

Touch—More Than a Basic Science

Mitchell L. Elkiss, DO
John A. Jerome, PhD

The potency of touch in osteopathic manipulative treatment (OMT) is physically realized within the musculoskeletal, immune, nervous, and endocrine systems. Psychologically, touch supports a verbal and tactile interaction that is both diagnostic and therapeutic. Touch is a 2-way street that adds meaning and depth to the patient-physician experience. The relationship between touching and being touched offers a potentially powerful and intense deepening of the patient-physician relationship that emerges within the palpatory examination and treatment. Empathic communication, through word or deed, allows a therapeutic, synchronized healing to occur. In the present article, the authors provide a rationale to sensitize and invigorate osteopathic physicians to routinely evaluate and treat patients using their skillful touch.

J Am Osteopath Assoc. 2012;112(8):514-517

There are approximately 16 to 18 square feet of skin on the average adult. This largest of all organs is in a constant state of alertness, focusing in every direction simultaneously, ready to report, react, process, touch and be touched, learn, and survive.¹ As one of our primary senses, touch is a powerful form of communication. Although the interpretation of touch ranges by emotion, sex, age, culture, circumstance, religious custom, and the perceived intent of the touch, touch is part of how we sense, evaluate, and describe the world around and within us.

Touch is a basic human need, without which humans fail to bond, thrive, or form meaningful attachment to others. Touch links sensation to perception and feelings and bridges the gap between ourselves and others. Newborns and infants depend on touch to learn about the world. Skin-to-skin, parent-to-child contact helps premature newborns and infants manage pain, gain weight, sleep better, decrease fetal distress, normalize heart rate, and psychologically develop and mature.² When a baby cries, we touch to comfort them; when we are upset, we seek the comfort of a touch.

Osteopathic physicians touch their patients with purposeful attention and thoughtful care—a method that has impact from the cell to the self, communicating reciprocity, unconditional positive regard, empathic understanding, and the intent to help. For the osteopathic physician, touching is an expression of compassion, skill, and expertise.³

Touch helps us understand the world, create an internal image of that world, maintain an appropriate degree of alertness and arousal toward that world, and organize motor responses and behaviors that enable us to solve problems and navigate our physical universe.⁴ The experience of being touched may be conscious or unconscious; it may evoke behaviors that are voluntary or reflexive. Touch ultimately influences every action that an individual is capable of producing, from autonomic responses to organized and conscious, intentional movements.^{5,6}

The sense of touch then is a mechanism for translating peripheral stimuli into subjective experience and behavioral responses. Touch leads to perceptions, thoughts, feelings, and words that are constructed internally as organized informational streams to successfully manipulate and

From Michigan State University College of Osteopathic Medicine in East Lansing. Dr Elkiss is also in a private practice of neurology and osteopathic manipulative medicine at Associates in Neurology, PC, in Farmington Hills, Michigan, and Dr Jerome is also a pain psychologist at Lansing Neurosurgery and the Spine Center in East Lansing.

Financial Disclosures: None reported.

Address correspondence to Mitchell L. Elkiss, DO, Associates in Neurology, PC, 27555 Middlebelt Rd, Farmington Hills, MI 48334-5011.

E-mail: mitchellelkiss@mac.com

Submitted June 14, 2011; final revision received March 27, 2012; accepted July 5, 2012.

maneuver through our world.^{7,8} At the level of the cortex, these streams interact most completely. This central processing through the posterior parietal lobe, as part of the somatic nervous system, is involved in the association and integration of external, internal, somatic, visceral, autonomic, tactile, nociceptive, cognitive, and affective information. Through its limbic connections, touch information is linked with past experience, meaning, and emotion, as well as to the verbal and nonverbal dialogue, such as within the palpatory examination. Touch is part of the connection, an integrating mechanism for the practice of osteopathic medicine that allows a more complete assessment of the biopsychosocial presentation of each patient.^{9,10}

In our opinion, touch is the lynchpin between the theoretical philosophy of osteopathic principles and practice and the clinical practice of osteopathic medicine. In *Foundations of Osteopathic Medicine*,¹¹ we, with Frank H. Willard, PhD, contributed a chapter on touch, which was appropriately included in the basic sciences section of the textbook. As clinicians, and in consideration of the critical role of touch and empathic communication within the clinical context of osteopathic medicine, we felt obliged to continue the discussion toward a greater awareness of the role touch plays in health care.¹¹ In the present article, we hope to provide the rationale for and encouragement of osteopathic physicians to use touch in the evaluation and treatment of their patients.

Touch and Osteopathic Manipulative Treatment

Touch is a primary mechanism by which one person contacts another. The patient is touched by the physician; the physician is touched by the patient. At the moment of contact, there is an interaction of dynamic, complex systems that creates a greater system still—the patient-physician dyad—with emergent thoughts, feelings, and dialogue that are greater than the sum of the individual parts. This interaction is known as the patient-physician relationship. Ideally, this relationship is an interactive partnership with health as its goal.

There is no aspect of osteopathic medicine that is neither informed nor deepened by the process of touch. It differentiates the unique training and practices of osteopathic physicians. We evaluate our patients through history and physical examination. We supplement our evaluation with tests of structure and function. At the core of the osteopathic physical examination, however, is a dependency on palpation. In clinical practice, we touch to evaluate, communicate with, and treat patients.

Of course, in every medical tradition, palpation at some level is a tool of diagnosis. Taking of pulses, palpation of the viscera for tenderness or enlargement, palpating for the cardiac apical impulse—these all represent examples of using touch to diagnose. It is uniquely osteopathic, how-

ever, to link the palpatory examination of the musculoskeletal system to the functioning of the whole person, including his or her immune, nervous, endocrine, circulatory, and visceral systems. This link can be the driver for a more dynamic biopsychosocial diagnosis. The osteopathic examination is designed to ferret out elements of impaired structure and function through the findings of static asymmetries, tissue texture abnormalities, and functional limitations of motion. In addition, touching can elicit findings of tenderness or pain to help us understand the local, regional, and global impairments that can become the focus for therapeutic interventions. Touching sets in motion an intimate, tactile, verbal, and nonverbal dialogue.

For osteopathic manipulative treatment (OMT), the routine use of palpation is certainly critical. Osteopathic physicians are trained in layer palpation. When light touch is applied to the body, the skin is palpated; by applying more pressure and shearing force, by changing focus and palpating more deeply, the subcutaneous tissues, deeper fasciae, muscles, tendons, ligaments, joint capsules, and finally bones can be palpated. The physician will sense the patient's breathing, pulsations from arteries, inherent rhythms, and the range and quality of movement of their joints. Palpatory diagnostic techniques and dialogue are integral to the identification of somatic dysfunction elements, as well as to the treatment of patients and the monitoring of the effects of treatment on behavior, mood, and thinking. We as osteopathic physicians touch our patients at all levels.

For the patient, touch communicates a sense of being examined comprehensively, being cared for, and being treated directly by the physician's touch. For the physician, touch is a process for continually collecting and monitoring clinical data. In addition, it is a method for having a direct, therapeutic influence on patient well-being. For both patient and physician, it is an intensely meaningful, heartfelt, therapeutic interaction with touch as the interface. In its own way, touching our patients—both diagnostically and therapeutically—can be seen in direct juxtaposition to the technical and impersonal aspects of contemporary medicine, which often annexes the body to the world of images, fluid testing, and machines.

Patients are deeply touched by words, as well as by deeds. Touch as an example of empathic communication complements the equally empathic communication of words. In fact, the process of touching and talking to our patients facilitates a clinically relevant integration of psyche and soma.

Biopsychosocial Dynamics—Being Touched

Osteopathic manipulative treatment and empathic communication create an ongoing tactile dialogue between patient and physician. During an undergraduate research

fellowship in biomechanics (M.L.E.), William L. Johnston, DO, spoke of creating an input (a motion demand and a musculoskeletal query), experiencing the feedback of the other person’s physical reaction, and interpreting and responding to that process in a dynamic, reiterative therapeutic fashion. Even measuring a pulse or blood pressure with care and thoughtful touch alters those bodily states being examined. Employing functional magnetic resonance imaging, Iwamura et al⁹ found that “pleasant touch” produced strong activation of the orbitofrontal cortex, parietal cortex, and the insula and ventral striatum. Evidence concurs that structure and function are influenced in the process of palpation.

Being touched begins with the feeling of contact. It can be localized and evaluated with regards to intensity, duration, and quality—from feeling poked to feeling stroked. With higher levels of processing, the touch may be imbued with affective and evaluative qualities, as well as interpreted in terms of past experience and learning. If there is a sense of trust, the brain is primed to release oxytocin while being touched.¹² As affect is engaged, the limbic system is recruited to lend autonomic, endocrine, and immune elements to the person’s global physiologic and psychological state. This affect is largely experienced, executed, and communicated through the actions of the autonomic nervous system, the circulatory system, and the musculoskeletal system. In this way, the touch system is nested within the nervous system and connects to the musculoskeletal, immune, and endocrine systems, creating a systems network.

Systems-Network Understanding of Touch

To understand the systems-network aspect of touch, one must consider the structural and functional interactions of the musculoskeletal, immune, nervous, and endocrine (MINE) systems in response to touch. In our opinion, the MINE systems interact as 1 “super system” in response to touch.

We propose that in response to touch, the reciprocal interactions of these 4 systems engage a MINE super system that is continually adjusting to incoming information from both internal and external environments. The 4 individual systems that account for the MINE system demonstrate feedback effects that can be both facilitating and inhibiting.¹² They show connection through the fascia, the circulation and autonomic nervous systems, and their common shared receptors and associated ligands (Figure).

Although elements within each individual MINE system can be reduced to relatively simple observable physical and chemical activity, their coordinated interactive efforts create a more complex system of observable palpable changes, behaviors, and dialogue in the patient-physician encounter. For example, measurements can be made of activities in neurons, hormone levels, and levels of cytokines. These are simple activities. The fight or flight reaction as the endocrine aspect of the stress response and the inflammatory reaction as the sickness response are examples of more complex behaviors. Even more complex is the individual’s ability to recognize danger and avoid it, to run or fight as needed. The ability to fight off infection, the ability to recover from abuse or trauma, and the capacity to be ill or experience pain and then heal all represent

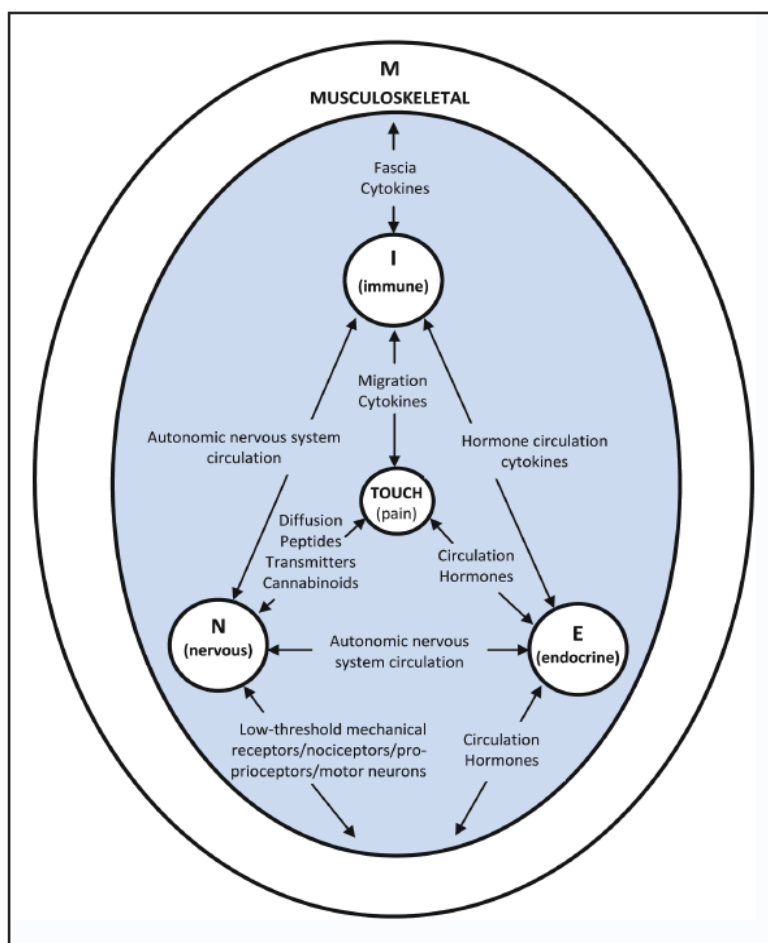


Figure 1. The musculoskeletal, immune, nervous, and endocrine (MINE) systems interact in response to low-threshold mechanical stimulation, which is perceived as touch, and to nociceptive input, which is perceived as pain. Dysregulation in the MINE systems, expressed through the musculoskeletal system as somatic dysfunction, can be diagnosed during palpatory examination. Reprinted with permission from Lippincott Williams & Wilkins.¹⁵

behaviors of even greater complexity. These complex behaviors and their effects on our patients can be understood through empathic communication.

The idea of holistic, interactive, nested systems such as the MINE super system is an idea consistent with osteopathic philosophy. Essential to understanding the MINE system is an appreciation of the musculoskeletal (M) system. The musculoskeletal system is particularly available for observation and palpatory evaluation. It is the system within which the "INE" systems are nested. It executes the fight or the flight, it maneuvers in the external world to secure the necessary objects of sustenance (eg, food, drink, air), and through movement it allows seeking behaviors, interpersonal behaviors, and collectively communal behaviors. It, too, is built upon basic behaviors reiterated at cellular, tissue, and organismal levels. This system too shows feedback and feedforward mechanisms. The musculoskeletal system is interactive with the other systems not only through a common chemical language but also through a system of mechanical links that have been shown to have transduction, transmission, and response capacity in effecting coping behaviors.¹³

Psychological Dynamics: Touching Is Bidirectional

To touch another is to be touched back. Touching, like dialogue, is bidirectional and reciprocal. The patient's and physician's boundaries are transiently breached with touch and words, interacting with intent to heal. Putting the patient at ease while you are diagnostically and therapeutically talking to and touching him or her includes explanation of intent and nature of the touching, its purpose, and what the patient is likely to experience. As the physician touches and explains why and what he or she is doing, as well as what is being found during the palpatory examination, he or she is enhancing confidence and trust. Trust and dialogue can then center on the patient's ultimate questions: Why do I have this symptom? Will it harm me? Shorten my life? Destroy my vitality? What is to be done about it? What can you do? What am I to do?

What begins as a palpatory examination quickly becomes a tactile conversation as the patient gains greater proprioceptive self-awareness of structural and motion impediments causing or being caused by a dysfunction of connective tissue, vascular or neurologic structures, associated metabolic processes, or overt behaviors.¹⁴ With illness magnified by stress and dysregulations of the MINE systems, touch, with its unique properties, can help open the door to the patient's healing.¹⁵

Conclusion

The potency of touch is a result of its being a complex, dynamic process occurring within the context of a thera-

peutic patient-physician relationship built on palpatory examination and empathic communication. The relationship between touching and being touched offers a very powerful, intimate, potential deepening of relationship that emerges through the palpatory examination and ultimate treatment. Osteopathic palpation and empathic communication allows a synchrony to occur within the patient-physician relationship. The patient and the physician function as a united partnership, greater than the simple sum of the 2 partners. This is the true osteopathic patient-physician relationship. It is the therapeutic relational opportunity. By examining your patients using osteopathic medicine, you will be assured of truly touching your patients.

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