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Digital eye syndrome: COVID-19 lockdown side-effect?

To the Editor: The coronavirus COVID-19 has sent humanity indoors, replacing human contact with an electronic connection. The increased use of electronic devices (e-devices) and its influence on the wellbeing of users is a concern to healthcare practitioners. Digital eye syndrome (DES) is one of these health concerns. Internal DES essentially affects the user's visual system of accommodation, convergence and refraction. Users of electronic devices will complain of blurred distance and/or near vision, difficulty re-focusing and headaches.[1] DES is caused by small font size, reduced reading distance, light emission of self-eliminating screens, and time-based exposure.[2] Moreover, the cognitive demand of reading material affects DES severity.[3] Digital blue light has a role in internal DES, and it influences circadian rhythms and sleep. The screens of modern e-devices do have built-in protective mechanisms to shield/guard us, but it is the duration of use that contributes to symptoms of DES. The other concern is digital blue light suppressing the sleep hormone, melatonin, because its wavelength stimulates the retinal photoreceptors to suppress production of melatonin from the pineal gland, thus delaying the latency of sleep onset as well as affecting the quality of sleep.[3]

External DES manifests with users complaining of tired red eyes, sensitivity to light and general ocular discomfort from extended screen time. These symptoms are attributable to drying of the anterior surface of the eye, especially the cornea, due to a reduced blink rate. It is exacerbated by incomplete blinking, i.e. poor blink quality with screen time, and even air conditioning drying the eye.[1-3] Users also often complain of neck, back and shoulder pain. Prolonged sitting with poor posture and lack of movement during screen time contribute to these impairments. Users should be advised to adopt a correct posture and sit upright with the back supported, both feet supported on a surface in front, and arms, forearms and wrist (neutral) all aligned with the device at eye level or just below. Furthermore, users should change their position frequently.

The 20:20:20 rule, i.e. for every 20 minutes of screen time, look at an object 20 feet (6 m) away for 20 seconds, is advised[3,4] and may interrupt the onset of visual fatigue. If one exceeds continuous use of 2 hours, a 15-minute break is recommended.[5] The recommended screen distance should be >50 cm.[1] Computer vision spectacles include anti-fatigue or accommodative support lenses for pre-presbyopes, and office lenses rather than multifocal spectacles, which offer a wider reading field, for presbyopes with up to 2 m of vision. Spectacles can have antireflection coatings to reduce discomfort from the glare from the e-device; in addition, blue-blocking lenses have recently been recommended. In the case of external DES and dry-eye sufferers, artificial lubricants and omega-3 supplements are recommended.[3] Although DES may be exacerbated during the COVID-19 pandemic, the issue of prolonged screen time is here to stay. Users of e-devices need to be advised of preventive measures by family practitioners, as this syndrome will only show itself after extensive use.

A J Munsamy
Discipline of Optometry, College of Health Sciences, University of KwaZulu-Natal, Durban, South Africa
munsamya1@ukzn.ac.za

Verusia Chetty
Discipline of Physiotherapy, College of Health Sciences, University of KwaZulu-Natal, Durban South Africa

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