

ACP MESSENGER

Winter 2017



Treating the exacting patient

Blending digital dentistry
and implant prosthodontics

Advanced digital
dental technologies

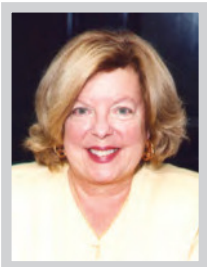
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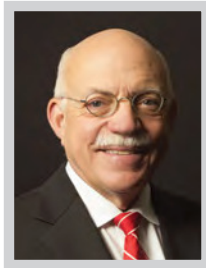
Dr. Cynthia M. Aita-Holmes is Director of the Advanced Specialty Education Program in Prosthodontics at Fort Gordon, GA, and Membership Director for the Federal Services Region 6.

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Joanne Balshi has served as Director of Marketing and Public Relations for the Pi Dental Center over the last thirty years. She is a freelance writer and authored *Smile Your Heart Out*, a coffee table book about the value of a healthy smile.

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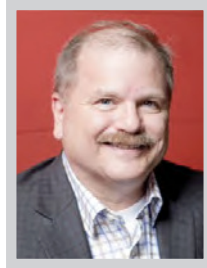
Dr. Thomas J. Balshi maintains a private practice in Fort Washington, Pennsylvania, where he blends clinical care with scientific research, education, and philanthropy.

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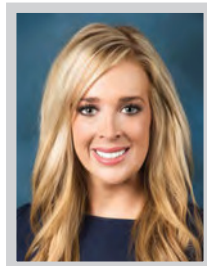
Dr. Susan E. Brackett is President of the ACP and maintains a private prosthodontic practice in Oklahoma City.

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Dr. Gerald T. Grant is a professor of prosthodontics and Interim Chair of the Oral Health and Rehabilitation Department at the University of Louisville.

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Dr. Kerin M. Jamison is a third year resident at the Advanced Specialty Education Program in Prosthodontics at Fort Gordon, GA.

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Dr. Mathew Kattadiyil is Professor and Director of the Advanced Specialty Education Program in Prosthodontics at Loma Linda University School of Dentistry, and Editor-in-Chief of the *ACP Messenger*.

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Blending digital dentistry and implant prosthodontics

Thomas J. Balshi, DDS, PhD, FACP
Joanne Balshi

I first met Michael Frank on a job site where he was artistically and meticulously setting tile for a designer kitchen. Mike exuded energy and had an admirable work ethic. He had a good technician's eye and measurable pride in accomplishment, but the first time I saw him smile, I knew I could contribute something very valuable to the rest of his life.

At the age of thirty-three, Mike had a lot going for him. Besides his talent, he was a vivacious athlete with a great sense of humor and an uncommon warmth. Married with two young daughters, he worked a sixty-hour week and played soccer in his spare time. A smile was the only part of his signature that simply did not fit.

It was not difficult to convince Mike to allow me to evaluate him clinically and present him with a treatment plan. His evaluation revealed advanced periodontitis with extensive bone loss around his remaining teeth in both the maxilla and mandible, most likely the result of his heavy smoking and excessive consumption of soda for quite a few years.

Mike's clinical presentation demonstrated extensive flaring of the mobile anterior teeth. Diagnostic casts were made and articulated at the appropriate vertical dimension. These models were scanned digitally and the data files transmitted to a milling center for the construction of the fully milled monolithic PMMA resin provisional dentures. The anterior teeth were repositioned virtually in the 3-D planning software prior to production.



Fig. 1: Before

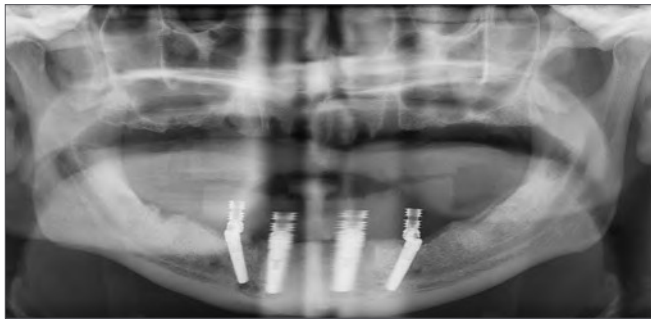


Fig. 2: Panoramic radiograph with multifunctional copings securing the Teeth-In-A Day® digital conversion prosthesis.



Fig. 3: Panoramic radiograph of the final All-On-4® fully milled screw-retained fixed prosthesis with milled titanium framework connecting the implants.

On the day of surgery, twenty cc's of blood were drawn and Platelet Rich Plasma (PRP) was produced for use during surgery. Local anesthesia was administered to both maxilla (upper jaw) and mandible (lower jaw), and all remaining teeth were extracted. Alveoloplasty was performed in preparation for future implant placement.

In the mandibular arch, full tissue flaps were reflected to identify the mental foramina. The anterior loop of the mental nerve was measured and noted. Beginning with the posterior implant placements in the mandibular right and left sides, a precision drill introduced the initiation of osteotomies (bone drilling). These were placed at a forty-five degree angle posterior tilt.

Four implants were coated with PRP and installed according to the All-On-4® treatment concept protocol. Autogenous (host) bone was gathered during all of the osteotomy preparation procedures and reintroduced into the extraction sites. Angulated

His evaluation revealed advanced periodontitis with extensive bone loss around his remaining teeth in both the maxilla and mandible, most likely the result of his heavy smoking and excessive consumption of soda for quite a few years.

multi-unit abutments were installed on the posterior tilted implants and 1mm straight abutments were placed on the anterior axially placed implants.

Following the Teeth in a Day® procedure, special multifunctional copings were installed with guide pins on all four abutments. The rubber dam was then installed to the base of the copings. Using auto-polymerizing acrylic resin, the monolithic conversion prosthesis was connected to the multifunctional copings. It was then removed and refined chairside.

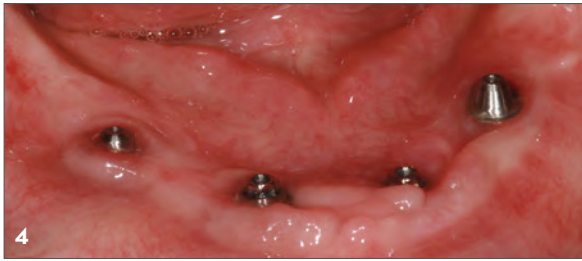


Fig. 4: All-On-4® implants to support non-removable teeth in the lower jaw.

Fig. 5: Three months after implant surgery, the final digital upper denture and the All-On-4® monolithic fixed (non-removable) prosthesis for the lower jaw ready for delivery to the patient.

Fig. 6: Completion of treatment changes Mike's life.

Flap closure took place with multiple interrupted sutures. The Teeth in a Day® conversion prosthesis was then installed using prosthetic screws. The upper monolithic fully milled removable denture was relined, adjusted, and delivered at the same time.

Mike was given post-operative instructions and medications. One week following surgery, he returned for suture removal and minor adjustments to the maxillary immediate complete denture. At ten weeks post-surgery, the patient presented for final impressions, initiating the construction of his mandibular fully milled implant-supported prosthesis reinforced with a milled titanium frame. New occlusal records were made and a reline impression made in the maxillary removable immediate digital complete denture.



Fig. 7: After

Three weeks following the impressions, the final prostheses were delivered to an ecstatic patient whose sparkling personality and boundless energy went up still another notch, proof that at any age, a healthy, esthetic smile is a priceless asset. ■

Both arches were scanned and the data transmitted for the construction of a new fully milled monolithic maxillary removable digital denture and an All-On-4® final prosthesis with milled titanium framework for the mandibular arch.