

The Insight Millennium Second Generation Subluxation Station

Dr. Dunn uses a wide variety of techniques to assess the status of your health. Her screening will involve assessment to evaluate your posture, nervous system and joint function. others on spinal palpation and range of motion exams, Dr. Pamela Dunn uses a computerized As part of your exam she will be using the Insight Millenium which is a computerized exam developed by Chiropractic Alliance (CLA). The Insight Millenium examination is comprised of three test parts, each aimed at a different dysfunction of the misaligned spine: the thermal scan, the surface electromyography (SEMG) scan, and the range of motion test.

The Thermal Scan

To administer the first test, the thermal scan, an instrument equipped with infrared scanners is rolled up the spine. The infrared scanners measure the temperature on each side of the spine, and the computer records this information. Because normal body temperature is 98.6°, the computer monitors any variance from this norm, and also variance between the two sides of the spine at the same level. The temperature of the skin is controlled by tiny blood vessels near the surface. When functioning properly, these blood vessels will dialate and constrict in order to maintain a constant body temperature. When there are subluxations, however, these blood vessels are deprived of proper nervous system communication, and imbalances in skin temperature can be recorded. Since blood vessels, together with organs and glands, are controlled by the autonomic nervous system, their balance of function gives us a window into the effects subluxations may be having on the rest of this portion of the nervous system.

Once the test is completed, the computer generates a bar graph superimposed over an image of the human back and spine, as shown in Figure 2.1. Ideally, the graph would have no bars, or only white ones, indicating good balance in skin temperature, and thus, good autonomic nervous function. Areas of imbalance are indicated by colored bars extending out from the spinal level of the imbalance. Green bars signify mild, blue moderate, and red severe imbalance. These catagories are assigned based on the number of standard deviations away from normal a reading is with green equalling 1 SD, blue 2 SD's, and red 3 or more SD's away from normal.

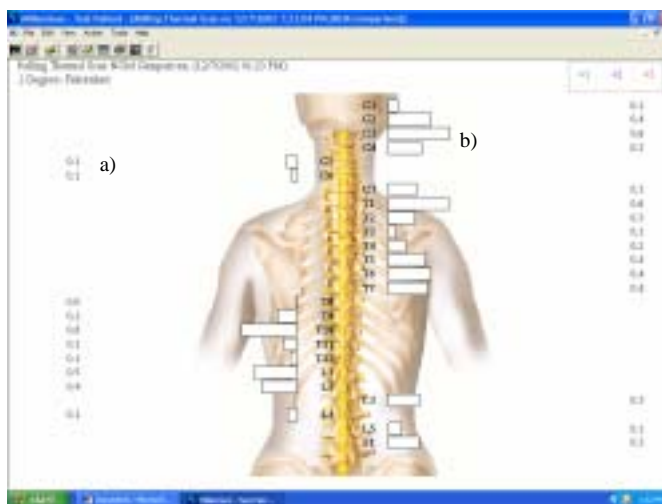


Figure 2.1 The Thermal Scan graphic displays (a) the measure of degrees of difference in temperature at each spinal level and (b) color coded bars to demonstrate to severity of the variance.

The SEMG Scan

In addition to autonomic nerves, the spinal column also contains motor nerves. Motor nerves are responsible to convey messages from the brain to the muscles to generate voluntary movements. When the spine is subluxated it impinges on the ability of these nerves to communicate properly with the muscles. This results in abnormal levels of electrical activity in

the muscle tissues, causing muscles to become stronger or weaker, tighter or fatigued. The SEMG reads the amount of current in the paraspinal muscles through small, surface electrodes. The examiner simply places the electrodes on either side of the spine at each spinal level to detect both the strength of the underlying muscles, and the relative balance between the left and right sides. The computer displays the results of the scan on the Static EMG Scan Graphic (Figure 2.2) with areas of imbalance indicated by color-coded bars. As in the thermal scan, green signifies mild, blue moderate, and red severe abnormal function based on the number of S.D's from normal. Additionally, the EMG graphic signifies areas of muscle weakness with yellow bars. The computer also displays an image of the normal SEMG pattern which resembles a bell-shaped curve (Figure 2.3). Where the pattern of a patient's SEMG results deviate from this normal bell pattern and the normally white bars are colored, subluxations are likely present.



Figure 2.2 A static EMG graphic displaying areas of higher than normal muscle tension in coded for severity by color



Figure 2.3 A normal static EMG graphic displaying the characteristic bell-shaped pattern

The SEMG Scan also produces a graphic that estimates the areas and severities of asymmetry of the spine based on the results from the static SEMG graphic (Figure 2.4). This graphic best demonstrates the literal tug-of-war that occurs when motorneuron function is imbalanced. When subluxations of the spine impair central nervous system (CNS) communication to paraspinal muscles, imbalance in muscle tension occurs. This is a self-perpetuating cycle, however, as imbalance in muscle tension can actually produce *more* subluxations by pulling on the vertebrae unevenly. The asymmetry graphic can essentially be used to predict future subluxations if current spinal misalignments are not addressed.



Figure 2.4 The asymmetry graphic displays the percentage of asymmetry produced by the tug-of-war of imbalanced paraspinal muscles

Range of Motion Inclinometry

Range of motion (ROM) tells a chiropractor a lot about the condition of the spine. Children and people with healthy bodies generally do much better on flexibility tests such as ROM. With injury, disease and the natural aging process a person's ROM typically decreases, indicating degeneration that many times results in subluxations of the spine. Though chiropractors and medical doctors have administered range of motion tests for decades, Insight Millennium technology has standardized these tests with the creation of the inclinometer (Figure 2.5). This instrument was inspired by, and operates much like, a carpenter's level. When placed in position on the patient's body, the inclinometer knows where it is in space, and with the click of a button, the computer records that position. When the patient moves as directed, the inclinometer records the new point in space, calculating the difference as the total distance moved. The examiner conducts an entire ROM exam, recording the results with the inclinometer. The computer then generates a table which names each motion tested, the patient's scores and their respective norms and a calculated percentage of impairment, if any, for each movement. All three tests, the Thermal Scan, SEMG, and the ROM are conducted every twelve visits, allowing the patient and practitioner to set goals and objectively track progress.

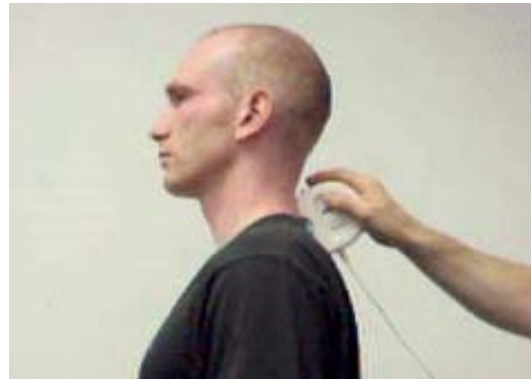


Figure 2.5 The patient's range of motion is measured with the Inclinometer.

Region	Test Type	Test Name	Actual ROM	Norms	Impairment
Cervical	Flexion-Extension	Flexion	54	58	0
		Extension	61	68	0
	Lateral Flexion	Left	24	45	21 (46.6%)
		Right	10	45	25 (55.6%)
	Rotation	Left	96	98	0
		Right	81	88	0
Thoracic	Kyphosis	Flexion	28	58	22 (48.0%)
	Rotation	Left	2	38	36 (99.3%)
		Right	28	38	2 (5.6%)
Lumbar	Flexion-Extension	Flexion	62	68	0
		Extension	26	25	0
	Lateral Flexion	Left	35	25	0
		Right	31	25	0

Figure 2.6 The Range of Motion Table calculates percent impairment for each of the patient's movements against the American Medical Association's established normal values