FASCIAL MANIPULATION

Practical part

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STECCO - Fascial Manipulation for Musculoskeletal Pain

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FASCIAL MANIPULATION

PRACTICAL PART

English Edition by
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PICCIN

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ISBN 978-88-299-1978-9

Printed in Italy

FOREWORD

Welcome to an exciting new field in musculoskeletal therapy: the fascinating world of fascia. Fascia forms a continuous tensional network throughout the human body, covering and connecting every single organ, every muscle, and even every nerve or tiny muscle fiber. After several decades of severe neglect, this ubiquitous tissue has transformed from the "Cinderella of orthopaedic science" into an almost super star position within medical research. Starting with the first few years of this 21st century, the number of research papers on fascia in peer-reviewed journals experienced an almost exponential increase. The 1st International Fascia Research Congress, held at the Harvard Medical School in October 2007, was celebrated with worldwide acknowledgement. Similar to the rapidly growing field of glia research in neurology, there is now a global recognition that this underestimated contextual tissue plays a much more important role in health and pathology than was estimated during previous decades.

As every medical student knows and every doctor still remembers, up to now, fascia has been introduced in anatomy dissection courses as the white packing stuff that one first needs to clean off, in order "to see something". Similarly, anatomy books have been competing with each other, in how clean and orderly they present the locomotor system, by cutting away the whitish or semi-translucent fascia as completely and skilfully as possible. While students appreciate these appealing graphic simplifications, with shiny red muscles, each attaching to specific skeletal points, frustration is certain when these simplified maps have almost nothing to do with how the real body feels and behaves, be it in medical surgery or during therapeutic palpation.

To give an example: in real bodies, muscles hardly ever transmit their full force directly via tendons into the skeleton, as is usually suggested by our textbook drawings. They rather distribute a large portion of their contractile or tensional forces onto fascial sheets. These sheets transmit these forces to synergistic as well as antagonistic muscles. Thereby they stiffen not only the respective joint, but may even affect regions several joints further away. If we look closely at the two powerful muscles gluteus maximus and tensor fascia lata, both insert into the dense fascial sheet along the lateral thigh, called the iliotibial tract. This tissue is part of the fascial envelope of the thigh, called fascia lata, whose tension influences not only the stiffness of the lateral hamstrings and quadriceps, but also severely effects the behaviour of the knee joint and the whole lower leg.

The simple questions discussed in musculoskeletal textbooks "which muscles" are participating in a particular movement thus become almost obsolete. Muscles are not functional units, no matter how common this misconception may be. Rather, most muscular movements are generated by many individual motor units, which are distributed over some portions of one muscle, plus other portions of other muscles. The tensional forces of these motor units are then transmitted to a complex network of fascial sheets, bags, and strings that convert them into the final body movement. Into how many 'muscles' each of them has been divided by our historical textbook authorities, depended more or less on their manual skills with the dissection knife. Their distinctions have little to do with the question about which movements these structures can perform.

Similarly, it has been shown that fascial stiffness and elasticity play a significant role in many ballistic movements of the human body. First discovered by studies of the calf tissues of kangaroos, antelopes, and later by horses, modern ultrasound studies have revealed that fascial recoil plays in fact a similarly impressive role in many of our human movements. How far you can throw a stone, how high you can jump, how long you can run, depends not only on the contraction of your muscle fibers; it also depends to a large degree on how well the elastic recoil properties of your fascial network are supporting these movements.

If the architecture of our fascial network is indeed such an important factor in musculoskeletal behaviour, one is prompted to ask why this tissue been overlooked for such a long time has. There are several answers to this question. One aspect has to do with the development of new imaging and research tools, which now allow us to study this tissue in vivo. Another reason is the degree to which this

tissue resists the classical method of anatomical research: that of splitting something into separate parts that can be counted and named. You can reasonably estimate the number of bones or muscles; yet any attempt to count the number of fasciae in the body will be futile. The fascial body is one large networking organ, with many bags and hundreds of rope-like local densifications, and thousands of pockets within pockets, all interconnected by sturdy septa as well as by looser connective tissue layers.

This 'non graspability' of fascia is also reflected in the use of many different terminologies throughout literature, describing which exact tissue types are included under the term "fascia". Whether the thin intramuscular endomysium or the superficial fascia can be regarded as fascia (or rather as loose connective tissue), or whether only dense irregular connective tissue sheets should be included, seems to depend on the individual perspective of each author. Let me therefore introduce you to the newly proposed definition of fascia proposed at the first Fascia Research Congress. The term 'fascia' here describes the soft tissue component of the connective tissue system that permeates the human body. This includes not only dense planar tissue sheets (like septa, joint capsules, aponeuroses, organ capsules, or retinacula), which may be also called "proper fascia", but it also encompasses local densifications of this network in the form of ligaments and tendons. Additionally it includes softer collagenous connective tissues like the superficial fascia or the innermost intramuscular layer of the endomysium.

While not everybody will be happy with this new terminology, it offers many important advantages for the field. Rather than having to draw most often arbitrary demarcation lines between joint capsules and their intimately involved ligaments and tendons (as well as interconnected aponeuroses, retinacula and intramuscular fasciae), fascial tissues are seen as one interconnected tensional network that adapts its fiber arrangement and density according to local tensional demands. This terminology fits nicely to the Latin root of the term 'fascia' (bundle, bandage, strap, unification, binding together) and is synonymous with the non-professional's understanding of the term "connective tissue" (in contrast to medical and biological scientists, which include cartilage, bone and even blood as connective tissue).

The dynamic field of fascia research, to which the authors of this book contribute significantly, has shown in several ways that fascia is much more 'alive' than was previously assumed. Aliveness has at least two aspects here. One is its capacity to actively contract, as laboratory work with rat and human fascia by our group (Fascia Research Project, Ulm University, Germany) and the group working with Ian Naylor (Bradford University, U.K.) has shown. The other aspect is its quality as a sensory organ. It has been shown that fascia is densely innervated with many sensory nerve endings including mechanoreceptors and nociceptors, which can become the source for acute myofascial pain syndromes. Fascia, if understood in the wider definition of the term described above, is one of our richest sensory organs. It is for sure our most important organ for proprioception and for our "sense of embodiment".

The Stecco family, two of which are authors of this book, have become a driving force in this new field. Their first book "Fascial Manipulation for Musculoskeletal Pain" (Piccin, 2004) already attracted worldwide attention, and was quickly passed around from one myofascial therapist and bodywork instructor to another. It was therefore not a large surprise that their presentation at the Harvard Fascia Congress in 2007 was honoured with a special award for its scientific quality and depth of implications. I have no doubt that this new book, which not only deepens the theory and anatomical details of the first book but also presents a precise description of their therapeutic technique, will have a major impact upon the whole field of manual therapy.

The authors present a novel model concerning the contribution of fascia to neuromuscular coordination through a specific topography of centers within the fascial network (centers of coordination, centers of perception, and centers of fusion). While this is a completely new model, it is presented in a very convincing manner. The evidence given in this book in support for this intriguing model, covers not only corroborating phylogenetic and neurophysiological details, but includes thousands of hours of anatomical cadaver research, performed by the original founder of this approach, Luigi Stecco, as well as his daughter Carla Stecco MD and son Antonio Stecco MD. Their diligent cadaver studies have resulted in several new anatomical discoveries and descriptions, published in peer-reviewed scientific anatomical journals. Anybody who has followed the emerging new publications on fascia in the scientific literature in the last few years will have noticed these important contributions. This family team has studied fascial morphology and topography in detail, which is not only impressive but also resulted in the novel descriptions and findings that support the new model for neurofascial coordination presented in this book.

While these findings add great credibility to their work, further research will be needed to convince the scientific community of the full validity of this new concept. Whatever these coming years will bring up, whether in support of or in extension to the specific predictions made in this historical book, these will be exciting years. The contribu-

tions given to the world wide community by the Stecco family, as well as by several other fascia inspired groups, have already motivated some of the world's leading experts in musculoskeletal medicine to enter the field of fascia research themselves. For example, Prof. Siegfried Mense, muscle pain expert from Heidelberg University, recently started to include the lumbar fascia in his innervation and nociception studies and already found some 'very interesting details' which he will soon publish. Similarly, Helene Langevin MD, renowned acupuncture researcher in Vermont, is currently using ultrasound to compare fascial morphology between chronic back pain and healthy people.

One of the treasures of this book is the large number of cadaveric photos showing topographical anatomy details of fascia. These are extremely well done and display some local properties that have never been described in such detail. Nevertheless, let me remind you, that these pictures, as beautiful as they are, show a much drier body than the one you are living in and the one you are touching in your clients. Please keep the fluid dynamics of the living body in mind and in your touch, when you turn from this book to the properties of fascia in a real living person. Fascia in living bodies is much more slippery and moist than you may tend to imagine.

If you are a beginner within the field of physiotherapy (or orthopaedics, rehabilitation, movement therapy, etc), be prepared that this is not a book to skim over lightly while watching TV. It is a gold mine of condensed information. If you mistakenly skip over a sentence, it may easily occur that you will miss this information later, when trying to understand the logic of the following pages, as there is not much redundancy in this book. Yet I give you my word that even most experts in this field will look at and read this book with immense excitement and a state of joyful discovery. While other books have been written on fascia from several different angles, this one clearly sets a new standard. My congratulations to the authors for completing the most valuable and richest book that has ever been published on fascial manipulation; and also to you, dear reader, for having chosen this very book in order to learn more about a truly fascinating tissue and its manipulation.

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ABBREVIATIONS

***	Maximum intensity of symptoms
+++	Maximum benefit or outcome
1xm	Symptoms aggravate once a month
an	ante, antemotion, forward movement
An-ca	Ante-carpus or wrist flexion
An-cl	Ante-collum or forward flexion
An-cp	Ante-caput, includes three mf sub-units
An-cu	Ante-cubitus or elbow flexion
An-cx	Ante-coxa or hip flexion
An-di	Ante-digiti or closing of fingers
An-ge	Ante-genu or knee extension
An-hu	Ante-humerus or shoulder flexion
An-lu	Ante-lumbi or forward roll from supine
An-pe	Ante-pes or dorsiflexion
An-pv	Ante-pelvis or anterior roll
An-sc	Ante-scapula or forward movement
An-ta	Ante-talus or dorsiflexion
An-th	Ante-thorax or bending forward
An-la-cl	Motor scheme for ante-latero collum
An-la-di	Motor scheme for hand grip
An-la-lu	Motor scheme for ante-latero lombi
An-me-	Motor scheme for ante-medio
bi	Bilateral, both right and left
ca	Carpus, wrist
CC	Centre of coordination of a mf unit
cl	Collum, cervical region
cont.	Continuous, unrelenting pain
CP	Centre of perception
cp	Caput, face and cranium
cu	Cubitus), elbow
cx	Coxa, thigh-hip
d, 1d	Day, 1 day since trauma
di	Digiti, fingers, I°- II°-III°-IV°-V°
er	Extra, extrarotation, eversion, supination
Er-ta	Extrarotation of talus, eversion
ge	Genu
hu	humerus, more distal part of shoulder
ir	Intra, intrarotation, inversion
Ir-ta	Intrarotation talus, inversion of ankle
la	Latero, lateromotion, lateral flexion
La -ca	Latero-carpus, outward wrist movement
La -cl	Latero-collum, lateral flexion of neck
La -cp	Latero-caput, looking to one side
La -cu	Latero-cubitus, lateral stability of elbow.
La -cx	Latero-coxa, hip abduction
La -di	Latero-digiti, stretch fingers wide
La -ge	Latero-genu, lateral stability of the knee
La -hu	Latero-humerus, shoulder abduction
La -lu	Latero-lumbi, lateral flexion
La -pe	Latero-pes, spreading of toes
La-pv	Latero-pelvis, weight-bearing stability
La -sc	Latero-scapula, lateral movement
La -ta	Latero-talus, lateral stability
La -th	Latero-thorax, side bending
Lu	Lumbi
lt	Left, limb or side of body
m,	Month, time since pain onset
me	Medio, mediomotion, medial
Me-cl	Medio-collum, neck alignment
Me-di	Medio-digiti, fingers to midline
Me-hu	Medio-humerus, shoulder adduction
Me-ta	Mediomotion talus, medial deviation
mf	Myofascial, unit, sequence, spiral
mn	Morning, pain and rigidity worse in
nt	Night, pain worse during the night
p	posterior
PaMo	Painful Movement
pe	Pes, tarsus, metatarsus, and toes
pm	Afternoon, pain worse in
Prev	Past pain, pain no longer present
pv	Pelvis
re	Retro, retromotion, backwards
Re-ca	Retro-carpus, wrist extension
Re-cl	Retro-collum, neck extension
Re-cp	Retro-caput, looking upwards
Re-cu	Retro-cubitus, elbow extension
Re-cx	Retro-coxa, hip extension
Re-di	Retro-digiti, ulnar deviation of V∞ finger
Re-ge	Retro-genu, knee flexion
Re-hu	Retro-humerus, shoulder extension
Re-lu	Retro-lumbi, extension of lumbar region
Re-pe	Retro-pes, plantarflexion
Re-pv	Retro-pelvis, lumbosacral extension
Re-sc	Retro-scapula
Re-ta	Retro-talus, plantarflexion of ankle
Re-th	Retro-thorax, hyperextension of thorax
rec.	Recurrent, recurring pain
Re-la-	Motor scheme of retro-latero-...
Re-la-cl	Motor scheme of retro-latero collum
Re-me-	Motor scheme of retro-medio ...
rt	Right, limb or side of body
sc	Scapula, proximal part of shoulder
SiPa	Site of Pain, as indicated by patient
ta	Talus
th	Thorax
TP	Trigger Point
y, 10y	Year, 10 years since pain began

PREFACE

In recent years, orthopaedic surgeons, rheumatologists, osteopaths, physiatrists, chiropractors, physiotherapists, and other researchers are acknowledging that many complaints of the locomotor apparatus originate from the fascia. Various therapeutic approaches act on these tissues, even though they often employ quite different modalities. Some techniques use rapid stretch (thrust), others slow stretching, some microinjections (mesotherapy) and yet others use a more generalised manipulation (such as Rolfing).

Nevertheless, there is still limited knowledge of the anatomy of the fascia.

Throughout our experience in teaching courses of Fascial Manipulation©, we have often been questioned about the actual structure of the fascia. Commonly conceived as a rather vague, poorly defined tissue, it is difficult to comprehend also due to its conspicuous absence or, at best, scarce representtation in most available anatomical atlases.

Consequently, we carried out extensive anatomical research into the fascia of the human body at the Anatomy Institute of the René Descartes University in Paris.

These anatomical studies demonstrated that various types of fasciae exist within the human body, thereby justifying the need for different treatment modalities.

The Fascial Manipulation© method is based on treatment of specific points that often coincide with the localisation of acupuncture points. In fact, traditional Chinese medicine has shown that by acting on precise points (acupoints) it is possible to have lasting, and often permanent, therapeutic effects. However, in order to select these points, the practice of tongue and pulse diagnosis, together with other criteria, tends to result in standardised treatments. We have found that by combining specific movement tests with precise anatomical information it is possible to determine exactly which points are responsible for any given dysfunction. This research, together with more than thirty years of theoretical studies, clinical observation and practice, has led to the formulation of the Fascial Manipulation© method. The theoretical principles of this method have already been illustrated in one of our previous works (Manipolazione della Fascia, Piccin, 2002; English edition: Fascial Manipulation, Piccin, 2004). In particular, we considered the muscular fibre insertions onto the fascia, highlighting their anatomical distribution according to precise motor directions, somewhat comparable to myokinetic chains and acupuncture meridians.

The purpose of this manual is to provide practical indications to facilitate the treatment of the fascia. This text is the fruit of an ever-growing number of requests, from students attending Fascial Manipulation© courses for a unified text. It describes the topographical location of all the points, the respective movement tests and the modality of treatment for each point.

In order to manipulate the fascia it is essential to know the exact location of the points, to perform the movement examinations correctly and to position the patient appropriately for each treatment.

We hope that this new book will help all of those engaged in learning the method of Fascial Manipulation© to obtain satisfactory results in their clinical practices, as well as improving comprehension of the anatomical substratum of the superficial, deep and epimysial fascia because, as we like to say, only a knowledgeable hand is potent or "Manus sapiens potens est".

Padova, December 2008

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CARLA STECCO

GENERAL INDEX

ACKNOWLEDGEMENTS

This manual has been realised thanks to the contribution of Dr. Antonio Stecco, M.D., resident at the Department of Physical Medicine and Rehabilitation of Padova University.

The anatomical photographs were taken at the Normal Anatomy Institute of the "René Descartes" University in Paris in collaboration with Prof. Vincent Delmas and Prof. Oliver Gagey.

We would like to thank the editor, Dr. Massimo Piccin, who has always valued the advantages of, and the ideas behind, this method, diffusing it not only in Italy but also in other countries with the publication of the English edition.

We would like to express our gratitude to Prof. Ivano Colombo, who was the first to be interested in this method and to Prof. Raffaele De Caro, Director of the Institute of Human Anatomy of Padova University, for his ongoing collaboration.

This method is known in Italy and other countries thanks to the teachers: Mirco Branchini, Andrea Turrina, Ercole Borgini, Luca Ramilli, Giorgio Rucli, Lorenzo Copetti, and Julie Ann Day. We would like to acknowledge all of them, also on behalf of their students.