



Beginnings

To the residents I have trained in the specialty of prosthodontics—

As I ride along on my very small perch on the world, I can view the universe as an awesome expanse, but filled with a sparkling brightness from its stars. These stars twinkle, they are brilliant, and they illuminate the sky so that one gets a tingling sense of spirit and hope and happiness when looking at it. I feel the same way when I see the stars of the training programs I have been involved with over the past 20 years. I receive the same feelings of spirit, hope, and happiness when I see their accomplishments, their activities in practice, and their involvements in the specialty of prosthodontics. My hopes have been fulfilled well beyond expectation, and your special contributions continue to be reward enough for a small involvement with you.

As individuals, you are remarkable. As a group, you are unique. And because I am one who has been associated with each of you, I have decided to form you as a group and name you "ProsStars." Now—why is this being done?

Keeping you as a group—

An easy answer. In retirement, I have some time I want to put to constructive use. My reading, research, information collected over the years, insights, and philosophies could be useful—much more than if they lie in the drawer, file cabinet, or computer—and, they might even be interesting! My present and future activity allows me time to gather new information. I can think of nothing better than to share and maintain contact with you as a group on a planned, periodic (two to four times a year), and somewhat formal basis [1, 2].

Footnotes:

1. For your information, in future letters I will describe the demographics of the addressees. It will be interesting for each of you to see how others are involved in the specialty, where they have migrated, and what are some of the distinctly different accomplishments of each. Your communications back to me will be useful in this regard. Please understand that in discussing the group, you will never be named or identified.
2. The scope of future letters will be broad. I want to include scientific information, historical items, lists and names, references which have been studied and those recommended to be studied, ethical issues for interest, health recommendations, announcements of events which might be of interest, and recommendations for ways we can network for improvement of the group as a whole. The vehicle will be "newsletter-like." It will be named "ProsStars." There is no subscription or subscription fee.



Naming you ProsStars—

Again, an easy answer. You are the Stars of prosthodontics. You are contributing in many ways—in teaching, research, organizational involvements, and private practice. But it's the quality of your involvement that shines. You are brilliant, illuminating, and you provide a beacon for others to follow and emulate. Some more recently trained still have a rung or two to climb on the ladder of achievement (such as challenging the Board), but your potential is there and we should all recognize that you have it, you are using it, and most probably you will succeed to the degree that others in the group already have.

The Literature and Implant Dentistry—

The lecture circuit and the literature continues to pour forth information concerning implants. As A. Norman Cranin noted in an editorial in the *Journal of Oral Implantology*, "the joys of practice are enhanced by being able to talk about it." And "the sense of accomplishment is augmented by being able to describe it." And lastly, "the pleasures of healing are enabled by teaching others how to heal." This is what should happen in a profession, but with the avoidance of a "repetition of material by a small elite core of clinicians" as he further stated.

In order to keep up, one has to spend a considerable time in the literature. We are fortunate to have good literature and research. The journals are (all library available):

- The Journal of Oral Implantology
- The Journal of Prosthetic Dentistry
- Implant Dentistry
- International Journal of Oral and Maxillofacial Implants
- The International Journal of Prosthodontics
- Journal of Prosthodontics

In these journals and in this literature we have to be especially aware that we want to see "evidence-based dentistry," basic science and therapy "outcome studies," and medically-effective research and "meta-analyses." Dr. George Zarb and his McMaster University prosthodontic educator's group have challenged us to fall within these paradigms (see editorials in several journals, e.g., *The International Journal of Prosthodontics*, Vol. 7, No. 5, 1994, Page 400, Editorial by Dr. George A. Zarb). In the future we will want to see more and more literature based on such scientific commitments.



There is very little in the literature concerning the occlusion in implant supported prostheses. Here are some leads with references, should you want to pursue them:

1. Fixed Implant Rehabilitation for the Edentulous Maxilla, International Journal of Oral and Maxillofacial Implants 6:329, 1991.

Thomas Taylor states that the occlusion is more important [in ISP] than in conventional restorations.

2. Theoretical Assessment of Cross Sections for Cantilevered Implant Supported Prostheses looks at occlusal forces on metal, fatigue, and does X-sectional analyses
J. Prosthodont 3: 1: 23, 1994.
3. Cantilever and Implant Biomechanics: A Review of the Literature Part I
J. Prosthodont. 3: 1: 41, 1994.

A good overview of the literature regarding occlusal forces with Implant Supported Prostheses (ISP).

4. Biomechanical Concerns with Fixed Partial Dentures Involving Implants
Implant Dentistry 2:221–242, 1994.
 - Points out that natural teeth displace 100 μm and implants 50 μm .
 - Occlusal loads are controlled by proper design, alloy type, and span limitation.
 - Off-axis loading of more than 25 μm severely compromises supporting bone.
 - Use an “offset” pattern in posterior implants location rather than a straight line-single axis.
 - Mandibular flexing and torsion under functional loading from cuspid to the molar shows up to 420 μm movement at 16 Ncm force. This flexing can cause up to 0.62 mm of narrowing in the occlusal pattern.
5. Periotest to Monitor Osseointegration and to Check the Occlusion in Oral Implantology,
J. Oral Implantol. XIX No.1:23, 1993. Describes a device developed at the University of Tübingen that deflects teeth and/or implants with a definite force.

Remember the “mobilitymeter” used by T. O’Leary and Muhelmann?



6. Force Transfer in Implant Dentistry: Basic Concepts and Principles, *J. Oral Implantol.* XVIII, No.4:264, 1992. Cited by Craig (1980) who reported biting forces in adults with several teeth ranged from 200 to 2440 Ncm. The article also stated that occlusal forces can in the molar region exceed four times the magnitude of the forces in the incisor region.

Dr. Donald Kitzis (NYU faculty) is the expert—Mention this article over to him.

7. Stress Distribution Around Dental Implants: Influence of Superstructure Length of Implants and Height of Mandible, *J. Prosthet. Dent.* 67: 1: 95, 1992.

Cites one important requirement in the occlusion—the possibility of an extreme amount of stress existing when the superstructure is not uniformly loaded. The authors found that with a vertical force of 100 Ncm the length of the implant had little influence on the amount of stress in vertical loading.

8. Influence of Occlusion on Posterior Cantilevers, *J. Prosthet. Dent.* 67: 5: 645, 1992.

States that in an “ideal occlusion” the occlusal forces decreased considerably along the cantilever sections in the distal direction (measured with transducers). Also, two unit cantilevers do not necessarily constitute a threat to the prosthesis—providing that great attention is paid to the occlusal design.

We might ask “what occlusal design?” or “what is the ideal occlusal pattern in the ISP?”

I would be very interested in responses from you from which we could build a consensus of opinion for occlusal requirements in implant supported prostheses.

Management Prescriptions—

In dentistry, one way or the other we play on “teams.” The management experts define three team types. In recognizing and understanding the three, we should be able to become better coaches or better players, depending on the circumstance.

The first type of team is the baseball team. Here, the players play on the team; they do not play as a team. They have fixed positions they never leave. The players usually respond individually. On this team you do your job, but you do not do the other player’s job. Even when at bat, you are alone.



The second type of team is the football team (or the symphony orchestra). The players do have fixed positions, but they initiate action and/or respond in unison, as a group. Each player still has an individualized job, but they act (perform) with the group.

The third type of team is the tennis doubles team. Here, the players have a primary rather than a fixed position. They are supposed to cover their teammate; play the same as their teammate at some times and not at other times; think and pace the same as the teammate; and above all, quickly adjust to the strengths and weaknesses of the team according to the demands of the game.

Considering the type of team, how do we in dentistry think about, training, working, and coaching our groups? (1) In the baseball scenario, each member can be evaluated separately, can be given clear separate goals, and can easily be held accountable; each can be trained separately to the limit of their talents; and each position can be staffed with a "star." It works best when everyone has played the game many times and understands a prescribed sequence of actions in response to similar precedents. It is inflexible (and it also becomes boring). (2) In the football team or symphony orchestra, each member does not do the job in his/her own way—there is no such permissiveness. The word of the coach or conductor is law. The players get their orders, rewards, appraisals, and promotions from the coach. There may be an occasional solo, but usually the players subordinate themselves to the team. (3) In the tennis doubles team there must be a clear goal with much flexibility in actions by the members. They must be trained together and work together—and finally, function together. Only the team "performs"—the members "contribute."

Considering the team concepts, the coach should recognize what kind of a team he/she needs and wants. Once formed, according to the parameters of each team type outlined above, the coach cannot mix players, try a gradual change from one team type to the other, or ask one type of team to occasionally play as another type of team. Doing so will only result in frustration and altered performance.

Are these concepts applicable to dentistry? In every way. The team is a tool for use in our performing setting (office, hospital, school). Teamwork is a fact—it is not "good" or "bad"—it is a tool, the use of which cannot be avoided. Therefore, choose it, use it, and don't abuse it. [Ideas adapted from Peter Drucker, Claremont Graduate School, Claremont, CA.]

I have really enjoyed working on this first issue of ProsStars. I hope it will prove useful to you. Please send me your address corrections—I don't want my postage money to be wasted!

Until next time—

Sincerely, Noel Wilkie