Why Press?

Article by Jörg Müller, MDT

Preface:
Is press to metal still valid in today's dental lab?

It absolutely is! At the beginning, when press to metal became available, many laboratories tried this new technique to help streamline their production. Unfortunately, some of them were having trouble with the implementation and did not follow through. But times have changed and now it is even easier to put this efficient workflow into action.
With a shrinking amount of porcelain technicians labs are facing a different kind of pressure these days. Who is going to do all these cases? As the digital design era has now entered most everyone's lab, designing and then using the split file feature makes it all too logical to use this technique.
As I am training and consulting many laboratories, especially the high volume laboratories I see their success on a daily basis.
All you need is someone to help get over some of the beginning hurdles. Once the parameters are set and put into action, it is smooth sailing from then on.
Wether you are a small boutique lab or a lab with 100+ technicians, press to metal or press to zirconia is not only still alive, but it is a daily source of income for many of my colleagues and clients.

ARTICLE

Question:
The first thing you hear of from some colleagues is usually: Why should I press when I'm much faster with the layering technique?

Answer:
It is important to appreciate the system and not be influenced by the question of whether to press or layer. Putting design and aesthetics to one side, results are better distinguished through press technology providing a more controllable predictable planning. Wax-ups correspond exactly to pressed work.

Introduction
Regarding the question, pressing or not pressing, it is important to recognise that a systematic approach is imperative to the success of any restoration, workflow and the laboratory operation itself.

Patient consultations / Case planing
It always starts with an optimal design to each case, which is determined by a wax-up or a CAD/CAM design. This is the stage in dentistry where the technician can determine solutions for improved aesthetics and function.

For anterior restorations, a wax-up is used for consultations together with the patient, to discuss the new look and represent to the patient what they can expect. Useful for the posterior region, the patient can be demonstrated the problems in malocclusion which have negative influences; new occlusal functional correction is appreciated.

The frame work design
The framework design is a necessary requirement for restoration success and stability.

In today's increasing digital dentistry, good CAD/CAM systems are capable of scanning wax-ups which then mill the desired anatomically reduced zirconia framework.

Here is yet another important factor to bear in mind. The right framework design will serve as an optimal color support for the porcelain.

Bond between Porcelain and ZrO2:

Pressing procedures have better heat conduction. Because of the poor thermal conductivity of zirconium dioxide it is understood from a study at the University of Aachen, that porosity occurs in pontic areas when firing a layered bridge. Based on the fact that layering technique firing processes are completed in about 15 to 17 minutes. During a pressing procedure it is at least 60 to 90 minutes per frame to reach the final temperature, and at least 20 to 30 minutes for muffle cooling being much less invasive.

Reasons to chose press technique vs layering

1 Consistent quality:

A one to one transfer from the wax to the finished case.

1.1 consistent results vs day to day differences:

As dental technician's, we are subject to natural variations which changes the quality of our work. Everybody has good days and days when it does not work out really well. This can lead to significant variability in results. Now multiply this with the amount of technicians and the deviation from a consistent standard is far too great!
Likewise, there may be deviations in the shape of the work, such as when a technician creates the wax-up and then a few weeks later another technician manufactures the final restoration. All of these factors do not ensure quality in the sense of standards.

If a case has been planned and the treatment plan is presented to the patient, you should of course comply with what was promised by the wax-up and what the patient expects. Also aspects of form and length and other anatomical details can now be replicated 1:1 with a press technique. Layering offers too many inconsistencies.

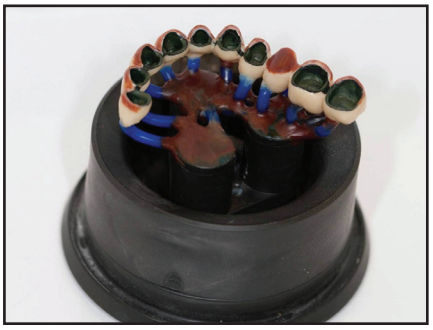
Using CAD/CAM library
Over the years, I have trained many technicians and each time, the challenge of explaining the anatomical details of eg. an upper molar is cumbersome. Not only does it take too much time till the learning curve results into units that can be successfully cemented, it results into too many remakes either in-house or returns by the dentists which occasionally also led to losing clients!

1.2 Technicians handwriting:

Every technician has his own style creating a tooth form. Imagine you go to Starbucks and you never know the outcome of the Latte you just ordered. Only a predictable standard makes a successful operation.

1.3 reproducible for every technician and easy to learn … control color and form

The entire knowledge and skill level can mostly only be reproduced by a limited amount of skilled technicians. To have a procedure in place, which gives technicians the opportunity to learn a skill in a matter of a few weeks rather than several years



2. Economic system

Advantage Press technique

Press technology costs relatively little time and material expense, and a very precise homogenous result can be achieved. Since the over-pressing framework is in line with the wax-up, case results correspond with the planning, which is easily reproduced. Gentle firing reduces the risk of porosity.
Putting aside shape and aesthetics determinations separately, will allow the working stages easier to control.

A perfect transfer from the wax up to finished case.

Conclusion:

The press technique has proven to me over many years as guarantor for constant quality. The Art-work can be prepared easier and less stressful.
This type of work is more fun and good humor - for me a better lifestyle in the lab!

Literature:
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Jorg Muller
MDT, President of Aesthetic-Press

Before receiving his degree as a master technician in 1993, Jörg was trained in Jan Langner's Dental Laboratory in Schwäbisch-Gmünd, where he specialized in tooth morphology function and aesthetics.

In 1993, working closely with Claude Sieber for several years on anterior aesthetics and photography, Jörg opened his first dental laboratory in Düsseldorf. Since then, he has been teaching courses on posterior wax-up, the function of the TMJ, and ceramics for dental technicians, worldwide.

In 1999 Jörg moved to San Francisco, California and established his dental laboratory in downtown San Francisco. While working closely with his dentists and patients, he developed the Aesthetic Press System. In 2005, Jörg founded Aesthetic-Press LLC with which he developed a system to standardize a workflow for consistent and reproducible high-end restorations for technicians to use on a
day-to-day basis.
Today, Aesthetic Press is based in Düsseldorf, Germany and Palm Harbor, FL.