

Peer Review File

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Responses to Reviewer Comments:

This study aimed to reveal the electrical activity of the masticatory and cervical muscles including temporalis, masseter, trapezius, and SCM muscles in TMD patients in three different head positions (relaxation position, neutral head position (NHP), relaxation position with tooth contact), and investigate the differences of variables with those from healthy controls using surface EMG. The topic was interesting but showed several flaws.

Introduction

1. Please indicate for reference of second sentence from 1st paragraphs (Head and neck posture may influence ~ and breathing patterns) and final sentence (It is believed that ~ ‘skull-neck-jaw’ functional complex.’).

Reply 1: Thank you for this constructive suggestion. References are supplemented in the Introduction.

Changes in the text: The sentence has been revised accordingly (Page 4, line 65-67).

2. There are tremendous articles which dealt with the forward head posture in TMD patients. Thorough and further literature review would be recommended.

Reply 2: Thank you for this constructive suggestion. The articles which dealt with the forward head posture in TMD patients were reorganized and the literature review is supplemented in the Introduction.

Changes in the text: The Introduction has been revised accordingly (Page 4-5, line 74-106).

Materials and Methods

1. Evaluation for cervical myofascial pain and degree of subjective cervical pain would be needed. The number of trigger points and degree of neck pain could influence the head posture.

Reply 1: Thank you for this constructive suggestion. As cervical or shoulder myofascial pain may affect the posture and the sEMG signal acquisition, patients complaining of shoulder or cervical pain were excluded from this study. The number of trigger points and degree of neck pain were not recorded during the physical examination.

Changes in the text: The sentence has been revised accordingly (Page 6, line 150-152).

2. Please clearly explain the differences between relaxation position and mandibular resting position. What does “neutral position” mean?

Reply 2: "Relaxation position" is the posture that the subjects are accustomed to in their daily sitting position. The subjects were instructed to take a comfortable sitting position according to their daily habits, with eyes looking toward the front and breathing naturally, both feet on the ground and hands placed on top of their legs.

The resting position of the mandible is described as a stable position relative to the maxilla, and there is a 2–3 mm gap between the upper and lower incisors. This position is maintained by the passive viscoelastic forces of the jaw supporting system and contractile elements and the muscle tone of the masticatory muscles.

"Neutral head position" is defined as the vertical line of the tragus of the ear should be in the midline of trunk. Before evaluation, it is necessary to guide and train the patients, and use the vertical wall as a reference.

Changes in the text: The detailed descriptions of the three different postures and the test procedure had been revised accordingly (Page 9-10, line 245-261)

3. Duration of pain would be critical factor which could influence the prognosis of TMD treatment. Please include this information in clinical examination section. Also GCPS could show the degree of chronicity of orofacial pain.

Reply 3: Thank you for this constructive suggestion. The duration of symptoms of the patients with myogenic TMD was 1-6 months in this study. Considering that long-term pain may have an impact on head and neck posture, only patients with pain duration less than 6 months were included in the study (Page 6, line 146). Unfortunately, GCPs was not used in this study to assess the degree of pain.

Changes in the text: The sentence has been revised accordingly (Page 10, line 269-270)

4. Further information about head posture measurement would be required. Additional figure would be helpful for readers for better understanding.

Reply 4: Thank you for this constructive suggestion. The posture measurement procedure was modified, and a picture was added in the main text.

Changes in the text: The sentence has been revised accordingly (Page 7-8, line 162-203)

Results

1. Please indicate the results from DC/TMD diagnosis. How many patients were classified as myofascial pain group or arthritis pain group?

Reply 1: Thank you for this constructive suggestion. As previous studies have shown that postural alterations may be a risk factor for muscular TMD (Page 4, line 75-78), only patients' diagnosis of myogenic TMD were included in this study.

Changes in the text: The sentence has been revised accordingly (Page 6, line 145)

2. Please provide exact P values in Table 2.

Reply 2: Thank you for this constructive suggestion. Mixed analysis of variance was used to evaluate the effects of head posture on muscle electrical activity in each group, and the P values of patients with TMD and healthy subjects in different postures were shown in Table 2. Other p values are shown in the results section

Changes in the text: The Table has been revised accordingly (Table 2)

Discussion

1. Surface EMG has limitations on accuracy of measuring muscle fatigue and strain compared to needle EMG. Please indicate this limitation in the discussion section.

Reply 1: Thank you for this constructive suggestion. This limitation of the study was indicated in the discussion section.

Changes in the text: The sentences have been revised accordingly (Page 15-16, line 415-417).

2. The authors mentioned the relationships among sleep bruxism, abnormal occlusion, tooth contact and TMD. But no information about occlusal relationship and nocturnal clenching were provided in this article.

Reply 2: Thank you for this constructive suggestion. Because sleep bruxism, abnormal occlusion, and tooth contact may affect masticatory muscle activity, thus patients with tooth loss, class II or class III malocclusion, sleep bruxism or orthodontic treatment history were excluded from this pilot study.

Changes in the text: The information has been supplemented accordingly (Page 6, line 149-150).