An Osteopathic Approach *to Children*

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Foreword by
Dr Anne Wales



This book is dedicated to my parents, all of them.

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Note
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Preface

This text is a composite of information drawn from many and varied sources. It is the culmination of research, study and practice in the science and art of osteopathy and its application to children. Along the way I have learned much from my colleagues and teachers, but most of what I have learned has been from my patients. From the tiniest seventeen-week gestation newborn to the eldest in her ninth decade, their bodies and minds and spirits have taught me how to be still and listen. In my somewhat naïve opinion, much of the art of osteopathy is the ability to integrate the indescribable, perhaps even incomprehensible but palpable, information the patient's body is providing with what is scientifically known and understood. One type of information does not negate or diminish the value of the other. They dovetail to provide a more complete, a more unified picture of the individual. This book is my attempt to do just that.

The book is arranged in two parts. The first discusses basic concepts of physiology from the perspective of an osteopathic clinician. The second describes the more common pathophysiological processes seen in children. Several recurring themes are woven throughout the text: the mechanisms by which pathophysiological processes influence each other; the normal changes and adaptations in structure and function that occur throughout childhood and how the changes can be affected by these processes; and a rationale for osteopathic treatment. A common belief in US osteopathic practice is that 'the indication for osteopathic manipulation is somatic dysfunction'. While that may be true, different pathophysiological processes often require different osteopathic approaches especially in the very young, the very old and the very sick. With that in mind, somatic dysfunction is discussed from the perspective of the findings in different tissues, i.e. fluid, membranous, articular, osseous, and neural findings. Osteopathic treatment is discussed within the context of physiological models: somato-visceral interactions, postural or biomechanical influences, the neuroendocrine-immune system, the respiratory/circulatory system, and the bioenergetic model. Although a discussion of these models is integrated throughout the text, a short synopsis is provided here.

One of the primary diagnostic clues garnered from an osteopathic examination is the spinal facilitation. This is a localized area of palpatory change in the muscles and fascia adjacent to the spine. These changes include tissue swelling or edema, increased or decreased temperature, and stiffness or loss of tone. These tissue texture changes represent localized areas of inflammation that occur in response to direct local insult. They may also arise in response to damage or irritation to distal tissues through visceral-somatic reflexes. Visceral-somatic reflexes were first described by osteopaths in the early part of this century. Recent scientific investigation into the mechanism and effects of these interactions has shed new light on the intimate relationship between the musculoskeletal system and the viscera through the sympathetic nervous system. Chapman's reflexes are superficial areas of tissue texture change that have a high correlation with visceral pathology. These pea-sized areas of fibrosous are found on the anterior and posterior torso. The site of location and presence of both anterior and posterior findings suggests a visceral problem (Owen 1963). Chapman's reflexes were first discussed in the early part of the 20th century by Frank Chapman, D.O. They are very easily integrated in the general physical exam and provide another tool in developing a differential diagnosis. A general understanding of the visceral-somatic map and Chapman's reflexes can give the clinician clues about what may be causing the patient's symptoms and can provide a pathway for therapeutic approach.

The neuroendocrine-immune connection is a term that has been coined to refer to the complicated interdependency between the nervous system, hormone balance and immune function. Basically speaking, the human body maintains internal balance or homeostasis, through

rhythmic chemical secretions from the brain (neurotransmitters), immune organs (immunoregulators), and glands (hormones). The chemicals that are secreted interact to stimulate and suppress each other, thus coordinating the internal chemistry of the body. Potentially harmful stimuli from both external and internal sources can alter these rhythmical patterns, thus affecting the homeostasis of the internal body chemistry and creating a *general adaptive response*. Normally, once the stress is removed the adaptive response resolves and homeostasis is re-established. However under long-term or severe stress, the entire physiology of the neuroendocrine-immune system can alter, creating a permanent condition of adaptive response. Brain chemistry, immune system function and hormone balance will alter. Not only is this person more susceptible to disease, he or she will have a much harder time adapting to any new stress. Many studies have demonstrated changes in immune cells, hormone levels and nervous system function under stress (McEwan 1987, Ganong 1988, Gold & Goodwin 1988a, 1988b, Keicolt Glaser & Glaser 1991, Esterly 1992, Sternberg 1992). Stressful stimuli may include psychological and physiological influences. Pain, or nociceptive stimuli, is considered a potent stressor. From an osteopathic perspective, somatic dysfunction or other strains in the patient's body may adversely influence the neuroendocrine immune system.

The postural/biomechanical model views the body as an integration of somatic components. Stresses or imbalances between these components result in increased energy expenditure, changes in joint structure, impediment of neurovascular function and altered metabolism. In very young children biomechanical or postural stresses may influence the development of motor skills, and perhaps even cognitive processes. Furthermore, altered postural mechanics will influence connective tissue and fascia, potentially affecting vascular and lymphatic drainage. These changes can contribute to the accumulation of cellular waste products, altered tissue pH, changes in osmotic pressure, and impediment of oxygen and nutrient delivery. This is important in cases of infection, cardiopulmonary problems, and metabolic diseases such as diabetes. Postural imbalances may also cause irritation to paraspinal tissues, including the articular tissues of the vertebrae. Irritation to these tissues will stimulate somatosympathetic fibers, resulting in sympathetically mediated changes in the involved tissues and potential changes in associated viscera.

The respiratory/circulatory model concerns itself with the maintenance of extracellular and intracellular environments through the unimpeded delivery of oxygen and nutrients and the removal of waste products. The integrity of the respiratory/circulatory system is influenced by postural changes on a microscopic level through tissue stress and macroscopically through respiratory mechanics. Most of the muscles of the back, thorax, neck and upper extremities play a role in respiratory mechanics. Altered respiratory mechanics can contribute to tissue congestion and decreased clearance; altered ventilation and increased energy expenditure; and altered lymphatic and venous return pressures. Factors that can affect respiratory mechanics include, but are not limited to, respiratory illnesses, scoliosis, thoracic or abdominal surgery, obesity, and postural changes.

The human body requires a balance between energy expenditure and energy supply to maintain homeostasis. Efficient operation of internal body systems conserves energy that can be used to adapt to external stressors such as nutritional deficiencies, trauma, infection, nociceptive stimulation and others. When several stressors occur simultaneously, their influence may become cumulative or synergistic, further compromising the body's ability to maintain homeostasis. Changes in the musculoskeletal system may increase the body's energy requirement. For example, restriction in joint motion because of somatic dysfunction will alter biomechanics and reduce efficiency of motion. It will require more work to use the joint – this increases the metabolic demands placed upon the patient. Now imagine there are many restricted joints, all in the thorax, and the patient is a four-month-old infant with respiratory syncitial virus. Any process that interferes with local or systemic homeostasis has the potential to increase the body's energy requirements.

In my view these five physiological models interweave to form the fabric of the osteopathic approach. There is one other component that, when added, turns osteopathic approach into osteopathic treatment. That is the relationship between the osteopathic practitioner and the patient. By this I do not mean the personalities – most two-week olds don't have much personality! I refer to an acknowledgement that must take place between the practitioner and the patient. Though perhaps lacking in conversational skills, even the youngest patient is an individual, a complete human being, with no less or no greater bearing in Life than the physician. Osteopathic treatment requires two things to be successful – the patient and the practitioner. Osteopaths are not abject healers. We are facilitators. The patient provides the clues that allow us to use our knowledge and skill to facilitate change. But the patient's body, the patient's mechanism has to make that change. The osteopathic practitioner must have a human relationship with the child. You cannot come along and just do things to the tissues.

Throughout this book I have tried to incorporate the most commonly practiced techniques and approaches used by the osteopathic profession. However, because much of the book deals with very young children, the teachings of William Sutherland, D.O. figure prominently in the text. It is important to remember that Dr Sutherland