

What binds us together ?

It is a truism that fascia provides the body with coherence and stability, but it may also be true that connective tissue offers a binding connection between disparate therapeutic models and professions.

In this issue Rolfer Robert Schleip continues his evaluation of some aspects of current thinking in regard to fascia/connective tissue. He reports on the remarkable research showing smooth muscle cells embedded in fascia, and the implications this has relative to bodywide tonus, as well as the fascia – acupuncture connection.

This connection has been taken further by important research by Langevin and Yandow (2002) of the University of Vermont, College of Medicine, who hypothesize that, 'the network of acupuncture points and meridians can be viewed as a representation of the network formed by interstitial connective tissue. This hypothesis is supported by ultrasound images showing connective tissue cleavage planes at acupuncture points in normal human subjects.'

Langevin et al. (2002) propose that during acupuncture treatment, 'needle manipulation transmits a mechanical signal to connective tissue cells via mechanotransduction. Such a mechanism may explain local and

remote, as well as long-term effects of acupuncture.'

Myers (1997), in JBMT articles, as well as in his book *Anatomy Trains* (Myers, 2000), has clearly mapped the bodywide interconnectedness of fascial networks and pathways, and the clinical relevance of this knowledge to all those therapists attempting to treat and rehabilitate biomechanical dysfunction.

Readers familiar with Jim Oschman's earlier articles in JBMT, as well the magnificent book that grew out of these, *Energy Medicine* (2000), will recall his emphasis on connective tissue as being at the core of the functional (in all senses) integrity of the body. The basis of much that happens in Craniosacral, Polarity, Reiki and other subtle forms of healing, may be explained, at least in part, by the territory that Oschman has explored. Connective tissue is seen to be not only an organ of form, but may also be seen as an organ of formation, the process by which the living body is continuously reorganized.

Biophysicist Mae-Wan Ho (Ho 1993, 1997) has developed theories that describe the organism as a vibrant sentient whole. Ho suggests that the role of the connective tissue is as a liquid crystalline material, constituting a vibratory continuum for rapid energy flow and communication, permeating the entire organism. Many hands-on therapists already suspect that contact with the body interacts with consciousness at a fundamental level and we now have descriptions of

how cognition, structure, and functional regulation may be interconnected.

Quantum coherence in the living matrix provides a basis for this unitary theory. Water and vibrations of the crystalline molecular lattices seem to play key roles in energy and information storage, transfer, and release.

The quantum coherence phenomenon, described by biophysicists, may be the origin of Sheldrake's morphogenetic field (Sheldrake 1995).

Chicurel et al (1998) have studied mechanical tension, generated within the cytoskeleton of living cells, which they claim is emerging as a critical regulator of biological function in diverse situations ranging from the control of chromosome movement, to the morphogenesis of the vertebrate brain. They have reviewed recent advances that have been made in terms of understanding how cells generate, transmit and sense mechanical tension, as well as how they use these forces to control their shape and behaviour. An integrated view of cell regulation that incorporates mechanics and structure as well as chemistry is beginning to emerge.

Giancotti and Ruoslahti (1999) take us to this cellular level, of gene expression, cellular life and death, where the finest forms of connective tissue exert their influences, 'Cells reside in a protein network, the extracellular matrix (ECM), which they secrete and mould into the

intercellular space. The ECM exerts profound control over cells. The effects of the matrix are primarily mediated by integrins, a family of cell surface receptors that attach cells to the matrix and mediate mechanical and chemical signals from it. These signals regulate the activities of cytoplasmic kinases, growth factor receptors, and ion channels and control the organization of the intracellular actin cytoskeleton. Many integrin signals converge on cell cycle regulation, directing cells to live or die, to proliferate, or to exit the cell cycle and differentiate.'

It is humbling to consider that as we stretch and ease the gross aspects of the body, its muscles and other soft tissues, we are influencing not

just the obvious, but the subtle and the invisible, because we are working – whether we know it or not – with the material that binds us together, connective tissue. And that we are almost certainly doing this whether we use manipulation, massage, movement, acupuncture methods or subtle energy approaches.

Leon Chaitow
Editor

REFERENCES

- Chicurel ME, Chen CS, Ingber DE 1998 Cellular control lies in the balance of forces *Current Opinions in Cellular Biology* 10: 232–239
Giancotti F, Ruoslahti E 1999 Integrin Signaling *Cell Biology* 285: 1028–1033

- Ho M-W 1993 *The Rainbow and the Worm. The Physics of organisms.* World Scientific, Singapore
Ho M-W 1997 Quantum coherence and conscious experience. *Kybernetes* 26: 265–276
Langevin HM, Churchill DL, Wu J, Badger GJ, Yandow JA, Fox JR, Krag MH 2002 Evidence of connective tissue involvement in acupuncture. *FASEB Journal* 16: 872–874
Langevin H, Yandow J 2002 Relationship of acupuncture points and meridians to connective tissue planes. *New Anatomist* 269: 257–265
Myers T 1997 Anatomy trains. *Journal of Bodywork and Movement Therapies* 1:91–101 and 1: 134–145
Myers T 2000 *Anatomy Trains.* Churchill Livingstone, Edinburgh
Sheldrake R 1995 *A New Science of Life. The Hypothesis of Morphic Resonance.* Park Street Press, Rochester, Vermont