Advanced Comprehensive
Dentistry & Orthodontics

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OPENING the VERTICAL DIMENSION- *MADE SIMPLE*

By Ron M. Ask, D.D.S. 3-30-2003

As doctors of oral disease, it is our job to have the knowledge and ability to control oral disease. We have the know-how and are able to control dental caries, tooth fractures, dental abscesses and periodontal disease. We are continuing to improve our knowledge and treatment with craniomandibular disorders. However, one area of oral disease that we know little on recognizing and even less on how to treat, as an overall profession, is the **debilitating disease of an overclosed occlusion or deep bite**! Let's call this: **vertical dimension disease or VDD. Not recognizing and treating an overclosed occlusion is probably the biggest mistake we can make in providing excellent dental care for our patients. The negative consequences are enormous. However, when the vertical dimension is controlled along with the decay, fracture, abscesses and periodontal disease, success is, by far, greatly improved. Now difficult cases become very manageable.**

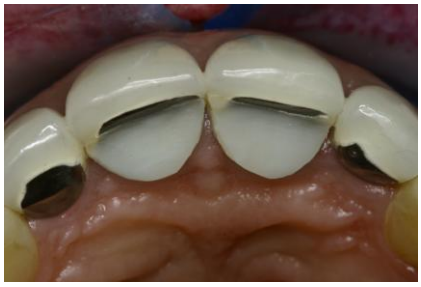
How prevalent is VDD? How many times do you see an overclosed occlusion? 0%?, 10%?, 20%?, 30%?, or more? I observe that **40% of my patients have an overclosed occlusion**! We've all heard this saying-"Some know what they know, others know what they don't know, and most don't know what they don't know!" This last category fits a lot of us in the dental profession when it come to controlling the vertical dimension of occlusion.

"Vertical dimension of occlusion is not usually a major concern in routine fixed prosthodontic treatment." Said by Warren C. Rivera-Morales, D.M.D., M.S., Dental Clinics of north America, July, 1992. I strongly disagree.
I feel that VDD is one of the most important areas to recognize and treat in dentistry today! I went to a big named full mouth reconstruction course several years ago. The instructor had been rebuilt 2 times using the techniques he has been teaching/espousing. When he smiled, you could not see his teeth. His upper lip almost completely covered his upper teeth with a full smile. For two days, he chewed on the frames of his glasses. I felt he was more comfortable supporting a more open vertical dimension with his readily available "splint", his glasses!

Would we **recognize an overclosed occlusion** if it stared at us "right in the face"? The most **obvious** observations are a deep dental overbite (50% or greater), minimum retention on your crown preparation, short clinical crowns or worn teeth. What about the **less obvious** signs: missing teeth (almost all patients with missing teeth are deficient in vertical dimension), TMJ clicking or popping, chronic headaches and deep soft tissue facial profile are all indicators that your patient is vertically overclosed.

What can we do about it?

Nothing? This is what most of us have done in the past. We did not have the knowledge or the ability to control VDD. We did the best we could with the information we had. We just added grooves to increase retention, like we learned in dental school. We accepted less than ideal retention on that posterior 4 unit bridge abutment. We allowed our lab to create a lower bridge that had an unacceptable deep curve of spee (but we didn't know about it until AFTER it was made!). We accepted less than ideal esthetics (ideal proportion) on our cosmetic dentistry because we didn't think we had any choice. We didn't ask or recognize the headaches our patients were having. We didn't think clicking and popping was something we could treat very well. We observed many of our patients with very worn teeth, however the only solution was to put a crown on everything and the patient wasn't ready for that. Therefore, we built the new single crown in the same overclosed occlusion! **Now there is an alternative-Levy Lingual Ledges!**



Levy lingual ledges are **small shelves of composite bonded to the back of the upper two front teeth.** Lloyd Baum, D.M.D. published "The Non-Removable

Bite Plate" in the Connecticut State Dental Journal in 1978, where he built shelves on the upper anterior teeth and then proceeded to buildup **ALL** the rest of the teeth with composite to open the bite. Philip H. **Levy**, D.D.S. from North Bellmore, Long Island, N.Y. used composite shelves on #8, 9 only since the 1980's. The lower anterior teeth will bite on these shelves and will prevent the posterior teeth front touching when biting. This will allow the posterior teeth to erupt or **"grow" together** over the next 3-24 months (based on patient's age and the height to erupt). I have never noticed any TMJ/CMD symptoms getting worse. In fact, CMD symptoms decrease using this technique.

What are the causes of VDD?

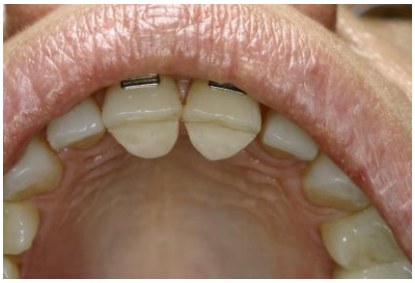
1. Heredity, 2. Myofunctional imbalance, 3. Lateral tongue thrust, 4. Narrow or underdeveloped arch form, i.e. Class II, Div. II, deep bite case, 5. Worn dentition, 6. Loss of teeth, 7. Rotated or tipped teeth, 8 ???.

When do you need to open the vertical dimension?

1. Diagnose, treat and finalize craniomandibular disorders, 2. Periodontal concerns (secondary occlusal traumatism), 3. Esthetics-skeletal and dental, 4. Before, during or after orthodontic treatment, 5. Full mouth reconstruction, 6. Bridgework? 7. Single crowns? 8. Single fillings?

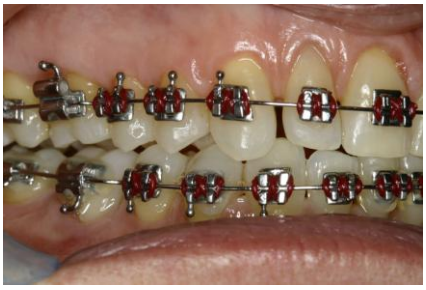
How much do I open the bite?

1. Where the patient "feels" comfortable. 2. Where it looks good. 3. Educated guess. 4. Enough room for the crown and bridge. 5. Restore "normal" size length of upper and lower anterior teeth, less ideal overbite. 6. 18m between free gingival margins of upper and lower anterior teeth. 7. Levendowski or Gelb method.
8. Craniometer ear-eye distance= ANS-Menton (Stanly Knebelman). 9. Closest speaking space with S sounds. 10. Cephlometric norms: i.e. Sossouni, Jerabak, Ricketts analysis, etc. (from cephlometric x-ray).
11. Myocentric-most scientific method because it measures and tests the muscle lengths.



The following are the most used techniques to alter the vertical dimension.

1. Fixed orthodontics using 2 X 4 utility arches with tip back bends, vertical elastics, bite plates, incline planes, Class II elastics, cervical headgear.
2. Removable functional orthopedics: Schwartz appliances, saggital appliances, Twin Block combination appliances. The Twin-Block is an excellent appliance to also correct a skeletal Class II.
3. Orthotics: "splints"
4. Buildups: Primary molar buildups, bicuspids buildups, anterior lingual ledges
5. Full mouth reconstruction using composites resins, lab processed composite or porcelain onlays or full crowns and bridges. **<u>Now</u>**, should we resurface all the teeth or just some of them?



Problems associated with changing the vertical dimension:
Patient may not be able to tolerate new position (I've rarely seen this, however make sure you do not try to open a **<u>deep</u> dental** bite with an **<u>open</u> skeletal** bite), cost, treatment time, excess prepping of enamel for crowns, clinical crowns too long, patients expectations.

I have used every method above to open the vertical dimension. The most used and the most versatile in our practice is the Levi Lingual Ledge. These ledges are by far the easiest, fastest, cheapest, most flexible way to increase the vertical dimension.

The quest for knowledge is a "two edged sword". Sometimes is might be better to be dumb and happy. However, if we desire to be the best at our profession as humanly possible, we must **continually be open** to learn new ideas. Then we must incorporate that new knowledge in our practices. **This concept of Levy Lingual Ledges is an extremely valuable tool to add to your "bag of tricks".**