

Compiled by  
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# MANAGING excessive occlusal wear

**A patient presented** seeking a solution for the excessive wear in the anterior segments of his dentition – especially the lower incisors and canines.

Examination showed a Class II occlusion that had collapsed in the anterior segments. This resulted in pronounced wear facets on the lingual surfaces of his upper incisors and canines and loss of tooth structure from the incisal edges of his lower incisors (Fig 1).

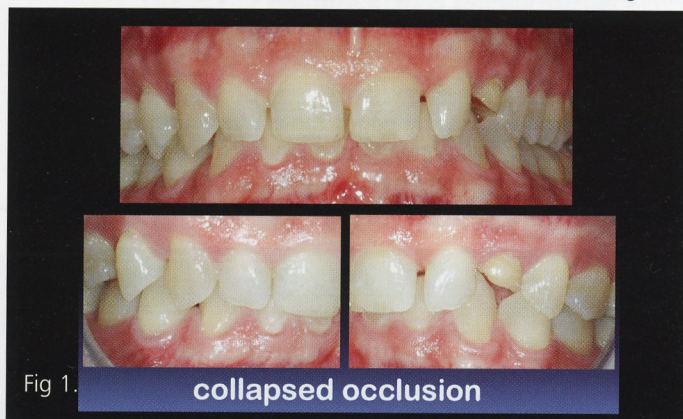


Fig 1. collapsed occlusion

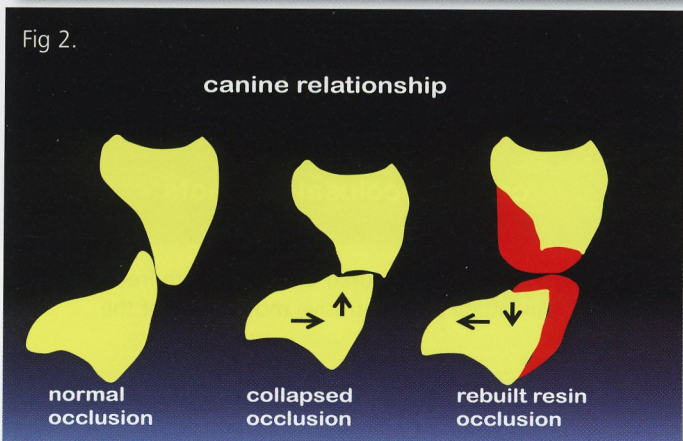


Fig 2.

canine relationship

normal occlusion

collapsed occlusion

rebuilt resin occlusion

"The technique relies upon Okeson's studies of the nociceptive reflex that inhibits subjects from applying excessive occlusal force solely to the anterior segments of their dentition."

The proposed treatment plan involved opening his bite with composite resin. To compensate for his Class II malocclusion, composite resin was to be added to the lingual aspects of his upper canines and upper first bicuspsids and the facial aspects of his lower canines and lower first bicuspsids. This will align the mandible in a slightly more open and retruded position (Fig 2).

The technique relies upon Okeson's studies of the nociceptive reflex that inhibits subjects from applying excessive occlusal force solely to the anterior segments of their dentition. Readers can confirm this by feeling their masseter muscles contract when biting firmly with their teeth closed, compared to being unable to initiate the masseters when an object, such as a pencil, is placed between their central incisors.

**CLINICAL TECHNIQUE**

Once the occlusal problem had been diagnosed, the patient was rescheduled for a two to four hour appointment. (Treatment times will vary depending upon the practitioners experience with the technique).

**TOOTH PREPARATION**

On the upper arch, plaque and pellicle were removed with pumice and water. A slow speed diamond point was used to assure there were no deposits at the gingival margins. Caries and unsatisfactory restorations must be removed and cavities prepared for restoration prior to placing the build-ups.

The upper teeth were then etched for five seconds with 35% phosphoric acid, washed with copious amounts of water and dried with oil-free air, followed by isolation with cotton wool rolls in the buccal sulcus.

**RESTORATION PLACEMENT**

A preferred bonding adhesive was applied to the upper canines and first bicuspid.

Working from either the left or right hand sides; a Tofflemire matrix band was prepared so as to fit over a first bicuspid.

A small amount of flowable composite was applied to the internal matrix margins followed by partially filling the matrix band with a microhybrid resin. The restoration was photo cured for 10 seconds. To act as a stress breaker, a thin layer of RMGIC bond was applied over the resin increment followed by the application of a microhybrid resin to complete placement of the restoration. The restoration was photo cured for a further 10 seconds. After removal of the matrix band, a further 10 second photo cure of the resin was applied.

Next the matrix band was applied to the upper canine so as to extend out on the lingual aspect of the canine. An increment of flowable resin was applied at the internal perimeter and the preparation partially filled with a microhybrid resin and photo cured for 10 seconds. A thin layer of RMGIC bonding agent was applied as a stress breaker and composite resin was applied to fill the preparation. The restoration was photo cured for a further 10 seconds and again after the matrix band had been removed (Fig 3).

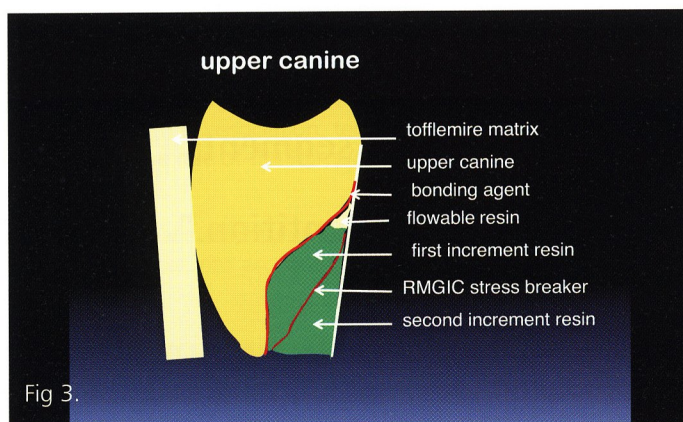


Fig 3.

This procedure was replicated again on the opposite upper arch.

The canines and first bicuspid in the lower arch were similarly prepared as the upper and isolated with cotton rolls.

After application of a preferred bonding adhesive and prior to placement of the Tofflemire band, increments of micro-fill composite resin were placed freehand onto the facial margins of these teeth extending from the cervical margin to just below the contact areas of these teeth. Each increment was photo cured for 10 seconds.

On a lower-first bicuspid, a Tofflemire matrix was placed from the lingual surface and lightly tightened. After placement of a RMGIC bond as a stress breaker, a small increment of flowable composite was applied at the internal margin followed by a microhybrid resin to complete placement of the restoration. The restoration was then photo cured for 10 seconds. A further 10 second photo cure was applied after removal of the matrix.

This process was repeated on the adjacent canine and the canine and first bicuspid in the opposite arch (Fig 4).

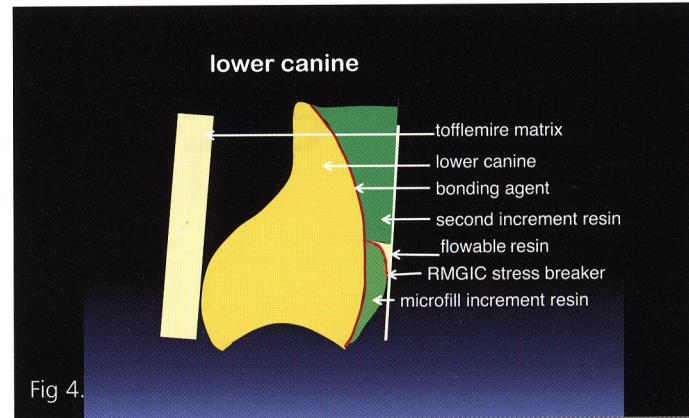


Fig 4.

Direct laminate veneers were placed on the lower incisors to restore lost tooth structure.\*

**CONTOURING**

Contouring was commenced by reducing the composite build-ups on the upper arch to fit into the patient's smile line. This was followed by the removal of any composite tags still remaining on the lingual surfaces of upper teeth.

With the patient in a retruded mandible position, he was asked to bite together in order to estimate the location and amounts of composite removal required on the lower arch. Composite removal was commenced with a coarse disc until an approximation of build-up contact between the upper and lower arches had been achieved.

With the aid of articulating paper, the contact surfaces were then carefully spheroid over with a fine disc so that there was an even occlusal contact on each tooth occurring at or close to the centre point of the build-up (Fig 5).

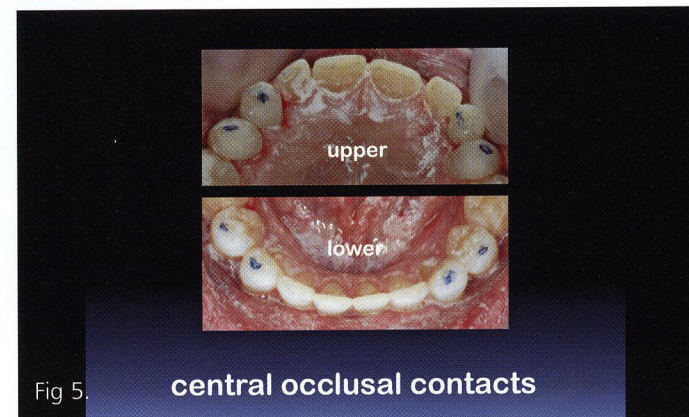


Fig 5.

The lower incisors were contoured until they were free from interferences in lateral and protrusive movements of the mandible.

\* Aesthetic Update, *News Bulletin*, May, July and November 2008; and March 2009.

## aesthetic update

After polishing the restorations, the patient was dismissed with a 20 minute recall appointment within the next two weeks.

Some patients may complain initially about lack of occlusion in their lateral segments. However, the author is unaware of a patient who was unable to adjust to their new occlusion.

### RECALL

Over the next two weeks the bite had time to settle in and fine tuning of the occlusion was carried out. As the composite resin continued to polymerize over this time, further polishing enabled a superior lustre of the restorations to be achieved (Fig 6).



### OCCLUSION WITHIN THE LATERAL SEGMENTS

Clinical experience with this procedure for over 20 years has shown the development of a lateral occlusion occurs within the next 18 months. Not by over eruption of the teeth, but movements of the alveolar plates to bring the teeth back into occlusion. This is possibly due to stretching the muscles of mastication causing them to realign the bony skeleton into equilibrium again.

### CONCLUSIONS

This relatively simple procedure creates a fixed occlusal splint which requires minimal tooth removal and is reversible within the first month or so. Apart from improving a patient's dental

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aesthetics and facial profile, this technique has been of assistance to people with chronic neck and TMJ pain. If there has been excessive wear on the upper incisors, direct laminates may be placed on these teeth as well.

Annual maintenance visits to adjust the occlusion and prevent premature contacts occurring around the perimeter of the build-ups will reduce the chance of fracture and enable patients many years of improved aesthetics and oral comfort.

### DISCLAIMER

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