Myofascial Release and its Application to Neuro-Developmental Treatment

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PREFACE

I have been well-supported as a clinician with very gifted teachers. The late Dr. Karl and Berta Bobath were my teachers in neuro-developmental treatment. They taught me to look at the neurologically challenged patient from the perspective of postural responses and functional movement patterns. John F. Barnes was my myofascial release teacher. He offers a global approach to the treatment of orthopedic challenges and chronic pain. I have learned that each patient lives in a unique structural adaption formed by experience and capabilities. My teachers were influenced by other gifted teachers.

This book is my attempt to bring together the work of the Bobaths and John Barnes. My translation of their work is shaped by my own experiences as a patient, clinician and teacher.

Personal and professional experience indicates that a neurological challenge requires a signifcant additional effort for any movement pattern. Myofascial release enhances ease of motion while neuro-developmental treatment provides greater movement options. This book is my interpretation of the integration of myofascial release and neuro-developmental treatment for the neurologically challenged patient.

From this perspective, it integrates information on:
(1) postural control,
(2) motor development,
(3) adaptations in motor control,
(4) myofascial release,
(5) facilitation of movement designed to encourage lasting effects and improvements in independent function.

It is meant to supplement, rather than replace, the text books written by the Bobaths and John Barnes.

As I lecture throughout the United States, I am consistently confronted with public confusion around the term myofascial release. Many people are teaching their own version of myofascial release and now I admit to being one of the confused and one of the confusers. For the sake of clarity, I will describe how I visualize this concept and how I use the term in this book.

As a broad concept, myofascial release may refer to any work that impacts directly or indirectly on the fascial system. Thus, massage, rolfing, soft tissue work, hot packs, craniosacral therapy and neuro-developmental treatment all impact on the fascial system. In fact, joint mobilization effects the surrounding fascia. Trigger point, point holding, muscle energy, strain/counter-strain and Traeger are additional approaches that impact on the fascial system. The focus of our intention shapes the therapeutic process. For example, joint mobilization focuses on the skeleton while massage focuses on the soft tissue structures surrounding the skeleton. Both impact on muscle, tissue and bone. Each time we shift our focus, we create the possibility for a new therapy modality.

My use of the term myofascial release is:

(1) the application of local sensory input in the form of sustained, gentle pressure and traction or light traction without pressure.

(2) The release process is initiated by increasing the temperature and energy level of the tissue, creating a greater degree of fluidity in the body's ground substance.

(3) This results in a three-dimensional elongation process which is directed by the patient's fascial system and followed by the therapist who maintains the sensory input.

The Intention of This Book

The original intention of this book was to assist in the learning process of therapists participating in my workshops. However, I realize that not everyone can create the conditions necessary for workshop attendence. Medical facilities may limit the number of people attending the same workshop, hoping that therapists will share new clinical skills. Therefore I am offering the material to all of you and I encourage you to practice these techniques on each other before you use them in the clinic.

I hope it is helpful for both you and your patients.

THE THERAPEUTIC PROCESS

Evaluation

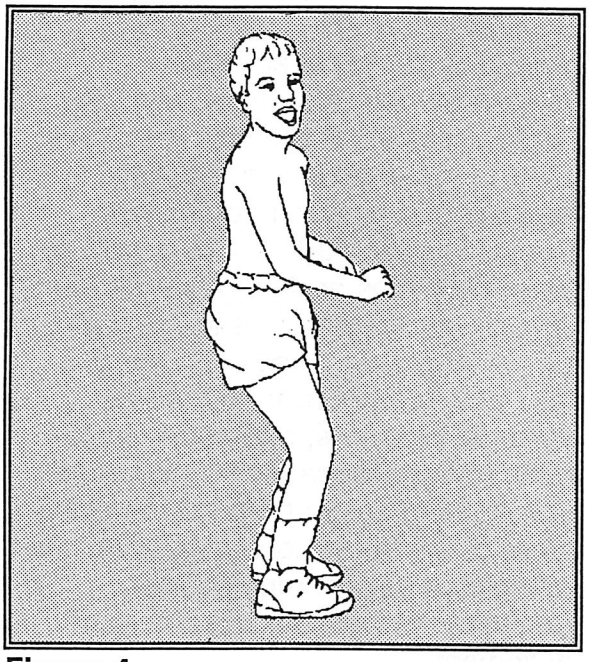

Figure 4

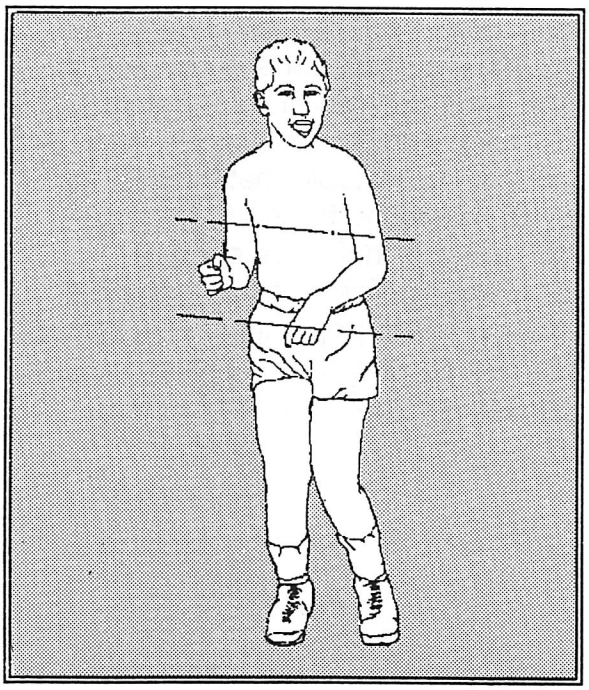

Figure 5

I usually begin my evaluation by taking a soft, global look at the patient's posture and alignment. When the patient is an independent ambulator, I observe him in standing. When a patient functions in a wheelchair, I observe him in sitting. I am looking for myofascial restrictions that may prevent potentially improved skeletal alignment, posture and functional independence. I then compare my global myofascial observation with the functional performance of the patient.

Figure 4 shows a twelve year old with spastic quadriplegia. This lateral view reveals shortening of the anterior aspect of the hips. His weight is taken on the heels as if he was being pulled posteriorly by the seat of his pants. He adapts to this shortening by lowering his center of gravity or adducting and internally rotating his hips **(Figure 5)**. I also notice his pelvis and shoulders are rotated in the same direction, with asymmetrical posturing in the upper extremities. His head, neck and jaw adapt by rotating in the opposite direction.

ELONGATION OF THE ANTERIOR ASPECT OF THE TRUNK

NORMAL

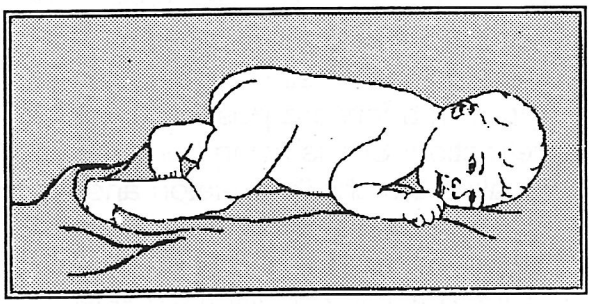

Figure 35

Babies between birth and six months of age gain length through the anterior portion of the trunk in prone. **(Figure 35)**

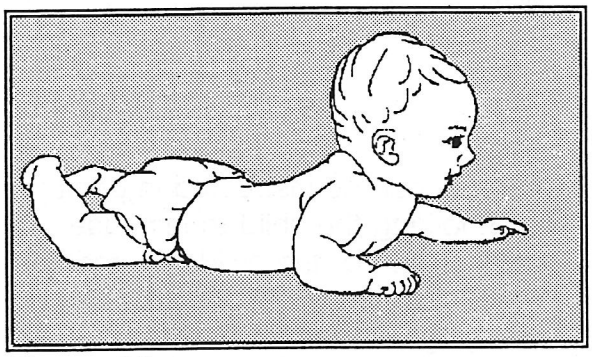

Figure 36

Pectoralis major and minor, rectus abdominis, intercostals and hip flexors slowly lengthen as the baby develops spinal extension and control of the upper extremities in weight bearing. **(Figure 36)**

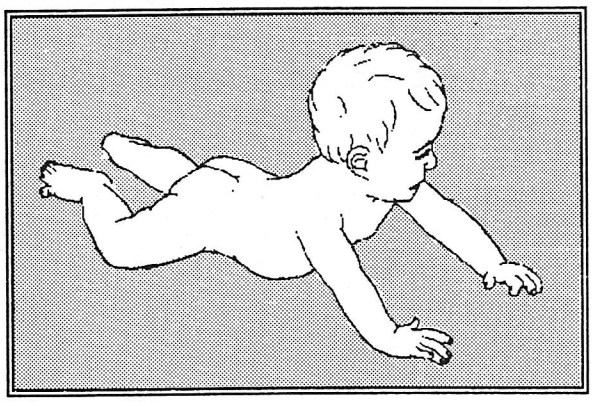

Figure 37

It is the baby's ability to lift the upper chest and transfer the body weight to the abdomen and pelvis that stimulates the lengthening process in the anterior-vertical plane. **(Figure 37)**

MYOFASCIAL RELEASE TECHNIQUES

Myofascial release can lengthen structures along the anterior-vertical plane of the trunk **(Figure 46)**. Your hand placement is in line with the rectus abdominis or below the xyphoid process of the sternum and is applying pressure caudad (toward the pelvis). Your other hand is placed on the sternum and is applying pressure cephalad (toward the head). Avoid using firm pressure on the rib cage as light pressure is more effective. If your patient is able to follow verbal directions, ask them to breathe deeply. Inhalation will expand the chest and/or the abdominal cavity, depending upon the patient's respiratory pattern. The supine position is comfortable for older children and most adults.

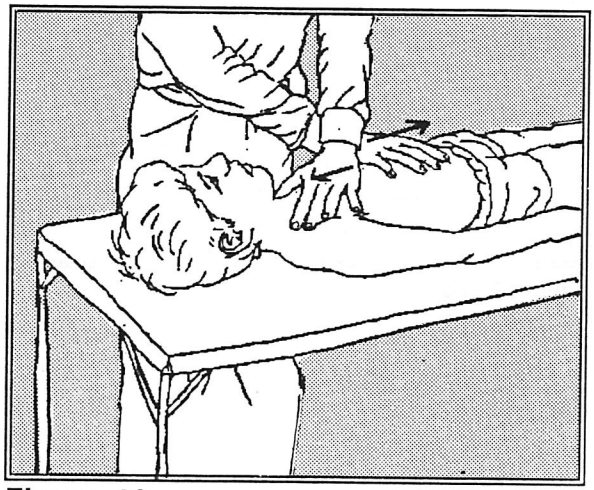

Figure 46

This same release along the anterior-vertical plane of the trunk can be done in prone. The beginning hand placement for the adult is at the base or lower aspect of the sternum. With children, the initial hand placement is on the navel. In either case, apply pressure cephalad. As the tissue lengthens the hand will slide up to the mid or upper sternum **(Figure 47)**. The other hand can stabilize the low back or sacrum with very light pressure toward the supporting surface. Since the pelvis and stomach are supporting body weight, the position itself stabilizes the lower aspect of the fascial system.

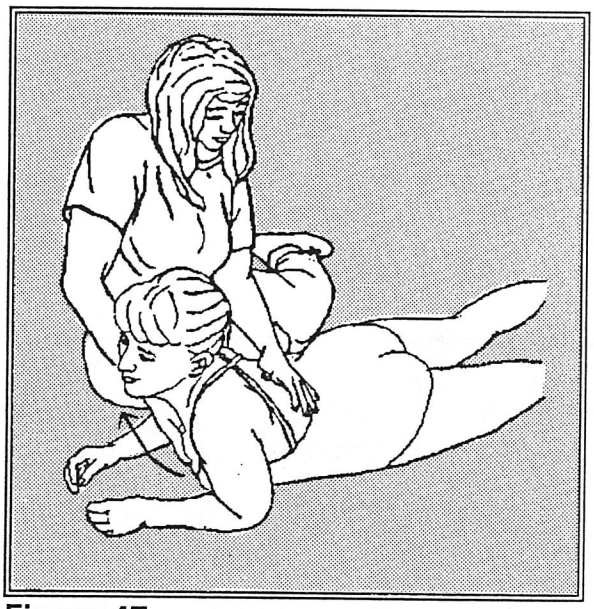

Figure 47

The goal is to gain greater range of spinal extension as the myofascial structures lengthen. This is an excellent way to combine neuro-developmental treatment with myofascial release. The patient is posturally active during the release using the new length of the muscle and tissue as it develops. I encourage children to actively play, visually scan and vocalize during this release to stimulate optimum results. I follow any weight shifts that occur during the lengthening process.

TREATMENT FOR NECK ELONGATION AND ORAL CONTROL

NORMAL

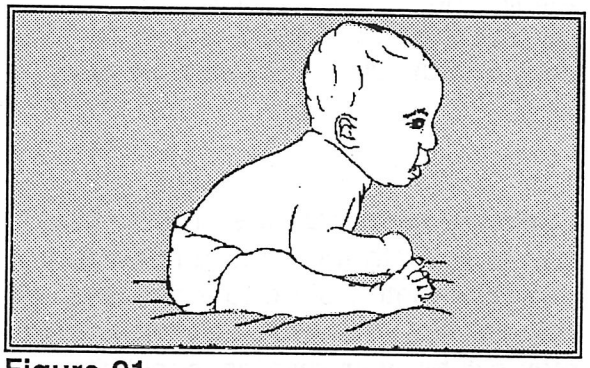

Figure 91

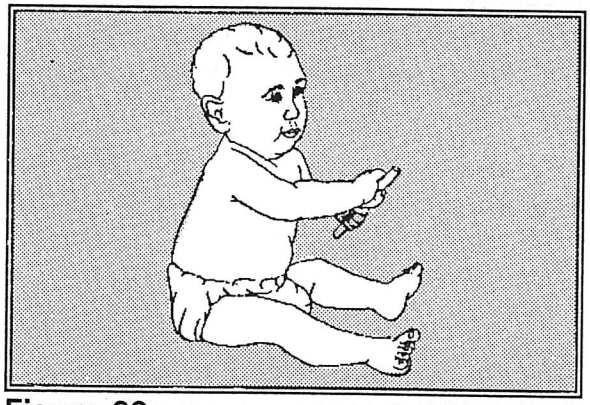

Figure 92

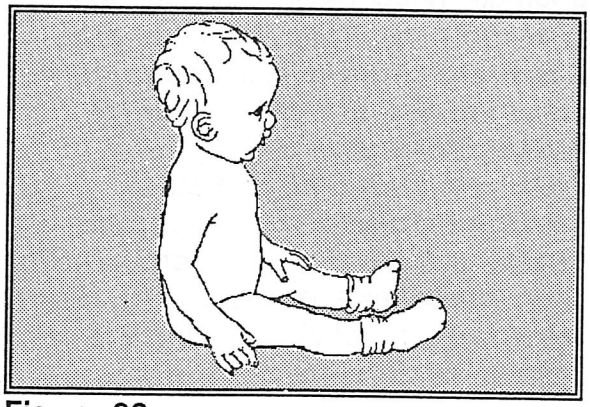

Figure 93

Initially, babies develop control of the head on an elongated neck in the lower positions of prone, supine and sidelying. They learn to lift and turn the head by working off the supporting surface. In sitting, the baby progressively gains control of the head and neck as the hips become active and the spine becomes erect. The three month old has limited postural control in sitting and attempts to right the body by using strong head and neck extension with shoulders elevated **(Figure 91)**. At five months, the baby is able to extend the thoracic spine as well as the head and neck, and may briefly sit unsupported **(Figure 92)**. By ten months of age, the baby has enough hip and spinal control to sit independently with the dynamic mobility of a head that flexes on an elongated spine **(Figure 93)**.

As the baby develops control of the head and neck, he also develops control of the mouth. As postural control emerges, the baby's lips, cheeks and tongue move forward. He gains control of the oral mechanism for feeding and sound play.

ABNORMAL

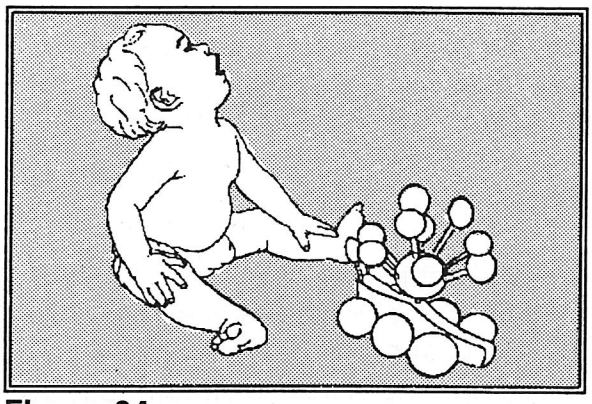

Figure 94

Children with neuromotor challenges may not develop control of the head on the neck for a variety of reasons. Head control may not developed when flexor control is delayed, as in the case of hypotonicity **(Figure 94)**. Notice that the lips and jaw are pulled into retraction with the head and neck. The tongue musculature retracts as well.

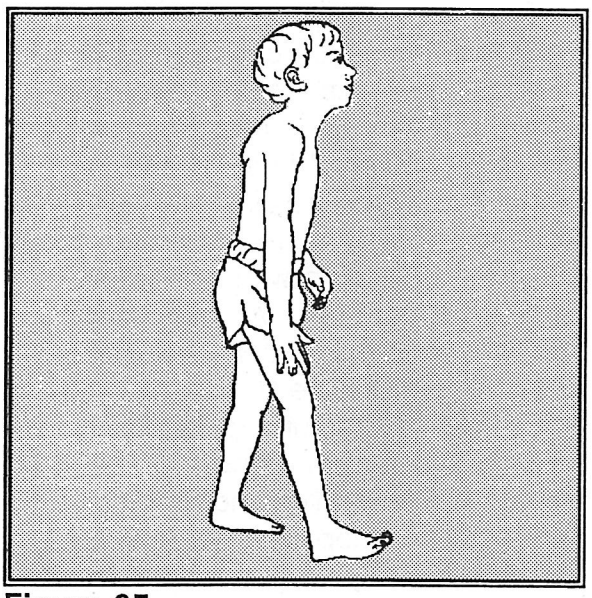

Figure 95

Spasticity may force the child to hold and brace with the head and neck to maintain control of upright postures **(Figure 95)**. The adult with hemiplegia may exhibit asymmetrical spasticity or inactivity in the head, neck, shoulder and oral mechanism which will impact on both gross and fine motor control.

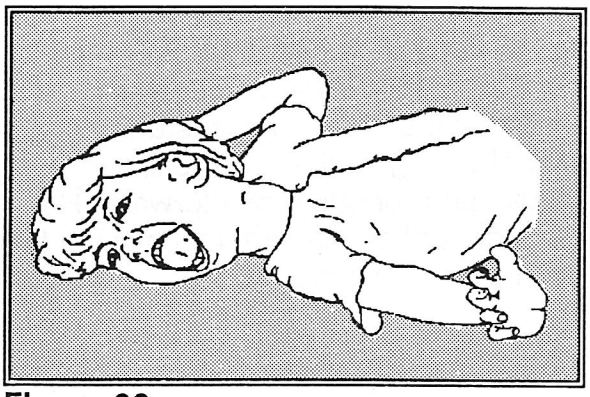

Figure 96

Patients may experience severe motor involvement due to cerebral palsy, traumatic head injury, infection, and post-drowning. They may have such significant spasticity in the head, neck and shoulders that oral control for feeding becomes a primary focus in treatment. **Figure 96** illustrates significant retraction of tongue, lips, cheeks and jaw in a child dominated by asymmetrical extensor spasticity. Notice the associated tension around the forehead and bridge of the nose.

MYOFASCIAL RELEASE TECHNIQUES

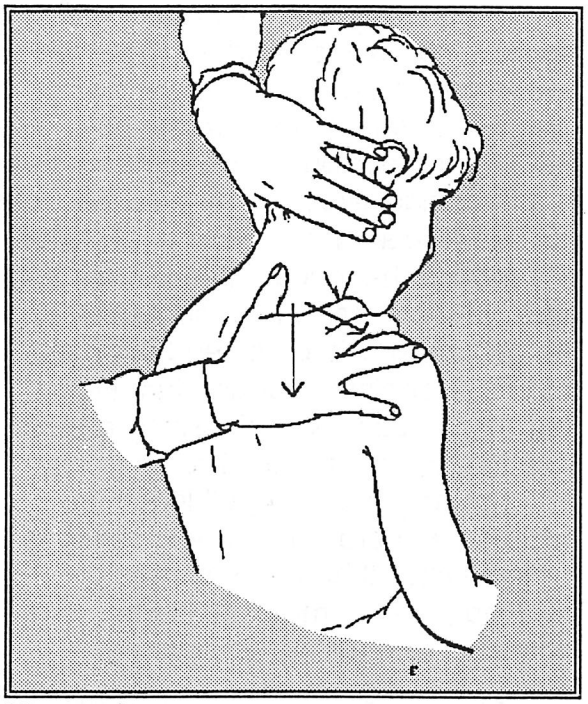

Figure 97

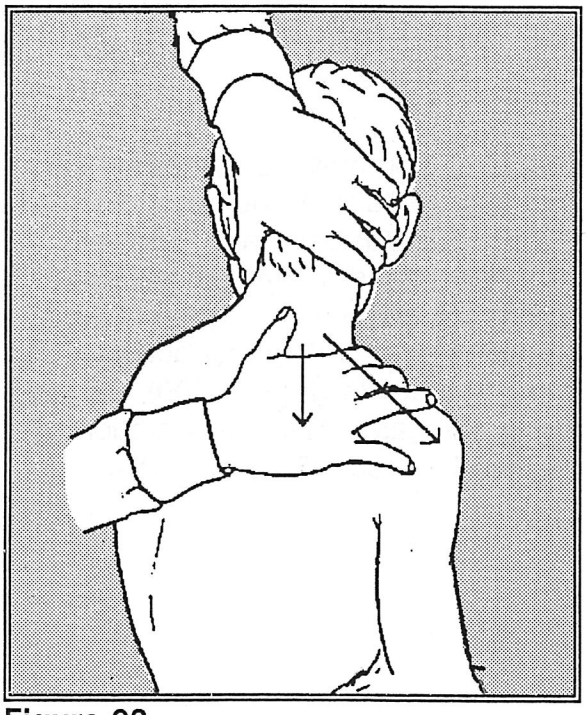

Figure 98

Gaining length between the shoulder and the neck will help the patient develop head control off a well-aligned shoulder girdle. The therapist's hand provides light support to the base of the skull, or occiput. She is not providing traction and is not pushing the head and neck forward. She simply stabilizes the fascial system. An alternative is to lightly support the neck instead of the head. Her other hand applies pressure either toward the glenohumeral joint or toward the pelvis, depending upon the location of the fascial barrier **(Figure 97)**. As the myofascial structures lengthen:

(1) the shoulder may drop into depression,
(2) the head may flex on the neck,
(3) the neck may laterally lengthen,
(4) or the head and neck may rotate, as in **Figure 98**.

Follow any motion that occurs while you encourage the patient to maintain upright postural control. A full body righting response may also occur during the myofascial release.