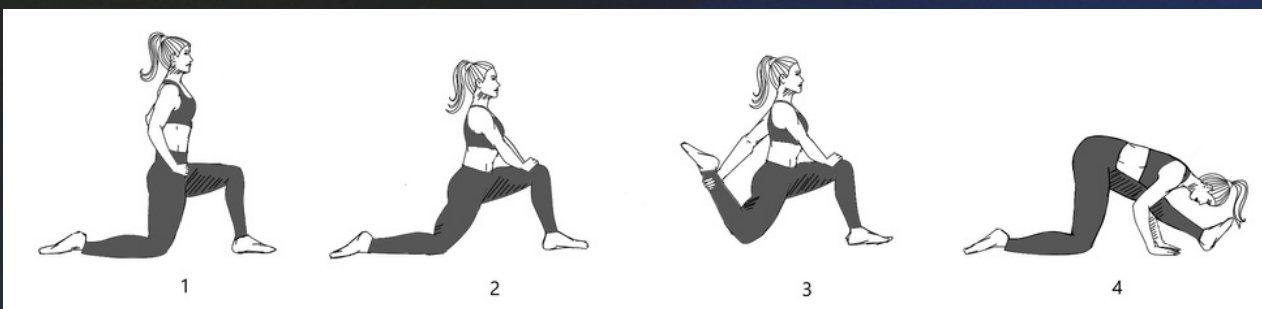
Hip flexor, quadriceps femoris and hamstring stretching sequence

INSTRUCTIONS:

1. Kneel on one knee and keep the other leg flexed in front of you.
2. Keep your back straight and push your hips slowly forward. Keep the stretch, then return back to the starting position.
3. Grab the foot on the floor and lift it up. Keep the stretch and return back to the starting position.
4. Straighten one leg in front of you and bend from your hips forward, keeping your back straight. Try not to bend your knee. Go back to the starting position and switch legs. The stretch is not supposed to not cause any pain.

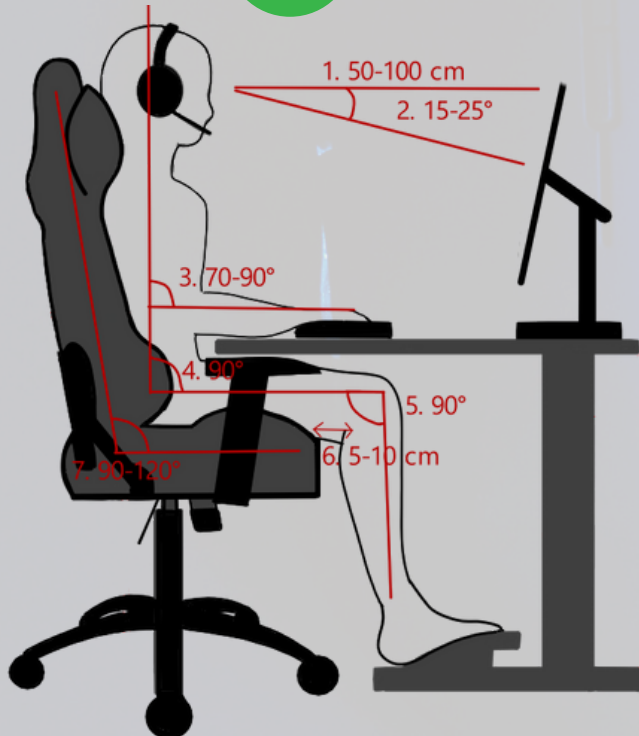
PURPOSE: Stretching the hip flexors, the hamstrings and the quadriceps. Improving mobility.

INTENSITY: Hold for 20–30 seconds. Switch sides after completing the sequence. Perform the sequence 1–2 times on each side.



ERGONOMICS

- The height of the chair seat should keep the hip and knee joints at approximately a 90° angle, with feet firmly planted on the floor or another stable surface.
- The backrest should be of appropriate length and width, tailored to each individual's body constitution. The backrest angle should not be lower than 90° . an angle of $110-120^\circ$ can reduce disc pressure and muscle activity in the back.
- When sitting fully back, the ideal gap between the front of the seat and the user's knee is 5-10 cm.
- Armrests must provide a comfortable position for the arms, with relaxed shoulders and elbow flexion of $70-90^\circ$. Armrests that are too long will obstruct the chair from getting close enough to the desk. Padding on the armrests can help to minimize pressure on the arms and elbows.



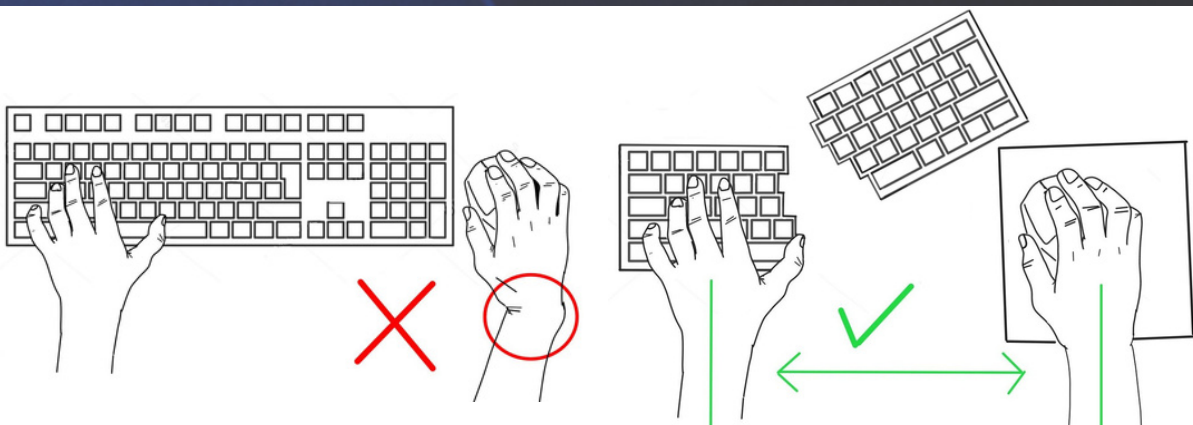
1. Distance between the monitor and the gamer
2. Viewing angle
3. Elbow flexion
4. Hip flexion
5. Knee flexion
6. Distance between the back of the knee and the edge of the chair
7. Backrest angle

Keyboard and mouse ergonomics

A keyboard needs to be positioned in a way that keeps the wrist in a neutral position. To avoid wrist strain, the wrist should not exceed 15° of extension and 5° of ulnar deviation. Placing the keyboard at a distance of 10–2 cm from the edge of the desk can provide optimal wrist support.



Choose a mouse that is of the right height. A too tall mouse can increase wrist extension and pressure in the carpal tunnel. A heavier mouse is usually more suitable for a palm grip, while a finger grip may require a lighter and shorter mouse. Find a mouse that fits your gaming style and preferences, and keeps the wrist in a correct position.



In a correct hand placement, hands should be in line with shoulders to avoid wrist strain. Choose a keyboard of an appropriate length or pick an ergonomic split keyboard.

Environmental ergonomics

- The optimal lighting level is between 300–500 lux.
- Avoid reflections from windows or other light sources.
- Use a desk light instead of overhead light and position it on the side of the screen while avoiding reflective work surfaces.
- Wear eyeglasses instead of contact lenses and reduce eye dryness by using an air humidifier in the room.
- Reduce the damaging effects of blue light by using blue filter glasses or a blue light screen filter.
- Follow the 20-20-20 rule – take a break every 20 minutes by looking at an object 20 feet (6 meters) away for 20 seconds to allow the eyes to rest.



-
- Excessive noise may not only affect hearing but also impair cognition, reduce performance, and affect mood.
 - Wearing headphones on high volume may have a damaging effect on the ear, causing problems such as hearing loss, tinnitus, or feeling of blocked ears.



- The optimal volume is at 60% or less.
- Choose comfortable and lightweight headphones that will not cause excessive pressure on the head or ears. Soft materials such as leather are a good choice.

RECOVERY AND SLEEP

REGULAR BREAKS

Repetitive motions, prolonged sitting, and excessive screen time can result in physical and mental exhaustion, leading to health complications and reduced performance.

Incorporate frequent breaks into training sessions, such as light exercise, or engaging in other enjoyable activities that can alleviate physiological and psychological strain.

SLEEP

Optimal sleep habits will help reduce the adverse effects of sleep deprivation on cognitive and physical health. Staying awake for longer than 16 hours slows reaction time, reduces accuracy and alertness, impairs visual and memory processing, and has a negative effect on judgment and decision-making.

How to get better sleep?

- Schedule the day in a way that allows for at least seven hours of quality sleep
- Maintain a consistent wake-up and bedtime routine.
- Use the bed solely for sleeping purposes.
- Avoid spending too much time in bed.
- Only go to bed when feeling genuinely sleepy.
- Limit screen time before bed or wear blue light-blocking glasses.
- Refrain from consuming caffeinated beverages for at least six hours before going to bed.
- Try relaxation methods such as listening to soothing music or audiobooks, practicing breathing exercises, or engaging in progressive muscle relaxation.
- Try cognitive behavioral therapy in case of insomnia.



SLEEP ERGONOMICS

Approximately one-third of our life is spent sleeping. An appropriate sleeping posture is essential to avoid overloading muscles and joints, which can lead to headaches and musculoskeletal pain.

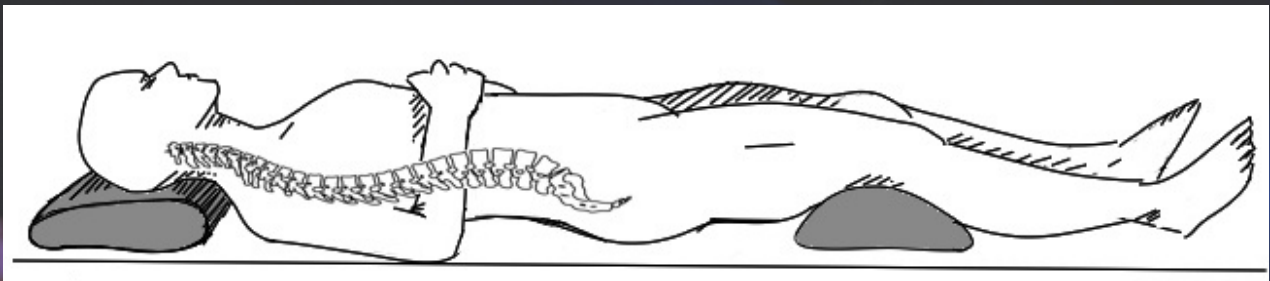
- Sleeping on the back can increase the likelihood of sleep apnea or snoring. Back sleepers are advised to place a small pillow under their knees to promote a comfortable and natural sleeping position that does not place excessive strain on the lumbar spine.
- Sleeping on the side can lead to pressure on your shoulder or pelvis. Place a pillow between the knees to keep the spine aligned and reduce pressure on the hips. If you suffer from acid reflux, try sleeping on the left side.
- Sleeping on the stomach can cause significant stress on the spine. It is recommended to place a pillow under the stomach and pelvis to minimize spinal strain. However, consider other sleeping positions.



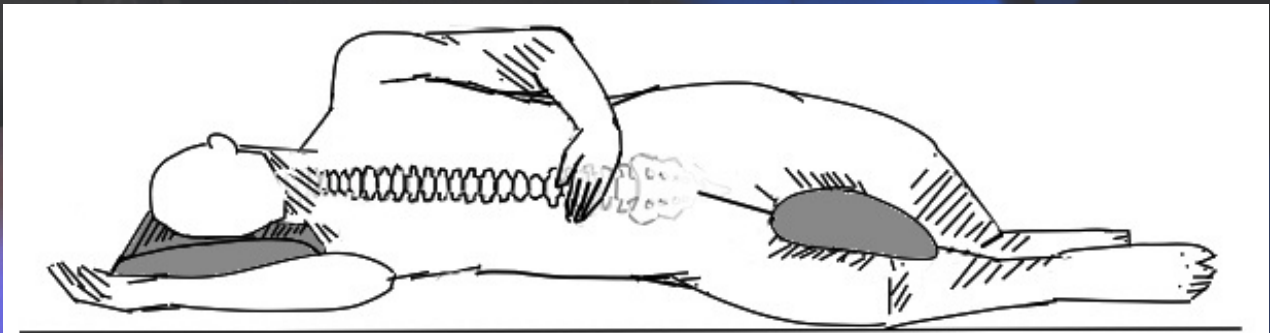
SLEEP ERGONOMICS

A mattress that is too soft or too firm can lead to poor spinal support and discomfort. Choose a mattress that will keep the spine in a neutral position. Too soft mattress won't support the spine, while too hard mattress will cause excessive pressure on your body.

Choose a pillow that will maintain the cervical spine in a neutral position. Try the pillow in person to determine which pillow suits your body's constitution and needs. A pillow with materials that keep the surface cool can potentially enhance sleep quality.



An optimal sleeping position in supine with the help of supportive pillows.



An optimal sleeping position on the side with the help of supportive pillows.



A sub-optimal sleeping position.

The goal of this project is to promote a healthy lifestyle among the gaming community. Esports has gained enormous popularity, but the health aspect is still being forgotten. With healthy habits, the quality of life will increase, and, gaming performance might actually improve.

Hopefully, this guide provided useful information to both gamers and their coaches or teams. Bear in mind, that excessive gameplay training may cause more harm than good. If you suffer from health problems, seek a doctor as soon as possible and start your recovery.

If you finished reading this guide, congratulations! Now go take an active break and do a couple of stretches.

GLHF!

