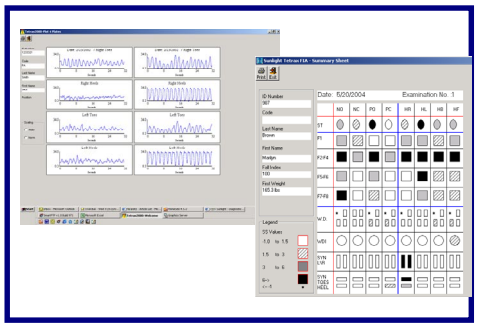
TETRAX



What is Posturography?

Postural Control

With the aging of the population in developed countries and the recognition of the danger of falling and other problems stemming from lack of stability, the testing of balance, or postural control, has become an important issue.

Balance and equilibrium constitute a complex reflexive response initiated by three primary sensory systems (vestibular, visual, and somatosensation) and coordinated by the central nervous system. Objective measures of vestibulo-ocular and ocular motor function alone permit us to examine only a portion of the mechanism used for the maintenance of posture and both static (standing) and dynamic (walking) balance. In addition, those tests do not always identify the effect of specific problems on a patient's sense of equilibrium.

The results of a test that would evaluate balance or postural control can help the physician decide if the patient needs physical therapy to improve balance, supports or walking aids, or other intervention to improve his balance.

Testing Postural Control

Simple behavioral tests used to test postural control include the classical Romberg Test, which entails asking the patient to stand with eyes closed, feet parallel, arms outstretched for 20 – 30 seconds, or the Mann Test (which entails asking the patient to stand with feet in staggered position, one behind the other), or other similar tests. Mechanical balance boards may also be used.

More recently, a new diagnostic technique, computerized posturography, has been developed. Computerized posturography assesses balance functions more exactly, objectively, and efficiently than simple behavioral tests. This technique is based on the use of a metallic platform equipped with pressure transducers (strain gages or piezo crystals) which transform the fluctuations of the vertical forces produced by the sway of the erect human body standing upon them into wave signals, elaborated and interpreted by a computer program.

Today, a number of posturographic devices are available on the market. The core principle of all these systems is the measurement of postural sway, as reflected by the displacement patterns of the center of pressure, sensed by the pressure transducers of the platform. These displacement patterns can be graphically visualized in the form of waves, or transformed into computerized scores. By letting the patient assume various positions, (eyes open, eyes closed, etc.) or by inducing postural stress by pulling, pushing or tilting the platform, the individual reactions of the patient to such manipulations can be assessed, providing additional information about the patient's balance problem.

Testing Postural Control with Tetrax

Tetrax considers the simple measurement of postural sway as insufficient and postulates that human balance is maintained by a complex synergetic and concerted coordination between the heel and toe movements of both feet. The Tetrax hardware and software is specifically designed to measure and evaluate the fluctuations in force exerted on the four platforms and the interaction between the results on each platform.

With the additional parameters measured by Tetrax that are not available with any other posturographic device, Tetrax provides invaluable information for the physician which serves as a basis evaluating balance problems and their source.