

3D-printed splint against nocturnal bruxism

Case Description

A male patient 34 years old presented himself to my practice, with symptoms of nocturnal bruxism and expressed experiencing muscle pain and soreness. We decided that wearing a removable mouth guard at night would minimize wear on his dentition.

We started with a full upper and lower jaw scan of the patient using Primescan AC and designed the splint with the Splint module in inLab SW 22. The scan was seamlessly integrated into inLab CAM 22 software, where the splint was then printed and processed using Primeprint Solution.

We captured the jaw relation bite using a leaf gauge to check if he was in a fully seated condylar position and to create adequate space for the future appliance. In CEREC SW, I selected 'Splint' as an indication. The software then automatically opened the Splint module to finalize the design. Then it was sent to the CAM software to optimize the positioning and supports for successful printing. We did all of this in just one click! Once the splint was finished in the Primeprint with Primeprint Splint material, my assistant

finalized the appliance by transferring the Primeprint Box to the Post Processing Unit. After giving the supports a quick polish using a carbide bur (that left a nice and smooth finish), the appliance was ready to be delivered.

Before Primeprint, I used several other printers, but their post-processing gave me cause for concern. It was quite messy, and I would often wonder if the appliance was safe for intraoral use. The Primeprint Post Processing Solution gives me confidence that the appliance has been thoroughly cleaned and cured as a medical device for use. I also found that it was easier to finish and polish with this acrylic—did not see any warping and distortion with temperature changes that I usually would with the competitor material.

It took us around 40 minutes to print and 45 minutes to post process, while the treatment itself was done in just under 2 hours: 10 minutes to scan and design, and one and a half hours to manufacture.

Discussion

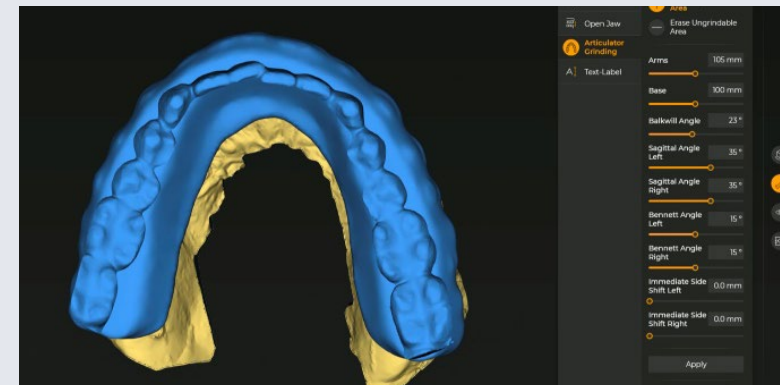
Dental devices like Primeprint Solution and Primescan AC can no longer be ignored or underestimated—they are dramatically changing our industry and setting a new standard for how high-quality dentistry should be done. It is simple, predictable, and automated enough for anyone to use—from seasoned users to brand-new team members. Patients regularly tell me how amazed they are by the speed and comfort of the appliances; its precision and snug, retentive fit create a premium impression. This particular patient experienced muscle pain and soreness. Primeprint allowed me to manufacture the appliance in 3 hours, so that he could leave my practice able to use it that very night.




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Before: Initial oral situation with symptoms of nocturnal bruxism



 New: order your nightguard / splint design from DS Core Create

Usage: Finalizing the object to be printed



After: Detachable 3D-printed splint with Primeprint Splint material

Case Description in Pictures



Fig 1: Initial oral situation. The patient presented with symptoms of nocturnal bruxism and should get a removable mouth guard

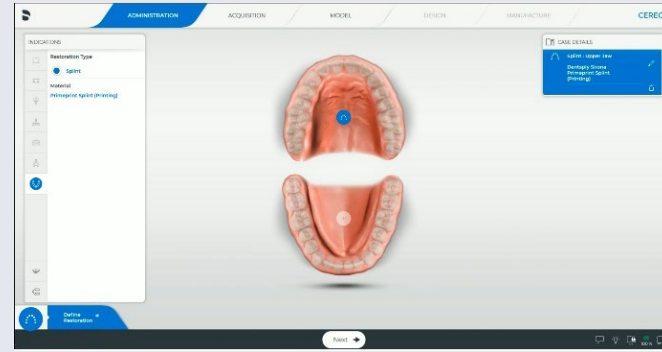


Fig 2: Scanning with Primescan after selecting "Splint" as an option in the CEREC Software

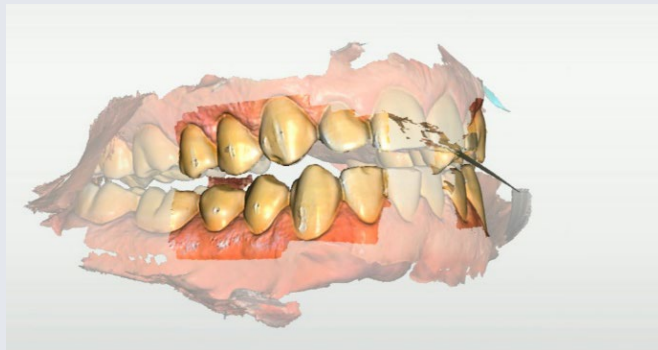


Fig 3: Capturing the jaw relation bite using a leaf gauge to check if he was in a fully seated condylar position



Fig 4: The model in the inLab CAD Software



Fig 5: inLab SW, "Splint" modul. The software supports the design and gives options to optimize the fitting

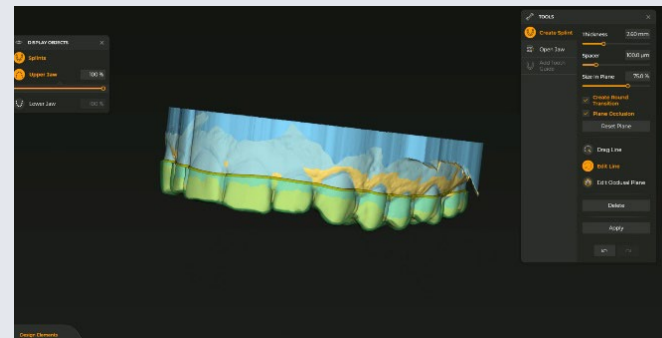


Fig 6: The suggestions of the software are optimized and above that, there is the possibility to customize manually

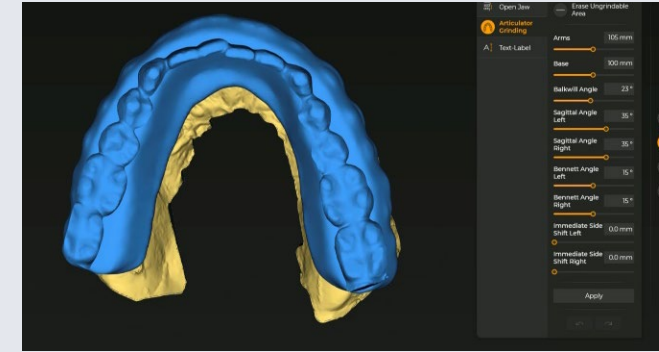


Fig 7: Finalizing the object to be printed

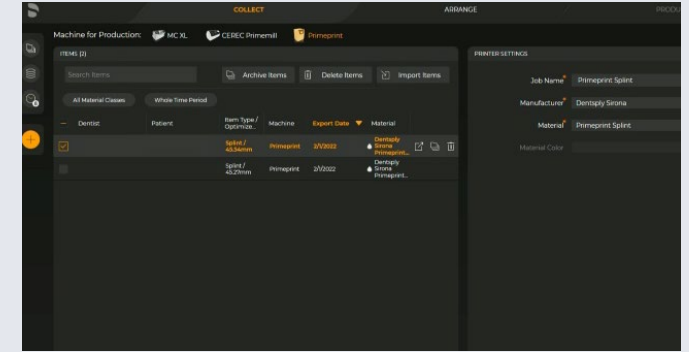


Fig 8: Selection of the Splint print jobs in the queue – one splint for each jaw

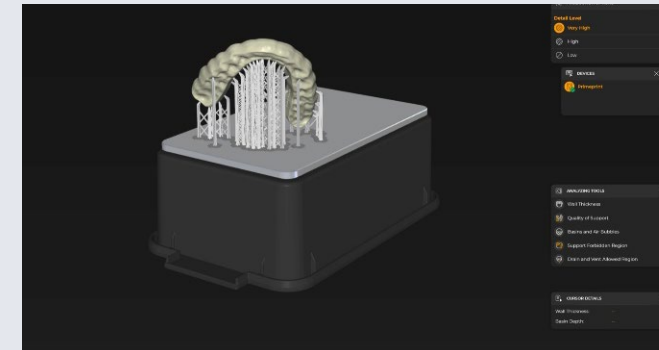


Fig 9: Positioning of the printed object in the inLab CAM software

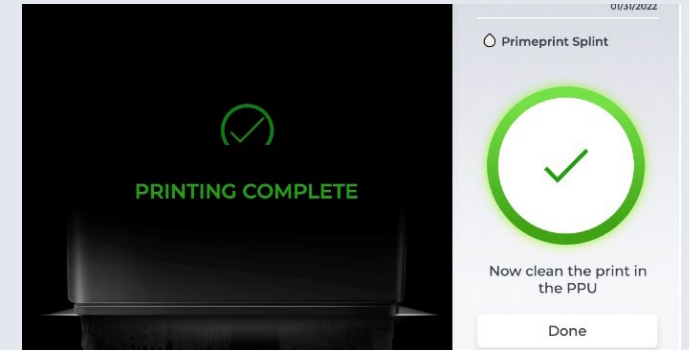


Fig 10: The software reports when the print job is finished and ready for post-processing



Fig 11: The 3D-printed splint after removal of the supports, cleaned and cured as a medical device for use



Fig 12: The mouth guard after in situ. In the lower jaw, the partially abraded teeth are clearly visible. They are now protected by the splint