

Postural Care for the Dental Professionals

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Abstract: ***Introduction:** In dentistry is vital to maintain a correct posture during the treatment of patients to avoid in this way musculoskeletal injuries that can be placed in their body. Constant physical exercises serve as prophylaxis for all dental professionals of all ages. An unforced position of the body, hands and arms relaxed and constant physical exercises of upper limbs and back are the key to the success of the dental professionals' work. **Objective:** The objective of this practical study is to emphasize the special role of physical activity and correct posture for the dentists during their profession. Daily physical exercises need to return part of their daily routine to prevent pain in the neck, back and shoulder. **Methods:** The study included 56 dentists from 35-60 years old, in different private clinics during a period of 9 months (January – September 2016). According to the questionnaires 40% of them refer pain of one or both shoulders and decreased grip strength; 55% of them refer for neck pain that spreads to the shoulder and associated with hand numbness and 5% did not specifically complain of any pain. **Results:** Doctors, who followed the advices of the physiotherapist for the way of body position during patient's treatment and which implemented a regular physical exercises program referred a decrease of the pain level from the value 6 to 3 by VAS (visual analogue scale), respectively in shoulders and back. They feel less fatigue at the end of the day, experience less pain, and they are able to provide the quality of service that their patients demand. In this aspect the role of the physiotherapist is very important for the health and the success of dental professionals.*

Keywords: Dentist, Physical Exercises, Posture, Pain

1. Introduction

Anyone who works in dentistry should be aware that this profession is mentally and physically rich with challenges during its career. However, one area that is often overlooked is the physical strain that can be placed on their bodies as a result of a bad posture during treatment. In their career as a dentist everyone has experienced back or shoulder pain and it seems as a similar problem of all dental care professionals. The current workstation in most dental offices requires that the practitioner lean forward, flex his neck forward and laterally, hold his shoulders abducted and his arms flexed, with this position being held statically for most of the workday. Dentists need to tightly grip thin, sharp instruments and make a high volume of short, forceful movements with the muscles of their wrists and hands to treat heavy calculus and other conditions. The human body is not built to handle these kinds of stresses, and the positions in which dentists repeatedly put themselves through their work place them at great risk for developing musculoskeletal disorders. This can result from discomfort while working to serious problems such as inability to perform certain tasks and an inevitable need to take time off work. Prior to the 1950s it was common for the dental chair to be in an upright position with the clinician standing up throughout treatment. However, with the ever-increasing precision and complexity involved in dentistry along with an increase in patient expectation, procedures are taking longer and the operator commonly treats patients in a seated position for the majority of operative procedures. In order to obtain adequate vision and access for dental treatment, the dentist may be inclined to twist or to bend the neck and back. So, to obtain a good view of the mouth they often adopt a wrong posture by tensing muscular and articular structures of the body. The wrong position during work is the major cause of musculoskeletal problems in dentistry.

2. Correct Patient Position

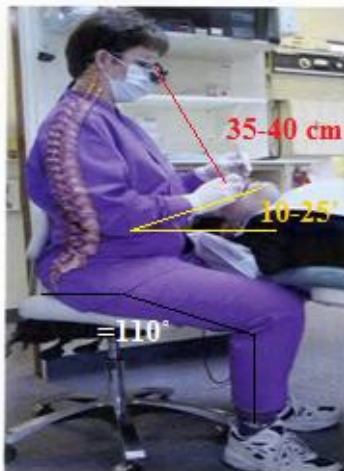
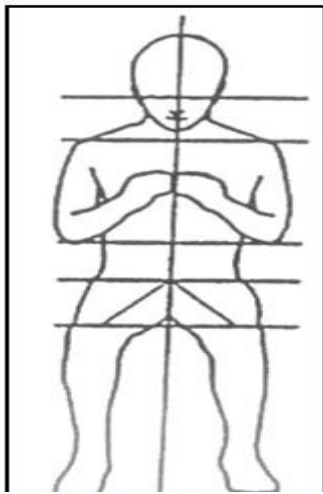
The patient chair should be completely flat to keep the patient completely horizontal. This is an absolutely essential part of working in the correct posture which is often overlooked. In the authors' experience some patients may express a dislike of the sensation of the dental chair moving back into this horizontal position. One way of combatting this may be to have the chair in the horizontal position before the patient sits in the chair, much like how a patient may mount the bed in hospital or when visiting a general practitioner. It is important to note that some medical conditions may preclude a patient from being completely horizontal such as pregnant patients, those with hypertension or spinal problems. The vertical height should be adjusted so that the operator has good vision of the patient's mouth without having to bend too far forward. This is usually at the operator's mid sternal (or heart) level.

3. Correct Dentist Position

When we speak of good posture, we mean that the head and spine are balanced in relation to gravity. Bones provide the framework for the body. Joints are formed where two bones come together. Muscles attach to our bones and supply power for movement. Nearly every muscle of the body works in a coordinated effort to keep us upright and moving. Poor posture can place unnecessary wear and tear on the joints so the muscles will suffer and the dentist will feel pain. To avoid this it's important to follow some advices:

- The dentist should sit as close as possible to the patient to avoid having to bend the back too much
- Both feet should be on the ground
- Angle between lower and upper legs of about 110° or a little more, with the legs slightly spread
- Working height adjusted properly, with the lower arms lifted a little from about 10° to a maximum of 25°
- Distance between working field in the mouth and eyes or spectacles normally between 35 –40 cm.

- The long axis of the torso should be vertical (the back should be straight!)
- Both shoulders should be horizontal (not raised)
- Both arms should be in light contact with the rib cage
- Use an adjustable chair with lumbar, thoracic, and arm support



All efforts should be made to maintain this posture throughout treatment. In order to achieve this, the operator will have to make some adjustments. A good habit to get into is to ask the patient to move their head on the desired side so the dentist doesn't have to. For dental treatments it is recommended to sit for the medical treatments in upper jaw (maxilla) and to stand for the lower jaw (mandible). These changes of position during treatment will relieve the back from unnecessary forces avoiding muscular contractures and back pain. It's recommended to maintain a position for 40+ minutes per patient and than to change it.

4. Correct posture for the dental nurse

It is essential that the dental nurse avoids repeatedly changing posture by twisting and leaning over as this repeated strain will lead to musculoskeletal problems. She/he has to sit 'at an angle' to the patient. By sitting at 45 degrees to the long axis of the patient, the dental nurse can gain access to the oral cavity without having to lean forward. Also, it's important for the dental nurse to sit in a higher chair than the operator's chair. This allows the dental nurse to gain good vision of the oral cavity by seeing over the

operator's hands. In our experience many dental nurses sit at the same height as the operator. This can cause back strain, as in order to reach the patient's mouth the dental nurse has to lean across the patient's body and inevitably bend their back. By sitting higher up, the dental nurse has good vision of the patient's mouth without having to lean forward, allowing them to keep their back straight. As a general rule, the dental nurse's eye level should be approximately 10 cm higher than the operator's.

5. Move your arms not your back

There should be no need to lean forward and bend the back to reach the oral cavity. The dental nurse should be able to maintain a straight back by following the main concepts mentioned above and by moving hands and arms during the whole treatment.

6. Four Handed/Close Support Dentistry

Four handed or close support dentistry involves the operator and dental nurse working as efficiently as possible whilst both maintaining correct posture. Essentially the dental nurse carries out as many non-operative tasks as possible while the patient is undergoing treatment. In its purest form, all the instruments are kept on the dental nurse's side who then passes them to the operator when they are needed. In theory the operator should not need to move their eyes from the patient's mouth, avoiding having to bend and twist to reach instruments. With practice the dental nurse should be able to anticipate which instruments are needed in the correct order so that treatment can proceed without any interruptions. As well as being actively involved in instrument exchange the dental nurse also plays a big role in ensuring the operator has good vision by retracting tissues and aspirating. Not only this improve the efficiency of treatment but it also promotes good posture in both the operator and the dental nurse. A good dental nurse will be highly motivated and organized to ensure this works efficiently.

7. Operating Stool

In recent years numerous manufacturers have developed operating stools which are designed to improve working posture. The most ergonomic form of operative stool is considered the Bambach Saddle Seat which doesn't cause muscle fatigue and maintains the natural 'S' shape curve of the spine.

8. Magnifying Loupes

These are optical systems worn by the operator which magnify the image of the patient's teeth. As well as the obvious benefits of improved vision of the oral cavity they can also help to promote good posture by being set up so that they only give a clear image when the operator has an upright posture.

9. Regular Physical Exercise

The benefits of regular exercise has been well-documented for many years. As dentistry is a sedentary profession it is particularly important that dental professionals take regular exercise. Apart from the obvious health benefits, regular exercise helps to maintain mobility and flexibility of the joints of the body. Since the profession of dentist is part of the professions exercised it is necessary reduce the performance of physical exercises. Besides obvious health benefits, regular exercise help in maintaining the mobility and flexibility of the joints of the body. Knowing that dental professionals stand for a long time of the day bent forward, abdominal muscles are relatively stronger compared to back

muscles. But this attitude except the placement of muscular tension also may cause compression on the abdominal organs and consequently the doctors may have respiratory problems. The key to prevent these negative consequences, is the following of a regular physical activity by strengthening back muscles and stretching the anterior trunk muscles (abdominal muscle) so they will work in balance with and for each other. Activities such as swimming, pilates, yoga, abduction of arms, elevation and depression of shoulders, stretching of back muscles, opening and closing the hands and imitating of the letter "U" through the movement of the head are recommended to be exercised every day.

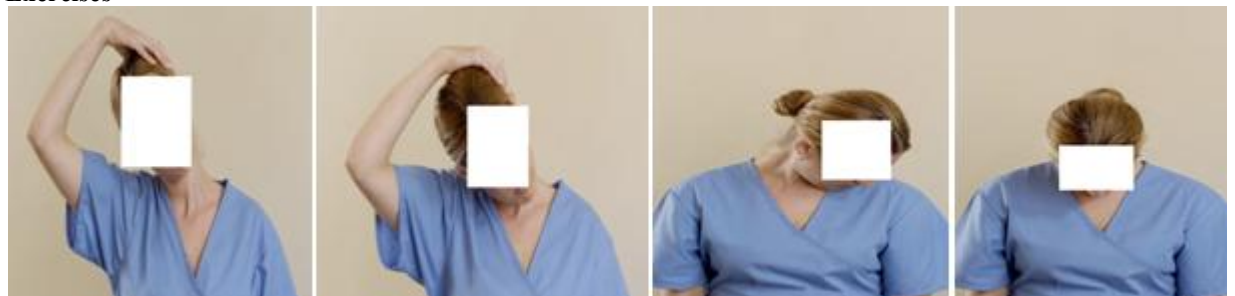
Back Exercises



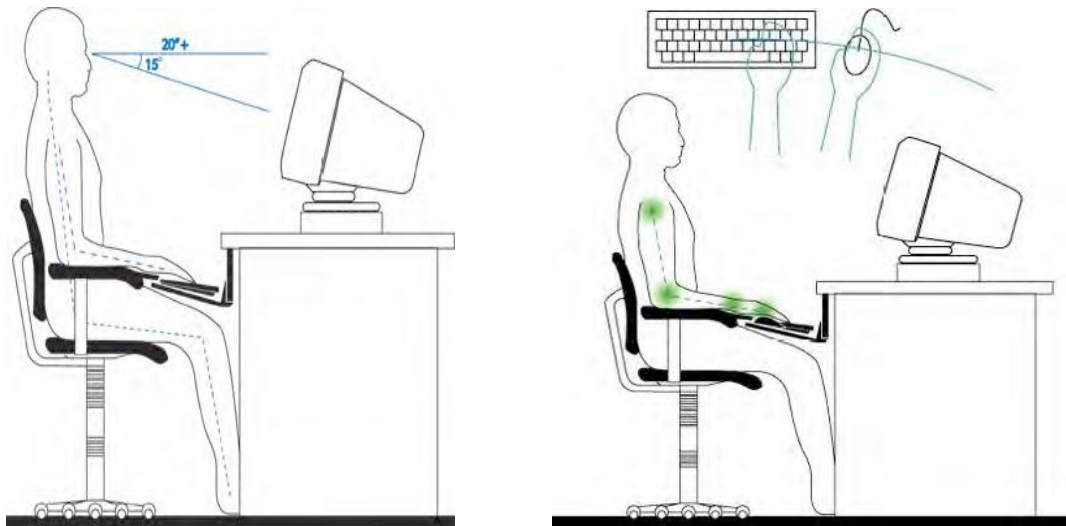
Hand exercises



Neck Exercises



Correct set-up position in front of computer



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