On Core (and Sleeve)

By Stephen Paré, Certified Rolfer™

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. . . In which a review of existing theories leads to yet another theory; that, too, is rejected in favor of the priority of tradition; and the essay proceeds to an appeal for a return to Ida Rolf's original formulation. But this is discovered to be ambiguous; and the essay concludes, inconclusively, with speculation as to what to do for the best.

The question of the definition of the core of the body is a much-vexed one in Rolfing® circles. Indeed, it is difficult to find complete agreement between any two writers on the subject, much less among a majority. One thing lacking within the diversity is a survey article that summarizes, assesses and reconciles, to the extent possible, the various ideas. This essay will attempt to fill the void by reviewing a number of existing writings on the subject. Of particular interest is the "core as visceral space" since it is presently the dominant conception of the core in our curriculum.

What is the validity of conceiving the core as visceral space? What relationship does Rolf's original formulation have to "the core as visceral space"? These two questions are very closely related; since if we are not talking about the original formulation, it is difficult to know what we are talking about. This is Sultan's position:

> I don't think we really have to look any farther than Ida Rolf's original formulation to see what it is we are referring to when we're talking about core.[1]

Indeed, if we can determine what she meant, it would seem absolutely necessary to do as he suggests, an obligation less to tradition or to the founder's memory than to intellectual probity. She, apparently, was the originator of the concept.

This essay will evaluate the range of conceptions of the core (its complement, usually called the sleeve – following Rolf – is naturally also of interest, though some writers are more interested in thinking about it than others).

The essay will go further, by proposing a modification as well as a clarification of the "core as viseral space" theory, one that links to a more traditionally recognized binary division; namely, the ancestral chordate opposition of dorsal versus ventral. To support this, information will be adduced from vertebrate morphology, fetal and early childhood development, and neuroanatomy.

I.

Rosemary Feitis edited Ida Rolf Talks About Rolfing and Physical Reality, also providing a glossary. There is a glossary entry under "Core/Sleeve - Intrinsics/Extrinsics." This heading arouses the expectation that the entry will convey Rolf's own thinking on the subject. "Core" and "Sleeve," though they stand at the head of the entry, are not defined specifically; one must then assume that they are identical with "Intrinsics" and "Extrinsics." "Intrinsics" and "Extrinsics," however, are not precisely distinguished, as the definition specifies a continuum, viz.: "the rule of thumb [i.e., it is not a definition] is that tissue nearer the bone is intrinsic; tissue closer to the surface is extrinsic."[2]

"Nearer to the bone" does indeed seem at first to be a useful "rule of thumb" [sic!], if an imprecise one; but it is a phrase that itself conceals difficulties. Most muscles attach to bones on either end of their span. Does this mean that their bellies are more extrinsic than their tendons? Or that a skeletal muscle, attaching to bone, is more intrinsic than the stomach, which does not? In this scheme, is the skeleton the anatomical core? This does not seem to be the implication. By calling it a "rule of thumb" she seems to acknowledge the imprecise nature of her formulation; on the other hand, Feitis is clearly implying a relationship, if not an equivalence, between "core" and "intrinsics" – but what is it?

That "intrinsic" is not equivalent to "core" in Feitis' view is made clear by this intriguing speculation: "intrinsic movement as a whole is initiated from the core of the body, most probably by the older vegetative autonomic nervous system," since the core in this formulation is a discrete entity.[3] The entry concludes by claiming that "electromyographic research has shown that Rolfing achieves this kind of core-sleeve independence."[4] But the reference for this research is to an unpublished manuscript, and the core and sleeve have previously been neither defined nor distinguished. Therefore, such a statement can convey nothing precise. She says that "the girdles should be sufficiently free so that their actions do not distort the serenity of the core."[5] Does this mean that the pelvic and pectoral girdles are the sleeve? And what does that have to do with intrinsics and extrinsics?

Elsewhere in the same book[6] is an illustration with this caption: "Three views of the body core, the spine." This appears to be a different definition, apparently irreconcilable with the intrinsics/extrinsics definition: the core is the spine. But it is reconcilable with her assertion that "the girdles should be sufficiently free so that their actions do not distort the serenity of the core."

One of the persistent themes of inquiry into the core is whether or not it is to be equated with the "Line". For instance, Schultz, in 1988, does equate them. According to Schultz, Rolf does not appear to have expressed herself either in detail or very concretely on the concept of core and sleeve. This tends to be confirmed by Sultan:

> She was looking for a way to describe that something that happens to people when they get "Rolfed," that emergent quality....her description of the core was as an energetic event, and the sleeve referred to the flesh in general, that which was affected by gravity.[7]

Schultz' brief article from 1988, on the contrary, presents a quite simple and clear definition for the core, identifying it with the central axis:

> The core is a flexible line and the sleeve is (are) the obliques moving around it.[8]

In a later book, The Endless Web (1996), Feitis and her co-author Schultz present a different concept of core at greater length and with appropriate discretion:

> With some caution, we use the ambiguous word "core" for the body's central axis...there is no structural correlate for this core.[9]

But despite having "no structural correlate"…

> The concept of a core includes both [the] spine (with head, sacrum, and coccyx) and the viscera.[10]

It also is seen to perform a fundamental functional role, although it has, again, "no structural correlate":

> The balanced diagonals of the limbs function best in combination with the free spring action of the core.[11]

The definition offered here is ambivalent. On the one hand, the core is the central axis with no structural correlates; on the other hand, it is the spine (including the head) and the viscera. Note that Schultz' earlier idea of the sleeve consisting of mobile "obliques" is preserved in the later "balanced diagonals of the limbs"; and, in fact, the definition in The Endless Web is an amalgam of Schultz' definition from his previous article of 1988 and one of Feitis' previous definitions (the one that equated core with spine). Gone here is the (only implicit) equation of core and sleeve with intrinsic and extrinsic tissues. Schultz and Feitis have also added the viscera, included because they surround the vertical axis.[12]

Note that they do not mention, much less attempt to define, the sleeve by name; presumably, it is everything else. But the apparent connection noted with the previous article of Schultz' between "obliques" and "diagonals of the limbs" suggests that what we are really talking about here is the fundamental opposition between axial and appendicular skeletons.

Maitland's concept of core is similarly ambivalent, sharing several features in incomplete agreement with Feitis (i.e., in Rolf 1978), and with Schultz and Feitis. Maitland discusses what he refers to as objective, subjective, psychological, and phenomenological taxonomies of the core/surface distinction (apparently alone among commentators, he prefers "surface" to "sleeve"). We shall concern ourselves with the "objective" ones, although the others are naturally intriguing. It would be very exciting, in this connection, to be able to distinguish a physical or objective core that also can be distinguished in other dimensions of human existence. One might then theorize that the condition of the physical core also gives clues as to the condition of the psychological and ontological being of the human being, and perhaps vice versa. It might be possible to integrate work on the motility of the spleen, for instance, into a course in anger management![13]

Maitland identifies two "objective" conceptions in his glossary; the first, however, seems, as Feitis and Schultz and Feitis did, to amalgamate two separate and unreconciled conceptions of core. The problem is essentially the same as that in Feitis:

> According to Dr. Rolf, one way to draw the distinction is to understand the intrinsic myofascial structures as core structures and the extrinsic myofascial structures as surface structures... one of her favorite indicators of this economy of function was the appearance of the spine (core) moving in free independence from the pelvic and shoulder girdles (surface).[14]

The first difficulty is that "intrinsic" is not distinguished with respect to "extrinsic." Are some myofascial structures "intrinsic" and others "extrinsic"? That is, are discrete structures either one or the other? If so, this is not specified. Or does "intrinsic" signify "deeper," not indicating structures themselves but a relative, not absolute, location? It does for Feitis, although she says that "...tissue nearer the bone is intrinsic, tissue closer to the surface is extrinsic,"[15] while Maitland refers only to myofascial structures.

Most likely it is the second meaning that is intended, as Maitland attributes it, as Feitis does, to Rolf. But if the distinction is a relative one – like the anatomist's cranial/caudal, a bi-polar continuum – then how is it possible for the core to move "in free independence from the...(surface)"? At what point on the continuum is this independence to be leveraged? In Maitland's schema, a clear distinction is assumed; yet the possibility of one is negated. And, like Feitis, his definition has to do both with intrinsics/extrinsics and with the spine/girdles; the two aspects of the definition combine uncomfortably and appear to be incompatible. The problem, finally, appears to be unresolvable.

Maitland offers an additional "objective" definition of "core and surface," one that is quite incompatible with his first definition:

> Another way to objectify the core and surface is to understand it [he is actually only talking about the core here] as the space bounded by the pelvis, abdominal myofasciae, rib cage, and jaw. This internal space extends from the pelvic floor to the palate or nasopharynx. The bony and myofascial structures that surround the core space constitute the surface...[16]

The real problem here is the idea that it is possible to have two completely different and incompatible objective definitions of the core. Is it "the intrinsic myofascial structures," or is it the spine, or is it the visceral space? If it can be all three, how can we possibly be talking about the same thing? Perhaps it is reasonable to present three possibilities, but not to suggest that all can be true; otherwise, it is a matter of three different things, which should then have three different names. And the question then arises: three possibilities of what, exactly? For it is not clear what sense it makes to talk about a core and a surface. In Maitland's discussion of core and surface, the abstract concept core has been reified into something, or rather into various things; it doesn't need justification. But it is not at all obvious from his discussion that there even is such a thing; as we shall see, not everyone agrees that there is an anatomical core. Surely the argument ought to go from the observed and specific to the abstract and general, and not the other way around. The abstraction "core and surface" should be justified by observation. It is unreasonable for it to start off as a premise and then go looking for an observable correlate to it.

To add further to the ambiguity, Maitland adds a fourth definition in the body of his text, less anatomically precise but definitely locating the core in the physical body:

> You can visualize your core as extending through the center of your body from the crown of your head, down slightly in front of your spine, through the insides of your legs, and emerging just in front of your heels on the soles of your feet.[17]

And now "core" becomes "Line" again!

"You can visualize your core"; "Core...can be used objectively";[18] "The core can be objectified and described anatomically."[19] Yes, but why should it be objectified and described one way rather than another? It is not enough saying that it can be one thing or another; for what reason is it one or the other? If it is one thing, then the other things should be called something else.

Maitland's discussion is most useful when he refers to his clinical experience, such as the following suggestive observations:

> Manipulating certain key myofascial structures...often visibly opens up, lengthens, and actually increases internal spaces in the body. What Rolfers recognize and clients feel as core length and core function happen when these spaces visibly open up, lengthen, and increase in volume...[20]

He points out that it is important to have a concept of core for this reason;[21] but as the concept has not been adequately defined, or even isolated, the acuteness of his observation is blunted. This lack of precision is more unfortunate as he becomes more specific (and more interesting):

> Rolfing the myofasciae on the inside of the thighs (e.g., the adductors) and pelvic floor often will lengthen and increase the core space of the whole torso.[22]

Presumably, in this instance, he is referring to a "core as visceral space" definition – or is it "core as Line"? His observation about the adductors is especially interesting in light of yet another concept of core that he mentions (though without reference):

> Other models add [that is, to the "pelvic floor to nasopharynx" model] the space between the legs which extends from the pelvic floor down to and emerging just in front of the heels on the bottom of the feet. These models also insist that the core must also extend up past the roof of the mouth to the top of the head.[23]

This is perhaps at least partly justified by his observation about adductor manipulation[24] (partly – does the effect he describes extend downward as well as upward? He doesn't say). Wouldn't we expect the various regions of the core to be more sensitive to manipulation of another part of the core than to manipulation of the sleeve? This seems a reasonable hypothesis; researching this kind of question might be a very good way to respond to Flury's critique:

> I haven't found a question that could be answered by defining a concept of core...why should I build a theory when there is no question?[25]

If there are two divisions in the human body, it would be reasonable to expect manipulation to have more powerful intradivisional than interdivisional effects. If core and sleeve can be sufficiently defined that predictions can be made as to intradivisional, relative to interdivisional effects, then there would be a question, in Flury's sense, worth building a theory around. The "concept of core" could then have some predictive power. It would be a theory of core – not a model but something you could build models from.

Deckebach has proposed yet another anatomical definition of core and sleeve:

> Core – the pleural membrane of the thorax and its contents, and the peritoneal membrane of the abdomen, along with its contents.[26]

This is quite concrete. He further distinguishes an "abdominal core," which is defined namely as the second half of the above definition. This definition is different from one of Maitland's definitions – his "core as visceral space" definition – in not extending upward to the nasopharynx; and in not extending downward to the pelvic floor.

The sleeve is also included and defined in Deckebach's scheme:

> Sleeve – everything outside of the pleural and peritoneal membranes.[27]

This leaves us essentially with a definition for "sleeve" that means, "everything that is not core."

Deckebach points to an interesting phenomenon, presumably observed in his practice, which might be of some value in distinguishing an anatomical core from its sleeve:

> As the connective tissue in the sleeve tends to migrate to and contract around bony attachments, likewise, in the core, the connective tissue of the mesenteries migrates to and contracts around the organs it positions. This is what causes organs to feel harder in older bodies.[28]

Of exceptional interest is Deckebach's assertion of the precedence of core over sleeve:

> The unspoken premise we have been holding is that the sleeve determines the form of the structure...In my work I have changed this premise from the idea that the sleeve determines the shape of the core to the premise that the core contents are shaping the sleeve.[29]

It appears to be unusual, at least among published commentators, to assert that the core has precedence over the sleeve. Deckebach does not claim that most Rolfers give the sleeve precedence in their work, except, as he puts it, "unconsciously."[30] Perhaps Rolf's assertion that her method works from the "outside in" (using the metaphor of an onion, with its many layers) is responsible for this.

Schwind asserts the contrary: that "because of the tradition of our profession, we say that the inside is more important than the outside."[31] None of the other sources analyzed here makes a claim as to precedence, however. There does indeed appear to be less interest in discussing the sleeve (and consequently the relationship between core and sleeve); and that, perhaps, is indicative of a lower esteem for its importance.

Schwind has addressed the core/sleeve problem at the greatest length of any of the published discussions.[32] His discussion is further augmented by his oral presentation in a symposium on core and sleeve.[33] Both are valuable for their critical (and self-critical) attitude. However, they provide no unequivocal statement of what the core is in anatomical terms, certainly not what its parameters might be. On the contrary, he doubts that it is possible to formulate an anatomical definition of "core":

> The anatomical definition of the core has no chance of giving any explanation of why one anatomical unit of the body should belong to the core and why another should not belong to it. It is totally arbitrary.[34]

His critique of the possibility of an anatomical definition is based on an interesting analysis; he thinks that the core must be a collection of

> ...the different elements of the body which are most significant for the

> maintenance of the structure in time.[35]

This, clearly, is the position of Deckebach who (in addition to asserting the primacy of the core over the sleeve) has an answer for what elements those are. Presumably, he would prefer a term like "the structures" to Schwind's unintegrated-sounding "the different elements"). But Schwind denies the possibility:

> ...there is no reason to say, for example, "the spine is the core" or "the viscera are the core." Logically, there is absolutely no reason to do that.[36]

This reasoning, however, does not seem sufficient; surely the issue is not a logical but rather an empirical one. It appears that Schwind simply has a different presumption of what the core should be than other commentators. There might be a good reason to say that the spine is the core; for instance, that it is the structure around which the ancient chordate prototype is organized, while the pelvic and pectoral girdles are much less ancient and are thus graftings to a pre-existing trunk. If a Rolfer is able to observe that phenomenon that Sultan calls "...that something that happens...that emergent quality,"[37]what is observable must have a physical dimension. Deckebach, for example, claims from the experience of his practice to have found the primacy of the pleural and peritoneal membranes and their contents "for the maintenance of the structure in time." Nevertheless, Schwind appears to backtrack in his oral presentation of two years later:

> ...because of course, the space that the viscera take up seems to be one of the most significant components for a long term development of the shape of the whole of the human organism.[38]

If this is not a direct contradiction, Schwind does not explain why not; he even uses almost exactly the same expression he used previously in denying the possibility of isolating the

> ...different elements of the body which are most significant for the maintenance of the structure in time.[39]

But what is more fundamental is the unreconsidered assumption that the core must necessarily be more important than the sleeve. That one or the other may be more important is not the only set of alternatives. Why could the importance not lie in a balance between core and sleeve? In one respect, this seems, in fact, to resemble Schwind's own view:

> It's a symbol, it is a poetic definition of course, not very scientific, it's a symbol for the integrity of the human organism.[40]

According to Schwind, core is "an almost metaphysical term."[41] Indeed, in this conception, the "emergence" that Sultan speaks of is a function of structural integration, of balance not between core and sleeve, but among all the "elements" of the body. For Schwind, "core" is effectively equivalent to "integration." For him "core" should probably be called something else, because that word implies a spatial location; whereas, for him, the word means that a higher level of coherence has been achieved. This can be compared, of course, to Sultan's idea of core as "that emergent quality".

II.

Jon Zahourek has analyzed human anatomical organization in light of vertebrate morphological and neuroanatomical data with very interesting results. In evolutionary terms, our biological line of descent has only recently abandoned quadrupedal locomotion. Zahourek points out that our ancestral division between dorsal and ventral is actually, in evolutionary terms, a division between top and bottom:

> Divide both halves [i.e., left and right] into upper and lower zones: ventral, for the lower compartment occupied by the guts, and an upper, dorsal zone of musculoskeletal array – quite different ideas.[42]

This might seem at first glance to be, if not an arbitrary distinction, at most a convenient one; but the division exists in the nervous system and it is there that the significance of the distinction begins to emerge:

> Muscle activity in each segment is served by a left and a right pair of nerves from the brain or spinal cord, each of which branches into two branches (rami). One branch serves ventral muscle; the other branch, dorsal.[43]

As Schleip puts it, the extensors are "innervated from a dorsal primary ramus or the dorsal branches of the plexi," while the flexors are "innervated from the ventral branches of the plexi."[44]

The division between dorsal and ventral is thus also the division between the primarily tonic extensors and the primarily phasic flexors.

The evolutionary development of pelvic and pectoral girdles with extremities introduced complications into this scheme of motor neurological architecture, but the bi-ramic logic of the ancestral "idea" persisted:

> Pectoral and pelvic anatomy evolved much later than the axial system, so some of the segmental axial nerves are extended and borrowed. Since the appendages are outgrowths of the ventral body wall, the appendages are served by ventral branches of the spinal nerves. These ventral branches also divide into dorsal and ventral divisions.[45]

Note that the limbs also have upper, dorsal surfaces and lower, ventral surfaces.[46]

It should also be noted that our phylogenetic "anatomical position" is not only on all fours but also with external rotation of the limbs. This means that the origin of sartorius is presented on the dorsal surface of the body and is part of the group of extensors.[47]

Data from fetal and early childhood development provide an interesting confirmation of the fundamental bifurcation of dorsal from ventral:

> The sequence in which the head develops ahead of the tail and the back ahead of the belly is maintained, as far as we can tell, after birth...at birth, the most developed pelvic musculature is in the back. The gluteus maximus muscle is very well developed. The erector spinae...are strong, while the belly is less so.[48]

Furthermore, the adductors of the thigh are "even less strong."[49] Of course the adductors are "ventral" in the sense mentioned by Zahourek – that is, they are adjacent to the inside or "lower" surface of the limbs. "Flexion...is any movement that brings the ventral surfaces toward one another,"[50] as adductors do in our ancestral quadrupedal posture.

It is a case of "ontogeny recapitulating phylogeny": the infant can acquire bipedal locomotion and erect posture only after passing through quadrupedalism into a phase of "apprenticeship" (Feldenkrais' term) in bipedalism. It might be reasonably

asserted, as Rolf did more than once, that man as a species is in an epoch of apprenticeship in bipedalism. The (ventral) flexors develop more slowly than the (dorsal) extensors. Oddly, it is ordinarily the flexors that dominate in the adult, despite developing after the extensors

> A human being is evolving as an erect animal. How erect he's going to be as an individual will depend on the degree of balance between his flexors and extensors. If our description of evolution is accurate, then we have slowly come up to the place where we are putting more responsibility on extensors and trying to take away responsibility from flexors.[51]
>
> The development of the fetus establishes the pattern of the later development of the body; it's a pattern moving from habitual flexion toward balance between flexion and extension. Obviously, we will do well to get strength and life and vital quality into extensors.[52]

And there appears to be an additional complication – or really many interrelated complications – added to this picture by the existence of what Rolf calls the "hypererect" type of body or, in general, what is now referred to as the "external" type in which extensors are dominant.

Zahourek's presentation includes a pair of evocative illustrations, both representing the body, in profile, divided front to back, in two different ways. The first is with a vertical line extending from the crown of the head through the hip joint to the soles of the feet at a point just in front of the heels; the second illustration represents the division separating the ancestral dorsal from ventral.[53] It is especially interesting to note that, in the head, this division is just above the roof of the mouth, recalling one of the "models" of Maitland.

The particular slowness of the thigh adductors to develop in utero (and also in early infancy, as Schultz and Feitis note) associates them with the flexors in the torso. This is consistent, not surprisingly, with the ancestral quadrupedal pattern and the architecture of the nervous system, as noted by Zahourek. We have already cited Maitland's observation about adductor manipulation, and his comment that some "models" of the core include the inside of the legs – that is, the ancestral flexors. Can it be that we may best think of the core as being equivalent to the ventral division of the human anatomy and the sleeve to the dorsal division? Developmental and neuroanatomical data already divide the body into two divisions along these lines.

The importance of flexor/extensor balance was fundamental for Rolf:

> You must remember that in your appreciation of a body what you are looking at is the relationship between flexors and extensors.[54]
>
> ...in flexion extensors extend when flexors flex. This is something that doesn't happen in an unbalanced body.[55]

There is also a physiological distinction between flexors and extensors in general, as extensors normally contain more red fibers than flexors do.[56] The distinction has functional dimensions as well as structural:

> The first reaction to the frightening stimulus is a violent contraction of all the flexor muscles, especially of the abdominal region, a halt in breathing, soon followed by a whole series of vasomotor disturbances such as accelerated pulse, sweating, to micturition and defaecation.[57]

Feldenkrais "saw that negative emotion strengthens flexors."[58]

> People go to flexion for emotional security. They curl up for protection... immature behavior, negative emotions demand flexion and are expressed through flexion.[59]
>
> ...the chronaxies of the flexors are in general lower than those of the extensors, and they contract first.[60]

Feldenkrais chooses an appropriate moment to speculate and, in doing so, points to a fundamental distinction in our ancestral morphology:

> ...limbs are thus drawn nearer to the body in front of the soft, unprotected parts – the testicles, the throat, and the viscera. This attitude gives the best protection possible and instills a sense of safety. The flexor contractions, when maintained, are instrumental in restoring the normal, undisturbed state.[61]

Obviously any quadruped has a profoundly different feature to its structure, as compared to an erect-standing human being: namely, that the viscera are automatically more protected merely by virtue of the fact that the quadruped's extensor side is on the surface, exposed to the uncertainties of the world, while its flexor side is protected by the earth on the underside – the flexor side is, effectively, intrinsic. What Feldenkrais calls "the body pattern of anxiety"[62] is a return not only to a fetal pattern, but also to the primordial pattern of our evolutionary ancestors (in effect recapitulating phylogeny in reverse). The physical response to fear is a return not only to the womb but to the evolutionary trunk.

The erect posture that distinguishes our species serves to obscure one of the fundamental spatial distinctions of our evolutionary patrimony: dorsal equals outside, and ventral equals inside. The quadruped's ventral surface faces the earth, affording the contents of the visceral space a measure of protection. The "soft underbelly" is proverbial, signifying the vulnerability of the ventral surface.

From this perspective, erect posture looks as though it should be evolutionary folly: not only is speed sacrificed, with only two limbs available for locomotion, but the organism's vulnerable parts are extended up into vertical space where they are exposed. Clearly these are not the only relevant factors in our troubled evolution. To look at it another way, the structure of the human being is indeed quite a "different idea" in Zahourek's phrase.

Human posture, furthermore, seems to call for social and psychological innovations simply because of the fact that, in standing face to face, we also stand belly to belly (core to core?). The degree of intimacy that this implies is unprecedented among our mammalian relatives, even our closest ones. Jane Goodall once made a film detailing chimpanzee sexual behavior. While to watch it is to recognize one's own species in many things, it is also to be astonished, even shocked, at the absence of those things that matter most in sexuality to most humans: depth of involvement and intimacy, and the intensity of physiological response and orgasm.

The numerous anatomical conceptions of "core and sleeve" reviewed here fall into four categories (excluding Schwind's, the core as "symbol for the integrity of the organism"). These might be characterized as follows: 1) core as line; 2) core as axial complex vs. sleeve as appendicular

complex; 3) core as intrinsics vs. sleeve as extrinsics; 4) core as visceral space.

Each of the four prevalent conceptions represents one of Rolf's basic concepts (with the possible exception of the last one) viz.: 1) a man is a something built around a line; 2) independence of appendicular from axial; 3) independence of intrinsics from extrinsics; 4) balance between flexors and extensors. None of the writers reviewed is in complete agreement with any other.

Unfortunately the present essay has not joined with any one of these writers; it adds yet another theory to the list. (One other aspect of the confusion surrounding core and sleeve is the variety of ways that the ideas are framed; they are variously called models, or conceptions, or definitions, or theories. There are big differences among these terms, however.)

On the other hand, the present theory has an advantage over the previous ones. It embraces, as it were, the "core as visceral space" theory, while it is also closely allied with a distinction – the dorsal/ventral division – that is already well recognized by mainstream biologists. Therefore, it both explains phenomena that Rolfers have observed and also puts them in the context of what is already accepted. It also puts the "core as visceral space" theory into an easy relationship with one of Rolf's fundamental concepts: the balance between flexors and extensors. Most importantly, it poses "questions," in Flury's sense, that make it a necessary theory.

It is incompatible with the other three definitions/theories/models, however. Incidentally, Maitland's contention (or rather, that of his unnamed sources) that the core as visceral space reaching down the inside of the legs must also reach into the cranium is not identical with the dorsal/ventral model presented here; though the adductors are ventral, the cranium is in the dorsal half of the ancestral model (the pharynx, however, being ventral).

"That emergent quality" could be due to "giving more responsibility to extensors"; to balancing flexors and extensors; to relieving the man of his "body pattern of anxiety"; to freeing the viscera from constriction; to the advantage of their essential functions; or to a combination of all of these; or, indeed, to other additional factors.

III.

The intrinsics/extrinsics conception of core is not apparently being promoted much nowadays, though it still receives acknowledgment. Nevertheless, it might have been Rolf's original conception of core and sleeve:

> If the head is too far forward, rotation is done by the extrinsics because the intrinsics then lack span and can't function, but to the extent that this happens, the normal patterning of the body is destroyed. The balanced core-and-sleeve pattern of the body gets lost.[63]
>
> Additionally, and most important of all in humans – systems which are vertically organized and move in space – there is the intrinsic-extrinsic symmetry which is concerned with the relations between deep and superficial myofascial structures in the body.[64]
>
> We have used intrinsic and its correlate, extrinsic, to denote, respectively, muscular elements that are invested in the deepest fascial layers of the body (intrinsics), and their paired antagonists (or cooperators), the extrinsics, which are more superficial, occupy greater volume, and are more directly and obviously subject to the plastic changes of the integrative technique. [A basis for Deckebach's claim that traditionally Rolfers have put more emphasis on the sleeve.]
>
> We have found it both convenient and logical to use this nomenclature in describing what is a functional rather than a descriptive parameter. Relatively little organized work has been done mapping the unexplored territory of fascial anatomy. Time and research in the future will certainly define these terms more clearly as scientific attention in the biological field focuses on the dynamic rather than the static aspects of humans.[65]

This last paragraph is especially striking. It is clear that Rolf saw the difficulties in the lack of precision in distinguishing intrinsics from extrinsics. Furthermore, her wording seems to imply that she is thinking of discrete structures; her expectation, therefore, was that eventually each structure could be put into one or the other category.

Isn't this concept the primary and only necessary one? It was Rolf who coined the expression "core and sleeve"; what sense does it make to use her coinage to denote a different concept? The "core as visceral space" idea should be given another name – not "core." This essay has attempted to identify it with the widely recognized flexor/extensor classification. Rolf herself saw this as a primary system of orientation for her work, but it is a classification that is clearly distinct from her "core/sleeve as intrinsic/extrinsic" idea.

Both Cottingham[66] and Silverman, et al.,[67] have done research for which different core/sleeve relationships have been identified on an intrinsic/extrinsic basis. Unfortunately, their sample sizes are small and they do not provide precise methodology for determining their distinctions. Nevertheless, it appears possible to develop such a methodology, as Rolf hoped. Cottingham's illustrations do seem in some way to illustrate the categories he has put them in; even though the system of classification is imprecise, it is also the case that his distinctions are visible. Unfortunately, the work of these researchers has been neither duplicated nor developed. It, like the elecromyographic studies of Dr. Hunt, remains an intriguing suggestion.

It would be very helpful to be able to say whether a given myofascial structure is intrinsic or extrinsic, absolutely and not relatively, or to have some other precise way of distinguishing one from another. Then it would make sense to speak casually of a core and a sleeve. It might take some long time for the interest in and the recognition of the value of the work that would be necessary to clarify this distinction to be aroused in the scientific community, but that is no justification to continually be inventing new interpretations for the same terms. Only confusion can come from such inventions.

Unfortunately, Rolf herself seems to be responsible for confusion on this issue:

> The spine is the connecting rod of the body, a segmented armature resting in the pelvis. Its two polar terminals, embodied in pelvis and head, make the spine a vital core [!] that integrates the human with his gravity environment.[68]
>
> In order to fit the smaller core [!] of the cervical structure into the larger overlying sleeve [!] of shoulder

> girdle and ribcage, a structural "gap" between cervical and dorsal sections of the spine must be bridged.[69]

It is clear that in these quotations, Rolf is thinking of the core/sleeve distinction as being equivalent to the axial/appendicular distinction (the ribs would be included in the appendicular skeleton, however). It is not surprising, then, that Feitis' view, and later Feitis and Schultz', appear to be so ambivalent; the ambiguity originates with Rolf herself. Even the "multiple personality" of Maitland's several theories might have originated in the apparent ambiguity of Rolf's talk and scanty written treatment of the subject. Sultan's assertion that "I don't think we need to look any farther than Ida Rolf's original formulation"[70] now has taken on a certain irony. Perhaps we need not look any further; but what was her original formulation?

Perhaps for her the concept did not deserve the status of a theory or even to be associated with something particular. In these two quotations, the core/sleeve metaphor is accompanied by other metaphors ("connecting rod," "armature," "gap," "bridge") in a setting of colorful, imaginative language. Perhaps the metaphor of core and sleeve was congenial to her; and she used it, unrigorously, in different contexts without it always having to signify the same physical objects or relationships, in much the same way as she is using "bridge" here. With so few examples of her thought on the matter before us, it is difficult to know if that is a reasonable interpretation or what the wisest choice between her two conflicting uses of the terms might be or, indeed, if it is possible to make a choice.

If the quotation having to do with core/sleeve as intrinsics/extrinsics (note 63 above) seems more serious, the thinking around the point more highly developed, and her attention to it more focused, it could be because in speaking of intrinsics and extrinsics she was exploring territory in which few if any researchers had been. The possibility that there might be a boundary not only at the skin (between individual and environment), but one also between the outer myofasciae and the inner, was raised perhaps originally by her. And perhaps for the same reason we should call this division the one between core and sleeve and not any other. In any case, she was without any doubt not talking about the visceral space, however defined, and we should therefore reject this definition.

NOTES

1. Michael Salveson, et al., "Core: Structure and Function." Rolf Lines, Jan. 1994, p. 27.

2. Ida P. Rolf, Ida Rolf Talks about Rolfing® and Physical Reality, ed. Rosemary Fetis. Rochester, NY: Harper & Row, 1978), pp. 211-212.

3. Ibid., loc. cit. On what basis are we to assess this supposed "probability"?

4. Ibid.

5. Ibid.

6. Ibid., p. 208.

7. Salveson, et al., p. 27.

8. Louis Schultz, "Thoughts on Core and Sleeve." Rolf Lines, Jan./Feb. 1988, p. 16.

9. Louis Schultz and Rosemary Feitis, D.O., The Endless Web. Berkeley, CA: North Atlantic Books, 1996, p. 36.

10. Ibid.

11. Ibid.

12. Ibid., p. 37.

13. Jeffrey Maitland, Spacious Body: Explorations in Somatic Ontology. Berkeley, CA: North Atlantic Books, 1995, p. 220.

14. Ibid.

15. Rolf, 1978, p. 211. My emphasis.

16. Maitland, p. 220.

17. Ibid., p. 181.

18. Ibid.

19. Ibid., p. 60.

21. Ibid., p. 180.

22. Ibid.

23. Ibid. Since when can a model "insist" on something?

24. Ibid.

25. Hubert Ritter, "Optimizing the Animal, an Interview with Hans Flury (part two)." Rolf Lines, Winter 1997, p. 7.

26. John Deckebach, "The Core's Role as Causal in Structural Distortion." Structural Integration, Feb. 2003, p. 17.

27. Ibid.

28. Ibid. This is interesting news, of course.

29. Ibid. But why has he changed his premise?

30. Ibid.

31. Peter Schwind, "Preliminary Considerations for a Theory of Core." Rolf Lines, Fall 1992, p. 17.

32. Ibid.

33. Salveson, et al.

34. Schwind, p. 17.

35. Ibid.

36. Ibid.

37. Salveson, et al., p. 27.

38. Ibid., p. 32.

39. Schwind, p. 17.

40. Salveson, et al., p. 32.

41. Ibid., p. 31. What does "almost metaphysical" mean?

42. Jon Zahourek, Myologik Atlas Series, vol. 1. Loveland, CO: Zahourek Systems, Inc., 1996, p. 16. Of course, if this is taken literally, Zahourek is guilty of the so-called "watchmaker fallacy"; namely, that if there is an "idea" there must also have been someone to have had the idea – a god, for instance. It's a seductive concept.

43. Ibid.

44. Robert Schleip, "The Flexor-Extensor Typology." Rolf Lines, Nov, 1995, p. 10.

45. Zahourek, p. 16.

46. Ibid., p. 17.

47. Ibid.; see his excellent and evocative illustrations. Cf. also Schleip, p. 10.

48. Schultz and Feitis, p. 23.

49. Ibid.

50. Zahourek, p. 17.

51. Rolf, 1978, p. 133; cf. also Rolf 1977.

52. Ibid.

53. Zahourek, p. 16.

54. Rolf. 1978, p. 69.

55. Ibid., p. 158. Her use of terms is eccentric (as is her use, not incidentally, of the terms "intrinsic" and extrinsic").

56. Moshe Feldenkrais, Body and Mature Behavior. NY: International Universities Press, 1970, p. 21.

57. Ibid., p. 83.

58. Rolf, 1978, p. 133.

59. Ibid., p. 98.

60. Feldenkrais, pp. 83-84. Chronaxie: "The minimum interval of time necessary to electrically stimulate a muscle or nerve fiber, using twice the minimum current needed to elicit a threshold response."

61. Ibid., p. 92.

62. Ibid., pp. 83 ff.

63. Rolf, 1978, p. 188.

64. Ida P. Rolf, Rolfing: The Integration o Human Structures. Dennis-Landman, 1977. p. 290.

65. Ibid., p. 120n. Her comment to the effect that the extrinsics "are more directly and obviously subject to the plastic changes of the integrative technique" may be what Deckebach is talking about when he says that Rolfers give precedence to the sleeve.

66. John Cottingham, Healing through Touch: A History and a Review of the Physiological Evidence. Boulder, CO: The Rolf Institute of Structural Integration®, 1985, pp. 155-159.

67. Julian Silverman, et al., "Stress, Stimulus Intensity Control and the Structural Integration Technique." Confinia Psychiatrica, vol. 16, 1973,

68. Rolf. 1977, p. 175.

69. Ibid., p. 194.

70. Cf. note 1. She has also been quoted as having said that "core is anything you can't do without." And here she gets very close to Peter Schwind's "…different elements of the body which are most significant for the maintenance of the structure in time" – except that she seems to be speaking in more general terms than specificaly structural.

If'n I wanted to get to Pittsburgh,
I wouldn't start here.

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