The ideal anterior incisal vertical relationship would be a “one eight” upper to lower overlap with the condyle on the disc.

A specialist in this field can take the entire skull into account during diagnosis and treatment planning.

What if it’s left?
If TMD is untreated, this can lead to bone-on-bone attrition as the joint deteriorates, producing a crunching sound, and unpleasant sensations resulting from the presence of crepitus. If TMD is not diagnosed before treatment, then the patient can undergo procedures that may be unneccessary, or cause them greater discomfort. Because nocturnal bruxism, another phenomenon associated with TMD, can damage dentition, it is possible that TMD can lead to treatment that is planned without the TMD even being diagnosed!

Other clues that might indicate that the patient is suffering from TMD include sleeplessness (caused by pain and/or discomfort, or nocturnal bruxism) and depression (caused by the combination of sleeplessness and discomfort, over a period of time). Sufferers have also been known to suffer from aches located in the supporting musculature, and facial tics or trembling fingers are possible indicators of advanced stage TMD.

Providing necessary treatment
The GDP should also be suspicious of patients exhibiting muscular para function and facial compression in the lower third – pain, after all, is difficult to hide. Armed with this knowledge, dentists should always be able to spot TMD, so that they can provide beneficial and necessary treatment that actually improves the patient’s quality of life, as opposed to causing them greater discomfort. In children, TMD is far from common, unless associated with trauma or a congenital developmental defect, such as Treacher Collins or Golden Hars syndrome – in any case, since children under 12 years old do not yet have a fully formed diarthroidal capsular joint at the temporal bone and mandibular junction, general practitioners should always refer these cases to the appropriate specialist (although it is unlikely that such a case would reach the dentist before the cranio-facial trauma unit or pediatric ward).

So what are the causes of TMD?
Unfortunately, there is no straightforward answer – at least, not at the moment. Without conclusive evidence, Orthodontists cannot be expected to whole-heartedly accept the theory that malocclusion is the main causative factor. However, causative factors may include overbites, malposition of dentition including crowding, loss of teeth and any orthodontic treatment that leads to mandibular retrusion. Developmental disorders and systemic diseases like arthritis may also have their part to play in TMD.

Torn ligaments, leading to swelling and bruising, can facilitate dislocation. Therefore, lengthy procedures that require the patient’s mouth to be wide open can be causative of TMD, as can the bruxism caused by malocclusion and the brain trying to compensate for an off-bite. Other potential factors include certain hobbies or professions. For instance, brass or woodwind musicians often require decompression splints and people who often have their head or neck in an awkward position – like a car mechanic – are also heading for TMD.

Impact on the chin can cause trauma of the retro-discal ligament, as the jaw is pushed back and forced off the disc. Trauma to the condyle head and housing fossa occurs when the jaw is moved back, forcibly, into the bilaminar zone’s superior stratum and the roof of the glenoid fossa. In such cases, lasting damage can occur without the condylar process sustaining fracture.

Ringing alarm bells
When a dentist sees a patient who has an absence of buccal dental units, alarm bells should ring. The two groups of muscles suspending and anchoring the mandible exert a total of more than 1,000lbs of force, and with the loss of vertical support caused by lack of buccal dentication, the jaws come too close together. This can put the articular disc under enormous pressure, eventually leading to displacement as the condyle is pushed distally as the teeth are clenched. If such are present in the lower lingual region, this is indicative of a hyper-activated deep masticatory system exerting greater force upon the mandible, which is forced to adapt.

Casting is useful
By analysing a cast of the patient’s teeth, TMD can be diagnosed. The telltale signs will most likely be in the molar teeth wear facets. The lower cast section will display the lack of vertical association with TMD, with a noticeable step between the buccal and labial dentition. During this analysis, it is crucial to be aware of the increased curve of spee that occurs when there is a loss of vertical and the upper jaw is excessively narrow. As arch length decreases, the curve grows steeper – the only way to accurately appraise the loss of vertical is to look inside the occluded arcade. Also, mandibular shift, which occurs alongside loss of vertical and steep curve of spee, is a sure-fire sign of TMD.

Long-term wellbeing
In order to give patients the very best treatment – in effect, treatment that produces excellent, natural results that do not cause discomfort or damage, whether now or in the long term – it is crucial that general practitioners are able to spot the signs, and effectively diagnose TMD. With the patient’s long-term wellbeing at stake, and more patients becoming interested in the benefits of a straight and healthy smile, clinicians cannot afford to shirk their responsibilities, not when all it takes is a little extra study to unlock the secrets of the TMJ.

For more information on orthodontic diagnosis and treatment, or to find out more about the Clearstep system, contact the OPT Laboratory and Diagnostic Facility on 01542 557918, email info@clearstepbrace.com or visit www.clearstepbrace.com.
Septodont has dedicated 75 years of innovative product development and manufacturing exclusively to the Dental profession. Our production expertise has earned the approval of Dental professionals on 5 continents and from 150 government health agencies, making us the world leader in local anaesthetics.