Dental hygiene can be a pain in the neck!

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Introduction
Musculoskeletal problems have become a significant issue for the Dental Hygienists and Therapists (DHT) frequently affecting muscles, joints, tendons, ligaments and nerves. Most work-related musculoskeletal disorders (MSD) develop over time and are caused either by the very nature of the work or by the working environment. It is often difficult to avoid prolonged static postures, even in optimal seated postures more than one-half of the body’s muscles are contracted statically, with little movement of the cephalic joints. This may result in damaging physiological changes that can lead to back, neck or shoulder pain. Back pain is a very common problem in the UK. Many studies detail its cost to the economy and the NHS. Currently, MSD is the most common occupation-related illness in Great Britain. However, the available research, looking at the correlation between MSD and the dental profession, has mainly focused on Dentists. This small study is likely to be among those susceptible to this condition. The available literature reveals that very little is known about the specific tissues affected among dental personnel. The natural course of development of musculoskeletal disorders over a period of time is also unknown, as longitudinal studies investigating these problems are rare. It would appear that research into this area is needed to examine whether all MSD become permanent or whether there is a possibility for recovery, despite continued work in the same profession, or after a change in occupation or retirement.

Ergonomics, also known as “human factors”, is the scientific discipline that seeks to understand and improve human interactions with products, equipment, environments and systems. Drawing upon human biology, psychology, engineering and design, ergonomics aims to develop and apply knowledge and techniques to optimise system performance, whilst protecting the health, safety and well-being of individuals. A painful issue
The DHT is at high risk of developing an MSD due to the visual demands of the saddle seat. An upright position is encouraged with hips abducted and flexed to 45°, knees and ankles are also in the mid position, where abnormal tone and movement are inhibited.

Discussion
There is a limited amount of literature and research that targets only Dental Hygienists and Therapists. The main area of research focuses on Dentists with few studies focusing on DCps. Dental work requires considerable concentration and attention to detail. During this study it was noted that even though 47% of DHT confirmed that their student curriculum did not address the prevention of MSD, many added that this was only covered very briefly and in not much detail.

As clinicians, we all strive to maintain good vision and often have to compromise our posture to achieve this. Lower back pain does not have to be an occupational health hazard for oral health professionals. Risk factors and causes include: operator posture, patient positioning, and elements unique to dental environments such as lighting and stocks.

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The questionnaire also asked whether loupes were worn, saddle seats used or any training in correct posture had been given during their time studying at Dental School. This information was required to note any significant improvement in the MSD since introducing these aids.

Results
A total of 110 questionnaires were returned; the respondents were either Dental Hygienists or Therapists or Dental Hygienist Therapists. Nearly three (85%) DHT complained of some form of MSD. A further 17 (15%) respondents experienced no form of MSD. Neck pain was a problem for 30%, while 29% experienced lower back pain, 28% experienced shoulder pain and 13% had or were currently experiencing upper back pain (Fig 1).

A total of 76% of the DHT respondents stated their experience of MSD was a result of their occupation (Fig 2). From the results collected, 26% have tried massage treatment, 22% have had treatment from a Chiropractor, 20% have had physiotherapy treatment, 12% have tried Pilates while 20% have tried various other treatments, all treatments or had no treatment for MSD (Fig 3).

Only 17% of the respondents answered that they wear loupes (Fig 4). Studies show that the use of loupes can help improve posture. However, the use of improperly selected or adjusted loupes can be further damaging to the musculoskeletal health of the clinician while increasing eye strain. So while it may be beneficial to use loupes it is vitally important to use the correct magnification. Teaching the student DHT, from the start of their training, to wear loupes can help with the prevention of MSD if the correct magnification is used.

Forty one percent of respondents use a saddle seat (the exact make of the saddle seat was not asked). A study at the University Of Birmingham School Of Dentistry identified that Dental Students using a saddle seat were able to maintain an acceptable working posture during simulated dental treatment. This seating may reduce the development of work-related musculoskeletal disorders.

Saddle seats are designed to make the best of human body mechanics by positioning the body to allow normal spinal posture while working, and therefore allowing it to function well. These seats are designed to keep the pelvis in its natural, neutral position when sitting (just as it is when standing). In this position the spine and shoulder girdle, trunk, head and neck can function in their most natural, stable position, with minimal stress.

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By identifying common causes and risk factors, we can implement preventative measures.
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References

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