



Effect of stabilization appliance on activities of professional golf players : Driving distance and initial ball speed

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Purpose. This study was under taken to investigate the influence of stabilization appliance on mandibular position, muscle activities, driving distance and initial ball speed of professional golf players and the correlation of occlusion, TMD (temporomandibular disorder), orthodontic analysis, posture of subjects and difference of condyle position, muscle activities, driving distance and initial ball speed with and without the appliance.

Material and methods. Ten professional golf players(eight males and two females) were selected. The occlusion, TMD, orthodontic and posture of subjects were analysed by clinical examination, casting model, radiography, MKG and EMG of K6I system(Myotronics Inc., Seattle WA, USA). From the centric relation position, the occlusal vertical dimension was increased by 3mm and then appliances were fabricated with the concept of mutually protected occlusion. The change of condylar position, muscle activities, driving distance and initial ball speed with and without appliance were measured. The paired *t* test, correlation analysis and multiple regression analysis were used for statistical analysis($p < 0.05$).

Results. The results were as follows :

- 1) The position of mandibular condyle had significant differences to the anterior-inferior position between with and without appliance($P < 0.001$).
- 2) The muscle activities of anterior temporal muscle and masseter muscle with appliance showed a significant stability than without appliance($P < 0.05$).
- 3) There was significant increase of driving distance and initial ball speed with appliance($P < 0.001$).
- 4) In correlation analysis, TMD and posture analysis scores were significantly associated with difference of the driving distance and initial ball speed($p < 0.05$).
- 5) In the multiple regression analysis, TMD analysis score was significantly associated with difference of driving distance and difference of activities of anterior temporal muscle was significantly associated with difference of initial ball speed($p < 0.05$).

Conclusion. It is concluded that there seems to exist obvious benefits of using stabilization appliance for professional golfer with TMD to increase the driving distance.