Tutorial

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The Relationship Of Posture And Dental Health

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A PERSPECTIVE.

To understand how posture can be related to dental health, it is important to understand how posture develops.

Definitions.

Kyphosis: Curvature of the spine, with convexity backward.

Lordosis: Curvature of the spine, with convexity forward.

Malleolus: A rounded bony prominence on each side of the ankle joint.

Protraction: Forward movement, or extension.

POSTURAL DEVELOPMENT.

A baby is in a flexed posture in the womb, and when born, displays one kyphotic curve.

In normal development, a child gains head control beginning with prone on elbows allowing the cervical lordosis to develop. Once a child starts standing, it needs to bring its pelvis slightly forward to maintain balance, and thereby creating a lumbar lordosis. It is not until the child walks unsupported that the arches of the feet develop to maintain stability and equilibrium.

The thoracic and sacral flexion are primary curvatures and the cervical and lumbar lordosis are secondary curvatures.¹

WHAT IS NORMAL POSTURE?

Normal physiological posture is both the task of staying upright and balanced with a high center of gravity and a small base of support. Ideally, when standing from a lateral view, a plumb line should align:

1. Slightly anterior to the lateral malleolus.
2. Slightly posterior to the knee axis.
3. Slightly posterior to the axis of the hip.
4. Through the shoulder joint.
5. Through the external auditory meatus.

In the lateral view, the spine should reveal a lordosis of the cervical (A) and lumbar (B) regions and kyphosis of the thoracic spine (C) and sacrum (D). (Figure 1)²

In a posterior view, a plumb line should be equidistant from the midline of the heels, knees, thighs and scapulae with no curvatures of the spine in the normal plane. Figure (2)²

*The physiological posture attempts to maintain a balance in all three planes which allows the least amount of wear and tear on the joints to prevent any dysfunction to the system.*³

In any type of posture, it is important to understand the "three dimensional orientation of the head in space which is dependent on four planes: the vertical plane, the bipupilar line, the plane of the vestibular system, or the otic plane, and the occlusal plane. If any of the three horizontal plans (bipupilar, otic, occlusal) are not horizon-

tal, adaptive position will be made over time by the rest of the spinal column to restore these planes to level."⁴ (Figure 3)⁷

Figure 1 — Lateral View

Figure 2 — Posterior View

Figure 3

POSTURAL DYSFUNCTIONS

The most common postural dysfunction relating to dental health is forward head posture. In a forward head posture, it is common to find posterior rotation of the cranium, reversal of the cervical lordosis, or protracted scapulae, increased thoracic kyphosis and decreased lumbar lordosis. (Figure 4)⁸ Children and adult mouth breathers obtain this posture to increase their airway space. As many as seventy percent (70%) of those exhibiting forward head posture will also exhibit a Class II occlusion.⁴ Some of the symptoms found as a result of this posture are: facial pain, fatigue and spasm of the facial musculature, headaches (sub-occipital or cranio-facial), neck pain, arm pain and in some advanced cases, neurogenic pain.

In a forward head posture patient, it is possible to have maximal contraction of the masseter, temporalis digastric and upper trapezius muscles with resultant muscle hypertrophy and muscle imbalance. Normal physiological balance requires the least amount of muscle activity, joint pressure and connective tissue tension.⁵ Normal physiological posture is imperative to provide normal function. A poor posture can lead to dysfunction and eventual degeneration.

Rocabado and Tapia state, "The loss of the physiological curvature of the spine at an early age is a fundamental process of interception that all dental specialists must know about in order to prevent early degeneration of the cervical spine."⁶

THE RELATIONSHIP BETWEEN HEAD POSTURE AND OCCLUSION

The occlusion determines the position of the jaw which then determines the position of the cranium on the cervical spine, and so on. This is easily demonstrated by tapping your teeth lightly together or using occlusive wax or bite paper. When the head is flexed, the occlusal contact is more anterior. When the head is extended, the occlusal contact is more posterior. When the head is side bent and rotated, the occlusal contact is stronger on the side to which the head is bent.⁴

Correct Posture

Forward Head Posture

Figure 4

SUMMARY

Poor posture is not thought of as an injury or health problem. However, over time, the dysfunction can lead to degeneration and its net effect can be as damaging as an injury.

When the occlusion is malaligned, a compensating effect takes place through the postural chain and the body must adjust. This can often affect the work of dental professionals, possibly causing a failure in their procedures if not addressed. Early postural screening by a physical therapist can aid in the prevention of postural dysfunctions. Physical therapists should be an integral part of the program for dental professionals.

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