Musculoskeletal check in smartphone overuse in COVID 19 Lockdown phase

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ABSTRACT
Due to the rapid spread of COVID-19, some of the major preventive measures such as complete lockdown of the country with the availability of only essential services that lead to a lot of changes in people’s daily lifestyle and work pattern. The mobile device has had a significant impact on everyday life in all ages and in almost of the countries. The average time reported spent on internet use was 2.13 hours every day in the Indian population. Mobile device users complain of discomfort in at least one area of the upper extremities, upper back, or neck pain, shoulder pain, wrist and hand pain, and finger discomfort. Long-term use of smartphones causes continuous mechanical stress on the tendons, muscles, and perimetric tissue, which can induce various musculoskeletal symptoms. The use of smartphones in a sitting position may lead to more shift in head-neck angle than in a standing position. The main aim of this article is to understand the overview of musculoskeletal check during this time of lockdown, where we all have to experience changes in our lifestyle pattern by staying indoors. So the overview of this article is concluded by giving a scientific understanding behind keeping a musculoskeletal check in smartphone overuse in lockdown phase, which is of great importance to optimize, maintain & improve the overall performance of the body.

INTRODUCTION
Coronavirus disease (COVID-19) caused by a virus referred to as SARS-CoV-2 has landed up to be a global pandemic affecting people worldwide (Sohrabi et al., 2020). It causes illness such as respiratory disease quoted as severe acute respiratory syndrome coronavirus -2 or COVID-19, which was first originated from Wuhan city of Hubei province of China and later began to spread to other countries (Zhou et al., 2020).

Until 5th March 2020, around 96,000 cases of coronavirus disease (COVID-19) and 3,300 deaths had been reported (Wang et al., 2020). India reported 11,993 cases till date (14th April 2020) as of statistics obtained from the Union health ministry of India. Fortunately, so far, children and adults have been moderately affected with fewer deaths.

Due to the increasing cases of SARS-COV-2, the ministry had to declare a strict lockdown until the disease is under control and people are safe to go out. This lockdown phase has lead to a lot of changes in people’s daily lifestyle and work pattern. According to a few researchers, there was an increased use of mobile phones and other technological appliances, as people were encouraged to work from home. Also, more time was spent on internet surfing and mobile phones.

As now, the future course of the virus cannot be predicted. Due to the rapid spread of COVID-19, some
of the major preventive measures such as complete lockdown of the country with availability of only essential services, compulsory use of face masks, and following strict social distancing protocol have resulted in the global closure of all means of entertainment or recreational activities. The entire population of India is going through the lockdown phase to break the chain of transmission. The mobile device has had a tremendous impact on modern everyday life in all ages and in almost of the countries. This article gives an overview of the musculoskeletal check in lockdown phase owing to the increased use of smartphones during the lockdown phase.

**Duration of routine use of smartphones**

As we are aware of the fact that the internet is a global system of network communication that has become an integral part of modern life, the use of internet and technology has both positive and negative aspects (Guan and Subrahmanyan, 2009). Like all other advancing countries, the Indian population is not an exception to this global trend of the internet era, where internet use is increasing day by day like a major necessity of life. The average time spent on internet use was 2.13 hours every day in the Indian population (Grover et al., 2010). Owing to the lockdown phase and more tendency for the sedentary lifestyle and lack of outdoor activity, resulting in the overuse of smartphones comparatively more than earlier, has reported that due to the increase in total duration of use of smartphones per day, there is a higher probability for the population to serve a price for musculoskeletal issues during this phase of lockdown.

During this lockdown period, it was also observed that not only youth but the people from all the age groups were engaged more into telecommunication devices, handheld devices such as smartphones.

**Musculoskeletal issues reported with the use of smartphones**

Berolo et al. has reported that mobile device users complain of discomfort in at least one area of the upper extremities, upper back, or neck (Berolo et al., 2011). Mobile phone users often complain of a variety of musculoskeletal issues, namely headache, neck pain, shoulder pain, wrist and hand pain, and finger discomfort. Long-term use of smartphones causes continuous mechanical stress on the tendons, muscles, and perimetric tissue, which can induce various musculoskeletal symptoms (Ko et al., 2013).

In our digital world, increase smartphone usage has also led to psychological strain, ergonomic risks leading to musculoskeletal disorders, commonly neck pain (Namwongsa et al., 2018). Thus, musculoskeletal issues are at peak due to the drastic increase in the use of handheld devices like mobile phones, game controls, tablets, portable media players and personal digital assistants (Sharan et al., 2014). A study also showed that improper body postures or awkward postures maintained for long hours, and the type of mobile phone task significantly affected muscle activity and thumb positions of the individual.

The use of smartphones in a sitting position may lead to more shift in head-neck angle than in a standing position (Gustafsson et al., 2017; Ewa et al., 2010). Few studies also suggest that smartphone usage with the tasks like typing, texting, internet surfing, dialling while free walking or free-living are known to impact or alter gait biomechanics as they influence the basic cognitive and smartphone dual-tasking abilities (Niederer et al., 2018).

So, Texting activity also contributed as a risk factor in causing musculoskeletal disorders of neck, thumb and upper extremity (Gustafsson et al., 2017).

As this lockdown period has employed a lot of people with work from home schedules, so there has been a usual increase texting activity, video conferencing, hours of internet activity like online courses, webinars and all other important works are now done by relying on technology. Therefore, it is certain that the use of smartphone devices during the lockdown phase is going to be on an upward trend for recreational purposes with entertainment applications and other commercial use. If not paid attention to musculoskeletal check it can further lead to problems like postural impairment, text next syndrome, nerve compression, muscle fatigue, spasm etc. which may cause pain, discomfort and other musculoskeletal symptoms.

**Improvisation on physical activity**

The frequent use of technological variances and working on laptops, computers, and smartphones for long hours is leading to increasing musculoskeletal problems like low back pain, shoulder pain, nerve compression or radiculopathy, tension neck syndrome, text next syndrome, etc. So a routine of physical activity is important to keep the body balanced and fit, to maintain overall circulation and to maintain one’s strength and endurance.

Exercises improve various parameters like they help to aid joint lubrication, provide nourishment to the musculoskeletal system, ease joint pain and stiffness, improve flexibility, build muscular strength, help you sleep better, improve or maintain the

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density of your bones, lower stress levels, help keep healthy body weight, release endorphins and enkephalins which are happy and relaxing hormones help to reduce anxiety, improves oxygenation of overall body, eliminates stress and it increase the feeling of well-being. According to world health organization (WHO) a minimum of 150 minutes exercise duration per week that is 30min/day for five days a week, however, these can be divided in 10-10-10 minutes bouts (Arias-Palencia et al., 2015; Eitivipart et al., 2018).

Therefore it is recommended to maintain a self-check on the musculoskeletal issues with overuse of smartphone devices in this current lockdown phase due to COVID19 pandemic. Along with this, a routine of basic indoor physical activity is advisable to keep the body free from any musculoskeletal problems associated with a sedentary lifestyle and the overuse of smartphones during the period of lockdown.

Including Indoor activities like yoga, breathing exercises, changing of position after every 15-30 minutes, stretching your body, ankle pumps, brisk walking in some open area in the house, will help to maintain good circulation, physical health a posture, which will ensure a balanced musculoskeletal system.

Why is it important to keep a good musculoskeletal check during the lockdown phase?

Each one of us desires for a pain-free body. The main aim of this article is to understand the overview of musculoskeletal check during this time of lockdown, where we all have to experience a change in our lifestyle pattern by staying indoors. Musculoskeletal check gives you a quick sum-up idea about musculoskeletal symptoms, and it’s because which helps you to reduce the occurrence of musculoskeletal disorders, prevent injuries and enhance the workplace productivity and quality of life.

CONCLUSION

So the overview of this article is concluded by giving a scientific understanding behind keeping a musculoskeletal check in smartphone overuse in lockdown phase, which is of great importance to optimize, maintain & improve the overall performance of the body.

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