Articulation papers & occlusion tips

Dr Ashish Parmar gives clinical tips for dealing with occlusal contacts

All dentists have articulating papers as part of their armamentarium to make occlusal adjustments. However, we often don’t appreciate the subtle differences between the many papers and products that exist. The purpose of this article is to recommend a small number of well-designed products by one well-known manufacturer which will enable you to deliver a very high standard of dental care when assessing and adjusting occlusal contacts.

Clinical tips

Shimstock holds

The BK58 Arti-Fol® 8mm wide metallic uncoated Shimstock-film (12µ) is a high-tech test film made of metallic polyester-film. It is antistatic and can be easily held on the end of the Miller type forceps. The film is extremely tear resistant and is used for resilience testing i.e. making a note of “shimstock holds” before any treatment is carried out.

Always record a “shimstock hold” before a tooth (or teeth) is prepared. Then ensure this is re-established when the provisional restoration has been fitted. This also applies when assessing the laboratory made restoration on the master model (against the opposing model), and once the restoration has been cemented in the mouth. By making a simple note of the shimstock hold (on teeth that are not to be prepared) ensures time saving, accuracy and minimal adjustments to the occlusal surfaces of finished laboratory made restorations.

Bite registration & Shimstock holds

An excellent tip is to hold Shimstock-film between the posterior teeth (where there was a hold) during bite registration. As the bite registration material (e.g. Luxadent from DMG) is setting, resilience testing is carried out to verify with certainty the accuracy of the bite registration. This can then be recorded for the dental technician.

Help from the dental assistant

Let your dental nurse help by holding two articulation forceps bilaterally each time, as well as using gauze (to dry the occlusal surfaces), blow air from the “three in one” syringe and saliva aspiration to ensure a dry field and maximum efficiency when checking for markings. The dentist can then concentrate more with the fine adjustments using the fast hand piece bur and avoid stopping too many times. This will make the procedure more efficient and also make it easier for the patient.

The “two phase articulation system”

I advise you make the first occlusal contact markings with BK51 paper (Progress 100 blue paper (100µ)). This paper is recommended to use initially for fixed restorations. It is a smooth fibre reinforced paper with progressive colour transfer. It can even mark well on wet surfaces due to the transulose® bonding agent. The paper also marks difficult surfaces such as highly polished crowns.

It is better to use two articulation forceps placed bilaterally. This paper is thicker and unilateral use may not be ideal due to imbalance caused in the occlusion system (including the TMJ).

This is then followed by using the BK51 Arti-Fol® metallic red paper (12µ) which marks clearly the middle of the relevant blue marks. The red spots will then be the exact spots to remove in the occlusal adjustments. There justment due to the ability to mark the centric and eccentric positions thanks to the two different colours.

Interproximal tight contacts

The BK55 Arti-Fol® 8mm wide metallic red (one sided) Shimstock-film (12µ) is useful for checking approximal contact points when fitting dental bridges, crowns or veneers. Since the back of the film is metallic, it is obvious which side is colour-coated and which is not.

Articulation forceps

There are two different articulation forceps that are useful for everyday practice; the BK152 Articulating Paper Forceps and the BK 145 Arti-Fol forceps. The former is a high quality forceps with excellent fixation of the paper, as well as the ability to firmly hold the 8mm Shimstock film on the end due to a strong grip. The latter will hold the BK55 8mm test film for approximal contact area assessment.

I normally have two of the BK152 forceps ready with the Progress 100 paper and also two of the forceps with the BK51 red paper on each of the procedure trays. Although this results in a higher initial outlay for articulating forceps, I have found this to be time saving and therefore better in the long run.

Articulating paper to check denture contacts

One of the best papers for checking denture occlusion is the BK 81 Bausch microthin Articulating Paper (60µ) which is thin and tear resistant and is coated with liquid colours on both sides. The paper is also available in the horseshoe-shape. This paper is useful for marking dentures; the two colours can be used for centric and excursive markings.

The horseshoe-shaped articulating papers are also especially useful for patients who tend to bite unilaterally during the occlusion test due to diminished resilience.

The dentist can immediately detect the preferred side of the mouth. Symmetrical marking of all contacts is desirable especially when testing the occlusion of full dentures which are primarily adjusted according to the concept of bilateral balanced occlusion.

Even marking of the full dental arch is essential when adjusting an occlusal device. In this respect, horseshoe-shaped papers provide a welcome relief especially when testing occlusal contacts on moist artificial surfaces.

Checking crown fits and denture clasps

The horseshoe-shaped articulating papers are also especially useful for patients who tend to bite unilaterally during the occlusion test due to diminished resilience’
I use the BK86 Arti-Spot® Highspot-Indicator (red) which is a contact colour for testing the accuracy of fit of crowns, inlays, onlays, telescopic crowns and clasps. It is applied to the test surface with a brush. The solvent evaporates in seconds, leaving a thin film 3µ thick. Every contact destroys skin colour exactly at the point of contact. The base material then shines through and high spots can be easily detected.

Arti-Spot® can easily be removed after use. Hot water, mechanical friction (eg toothbrush or floss), alcohol, isopropyl alcohol and steam will all loosen residual colour deposits. Marking on dental plaster can also be removed with a fine brush.

Checking interocclusal clearance during tooth preparation
The Fleximeter-Strips (BK 253) are a useful innovation ‘By understanding the design and differences between articulating papers allows the dentist to make accurate and precise markings. This will then help make more accurate adjustments to be made rather than “just chasing the blue marks’.

The combination of Bausch PROGRESS 100° Articulating Paper, 100 microns, and Arti-Fol® metallic, 12 micron, articulating film offers considerable advantages, especially on occlusal surfaces like gold or ceramic which are difficult to examine. The first test should be made with blue articulating paper. Markings are immediately evident since the bonding agent of PROGRESS 100, Transculase®, is transferred as a fine coating.

The next step is to use a thin film (preferably red) because of its intensity and excellent contrast with blue. The colour transfer properties of the film are considerably enhanced by the PROGRESS 100° bonding agent. This method offers the utmost reliability in accurately identifying high spot markings.
for the dentist and technician alike. These strips are flexible measuring instruments in three different thicknesses. They are very useful to assess the inter-occlusal space when preparing a posterior tooth for a crown or bridge. In addition, it is possible to paint some Arti-Spot® on one side of the Fleximeter-Strip and place this coloured side against the prepared tooth. The patient is then asked to bite up and down. Where there is inadequate clearance, the occlusal aspect of the prepared tooth will mark red, and this can then be accurately adjusted. The thicknesses of the Fleximeter-Strips 1.0mm, 1.5mm, and 2.0mm can also be used to enlarge the vertical dimension (bite height). They are made from a special silicone rubber that can be sterilised up to a temperature of 200°C.

Use of T-Scan
T-Scan is a computerised occlusion software system. Used in conjunction with the “two phase articulation system” of occlusal markings is the most precise way to make occlusal adjustments and equilibrate an occlusion.

Summary
By understanding the design and differences between articulating papers allows the dentist to make accurate and precise markings. This will then help more accurate adjustments to be made rather than “just chasing the blue marks”.

About the author
Ashish B Parmar (Ash) is a private dentist and has a unique state-of-the-art practice in Chigwell, Essex (called Smile Design By Ash (www.smiledesignbyash.com)). Ash is a national and international lecturer and was one of the main dentists on the three series of Extreme Makeover UK. He offers an outstanding eight-day Course which includes training on leadership, vision creation, goal setting, step by step techniques in doing smile Makeovers, treating advanced cases (e.g. wear cases), lasers, fibre-embedded composite dentistry, photography, communication, case presentation skills, team development, occlusion, etc. Ash has written numerous clinical articles in dental journals and is well recognised for his passion in cosmetic dentistry – using both composite and porcelain techniques. To review many other informative articles and FREE TRAINING CLINICAL VIDEOS, and to find out more about the unique training Course run by The Academy By Ash, visit www.theacademybyash.co.uk or send an email to training@theacademybyash.co.uk. Alternatively, you may phone Ash personally on his mobile number 07971 201810.