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EDITOR'S CORNER

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## Lessons Learned

There has been a flurry of interest among management analysts in a training method of the U.S. Army. For a long time, the Army has used field maneuvers to practice tactics and battlefield procedures. In fact, in the Louisiana maneuvers prior to World War II, the cream—Eisenhower and Patton—rose to the top. The difference today is in the way the maneuver techniques are tried and evaluated. It is a system of bloodless but earnest battles, post-battle reviews, and lessons learned. It might seem obvious that armies can learn from experience, but too often in the history of war, armies have paid in blood for lessons they could have gained from bloodless maneuvers.

A Harvard School of Business study has concluded that the Army, in identifying and correcting errors before they reach the actual battlefield, has developed a system that could be used to advantage in corporate America. Furthermore—and this should catch the attention of orthodontists—the study's authors believe that "the process may apply best to companies that conduct repeatable but slightly differing activities". An orthodontic practice is such a company.

Orthodontists are currently faced with a situation much like that of the Army. Especially after Desert Storm, the U.S. Army was acknowledged to be the best in the world. The challenge was: How do you improve on the best? The answer is pretty simple. The best in the world is not the best it can be. It's just better than anything else—even if it is better than anything else has ever been.

Orthodontists have contributed so much to the lives and fortunes of their patients by creating excellent occlusions and beautiful smiles, they may be to an extent justified in saying, "What more do you want?" I think deep down, all orthodontists want their work to last. They want, as patients want, stability of the treatment result. That is the next challenge, the next hill to be climbed.

Why is it, after thousands of well-trained orthodontists have treated millions of malocclusions, that we are



still asking ourselves the same questions? We still read articles and attend lectures devoted to discussions of early vs. late treatment, extraction vs. nonextraction, expansion vs. nonexpansion, orthopedic vs. orthodontic, growth effects vs. treatment effects, and stability vs. instability.

One important reason for this state of affairs undoubtedly lies in the disconnection between our understanding of the mechanics of orthodontic treatment and the biology of the complex systems we treat. The crux may be the question of stability. Considering that a significant percentage of orthodontic patients still suffer adverse changes following the conclusion of treatment and retention, we need more of a lessons-learned approach than has been applied in the past. It is too easy to accept new or recurrent crowding of treated cases as "normal" because it happens to people who have not been treated. With a lessons-learned philosophy, we might start out by saying: "The same forces that are disrupting an untreated occlusion may be at work on the treated occlusion. Let's take a look at that."

Until now, orthodontics has been chiefly concerned with straightening crooked teeth, albeit with increasingly sophisticated appliances. We have done this by simplifying our diagnoses, standardizing treatment procedures, and proclaiming ourselves satisfied with the results. We have let Angle's Class I, II, and III stand for all the malocclusions in the world as if there were no gradations in between; we have espoused step-by-step mechanics to arrive at acceptable occlusions most of the time; and we have not given enough time and attention to studying the results and deriving lessons learned.

The error that the Army finally identified in its teaching and learning methods was that it kept repeating the same things—including mistakes, some of them major. The Army now uses computer technology to conduct experiments, make

observations, study the data systematically, and derive lessons learned. Orthodontists could take the same approach to simulating various treatment approaches and their results.

This is not to be confused with outcomes research, which tries to standardize what works best. If individualization is the future of orthodontic diagnosis and treatment, standardization is at the opposite end of the spectrum. Standardizing outcomes aims at achieving the same or similar results with the least input of time, money, and personnel. There may be some merit to finding out in some organized way what works and what doesn't, but this is not always possible. Outcomes research is based on what we think works now; it is a refinement of present doctrine. To answer the still-unanswered questions in orthodontics calls for a departure from present thinking.

In this 30th Anniversary Issue of JCO, we have a thorough analysis by Dr. Bjorn Zachrisson of what we think we know now about stability and relapse, along with two articles that may start the journey toward improved understanding and production of stable results. There is a great deal of promise in the approach of Dr. Jan De Baets, with his recognition of the limitations of adherence to the Angle classification and his quest for stability. Then Dr. Thomas Creekmore suggests that we turn our thinking upside down and relate our treatment to the stable position of the upper incisor, rather than basing treatment on the position of the lower incisor.

In the history of science, real progress has often been made by innovators who are willing to say: "Let's assume that what we have believed up to now is incorrect and start all over from ground zero." If such concepts help our understanding of and achievement of stability in orthodontic treatment results, we will be making a giant step into the 21st century.

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