The future of dentistry?

Dr Anoop Maini discusses how to raise the cosmetic bar using computerised diagnosis

Recently attended a dental-team training course that was valuable for my new staff, but left me, a 16-year dental business veteran, a little disappointed. The course was presented as a business and medical model of dentistry that reflected a philosophy of how to create effective and efficient dentists, which is also known as ‘tools carpentry’. This concept is strictly limited to the oral cavity, and ignores the majority of the stomatognathic system. It ignores the fact that we have tremendous impact on our patients’ TMJ, muscles, nerves and airway every single day.

In the limited model: dentists treat teeth and gums. With retreat canals, extractions, fillings, crowns, partials, dentures, bridges, implants, cosmetics, and all of the services that are confined to the dental box or oral cavity. Only three per cent of dentists have stepped out of this dental box and made the shift to become ‘dental physicians’. Beyond dentistry, doctors examine and diagnose their patients everywhere. The modern-day GP uses advanced technology to examine the patient, make a diagnosis, and treat. Only three per cent dentist, uses advanced technology to examine, diagnose, and treat and or refer. This dentist knows that teeth are only a part of treating his patient comprehensively. He is interested in how his treatment has direct implications on the overall dental physiology of the patient. This dentist is not just concerned with cavities, periodontal disease, introral pain of the patient, or cosmetics. His treatment is based on what is revealed through his diagnostic protocol that includes the TMJ, muscles, occlusion and airway. This approach is what I have heard referred to as Optimum Dental Physiology (ODP).

ODP principles
These go beyond just teeth, and include an examination of the TMJ, muscles of the head, neck, and face, the alignment and shape of the mandibular and maxillary arches, the vertical and horizontal dimension, and posture. An ODP ‘three per cent’ dentist realises that to provide this type of comprehensive dentistry, special care will at times involve other healthcare providers, such as doctors, ENT’s, physical therapists, massage therapists, etc. The ultimate result of this comprehensive examination and treatment protocol will be exceptional treatment that creates optimal cosmetics, function, and stability i.e. ODP. Optimal Dental Physiology includes improvement or elimination of headaches, face pain, neck pain, ear pain, sinus problems, obstructive airway problems, sinus problems and many other issues.

The examination of occlusion must include these four areas:
1. The teeth and plane of occlusion.
2. The temporomandibular joints.
3. The neuromuscular system.
4. An orthopaedic examination of the head and neck.

1. The teeth are examined traditionally, but in addition, upper and lower models are mounted on the Accucenter to assess the plane of occlusion and any distortions present. The teeth are evaluated for the presence of unsightly aesthetics, decay, wear facets, attrition, abrasion, erosion, alveolus, fractures, failing restorations, and traumatic occlusion. All of these conditions mentioned are directly or indirectly associated with a faulty occlusion. This is clinically essential to proceed with any treatment.

2. To quote Dr Peter Dawson, ‘All occlusal analysis starts at the temporal mandibular joints.’ In my opinion, you should never begin restorative, orthodontic, and or sleep treatment without first diagnosing and correcting (if possible) a TMJ condition. In my practice, this includes an extensive history, joint vibration analysis, tomography, and if necessary MRI. If you feel your practice cannot support the investment necessary in the more costly imaging systems you should be using a thorough history for your subjective findings and Joint Vibration Analysis (www.IndentSystems.com) for the objective portion of your diagnosis. Diagnosing the health of the TMJ is the responsibility of every dentist. However, it is not the dentist’s responsibility to treat. Just as a GP doesn’t treat all heart ailments, we don’t need to learn how to treat advanced degenerative joint disease or avascular necrosis of the condyle, but we sure better find it when it exists.

3. A neuromuscular exam must not be confused with the neuromuscular treatment philosophy. The neuromuscular exam combines the subjective findings of the patient’s history and muscle palpation with the objective findings of the resting and functional health of the muscles using surface electromyography (EMG), a free space and ROM using magnetic jaw tracking. This information allows me to assess the neuromuscular components involved with chewing, swallowing, and breathing. If the diagnostic tools are not available in-house, there is a network of BioPAK Centres (www.BioPAKCentre.co.uk) established in the UK that will collect the information for you. These everyday functions can degrade to a point, which ultimately debilitates the patient’s overall physiology such as clenching, bruxism, and patients whose chewing muscles are painful and fatigued. Obstructive sleep apnoea and patients who have distorted occlusal planes have to go through ‘oral gymnastics’ to accomplish chewing, swallowing, and breathing.

4. Even if you have to refer them out, all dental patients should have the opportunity of a thorough orthopaedic analysis. The examiner will take a lateral cephalometric radiograph to assess the orthopaedic conditions of the maxilla and mandible, to help diagnose and treat orthodontic patients. This is particularly relevant for patients receiving dentures or extensive rehab, TMD or sleep apnoea treatment. Comprehensive radiographs should include lateral cervical spine, frontal skull, Tomes view, frontal and sagittal tomography of the condyles, sinus views and a sub mental vertex x-ray. Cone Beam Computed Tomography provides an excellent, low radiation dosage way to collect 3D data in a single scan.

I recommend the use of additional diagnostics as needed. I will use T-Scan for initial occlusal timing and force diagnosis, and to objectively guide my case finishing and equilibration. This is extremely important after final restorations are seated. The teeth, muscles and joints all work together to create optimum dental physiology and a harmonious environment for our dentistry. The use of T-Scan, EMG, and JVA allow me to objectively see the impact my treatments have on creating balance in the stomatognathic system. What’s most important is they make it easier to know when I am finished treating and the patient is ready for the next step by removing much of the subjective guesswork of a purely subjective analysis.

We can deliver beautiful, healthy and longer-lasting dentistry if we work with the patient’s craniofacial physioloogy, instead of simply putting manmade materials into a hostile environment that has already destroyed the natural teeth. This is a hard new concept, but the objective tools of today allow us to see the physiology more easily and with more accuracy than ever before.

Computer diagnosis will be important in the future of dentistry. Come and speak to Dr Maini about the future of dentistry at the BACD Edinburgh annual conference in November 2009 (www.BACD.com).

References
1. James E. Carlson DDS. *Occlusal Diagnosis*.

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About the author

Dr Anoop Maini DGDP (UK), BDS (Lond) graduated from Kings College in 1992. Dr Maini has a special interest in functional cosmetic rehabilitations from his practice at Aqua Dental Spa, London W1. He currently serves on the Board of Directors for the British Academy of Cosmetic Dentistry. Information about Biometric Diagnosis and Biometric Instruments can be obtained by visiting www.Occlusion.co.uk and www.IndentSystems.com. For further information about becoming a member of the BACD, call Suzy Rowlands on 020 8241 8526 or visit www.BACD.com and join online.