

# Direct printed orthodontic appliances and aligners : Where are we now?

Dr. Simon Graf

Smile AG Belp, Switzerland

## **Academic studies:**

Dentist, University of Bern 17.10.2007

3 years orthodontic postgraduate program, orthodontic department of the University of Basel

August 2009 - September 2012

Opening Smile AG (german for: Smile Inc.)

Private orthodontic clinic in Belp, Switzerland

February 2014

Inventor and pioneer in CAD/CAM procedures for metal and acrylic 3d printed orthodontic appliances. Developer for direct printed aligners and their additional function.

## **Introduction:**

Simon Graf is the inventor and pioneer for 3d metalprinted orthodontic appliances.

Since 2014 he plans his metallic appliances virtual on an intraoral scan, and produces them directly with selective-lasermelting, or 3d metal printing.

Of course in the meanwhile many new printing options appeared, and also many more orthodontic appliances were converted to be printed directly.

But not only metal printing evolved, also direct aligner printing is possible nowadays.

Simon gives a lecture, where he collects all his experience over the years, and presents all different up-to-date printing possibilities for 3d metalprinted appliances, and for direct printed aligners.

## **Abstract:**

So far Simon Graf was known for his 3d metal printed orthodontic appliances, but now, as new materials are emerging, he continues to integrate them in the orthodontic workflow.

In the first part, he will focus on 3d metal printed appliances in combination with mini-implants. He will show the appliances from planning to printing, including post-processing, to the insertion in the mouth.

A very important part, insertion-guides for mini-implantes, will be covered as well.

In the second part, he will talk about direct printed aligners and removable functional appliances. Simon Graf will show some cases with direct printed aligners and functional appliances, and how to plan and produce them.

There will be no new aligner-protocol and staging, but many new approaches for direct printed aligners and its possibilities to include other elements.

## **Session learning points:**

- Clinical possibilities with 3d metal printed appliance
- How to plan and connect 3d metal printed appliances with TADs
- Planning of mini-implant insertion guides
- How to print aligners directly without cast
- New aligner thinking