**Critically Appraised Topic (CAT)**

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| **Project Team:**  |
| **2B-3 Public Health**  |
| **Project Team Participants:**  |
| **Zoya Shams(D1), Drake Lindholm (D2), Mary Lovell (D3), Jake Wallock (D4)** |
| **Clinical Question:** |
| **In a public health setting, how do you restore anterior teeth without posterior support and limited finances?** |
| **PICO Format:** |
| **P:** |
| **Patients with limited finances** |
| **I:** |
| **Patients with compromised posterior support** |
| **C:** |
| **Adequately restored posterior dentition**  |
| **O:** |
| **Relieve occlusal trauma and improve quality of life** |
| **PICO Formatted Question:** |
| In patients with limited finances, how does a compromised posterior dentition affect the quality of life in comparison to patients with an adequate dentition?  |
| **Clinical Bottom Line:** |
| * **The combination of a loss of the vertical dimension and inadequate posterior biting forces has created a pathological occlusion on our patient’s anterior teeth**
* **Before we can restore the anterior teeth we must provide the patient with posterior support to balance the clenching forces of the jaw**
* **The challenge of a lost vertical dimension will require us to design a partial denture that is not ideal but is still functional to improve the patient’s quality of life**
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| **Date(s) of Search:**  |
| **09/05/2020** |
| **Database(s) Used:** |
| **Pub Med**  |
| **Search Strategy/Keywords:** |
| **Occlusal trauma, vertical dimension of occlusion, posterior support, removable partial denture**  |
| **MESH terms used:** |
| **Occlusal disharmony, vertical dimension of occlusion, and removable partial denture** |
| **Article(s) Cited:** |
| 1. Fayz, Farhad, and Ahmad Eslami. “Determination of Occlusal Vertical Dimension: A Literature Review.” *The Journal of Prosthetic Dentistry*, Mosby, 2 Aug. 2006, www.sciencedirect.com/science/article/abs/pii/0022391388901825.
2. **Shaghaghian, S., et all. “Oral health-related quality of life of removable partial denture wearers and related factors.” *Journal of Oral Rehabilitation,* 30 July 2014,** [**https://0-onlinelibrary-wiley-com.libus.csd.mu.edu/doi/epdf/10.1111/joor.12221**](https://0-onlinelibrary-wiley-com.libus.csd.mu.edu/doi/epdf/10.1111/joor.12221)
3. **Gibbs, Charles H., et al. “Maximum Clenching Force of Patients with Moderate Loss of Posterior Tooth Support: A Pilot Study.” *The Journal of Prosthetic Dentistry*, Mosby, 8 Jan. 2003,** [**www.sciencedirect.com/science/article/pii/S0022391302002585**](http://www.sciencedirect.com/science/article/pii/S0022391302002585)**.**
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| **Study Design(s):** |
| 1. Meta-analysis/Systemic Review
2. **Cross Sectional Study**
3. **Randomized Controlled Trial**
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| **Reason for Article Selection:** |
| 1. This article provides an understanding of the vertical dimension of occlusion and how it is measured. This article also develop an understanding for a loss of the VDO and the difficulties of restoring a compromised dentition.
2. This article evaluates the quality of life in patients missing posterior support. This article is important to appreciate how critical it is that we re- establish our patient’s posterior support to improve her quality of life.
3. This article provides an understanding of how little biting force our patient has in comparison to patients with posterior occlusion. The amount of force applied by patient’s without posterior teeth (462N) is still a significant amount of force that anterior teeth are not designed to be subjected to.
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| **Article(s) Synopsis:** |
| 1. This article discusses how vertical dimension of occlusion (VDO) is the length of the face as determined by separation amount of upper and lower jaw. Many techniques have been used to measure this amount and differences have been noted in edentulous vs. dentulous patients. Examples of this include: pre-extraction records, jaw positions while speaking, and cephalometric radiographs. This article looked at many literature articles and concluded there isn’t a universally accepted standard when it comes to measuring VDO in edentulous patients. It also concludes there’s no significant advantage or disadvantage of any measuring techniques. Overall, the end goal is that the VDO should be determined by selecting a VDO that provides optimal esthetics, functional, and does not change the patient’s profile.
2. The goal of this study was to identify the quality of life RPD patients experience, including demographic questions (age, gender, oral health) and oral health-related questions related to quality of like among the Iranian population. 200 patients with a single or double RPD worn for at least 8 week, with or without complete dentures, verbally filled out an interview questionnaire. The results of the study were as followed: of the 200, 110 were over 50 years old and 122 were women. Major results included 27% interrupted meals, 24% uncomfortable to eat, 15% self conscious, 47% diet was unsatisfactory and 15% food tastes worse. The conclusions for this article are that patients with inadequate or who lacked removable prostheses had the lowest scores for speaking, chewing, and oral hygiene. Comfort, esthetics and function remain to be the highest variables affected RPD quality of life.
3. This study looked at the question of patients who lost moderate posterior tooth support may also clench, leading to increased loading forces and changes in facial muscles as a result of clenching. The goal was to test the hypothesis that moderate posterior tooth loss will have a statistically significant effect on forces of clenching. 44 adults with posterior tooth loss were compared to 20 healthy (full dentition) adults. It was concluded that clenching forces could be identified in the 1st and 2nd molars and 2nd premolars (when present). The correlation between clenching forces and posterior tooth loss was evaluated. The average clenching forces for the 44 adults with posterior tooth loss was 462N (104lbs), compared to the 20 full dentition patients which was 720N (162lbs). The conclusion of this article was that there is association between losing clenching forces and having a significant number of teeth missing posteriorly (258N, 58lbs less force with posteriorly edentulous patients) The range of biting forces was surprisingly large for both groups.
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| **Levels of Evidence:** (For Therapy/Prevention, Etiology/Harm) See <http://www.cebm.net/index.aspx?o=1025>[x]  **1a** – Clinical Practice Guideline, Meta-Analysis, Systematic Review of Randomized Control Trials (RCTs)[ ]  **1b** – Individual RCT[x]  **2a** – Systematic Review of Cohort Studies[ ]  **2b** – Individual Cohort Study[x]  **3** – Cross-sectional Studies, Ecologic Studies, “Outcomes” Research[ ]  **4a** – Systematic Review of Case Control Studies[ ]  **4b** – Individual Case Control Study[ ]  **5** – Case Series, Case Reports[ ]  **6** – Expert Opinion without explicit critical appraisal, Narrative Review[ ]  **7** – Animal Research[ ]  **8** – In Vitro Research |
| **Strength of Recommendation Taxonomy (SORT) For Guidelines and Systematic Reviews**See article **J Evid Base Dent Pract 2007;147-150**[x]  **A** – Consistent, good quality patient oriented evidence[ ]  **B** – Inconsistent or limited quality patient oriented evidence[ ]  **C** – Consensus, disease oriented evidence, usual practice, expert opinion, or case series for studies of diagnosis, treatment, prevention, or screening |
| **Conclusion(s):** |
| * **The evidence shows that patients without posterior teeth and a lost vertical dimension will live extremely compromised life styles leading to mental disorders such as depression.**
* **From a public health perspective, it is our job as dentists to find solutions for difficult cases with limited finances.**
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