Dynamic Chiropractic

CHIROPRACTIC TECHNIQUES

The Art of the Chiropractic Adjustment: Part VI

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The aim of this series is to define certain general principles that underlie almost all chiropractic adjustive technics. Parts I and II reviewed depth of drive, the articular snap, segmental distraction, timing the advantages of placing the patient's spine in an oval posture, correct table height, and patient positioning objectives. Part III summarized the factor of time in the clinical approach and its underlying biomechanical principles of tissue viscoelasticity, fatigue, creep, and relaxation. Parts IV and V reviewed the need to visualize the loading effects on articular cartilage, joint lubrication, action of the intra-articular synovial tabs, the articular planes to deliver a corrective thrust most effectively. The fundamental types of contact, contact points and their options, securing the contact hand, and direction of drive were described. This column summarizes the rationale of adjustive velocity.

Background

One's preference in technic can be clinically justified as long as biophysical and physiologic principles are followed. In health care, however, we are not dealing with purely mechanical principles. We are dealing with patients, sensitive human beings, who are often already in pain, and we should not wish to induce any more discomfort during a correction than is necessary.

Thrust technics applied to an articulation can be divided into two categories: low-velocity technics (LVTs) and high-velocity technics (HVTs), and each has various subdivisions depending on the joint being treated, its structural-functional state, and the primary and secondary objectives to be obtained. The term adjustment velocity refers to the speed at which the adjustive force is delivered. In either low-velocity or high-velocity technics:

The force applied may be low, medium, or high.

The duration of the force may be brisk or sustained.

The amplitude (distance of articular motion) may be short, medium, or long.

The direction of the force may be straight or curving and/or perpendicular, parallel, or oblique to the articular plane.

Overlying soft-tissue tension may be mild, medium, or strong.

Primary or secondary leverage may be applied early, synchronized, or late.

Contralateral stabilization may or may not be necessary.

Thrust onset may be slow, medium, or abrupt.

Articular fixations may be produced by such restricting factors as perivertebral fascial adhesions, ligamentous contractures, IVD dehydration, fibrosed muscle tissue, spondylosis, or meningeal sclerosis and adhesions. An excessively forceful dynamic thrust to these conditions may result in

increased mobility by stretching shortened tissues and breaking adhesions, but there is always some danger of osseous avulsion or tearing of meninges as scar tissue has a much higher tensile strength than osseous or nerve tissue. Because of this, therapy may have to progress over several months.

Low-Velocity Technics (LVTs)

The category of low-velocity adjustments contains applications that apply slow stretching, pulling, compression, or pushing forces. Sustained or rhythmic manual traction or compression and procedures to obtain proprioceptive neuromuscular facilitation (PNF) are typical examples. Many leverage techniques advocated to reduce intravertebral disc (IVD) protrusions and functional spondylolisthesis can be placed in this category.

High-Velocity Technics (HVTs)

The category of high-velocity adjustments holds the applications of classic dynamic-thrust (direct, rotary, or leverage) chiropractic adjustment technics that are applied to a vertebra's transverse or spinous process or a lamina, with various degrees of counterleverage and/or contralateral stabilization. Contact pressure is usually firm, if the underlying tissues are not acutely painful, when the contact is to be maintained at a specific point and the thrust delivered in a precise direction -- which is common.

A dynamic thrust against a point of articular resistance is an effective method of imposing the force necessary to produce adequate mobility to initiate the recovery process. Especially when leverage is applied before the application of a corrective impulse, considerable skill and caution are necessary to avoid iatrogenic trauma. The same is true if motion beyond the physiologic limit (e.g., overextension, overflexion, excessive rotation) is used.

A dynamic thrust starts a momentary myotactic stretch reflex even faster than a slow stretch, via the low-threshold stretch circuit, but, if delivered properly, a dynamic thrust will also excite the higher threshold Golgi tendon apparatus that initiates the inverse myotatic reflex to cause associated contracted muscle fibers to give way suddenly (clasp-knife reflex). By holding a finger near a colleague's contact hand while a dynamic adjustment is given to a patient, the quick contraction followed by relaxation of the underlying muscle can be sensed. This phenomenon, autogenic inhibition, has many applications in correcting muscular fixations and relaxing splinted muscles.

The objective of almost all HVTs is to release instantly the fixated articulation (increase joint mobility). How this is executed has not been specifically determined because more is involved than the application of a mechanical force against a resistance. The most common theories are:

The mobilization of fixated articular surfaces. Apophyseal joints can become fixated because of the effects of joint locking (e.g., traumatic), muscle spasm, degeneration, an entrapped meniscoid or other loose body, capsular fibrosis, intra-articular "gluing" or adhesions (e.g., postsynovitis, chronic rheumatoid conditions), bony ankylosis, facet tropism, etc.

The relaxation of the perivertebral musculature. While a high-velocity force that suddenly stretches muscles spindles in primary muscle spasm will increase the spasm, the same force applied to a segment when its related muscles are in secondary or protective spasm produces relaxation if the impulse succeeds in removing the focal stimulus for the reflex.

The shock-like effect on the CNS. Shock-like forces (1) are known to have a normalizing effect on noxious self-sustaining CNS reflexes; (2) are stimulative to the neurons involved, resulting in

increased short-term neural and related endocrine activity; and (3) set up postural and muscle-tone-normalizing cerebellar influences via the long ascending and descending tracts of the cord.

Indirect Techniques

Manual mobilization and thrust techniques are direct approaches to relieving articular fixations. Indirect functional approaches are often used when the cause of fixation has been determined to be essentially muscular in origin or when any form of manipulation would be contraindicated. Within this category fall many manual light-touch cutaneous reflex techniques, meridian therapeutic vibration, isometric and isotonic contraction, etc. It is theorized that these procedures produce much of their effects because of their influence on the gamma-loop system, and/or by the superiority of mechanoreceptor input on nociceptive input.

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Editor's Note:

This series of articles has been adapted from Chapter 15 of Dr. Schafer's book on Clinical Chiropractic: The Management of Pain and Disability -- Upper Body Complaints, which is now available. Please see the Preferred Reading and Viewing list on Page xx, Part #T125 to order your copy.

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