Ep #3: Orthodontics for the Face with Dr. Derek Mahony.

Full Episode Transcript

With Your Host

Dr. Vijaya Molloy

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A number of sets of twins had orthodontic treatment at the same time. The difference was one twin had teeth taken out, the other one didn't. The end result was that, on completion of treatment, they no longer looked like twins.

You are listening to the *Mind Body Mouth* podcast with Dr. Molloy, episode three.

Welcome to Mind Body Mouth, a podcast that explores the link between the health of your mouth and the rest of your body. If you're a patient, parent, or fellow practitioner who's curious about how functional dentistry can improve your overall health, this is the show for you. Here's your host, Australian dentist, Dr. Vijaya Molloy.

Vijaya: Hi everyone, and welcome to another episode of *Mind Body Mouth*. I'm Dr. Vijaya Molloy, and today, it's an absolute pleasure to have with me world-renowned orthodontist, known for thinking a bit outside the box, Dr Derek Mahony. Now, Derek has postgraduate draining in three areas; orthodontics, orthopedics, and sleep medicine. Welcome to the show today, Derek.

Derek: Thank you. Thanks very much for inviting me.

Vijaya: 15 years ago, before I'd even met you, I first saw you on a 60 Minutes documentary talking about a study comparing different treatment modalities between twins. Can you tell me a little bit about that particular study?

Derek: That study was really the work of Dr. John Mew, who's an orthodontist in the UK. And John is a big believer in treating to a beautiful facial profile and leaving teeth to really do their own thing. So even though he's an orthodontist, he's not the classical guy who puts braces on, and he's a big advocate of not taking teeth out.

So, one way he was able to show, I guess, the establishment that there is a difference between the way you treat and the way your face ends up, he used a series of identical twins. If you believe that everyone is genetically programmed to end up looking like their parents, then obviously, it would be a waste of time doing any early interceptive treatment.

So what John showed is a series of twins, one who had his form of treatment, which is called orthotropics – basically an appliance called a Biobloc, which develops the upper jaw, pushes the upper jaw forward, and then untraps the lower jaw so it can catch up. And I must admit, even though John's a personal friend of mine, I've travelled around the world, I've lectured in 95 countries, I've never seen as good facial profiles as what John produces.

So John showed one twin that was treated the conventional method – extraction-based orthodontics – and another twin that was treated with his method. And then he followed these twins over many years and you notice, year after year, the extraction profile looks worse compared to the non-extraction profile.

Now, this was all back in the day before we even knew about airway, you know. We were talking about facial aesthetics. Now, link it with airway, there's so much research out there to link retraction to tongue space.

Vijaya: Could you elaborate a bit. What do you mean by retraction? And when you talk about a profile being worse, what features are you looking for? What defines it as a worse profile?

Derek: So, what defines a good profile – this is not from the orthodontic literature, this is just from facial aesthetics, whether you talk to a cosmetic physician, a plastic surgeon – it's all about the position of the upper jaw and the cheekbones. So, the null hypothesis is if your upper jaw is too far back, your facial support's not going to be good.

We all know, as we age, everything goes south. So if you can establish a proper position of what's called the maxilla, or upper jaw, then you are

going to position everything for good facial balance, particularly the cheekbone. And John is very big on getting parents to do a simple measurement. It's called the Mew Indicator Ruler.

So the parents – and you don't have to be an orthodontist to do this – measure from the tip of the child's nose to the front of their upper incisor. And that distance, based on the child's age, gives you an idea if the maxilla is too far back. And if it is, that's maybe an indication to get in early to do what's called orthopedics, to bring that upper jaw forward and to widen the upper jaw.

Now, if you do that – and I'll use the technical term here – you're improving a part of the airway known as the velopharynx. So, velo, from the Greek, means the palette; so the area behind the palette. So that's really important in kids because if you understand how a face grows. The upper jaw grows downward and forward based on good nasal respiration. Linder-Aronson, who was one of my tutors back in the day and who I had done some research with, he showed that children who had constant nasal obstruction due to large adenoids developed less attractive faces.

They had more crowding. They had narrower maxillas compared to children who had good airway. And then he followed the kids who had an adenectomy, in other words had their airway improved. They then changed from long faces to more forward faces. So I think if you want classical research, Linder-Aronson is a benchmark study.

Vijaya: And we're talking about airway and more and more is being known about the importance of airway for brain development, for growth. Have you come across much evidence to support that? Do children do better in school when they've got a more developed airway? We've read about ADHD being misdiagnosed because it is, in fact, a sign of a poor airway.

Derek: Yeah, during the formative years, cognitive development is very much influenced by your quality of sleep. So let's define that. You can have a child asleep for 10 hours, but they never get to the proper stage of sleep. Now, without getting too technical, sleep, which is dream sleep, known as

rapid eye movement and non-rapid eye movement, and every 60 to 90 minutes, you cycle through these stages.

The good quality sleep, the refreshing sleep, the sleep when the hormones are released et cetera is stage three non-rapid eye movement. And to get to that stage, you need to have a patent airway. Lots of research is now talking about the position of the tongue during this time. So if you have a child who's constantly nasally obstructed – a mouth-breather – or you have a child who sucks their thumb all night, or you have a child who's tongue-tied so the tongue can't sit in the right position, any of these can affect that sleep.

So obviously, if a child's not sleeping well, they're not going to perform well at school, and in the old days, they were put in the, "Too hard basket." And this is nothing new. I can quote papers from 1909 that talked about the lazy child, but basically, it was the child that was being deprived of good quality sleep. There are three papers in the literature and I'm happy, at the end of this talk. To send you a copy of these if your readers are interested…

Vijaya: Yeah, we can make those available, that's be great.

Derek: That show that you can drop up to 10 IQ points during these formative years. And you'll never regain those points, you see. It's not just about teeth. If I rebranded my practice, years ago I called it Full Face Orthodontics because I had a mission and that was to give children, like Mew was saying, good quality faces, not just straight teeth. But really, I prefer to call my practice now Airway Focused Orthodontics because the link is good sleep, goon nasal breathing, and the rest works with nature.

Vijaya: So we're talking not just about creating a more beautiful face, but also a healthier child, which is, in fact, what every parent wants for their child. So you've touched a little bit upon what do you look for, but are you able to just break down, for the listeners out there, what exact features are you looking at when planning treatment for a patient? What features could a parent be looking at in their child to decide, maybe my child, even though they haven't got crowded teeth, maybe they do need some orthodontics?

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Derek: Look, I'd refer parents to a website, which is a website for the American Association of Orthodontics. So it's a specialist website. And in there, they talk about what is the best age to bring your child to an orthodontist.

And many parents in this country would think, when they've lost their baby teeth, you know, 12-13. But really, if you listen to what it says on that website, by age seven. Why is seven an important age? Because you have a lot of growth remaining of the jaw. You're not going to miss the boat for the things we're talking about.

The sort of things I'll get parents to look at very much relates to their child's facial features. Is the child always a mouth-breather? Do they have what's called venous pooling, which is these dark shadows under their eyes? Do they snore at night? Snoring is a bad thing for children. For adults, you could snore and not have sleep apnea. In children, there's a high incidence of sleep apnea with children who snore.

There's so many apps now a parent or a patient can download. The one I recommend is called Snorelab. It's a free app available on any smart phone, and it allows you to record your child – because most parents, if I asked them, "I suspect your child's a mouth-breather. I suspect your child snores." They would say, "I haven't a clue because my child is a couple of bedrooms down from where I am."

But they will say things like, "We went camping the other day," or, "My child came in to sleep with me last night because they had a bad dream, and jeez, let me tell you, that kid grinds his teeth all night," or "That kid snores," or, "That kid is a restless sleeper," all these sorts of things.

So I ask parents to have a look at the child's sleep and look at their facial features. And then, if you want to look at teeth, there's a simple measurement you can do between the width of the upper teeth, which is called the inter-molar measurement.

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All of this I'm happy to send articles on, but please go to the American Association of Orthodontics website, which shows classical things that should be picked up early. It talks about the term underbites. So an underbite is something we treat even earlier than other problems.

It's a lot to go into, but I think if your child is not doing well at school, is snoring at night, not sleeping well, wetting their bed, these are the things. And I give all my patients a chart to fill out and it's a chart known as the BEARS Questionnaire. And based on the overall score, it gives them an indication of whether their child may require consultation from, say, a sleep physician regarding these problems.

Vijaya: When we spoke about snoring in children, children don't snore the same was as adults, do they? Even heavy breathing is an indication of snoring or oxygen deprivation in children.

Derek: Correct. The term people now use is called sleep disordered breathing. And sleep disordered breathing is made up of a number of factors. One is primary snoring. The other is mouth-breathing, like sleeping with your mouth open all night. Sometimes, it's hard for me to explain that to a parent.

They say, "Our whole family is mouth-breathers." I'd say, "Well listen, would you be worried if your child started eating through their nose?" And then they think, that's probably not a good thing. So mouth-breathing is not a good thing at all. God's given us a nose for a reason. You can't over-breathe through your nose. The nose filters out all the germs, humidifies the air. It's really important.

And then we talk about nitric oxide and the ability of it being a powerful vasodilator that also helps all this. So we've got snoring, we've got mouth-breathing, we've got upper respiratory airway problems. And the classic then is the child who has allergies, you know, who has the runny nose all the time. They'll have what's called large turbinates. Then you have the most serious part of that which is sleep apnea, where the child actually stops breathing at night.

It can be any of those that contribute to this problem. And I always say to parents, if in doubt, fill out the questionnaire and it wouldn't hurt to get a sleep study.

What can go wrong with a sleep study? There's no radiation, there's no harm, and a sleep study picks up all these things, plus it could pick up other conditions such as silent reflux, which is a big problem. There's a big link between sleep apnea, constipation, silent reflux, restless leg syndrome. And all of this is picked up really well on the sleep study.

So when someone says to me, what's a good baseline for my child? Everyone gets that little blue book and they've got to get vaccinated and blah, blah, blah, blah. But I think if your child's not sleeping well. Is hyperactive – and you know the child I'm talking about. As a dentist, they're the children who come in and destroy your waiting room, yes, no?

Vijaya: Absolutely.

Derek: And you feel sort for the parents, but the parents are told, you know, well troublesome twos or whatever they say. I think I can link certain features of sleep and face that would warrant further investigation. I've just concluded 15 years of research where I've been documenting all these children's problems with sleep studies.

And what did we find? We found nearly 90% of the children referred to me with an orthodontic problem, a malocclusion, actually had a sleep related problem, sleep disordered breathing. That's huge.

Vijaya: 90%?

Derek: 90% and that's only because I started looking. I mean, I was classically trained as an orthodontist in the UK, you know. So my classical training, wait until the kid had all the permanent teeth. If there's not enough room for the teeth, you pull out four, you put braces on, and you line them up. And I did that for years.

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And the first 10 years I graduated, I thought I was doing wonderful stuff, until I kind of started listening to other people and seeing my own results, teeth moving, jaw developing more jaw problems, faces looking less attractive after I'd finished their orthodontics, you know. And then I started connecting the boxes.

I went back and did further training in orthopedics, which is jaw development, not just tooth movement. But really, what clinched it for me is when I went off and did studies in sleep medicine. And I determine dental sleep medicine as the future of anything to do with dentistry. Children who grind their teeth, the dentist looks at is as cracked teeth, but what causes the cracked teeth? Children have high caries. Lack of saliva in their mouth, why are they mouth-breathing?

So a lot of the things we see – and I don't even want to get into nutrition but that's another aspect – so we're looking now more holistically. We were always known as the driller and filler. You're a general dentist, so you know, you went to a dentist not for prevention. It was always, I've got this toothache, we've got to do this, et cetera. How about looking at the dentist as the preventive guy?

You know, all my medical specialists, whether they're ear, nose, and throat doctors, or sleep physicians, they tell me one thing. They say, "Derek, the students you train as dentists are best referrers and pick up more than their general medical doctors do." And why is that? Because we're looking in the mouth a lot more than the average medical doctor.

Vijaya: Absolutely.

Derek: And the mouth is, like, you can pick up so many systemic problems of overall health just by looking in the mouth. So if a parent looks in the mouth at a child – I'll send them the link. Anyone can do a Mallampati index, right? Kid just goes, "Ahhh," you look to see the back of the soft palette. You look at the size of the tonsils. Is the uvula enlarged edematous? Is there scalloping on the tongue, you know?

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I can teach parents how to check their kids own tongue-tie. It's not hard, you know. You measure the opening. You measure the opening with the tongue on the spot, you know, all this sort of stuff. And really, it's being missed so much.

I'm not trying to put the blame on anyone, right, but I feel you get so many children now who appear at seven or eight who are horrifically tongue-tied. And what was the pediatrician thinking when the baby was born? What's the general dentist thinking at six-monthly checkups without picking this up?

These are the things. There's lots of research now from Stanford University with Dr. Christian Guilleminault who is, like, the father of sleep medicine. And he's been researching with Audrey Yoon, who is a colleague of mine. And Audrey has shown that ankyloglossia, which is tongue-tie, has a high predict of sleep apnea in children. So what is it with dentists that they're not checking tongue-tie on every kid?

Vijaya: On this subject of tongue-tie, a lot of people ask me about the potential health implications of an untreated tongue-tie. There's so much variation between the dental and the medical profession. When do we cut? When don't we cut?

Derek: How do we cut?

Vijaya: How do we cut? Do we use laser? Do we snip? Do we scissors, surgery, scalpel? Do we just leave it alone? What's your opinion on this?

Derek: Look, there's two extremes here, okay. There are some dubious practitioners that will do a tongue and lip-tie for everyone, just because that's the way they do things. There's also other people who believe that there's nothing wrong with an enlarged tongue and lip.

I'm very evidence-based on this and I'd really like people to visit the website of Dr. Larry Kotlow is a pediatric dentist in New York. His website is amazing for parents and everything I'm going to talk about is there. He

shows you how you can measure what's called an enlarged lip or tongue-tie.

Now, here's the problem. For a baby, of course, it's going to affect their breastfeeding. My kids are all grown up now, but when they were babies, we always were taught, if the child couldn't breastfeed, well then just some kids can't and just put them on the bottle, blah, blah, blah. Or you had Karitane to help the mum.

But no one thought about the obvious; well maybe the kid's tongue can't work properly and the lick doesn't work to give you the latch effect. So that's the beginning. For babies who are lip and tongue-tied, definitely it could have an effect on feeding.

The other things is everyone seems to think that tongue-tie is speech related. So if your child has no speech problem, there can't be tongue-tie. Speak to many speech pathologists who realize that other than articulation problems – I'm talking about that new field which is called oral myology, many speech pathologists are doing extra studies now specifically on the role of the tongue.

So the big health implication, if your tongue is not on the palette doing its job, it's going to prevent normal development of the jaw. So, how does an upper jaw grow? With good nasal breathing, the sinuses develop, and the tongue hits the palette. This is straight from Professor Enlow's book, Essentials of Facial Growth. And if you're tongue-tied, the roll on effect is the maxilla's not getting the stimulation to grow forward. If the maxilla doesn't grow forward, more chance of dental crowding, more chance of crossbite, more chance of airway problems.

Now, let's talk about sleep apnea because that's Audrey Yoon's research. I've had many dentists say to me, "Derek, if someone's tongue-tied, anterior tongue-tied, surely that means the tongue is in a forward position, right?" But what they don't realize, the tip of the tongue needs to rest behind the upper incisors, then the body of the tongue leads the oropharynx and sits where it should be. And then, when you breathe

through your nose, a seal is formed between the soft palette and the tongue. And that seal is very important for normal sleep and normal breathing.

So, one of the implications of tongue-tie is a higher chance of sleep apnea, which is a very dangerous condition. You know, someone who's tongue-tied is not going to use their tongue after they've had lunch to do what everyone else does. So there's a high occurrence rate.

I don't know whether this is a family show or not, but I did a tongue-tie release on a 45-year-old male patient, you know, who thought he didn't need anything done. And I demonstrated to him, after that was released, his wife rang and thanked me. So I'll let you do the maths on that.

There is stuff in the literature to link lower-back problems with severe tongue-tie. I've spoken to a lot of chiropractors and physiotherapists who, once the patient's been tongue-tie-released, they don't even know about it. They say, "Oh my god, this is so much better for all the other muscles."

If you look at the main muscle we're talking about here, genioglossus, it's a powerful muscle and it's an important muscle to keep the tongue in the right position for the airway. They were prestigious back in the day, where they did a hyoid bone suspension. Not a pleasant surgery, but for what reason? Again, to keep the tongue from the back of the airway. So if you ask me why is tongue-tie important, it's development of the palette, it's for airway problems, and it's for normal dental function.

Now, I haven't even touched on speech. Lip tie, important from the point of view of the baby latching on. Important also from - those kids who have the big gap between their teeth, we call that a diastema and many times, that diastema is because this frenum is growing between the teeth, and that of course affects dental development, and then increases the chances of crowding.

So I think examining tongue and lip tie is an important aspect, but for a parent's point of view, Kotlow's website is fantastic and I just believe not

enough people are looking at this, but then there are people who are doing, I think just too much, and then that's bringing in the ethical practitioner into disrepute. So you've got to kind of figure out what's going on where, and I believe that if there's evidence there that shows problem x, y, z, and there's a tool to measure - that's why Audrey Yoon – I'll keep coming back to her. She's come up with a very effective measuring tool for macroglossia.

And I think every dentist should use that because it's easy for them to do. You're in the mouth anyway, all you need is a little ruler, you get the child to open, put their tongue there, and then you can pick up these problems along the way.

Vijaya: Sure. And just if we could chat a little bit, we're talking about the effect of tongue-tie on the other muscles. I performed a frenectomy, so a tongue-tie-release on a 45-year-old woman the other day. Instantly she reported her shoulders had dropped. She felt they had dropped lower than they'd ever dropped before. Her jaw was more relaxed, she was in tears and she said I can't believe my tongue can go this far just immediately.

Derek: The tongue is such a powerful muscle. It's used for a number of functions. Someone who doesn't think they have a problem is because they're so used to that. But like you just said, when it's released, all of a sudden they get this massive change in their form and function. Then they're very appreciative.

Vijaya: Well, this woman had also been diagnosed with severe sleep apnea with a home sleep study. She spent thousands in medical care. She's been diagnosed with fibromyalgia, which is essentially a diagnosis by a mission. If you haven't got that, you must have fibromyalgia. And now for the first time, she said I woke up and I feel refreshed. This has never happened to me.

Derek: Wow, and doesn't that mean you feel great as a clinician? No one in the world is going to write you a thank you letter for the root canal you did on their upper first molar, or the wisdom tooth you extracted where you had to six pieces. I get thank you letters all the time for what you're saying.

What I call medical dentistry; being able to pick the link between their overall health and what we see in the mouth, so that's fantastic stuff.

Vijaya: And interestingly, we were talking a bit about sleep apnea more as it relates to children, but I've also had - I think of one particular adult patient who for the last 20 years has been struggling with health problems. Once again, has spent thousands. She's had severe sleep apnea, she went and got a CPAP, took it home, feeling so much better. She was angry that the problem hadn't been diagnosed previously.

Derek: The big link I see with children's sleep problems, early warning signs and the dentist picks it up is the wear on the teeth. Because when you see a young child with excessive wear, the equivalent of a 40-year-old, you think something's going on here. And what we were taught in dental school, I was taught every kid who bruxes has stress issues. Come on, a four-year-old? How stressed are they going to be to be able to do that?

Vijaya: So let's just for the listeners out there, clarify - when we talk about bruxism, what we're referring to, the grinding of the teeth. That's the dentist term for the grinding of the teeth.

Derek: Correct. That's right, and grinding takes many forms, and the patient who's got their back teeth together all day long, that's called clenching. There's the concept of the noise that is made at night when the kids have their teeth together going side to side and the dentist tend to call that term bruxism, so any abnormal contact of the teeth. Teeth should only be together, believe it or not, for about 10 minutes of the day. 10 to 15 minutes of the day. And that is when you swallow, just before you finish, you swallow, your teeth touch. And many people have their teeth together all day long, and this is where the problems arise.

Vijaya: And when they're chewing.

Derek: Correct. We now know from very good research, one of the major causes of bruxism in children is upper airway problems, and tonsil nodes are probably the biggest. There's a great ear, nose, and throat specialist,

David Macintosh. He's got a great Facebook group, which is called Ear, Nose, and Throat for Dental Professionals. Look at all the published papers there relating bruxism. It's fantastic.

So you talk about evidence-based literature, everyone can pick in the literature which cap they want to hang their hat on. That's the unfortunate thing, isn't it? But there's a lot more now in evidence-based literature support these theories.

Vijaya: And we also hear about gut disturbance as causing teeth grinding, and I think there's a bit of a neurological pattern there, neurological pathway. When kids are exposed to foods like they might be gluten intolerant, they might be dairy intolerant, this stimulates a neurological pathway, which can then cause grinding, can then lead to sleep disturbance.

Derek: Absolutely. Many dentists may not realize there's a high correlation between celiac disease and white spots on the teeth.

Vijaya: Absolutely, because they're just not absorbing nutrients as well. They're not absorbing calcium.

Derek: We're chasing the white spot as a drill and fill thing and how can we remove the white spot. Well, how about you look at maybe what's causing it. That's what it's all about. I mean, I as an orthodontist was taught to treat the symptom, which is dental crowding. Now I try to figure out well, what's causing this crowding? What actually causes crowding? So it's not like dad has big teeth, mum has a small jaw. That's what we were led to believe. A lot of crowding is related to a narrow palate. Why is the palate underdeveloped? Tongue-tie, poor nasal breathing, habits, thumb sucking, tongue thrust. Do you see what I’m saying?

Vijaya: And something I found interesting was that the sleep apnea gene is actually passed through the mother. So often the mother may have undiagnosed sleep apnea, the kid turns up, narrow palate, they're on track to developing sleep apnea, poor brain function.

Derek: You know, Collin Sullivan, who actually developed CPAP, very famous researcher in the University of Sydney. He's led his research, looks at women who were pregnant, and of course, in the third trimester, they put on a lot of weight. Weight gain is linked to sleep apnea. So here's a woman who has a baby developing who has sleep apnea. So one of his suggestions is possibly CPAP during that last third. And I think what you'll see in a lot of the research is those babies who go to full term, they'll be healthier babies. It's all about airway.

And anything that compromises airway and what does that - weight gain. Research would say if you lose 10% of your BMI, you can reduce your apnea index by a third. That's huge. And of course, what are we seeing more and more in young children? Obesity.

Vijaya: Can we just clarify for everyone what the apnea index is?

Derek: The apnea index was again developed in Stanford, and it's the number of apneas and hypopneas per hour during sleep. Hypopnea is partial sensation, apnea is full blockage.

Vijaya: For 10 seconds or more, I believe.

Derek: Correct. But then what they're missing, if they only measure those two is the patient who doesn't have an apneic event but needs increased respiratory effort to breath. So the proper term should be RDI, and that's the respiratory distress index, which is apnea, hypopnea, and these problems associated with nasal obstruction.

Vijaya: Absolutely. So we've spoken a lot about the evidence for the type of orthodontics that you practice and that you teach. So can we talk a little bit about the evidence out there for the traditional form of orthodontics that a lot of people still do practice, where we were just treating for the teeth to give straight teeth?

Derek: Yeah. Look, the majority of literature in the orthodontic field at least is based on two-dimensional x-rays called a lateral ceph. Now the more

modern research is on three-dimensional because in 3D you can see airway more clearly, et cetera, et cetera. I was taught what's called Steiner analysis. Not get too much into it but basically, a very famous orthodontist from New York, Cecil Steiner, woke up one morning, looked at his child, said wow, what a good-looking face, took one x-ray, traced that x-ray and said right, the rest of the world should have this as a standard.

And he uses a measurement called SNA, which is a way to determine the position of the maxilla. Because his son has an SNA of 82, that doesn't mean that's normal for a majority of people. So therefore, you can get a child whose face is already flat, but whose SNA is greater than 82. Our conventional training would mean he would need his front teeth pulled back, which is just terrible.

So I think a lot of the traditional literature is fundamentally flawed because they've been measuring the wrong thing. There's lots of studies there that will show there's no benefit in early orthodontic interception, but based on what criteria? Has anyone looked at airway in their children? I'm very proud to say that my research is probably one of the few long-term studies that's measuring airway in orthodontic inclusion problems, not just looking at teeth and millimeters of crowding and overbite and all the things we were taught traditionally.

Vijaya: So we're talking about retraction, which is basically pulling the teeth back into a position that we think they should be in. I've seen quite a few patients come through my practice who had that sort of orthodontics and now are coming to me with severe jaw pain. Is that something that you see a lot of too?

Derek: Yeah. Look, you can't say that everyone who has retractive orthodontics will develop TMD. However, if your front teeth are pulled back so far that your lower jaw can't function correctly, it's going to put more load on your jaw joint. Common sense.

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Vijaya: So we spoke about TMD. For everyone, we'll just elaborate. That means temporomandibular dysfunction, which is a dysfunction of your jaw joint causing pain.

Derek: Causing pain, causing popping and clicking, causing limited opening of your jaw, et cetera, et cetera. The factors that can increase TMD, what's called clenching or bruxing. We've talked a bit about bruxing at night. Clenching during the day is another one. So some of that may be stress related behavior, but a lot of the bruxism at night is actually related to opening up your airway.

Professor Jules Levine, University of Montreal has looked at what's called a syndrome, sleep bruxism where someone bruxes at night to open up their airway. It makes sense because the masseter, which is being utilized has affront fibers and connections to the tongue, and this hyperglossal ganglion is what is being stimulated so the patient can move their tongue out of the way. I don't know if you believe in god or not, but someone up there knows what they're doing.

And what we are seeing is when things go off the track, children not being breastfed, the development of the palate doesn't occur correctly. You know what's really weird, I lecture a lot in China now and in China, someone's got it out there in the social media that breastfeeding is bad because if you want your kid to have high IQ, give them formula.

Vijaya: That's imported from Australia.

Derek: It's ridiculous because if you want your child to have a happy, healthy life, try to get them off the bottle. I feel sorry for mothers who can't breastfeed, however, I think people should look more in depth as to why not. Why is breastfeeding important? Everyone knows the emotional bond with the mom and the child. Everyone knows about the nutritional content of the milk, but what about the development of the jaw?

When you breastfeed, you can't mouth breathe. So it forces the child to learn to breathe through the nose. Secondly, when you breastfeed, your

tongue has to hit the palate to squeeze the nipple, your lower jaw has to move forward and back to get the milk. That's stimulating forward growth of the jaw. Many really great papers, particularly out of Brazil, has shown less incidence of malocclusion if you breastfeed for a longer period of time.

What is a longer period of time? Depending on who you read, minimum should be six months. Ideal would be two years. I have parents being told about jaw development and sleep health benefits of long-term breastfeeding because if you put a kid on a pacifier, what's going to happen? The tongue doesn't hit the palate the way it should. It goes downward and forward, so it encourages an abnormal swallowing pattern.

Vijaya: As with thumb sucking.

Derek: Exactly. So whether you use a pacifier, whether you use a bottle to feed, whether you suck your thumb, you're all kind of doing the wrong thing for the tongue. And the wrong thing for the tongue is going to have major effects as far as development of the teeth, and I feel, contributing to sleep problems.

Vijaya: So I always tell people with the ideal posture is your tongue resting on the roof of the mouth behind the top teeth, lips gently closed together, and breathing through the nose. That's our goal. That's what we want to establish.

Derek: And you know what, people always ask me in the profession, Derek, define interceptive orthodontics. Unfortunately, if there's too many dentists, too many people doing orthodontics, interceptive orthodontics could mean intercepting the kid before they go to another practice. To me, true interceptive orthodontics begins with home education. Talk about the importance of breastfeeding, talk about the importance of proper sleep because if you breathe through your nose, lips together, tongue on the palate, trust me, you get normal growth and development. So true interceptive orthodontics is what? Nasal breathing.

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Vijaya: Absolutely. So do you still think there's a wide variation in the philosophy between how orthodontics is practiced between Australian specialists?

Derek: Absolutely. I mean, I get some parents who come for their fourth opinion. And let me tell you, there's one thing two orthodontists will agree upon and that is that the third orthodontist doesn’t know what he's doing. Depending on where you trained and what you're exposed to would then determine what you would offer. And that doesn't mean that they know that they're doing the wrong thing. They're offering the wrong thing. Not at all.

Everyone in - people I know in our profession are very ethical practitioners, but they haven't looked outside the box. A classic example is if a child comes to an orthodontist at seven, some orthodontists may say hey, this kid doesn't have enough teeth for us to do orthodontics, and that's true if all you're doing is straightening teeth.

But the more forward orthodontists will say hey, at seven, we're getting establishment of the palate, we're getting an idea to see whether we have good breathing, whether we have a dual problem like an underdeveloped lower jaw, a narrow top jaw, and we can get in at that age because at seven to nine is when maximum growth of these jaws occur. The upper jaw in particular.

So again, if you're going to be asking what is a good orthodontist, let's start with that. I think a good orthodontist is something who doesn't extract teeth just on crowding. I was taught wait for adult teeth, take some models of the teeth, measure the millimeters of crowding. If the crowding is greater than five millimeters, take out teeth. That's what I was taught. Very dogmatic training.

Now I look at the face, and if the face is set back, why would you want to take teeth out? So I now extract for the face, not for the space. Let me explain that in other terms. Some children are very full. They can’t get their lips together, their teeth are very protrusive. Mainly, a lot of Asian profiles, you know, Chinese in particular.

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And for those people, they look better if you retract their teeth. But for the majority of people, particularly Angle Saxon, retraction, even though it allows you to close space quickly and straighten teeth quickly, is not good for the facial balance.

So it's really easy, and there's a lot – you can go to YouTube, Google, et cetera, on what is pleasing facial balance. So to me, the face dictates what you should and shouldn't do orthodontically. So if you want to talk about a good orthodontist, a good orthodontist would look at airway, number one, know about sleep, would be able to do orthopedics, not just straightening teeth. In other words, be able to say, hey the jaw's not the right size, let's get it the right size.

A good orthodontist would not be offering the same treatment plan for every treatment that they do. These are the sort of questions I think a parent could be asking. And look, when in doubt, get a second opinion. Get a third opinion. We're talking about a big investment in your child's overall health. It's quite a lot of money for most parents to have their kid's teeth straightened, so it's very disappointing when they then learn they could have got a little bit more than straight teeth.

So I think it's always important that you talk to your referring dentist and you ask the referring dentist for a number of opinions, you know, and then you make your own decision. But the most powerful people are the mums. The mums get it. No offence to the dads out there, but the last thing I want is when a dad comes for a consult with a kid who's six or seven, other than knowing the kid's name, you then ask, you know, what's their sleep like, they're not really up to date. The mums just know their stuff.

So I think if you can get in and be communicative with the mums – so I think, in answer to what you're asking, and that is what sort of questions should a parent be asking as far as their dentist or orthodontist, it's timing of treatment. When is too young? When is too late? The second relates to what is the philosophy of that practice? Is the philosophy good faces good airway? Or is the philosophy just straight teeth?

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And again, I'll stress this point; no one in our profession intentionally does treatment to harm their patients. However, there's treatment A, B, C, or D, and you could go to five orthodontists and actually get five opinions. You opened this broadcast with the 60 Minutes interview. And remember that boy on 60 Minutes? He'd seen five orthodontists. You remember that?

Vijaya: Yes.

Derek: Fun fact, his mum sent me an email last week and she said, "Derek, I just want to thank you again for being that guy who thought a little bit outside the box." And she showed me a photo of her daughter's wedding and there's her kids, beautiful smiles. The young chap who was the main focus of that story, you know, he's a good looking tall – he's a lawyer now, right, and he's got a beautiful smile. And she said, "Thank you again, I made the right decision."

So this is what I'm saying, the power of the mum. She was told by all these people, you've got to have teeth out. And she just knew it wasn't the right thing. And luckily, she came across a dentist that said, "Look, why don't you just get a second opinion? Go and see this guy…"

I'm not tooting my own horn. I'm not the only guy in Australia who doesn't take teeth out, not at all. I think it's important you start working with a dentist or an orthodontist. Both are trained in this field. And ask those questions, you know. But if your orthodontist is asking questions like what's your child's sleep like? Do they grind their teeth? That's all good.

If your orthodontist treats some children before their permanent teeth based on their jaw problem, that's good. But if you're very old school and all you're doing is resolving crowding by pulling out teeth and treating at the classic orthodontic age, 13, 14, I think that may be questionable.

Vijaya: That's one of the things I always say to the parents that come to see me. I may do things a bit differently, but I want your child to be as healthy as they can be and I even show them pictures of my own 12-year-old who has perfectly straight teeth, seems to have a well-developed

palette, but I noticed that his behavior was not quite what it used to be, doesn't stay at the dinner table, finish his meal.

He's a very loud noisy sleeper. So I expanded his palette and his breathing is now quiet, his behavior is starting to quiet down, but he has perfectly straight teeth. And interestingly, he has a beautiful facial profile as well. But he still needed some help.

Derek: Yeah, I think, when you look at just teeth, remember, the shape of the palette is not just about the transverse or the width. The depth is important because the depth of the palette is really the floor of the nose. I say to parents, it's almost like having a tow-story house versus a one-story house. If you can slowly develop that upper jaw – and slow is the emphasis – when you slowly develop that upper jaw, the palette, you do get remodeling and you get improved nasal airflow. There are lots of studies to show that, so again, linking the palette to breathing, linking the palette to sleep. And we as dentists are looking at palettes all the time. So I think you need to be aware of that.

Vijaya: Well I think we'll wrap it up now. It's been a pleasure speaking to you, as always, and I always learn so much from you, so thanks for coming. But finally, if people would like to get in touch, what's the best way to find you?

Derek: You just can Google my name…

Vijay: So, Dr. Derek Mahony…

Derek: My email is just info@derekmahony.com, really simple. Practices are called Full Face Orthodontics, and most people actually Google that. And I'm happy for any parent who wants more information on these topics to send them there.

But I would recommend as a last thing, if a parent wants a really good self-help book on what we've talked about, I'd recommend a book called Your Jaws, Your Life. It's written by a dentist called Dr. David Page. It's a fairly

$16, $17 investment, but jeez, you read that and you'll understand exactly what we've been talking about. And it's written for parents.

And I try to give that book to pretty much every parent who comes in wanting to know more answers on the link between airway and the jaw, facial development, and teeth coming out. It's a really good book.

Vijaya: Thanks, once again, Derek.

Derek: My pleasure.

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I hope you enjoyed that show, guys. Derek's theories have been met with their fair share of controversy here in Australia, but I think that's always the way with anybody that decides to challenge the norm, pioneer a new idea. It pretty much comes with that territory, really.

And the great thing with having the internet these days is that all the information is available for us to research. So you can decide what approach you want for your child before you even go in for your first orthodontic consultation.

I hope you enjoyed the show. I really enjoyed bringing that one to you.

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