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Issue 101 • JANUARY — FEBRUARY 2003

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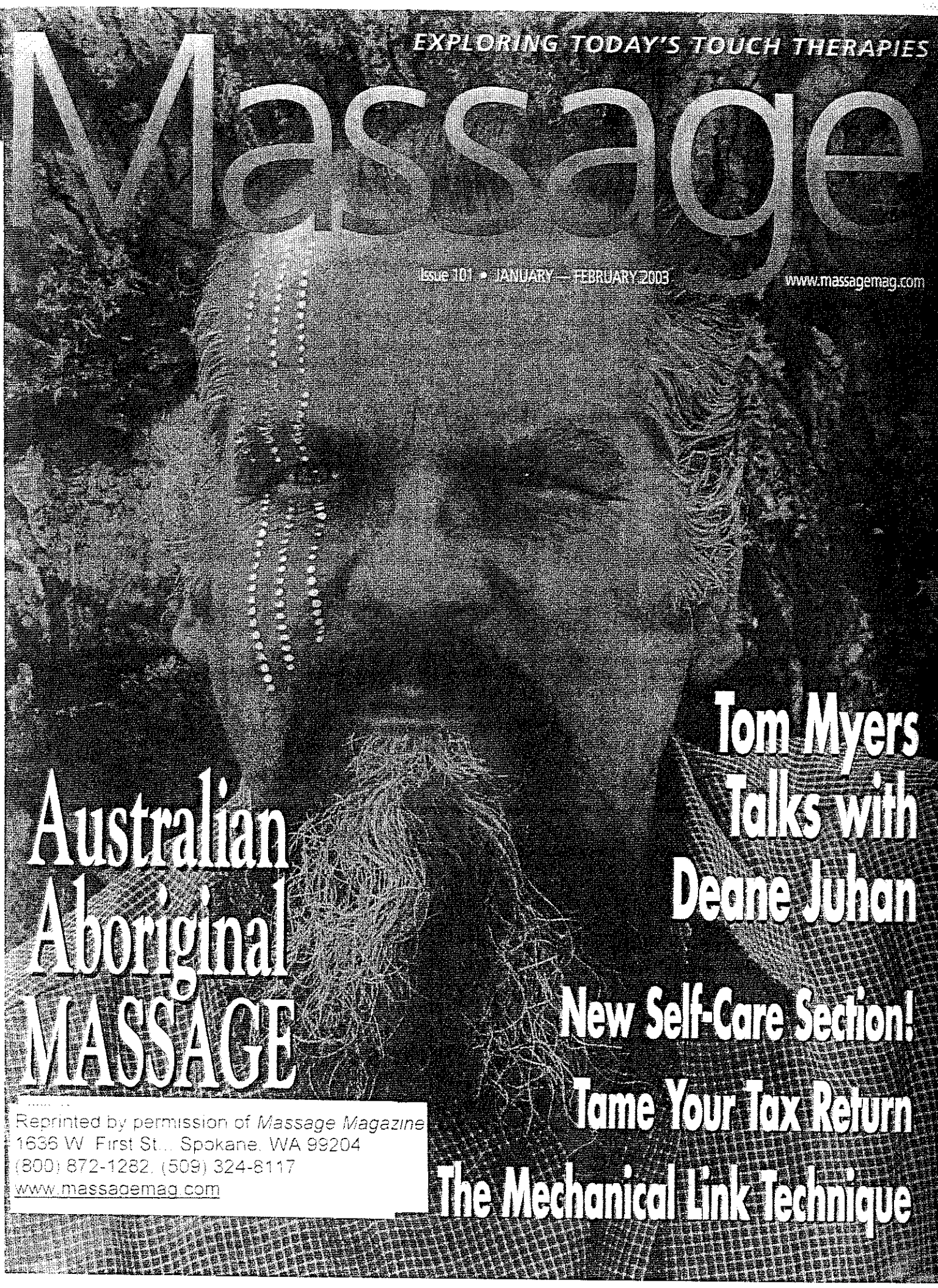

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Delving Into Structure:
Finding the Intraosseous Line Forces of Mechanical Link

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TRANSLATED BY CLOÉ COUTURIER, L.M.T./C.O., CST

While a person's ability to function remains the ultimate test of any therapy's success, many classical modalities historically take a structural route to get there. Even physical therapists of today's generation focus more on releasing joint restrictions in order to enhance function, as opposed to investigating the intrinsic quality of the tissues involved.

In the last few years, Mechanical Link practitioners have explored structure at a deeper level to discover crucial fixations that have not been described as of yet. These fixations should be considered an integral part of any global evaluation and therapy plan. Understanding their significance can help even the most accomplished massage therapist enhance hands-on results.

BODY-STRUCTURE RESTRICTIONS

The goal of Mechanical Link is highly logical: locate and reduce the primary structural restrictions within each body system that cause and maintain tension throughout the rest of the body. When the dominant lesion is discovered and eliminated, the other lesions self-correct down the line to allow the body to readjust itself and adapt to newly regulated systems.

In this sense, a lesion can be defined as any body structure undergoing a restriction of mobility that originated from, and is maintained by, tension or abnormal resistance in the connective tissue. The connective tissue is the only tissue that reforms itself in cases of trauma by scarring to form new collagen fibers (inflammation, fibrosis and sclerosis), which is why we're able to locate these fascial barriers at this level.

Embryologically, the main role of the connective tissue comes from the mesoderm. At the third week of embryo development (the gastrulation phase), the embryonic disc becomes tridermic with three layers. They consist of the ectoderm and endoderm, with the third layer—the mesoderm—forming between them.

The ectoderm becomes the source of the central nervous system and the sensorial epithelian (epiderm, eye, ear, nose). The endoderm forms the digestive system and respiratory system (stomach, liver, lungs). The mesoderm layer gives origin to the muscles, bones, vascular system and all connective tissues.

So it is the mesoderm, the central tissue that links and unites all the elements of the body, which constitutes the Mechanical Link. Because of their common embryological origin, we must also include within the connective tissue the skeletal tissue (line

forces) and the vascular system (heart and vascular axis).

In this article we will focus on the intraosseous line forces. It is primarily those intraosseous line forces, which act as frames for the skeleton, that lead us to reconsider our classical approach to structure and instead assess the body in a more complete "architectural" model.

Structure governs function

On a biomechanical level, minor articular movements govern the major ones. Yet with Mechanical Link—which agrees with the fundamental principle of Stillian osteopathy that says structure governs function—we delve deeper into structure to offer the following premise: *Intraosseous line forces govern the minor movements and, therefore, the major movements as well.*

Here's a simple example. If the opening and closing of a door represents a major movement, the minor articular movement would be at the hinges that condition the major movement. This, then, is where practitioners such as classical osteopaths would tend to apply their art. They aim to restore the articular integrity of the hinges to enhance the opening and closing of the door.

But what if the vertical frame of the door is warped, which has affected proper movement? In a case like this, focusing on the hinges will not solve the problem. This vertical structure—the true axis of movement—represents the line force upon which we must act to restore the minor and major movement of the door, or whatever system is in consideration.

On an anatomical level, line forces support the osseous skeletal structure in areas where vital forces are exerted. They're principally constituted by the cortex of the compact bone, and they follow the trabeculations of the spongeous bone where they open and branch into sheathed bundles.

Keeping the architectural model as our reference, we can comprehend this "skeletal" building in this way:

Pillars—the vertical structures of support, such as the tibia, the femur, the spine, the ascending branch of the mandible and the mastoid.

Beams or girders—the horizontal structures of support, such as the calcaneus, the tibial plateau, the horizontal part of the mandible and the petrous part of the temporal bone.

Flying buttresses—stays that represent the external structure of the equilibrium, such as the fibula, the clavicle, the spine of the scapular, the zygomatic apophyses of the temporal bones.

Arcs—semi-circular structures, such as the head of the femur, the iliac line, the iliac crest, the ribs and the temporal lines.

Vaults—such as the plantar vault, the parietal vault and the occipital vault.

Keystones—these could be the second cuneiform and S2 or bregma, which is the anterior fontanelle in the cranium.

These various line forces are either united directly, as in the case of the spine of the scapula and the clavicle, tibia and femur, or within the intermediary of the fascia and the muscles that extend out from there, such as the iliopsoas that follows the line force of the femur and the innominate line of the iliac bone.

Along this continuation of the intraosseous line forces, we often find zones of calcification that reinforce the connective tissue within the ligament and tendons where excessive stress has been exerted upon them. So the calcification of the supraspinatus tendon follows the external line forces of the humerus, the calcification of the transverse ligament of the scapular follows the line force of the coracoid process, and the calcification of the anterior insertion of the falx cerebri (frontal crest) follows the sagittal pillar of the cranial base.

Every time we practice a systematic assessment, we pay particular attention to those line forces. We directly assess them by testing tension or compression in the longitudinal access, just as we do for the other body tissues.

Normalizing line force

Once again, the fixation in the fascial tissue expresses itself in the three successive stages we already mentioned: inflammation, fibrosis and sclerosis. A fixation is determined by resistance to pressure, which can be felt as a blockage with loss of the suppleness and elasticity that characterize a free structure. This restriction of an intraosseous line force should be systematically integrated into the total lesion. Then the Mechanical Link concept of inhibitory balance testing can help you determine precisely and accurately which lesion is primary, or dominant.

If a line-force blockage reveals itself as a primary or dominant lesion, you can free the structure using the simple yet sophisticated Mechanical Link recoil technique—a gentle, six-level technique that helps release soft-tissue and attain joint mobility without force. In basic terms, the recoil frees the primary lesion that is holding on to all the other fixations in the body. Once the adjustment is performed, we immediately recheck the intraosseous line force to make sure it regained its normal compressibility.

This normalization of a line force ripples through the connective tissue and creates a major impact on three levels: First in local actions, such as normalizing the movements of the knee and hip by adjusting the external line force of the femur. Then on distant actions, which occurs when you free all the secondary lesions that were being held in place by the tension of the primary lesion. And third, on deep, general actions by mobilizing the energy that had been blocked.

This type of energetic impact on line forces is often remarkable and sometimes even spectacular. Judging by the results we see, we may very well be

impacting the intrinsic metabolism of the bone, osseous reinforcement and erythropoiesis.

Let's look at a particular case of intraosseous lesions in the high-density cranial vault. After the complete, systematic cranium assessment that we practice with every evaluation, we often discover resistance on the frontal bones, the parietal bones and, more rarely, on the occipital bones. These areas of resistance correspond to the ossification centers of the cranial vault.

The ossification of the membranous origin, as in the one for the cranial base, is of cartilaginous origin. So when we test the pressure here and find a resistance or fixation, we should always put it into balance with all the other fixations we find according to the usual Mechanical Link methodology to determine which one is dominant.

Not surprisingly, a primary or dominant fixation in the cranial vault often corresponds to a psychological component. Frontal fixations are often in tune with mental fixations, such as the constant reassessment of certain decisions. Parietal fixations often relate to emotional dysfunction, such as irritability, mood instability or cyclothymic sadness. And occipital fixations often correspond to instinctive behavior. A fixation on the left side could even correspond to a more recent, conscious event, while those on the right side could correspond to deeper issues on a nonconscious level.

The recoil adjustment of the specific fixations localized in the cranial bones will instantly normalize those blockage points and free the stress to allow the client to achieve better physical and psychological balance. We may then be able to reinforce our actions on a somato-emotional level with a recoil through phase five (the mentalization of the problem) or phase six (verbalization). But no matter what the case, the osseous structure itself is an essential reference point that allows you to deal with the more subtle levels.

Many intraosseous lesions—and the line forces in particular—can explain "failures" or insufficient results of therapy limited to the articular level of structure. For that reason, Mechanical Link practitioners systematically integrate intraosseous line forces when examining and working with clients, no matter what the reasons for their original consultations.

The success we've experienced encourages us to share our observations, fully aware that this field, now discovered, remains to be explored. By understanding intraosseous line forces, practitioners become more in touch with the true essence of their noble art.

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To Learn More ...

- *Mechanical Link: Fundamental Principles, Theory and Practice Following an Osteopathic Approach* is the first book published in English on the Mechanical Link manual therapy system developed by French osteopath Paul Chauffour. Chauffour and his protégé, fellow osteopath Eric Prat, present a comprehensive guide that includes the philosophy behind the system's development, along with an explanation of its principles and benefits in the diagnosis and treatment of clients. Available through The Upledger Institute: (800) 233-5880, or visit www.upledger.com.
- Mechanical Link is taught in a series of courses through The Upledger Institute.
- Mechanical Link is approved for continuing education units by the National Certification Board for Therapeutic Massage & Bodywork, the National Athletic Trainers Association, and the American Medical Massage Association.