

# No clasps please! Dental prosthetics with precision connections

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## Abstract

Precision connecting elements, including telescopic crowns and attachments, are favoured solutions in other European countries, where patients are increasingly conscious of their aesthetic potential, practicality and cost-effectiveness.

The methods are within the reach of UK dental practitioners with recourse to quality dental technicians. This article gives an illustrated overview of the fundamental principles of these techniques.

## No clasps please!

“Please do not force me to have those ugly clasps with my new teeth!” These or similar exclamations are probably familiar to you as a practitioner. After all, who wants ancient teeth smiling from between young lips, since “a smile is the mirror of the soul”?

Armed with Ayuvela, aromatherapy and Botox, today’s patient puts an increasing value on their health and a cultivated appearance in the pursuit of beauty.

This of course includes dental treatment and consequently, interest in unobtrusive and invisible dental replacements without clasps is continuously rising.



**Figure 3: lower jaw – primary telescopes (copies) *in situ***



**Figure 4: upper jaw – telescopic crowns executed as removable bridge**

In Germany, this need is met using precision connecting elements and a combination of permanent and removable replacements. These combination prosthetics provide a very comfortable and aesthetic solution, particularly where the remaining natural teeth still provide a stable foundation.

Combined dental replacement is generally applied when a completely fixed replacement is not feasible anymore.

This can also be in part for cost reasons, when a pure bridge construction becomes too expensive.

## Precision connecting elements

In order to obtain a secure fit of the prosthesis, several or all of the remaining natural teeth are permanently crowned. Precision connecting elements are then incorporated as part of, or attached to, the crown using an attachment that can be interlocking or press-stud anchors. Alternatively, the whole crowned tooth acts as a stable attachment – as with all double crown work.

The prosthesis is firmly linked to the rest of the natural teeth via the attachment; however, it can be removed by the patient for the usual cleaning regime.

The methods mentioned here are not particularly new applications, rather they have their origin in America in the 20th century. The anchoring of partial or hybrid prostheses with individually manufactured double crowns was first described by Peeso (1916)<sup>1</sup> and Goslee (1923)<sup>2</sup>.

Precision connecting elements come in a variety of forms, of which two will be considered here: (a) treatments using double crowns and (b) treatments using attachments.

## Double or “telescopic” crowns

A telescopic crown always comprises two parts – the primary crown or coping, which is permanently fixed in the mouth and preferably made from a suitable gold alloy; and the mounted, removable telescopic crown or secondary crown, attached to the prosthesis and made of the same material.



**Figure 1: precision connector**



**Figure 2: upper jaw – ceramic crowns with Precivertix attachments and stressbreakers prepared for CoCr**

Telescopic crowns are parallel-faced double crowns with a perfect fit. Ideal adhesion is achieved when the inner and outer crowns are perfectly cylindrical. As this is not feasible for a variety of reasons, at least two opposing surfaces (often the distal and mesial dental surface) are made parallel to one another. This needs to be considered during preparation.

A frequently used solution, where there are only a few (1-3) existing teeth, is the Resilience telescope. Here, there is a 0.3mm to 0.5mm space between the primary and secondary crown on the occlusal face of the telescope. This means that the prosthesis rests on the mucosa when it is not under pressure.

The “resilience gap” is only removed with the pressure of chewing and there is a particularly gentle load or strain on the remaining natural teeth. This form of telescope is the foundation for the so-called “Cover Denture” prosthesis. Externally, it is indistinguishable from a full prosthesis.

The secondary crown is worked into the prosthesis: soldered, glued or embedded with retention within the synthetic matrix of the prosthesis. Only after the final fitting is the primary crown cemented firmly onto the prepared tooth.

Telescopes are, next to attachments, seen as standard in Germany, Switzerland and Scandinavia for the treatment of larger dental gaps using removable prostheses. The

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construction of telescopic prosthetics requires a high standard of preparation and processing by the dentist and their dental laboratory.

### Attachments

Like telescopes, attachments are invisible, firm anchorings which can be released by the patient themselves. The male attachment elements (**Figure 5**) in this instance Precivertix extracoronal, are attached to the crown blocks or bridges, while the complementary element is attached to the removable dentures (**Figure 6**).

Attachments are pre-fabricated (off-the-shelf attachments) and are then joined to the bespoke denture in the lab (creating bespoke attachments). Attachments are also classified according to their fitting; either into the anchor tooth (intra-coronal attachments) or fitting external to the tooth (extra-coronal attachments).

An attachment always comprises two parts: the receptive (or the female) part, and the insertion (or male) part. Which part sits on the crown and which on the removable denture depends on the manufacturer and the practitioner’s judgement for any given situation. Particularly popular versions are Precivertix and Rod Attachments and similar forms.

You can distinguish between attachments according

to their attachment mechanism:

1. Friction attachments where female and male components are joined by their precise fit, for example telescopic attachments.

2. Retentive attachments where the hold is achieved by using elastic elements which rest in grooves or indentations.

The attachment can also be fitted with a bolt for optimal fastening.

### Getting started

Adopting a combination of methods is certainly possible without

attending dozens of seminars or reading numerous text books that are frequently unavailable in English. Viewed objectively, an attachment project is nothing more than a larger bridge for the practitioner or a pair of integral crowns to which something is added in the lab. The parallel features, so to speak, are created by the technician.

Telescope work is perhaps a bit more challenging. Here you need to follow a particular workflow in order to prepare the relevant teeth, so that they can be considered as an “anchor group” and display the optimal parallelism. This leads to slender inner telescopes and thus to an unobtrusive total view of the completed work.

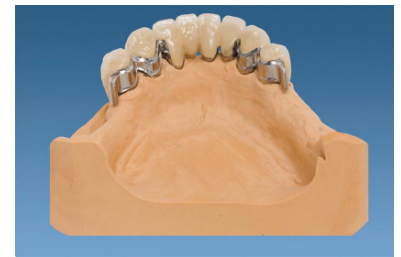
The most frequently-prepared telescopic prosthesis is in the lower jaw with two telescopes on existing canines; this is effectively the “entry level” case.

The collaboration between the dentist and the dental technician really comes into play here. Taking all things together and with good planning in place, this is not a difficult process at all.

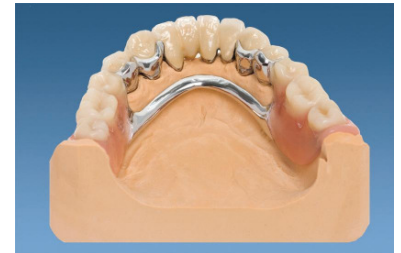
### Conclusion

Combined dental replacement is the best method to meet the demands of the patient and practitioner without compromise.

Combined dental replacement without clasps offers high comfort for the wearer, more confidence and a very appealing aesthetic. Which combined dental replacement, **Continued over**



**Figure 5: ceramic bridge with Precivertix extra-coronal attachments and stressbreakers at 33, 34 and 43, 44**



**Figure 6: complete work with inserted CoCr**



**Figure 7: CoCr with Telescopes on 33 and 43**

# GDC costs out of control



**Brian Levy**  
**President, DPA**

The majority of the funding of the General Dental Council (GDC) still comes from the dental profession. True, dental care professionals (nurses, hygienists, technicians, etc.) do now make a contribution, but one thing the GDC certainly is not is a publicly funded QuANGO (Quasi-Autonomous Non-Governmental Organisation). Its remit is maintaining standards and protecting the public.

In my work with the European Union of Dentists (EUD), I have made many contacts with non-UK dentists so it is not surprising that I recently found myself representing and assisting a foreign colleague at a GDC Registration Appeal Hearing.

Dentists with EU nationality and training have a much →

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and which connecting elements form the best solution, is determined by the professional with each individual patient.

The methods and techniques shown here do not represent a stand-alone solution for partial dental replacement. Far from it! Combination methods can really come into their own when used together with implants. They give the practitioner the opportunity to find optimal solutions for the patient, who might otherwise only be treated with difficulty or not at all.

Future articles will consider the pros and cons of telescopes and attachments and give examples of workflows to assist the practitioner. Talk to a dental laboratory that you trust and give it a go!

1. Peeso, FA. *Crown and bridge-work: for students and practitioners*. Philadelphia: Lea & Febiger, 1916.
2. Goslee H. *Principles and Practice of Crown and Bridgework*. 5th Edition. New York: Dental Item of Interest Publ. Co, 1923.

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simpler automatic registration procedure, but this was a dentist, married to a European Union (EU) passport holder, who trained at a dental school outside the EU, with five years' experience in practice (but not in the EU).

She applied for registration with the GDC and was referred to the Assessed Applications Team which, after ensuring her paperwork was satisfactory, placed her application before the Assessment Panel which meets every few weeks.

Her application was rejected by three external assessors including two UK dental school professors and subsequently by the Assessment Panel itself. In accordance with the rejection letter, she gave Notice of Appeal within 28 days and asked me to represent her at the Registration Appeal Hearing.

## Registration appeal

Whilst I have helped many dentists with their Assessed Applications (which in itself is a very comprehensive and complicated procedure which takes many months), this was my first Registration Appeals Hearing. I expected to be in and out within half an hour, one hour maximum, which could not be further from the truth.

Retired dentist Alec Lupin (an ex-EUD and DPA Council Member) and I were amazed to see five GDC members plus a legal and a professional adviser on the panel. Also present were three GDC staff members and, most surprisingly, a legal team representing the GDC comprising of a barrister and two assistants as our "opposition" – in other words, a similar line-up to a full Conduct Committee Hearing or a Restoration Appeal.

I can't go into the case details which rested on the applicant's dental school syllabus and EU Directive 2005/36/EC which determines these procedures. The Appeal Panel were very fair and with the help of their dental professional adviser we were able to counter the objections of the original Assessment Panel and the three "eminent" dental school assessors and frankly, to my own surprise, we won the appeal and our colleague will be able to register with the GDC. No other country in the EU would give a foreign dentist anything approaching this extremely fair hearing.

## The cost

I was pleased for my colleague. It was personally very satisfying and to get a decision of a GDC Committee reversed,