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Prevalence of temporomandibular joint disorders in competitive swimmers: A cross sectional study

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Abstract
Many studies pointed out to the fact that there is a high demand on neck rotation and upper limb activities for the propulsion of the body inside the water and which negative synchronized activities of jaw and mastication structure. There is no studies have been attempted to find out the prevalence of TMD among competitive swimmers through there is a greater demand on TMJ structure due to their swimming mechanics.

Keywords: TMJ, Swimmers, Cross sectional

Introduction
Swimming combination of upper limb and lower extremity strength exercise and also cardiovascular training in non-weight bearing environment [1]. In competitive swimmers, there are four strokes freestyle, butterfly, backstroke, and breaststroke [2]. Swimmers push their body to the limits of the functions so normal variations in anatomy or biomechanics and poor technique may lead to overuse injuries and micro trauma. The most common swimming injuries are shoulder, neck and back. The prevalence of musculoskeletal injuries in competitive swimmers is, shoulder 37%, knee 28%, spine 22% and foot and ankle is 19% [3].
Front crawl, butterfly and backstrokes all relay on the arms for 75% of the arm propulsion forward while in the breaststroke the legs and the arms contribute equally [4]. The neck can be subjected to sustained and repetitive movements which can leads to overuse injury. Atlanto axial (C1-C2) joint is given the most 55% total cervical movements, which houses the trigeminal spinal tract sub nucleus and C1-C2 dorsal horns [5].
Maximum body rotation approximately 30^0 - 40^0 with minimal head rotation in both side required for breath [6]. In swimmers the over activity of neck flexors will causes an inhibitory weakening of deep neck flexors. And it leads to forwarded head posture [7].
Impaired joint mobility clicking or crepitus, pain in the TMJ and ear, Eustachian tube dysfunction and dizzy spells. The predisposing factors are joint laxity, anatomical variations, capsular or muscular inflammation, repetitive motion and static articular stress [8, 9].
According to the previous studies there is a strong relationship exists between neck disability and jaw disability [10-12]. This study puts in an effort to find the frequency of such injuries.

Aims and Objectives
To find out the prevalence of TMD in competitive swimmers.

Methodology
This study was done in the Department of Anatomy, Kanachur Institute of Medical Sciences, Mangalore from May 2015 to April 2016.
90 subjects were tested in and around the Mangalore City and the reports have been reported.

Inclusion criteria
Competitive swimmers aged between (15-35) years.
Regularly train at least 5 times per week.

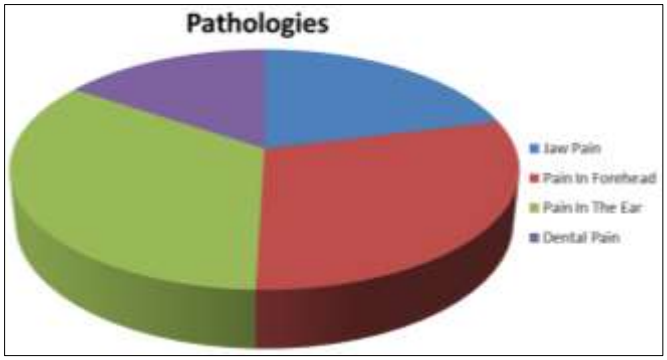
Exclusion criteria
Any previously known injuries

Results

Table 1: Descriptive statistics for age of competitive swimmers

Age	
Mean	21.72 years
SD	3.62 years

Graph 1: Descriptive statistics for gender of competitive swimmers



Graph 2: Descriptive statistics for currently suffering any pain in body parts (jaw, forehead, ear, dental pain)

Discussion

This study is focused on the prevalence of Temparomandibular joint disorders in competitive swimmers. Swimming is an unique sport. It is the combination of upper limb and lower extremity strength exercise and also cardiovascular training in non-weight bearing environment [1].

According to previous studies, TMJ dysfunctions are associated with masticatory and articular disabilities and the physiological structural and postural factors leads to functional balance between structures of TMJ. In the current study we found that most of the competitive swimmers those who are having TMD also having difficulty in chewing activities.

According to previous studies we found that, in competitive swimmers there is a high demand on neck rotation and upper limb activities for the propulsion of the body inside the water and which negative synchronized activities of jaw and mastication structure. The supra hyoid and infra hyoid affect the balance between the flexors and extensors of the head and neck dysfunction in either these muscles or cervical muscles can easily disturb in this normal balance [8]. Increases muscular activity in the anterior cervical (longus coli) and hyoid muscle will turn in cause tightness in the through and difficulty in swallowing. Mouth breathing is an important contributing factor. Breathing through the mouth facilitates forward head posture and a low and forward tongue position [8, 12]. In the current study we can found 50% of neck is present with TMD. 13.2% of male and 13.92% female have present with TMD. Backstroke swimmers were more prevalent (13.8) to TMD. And in current study not identified risk factors causing TMD in competitive swimmers.

Conclusion

Swimmers are vulnerable to injuries. Future studies should be done to identify risk factors causing TMD in competitive swimmers.

References

1. Middleton P, Pollard H. Chiropractic & Osteopathy 2005;13(1):8. https://doi.org/10.1186/1746-1340-13-8
2. Wanivenhaus F, Fox AJ, Chaudhury S, Rodeo SA. (). Epidemiology of injuries and prevention strategies in competitive swimmers. Sports Health: A Multidisciplinary Approach 2012;4(3):246-251. https://doi.org/10.1177/1941738112442132
3. Johnson JN, Gauvin J, Fredericson M. Swimming biomechanics and injury prevention. The Physician and Sports medicine 2003;31(1):41-46. https://doi.org/10.3810/psm.2003.01.165
4. Troup JP. The physiology and biomechanics of competitive swimming. Clinics in Sports Medicine 1999;18(2):267-285. https://doi.org/10.1016/s0278-5919(05)70143-5
5. Mandibular pain-dysfunction syndrome [temporomandibular joint (TMJ) dysfunction syndrome]. Oral and Maxillofacial Diseases, 2010, 354-356. https://doi.org/10.3109/9781841847511-28
6. Guth EH. A comparison of cervical rotation in age-matched adolescent competitive swimmers and healthy males. Journal of Orthopaedic & Sports Physical Therapy 1995;21(1):21-27. https://doi.org/10.2519/jospt.1995.21.1.21
7. Silveira A, Gadotti IC, Armijo-Olivo S, Biasotto-Gonzalez DA, Magee D. Jaw dysfunction is associated with neck disability and muscle tenderness in subjects with and without chronic temporomandibular disorders. BioMed Research International 2015, 1-7. https://doi.org/10.1155/2015/512792
8. Abidov A. Comprehensive textbook of echocardiography (First edition; Volume 1 and volume 2), edited by NavinC. Nanda, Jaypee brother's medical publishers Ltd., Delhi, London and Philadelphia 2014, 2070. Echocardiography, 31(2):262-263. https://doi.org/10.1111/echo.125469.
9. Olivo SA, Fuentes J, Major PW, Warren S, Thie NM, Magee DJ. The association between neck disability and jaw disability. Journal of Oral Rehabilitation 2010;37(9):670-679. https://doi.org/10.1111/j.1365-2842.2010.02098.x
10. Rocha CP, Croci CS, Caria PH. Is there relationship between temporomandibular disorders and head and cervical posture? A systematic review. Journal of Oral Rehabilitation 2013;40(11):875-881. https://doi.org/10.1111/joor.12104
11. Walczyńska-Dragon K, Baron S, Nitecka-Buchta A, Tkacz E. Correlation between TMD and cervical spine pain and mobility: Is the whole body balance TMJ related? BioMed Research International 2014, 1-7. https://doi.org/10.1155/2014/582414
12. Hertling D, Kessler R, Shimandle SA. Management of common musculoskeletal disorders, physical therapy principles and methods. Dimensions of Critical Care Nursing 1990;9(5):279. https://doi.org/10.1097/00003465-199009000-00008