Composite shows significantly higher new bone regeneration

The key to success for dental implants lies in the volume and quality of the bone in the recipient. Because a scarce amount of bone is often a problem, guided bone regeneration is a well-established solution.

A study in the current issue of the Journal of Oral Implantology demonstrates complete bone regeneration of critical-size bone defects using a composite alloplastic graft of beta-tricalcium phosphate (β-TCP) in a calcium sulfate (CS) matrix without a membrane barrier.

Tricalcium phosphate (TCP), which is considered bioactive and biocompatible, is an alloplastic ceramic material that shows promise as a bone graft substitute. TCP cements have a slower resorption rate than bone, however, and are rather dense.

By adding a faster resorbing material, pores may be created, ensuring new bone tissue growing into the defect. CS is a material that can fill that need. When CS is mixed with other bone graft materials, the osteogenesis is accelerated, the study finds. Calcification is increased and the needed quantity of new bone is achieved in a shorter period of time.

In the study, two types of bone substitute were tested. Fortoss®, a porous β-TCP synthetic graft, and Fortiss Vital®, a synthetic composite biomaterial based on a porous β-TCP in a matrix of CS.

Artificial defects were created on each iliac crest in four dogs. The experimental defects were treated in three groups: β-TCP alone (Fortoss Resorb), β-TCP in a CS matrix (Fortoss Vital), and ungrafted to heal spontaneously. After these defects were left to heal for four months, a significant difference was shown between the two β-TCP groups. The study concludes that the “β-TCP/CS combination demonstrated complete regeneration up to the cortex in all 10-mm specimens tested, while β-TCP alone did not succeed in regenerating these large-diameter defects.”


About Journal of Oral Implantology

The Journal of Oral Implantology distinguishes itself as the first and oldest journal in the world devoted exclusively to implant dentistry. The official publication of the American Academy of Implant Dentistry and of the American Academy of Implant Prosthodontics, the journal is dedicated to providing valuable information to general dentists, oral surgeons, prosthodontists, periodontists, scientists, clinicians, laboratory owners and technicians, manufacturers, and educators. Topics include implant basics, prosthetics, pharmaceuticals, and the latest research in implantology, implant surgery, and advanced implant procedures. To learn more about the society, visit www.aaid-joi.org.

(Source: Journal of Oral Implantology)
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New study suggests antioxidants in green tea may help reduce periodontal disease

With origins dating back more than 4,000 years ago, green tea has long been a popular beverage in Asian culture, and is increasingly gaining popularity in the United States. And while ancient Chinese and Japanese medicine believed green tea consumption could cure disease and heal wounds, recent scientific studies are beginning to establish the potential health benefits of drinking green tea, especially in weight loss, heart health and cancer prevention.

A study recently published in the Journal of Periodontology, the official publication of the American Academy of Periodontology (AAP), uncovered yet another benefit of green tea consumption.

Researchers found that routine intake of green tea may also help promote healthy teeth and gums. The study analyzed the periodontal health of 940 men, and found that those who regularly drank green tea had superior periodontal health compared to those who consumed less green tea.

“It has been long speculated that green tea possesses a host of health benefits,” said study author Dr. Yoshihiro Shimazaki of Kyushu University in Fukuoka, Japan. “And since many of us enjoy green tea on a regular basis, my colleagues and I were eager to investigate the impact of green tea consumption on periodontal health, especially considering the escalating emphasis on the connection between periodontal health and overall health.”

Male participants aged 49 through 59 were examined on three indicators of periodontal disease: periodontal pocket depth (PD), clinical attachment loss (CAL) of gum tissue, and bleeding on probing (BOP) of the gum tissue.

Researchers observed that for every one cup of green tea consumed per day, there was a decrease in all three indicators, therefore signifying a lower incidence of periodontal disease in those subjects who regularly drank green tea.

Green tea’s ability to help reduce symptoms of periodontal disease may be due to the presence of the antioxidant catechin.

Previous research has demonstrated antioxidants’ ability to reduce inflammation in the body, and the indicators of periodontal disease measured in this study, PD, CAL and BOP, suggest the existence of an inflammatory response to periodontal bacteria in the mouth.

By interfering with the body’s inflammatory response to periodontal bacteria, green tea may actually help promote periodontal health, and ward off further disease. Periodontal disease is a chronic inflammatory disease that affects the gums and bone supporting the teeth, and has been associated with the progression of other diseases such as cardiovascular disease and diabetes.

“Periodontists believe that maintaining healthy gums is absolutely critical to maintaining a healthy body,” said Dr. David Cochran, DDS, president of the AAP and chairman of the Department of Periodontics at the University of Texas Health Science Center at San Antonio. “That is why it is so important to find simple ways to boost periodontal health, such as regularly drinking green tea.”

something already known to possess certain health-related benefits.”

First interventional CT scanner for dental implants in the U.S.

While 3-D CT scanners are starting to be used for dental implant planning, they are usually only available before the procedure. An innovative surgeon, Dr. Michel Matouk has devised a new protocol to improve precision by obtaining CT scans during surgical procedures, as early as possible.

This allows improved computer-planned and computer-guided implant surgery, therefore providing less invasive and more accurate placement of cosmetic dental implants.

When Peter S. was told his front tooth needed extraction, he hoped he could find a way to get immediate implant replacement under general anesthesia. “When Dr. Matouk discussed the possibility of CT scanning during the procedure to improve precision, I knew this would give the best result,” he said. The scan revealed an adequate bony volume for implant placement at the exact site needed after the extraction, while he was still sedated. The implant was then placed uneventfully.

Matouk, a dental implant and maxillofacial surgeon, has been working on precision surgical navigation for years. His efforts just culminated in the development of computer-aided implantation using intra-operative CT scans. This new technology is currently limited to a few major neurosurgical academic centers and has not been applied to any dental surgery offices in the United States. It provides real-time tracking of surgical results. The technology uses a cone beam CT (CBCT), an alternative to conventional CT, which provides three-dimensional radiographic imaging, on-site, while reducing radiation 90 percent compared to hospital-based computer-assisted tomography (CT).

High-end dental implant centers are starting to offer CBCT to improve planning before the placement of cosmetic implants. However, surgery is a fluid process and sometimes plans have to be modified; at that point, the surgeon is working “blindly.” The final result can then only be evaluated after the case is finished.

One to two millimeters, however, can mean the difference between success and failure in cosmetic dental implant surgery. It is for these complex situations that Matouk, a dually licensed physician and dentist, saw the need for interventional CBCT. He researched the different CBCT systems available and chose the one with the most field of vision and least radiation, and then proceeded to modify it to allow for intra-operative interventional use. As soon as he used it, he realized the new doors that this technology opens. And while surgical procedures have not changed, the accuracy of the final result can be confirmed prior to the end of the case.

(Source: Journal of Oral Implantology)

AD Always in control

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(Source: South Florida Dental Implant & Facial Surgery Center)