

## EDITORIAL

# WORKSTATION FOR UNIVERSITY FACULTY – AN ERGONOMIC VIEW

Ergonomics deals with work performance, emphasizing on worker safety and productivity. It deals with the scientific study of human capabilities and limitations in relation to work demands. Ergonomics is a crucial issue nowadays because with the advancement in technology, all tasks in most organizations, especially universities, are completed in a sedentary position and on the computer. If daily tasks are not carried out properly without considering posture and duration, there will be slow development of injuries. A person starts making adjustment to body instead of work environment, which further predisposes to injuries. When ergonomically-designed workstations are not utilized, it leads to Repetitive Strain Injuries (RSI) and Musculoskeletal disorders (MSD).

Applying ergonomics at any organization helps to make the workplace comfortable and efficient for the worker, hence, it is important to introduce ergonomic workstations at universities. Usually, most individuals are not concerned about the posture in which they sit and work. Either, they are unaware about good posture habits or may not consider it a health-risk. When pain is initially felt, it is ignored until severe symptoms begin to surface. Prolonged periods of work with the head or trunk bent puts stress on them; hence, complaints arise over the time spend. Working with unsupported raised arm predisposes to shoulder strain. Furthermore, factors that contribute to ergonomic injuries are: sitting in awkward postures by tilting head down or forward, leaning forward, keeping wrist or elbow on hard surface. Chair height does not correspond with their popliteal height - either it is low or high. Also, not using a document holder when working with computers or working continuously without intervals - all these behaviors play a role in developing or accelerating the problems.

Ergonomic workstations are needed by the teaching faculty in universities because they have to perform multidimensional tasks. Other than conducting lectures, faculty members perform a lot of tasks on the computer which includes: preparing lecture notes and presentations, designing class activities and assignments, preparing and marking tests, reading course literature, exploring new researches in their subject and so forth. It is necessary for every faculty member to have an individual workstation, so that they can adjust the workstation according to their body dimensions and hence, allow concentrating on their tasks.

Proper guidelines should be followed when using the computer to prevent ergonomic injuries. The height of the chair should be such that the body can maintain good posture, with the appropriate table. The footrest is also considered extremely useful; however, it is not a primary ergonomic accessory but it provides noteworthy benefits. A chair with low back support, swivel and adjustable height are considered better.

Position of the monitor, keyboard and mouse are important consideration as a Physical Therapist. A few landmarks have been researched in various literatures where the viewing distance between eyes and screen should be approximately about 15" to 27". Viewing angle of the screen of about 15° (or slightly lower) below the horizontal line is better as it creates a preferable visual zone of 30° (+15° to -15° from the normal line of sight). There should be appropriate spacing on the table for document files, or use the document holder. The usage of tray, its height has often been neglected in various ergonomic stations. The tray having sufficient space for keyboard and mouse, with proper wrist support is appreciated. These should be kept at elbow level to maintain the wrist position.

Ideally, the table should be an L-shaped curve as corner-desk units allow space for desk-work and help to position the monitor directly in front of the user. Working materials on the table should be arranged in zones of necessity so that everything becomes easily accessible. Other than body posture and movement, environmental factors (such as noise, vibration, illumination and climate) of the workplace are also important. Ergonomics provide guidelines for the environmental factors too. For example, shelves above the workstation should not interfere with the monitor height or overhead lights and below the workstation, there should be sufficient legroom.

In order to avoid long-term health hazards, it is beneficial to alternate the sedentary tasks with physical tasks so that one does not sit for an extended period of time. Regardless of available ergonomic workstations, it is necessary that an individual working with a computer for lengthy hours should follow proper guidelines to avoid dilemmas. This is because, if one has a well-designed ergonomic workstation and does not adjust it in accordance to one's body dimension, the ergonomic workstation will be useless. An individual will definitely develop RSI at different regions. Therefore, conducting workshops and other methods to highlight its importance is essential. The universities need to focus on ergonomic safety of academicians in order to decrease their medical leaves and increase the productivity since we all know that prevention is better than cure. In a nutshell, universities should immensely focus on providing ergonomic workstations, in order to facilitate a productive work ambience.

### Ms. Ghazala Noor Nizami

Member of Editorial Committee, Pakistan Journal of Rehabilitation  
Assistant Professor, Ziauddin College of Physical Therapy  
Ziauddin University

## LETTER TO THE EDITOR

# T4 SYNDROME: THE PAIN IN NECK THAT IS OFTEN MISDIAGNOSED!

### To the Editor,

It has been ascertained that musculoskeletal issues arising from the upper thoracic spine are often incorrectly diagnosed as cervical in nature, by both the therapists and the medical professionals equally. This may be due to the reason that the lower cervical and upper thoracic vertebrae are closely linked with regards to cervical movements, predominantly, flexion, and extension. Symptoms from the upper thoracic spine can also bring up pain in the arm and forearm, thus, mimic a heart attack<sup>1</sup>.

One such condition of upper thoracic spine is of T4 vertebra - the T4 syndrome. In 1994, Evans P, discussed the basic science behind the genesis of T4 syndrome and argued that, the term *upper thoracic disorder* might be a more accurate term, in view of the fact that, the condition generally ranges between T1 to T7<sup>2</sup>. However, it is generally referred to as T4 or T3 syndrome<sup>3</sup>. If we examine the vertebral column, the compressive load at T1 is about 9% of body weight, increasing to 33% at T8 and 47% at T12<sup>4</sup>. In between each one of these vertebrae, lie the facet joints and discs, which help in maintaining the weight and directing the movement among the individual vertebrae. When either of these joints gets injured, damage in turn can be imposed on the nerves and the T4 vertebra is most prone to destruction. This is due to the nature of its position, whilst performing certain movements<sup>5</sup>.

Although the cause of T4 syndrome remains vague, it is hypothesized that sustained or poor postures can lead to relative ischemia within multiple tissues adding to symptoms of sympathetic origin<sup>2</sup>. Unlike somatic referred symptoms, the symptoms deriving from sympathetic nervous system are thoroughly different and refer towards head and upper extremities<sup>6</sup>. Thus, it gives a glove-like presentation. Symptoms may not be exclusively derived from fourth vertebra but may arise from other upper vertebra as well<sup>6</sup>. Hence, T4 syndrome may well be entitled as upper thoracic syndrome.

According to a study published in the Journal of Manipulative and Physiological Therapeutics, nocturnal or early morning paresthesia, numbness, or upper extremity pain presenting in a glove-like distribution, with a stiff upper thoracic spine coupled with headaches and without neurological indication of disease, may be indicative of T4 syndrome<sup>7</sup>. Another study in 2006, in the same journal contributed upper extremity coldness, tightness, and deep aching pain to the clinical features of this syndrome<sup>6</sup>.

The research conducted by de Franca and Levine revealed that, manipulation of the dysfunctional upper thoracic segments may relieve these symptoms<sup>7</sup>. For this reason, it is suggested that, when a patient presents with neck pain, the thoracic spine should also be considered as a potential contributing factor to the pathology. Since quality information concerning T4 syndrome is lacking<sup>3</sup>, there is a crucial need to raise the awareness regarding this syndrome. Therefore, it is proposed to the researchers reading this letter, to focus their attention over this subject as well, so that it should no longer be misdiagnosed.

### Ms. Sadaf Shafiqat

Lecturer  
Ziauddin College of Physical Therapy  
Ziauddin University

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