

the healing touch

*New studies reveal
that it can reduce chronic pain,
stimulate immunity and
boost job performance*



f all the senses, touch is the most essential to life. It is the most encompassing sense, communicated as it is by the skin—the human body's largest organ. And research has shown that touch has important physical and psychological benefits, from reducing chronic pain and stimulating immunity to boosting job performance. It's also now clear that for infants, touch is not just therapeutic; it may actually be critical to their survival.

What's in a touch?

There are 20 square feet of skin on the average adult human body, and every inch is a dense carpet of nerve endings. The anatomical nature of touch is a simple case of circuitry: The dermis (the skin layer below the epidermis, or

top layer of skin) contains thousands of specialized receptors that respond to external stimuli, such as heat, cold and pressure. Electrical signals from these receptors pass via the sensory nerves to the spinal cord, moving from there to the thalamus and the sensory cortex in the brain, where touch sensations are registered.

Nerve receptors vary from spot to spot on the body. Areas exquisitely sensitive to touch, like the tongue, fingers, lips and genitals, have a rich supply of a particular type of nerve, the *Meissner corpuscle*. In *A Natural History of the Senses*, Diane Ackerman likens the insides of the Meissner corpuscle to “filaments inside a light bulb, branching, looping nerve endings [that] lie parallel to the surface of the skin and pick up...low-frequency vibrations like the feeling of a finger stroking a beautifully woven sari,



Making contact:
A mother's loving
touch may be as
important to a
baby's well-being
as is milk.

YU AMANO/PHOTONICA

or the soft angled skin inside another's elbow."

Among the other nerve receptors are the *Pacinian corpuscles*, thick, whorled sensors that usually lie near joints, deep tissues, genitals and mammary glands. They communicate basic organ and body movement—the lungs expanding, for instance, or a leg swinging—plus high-frequency vibrations to the brain. *Merkel's disks* are saucer-shaped nerve endings right below the surface of the skin that are said to register continuous pressure, for example, in resting an arm on a chair. *Ruffini endings* appear to sense temperature.

Depending on the nature of the stimulus—say, a pinprick, a pinch or a caress—different nerve receptors will send any number of combinations of signals to the brain, and the skin may secrete different substances (such as histamines) as well. Medical science has not even identified many of these signal combinations and compounds, much less documented how they affect the brain, the immune system or other parts of the body.

But suddenly touch has become a hot topic of research. The U.S. government's new Office of Alternative Medicine at the National Institutes of Health in Rockville, Maryland, has just awarded five research grants to different scientific groups to study the applications of massage.

A multidisciplinary team of physicians and psychologists recently assembled at the University of Miami School of Medicine's Touch Research Institute to investigate and document the role of touch in human health and development. In the two years since its establishment, the Institute has shown that the caress of human hands isn't just a luxury; it does much more for a body—and psyche—than we've ever recognized.

The Institute's director and founder,

Tiffany Field, Ph.D., a professor of psychology, pediatrics and psychiatry, conceived of the center in the mid-Eighties while conducting research at an intensive care unit for premature infants. At that time, doctors discouraged unnecessary touching of the babies, fearing that physical stimulation might damage their tiny, underdeveloped bodies. Concerned that depriving the newborns of human contact might

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do more harm than good, Dr. Field launched a pioneering study of the effects of touch on their development. During the research, the premature babies were gently stroked on different parts of their bodies for 15 minutes three times a day.

The data amply bore out Field's intuition. The preemies who were stroked gained 47 percent more weight per day and left the hospital six days earlier than the untouched babies. Apart from the emotional benefit, there was a cost savings of approximately \$3,000 per coddled infant. Subsequent studies have suggested that the touching of infants' skin triggered the release of food absorption hormones, which promote better

assimilation of nutrients. "If such a simple treatment could produce results like that," says Field, "it got me to thinking—what else could touch do?"

How touch soothes

Field and her colleagues are making rapid headway in this field of research by exploring the effects of massage. Among the team's many intriguing discoveries: Touch can be, paradoxically, both soothing and invigorating. This finding came to light during a job-stress study of 38 subjects.

"We started out with the notion that if you give someone a 15-minute back rub in the office, it might make them more relaxed," explains Field. Indeed, analysis of saliva samples collected from the subjects after the massage revealed lower levels of the stress hormone cortisol. But surprisingly, the participants reported no drowsiness; instead they felt heightened alertness. "We didn't expect that," says Field, "so we added EEG [electroencephalogram] studies." Sure enough, following the massage, subjects produced more beta and theta brain waves, which are associated with in-

creased alertness. Field's team then gave massaged subjects computational problems to solve. Compared with their pre-massage performance levels, they made half as many errors and completed the tasks twice as quickly.

In another study, researchers at the Institute explored the healing potential of touch in the treatment of 20 men with the AIDS virus. Just 45 minutes of daily massage increased their circulating levels of serotonin, a neurotransmitter associated with regulating mood. In addition, the treatment boosted the number and activity of their white blood cells, whose function is to destroy viruses and bacteria invading the body.

"There's no evidence that massage

will slow the progression of AIDS,” cautions Frank Scafidi, Ph.D., an assistant professor of pediatrics and psychology at the University of Miami School of Medicine, who collaborated on the trial. He stresses that the men’s T cells—the components of their immune system normally attacked by the AIDS virus—were unchanged from massage. Still, Dr. Scafidi is encouraged by the results. By enhancing the functioning of white blood cells, he says, “massage might be helpful in fighting off some of the secondary infections associated with AIDS.”

Touch therapy has also been helpful to people suffering from mental disturbances. The Miami researchers gave daily massages to 52 children and adolescents hospitalized for depression and other adjustment

disorders. The level of stress hormones in the saliva and urine of these patients decreased, and the subjects became less depressed and less anxious. They also slept better, and their nurses rated them more cooperative.

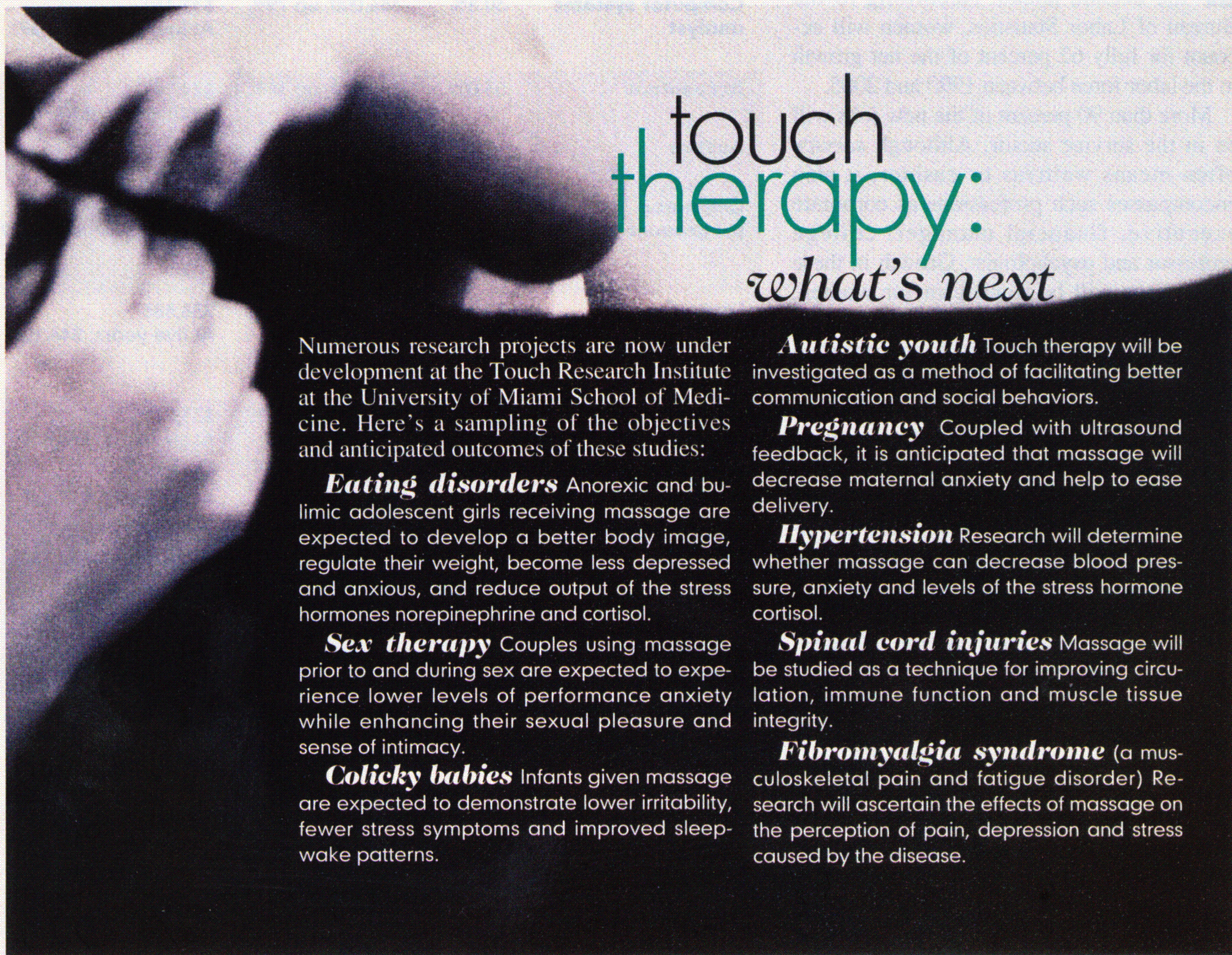
Reach out and touch someone

Unfortunately, most of us seem to have lost touch with touch. “The more technologized we become, the less we touch,” says Ashley Montagu, the pre-eminent Princeton, New Jersey-based anthropologist who wrote the seminal book in the field, *Touching*, and closely collaborated with Field and the Miami team. “Compared with indigenous people—and certainly all monkeys and apes—we do very little touching,” he observes. Our neglect of this basic pleasure concerns him because the

latest insights into the underlying physiology of touch only confirm what he and other anthropologists have long known: Tactile stimulation, in Montagu’s words, “produces a feeling of cooperation, of safety, of someone caring and sharing.” Indeed, close physical contact is so essential to the well-being of primates that he thinks we should be called “the touching order.”

Field says the introduction of surgery and drugs in the twentieth century may have much to do with why touch has fallen out of favor. Our love of high-tech medical and medicinal solutions, it seems, has diverted us from a useful healing power that lies literally at our fingertips.

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touch therapy: what's next

Numerous research projects are now under development at the Touch Research Institute at the University of Miami School of Medicine. Here's a sampling of the objectives and anticipated outcomes of these studies:

- Eating disorders** Anorexic and bulimic adolescent girls receiving massage are expected to develop a better body image, regulate their weight, become less depressed and anxious, and reduce output of the stress hormones norepinephrine and cortisol.
- Sex therapy** Couples using massage prior to and during sex are expected to experience lower levels of performance anxiety while enhancing their sexual pleasure and sense of intimacy.
- Colicky babies** Infants given massage are expected to demonstrate lower irritability, fewer stress symptoms and improved sleep-wake patterns.
- Autistic youth** Touch therapy will be investigated as a method of facilitating better communication and social behaviors.
- Pregnancy** Coupled with ultrasound feedback, it is anticipated that massage will decrease maternal anxiety and help to ease delivery.
- Hypertension** Research will determine whether massage can decrease blood pressure, anxiety and levels of the stress hormone cortisol.
- Spinal cord injuries** Massage will be studied as a technique for improving circulation, immune function and muscle tissue integrity.
- Fibromyalgia syndrome** (a musculoskeletal pain and fatigue disorder) Research will ascertain the effects of massage on the perception of pain, depression and stress caused by the disease.