

Dr. Mike Racich - Good Recordkeeping Saves Dental Practices

Dr. Mike Racich: Hello, I'm Mike Racich. Once again, I am making an Oasis presentation. Today's presentation is on centric relation. A question that I'm commonly asked when people want to get involved with me – I mentor five study clubs in the British Columbia Greater Vancouver area – and when someone first wants to get involved with our focus study clubs the question that usually comes with regards to occlusion and centric relation is what camp am I in? And today I'd just like to share a few thoughts with you on this topic.

Dr. Mike Racich: Occlusion: Camps are generally, when it comes to occlusion, it centres around the concept of centric relation. Centric relation is generally thought to be the position of the condyle in the glenoid fossa. Historically, hundred years ago, dentists needed to communicate with each other. And back in the day they wrote letters, you know, maybe the fortunate ones had a telephone that they could pick up and speak with each other and they had to have a way to communicate. The jaw position that they were going to do their rehabilitations, mainly removable rehabilitations, to make discussions with each other. Was it going to be habit bite? Was it going to be a tongue position, where they use the tongue to try to find a common jaw position? Or did they actually guide the mandible? And so, when they guided the mandible, the term that they used was centric relation.

Dr. Mike Racich: As time went on, 1950s, 60s, 70s, and we became more sophisticated with our abilities to image/radiograph the temporomandibular joint, dentists, scholars, etc. decided that they would examine this joint position more acutely. In other words, they wanted to see where the condyle would fit in the glenoid fossa in relationship to the disk and various concepts of the position then came to be. Everything from over time the condyle being braced, or the disk being raised by the condyle and the articular eminence, similar to the picture you see on the upper-right of the scale, to the lower right of the scale, you see a picture, this one right here, the so called 4-7 position where the condyle would be centred in the glenoid fossa. And then of course there was other representations of it as well.

Dr. Mike Racich: At the end of the day, centric relation became a position that dentists liked to treat too. And depending on which dentist, which followers that dentist had, we ended up with a camp so to speak. At the end of the day, and this is what I'd like to pass on to you, it's not a joint-based position in 2019 in my opinion that we're trying to achieve, or a joint-biased position, as you can see on the screen that we're trying to get in 2019, but we're trying to get a CR or a consistently reproducible position. The other thing I'd like to show you on the screen is these other pictures. The one on the lower-left of the screen is the so-called Mark Piper classification. Mark Piper is an oral surgeon and he's come up with a classification as the disk starts to get displaced over time or find a different

position depending on the use and abuse of the stomatognathic system by an individual or individuals. The Mark Piper and various people that follow his teachings like to position the condyle relative to where that disk is. Very tricky to do.

Dr. Mike Racich: However, these dentists are able to do this sort of thing. Well, the picture on the upper-left of the screen, where you can see my cursor right now, is it's not just the joint that we're talking about. We're actually talking about the joint, in other words the hinged position if you like, and the relationship of where the teeth are as well. So, occlusion or if you like centric relation is not just the joint. The joint, once again, or the centric relation was just a place to communicate and it comes down to where the dentist or dentists want to treat to in relationship to where the jaws, the maxilla and mandible relate with the dentition, either artificial or not is located.

Dr. Mike Racich: So #1, I break the stomatognathic system down into what I call the 1-2-3s of dentistry. The 1, 2, 3s of dentistry. And the "1" position is the starting position. That's where the maxilla and the mandible are in a orthopedically stable position. The condyles are in a hinged position, I'd like to think of, and we have a stable vertical dimension of occlusion. So, as you can see in the pictures on the left of the screen here, whether it's a dentate occlusion, it could be artificial, or on the lower-right of the screen, as you can see where my cursor is right now, we can create a stable position by adding restorative materials to existing restorative materials. In this example here you can see the molars have composite added to them to give me this orthopedically stable position. Alternatively, people can use appliances, as you can see in the upper-right of the screen, to try to get a treatment or trial position in an orthopedically stable position. So, centric relation is a position that dentists find, some of them are in camps, they have a favorite position, but it's a reproducible position in an acceptable vertical dimension of occlusion.

Dr. Mike Racich: One way of ascertaining what that vertical dimension of occlusion is is quite simply by looking at the patient and applying facially generated treatment planning techniques. Facially generated treatment planning is meet the person, meet the face, meet the mouth, meet the teeth. In assessing vertical dimension we meet the face, the so-called rule of thirds, as you can see to the left of the screen here, the rule of thirds. And we can look at the lower facial third and see whether there's a decrease in vertical dimension. Alternatively, a person can look at the relationship between the first molars, free gingival margin to free gingival margin, to kind of get a feeling about whether they believe or feel that there's been excessive wear or loss of vertical dimension in the posterior dentition. Practitioners, even recent graduates, are pretty clear on what first molars look like in a teenager, free gingival margin to free gingival margin, and what that vertical dimension is.

Dr. Mike Racich: When they're observing a 40-year-old or 50-year-old with a worn dentition it doesn't take much to really spy if you like, the relationship with the free gingival margin to the free gingival margin and if there is that loss of vertical dimension. In concert with what the facial thirds say, we get an idea or a relative viewpoint if you like, of whether we believe that that vertical dimension should be open or not relative to the consistently reproducible position and we can therefore get what I call my one position. A stable starting position in an orthopedically stable position. In other words, the condyles are seated and cushioned against the articular disk and the vertical dimension is ascertained with the posterior teeth hitting evenly and concentrically. We also have to look at the anterior of the mouth and the envelope of function or what I call the "2" position.

Dr. Mike Racich: My "2" position is where the anterior teeth are: in a sagittal plane and in in a coronal plane. The coronal plane is Smile du Jour. t's cosmetic dentistry, esthetic dentistry. It's the sagittal that gives us the function. The so-called envelope of function. In other words, we do not want, in other words, the envelope of function is where the maxillary teeth are and the mandibular teeth are. We don't want the lower teeth, the mandibular teeth, hitting the maxillary teeth in function, whether that function is chewing or speech or swallowing. The clinical example of that, of course, is fremitus. If we were to put a gloved finger on a central incisor and have our patient go tap, tap, tap really quickly, we should not feel that anterior teeth, that maxillary anterior tooth bouncing. If that maxillary anterior tooth is bouncing, that means that we have a constricted envelope of function.

Dr. Mike Racich: Ways that we eliminate that, or we can clinically test for it is we can take a piece of ribbon. This particular ribbon is Madame Butterfly Ribbon, as you can see where my cursor is, it's 70 microns in thickness and we should easily be able to pull that 70-micron thickness between the central incisors. The way we can tell whether, a way we can evaluate whether the maxillary anterior teeth can be brought forward is simple removable prosthodontics. The so-called F-position: 41, 42, 43, 44. Maxillary incisal edge should hit the wet dry line of the lower lip so we can get an idea of how far maxillary teeth can come forward to give us enough room for the lower teeth to move freely in the envelope of function. So, when we bring the envelope of function in concert where the condyle is in the glenoid fossa, we can get an idea and an appreciation of where we can have our teeth in its relatively well seated position or vertical dimension. The condyle in an unstrained position and in harmony with the envelope of function. The picture to the right here just for completion as I have it on this slide is another way of evaluating the maxillary central incisor is the McNamara Plane. The McNamara Plane is a plum line drawn down from nasion and the maxillary central incisors should be on that line or in front of it.

Dr. Mike Racich: So, facially-generated treatment planning is a CR position. In other words, centric correlation in my opinion is not a joint-biased occlusion. Centric relation

is actually a facially-generated position. In other words, we want to make sure that we have a good appreciation with maxillary central incisors are so we're not entrapping the envelope of function and we want to assess the vertical dimension and have a hinge position where our patient is comfortable.

Dr. Mike Racich: So, in my 1, 2, 3s of dentistry, one, two threes of dentistry, the one position is the starting position, a centric related position, a consistently reproducible position at a stable vertical dimension or acceptable vertical dimension in harmony with the envelope of function. The 3 position is that we want the posterior teeth to have anatomy on them with the teeth having anatomy, not only does the patient function properly, but if we have a sharp cusp tip, for example, a mandibular tooth in a flat plane in the maxilla, we can stabilize that posterior occlusion more effectively.

Dr. Mike Racich: Another way of looking at this is maximum intercuspation or habit bite maybe is identical whereas centric relation is clinically reliable. On a day-to-day basis, yes, I treat an MI or habit bite routinely, single in the posterior, single units, maybe a few multiple units, but I'm certain and I make certain that the posterior teeth are all touching in that habit position. Let's do this exercise for the fun of it. A good jump, jump, jump on your teeth and move your head around. If you're like me, your occlusion keeps on changing. you keep on hitting different spots. That's why a habit bite might be identical. Patients, depending on how they're fidgeting in the dental chair may or may not be able to get to that same position. So, we want to check, for example, you can see on the lower right here, we want to check with Shim stock before we do treatment or on the initial exam when they come to our offices, we want to make sure that they're touching or where they're touching in their posterior dentition. Hopefully, all their posterior teeth, assuming that they have a complete complement of posterior teeth, hopefully that they are all touching. Then, if we treat a habit bite, maybe two crowns on the lower left or two crowns on the upper right, we have a pretty good chance that we're going to be able to get back to that position, even though that position might not be identical depending on how the patient bites. The more extensive our work becomes, for example, we're going to prepare the whole quadrant on the lower right, for example. Well then in that case, it's probably not a bad idea that I have a clinically reliable position or CR that I can get back to. In other words, a hinge position where we get back to the vertical dimension that the patient came in with, if we're only working on the back teeth, hopefully we've already assessed to make sure that the envelope of function isn't restricted, or at least it's stable; and then we can go on with our restorations to give them a posterior occlusion, that if they happen to be clenching their teeth, at least they get the sensation that they're pointing back to the same spot and that we haven't changed anything.

Dr. Mike Racich: So, the other thing here is we want a mutually-protected occlusion for our patients. A mutually-protected occlusion once again is we want the back teeth.

if the person's squeezing to protecting the front teeth, maxillary central incisors, we don't want to touch. And, if the person is grinding, we want the front teeth to do the lifting to protect the back teeth. The other reason we like a mutually-protected occlusion is it's a class three lever. Once again, let's do a little exercise. Bring your front teeth together like edge to edge, like you're gonna Bite your fingernails and feel your masseters. They should be nice and soft. Now relax and squeeze your teeth together. Your masseters are firing like crazy at this point. Probably a 3 to 1 relationship, probably about three times the amount of force.

Dr. Mike Racich: So, once again if the person's squeezing their teeth, we want all the back teeth to be loading; and if the person is grinding their teeth, we want the front teeth to do the lifting because there's less force in the system. It's a class three lever system, so whether it's an MI a maximum intercuspation or centric relation, we want this mutually protected occlusion. The other thing that we want to do is we want to educate our patients, and this is the lower left of the screen, we want to educate our patients that they on a day-to-day basis, we want them to keep their teeth apart. Research 30 years ago and others have followed in teaching this as well is the majority of the time people have their teeth apart. teeth might come together 2000 times a day when we're biting through food and/or swallowing.

Dr. Mike Racich: When I swallow, my teeth don't touch because my tongue is too large and my teeth don't touch and I just had a banana before I started to do this video and when I was eating that banana, my teeth might've gone through that banana for that split second. It's been quantified that these events might happen 2000 times a day at a hundred pounds per square inch and it might add up the 10 or 15 minutes per day of contact. If somebody's got their teeth together, they can do this for hours and they can get it up to a thousand pounds per square inch, a thousand pounds per square inch is the pressure in the braking system of an 18-wheeler truck. That's a heck of a lot of force. We could literally hook up some of our patients to a truck and stop it, if we want it to, if we were hooked up to the braking system.

Dr. Mike Racich: So, there are a lot of force in the system, so we want to educate our patients before we treat them to keep their teeth apart. We want to educate our patients when they're sleeping and potentially clenching or grinding their teeth to wear something, an orthotic, a night guard, I like to call it an insurance policy to protect their dentition and any dentistry that's been done. And then depending on the case and the stability of the posterior teeth, especially the stability after we potentially remove a lot of the contacts, we might want to consider doing and I think it's a prudent thing to do to consider to treat those patients in a clinically reliable position, a consistently reproducible position, otherwise better known as centric relation.

Dr. Mike Racich: As I alluded to earlier, I do the 1, 2, 3s of dentistry. The 3 of course is making the teeth look like teeth. There's a reason why nature designed molars to have and premolar to have cusps and fossas, it was for efficiency of chewing. The literature is very clear. We have anatomy in the posterior dentition to the left of the screen here is dentate research; to the right of the screen is prosthetic research. Both indicate with cusps on teeth, mastication is more efficient. The other thing as I mentioned earlier in this video is that if we have sharp anatomy, it's a lot easier to establish even contact in the posterior dentition. To the middle of the screen here, you can see how I've been able to, with teeth looking like teeth, make precise centric contacts, contacts on the buccal cusp tips to help stabilize the posterior dentition for the stomatognathic system.

Dr. Mike Racich: For implants, everything else fits the same. We built the dentition at a workable vertical dimension in a consistently reproducible position and we make the teeth look like teeth. For individual implant fixed solutions like crowns, we like to provide Shim relief and light contact because implants don't intrude, teeth intrude. So, all the teeth around if somebody is squeezing will intrude where the implants won't. So, unlike contact, we want to be able to pull shim stock eight microns between the restoration, the crown restoration if it's on an implant and a natural tooth in this case. Or, in heavy contact, we may elect to have them touching or in occlusion or depending on the situation, we might want a little bit of a resistance when we pull the Shim through as opposed to having it hold or pass freely through. The picture on the lower left of the screen of course is I'm just re-emphasizing that for sleepwear, if somebody's grinding or clenching their teeth, it's prudent for them to wear a hard acrylic orthotic to prevent excessive wear on their restorations or their dentition.

Dr. Mike Racich: So, very quickly, one case. This case, by the way, I have four books as you know, this case is in the last chapter of my first book, *The Basic Rules of Oral Rehabilitation*. So this patient wanted orthodontics and improved tooth positions so she could get some aesthetic/cosmetic work done. She had the orthodontics done. The orthodontics is, it turns out that, you can see the radiographs in my book, but there was reduced periodontal support in the anterior upper mouth. We didn't really know when the case was referred to me, at the stage that you see in the upper left of the screen. And, the practitioners that were involved were very skilled practitioners in Vancouver. Unfortunately, the case didn't necessarily get away from them. It just that when the initial referring dentists saw the case, he'd gotten a little bit concerned and just wanted my opinion on the case. What we ended up doing in this case, because we were a little concerned that the maxillary anterior teeth, how stable they would be once the braces came off. What we did is we continued with the implants on the mandibular posterior, as you can see on the, where my cursor is right now, we made a provisional restoration, very primitive restoration just to stabilize the CR position and the vertical dimension of occlusion so that the orthodontist could finalize the positioning of the maxillary anterior teeth so that

we could then do some provisional diagnostic restorations, better known as prototypes for this case.

Dr. Mike Racich:

So, the patient was actually stabilized with the very primitive posterior provisional bridge, fixed-partial denture, for over six months. When the braces came off in the morning, went to the orthodontist office at 8:00 am in the morning and came to our office. We then spent the day doing the direct bonding that you see. The patient actually walked out of the office with the bonding on the lower left of the screen. This picture was taken a week after the bonding. What we did once again is we had a stable starting position, our 1 position. We then worked out where the f position was, if you like, how far maxillary we could bring the anterior teeth. We built the lower arch in respect to the envelope of function, the sagittal and then we did the Smile du Jour as well. So, we had the 1 and the 2 a consistently reliable position, a consistently reproducible position at a working vertical dimension in harmony with the envelope of function. And we did this in a facially-generated manner. The picture to the lower left of the screen is sometime later within a year, after we had done the appointment to establish the two or the maxillary anterior. We went back and we made definitive restorations in the posterior implant, supported fixed partial dentures or better known as bridges. And there she is. So, there is at the beginning of the treatment, the middle is the when I met her and then currently, this is the way she looks, a facially-generated treatment planning in a consistently reproducible position, centric relation, a clinically reliable position at a working vertical dimension. We can see very nicely here her facial thirds are evenly proportioned. We did this all-in harmony with the envelope of function and we did the coronal in proportion to her face and we established very sharp anatomical features in the posterior of the mouth.

Dr. Mike Racich:

So, centric relation, we want a mutually-protected occlusion for our restorative and [inaudible]. We want to educate the patients to keep their teeth apart as much as possible and we apply centric relation as indicated. It's all case specific. Everything needs to be customized. It's no cookie cut. It's facially-generated treatment planning, we meet the person, we meet the face, we meet the mouth and we meet the teeth. Once again, it's been an absolute pleasure spending time with you on this broadcast. I look forward to spending more time with you in the future. Bye for now.