Scientists develop smart coating for implants

By Daniel Zimmermann, ITI Group Editor

Osseointegration remains one of the biggest challenges in implant dentistry. Scientists from North Carolina State University are now reporting to have developed a “smart” coating that could help hip, knee and tooth replacements bond more closely with bone and ward off infections. Their research, which received funding by the U.S. government, could open doors to much safer and functional implants in dentistry.

According to the researchers, the new coating is comprised mainly of hydroxyapatite, a naturally occurring mineral also found in dentin and dental enamel. When applied to an implant it creates an amorphous outer layer touching the surrounding bone. This layer will dissolve over time, releasing calcium and phosphate, and encourage bone growth into the coating.

“We call it a smart coating because we can tailor the rate at which the amorphous layer dissolves to match the bone growth rate of each patient,” said Dr. Afsaneh Rabiei, a North Carolina associate professor of mechanical and aerospace engineer-

Immediate single-tooth replacement, provisionalization

By Dr. Graham Magee

With more than 40 years of clinical evidence, titanium endosseous implants have become an acceptable (evidence-based) form of treatment to replace natural teeth and should be considered as an alternative to either a partial denture or bridge.

Immediate implant placement with simultaneous immediate function or immediate loading has been gaining momentum during recent years and can be a very predictable method in providing implant treatment for our patients.

There have been various time-frames used for the definition of immediate implant placement. Hammerle et al. (2004) suggested that immediate implant placement was when an implant was placed following tooth extraction and as part of the same surgical procedure.

In the same paper, the consensus statements say, “implants should not be placed at the time of tooth extraction if the residual tooth morphology precludes attainment of primary stability.”

It also states that, “If buccal plate integrity is lost, implant placement is not recommended at the time of tooth removal. Rather, augmentation therapy is performed.”

The implant is then placed after healing, that being 12 to 16 weeks, or even longer than 16 weeks.

It has also been reported that infection adversely affects immediate implant placement (Rosenquist and Grenthe 1996; Grunder et al. 1999) and is a contraindication for immediate placement of an implant into an extraction socket.