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Editorial
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Natural Head Position and Its Significance

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Editorial

Natural Head Position (NHP) has been defined by Broca as 'when man is standing and his visual axis ishorizontal, he is in the natural position' (as cited in Solow and Talgren in 1971) [1]. NHP was subsequently introduced into Orthodontics by Downs [2] in 1956 and Moorrees [3] in 1958. Each individual, tends to orient his or her head in space so that it returns to a reproducible position when he or she looks at an object infinitely far away on the horizon [4]. Historically, NHP has been used by artists, anatomists and anthropologists to study the human face. Solow and Tallgren [5] in 1971 introduced a technique for the registration of NHP by asking the patients to stand straight in an 'orthoposition' and look straight into their own eyes projected onto a mirror kept at a distance to the patient. This establishes the patient's visual axis and helps to orient the patient to the NHP. This position can also be registered using photographic techniques [6], cephalometry [7] fluid level devices [8] or by using inclinometers [9].

Natural Head Position is a reproducible position and is the ideal physiologic and anatomic position for evaluation of the face, jaws and teeth. NHP has become a popular reference position due to its excellent inter and intraobserver reproducibility. Short term and long term reproducibility studies have been conducted and these studies have validated the reproducibility of NHP [10-13]. Cooke [13] in 1998 reported a variation of 2 degrees between two subsequent radiographs. However, orientation of patients to NHP is time consuming and is particularly difficult in children, needs trained personnel and specially designed radiographic set-ups [14,15].

The technique that has been commonly followed to orient the patient to natural head position is the one proposed by Solow and Tallgren in 1971. In this technique, the patient is made to perform a series of neck bending exercises (as cited by Madsen et al [16]) and is asked to look into an objectwhich is infinitely away or by making the patient to look into their eyes in a mirror placed 3 feet away. When the patient is in the natural head position, the patients' visual axis is parallel to the floor. Cooke and Wei [17] suggested that when the patient is being oriented to the NHP, the patient may be asked to keep the feet apart at a comfortable distance which reduces swaying of the patient. Once the patient has been position in the NHP, it is subsequently easy to orient the teeth, jaws using the occlusal plane to the rest of the craniofacial structures. If the patient is being positioned for cephalograms, then the placement of the ear rods must be carefully checked as any discrepancy between the left and the right sides could result in a asymmetric image [18].

The Natural head position is a highly reproducible, accurate and repeatable external reference position during clinical diagnosis and research. It has been widely used in craniofacial research, to predict growth trends and forclinical assessment of the mandibular rest position. Rest position of the mandible is influenced by TMJ dysfunction, occlusal interferences, psychosocial stress, diurnal variations and head position [18]. Mandibular rest position can be obtained cephalometrically if the patient is exposed to a cephalometric radiograph in the natural rest position with a centric relation wax bite during the exposure [19].

Complete denture patients are often characterized by facial changes due to loss of vertical dimension caused by deterioration of dentures, attrition of artificial teeth and residual ridge resorption [20,21]. In such conditions, the patient tends to alter the position of the mandible to retain a worn prosthesis which leads to an altered maxillomandibular relationship. Orienting the patient to the natural head position and clinical evaluation with an increased vertical dimension will help to provide better rehabilitation to the patient [22]. Postural vertical dimension is influenced by speech, swallowing, head position, body posture & changes in dental occlusion [23]. Natural head position is also reported to have a pattern of association with specific craniofacial features and these include the facial axis, facial height and the facial ratio [24]. It has been reported that correction of a forward head posture may affect the resting vertical dimension [25].

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Thus, Natural head position serves as an excellent external craniofacial reference position in comparison to several other reference planes and positions. NHP has also been found to have excellent 15 year reproducibility with an acceptable individual reproducibility [12]. Hence, clinical examination, diagnosis and cephalometric evaluation when performed after orienting the patient to this position will be reliable and reproducible with excellent accuracy. Restoring vertical dimension and facial planning canthus be planned from this reference position with little influence of cranial base variability.

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