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Dr Rolf Vollmer

Team-work in the dental office

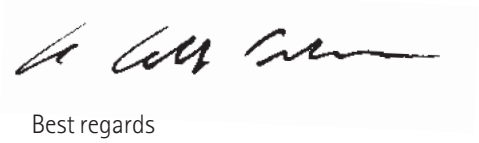
_Team-work, team player, team spirit—these terms indicate crucial social skills in almost every sphere of life. We can only succeed if we work as part of a team. In dentistry, as in many other fields, regardless of skill and the protocols in place for many treatment situations, circumstances arise for which guidelines are lacking. Challenges like this can result in stress, anger and helplessness among the dental team.[1]

One way of determining the optimum response to such situations in dentistry is to consider what others are doing to overcome these problems. We could consider an example from a non-medical area: the aviation industry. Sometimes flight crews, who are expected to operate as a team, do not co-operate as well as they should and miscommunication can then arise.[1] In order to address this, crew resource management training for flight crews was developed all around the world. Crew resource management is concerned with interpersonal skills, including behaviour training and conflict resolution.[1] It considers how we cope with everyday and unusual situations as a team, and the requirements of being a good team member.[1]

Feeling motivated and cheerful places the crew in a better position for dealing with conflict resolution and situations for which there is no checklist or protocol.[1] Achieving the professional and relaxed atmosphere necessary for teamwork in such situations is the pilot's responsibility.[1] In order to do so, he or she should be able to make the rest of the crew feel valued and, therefore, good manners and courtesy are important.[1] Furthermore, according to Lufthansa pilot Rolf Stünkel and aviation journalist and pilot Jürgen Schelling, a good pilot requires discipline, curiosity and a sense of humour.[1] Discipline is needed to make reliable decisions in a fast-changing high-tech environment, and curiosity about one's colleagues and new procedures helps to facilitate the work process, as does a sense of humour, they state in their article.[1]

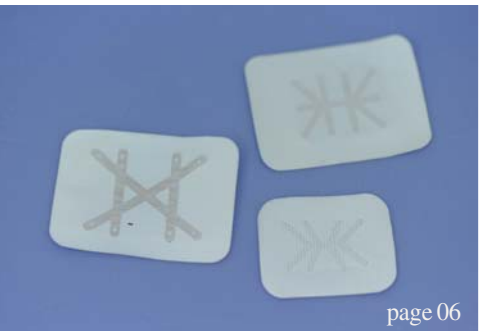
Crew resource management was developed for the aviation industry but it has wide application. Try applying it in your daily practice. Just replace the word "pilot" with "dentist" or "implantologist" and "crew" with "dental team".

I hope you will enjoy our magazine and our annual meeting in Düsseldorf!



Best regards
Dr Rolf Vollmer

[1] *Stünkel, Rolf & Schelling, Jürgen, "Team spirit in the cockpit", thinkx, 1 (Spring 2014), 16–22. <http://www.seminarselect.de/fileadmin/downloads/Thinkx_Magazin.pdf> accessed 21 July 2014.*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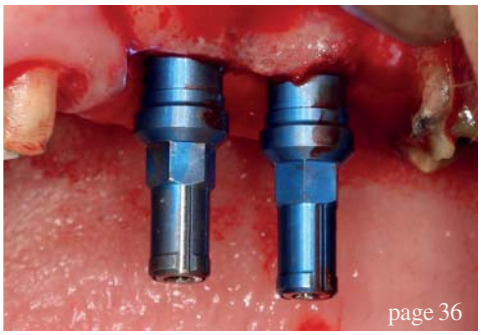
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20 years of membrane-protected bone regeneration

A report

Authors_Jiaoshou (Prof.) Dr Frank Liebaug & Dr Ning Wu, Germany

_Dental implantology has developed to a reliable and successful clinical routine procedure for all those cases where an adequate bone material is available. But this precondition is not always met. Nevertheless, today also patients with a bone situation which is not optimal for implant insertion do wish an improvement of function and aesthetics—they actually consider this to be granted.

_Introduction

The use of barrier membranes for the regeneration of bone defects has changed dental implantology in the course of the last 20 years a lot. The principle titled as "membrane-protected bone regeneration" was first described by Hurley et al. in 1959. Already in the 1960s, a research group around Bassett and Boyne tested and described micro porous cellulose acetate laboratory filters (Millipore) for the treatment of cortical defects on long bones and the osseous reconstruction of the jaw. The basic idea of the authors was to use filter material for the isolation of bone defects against the cells of the adjacent, fibrous soft tissue and to create an appropriate milieu for osteogenesis. However, these pioneering studies did not immediately lead to a broad clinical application of barrier membranes on patients. Actually, the clinical possibilities of the membrane technology were not recognised until the early 1980s where the research group around Karring and Nyman systematically investigated the use of barrier membranes in different experimental and clinical studies on parodontal regeneration.

Already at the end of my studies about stomatology, especially the possibilities for periodontal regen-

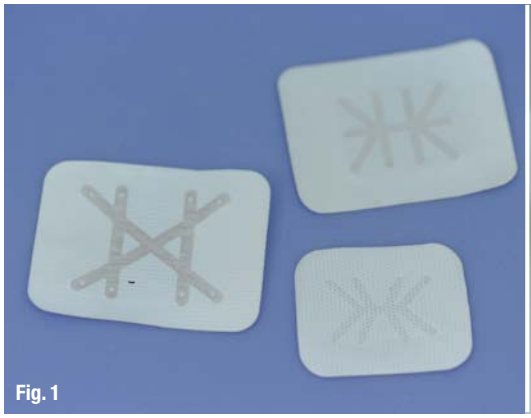
Fig. 1

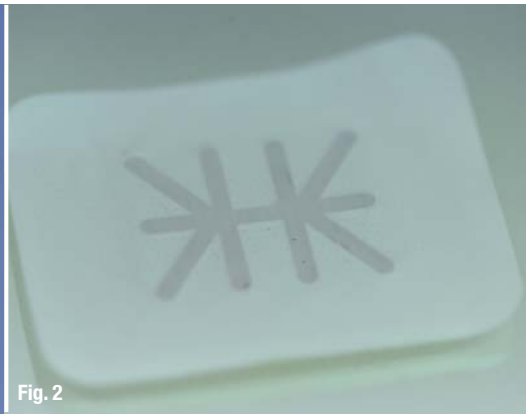
Fig. 2

Fig. 1_Example for different non-resorbable, titanium-mesh-reinforced ePTFE membranes, which are available in different forms and sizes depending on the manufacturer.
Fig. 2_Close up clearly shows the titanium-mesh reinforcement in the non-resorbable membrane material.

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Membrane types	Amount of patients questioned	First surgery	Second surgery for membrane removal	Overall assessment three month after membrane augmentation
Non-resorbable, titanium-mesh-reinforced ePTFE membrane	32	7	5	7
Resorbable ePTFE membrane	52	8	0	8
Collagen membrane	196	9	0	10

Tab. 1_Subjective patient satisfaction during and after augmentative procedures in our practice from 1994 to 1999, five years, total number of cases *n* = 280, average satisfaction based on a subjective satisfaction scale 0 = very unsatisfied … 10 = very satisfied.

eration were of great interest to me. At this time, great hopes were placed on the so-called GTR (Guided Tissue Regeneration) technique for treating extensive periodontal bone defects. A few years later, the membrane technique was tested as part of experimental studies on bone regeneration for larger alveolar ridge defects. Based on the studies' promising findings, the clinical use of membranes on implant patients started in the late 1980s (Nyman et al. 1990).

Despite this, it was not before the beginning of the 1990s until the discussion of this application found its way to congresses. From this time, works by Wachtel and Bernimoulin are to be named (Wachtel 1990, Wachtel and Bernimoulin 1991). In 1994, I purchased the first book dealing with this issue by Buser, Dahlin and Schenk for my private, scientific library. Under the title "Guided Bone Regeneration in Implant Industry", the authors published after five years of intensive experimental and clinical preparation the first English-speaking issue of this book in 1994, which could rouse a large interest for this topic on my side as well as among implantological experts. Since then, the GBR technique has constantly developed.

Always about to find better and for the patient more gentle treatment methods, in the last 20 years I applied different membrane types in the clinical daily routine (Tab. 3), compared their suitability and application parameters and based on the outcomes, discarded or kept them (Tab. 2). Thereby, an important criterion for the selection of the operation method and the used type of membrane was also the patient's subjective feeling (Tab. 1).

_Aims of membrane application

- Undisturbed regeneration of bone through a barrier function against the adjacent soft tissue.
- Avoidance of graft resorption particularly in autologous bone transplants.
- Protection against loss or dislocation of bone or bone graft substitute particles.
- Protection of the regenerate in case of wound dehiscence.

Depending on the used membrane type, the desired bone regeneration is given the required time and rest in a defined area. Especially the reservation of space volume defined by a surgeon can be perfectly ensured by the use of titanium-reinforced membranes (Figs. 1 & 2). Before the insertion into the operation area, these membranes can be tailored and also bended, as shown in Fig. 3 only exemplarily.

From 1994 to 1996, I thus used non-resorbable, titanium-mesh-reinforced membranes from the company W. L. Gore and Associates, Inc. USA, at first. Although, I as an operator was very satisfied with the clinical outcomes of the bone regeneration in

Tab. 2_Assessment of the handling for the operator and subjective evaluation of the plastic coverage and healing process, total amount of cases *n* = 280.

Membrane type	First surgery		Second surgery		Wound dehiscence	
	simple	difficult	simple	difficult	after 8 days	after 30 days
Non-resorbable, titanium-mesh-reinforced ePTFE membrane	6,25 % (2)	93,8 % (30)	28,2 % (9)	71,9 % (23)	9,4 % (3)	21,9 % (7)
Resorbable ePTFE membrane	11,5 % (6)	88,5 % (46)	0	0	3,8 % (2)	11,5 % (6)
Collagen membrane	59,5 % (117)	40,5 % (79)	0	0	1,5 % (3)	5,1 % (10)

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