Chapter 4

T-Scan 8 Recording
Dynamics, System Features,
and Clinician User Skills

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ABSTRACT

The newly designed T-Scan 8 Computerized Occlusal Analysis system represents the state-of-the-art in
occlusal diagnosis. The reliability of the system’s high definition recording sensors, the many occlusal
analysis timing and force software features, and the modern-day computer hardware electronics that
record occlusal function in 0.003 second real-time increments affords a clinician unparalleled occlusal
contact timing and force information with which to predictably diagnose and treat many occlusal
abnormalities. T-Scan 8 represents the culmination of 30 years of T-Scan technology innovation and
development with revised desktop graphics and less toolbar buttons for simpler graphical display de-
signed to shorten the T-Scan learning curve. The chapter also discusses five useful diagnostic occlusal
recordings employed when treating commonly observed occlusal problems. Lastly, the chapter outlines
the three Learning Levels of T-Scan mastery that must be accomplished for a clinician to become an
effective and competent T-Scan user.

INTRODUCTION

Present day computerized occlusal analysis rep-
resents the State of the Art in occlusal diagnosis.
T-Scan 8 (Tekscan, Inc., S. Boston, MA, USA)
represents the culmination of thirty years of T-Scan
technology innovation into the science of Dental
Occlusion. T-Scan 8 has revised desktop graphics
for simpler display, with less toolbar buttons and
icons to minimize clinician complexity, which
had made previous T-Scan versions somewhat
difficult to readily learn and effectively implement
clinically. The combination of the reliability of the
High Definition (HD) T-Scan recording sensors,
the occlusal timing and relative force analysis software features, and the modern-day computer hardware electronics, affords the clinician unparalleled occlusal force and timing information, with which to diagnose and treat a wide range of commonly observed occlusal problems. The T-Scan technology’s studied abilities to measure time durations (Kerstein & Wright 1991; Hirano, Okuma, & Hayakawa, 2002), illustrate ordered tooth contact time-sequences (Kerstein, Chapman, & Klein, 1997; Koos, Holler, Schille, & Godt, 2012), reproduce relative occlusal force (Kerstein, Lowe, Harty, & Radke, 2006; Koos, Godt, Schille, & Göz, 2010), and locate excessively forceful occlusal contacts (Maness, 1988; Maness, 1991), is a vastly superior diagnostic method compared to the commonly utilized, non-digital occlusal indicators which dentists routinely employ to determine occlusal contact force levels (articulating paper markings, wax imprints, silicone imprints, and articulated stone dental casts (Kerstein, 2010). None of these dental materials have demonstrated any scientifically proven capability to record tooth contact time-sequences, or describe relative differences in contact occlusal force levels. Moreover, all of these non-digital occlusal indicators require the clinician to “Subjectively Interpret” their meaning and their supposed occlusal function representations (Kerstein & Radke, 2013).

T-Scan 8 has a definitively simpler user presentation, designed to shorten the learning curve for the clinician while standardizing the display and eliminating any significant clinician preferential software set up options present in prior T-Scan versions. Desktop changes from T-Scan 7 include an enlarged Force vs. Time graph for easier visualization of all the color-coded force and timing lines, and a rotating 3-Dimensional ForceView window that improves the visualization of the moving individual force columns observed during movie playback. The rotating 3-D ForceView allows the clinician to orient the window in any view that during playback, best eliminates the overlap of the rising and falling force columns (Figure 1).

Figure 1. The T-Scan 8 desktop with a rotating 3-dimensional ForceView window, and an enlarged force vs. time graph