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Good occlusal practice in simple restorative dentistry

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In this part, we will discuss:

- The 'conformative approach' to restorative dentistry
- Some techniques for achieving this goal
- Can and should the occlusion be improved within the conformative approach?

Many theories and philosophies of occlusion have been developed. 1–12 The difficulty in scientifically validating the various approaches to providing an occlusion is that an 'occlusion' can only be judged against the reaction it may or may not produce in a tissue system (eg dental, alveolar, periodontal or articulatory). Because of this, the various theories and philosophies are essentially untested and so lack the scientific validity necessary to make them 'rules'. Often authors will present their own firmly held opinions as 'rules'. This does not mean that these approaches are to be ignored; they are, after all, the distillation of the clinical experience of many different operators over many years. But they are empirical.

In developing these guidelines the authors have unashamedly drawn on this body of perceived wisdom, but we would also like to involve and challenge the reader by asking basic questions, and by applying a common sense approach to a subject that can be submerged under a sea of dictate and dogma.

Discussion

Does occlusion matter in simple restorative dentistry?

It is easy to justify a chapter on restorative dentistry in a book on occlusion. Dentists are constantly involved in the management of their patients' occlusion during routine restorative dental procedures. This is because the occlusal surfaces of the teeth are usually involved in the provision of restorations. The significance of this obvious statement lies both in the relationship that the occlusion has within the articulatory system and the effect that trauma from the occlusion may have on the tooth, and its periodontal support. All dentists wish to avoid these problems; in reality dentists want predictable success for their patients and themselves.

Successful occlusal management leads to: predictable fitting of restorations and prostheses, longevity and absence of iatrogenic problems, patient comfort and occlusal stability.

The starting point: examination

It is a general principle in medicine that before treatment is provided a careful clinical examination is carried out. Dentistry generally holds to this principle, but with perhaps one exemption. Most dentists were not taught at dental

school to examine and record the pre-existing occlusion before providing a restoration. Instead it has become customary to provide the restoration and then to 'check' the occlusion afterwards. If this is our habit, we should ask ourselves the question what are we checking the occlusion of our restoration against? It cannot be the pre-existing occlusion if we did not examine it first. The principle of providing a new restoration that does not alter the patient's occlusion is described in restorative dentistry as the 'conformative approach', and the vast majority of restorations are provided following this principle.

The conformative approach

Explanation

The conformative approach is defined as the provision of restorations 'in harmony with the existing jaw relationships'.¹³ In practice this means that the occlusion of the new restoration is provided in such a way that the occlusal contacts of the other teeth remain unaltered.¹⁴

Justification

The answer as to why dentists should wish to adopt this approach is often given as being 'because it is the easiest'. In fact, this is not the

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Fig. 1a Teeth touching in CO



Fig. 1b Premature contact in CR



Fig. 2a Left lateral excursion



Fig. 2b Non working side interference during left lateral excursion

'Fingers crossed' dentistry equals stress

case; the easiest approach is undoubtedly not to consider whether the new restoration changes the patient's occlusion, maybe hoping not to change it too much. The reason why the conformational approach is favoured is not because it is the easiest but because it is the safest. It is less likely to introduce problems for the tooth, the periodontium, the muscles, the temporomandibular joints, the patient and the dentist.

When to use the conformational approach?

The short answer is to use it whenever you can. It is possible to provide a restoration to the conformational approach when:

1. The patient has an ideal occlusion, ie centric occlusion (CO) is in centric relation (CR) with anterior guidance free from posterior interferences. This is unusual, it is much more likely that:
2. The patient does not have an ideal occlusion, but that the removal of the existing occluding surface of the tooth to be restored does not mean an inevitable change in the patient's centric occlusion or anterior guidance. Examples of an occasion where this will not be possible is either if the tooth that is to be restored is a deflecting contact; ie it provides the principal guiding contact from CR to CO, or if the tooth is providing a heavy posterior interference.

In both of cases shown in Figures 1 and 2 it is attractive to think that all that the dentist has to do is to provide restorations that do

not 'interfere'. The danger in this approach is that the new occlusion may still not be an ideal one, because of the existence of other potential interferences. This new 'less than ideal' occlusion may be a less harmonious one which the patient will tolerate less well ie the possibility of iatrogenic problems may arise.

3. Finally there should not be an existing temporomandibular disorder (TMD). If there is, the decision must be taken whether or not to treat it first, since it is possible that the treatment of the TMD will result in a change of the patient's occlusion.

Improving the occlusion within the restrictions of the conformational approach

Although the principle of not changing the patient's occlusion is paramount within the conformational approach, this, of course, refers to the occlusal contacts that the patient has between their teeth that are not being presently restored. It does not mean that the new restoration should slavishly reproduce the exact occlusion that the tooth in need of restoration has. One of the purposes of restoring it would probably be lost if that was the case. How the occlusion may be improved is best considered within the principles of 'ideal occlusion'.

On the tooth level, ideal occlusion is described as an occlusal contact that is: 'in line with the long axis of the tooth and simultaneous with all other occlusal contacts in the

Q: When do you use the conformational approach?

A: When ever you can

mouth! This means the elimination of incline contacts. Incline contacts are considered to be potentially harmful, because of the lateral force that they may generate. A lateral force on a tooth may have harmful sequelae, which are illustrated in Figure 3.

So as long as the jaw relationship is the same, it is still the conformative approach. Within the conformative approach it is not only possible, but advisable to improve the occlusion of the restored tooth by the elimination of incline contacts either by careful design of the occlusal platform of the new restoration or by judicial alteration of the opposing tooth.

The acid test is whether or not the occlusal contacts of the other teeth (those which are not involved in the restoration) are changed. If the occlusal relationships of these other teeth are changed then the approach is not the conformative but the reorganised approach. This is not wrong, but requires a different approach and is described later in respect of both simple and complex restorative dentistry.

Technique

Sequence — the EDEC principle

When considering the provision of simple restorative dentistry to the conformative approach, no matter what type of occlusal restoration is being provided the sequence is always the same. The ‘EDEC principle’ that is presented here (Fig. 4) is a system that the authors have devised to give a logical progression through the sequence of producing a restoration, to the conformative approach. This is capable of modification to other aspects of clinical practice.

The EDEC principle is useful in relation to:

- Direct restorations
- Indirect restorations

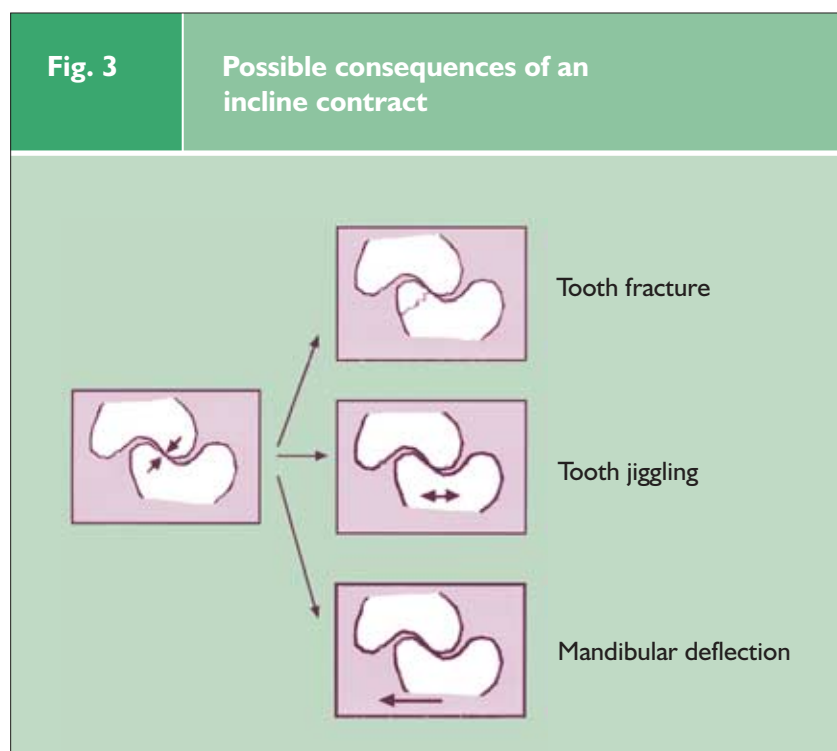
The EDEC principle for direct restorations

Examine

Firstly, examine the occlusion before picking up a handpiece. The examination is in two parts: the static and the dynamic occlusions. The examination of the static occlusion in centric occlusion (rather than in centric relation) is done by asking the patient to tap onto thin articulating paper or foil (Fig. 5). Next, ask the patient to slide from side-to-side using thin paper or foil of a different colour; this marks the contacts of the dynamic occlusion.

Design

The clinician must visualise the design of the cavity preparation. This may sound pedantic to some, but it is in effect what every practising dentist does when preparing a tooth for



restoration. The only difference in this sequence is that the suggestion is made that the visualisation is better done after a simple occlusal examination (Fig. 6). The existing occlusal marks will either be preserved by being avoided in the preparation, or they will be involved in the design. As established, they do not have to be exactly duplicated as it may be possible to improve them (from being ‘incline contacts’ to ‘cusp tip to fossa/marginal ridge’ relationships), or it may be possible to add an occlusal contact if the restoration being replaced was in infra occlusion.

Often it will be found that the previous restoration is in infra occlusion, as every dentist is anxious to avoid the ‘high restoration’. But the avoidance of a supra-occluding restoration by deliberately providing restorations that do not contribute to the overall occlusion is not good occlusal practice.

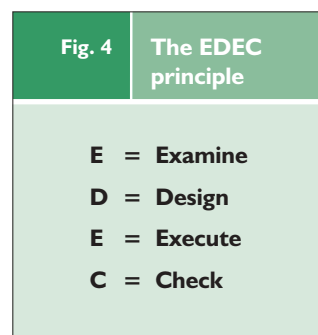
Execution

The execution of the restoration to the design implies that the dentist will have decided the form of the preparation before starting to cut. It is our belief that this does not take any longer and that it is always easier to work to a plan even in the simplest of restorations.

There will be an overall saving in time, especially if the first two stages are carried out whilst the local anaesthetic is working. The finishing of the restoration is also facilitated if there is a definite aim to the carving or shaping (Fig. 7).

Check

Finally, we check the occlusion of the restoration does not prevent all the other teeth from



Visualise the end before beginning



Fig. 5 Shot of pre-existing marks



Fig. 6 Close-up of tooth with pre-existing marks



Fig. 8a Initial check of finished restoration



Fig. 8b After adjustment



Fig. 7 Close-up of finished restoration

touching in exactly the same way as they did before. This is either done by referring to some diagrammatic record made, or by reversing the colour of the paper or foils used pre-operatively, or from memory.

In the illustrated case it can be seen that the occlusal contact against the mesial marginal ridge of the restored UL4 (24) is slightly too heavy (Fig. 8a); this has prevented the palatal cusp of this tooth from occluding and has changed the occlusion of the canine. After minimal adjustment, this has been rectified (Fig. 8b). For simplicity of illustration, the dynamic occlusion has not been shown in this series.

The EDEC principle for indirect restorations

The EDEC principle is still followed for indirect restorations (Fig. 9). The essential difference between a direct and an indirect restoration is that a second operator is involved, namely the laboratory technician. We believe that it is a more accurate representation of the working relationship to consider the laboratory technician to be a second operator rather than an assistant, as it makes it clear that the technician also has expectations and responsibilities

Two operators means there are several consequences to the treatment sequence (Fig. 10). The dentist not only has to examine the occlusion but the results of that examination have

to be accurately recorded and that record has to be transferred to the technician. This is the clinician's responsibility. Secondly, the technician has the responsibility to preserve the accuracy of that record during the laboratory phase of treatment. Finally, because of the interval in treatment to allow the restoration to be made, the clinician has the responsibility to maintain the patient in the same occlusion during that interval. Consequently it is imperative that the patient is dismissed from the preparation appointment with a temporary restoration which will maintain the same relationship between the prepared tooth and the adjacent and opposing teeth (Fig. 10).

Examine

The examination of the patient's pre-existing occlusion is carried out in exactly the same way as described for the direct restoration. There is a need for that information to be transferred accurately to the laboratory technician: a record must be made.

The provision of an indirect restoration always involves the transfer of anatomical information in the form of the impressions. It is the occlusal relationship of teeth which is the important record, because the technician cannot carry out his or her responsibilities without knowing how the upper and lower models relate to one another.

There is no point in the technician designing the occlusal aspect of the restoration on models that do not accurately conform to the patient's occlusion

Fig 9	The EDEC principle for indirect restoration	
E	=	Examine and record the pre-existing occlusion
D	=	Design the restoration
E	=	Execute the restoration
C	=	Check the occlusion at the fit appointment

There are three ways in which this anatomical information can be transferred: two dimensional bite records, three dimensional bite records, and a combination of both.

Two dimensional bite records

Photographs: It is entirely possible that as instant intra-oral photography becomes more available the clinician will be able to send the technician a photograph of the patient's pre-existing occlusion marked by occlusal registration paper or foil; so that in making the indirect restoration to the conformative approach the technician can see what the patient's pre-existing occlusion was in the mouth (Fig. 11).

Written record: It is quick, simple but effective in some situations for the clinician to simply tell the technician what the occlusion should be when the restoration is finished (Fig. 12).

Occlusal sketching: 'Occlusal sketching' is a technique of recording onto an acetate sheet a sketch of the occlusal marks made in the patient's mouth, by articulating paper or foil, of the static and dynamic occlusion. The acetate strip is designed to be viewed in two different ways: one is appropriate to the clinician treating the supine patient and the other is convenient for the technician to use on the bench in conjunction with the models. The occlusal sketch is an easy way for the clinician and the technician to check that the occlusion of the restoration conforms to the pre-existing occlusion (Fig. 13a-d).

Occlusal sketching is a user-friendly way of recording the patient's occlusion. It facilitates the transfer of anatomical information between the clinician and the technician. In addition, it offers the clinician a convenient way of recording the patient's occlusion as part of the dental records, and this may have medico-legal considerations.

Three dimensional bite records

Bite registration materials: There are many different materials and they all have their pros and cons.¹⁵ Their use is not a guarantee of successful transfer of information; and it is easy to be fooled that when one material fails to produce a good result that a different material would have succeeded. In reality it is nearly always a misunderstanding of the objective of the exercise that has resulted in an inaccurate record. No particular bite registration material guarantees success.

The objective is to record only the correct spatial relationship of the prepared tooth to its antagonists. Other teeth should contact as before.

The inadequacies of models as anatomical records of the teeth and mucosal surfaces give rise to most of the problems. Impressions often do produce models which are not completely accurate.¹⁶ An incomplete impression of an

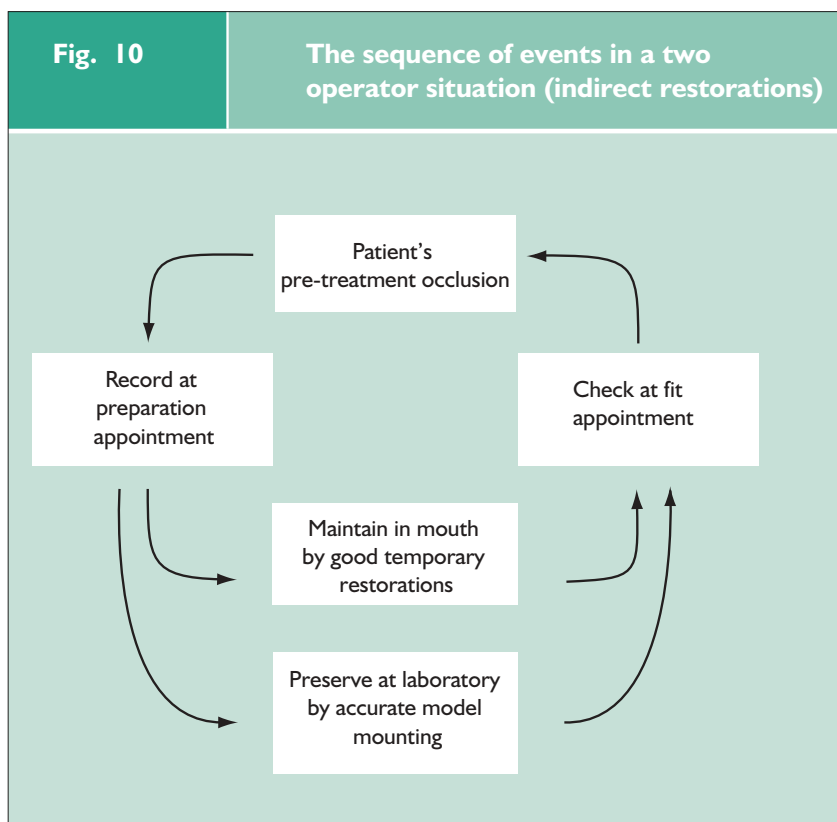


Fig. 11 Intra-oral photograph of occlusal contacts on teeth adjacent to a post crown preparation

occlusal fissure or of an interdental embrasure could very likely result in a significant difference between the occlusion of the patient's teeth and the models. As a consequence the opposing model will not have a true relationship with the working model and it will keep the 'other teeth' apart.

Even if the models are completely accurate and allow the bite registration material to adapt in exactly the same relationship to the models as they had to the teeth, then there is still the problem that in the mouth the mucosal surfaces are soft and compressible, whereas on the models the mucosal surfaces are replicated by hard incompressible material which will probably hold the bite registration material away from its true relationship with the models of the teeth. As a consequence the opposing model will not have a true relationship with the working model: it will keep the 'other teeth' apart.

Fig. 12

Examples of written record of patient pre-existing occlusion

Patient: Mrs Jones

Job: crown on tooth LR5 (45)

There are occlusal stops as follows:

Tip of LR3 (43)	against	cingulum of UR3 (13)
Palatal cusp of UR4 (14)	against	distal marginal ridge of LR4 (44)
Palatal cusp of UR6 (16)	against	central fossa of LR6 (46)
Mesio-buccal cusp of LR6 (46)	against	mesial marginal ridge of UR6 (16)

There is canine guidance on the right and left sides

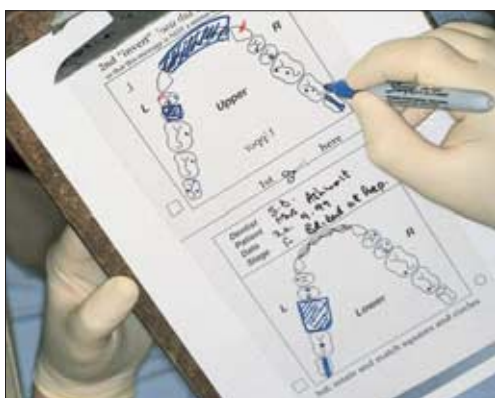


Fig. 13a A sketch is made of the patient's occlusion (before preparation of a bridge) by the dentist at the chairside

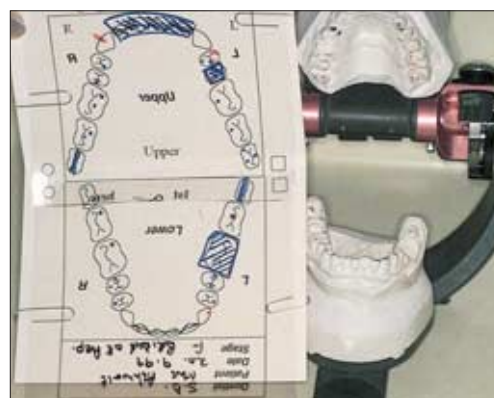


Fig. 13b This sketch is reconfigured at the laboratory as an aid to the technician to confirm the correct mounting of the models



Fig. 13c The bridge is constructed in the laboratory to 'conform' with the occlusion



Fig. 13d At the fit stage, the dentist uses the sketch as an aid to check conformity between the pre- and post-operative occlusions

For these reasons, three important guidelines emerge:

- If possible the bite registration material should only be used between the prepared tooth and its antagonists; not used to take a full arch record.

- If a bite registration is going to be used to record the relationship of other teeth it must be carved so that no part of it touches the models of the mucosal surfaces.
- Before the technician starts to use the models to construct the occlusal part of the restoration, the occlusion of those models must be

confirmed against a second record of the bite; and, if necessary, modifications to the models carried out (model grooming).

The 'second record' may be a second bite registration in a different material; for example if an 'easy' material like an elastomer has been used first, it may be wise to use a harder material (in both senses) such as acrylic resin or hard wax. Alternatively the second record may be a two dimensional one, such as occlusal sketching (Figure 13a–d).

The process by which these small corrections are made to the working models or 'model grooming' is discussed under the design stage of the EDEC principle.

Functionally generated pathway

The great advantage of this technique is that it produces a hard record of both the opposing static and dynamic occlusions in only three stages, two of which are carried out in the mouth. There is, therefore, much less room for error. The construction of a functionally generated pathway is often considered to be very difficult and a 'special' procedure in much the same way as the use of a facebow or rubber dam. In reality and in common with these other techniques it becomes, with practice, simple, logical and a time saver.

Technique: A soft, plastic material (eg tacky wax) is applied to the teeth, and the patient is asked to perform a lateral excursive movement

on that side. This carves grooves into the wax which represents the movement eg 'pathway' of the lower teeth relative to the upper teeth. This impression is then cast in the mouth using a quick setting plaster applied with a brush. The cast can then be mounted in the laboratory, and used, in conjunction with the 'normal' opposing model.

Alternatively and probably more easily, the patient is asked not only to bite together in centric occlusion (Fig. 14a and b) but also to go into excursive movements (Fig. 14c). A pattern acrylic (eg Duralay)¹⁷ can be built up on a preparation, and then the patient carves out a pathway that the opposing tooth has taken relative to the prepared tooth (Fig. 14d). This record (Fig. 15a) can thus be mounted on to the working model at the laboratory and a cast is produced of the movements of the opposing teeth (Fig. 15b and c).¹⁸

A functionally generated pathway indicates not only where the cusp tips of the opposing teeth are in centric occlusion (Fig. 15d) but also where they move relative to the proposed crown (Fig. 15e). This is a static record of the patient's dynamic movement.

Dynamic occlusion bite registrations

These are used to anticipate the movements of the opposing teeth during excursive movements of the mandible by enabling the condylar angle to be set in the articulator to the value comparable with the patient's TMJ (Figs 16 and 17).



Fig. 14a Patient in centric occlusion



Fig. 14b Wax record of centric occlusion



Fig. 14c Patient goes into right lateral excursion



Fig. 14d Duralay recording the pathway of the LR 5 (45) relative to upper premolars during right lateral excursion



Fig. 15a Set Duralay record of movement of LR5 (45) relative to upper premolars



Fig. 15b Twin stage articulator



Fig. 15c The Duralay record is used to cast an opposing model



Fig. 15d Centric occlusion (static occlusion) opposing the inlay preparation of UR4 (14)



Fig. 15e The movement pathway (dynamic occlusion) of LR5 (45) cast in stone

These records can be avoided, together with their inherent difficulties caused by the compressibility of even the hardest waxes, by either setting the condylar angle to a value that allows some cuspal morphology in the restoration (say 25 degrees) or by setting the condylar angles by simple observation of the space or lack of it between the patient's molars on the non working side (Figure 18a–e).

Design

Clinically the cavity preparation is occlusally designed in exactly the same way as for a direct restoration. The fundamental differences are that firstly the technician is going to make the restoration and secondly that, dependent on the material to be used, there will be certain requirements especially with regard to sufficient clearance between the top

of the preparation and the opposing teeth (Fig. 19).

If, because of clinical considerations (eg nearness of the pulp) the clinician suspects that the technician may not have sufficient room, for say an adequate thickness of porcelain in a metal ceramic crown, then it is much better to give the technician permission to reduce the height of the opposing tooth than to risk a high crown. It is essential in this situation, to advise the patient at *the preparation appointment* that adjustment to the opposing tooth may be necessary next time, giving reasons. Alternatively, after discussions between dentist and technician, it may be decided that the best course of action would be to further reduce the height of the preparation. In this circumstance this can be done simply by the use of a coloured separator medium on the die, or very accurately by the use of a transfer coping with an open top made to fit the adjusted height of the preparation (Figs 20a,b).

Model grooming: common sense or heresy?

Model grooming is the title given to the process of adjusting the models so that they more accurately reflect the occlusal contacts that the patient has in their real dentition. Implicit in the use of the word 'grooming' is understanding that these are small not gross adjustments to the occlusal surfaces of the plaster models.

The critics of model grooming have two objections, namely that it should not be necessary and

that as soon as the technician or dentist scratches those models, they are not a completely accurate representation of patient's teeth.

Objection No. 1: It should not be necessary.

This objection is quite correct; if the impression, casting and mounted processes have been performed entirely without any error, then the models will exactly duplicate the patient's teeth and the occlusal contacts that the teeth make. Whereas everybody involved in this process of anatomical information transfer should strive for this perfect replication, it is the authors' view that nobody achieves this high goal every time. So it follows that whereas model grooming should not be necessary, model checking is always necessary. This means that, before the models and the relationship between them can be accepted as accurate then some process of verification should be employed (stage 4, Fig. 21). This could even involve recalling the patient, but much more conveniently, some form of second 'check bite' can be used. This may be either two or three dimensional as already described.

If at this verification an error is detected, then the clinician has three choices: do all or part of the process again, engage in model grooming, or proceed with fabrication of the restoration having decided to ignore the error.

Which option is chosen should depend the circumstances of the case; the first and last have definite drawbacks. Which is best depends upon many factors including the size of the error. If the error is gross, repeating the process

may be the only option; it will be inconvenient to the technician, clinician and patient. However, it will take less time than having to remake the restoration.

If the error is small then model grooming is a good option. However, to deliberately ignore the inaccuracy is not a sin; it is simply an admission that the restoration delivered by the laboratory is not going to be as accurate as it could be. Some of the predictability, therefore, has gone, so the expectation of adjustment at the fit stage has increased. In the 'real world', clinicians are constantly having to make compromises; in fact, the skill of a clinician might be judged by their ability to choose and manage compromise.

The clinician who decides to ignore an error at the verification stage, has made a conscious decision to reduce the level of predictable success and is committed to making the adjustments to the occlusal surface of the restoration at the fit stage. The clinician who is ignorant of an error is in uncharted waters and may not even care whether he gets the patient safely into port. It is emphasised that this model verification stage only involves providing the technician with a second occlusal record; this can be a two dimensional record (eg occlusal sketch).

Objection No. 2: If models are 'groomed', then they are not accurate.

This is also true, but if the models are not accurate, the process of grooming is designed to reduce the inaccuracy. As far as the design of the occlusal surfaces of a laboratory-made restora-

There is a world of difference between deciding to ignore something and being ignorant of it

Model grooming

- **Model grooming shouldn't be necessary...**
- **Model verification is always necessary...**
- **Model grooming makes sense**



Fig. 16a Wax record is correctly seated...



Fig. 16b ...indicating that the condylar angle is 45° (scale FH) Frankfurt Horizontal (KaVo Articulator)



Fig. 17a Wax is incorrectly seated...



Fig. 17b ...because condylar angle is wrong



Fig. 18a Gap between patient's back teeth, during a right lateral excursion



Fig. 18b Condylar angle is adjusted until...



Fig. 18c ...gap on the NWS is the same as in the mouth (see Fig. 18a)



Fig. 18d Too steep a condylar angle...



Fig. 18e ...created too big a gap

tion are concerned the only parts of the models that matter are the occlusal surfaces of the other teeth. In fact the only parts that really matter are the occlusal contacts that those teeth make in static and dynamic occlusion. Anybody who doubts this could try the experiment of taking some totally accurate models and drilling holes through the teeth to make them look like Emmental cheese but avoiding the occlusal surfaces. The models would no longer be an accurate three dimensional representation of the patient's teeth but you could still make an accurate restoration on them: only the occlusal surfaces matter.



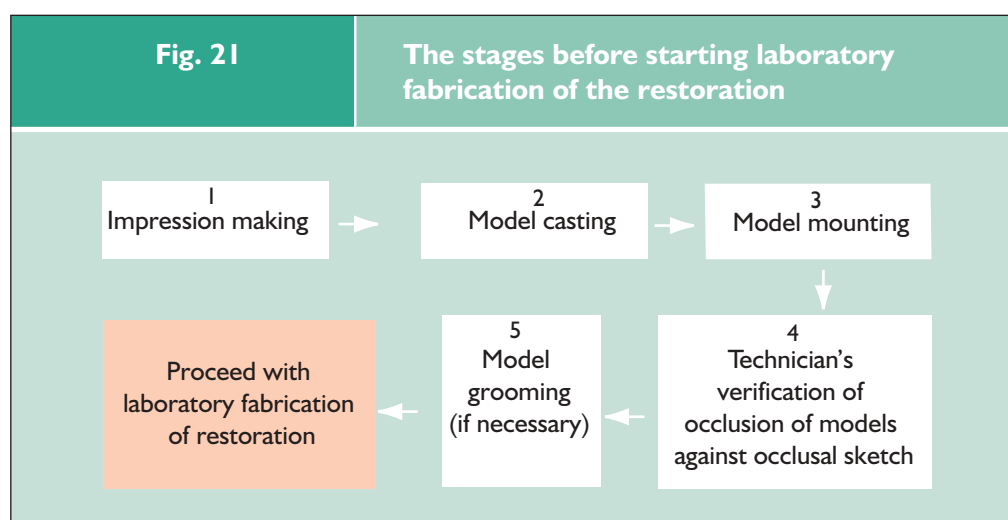
Fig. 19 Photograph of flexible thickness gauge



Fig. 20a Transfer coping on die after technician has reduced the height of the core



Fig. 20b Transfer coping ready to use in the mouth prior to fit of crown



Model grooming adjusts the occlusal surfaces of the models so that they make the same contacts as the patient's teeth do. It is part of the 'relevant anatomy replication' process.

Execute: From an occlusal point of view one of the most significant considerations is the provision of a temporary restoration which duplicates the patient's occlusion and is going to maintain it for the duration of the laboratory phase. For this the temporary restoration should: be a good fit, so that it is not going to move on the tooth; provide the correct occlusion, so that the prepared tooth maintains its relationships; be in the same spatial relationship with adjacent and opposing teeth. By far the easiest way of achieving these aims is to make a custom temporary crown. With a little preparation, custom temporary crowns can be made quite quickly. Figures 22a–d show the preservation of the patient's pre-existing occlusion (Fig. 22a) through the temporisation, laboratory and cementation phases.

Check: The occlusion of the restoration should be as ideal as possible (preferably not on an incline) and should not prevent all the other teeth from touching in exactly the same way as they did before. This needs to be checked before and after cementation. Cementation is the last



Fig. 22a Prepared tooth with occlusal marks on adjacent teeth



Fig. 22b Temporary crown in place with occlusal marks on adjacent teeth



Fig. 22c Final crown on articulator with static occlusion marked



Fig. 22d Final crown in mouth with static occlusion marked

Fig. 23		Ideal occlusion	
Ideal occlusion at tooth level	Ideal occlusion at system level	Ideal occlusion at patient level	
<ul style="list-style-type: none"> • Cusp tip to flat fossa contact ie no incline contacts • Occlusal forces directed down long axis of root 	<ul style="list-style-type: none"> • CO in CR • Freedom in CO • No posterior interferences 	<ul style="list-style-type: none"> • Within the adaptive capabilities of the rest of the articulatory system (muscles and TMJ) 	

chance we have to get it wrong! If it is a posterior restoration then it is unlikely to be ideal if there is any occlusal contact during lateral or protrusive excursion. Ask the patient to slide their teeth using one colour of articulating paper or foil, and then tap their teeth using a different colour.

The reorganised approach in simple restorative dentistry

The rationale and procedure for restoring a patient to the 'reorganised approach' will be, more appropriately, given in the section: 'Good Occlusal Practice in Advanced Restorative Dentistry'.

In that section, we will be considering the treatment of a patient when the treatment of their dental needs means that it will be impossible to keep the same occlusion and so the jaw

relationship which that occlusion dictates. In that scenario, because inevitably the patient is going to have a different jaw relationship after dental treatment, it is the responsibility of the clinician to ensure that the new occlusion is more, rather than less, ideal in relation to the rest of the articulatory system.

As stated earlier, an occlusal contact that guides the mandible into the jaw relationship is known as a deflecting contact. Some restorative authorities advise that teeth that are not directly involved in the restoration (tooth to be restored and its opposing tooth) can be altered to improve the occlusion, within the 'conformative approach'. We agree that is an attractive idea to try to improve the occlusion of the surrounding teeth, by say removing the incline contacts. The difficulty is to be sure that one is not changing deflecting contacts, because if they are being altered then jaw relationships are being changed. This, then, is not the conformative approach. The objective is now the provision of an ideal occlusion (Fig. 23). For this to be successfully achieved, detailed planning and usually multiple changes in occlusal contacts are needed.

The important limitation of the conformative approach is that none of the teeth to be prepared or adjusted can be deflecting contacts, because if they are then as a consequence of changing them the jaw relationship will probably be changed. If modification to these deflecting contact teeth is envisaged, this then becomes a reorganised approach no matter how few teeth are being restored. This,



Fig. 24a New restorations are too high



Fig. 24b After adjustment of new restorations, occlusion of adjacent teeth returns

as will be seen in the next section, is a much more complex procedure.

It can thus be a difficult decision as to 'when to stop' adjustment of the teeth not directly involved in a restoration that is being carried out under the conformational approach.

The new restorations at UL6 and UL7 (26, 27) were being provided within the 'conformational approach'. During the finishing, the occlusal contacts of these restorations are too high (Fig. 24a) because the original contacts on UL4 and UL5 are not evident. After this has been achieved (Fig. 24b), there is an opportu-

nity to 'improve' the occlusal contact against the distal part of UL5 (25). This would involve changing it from contacts on the cuspal inclines either side of the marginal ridge to a more 'ideal' single contact on the flat part of the ridge. Although a case could be made for doing so, there is no Figure 24c showing this completed because the clinician decided against it, preferring to leave the occlusal contact at the UL5 (25) exactly as it was before treatment of the teeth distal to it. There would have been a stronger case for adjustment if there had been a single incline contact.

Guidelines of good occlusal practice

- 1 The examination of the patient involves the teeth, periodontal tissues and articulatory system.
- 2 There is no such thing as an intrinsically bad occlusal contact, only an intolerable number of times to parafunction on it.
- 3 The patient's occlusion should be recorded, before any treatment is started.
- 4 Compare the patient's occlusion against the benchmark of ideal occlusion.
- 5 A simple, two dimensional means of recording the patient's occlusion before, during and after treatment is an aid to good occlusal practice.
- 6 **The conformational approach is the safest way of ensuring that the occlusion of a restoration does not have potentially harmful consequences.**
- 7 **Ensuring that the occlusion conforms (to the patient's pre-treatment state) is a product of examination, design, execution and checking (EDEC)**

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