



‘Platform switching preserve crestal bone loss around dental implants’; a factual myth or truth: Answer is not single

Sir,

“Does the use of smaller-diameter abutments (platform switching) compared with matched-diameter implant abutments (platform matching) improve the survival rate and maintain the marginal bone level around implants?” – the absolute answer is still under trial as no long term clinical data available till date in the literature that could authenticate and substantiate it concretely.^[1] A mean marginal bone loss around dental implants of 1.5 to 2 mm in the first year after prosthetic restoration is a well established fact and been shown in a number of studies.^[1-3] To resolve this clinical dilemma, the concept of platform switching evolved. The platform-switched configuration results in a circular horizontal step, which enables a horizontal extension of the biological width. The underlying principle for platform switching is to locate the micro-gap of the implant-abutment interface far away from the vertical bone-to-implant contact area. Concept of platform switching for the optimal maintenance and conservation of peri-implant bone levels has gained popularity amongst commercial implant makers over the last few years. Nevertheless, the assumption that

the inward shifting of the implant-abutment junction may preserve crestal bone was primarily based on unanticipated finding rather than scientific evidence. In this modern era, the concepts to avoid bone remodeling around dental implants have been developed tremendously across the world. In real terms, platform switching is achieved by using prosthetic abutments with smaller diameter width in relation to the implant diameter, which seems to have the utmost potential to minimize the crestal alveolar bone resorption.

So far, the results on platform switching are still controversial, but most clinical studies have reported a positive impact of platform switching on crestal bone stability. The diminution in alveolar bone loss appears to be correlated with the size of the circular step. Lazzara and Porter were among the foremost researchers who actually explored the concept of platform switching and postulated little bone loss around large-diameter implants when connected with standard (smaller) diameter abutments.^[2] Later on Brogгинi and colleagues suggested that the microbiota at the implant-abutment junction might be the cause of early bone loss.^[3] Generally, radiographic marginal bone loss of approximately 1.5 mm occurred during the first year after abutment connection at second-stage implant surgery. To resolve this dilemma, implant manufacturers have started incorporating platform switching into their designs to as to reduce initial bone loss and enhance gingival contours and esthetics.^[4]

An USA-based implant manufacturer in early 90's (Implant Innovations, United States of America) introduced 5 and 6 mm diameter implants with similar diameter abutments. Lazzara and Porter explained the scientific basis of negligible crestal bone loss where the concept of platform switching was employed. They stated that the dissimilarity in the collar diameter truly result in shifting of the implant-abutment junction inward with repositioning of the inflammatory cell infiltrate within a 90° area that was not directly adjacent to the crestal bone.^[2] Gardner stated that even if platform switching can limit osseous and esthetic changes around the implants, this concept needed further long term investigation.^[5] Literature evidenced various mechanisms to unsolved the misty behind the platform switching. They are basically shifting the inflammatory cell infiltrate inward, shifting of the inflammatory cell infiltrate away from the adjacent crestal bone, maintenance of biological width, reduction of potential influence of micro-gap on the crestal bone and decreased stress levels in the peri-implant bone. Canullo *et al.*, evaluated the soft- and hard-tissue response to immediately placed implants by placing implants of 6 mm diameter immediately into the fresh extraction sockets followed by positioning of 4 mm diameter abutment.^[6] In 3 months post operative phase, they showed bone resorption of 0.78 ± 0.36 mm by radiographic method. In spite of recession, there was a mean gain in the buccal margin of 0.2 mm and a mean gain in papilla height of 0.25 mm. Apart

from the above benefits, clinicians may encounter some techno-biological difficulties and complications in cases treated with platform switching phenomenon like; if normal size abutments are to be used, larger size implants need to be placed which is not possible every time (especially if bone width is less) and may compromise the emergence profile, especially in anterior cases.^[7,8] Consequently, it is now clear that it is the bone loss, and not implant survival, which is affected by platform switching procedures. Furthermore, platform switching provides the clinician with additional surgical and prosthetic treatment options for use with wide-diameter implants.

Prince Kumar

Department of Prosthodontics, Shree Bankey Bihari Dental College and Research Centre, Ghaziabad, Uttar Pradesh, India

Address for correspondence:

Dr. Prince Kumar,

Department of Prosthodontics, Shree Bankey Bihari Dental College and Research Centre, Masuri,

Ghaziabad - 201 302, Uttar Pradesh, India.

E-mail: drprincegupta20032007@gmail.com

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