

Wear is real, so are our solutions

Technique Guide for moderate wear





How to Identify Wear?



Wear is most often **multifactorial** and a combination of the following mentioned **four types of wear**.

Erosion

Typical pits, concavities and smoothed surfaces caused by acids in food, drinks and/or stomach acids



Courtesy of Dr P. Swerts, Belgium



Courtesy of Dr A. Salehi, France

Abrasion

U-shaped notches cervically or other atypical wear lesions from foreign objects or habits

Attrition

Flattened surfaces, often from tooth-to-tooth wear from grinding, clenching and chewing



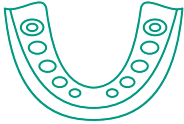
Courtesy of Dr. K. Karagiannopoulos, United Kingdom



Courtesy of Dr S. Moretto, Belgium

Abfraction

Cervical V-shaped cavities from repeated flexure due to clenching and grinding



Night Guards

Prevent further wear by recommending a night guard when the case allows



Oral Hygiene

Ensure your patient brushes frequently, but not too aggressively, and with the right tools



Attitude

Change patients' perspective on how to treat and protect their teeth and restorations



Old restorations

Re-polish old restorations because worn ones can also wear the antagonist



Diet

Avoid acidic beverages and food, such as energy drinks and citrons which accelerate wear

TIP!

A night guard is not indicated when there is occlusal instability or when the wear is stable, not pathological.

What else can help?

MI Varnish

With 22600 PPM of Fluoride



Our Recaldent™ CPP-ACP solutions:

- ✓ Promote the remineralisation of enamel
- ✓ Desensitise, lowering sensitivity
- ✓ Provide extra protection against future acidic attacks, ideal against erosion

In office: every 6 months



Peel off the foil lid of the unit dose container of MI Varnish.



Apply a thin, uniform layer of MI Varnish on teeth/surfaces using a disposable brush.



Refrain from eating or drinking for 4 hours following the application.

Courtesy of Dr. P. Rouas, France

MI Paste Plus

With Fluoride



Tooth Mousse

Without Fluoride



At home: daily, particularly after brushing at night



1 Squeeze a pea-sized amount onto a clean finger or cotton tip.



2 Apply to all teeth and use your tongue to spread around evenly.



3 Leave it undisturbed for a minimum of 3 minutes avoiding spitting out or swallowing. The longer it stays in the mouth, the better.



4 Spit out the excess. What remains can be left to gradually dissipate. Avoid rinsing, eating or drinking for 30 minutes following application.



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Read the instructions carefully and pay attention to warnings and contraindications before use.



There are different approaches and materials to treating **moderate wear**.

This guide focuses on treatments with restorative composite.

Choose one of these three approaches depending on which best fits the needs of your case.

Pre-restorative orthodontics,
followed by restorations



Courtesy of
Dr S. Dåröste, Sweden

Dahl-Principle



Courtesy of
Dr. K. Karagiannopoulos, UK

Full-mouth restoration



Courtesy of
Prof M. Peumans, Belgium

Clinical Approach	Pre-Restorative Orthodontics	Dahl Principle	Full-Mouth Restorations
Main Goal	Re-establish correct tooth position, alignment, and occlusal relationships before restorative work	Create space locally by relative axial movement (intrusion/extrusion)	Rebuild entire occlusal scheme and lost vertical dimension
When to Use	<ul style="list-style-type: none"> Malocclusion Deep overbite, crowding, rotations Need to create space and remain minimally invasive 	<ul style="list-style-type: none"> Moderate localised anterior or posterior wear Limited interocclusal space, to be opened without ortho Stable occlusion otherwise 	<ul style="list-style-type: none"> Generalised wear, without malocclusion
When Not to Use	<ul style="list-style-type: none"> Patient refuses ortho Periodontics don't allow for ortho treatment 	<ul style="list-style-type: none"> Generalised tooth wear Open bite Crowding Implant prosthesis Multiple teeth missing, tilted molars Deep overbite 	<ul style="list-style-type: none"> Non pathological, stable wear progression Localized tooth wear
Advantages	<ul style="list-style-type: none"> True correction of underlying tooth position Enables ideal restorative thickness and aesthetics Long-term stable occlusion 	<ul style="list-style-type: none"> Minimally invasive Simple and additive Physiologic adaptation (eruption/intrusion) Inexpensive 	<ul style="list-style-type: none"> Complete functional and aesthetic control Long-lasting outcome Fast
Limitations	<ul style="list-style-type: none"> Time and cost Patient compliance 	<ul style="list-style-type: none"> Limited applicability Time needed for eruption Not always predictable 	<ul style="list-style-type: none"> Patient compliance and maintenance

Using a **tooth wear index, pictures or 3D scans** can help to analyse wear progression in time. The patient must be aware of any wear-inducing habits and must comply with preventing further damage to the tooth tissue or eventual restorations for a successful outcome.

TIP!

Your scanner as a diagnostic tool

Using your scanner as a diagnostic follow-up tool is a patient-friendly way of monitoring wear progression. Scanners allow for early detection of wear progression as it can see what the eye cannot through side-by-side comparisons.



Occlusal vertical dimension (OVD) for moderate wear

When changing the OVD, the primary objective is a functional and comfortable occlusion. A mechanically perfect occlusion is not always necessary to achieve a comfortable and successful result. The new OVD is determined first by how much length is added on the anterior teeth. Changes to OVD can typically range from **2 to 5 mm**, depending on patient tolerance.

Step by step (analogue or digital)



1
First an impression is taken, either conventionally or by using an intraoral scanner.



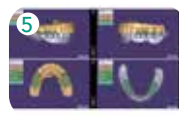
2
This impression is then transferred to an articulator (digital or analogue) and checked.



3
Plan the anterior design and evaluate the aesthetic changes.



4
Validate the increased space in OVD with the articulator system and patient in centric relation (CR).



5
Continue with the posterior design after confirming that the increased space is feasible.



6
Either 3D-print or make a negative copy of your model.



7
Create a mock-up to validate the design intra-orally.

Checkpoints on the new design



Facial aesthetics:

What is suitable and preferred by the patient for their overall facial features.



Posterior support:

Check to have stable contact: left, right and front.



Anterior guidance

The first contact should be done by anteriors/canines during jaw movements.



Joint stability

Determine the centric relation via a leaf gauge.



Phonetics

The ability of the patient to clearly speak should be maintained. Test via phonetics like "S", "M" and "F".



Freeway space

It should be 2-4 mm between the occlusal vertical dimension (OVD) and resting vertical dimension (RVD).

Helpful tools

Tools such as **diagnostic wax-ups**, **digital smile design**, and **articulators**, both analog and digital, help guide safe and predictable adjustments for functional and aesthetic rehabilitation.

TIP!

For moderate wear, a Leaf Gauge will suffice to find a stable centric relation position. A deprogrammer for such cases is not needed as the brain's neuroplasticity will adapt to the new occlusion.

Cases provided by:

Dr. K. Karagiannopoulos, UK, Prof M. Peumans, Belgium,
Dr. C. Moussally, France, Dr. P. Swerts, Belgium



Materials needed for each technique

Freehand Technique

- Putty silicone key to use as reference to build up the palatal wall
- Model



Stamp Technique

- Full mouth model
- A second model with alternate teeth restored
- Silicone keys of each model made with EXACLEAR



Injection Moulding Technique

- Full mouth model
- A second model with alternate teeth restored
- Silicon keys of each model made with EXACLEAR



Criteria in choosing	Freehand Technique	Stamp Technique	Injection Moulding Technique
Tool used	Putty silicone key	Hard silicone key, relined with clear silicone (EXACLEAR)	Transparent silicone (EXACLEAR)
Presence of Spacing	Not strongly affected	Difficult to treat	Minor gaps possible
Effort required	+++	++	++
Lab Time	-	++	++
Aesthetic	+++	++	+++
Composite of choice	G-ænial A'CHORD	G-ænial A'CHORD	G-ænial Universal Injectable
Time required	+++	++	++
Layering	+++	+	++

TIP!

Placing a layer of everX Flow ensures further protection against fractures



Injection Moulding Technique

Additive method of creating composite restorations using a transparent silicone through which a high viscosity composite is injected.



Freehand Technique

Simple mono-shade treatment for the anterior mandibular region, blending perfectly with the dentition distally while keeping natural translucency.



Stamp Technique

Posterior treatment using a mixture of two types of silicone to ensure perfect reproduction with conventional paste composites.



TIP!

- Keep your model close by to check throughout the procedure, especially for freehand.
- Prevent tiring and long treatments. Plan breaks but also consider splitting up the treatment over multiple days.
- Use TEMPSMART DC to create a temporary mock-up to provide stability in the meantime before continuing treatment and starting fresh.



Prepare the teeth for treatment

TIP!

If bleaching is planned, it must be finished 2 weeks before the restorative treatment.



Check gingival health and clean all the teeth.



A good isolation prevents issues like microleakage, de-bondings and post-operative sensitivity.



Sandblasting the surface is recommended to ensure a clean working area.



For higher retention area and a better aesthetic gradient, beveling of the enamel is recommended.



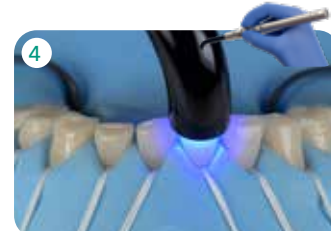
1 Clean and dry the tooth surface.
Optional: sandblasting.



2 Etch the enamel for 10-15 seconds.



3 Apply G-Premio BOND
to the tooth surface.
Dry with max. air pressure for 5 sec.



4 Light-cure.



5 Build up the palatal wall using
G-aenial A'CHORD and light cure.



6 Remove excess with a scaler
or sharp instrument.



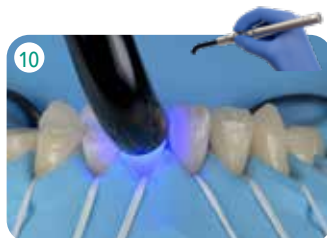
7 Use your preferred matrix protocol to
isolate if required.



8 Apply G-aenial A'CHORD against the
created palatal shell.



9 Adapt the composite
using the GC Modeling Kit.
Light-cure after each
application of the composite.



10 Light-cure.



11 Check the transition
of the restoration to the tooth surface
+ Occlusal check.



12 Proceed with polishing.
Refer to polishing guide for
the step-by-step instructions.

TIP!

- Opaque shades allow for a more natural transfer of light by blocking light at the dentine level when covered with an enamel or core shade.
- Removing sharp angles of the enamel edges with a disc before etching and bonding avoids small fractures, and staining of the margins of the restorations over time.



1 Clean and dry the tooth surface.
Optional: sandblasting.



2 Separate the individual teeth with Teflon to ensure good contact points.



3 Etch the enamel for 10-15 seconds.



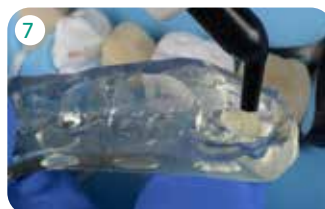
4 Apply G-Premio BOND to the tooth surface.
Dry with max. air pressure for 5 sec.



5 Light-cure.



6 Create the transparent mould with EXACLEAR and check the fit.



7 Place G-aenial A'CHORD in the mould (pre-heat if preferred).



8 Place it in the mouth and hold firmly in position.
Light-cure through the mould, ensuring all surfaces are reached.



9 Remove the mould, light-cure again and remove the excess.



10 Repeat the alternating steps.



11 Check the transition of the restoration to the tooth surface + Occlusal check.



12 Proceed with polishing.
Refer to polishing guide for the step-by-step instructions.

TIP!

- Use a thin Teflon of around 0.075 mm, for strong contact points, use a 0,1 mm for other cases.
- Start with the first molar to ensure the silicone will not move when you apply pressure.
- If you choose to preheat your composite of choice, it should be done only once.
- Maintain steady pressure until initial cure to avoid an uneven surface.
- Avoid overfilling to minimise flashes and finishing time.
- Finish gently with fine polishers to preserve the anatomy you have built.



1 Clean and dry the tooth surface.
Optional: sandblasting.



2 Separate the individual teeth with Teflon to ensure a good contact point.



3 Etch the enamel for 10-15 seconds.



4 Apply G-Premio BOND to the tooth surface.
Dry with max. air pressure for 5 sec.



5 Light-cure.



6 Place the EXACLEAR mould on the prepared surfaces.



7 Inject with G-aenial Universal Injectable.



8 Light-cure.



9 Remove EXACLEAR mould and excess.



10 Repeat step 2-9 for the alternated teeth.



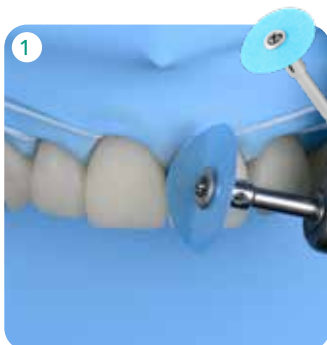
11 Check the transition of the restoration to the tooth surface + Occlusal check.



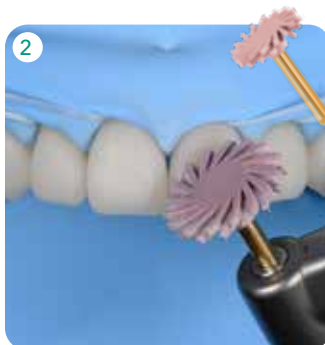
12 Proceed with polishing.
Refer to polishing guide for the step-by-step instructions.

TIP!

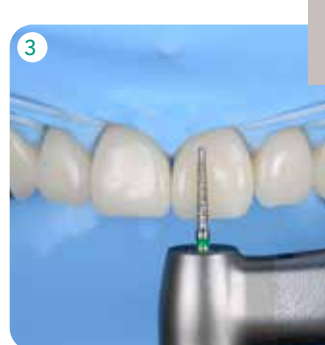
- Use the needles included with your injectable composite to make a hole in the EXACLEAR impression.
- Make two holes for each tooth to allow escaping of air.
- During the injection, a little bit of overflow is needed to ensure that all small voids at the margins and interproximal spaces are filled.
- Make sure that the silicone key is 3-4 mm thick around the preparations.
- For excess removal use a blade #12.



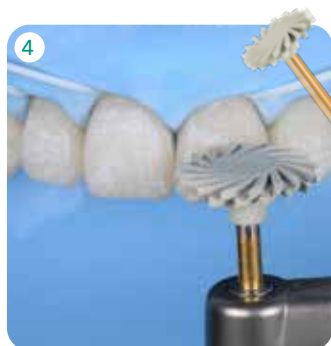
1 Use a medium polishing disc to remove any sharp edges.



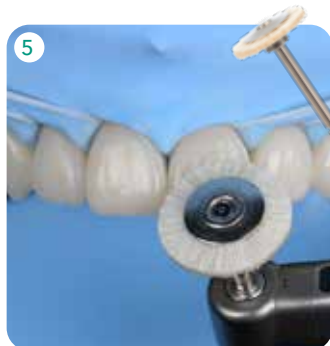
2 Polish with a medium composite polisher.



3 Create secondary anatomy with a diamond bur.



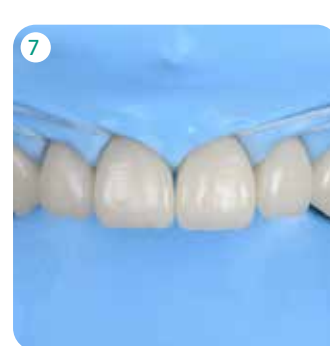
4 Re-polish with a fine composite polisher.



5 Polish with goat hair wheel and DIAPOLISHER PASTE.



6 Use EPITEX polishing strips for the fine polishing of the approximal surfaces.



7 Final result.

Get your polishing guide!

Points, strips, pastes and coatings to refine your shaped direct restorations in glass ionomer and composite to their final state, with high gloss and smooth margins. Interproximal finishing is optimised with strips, while the coats and varnishes ensure high surface gloss and protection.

Learn more about the best polishing techniques with our step-by-step guide:



everX Flow

- ✓ **Strengthening devitalized teeth** in case of heavy occlusal loading
- ✓ **Very high fracture resistance** to inhibit shock effects caused by bruxism



G-Premio BOND

- ✓ Quick procedure and **cost-efficient** dispensing with 300 drops per bottle
- ✓ Ideal to **block hypersensitivity** caused by wear



G-ærial A'CHORD

- ✓ **Long-lasting gloss**, preserving your aesthetics even longer for your freehand or stamp technique.
- ✓ The **true-to-nature fluorescence** ensures that your wear solution is invisible under any light



G-ærial Universal Injectable

- ✓ Highest **wear resistant** composite in the market, making it ideal to treat wear
- ✓ **Self-polishing ability** for long term gloss and **reduced wear** of antagonist



EXACLEAR

- ✓ The unparalleled transparency allows **very effective light-curing** through the silicone
- ✓ High transparency offers a **great visual control** for details visibility



MI Varnish

- ✓ MI Varnish penetrates and blocks dental tubules to give relief from **hypersensitive** worn teeth
- ✓ The high initial fluoride release **minimises sensitivity** and **strengthens** enamel



MI Paste Plus

- ✓ **With fluoride** for extra protection in case of medium or high susceptibility to caries
- ✓ Additional support in **acidic oral environments**



Tooth Mousse

- ✓ Supports greater **resistance to acid attacks** by inhibiting enamel demineralisation and stimulating **remineralisation**
- ✓ **Reduces hypersensitivity** by obturating open dental tubules



Discover more about
wear treatment



Discover more about
GC courses



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