"The digital patient: the missing link to smile design, virtual articulation, and CADCAM restorations"

Currently utilized digital workflow processes for diagnosis and treatment of dentate patients with worn dentitions focus upon traditional esthetic and functional results but continue to rely upon the use of time-consuming analog diagnostic and laboratory steps. A technique is presented that eliminates the need for analog diagnostic and laboratory steps through the use of low-dose CBCT radiologic scans at the treatment centric relation position. This permits an efficient all-digital workflow.

Hunter Dawson

University of Louisville
Dr. Bryan T. Harris,
Director

"CAD/CAM Fabrication of Custom Fossa Inserts for the TMJ Articulator Using a Novel Mandibular Motion Recording Method"

A novel device is used to record mandibular motion. The physical tracings are scanned and software is used to interpret this recording and reproduce the motion using digital models created from scans of casts. Rendered condylar elements are used to produce a fossa pattern that can be manufactured using the CAM process of choice. These fossa inserts are then attached to the housings on a TMJ articulator to govern the motion of mounted casts.

Neil Griseto

UTHSC San Antonio
Dr. Stephan J. Haney,
Director

"Rotational Path RPDs: Esthetic Replacement of Anterior Teeth"

The rotational path removable partial denture (RPD) is a viable treatment option when anatomic and esthetic limitations restrict the use of fixed restorations in the anterior region. With adherence to sound design principles, a rotational path RPD utilizes undercuts that are inaccessible with conventional RPDs. This case report discusses the diagnosis, treatment planning, clinical approach, and laboratory methods that must be considered to optimally restore an anterior defect with a rotational path RPD.

Angela Gullard

UTHSC Memphis
Dr. David Cagna,
Director

Katelyn Kuric

University of Louisville
Dr. Bryan T. Harris,
Director

"Integrating Hinge Axis Approximation and Prosthetic Treatment Simulation in a Virtual Patient for Treatment with CAD-CAM Immediate Dentures: A Clinical Report on a Microstomic Patient"

A fully digital approach to the creation of a virtual patient in order to fabricate complete removable dental prosthesis (CRPD). This approach enabled us to digitally identify the patient's hinge axis in order to rotate the mandible and increase occlusal vertical dimension. The wax up was completed and "tried in" on the patient's virtually simulated face created by the soft tissue scan to verify incisal edge position. The prosthesis were then milled and subsequently delivered.

James Lee

University of Minnesota
Dr. Heather J. Conrad,
Director

"Mandibular Implant-Supported Fixed Prosthesis: A 30 Year Success Story"

An 86-year-old woman donated her body to the University of Minnesota Anatomy Bequest program after successfully wearing a 5-implant-supported mandibular fixed detachable prosthesis for 30 years. The original mandibular prosthesis was in use for 26 years and opposed a maxillary complete denture. In 2012, a new set of maxillary and mandibular prostheses was fabricated due to fracture of the mandibular framework distal cantilever. No other significant treatment was completed until her passing in 2016. Implant stability using resonance frequency analysis was measured prior to sectioning. The study results demonstrate this treatment modality can function with minimal complications for the long-term.

Aaron Omura

UTHSC Memphis
Dr. David Cagna,
Director

"Practical Considerations for Implant-Assisted Removable Partial Dentures"

Initiation of therapy in the absence of a healthy and stable prosthodontic foundation risks unintended and suboptimal treatment outcomes. For conventional removable partial denture (RPD) therapy, consideration must be given to interactions between the soft and hard tissues available to support and stabilize planned prostheses. The strategic addition of implants to the partially edentulous foundation can improve the support, comfort, and esthetics of an RPD, resulting in elevated patient satisfaction and greater therapeutic success. This presentation will focus on diagnosis, 3-dimensional treatment planning, clinical management, laboratory execution, and maintenance that must be considered in order to obtain optimal results with implant-assisted RPDs.
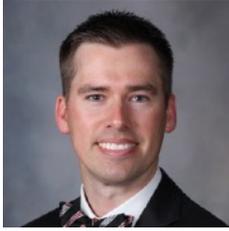
Richard Zavada

Mayo Clinic
Dr. Thomas Salinas,
Director

"Complex Prosthodontic Management of Patient with Pituitary Giantism with Implant Supported Fixed Dental Prosthesis: A Case Presentation"

There are few articles addressing pituitary gigantism and dental rehabilitation in the literature. Full-arch, implant supported prosthetics treatment plans are complex. At the beginning of the full mouth reconstruction for our patient, there were many management concerns and hurdles beyond normal treatment. For pituitary gigantism, it was found that all of the normal challenges to restore form and function are amplified. This case report identifies unique modifications to the treatment series, material decisions, occlusal schemes, and philosophies.