

下顎門牙角度對人類咬肌活性之影響

The influence of lower incisor angle on human masseter muscle activity

中文摘要

自 1931 年 Broadbent 創始了標準化放射線測顱術，並引進齒顎矯正學領域後，測顱分析法開始發展。1954 年 Tweed 提出至今仍為人熟知的診斷三角(diagnostic triangle)，他認為下顎門齒長軸、下顎平面及法蘭克福平面(FH plane)所形成的三角形為臨床上擬定治療計畫的重要依據：其中下顎門齒長軸必須和下顎平面成 90 度的直角，這個角度至今仍為許多齒顎矯正醫師所遵循。對於建立標準值樣本的選取，Tweed 是以顏面美觀當選擇的唯一條件。但這樣的角度的功能上是否恰當，必須經由驗證才可知道。本研究的目的是探討下顎門齒長軸與下顎平面夾角(IMPA)與人類咬肌活性的關係。藉由觀察 20 位健康成年受測者的肌電圖數值的變化，比較 IMPA 角度的大小對咬肌活性的影響。分析結果後，可探討矯正醫師所常用之 IMPA 角除了影響美觀之外，其在生理功能上的地位。本研究中最主要觀察的是最大緊咬數值(maximum clenching value)，了解 MCVant/MCVall 的比值(Ratio)和 IMPA 的大小有無關聯，以及其他顱顏型態是否會影響這個比值。統計結果後，發現 IMPA 與 MCVant、MCVall、Ratio 的變化沒有關聯。所以在矯正的治療計畫擬定中，不應陷於 IMPA 角一定要等於 90 度的迷思中。

英文摘要

Since Broadbent introduced standardized radiographic cephalometry at 1931, then be recommended to be used in the orthodontic field, cephalometric analysis started to develop. Tweed announced up to now well-known diagnostic triangle at 1954. He thought that the triangle formed by lower incisor axis, mandibular plane and Frankfort-horizontal plane was the basis for making treatment plan clinically: the angle formed by lower incisor axis and mandibular plane (IMPA) must be a right angle. This norm until now was still used by many orthodontists. Facial esthetics was chosen to establish the normal reference norms. But it needs to be proved that whether this right angle function properly or not. The aim of this study is to observe the relationship between IMPA and masseter muscle activity. By observing the change of electromyographic (EMG) data, we can establish the influence of IMPA on masseter muscle function. After the EMG data is processed and analyzed, we can discuss the status of IMPA angle on oral physiology. The results would be an index for clinical use by orthodontists. EMG maximum clenching values were measured from 20 healthy, dentate adult volunteers. We recorded the data when overall and anterior teeth were in contact with the custom-made bite registration material. We use the Ratio

(MCVant /MCVall) to compare with IMPA and other cephalometric craniofacial morphology measurements by means of a nonparametric correlation analysis and Mann-Whitney U test. We could conclude that IMPA do not correlate with MCVant, MCVall and Ratio. The results showed that uprighting or proclination of lower incisors had no significance relationship with masseter muscle activity.