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Some thoughts on involuntary muscle

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" I remember only to well how, as a bioenergetic patient, I surrendered my body to bioenergetic therapy and was envious of my therapist's interest in and relationship to its (my body's) vibration and responses. I sensed this envy deep within myself (although I did not realize what it was at the time) as I bent and stretched in various positions which where intended to open my body's pulsatory, spontaneous motility. I felt that my therapist was more interested in my spontaneous motility than in my inner experience of myself. I believe this was an accurate perception on my part because, as a Reichian at heart, my therapist was trying to open the underlying biopathy which was fuelling my neurosis" Robert A. Lewis (2003)

Robert Lewis's tale struck a cord and resonated in me as I contemplated writing about the relational dimension of involuntary muscle. 'Who's agenda is it anyway' was my initial thought leading me to consider the apparent lack of relationship between Robert Lewis and his therapist. But while my heart was only too ready to respond and embrace the pain and trappedness I heard in his words, I was also aware that it takes two people usually to miss each other in such a profound way. And I felt both my curiosity and admiration rising about his determination and skill in keeping his therapist at a 'safe' distance in spite of all the provocative somatic stimulation he probably received.

And on yet another level, Lewis's tale reminded me also how the dynamics of the body and its 'therapy' are usually described, explored, and taught in singular dimensions. And not just body psychotherapy either. Collectively we seem to display a tendency to focus on either therapist or client when the topic turns to the participants in the therapeutic relationship with some object relations publications as the welcome exemption. Which raises the obvious question: just how would I describe a somatic dynamic in such a way that I include both participants?

I recall my initial excitement and subsequent disappointment after reading an article with the promising title "Breathing dialogues" (Atemdialoge) in Energy & Character (1994) some years ago. I had very much hoped to read what the title suggested to me: a text about somatic processes unfolding in both therapist and client which are experienced as a dialogue by both participants (I should mention that I did find this article relevant and interesting in other respects). My yearning and disappointment never quite left me and kept my curiosity alive: **how do we understand this business of 'relating' to actually take place somatically?** The term 'relationship' implies to me that something ought to happen to both participants after all. Or, in other words, a relationship that deserves the term requires at least some degree of mutuality.

The subtle properties of involuntary muscle loomed large in my personal experience during my Biosynthesis training when David Boadella first introduced me to this subject. With hindsight it seems that I responded to my experiences of mutuality in therapeutic processes both in the therapist and in the client role. To me, involuntary muscle stands first of all for the 'here and now' spontaneous somatic self experience and self expression. This is particularly evident in the experience of touch. Touch is always a two way experience: as I touch a client I am being touched as well. I relate as a psychophysical entity to another psychophysical entity. This direct and instantaneous relationship of touch is largely facilitated by, and experienced through, my involuntary muscular system.

Within the Reichian tradition, muscle is often seen primarily for its capacity to build and maintain defensive structures such as muscular armouring and segmentation. Self extension is then expected to occur when self expression charge is 'breaking through' the restrictive muscular armouring. This concept of the defensive function of muscle however, also paved the way for appreciations of the structuring capacity of muscle which has since developed into more dynamic views of the motor system, as a 'muscular ego' for example (Carroll), and the perception of catharsis and containment as a continuum (Boadella, Keleman, Lewis). Advances in neuropsychology published over the last two

decades (Damasio, Schore) strongly suggest to me that we need to look at habitual muscular patterns as manifestations of our organisms self regulative intend.

Alpha and gamma muscle

We have two distinctly different sensory-motor systems at our disposal, the gamma and the alpha system, each with its own principles of organisation, its own muscular cells, its own neural pathways and its own areas in the brain. The gamma system accounts for about one third of our muscular nervous system and the alpha system is taking up the remaining two thirds. Of the two, the gamma system is the evolutionary older one and in charge of reflex responses and muscular tonus as well as organising a whole range of subconscious and involuntary muscular activity such as meeting gravity, organising posture, or compensatory movements to maintain our balance. The alpha system in turn enables us to exercise our conscious intention in the form of voluntary movements.

This distinction between voluntary and involuntary does not quite reflect the complexity of our muscular reality however. While one could describe alpha muscle as the ‘workhorse' of the human body, its organisation via the pyramidal system is not suited to facilitate any high degree of sophistication. As such, we are faced with the paradox that our species much heralded ‘free will' is utterly dependent on our gamma motor system's subconscious ability for muscular fine coordination and synchronisation. On the other hand, alpha motor cells and alpha muscle fibre also participate in movements instigated by the gamma motor system. Beyond such mastery of muscular performance however, the gamma muscle and nerves also facilitate the emotional dimension of posture and movements. Emotional charge is present within any muscular activity

Most of us have had experiences of feeling there is ‘nobody home' during some hand contact with another person. Asked to describe the hand that evoked such a feeling you would have probably used terms like flaccid, floppy or limp. And yet, at the same time, you have also experienced your awareness of the other person on a muscular level where the muscles of the other hand communicate to you not only their state of being but also, so Bainbridge Cohen (1993), express their readiness to respond and relate to you. Such muscular state of being is referred to as tonus and it's distortions as hypertonus and hypotonus.

Tonus presents the first and foremost manifestation of habitual muscular attitudes. The term describes the amount of resting tension within a muscle at a ‘background' level. It is continuously present in between movements and remains active even when the organism is resting. Tone is achieved by the relative number of motor units activated and indicates a ‘muscle's readiness for action' (Boadella, 1994). In order to maintain posture and balance whilst meeting gravity we need the carefully set tonal balance of antagonistic muscle pairs. Appropriate muscular tonus appears to be at the root of our ability to feel contained and in control of ourselves. But tonus is also continuously modified and influenced both locally and generally. Anxiety or depression for example will typically drive tonus settings higher or lower, thereby contributing to a declining sense of containment and control.

Such ‘tonal' sense of containment and control derives from the empowering effect of muscular elasticity. Muscle tone also plays a central role in the ‘grounding' phenomenon. Incidentally, Boadella (1994) links hypotonus to ‘undergrounding' and hypertonus to ‘overgrounding'. Muscle tone it seems, both reflects and determines how we experience ourselves and how we meet the world around us.

Muscles learn what it “feels like”

If we look at muscular tonus as one of the ways in which our organism regulates itself, then we need to expect that such self regulative activity is experience dependent; i.e. our individual capacity to regulate affective states is built on and developed from our experiences (Schore, 2001). Such dependency on experience not only suggest the ability of muscle to experience but also forms the basis for the relational dimension of muscle. Bonnie Bainbridge Cohen highlights the significance of the relational experience for the development of tonus: *"After birth, the tone continues to be a response to gravity and is further modified by the way we are related to physically, perceptually, and emotionally.* ***Tone is relative and is reflective of the interaction between one's inner and outer***

***environment**."* (1993: 125)

Within the gamma motor system, we find two local structures present in every group of muscle fibres which are particularly relevant to sensory-motor integration and able to facilitate regulative processes: the Golgi tendon organs and the muscle spindles. The combined sensitivities of Golgi's and spindles together provide us with the measure of an object's resistance to movement in the form of sensory impressions.

Juhan (1987) employs the term 'sense of effort' to reflect the muscular effort required in providing us with sensory information about ourselves and the world round us. Juhan sees this 'sense of effort' as central to motor organisation and performance. In order to set the right length of muscle spindle fibres and the tension values of the Golgi tendon organs, we need to sense the amount of effort required for a movement or to maintain a position. And our emotional self-experience benefits directly from the sensitivity of muscular proprioception. My chest, for example, may feel 'heavy' as a reflection of my respiratory muscles subjective 'effort' rather then the existence of some external breath restricting weight.

Muscle spindles "*are motor units than can feels themselves*" states Juhan (1987: 194). And crucially, proprioception from spindles and Golgi's provides the only sensory information that can tell us where particular parts of our bodies are in time and space. This ability for proprioception depends, so Anton Lethin, on sufficient levels of muscular resting tension: *"To feel your body, you need enough contraction of the spindle to stimulate the sensory nerves from the spindle.* ***In the absence of enough body sensation, the schizoid is not sure he exists****."* (1976: 43, my highlight) He suggests that an infant needs to establish sufficient levels of 'spindle tone' to develop proprioception. In other words, my cohesiveness as a psychophysical entity establishes itself through the experience of vitalising gamma muscle structures.

The infant's early experience of his carers is largely facilitated by muscles and skin. *"The first internal object is a bodily felt presence, and primitive communication is a bodily felt phenomenon"* writes Andrew Briggs (2002: 13). Schore refers to Lichtenberg el al. pointing out *"that there are two classes of selfobject regulatory experiences: vitalisation and soothing"*.(2003: 443) But the calming effect of soothing and the stimulating effect of vitalisation are initially experiences of muscular, skin, and vestibular sensation. *"Vestibular stimulation like rocking strongly increases gamma motor discharge"* writes Lethin. (1976: 43). He suggests that the skin also forms part of local gamma nerve networks and points out that cutaneous nerves stimulate both gamma and alpha afferent nerves with sensory information from the skin utilising the 'peripheral loop'. *"The tone of muscle spindles is highly dependent on sensory inflow from the skin"*. (1976: 43)

Muscular organisation and learning processes are based on 'what it feels like'. Records of individual patterns of muscular activity are not located in the motor cortex, states Juhan, but in the sensory part of the brain and our motor systems 'follow' the guidance of such sensory patterns (1987). Muscular activities rely on our sensory memory of similar activities in the past on one hand and on the local sensory feedback loops for the instantaneous corrections of effort on the other. Crucially, this feedback loop is also critical for the integration of experience.

But we also need to expect some ability of local muscle to recall previous states. 'Memory' is also present at a cellular level and not limited to the brain alone. *"Organisms without brain tissue or nervous systems have experiences",* states Boadella*. "They are sensitive and they respond to the environment and act upon it. Some system of primitive recall of past organismic states seems to be the property of even a single cell."* (1987: 28)

Self experience & involuntary muscle

Such capacity for psychophysical processing establishes the gamma system's role at the very heart of self experience. The term 'self', so Damasio, represents a *"repeatedly reconstructed biological state"* that *"endows our experience with subjectivity"*. 'Cold feet' could be an example for the multi-dimensional nature of muscular self-experience. While the expression 'cold feet' is commonly used to refer to anxieties about meeting challenging circumstances, the experience of cold feet is often

attributed to ‘poor circulation'. In physiological terms however, temperature is a product of the metabolism of muscular activity. And a frequent experience of ‘cold' feet would indicate a lack of metabolic activity which suggests that too little involuntary muscular ‘resting' activity is taking place to produce a comfortable temperature. As such, my cold feet can be a way in which I get to ‘feel' the degree of comfort I experience within myself, either habitually or in a particular situation.

But gamma muscle provides yet another dimension to our self-experience: the capacity to embody the conflict. Alpha muscles are organised by the pyramidal motor system, a descending tract that is essentially an excitatory system. It supports a straightforward ‘on - off' functionality determined by the duration of neuronal firing bursts. The gamma system in contrast organises the local muscular environment that receives the alpha impulse.

The complexity and interconnectedness of structures involved with the gamma activities explored earlier indicate the need for a dynamic organisation. In a nutshell, the gamma nervous system is simultaneously engaged with experiencing (i.e. feeling), anticipating, informing and being informed both locally and generally, and responding as well as initiating. This extraordinary organisational feat is largely managed by the extrapyramidal system, the cerebellum and the basal ganglia.

Boadella's distinction of alpha muscle's ‘will to move' and gamma muscle's ‘wish to move' (1994) reflects the fundamental difference in functionality and character. It's dynamic organisation enables gamma muscle to ‘feel' and embody **intentions** as either receptive or assertive responses. Lethin understands intension as spindle tension: *"The spindling creates the feeling and intends the motion."* (1976: 45)

In physiological terms, muscle spindle and Golgi's create the local environment within which the alpha activity takes place: every activity of alpha muscle is limited by preset spindle tension values. Such settings in turn, are determined by the gamma system's anticipation of effort and range of any particular muscular activity. Additionally, the gamma nervous system can limit or modulate alpha activity at any time. As such, the combined activities of alpha and gamma have the capacity for conflicting impulses and the potential to embody conflicts like the ‘top dog / under dog' dynamic.

Such capacity for conflicts between impulse and intention will be particularly evident in the relational experience of touch. If we for example return to the experience of hand contact, we can now perceive the flaccidness of muscle as a lack of intention that embodies a conflicting statement within the voluntary muscular activity; i.e. the hand and arm reaching out to meet yours. Boadella (1994) distinguishes four modes of muscular responsiveness:

– **High charge but inability to initiate a movement or response (lack of intention)**

– **‘I don't want to' - Refusal to move in spite of involuntary activity (denial of intention)**

– **Inner feeling and muscular action are one: ‘I am ready and I go'**

– **‘I am not ready and I won't move'**

It appears that gamma muscle is capable of organising a dynamic local environment with the ability to relate to its equivalents in another person by feeling itself on one hand and simultaneously experiencing the other person utilising skin, vestibular and muscular proprioception of being touched, moved and responded to on the other. Since gamma muscle is also continuously informing and being informed through dynamic processes on all neurological levels elsewhere in the organism, I suggest that local gamma muscles form convergence zones where intrapersonal and interpersonal experiences may influence each other.

"Just as every thought and every sensation find expression in our systems through some modification of motor behaviour, so every tension and every movement produces a sensory stimulation" wrote Juhan (1987: 185) and we can expect to find this description mirrored particularly in the relational experience of touch in both therapist and client.

Somatic dialogue

Let us return to the experience of hand contact once more: If I maintain such contact for a length of

time, and maintain my awareness of this experience as it develops, I may notice a number of events. One or both hands may change temperature for instance. I might notice micro movements which may initiate from one hand and are responded to by the other. Or my sense of my own presence or that of the other may shift or develop. Most commonly I will probably notice subtle signals that indicate resistance.

To facilitate such contact, I need to relinquish some of my alpha control in favour of gamma motility and sensitivity. For all the distinction between alpha and gamma muscle, we need to remember that they will always be both present and often with contradicting emotions and impulses. Boadella (1994) points out that gamma is the slower movement and the deeper feeling. Gamma muscle will become increasingly apparent as the speed of my own, and my client's activities slow down. But the extent to which I surrender alpha control will also determine the degree of self disclosure I accept and in particular so within the local environment, in this case my hand.

Where I do feel comfortable enough with such contact and disclosure to relinquish sufficient alpha control, the muscles of my hand will increasingly begin to follow my own intuitive impulses and respond to those of the other. Which may lead at times into small movements limited by subtle muscular signals of resistance. As my conscious mind becomes the captive audience of my own, and the others, muscular resistance and motility, I experience some state of reverie (or what I imagine Bion meant by that) within and towards myself as well as towards the other. Boadella (1994) employs the term ‘somatic dialogue' which he describes as a state where leading and following ceases to matter as both participants appear to lead and follow equally. Somatic dialogue can be likened to the affirmative effect of ‘mutual mirroring' and the inherent potential for transmuting internalisations decribed by Kohut (1977).

However, to dispel any notions of gamma muscle as some kind of body psychotherapy nirvana, I want to emphasise that I expect to sit through layers of frozen intentions or experiences and whatever pain, fear, anger or longing trapped therein for long periods of time. In the territory of gamma muscle, an hour may feel quite short. While working with gamma muscle may lead occasionally into the kind of highly charged processes that we identify as cathartic, the dialogue of involuntary muscle is typically a way of being with and exploring the resistance.

At times it may be the other way around when local gamma muscle facilitates contact as a resource. I recall the frozen body of a client imprisoned in a desolate wasteland of violent childhood trauma who's hand became so alive, warm and trusting that it seemed the essence of life itself and turned into a beacon for hope.

Surface boundaries

The term ‘surface boundaries' (Boadella, 1994) refers to the experience of a dividing line between internal space and external space. While our skin's naturally provide such a boundary, our skin experiences are first of all receptive and thereby passive experiences with all the vulnerabilities that entails. If I require my skin to function as an effective surface boundary with the ability to not only contain myself but to also keep others out, I will need to underpin my skin ‘envelope' with the vitality of muscle. Not surprisingly, the quality of surface boundaries appears closely linked to muscular tonus. As a consequence, we can expect muscular armouring to contain at least some functions that aim to compensate for limitations of surface boundary.

The work of Esther Bick emphasised the relevance of the infant's skin experience, called ‘first skin formation' by Bick, within the process of introjecting a self object that is capable of a self containing function. Bick summarises her observations of ‘disturbed first skin formation' during the early attachment phase: *"The ‘second skin' phenomenon which replaces first skin integration, manifests itself either as partial or total type of muscular shell or corresponding verbal muscularity."* (2002: 59). The body is held deliberately rigid and together, so Bick, to compensate for a lack of internal space.

Well developed surface boundaries are indicated by the ability to trust ones feelings about incidents of touch and experiences of close physical proximity. Preoccupations with touch and habitual anxieties about touch in turn suggest a confused or insecure internal space and a lack of trust in the

experience of oneself. Touch however, provides us with an interface between self and other which can be actively and explicitly explored in the therapeutic relationship. Both therapist and client will need to attend to their own and each others experience of self and other to validate and affirm the integrity of internal space within secure surface boundaries.

An apparent lack of psychophysical cohesiveness, often associated with Borderline dynamics or pre-psychotic states, may indicate more severe distortions of surface boundary. I recall one person who could not sense wether my hand on his shoulder was outside or inside of himself. It seemed that he did not have sufficient surface boundary to separate these two dimensions out. Such absence of a secure distinction between internal and external dimensions will have a profound impact on experiences of touch and physical proximity.

In such instances, touch - if used at all - and the transference of touch will require a particularly well established holding environment within the therapeutic relationship. In the absence of a secure internal space, touch may be well prove too provocative to contain and may introduce the kind of catastrophic anxiety that Bick describes as a state of 'unintegration'. *"Analytic investigation of the second skin phenomenon tends to produce transitory states of unintegration. Only an analysis which perseveres to thoroughly working-through of the primal dependence on the maternal object can strengthen this underlying fragility."* (2002: 59) The infantile body-ego, so Bick, experiences separateness as disintegration and defends by splitting. In the absence of an internal space however, the infant can neither contain nor project into an external object. We cannot underestimate the terrifying nature of such a limitless space and its threatening potential for annihilation.

It may be paramount to explore the experience of internal and external space at depth before touch is considered. Where states of catastrophic anxiety do occur in the therapeutic relationship, they appear to be affected by the physical distance between therapist and client. Increasing such distance significantly appears to increase the ability to separate self and other. And an exploration of such distance may provide a way to experience the anxiety as well as acknowledge and explore its affect on both participants. I recall a client who's movement to the far end across a large room became almost a ritual. And the act of moving to and sitting across the room, appeared to provide some containment by itself.

After thoughts

To describe working with involuntary muscle as working with the core would almost be an understatement. Which makes it all the more important to remember that habitual patterns of muscular activity may manifest as resource and limitation simultaneously. However restrictive any habitual muscular activity may present itself, we need to perceive it equally as a expression of the organism's self regulative intend as well as attempt to find its equivalent in the space of the relationship.

I would like to acknowledge the inspiration I received from Robert Lewis's text 'Human Trauma' and conclude with another quote from him. *"(...) I would have to clarify (...) that my trauma was essentially a betrayal by those I loved and trusted that there is simply no technique on this planet that overrides what I sense of my therapist's humanity ...their ability to tolerate my hatred and brokenness...their ability to be with me in our mutual helplessness. I need to know if they are able to spend as much time with me - not knowing if we will make it- as they spend with the therapeutic approach that makes them comfortable."* (2003: 36)

References:

Bainbridge Cohen B. (1993), Sensing, Feeling and Action, Northampton, MA

Boadella D. (1987), Lifestreams, London

Boadella D. (1994), Unpublished training material

Bick E. (1964), Notes on infant observation in psycho-analytic training, in: Briggs Ed., *Surviving Space*,

Karnac, 2002

Briggs A. (2002), In: *Surviving Space, Ed.Briggs, London*

Juhan D. (1987), Jobs Body, Station Hill Press, New York

Kohut (1977), The Restoration of Self, New York

Lewis R. (2003), Human Trauma, In: *Energy & Character Vol 32, 2003*

Lethin A. MD (1987), Muscle tone and feeling, in: Energy & Character Vol 8: 1

Schore, A. (2003), Affect Dysregulation and Disorders of the Self/Affect Regulation and the Repair of the Self

Wehowsky A. (1994), Atemdialoge, in: *Energie & Charakter, Heft 9, 1994*