

Aspects of posture, personality, and gender that are described by a typology of muscle tonus patterns

John A. Appleton

Abstract

This article proposes that some variations in muscle tonus found in people are linked to postural patterns, personality, and gender. It also suggests that the patterns originate from, or at least match, three forms of early evolutionary locomotion: peristalsis, lateral undulation, and dorsal-ventral undulation. Illustration is the basic tool for describing the various body structures, hypothesized personality types, and gender variations. Drawings demonstrate, with simple line, how muscle tonus patterns define bodies and individuals, much in the same way that cartooning does. The drawings also form the basis for mental imagery that is included to help kinesthetically experience the proposed concepts.

Positive results from the perspective could help ground the philosophy of embodiment. In addition, new tools for dance movement therapy, body psychotherapy, and kinesthetically based postural reeducation could arise from the concepts. Both adults and children could benefit from visual and somesthetic imagery and illustrations developed from the concepts.

1. Introduction

The hypothesis

The basic hypothesis presented here is large and contains several parts within it. Looking ahead at the various drawings and charts may help in understanding the hypotheses concerning muscle tonus, posture, and personality/emotional tendencies stated below. Put together, the theories can be stated as follows:

A new typology – based on the evolutionarily early forms of locomotion of peristalsis, lateral undulation, and dorsal-ventral undulation – describes aspects of posture, emotion, personality, and gender. Phases or plateaus along a dorsal-ventral wave, as well as along a lateral wave, characterize types of relatively static posture and, ultimately, personality types. In addition, two kinds of phases of “whole-body” peristalsis also characterize posture and personality types in both of the genders.

Chart 1, *Frozen phases of three basic forms of locomotion*, shows different stages of whole-body peristalsis (section 1) and different stages of lateral undulation (section 2) and dorsal-ventral undulation (section 3). The stages or phases of the elemental forms of wave motion are characterized (and caricatured) in an archetypal four-legged animal (tetrapod) form and in male and female human figures. A cursory study of Chart 1 is adequate at this point. The chart is discussed again later.

It is hypothesized that the four frozen phases are plateaus of the three forms of locomotion and describe muscle tonus patterns found in individuals. The muscle tonus patterns, in turn, are equivalent to postural and emotional inclinations. Explanation will start with description of a dorsal-ventral wave proposed to be in humans in essentially four rather distinct stages. The frozen patterns of a lateral wave will be similarly considered and, finally, muscle tonus patterns in two varieties of phases of peristalsis are described.

Many different events and processes affect muscle. The body seems capable of registering a large array of experiences and attitudes that we may end up calling wisdom, character, injury, dysfunction, or something else. Yet, from this complexity, the author proposes that we can separate out and observe the hypothesized patterns of posture and personality by means of visual illustration and mental images. The imagery is designed to provide kinesthetic experiences of the principles embedded in the illustrations.

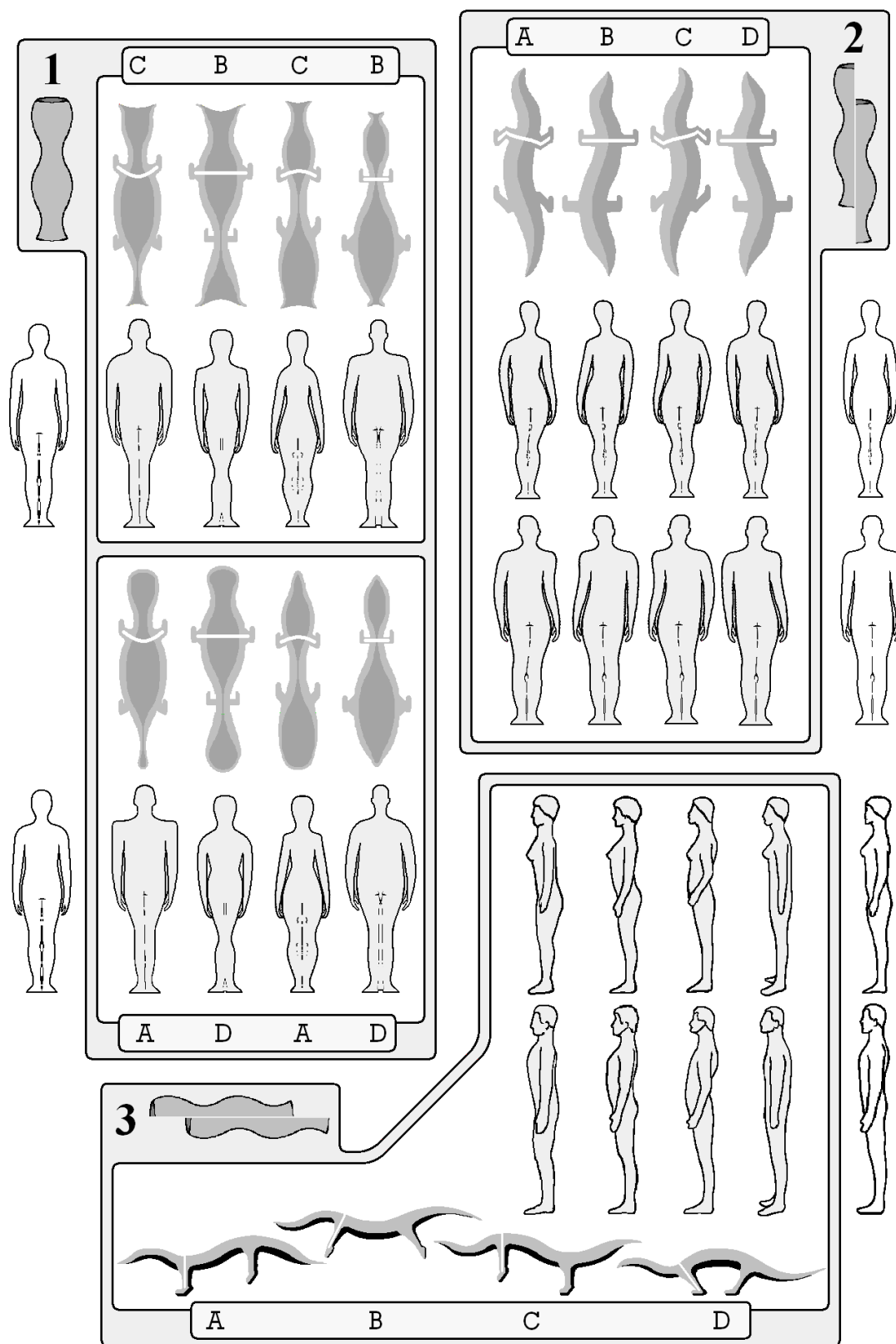


Chart 1 – Frozen phases of three basic forms of locomotion

The general concept of embodiment, which this paper claims to demonstrate, has many strong proponents, with Damasio (2003) possibly being the most widely read. Hurley (1998), Sheets-Johnstone (1999a), Gallagher (2005), and others also propose a strong connection between movement, kinesthesia, and consciousness. In addition, the search for ideal or primal movement support and movement qualities latent within us has been the endeavor of many disciplines such as yoga and tai chi and body-oriented therapies, such as dance therapy and body psychotherapy.

Figure 1 is included to illustrate proposed examples of personality embodied in posture. The figures are shown in relationship with another figure because the sense of a personality and posture seems more noticeable in this manner. There is the sense of observing individuals with different “inclinations” and “attitudes.” In addition, there can be the sense (whether accurate or not) of what types of interaction the pairs might have.

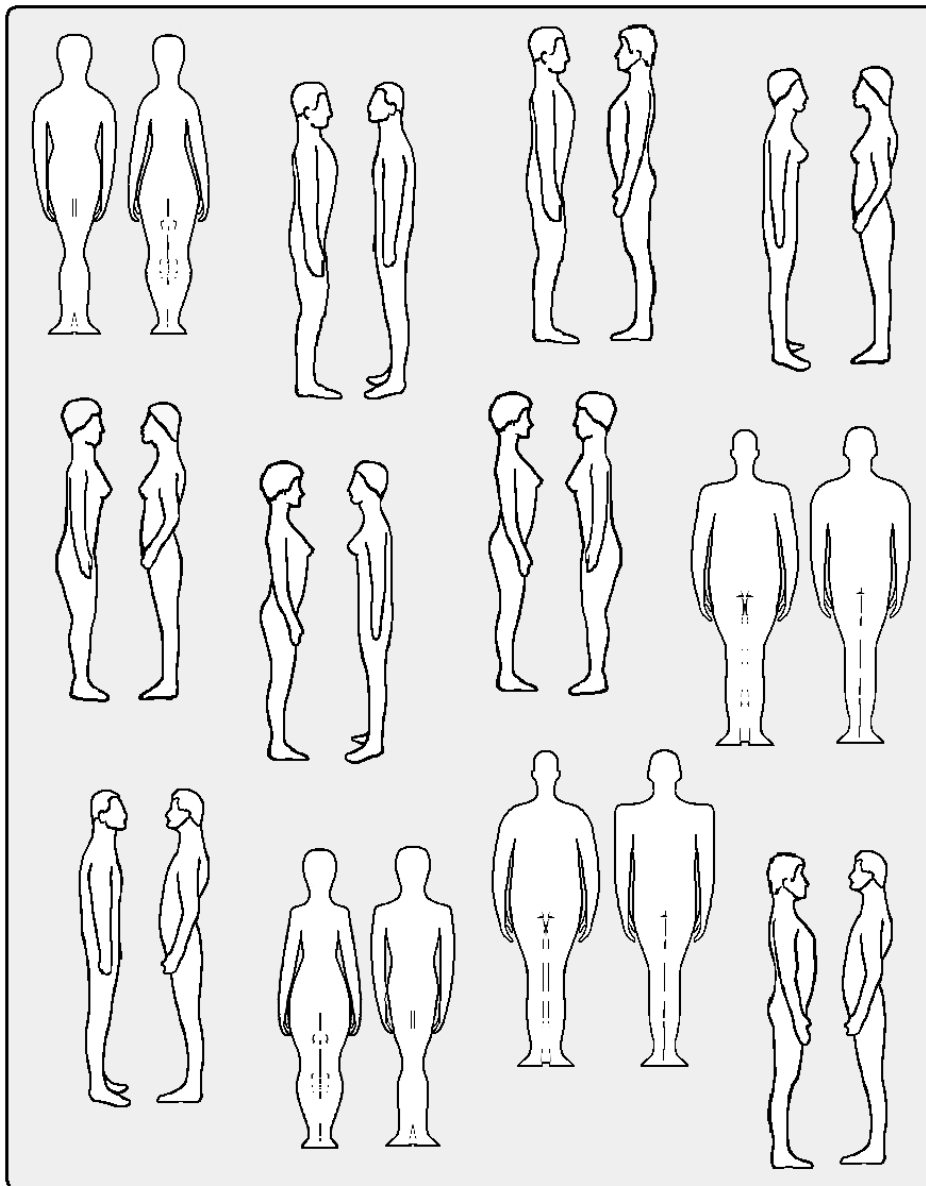


Figure 1 – *Various wave phases (in relationship)*

There is highly developed theory on the connection between facial muscle and emotion (see Ekman 1993) and there is research relating the body and emotional expression (see Wallbott 1998) as well as static posture and emotion (Coulson, 2004). In addition, deGelder et al. (2005) wrote, “There appears to be large similarities between emotional bodily and facial expression at the neural level” (p. 8). However, postulations of specific connections between muscle tonus patterns in the body and emotion, personality, posture, or gender has not been found in the literature.

The frozen wave patterns of muscle tonus described in this paper are double or repeated wavelength patterns, where facial and head tonus patterns are repeated once through the remainder of the body (see Chart 2, row 3). This may be the *most* important feature in the theory, for it may provide a readily understandable explanation for how facial features direct response in the rest of the body.

The illustrations here also use the form of an archetypal organism to map the surface contours of both the body and face (with their fullness and hollows, hills and valleys). This seems a more compelling tool for illustrating both structural and emotional qualities than the more pervasively used human figures with bones and joints. This sort of map of the surface muscle tonus is not confused with other elements of the musculoskeletal system. It is the same tool that cartoonists use to depict a character’s qualities.

Another value in using less human models is that the more human “neutral models” for comparing the frozen wave types are not representative of many peoples or, perhaps, of *any* peoples. Their value is only in comparison of the various types of wave representations offered. Other ethnic, cultural, or racial models could and, at some point, should be used to show the same sorts of variation possible from wave-pattern body tonus.

Mental imagery has been developed (with samples included in this text) that includes somesthetic (tactile/kinesthetic) as well as visual elements. The ideomotor effects of mental imagery are well accepted. Its use to benefit posture and movement quality has been present, at least in the dance world, since the 1930’s, in a discipline called Ideokinesis (Todd 1937) (Sweigard 1988) (Franklin 1993). Mental imagery involving the body has been researched. Some findings point to its value (Fairweather & Sidaway 1993) (Krasnow, Chatfield, Barr, Jensen, Dufek 1997) (Page, Levine, Sisto, Johnston 2001) (Morganti et al. 2003).

Background

Parts of this paper and additional principles of healthy posture were introduced earlier in two papers (Appleton 2006, Appleton 2007). Appleton (2006) is a theoretical overview of healthy or ideal posture and Appleton (2007) primarily describes the therapeutic protocol for developing healthier posture. Both papers primarily describe principles of ideal structural support and movement control, using illustrations and imagery. This current paper does not describe ideals but rather suggests a way of understanding much of the variety in structure, movement, and personality traits that are observable in human beings.

The author, while teaching the Alexander Technique (Alexander 1984 ed.) developed the hypotheses presented here. A system of mental imagery was developed while endeavoring to give students an experience of improved structural support (posture) using less effort. A previously experienced little known typology of personalities (Gilligan 1971) was useful in developing a model to understand the effects of some of the mental imagery.

Illustrations, mental imagery, and habit

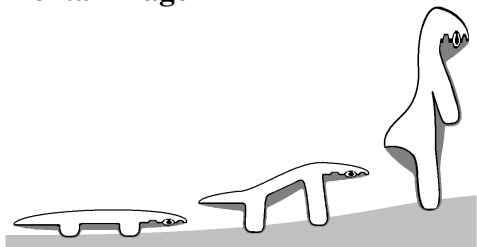
Several of the illustrations have a comical or cartoon-like quality. This was unintended during development though it is instructive and welcomed. The language of the cartoonist is to be appreciated. A few simple lines can depict complex structure in the body as well as complex emotion. In addition, there is real communicative value in exaggeration, which cartoonists use. Exaggeration, when used in mental imagery, can jolt the mind out of habit and allow us to experience sensations long missing or unfamiliar to us.

Patterns of muscle tonus become habitual and near invisible to the individual. People frequently experience musculoskeletal pain or discomfort that is due to tension, but the nature of the tensions and dysfunctions is not apparent enough to the sufferer to enact simple body or habit changes to address the problems.

The mental imagery presented here allows the reader to experience kinesthetically, to the extent they are able, the embedded principles within the paper. If the illustrations or qualities described are successfully imagined to exist in the body, an ideomotor effect of involuntary muscular response takes place that results in a kinesthetic experience of the principles. There is a therapeutic effect as well; a sort of psychophysical stretching takes place that the author suggests is not attainable in more conventional stretching. Conventional stretching tends to contain elements of habitual muscle pattern use within it whereas the “psychophysical” stretching, with its altered ways of thinking, contains non-habitual muscle use.

An example is given here of a short yet potentially effective mental image that effects posture and, potentially, personality and emotion.

Mental image



Imagine that without any effort on your part you are changing in a strange way...you are “calming *up* and tensing *down*.” Imagine, for several moments, that your *up* side (or dorsal side as illustrated in the accompanying figure) is becoming calm. Visual and somesthetic sensations that promote a sense of dorsal calm include white, full, and fluffy. Visual and somesthetic sensations that promote a sense of ventral tension or increased tone (not voluntarily induced) include dark, condensed, and smooth. Imagine those respective qualities on the *up* and *down* sides.

To imagine successfully that calming up and tensing down are taking place in the body, even without any further explanation, is likely to bring about some short term changes that the author suggests are healthful for the reader. Merely imagining the ideas, without intentionally doing anything, is likely to bring adjustment in posture and perspective (for a short time). Study of the effects of this exercise suggest that fostering appropriate sensations is more conducive to maintaining healthy body structure than applying voluntary muscular effort.

The frozen phases of peristalsis, lateral undulation, and dorsal-ventral undulation – and their proposed relevance to humans

Closer inspection of Chart 1 is now called for. Section 1 of the chart depicts whole-body peristalsis in four stages. It illustrates the ways that the wave, in frozen stages, would affect archetypal tetrapods as well as humans. Archetypal tetrapods are used here because the wave patterns are less complicated than what appears on the more highly evolved human form. (A top view shows the tetrapods' dorsal surfaces and a back view is used with the human models to show most of the dorsal surface.) Section 2 (using the same views) depicts frozen stages of lateral undulation. Section 3 (sided views) depicts frozen stages in dorsal-ventral undulation. The small individually boxed illustration accompanying both the lateral and dorsal-ventral sections suggests that lateral and dorsal-ventral undulation derive from peristalsis. This may or may not be true but the perspective is useful for envisioning those waves three-dimensionally.

In addition, all of the creatures show a white dividing line running over the shoulders and splitting the front limbs. This is the dividing line between the first complete wavelength and the second. It is proposed that this repeated waveform is the movement and posture model for tetrapods. Changes in the first wave section, which acts as the “director” section of the organism, would be rapidly communicated to the body beyond, signaling a change in posture and movement (Appleton 2006, Appleton 2007).

The columns and letters A, B, C, and D indicate four basic frozen stages of each early form of locomotion and it is hypothesized that types of each locomotion pattern are linked to each other into a more complex single three-dimensional typology.

It can be seen from the four-legged creatures in the chart that frozen waves would affect human faces as well as other body parts. The heads and faces of the archetypal tetrapod illustrations give clues as to how the wave would be variously represented in the human forms. Human faces are not shown large or distinct in order to avoid the conclusion that the hypothesis presented is a form of physiognomy or personology. Many events...genetic, racial, cultural, economic, familial, and more influence our appearance... too many to suggest a scientific way of determining and tightly characterizing type. People may develop intuitions about personality from appearance, but it is not science.

Finally, the “tail” section of humans, though not visibly present in us, is affected by the waves in the same way the tetrapod models show it affected. Just as a dog wags its tail, an enthusiastic tail wags the dog. Imagining movement, enthusiastic or otherwise, of our vestigial tails also causes changes elsewhere in the body. The coccyx has several muscles attached to it. This suggests that the vestigial tail is still important to us as part of the gestalt of movement and support.

The archetypal expression of emotion and personality?

This paper suggests some elemental ways of thinking about and depicting emotion and personality. It suggests an equation where some characteristics of muscle tonus, body shape, emotion, and personality are related.

Figure 3 depicts three stages of a garden slug that shows its ability to advance and retreat using the entire body. This is not how a slug travels. Traveling is executed with the use of a “foot” that carries out a wave-like motion (Brossi, n.d.). The movement illustrated here is more of an “emotional” sort, involving short-range retreat or advance, based on what appears to be perception of safety.

When the front end of a slug is tapped, the slug stops and retracts in length into a rounder mass. As time passes and the slug seemingly “feels” less threatened, the front end lengthens out and the feelers extend. When even more undisturbed time has passed, the front-end “bulks up” and movement resumes with seeming “confidence.” A muscle tonus shift in the slug shifts its entire body mass.



Could it be said, to a far less visible extent, that humans, too, have the ability to advance and retreat in this manner? Perhaps a face flush with anger or blanched with fear is showing this age-old ability. Damasio (2003) proposes an analogous scenario while considering the paramecium! Sheets-Johnstone (1999b) has stated, “Analysis of the qualitative structure of movement shows in turn how motion and emotion are dynamically congruent.”

Patterns of muscle tonus in humans are more complex, but a suggestion of complex structural and personality differences can come from just a few simple frozen wave patterns. A couple of examples of mental imagery associated with frozen pattern variation come later in the paper.

Hypotheses

Chart 1 illustrates aspects of human posture, movement, and personality that can be understood by seeing them in terms of wave pattern plateaus. In human locomotion, it appears that the three waves, that are hypothesized to function in the body, do not operate entirely independently of each other. Walking appears to derive significantly from lateral undulation (Kafkani and Golani 1998) (Bem et. al. 2003) and hopping would seem to be inspired by what is or was dorsal-ventral undulation (personal observation). Various gaits from walking through ambling, trotting, pacing, to running (University of Tennessee, 2005) suggest movements inspired by different degrees of lateral and dorsal/ventral undulation impulses. Running in mammals as varied as squirrels and buffalo, for instance, would seem from appearance to be a combination of at least the lateral and dorsal-ventral undulation impulses – a sort of softened hop.

What is of greatest interest here is not the forms of locomotion as such but rather the frozen phases or plateaus that are hypothesized to appear in the structure of humans. The waves are discussed in the order of dorsal-ventral wave, lateral wave, and, finally, peristalsis. It is hypothesized that types of each locomotion pattern, in their frozen stages, are linked to each other in a more complex single three-dimensional typology.

The Dorsal-Ventral Wave – structural and emotional aspects of four frozen phases or plateaus along a dorsal-ventral body wave

In fixed stages, the dorsal-ventral wave appears to be the framework for four distinct postural and personality types. All of the material presented here was first inspired by observations of fixed patterns of the dorsal-ventral wave in people while teaching the Alexander Technique (which, among other things, develops awareness of postural set or habits).

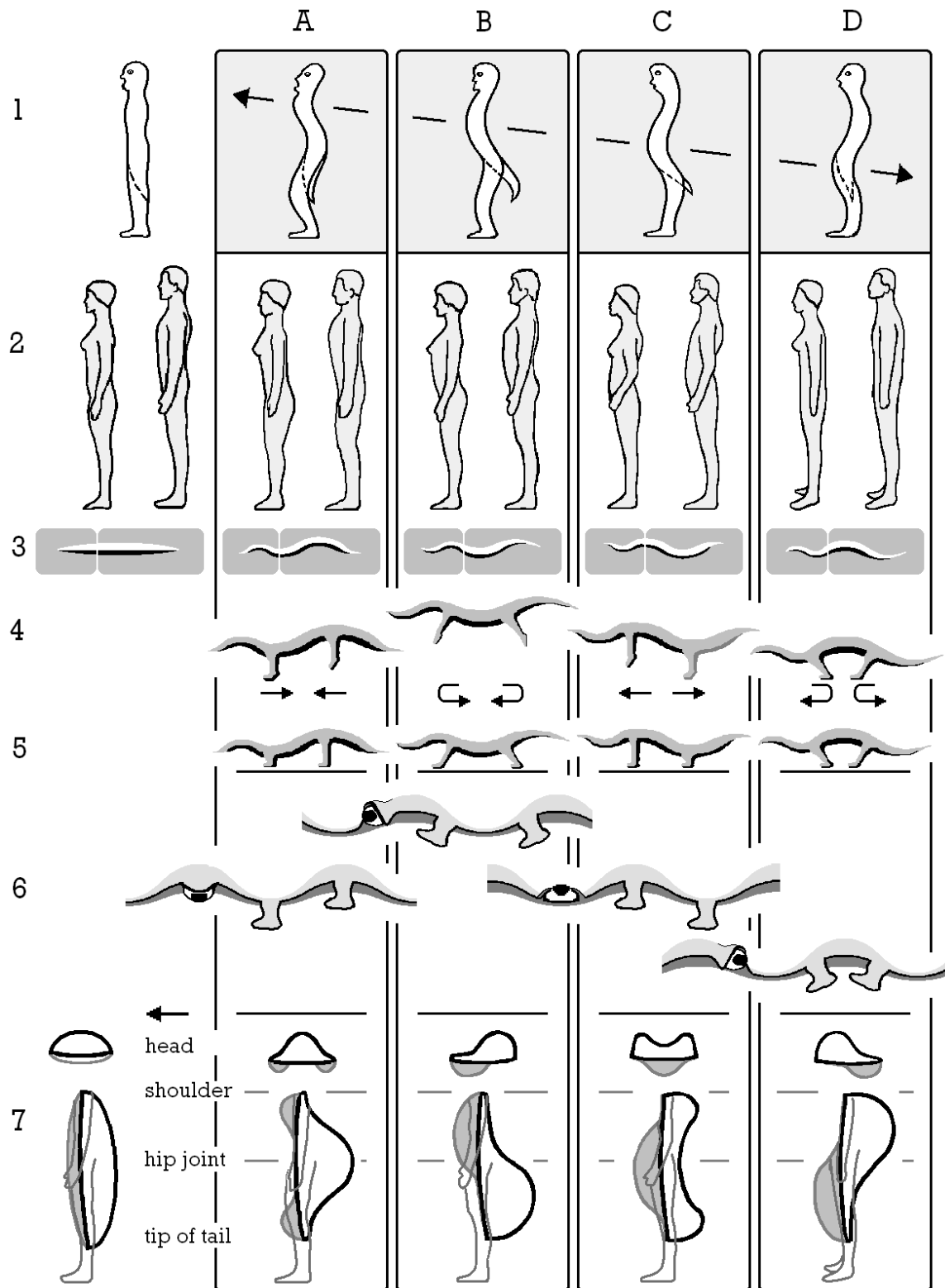


Chart 2 – Four dorsal-ventral wave phases and types

Chart 2 depicts the dorsal-ventral wave, in stages, as it travels through a body. It is hypothesized that along the wave are plateaus or phases that have definable characteristics. There are four points where the wave appears most clearly to define postures that are observable in people. These points define emotional inclinations and personality traits as well (to be explained later).

Written below is explanation of what each row within the chart depicts. The various rows indicate the nature of the wave on a body. They show the “inclination” each phase gives to a body if it exists in a frozen postural form:

The column to the left, outside of the boxed area, shows only the neutral models from which the four remaining columns were derived. The other columns, A, B, C, and D, represent the four phases of the wave discussed.

Row 1 – The cartoon-like characters are drawn here without arms and with a tail. The arms are not present to make the wave more visible, though arms are affected by the wave as well. The tail is present to show how the “tail,” though vestigial in us, is important in a muscular and neurological sense to the carriage of the whole body. Finally, the diagonal dashed line indicates the progression of the wave from one character to the next.

2 – Without describing exactly the involvement of specific muscle groups, it can be seen that each illustrated example of posture presents different support requirements for the people of that sort. Though they are all “upright,” they are supporting themselves in significantly different manners and it is easy to surmise how their movement might vary and where their strengths and weakness might be. At this point, it may be possible to see how the emotional structure of each of the individuals would vary. Referring back to the caricatures in row 1 may help make a sense of emotional variation in this row more visible. The creatures in the rows below row 2 demonstrate how we might be able to predict and characterize some of those structural, movement, and emotional features.

3 – This row illustrates how the four wave patterns are actually *repeating wave patterns*. The first complete cycle of the wave starts at the front end, the mouth, of the organism and completes itself over the “shoulder.” This represents what the author calls the “director” portion of the organism, outlined in earlier papers (Appleton 2006, Appleton 2007). The second wave ends at the tip of the tail. This aspect of the general hypothesis, if supported, could be of large consequence. It suggests a gestalt in locomotion, emotion, and posture. The involuntary or habitual movements of the head, neck, and shoulder influence the remainder of the body and emotions...and visa versa.

4 – This row shows how the various wave phases participate in actual movement, in this case on hopping, land-bound creatures. The arrows below the moving creatures indicate the direction of movement of the limbs in each section of the wave. The forward and backward effect on the limbs is clear. One can speculate that each phase would strongly affect the emotional base of an individual if they were habitually in that mode. An individual frozen in the posture of ‘A,’ a creature landing, may seem to themselves or others to be habitually “cautious.” One frozen in “B,” a creature that is airborne and moving forward, may seem “aggressive.” One frozen as in “C,” leaping, may seem “jumpy” or excited. Finally, one frozen as in column C may seem relaxed and “grounded” as in column D. All are in different stages of dorsal-ventral movement.

5 – The patterns of movement in row 5 are shown here in various four-legged postures. The support style is reminiscent of different animal species. People are sometimes nicknamed or thought of as bears, cats, dogs, and so forth. Vague similarity in muscle tonus patterns and subsequent movement patterns are the most likely reasons for a given choice of animal.

6 – This row demonstrates, especially with the exaggerated depiction of the eyes, qualities of the four creatures that can seem particularly emotional in nature. By moving your eyes *slowly* and *strongly* in the four directions indicated, you will probably notice at least slight changes in emotional response. You may also experience change in your body posture and even be able to identify, to some extent, those changes as matching the model. *Imagining* the various eye positions, without actually attempting to move the eyes, is even a better way of experiencing the effects. Various eye position inclinations strongly suggest different emotional tendencies though habitual inclinations in any part of the body change the emotional feel of that individual or creature.

7 – The last row shows a minimalist representation of the muscle tonus patterns of each type in upright humans. Represented is a side view of the four types, all facing to the left. Arm and leg locations are lightly indicated on the muscle tonus patterns. The enclosed white areas of the bodies represent the shape and nature of the dorsal surface and the darker areas represent the ventral surfaces. This depiction is particularly useful as an image for experiencing some of the postural realities of each type. The repeated smaller head shape actually represents the first of the two repeated waves, which includes the head, neck, and the front half of the shoulders and arms. Oddly, the characters seem to be wearing various oversized hats.

Mental image

Wearing different hats

For purposes of a mental image, thinking of the smaller shape as just the head area is adequate. The larger shapes represent the second wave, discussed earlier, throughout the remainder of the body, including the “tail” area. Limbs, which are only lightly shown, have the tonus characteristics of the zone from which they are generated. It may help to think of the shapes as cartoon caricatures. A spirit of fun is always helpful when entertaining ideas that can change physical realities.

Basic directions for experimenting with this mental image are to imagine that you are becoming or have become the actual shape that you choose, A, B, C, or D, and this has actually happened *against* your will. In other words, you are not “doing” it. It is happening to you. We can accidentally attempt to imitate physically an image rather than vigorously imagine it. Imitation (unlike imagination) invokes voluntary changes which are not habit breaking or helpful in the context of this work. Spending some time and diligence imagining becoming each of these types will frequently bring some interesting and body-freeing experiences. Some people have better eyesight than others do and some have a better kinesthetic and somesthetic sense perception. Some have a greater ability to imagine the changes taking place. The author feels improvement of kinesthetic sensing is definitely possible through this work.

Looking at the various ways of conveying the dorsal-ventral wave, could personality and emotional characteristics be given to each of the types (with a better than random chance of accuracy)? Conveyance of emotional and personality features is what is done constantly as we look at many simply depicted cartoon characters. Suggested possible natures to each of the types are:

A – fearful, commanding, stable, stubborn – cautiously observing

B – aggressive, energetic, directed – expending energy, pinpointed attentiveness

C – pained, cowering, expectant, excited, curious – excitedly expressing

D – relaxed, “laid back,” comforting, comfortable – gathering energy, peripheral awareness.

The types seem to exhibit what are considered positive as well as negative features. It is hypothesized that these postural types are not necessarily dysfunctional variants of some ideal form when not exhibited in the extreme. In fact, they may represent a non-class, non-gender, non-ethnic, and non-age related form of diversity of skills within the community, a rather invisible system of division of physical, social, and emotional labor.

The Lateral Wave – possessing emotional qualities as well and linked to the dorsal-ventral wave types

Lateral undulation is largely responsible for the function of walking. In addition, it is also conjectured here that phases of lateral undulation may play a role in exhibiting human emotional behaviors of avoidance, deception, and flirtation. The inclusion here of the lateral wave, like the other waves at this point, is to introduce the possibility for the first time that frozen waves, like those easily depicted in an archetypal early tetrapod, are similarly but less obviously present in humans and that they constitute the source of some postural and personality features.

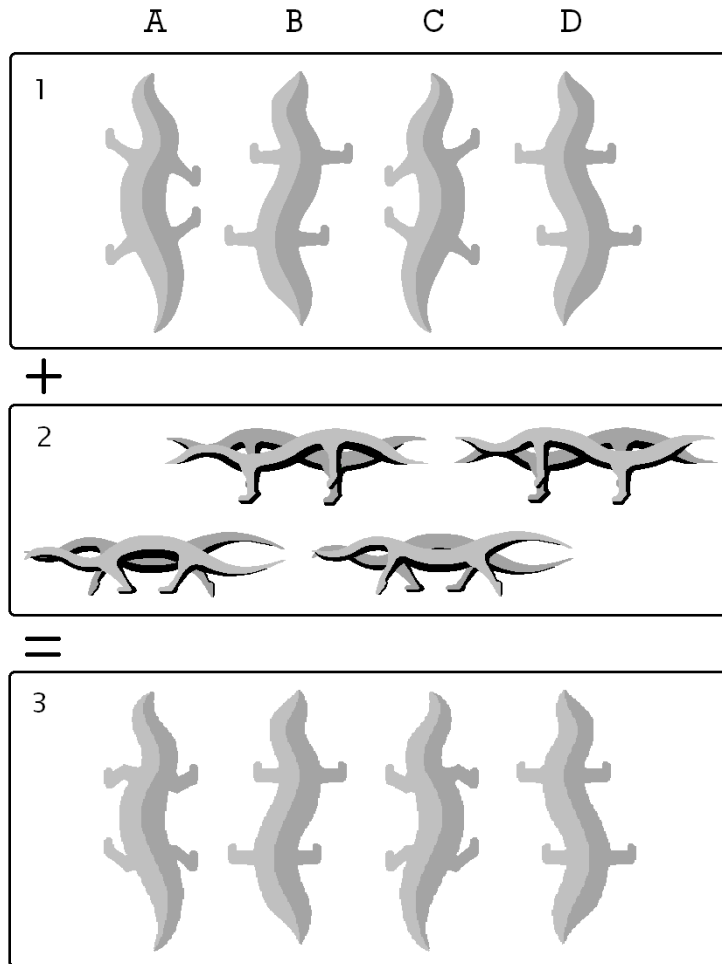


Chart 3 depicts four stages of a lateral wave in different contexts. Row 1 shows an overhead view of stages of a simple lateral wave, where the left side has opposite qualities to the right side. Row 2 shows two opposites stages of dorsal-ventral waves, side by side. Frozen dorsal-ventral wave influences would also affect opposite sides of a creature and therefore affect the lateral wave. Row 2 presents the appearance of walking organisms, even though the simpler version of a lateral wave in row 1 is not shown. The two elements put together make a resultant wave that is more complex and ultimately more graceful, at least in movement. Row 3 shows,

somewhat, how combining rows one and two might look from a top view. Notice the differences in limb movement between the top views of row 1 and row 3.

It is hypothesized that humans have a frozen lateral wave aspect (which makes us all somewhat asymmetrical). It may be difficult to observe in some people or sense in oneself but noticing asymmetry in oneself, if not a complete frozen lateral wave, is generally possible. It may be sensed individually by first looking strongly to the right and allowing the head to turn some, then looking strongly to the left and allowing the head to turn that way as well. Repeated slowly, qualitative and emotional differences between the two sides may be noticed.

Looking in the mirror, of course, should seemingly provide evidence of asymmetry and perhaps a lateral wave. However, accurately seeing what is in a mirror can be difficult. Humans have evolved to a shape far different from a simple horizontally oriented, tube-shaped, tetrapod, where the evidence would be clearer. In addition, humans may endeavor, fully consciously or not, to hide body shape qualities with additional tension and torsion.

It is worth mentioning that a truer impression of one's type or degree of lateral asymmetry can be seen using two large mirrors placed at an angle to each other such that the viewer sees his or herself as a reflection of a reflection. The images of face and body are laterally flipped. This makes asymmetry more obvious.

The four stages of lateral wave, A, B, C, and D, coincide with A, B, C, and D of all other illustrations depicting dorsal-ventral phases as well as peristalsis in various phases.

2.3 Peristalsis – Describes differences in male and female muscle tonus and differentiates between a non-gender related set of qualia – the sensation of being full vs. being empty

It is proposed here that peristalsis, as well as the other wave patterns, are in generally fixed forms on a whole-body level. What is present is not an obvious wave motion but rather generally fixed or habitual muscle tonus that matches the waves of peristalsis. It is proposed that human carriage and posture, as with the dorsal-ventral wave, can be partially defined by one of four different phases of peristalsis that they habituate.

The general peristaltic-shaped contours, it is suggested, also describe variations within and between the sexes. However, due to the numerous cultural, economic, environmental, social, and familial factors that affect humans and human bodies, it is not expected that the frozen phases of the waves and whole-body peristalsis will be always or even generally immediately observable. The illustrations of the various peristaltic phase types, depicted in Chart 4, represent, on the postural level, subtle relational differences between bones. They also represent possible personality variations. This model is advanced as a possible predictor of muscle tonus and not necessarily a predictor of fat deposit location. They may not represent actual exaggerations of visible clues, such as location of fat or thin parts of the body, though they might.

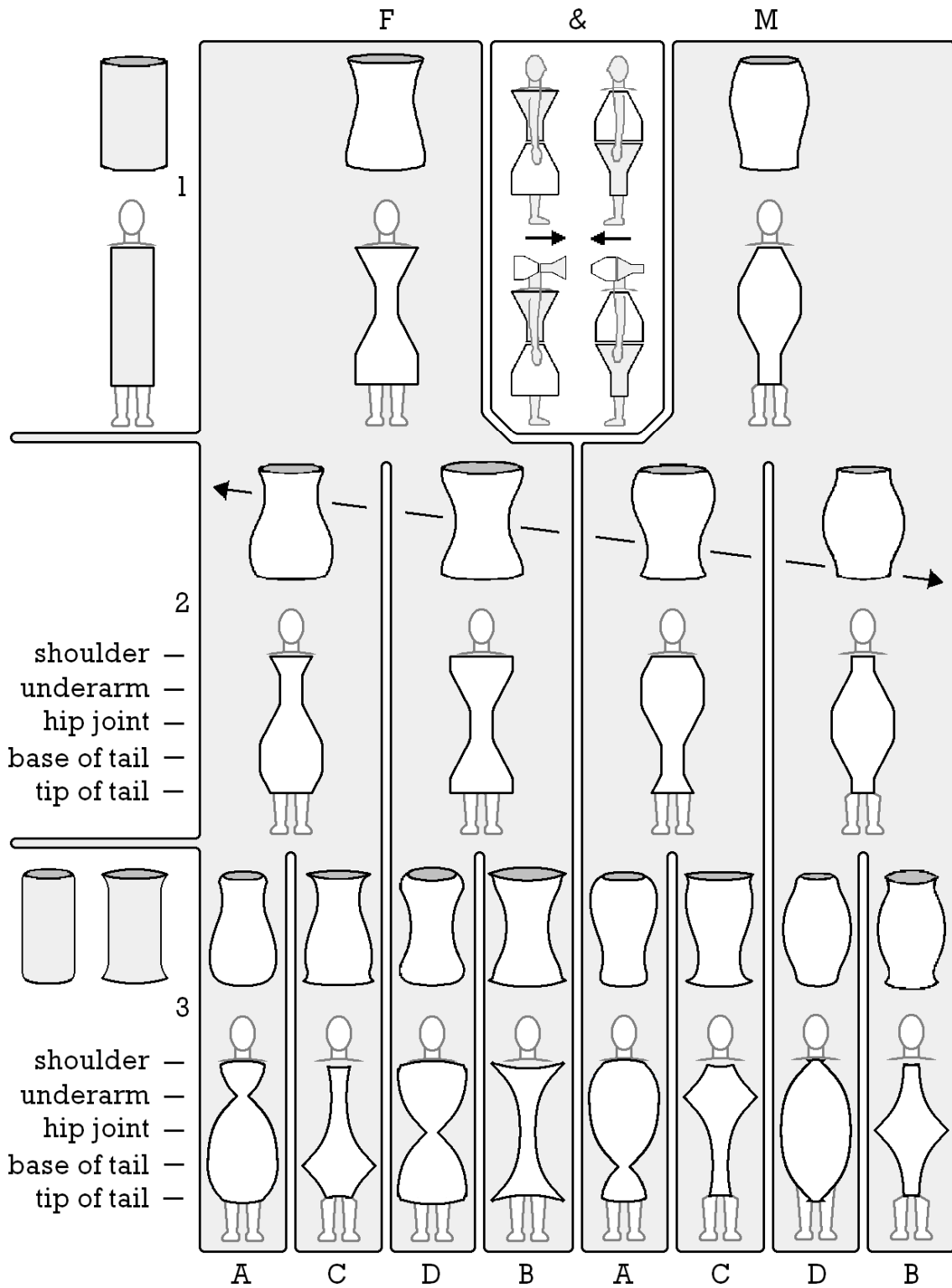


Chart 4 - Peristaltic types and archetypes

The boxed area of Chart 4 is vertically divided in two – female (F) and male (M) forms. The derivation of female forms is shown on the left half of the chart and male forms on the right half. The various figures to the left, outside the boxed area, are, as in Chart 2, the neutral templates from which the four remaining columns were derived. The body parts listed on the left are cues for turning the tonus “maps” into accurate mental images. The sections, 1, 2, and 3, include illustrations of different forms of one complete wavelength of peristalsis running through a tube and shown more stylistically and in an exaggerated fashion on a human caricature. (All the legs and all of the oval heads on the peristaltic wave sections are placed there to create the sense of a person and do not represent an accurate depiction of their respective muscle tonus)

The top section, section 1, depicts hypothesized muscle tonus patterns for males and females. As with the dorsal-ventral and lateral waves, it is hypothesized that peristalsis is present in the muscle tonus and neurological system as a repeating wave, the first wavelength running from mouth to shoulder and the second running through the remainder of the body to the “tail” and anus. The smaller characters delineated in section 1, below the “&” sign, are of male and female forms facing each other in order to indicate the opposite tonus qualities and a sense of opposite natures. The lower pair of smaller characters depicts the presence of the same repeating wavelength that is present in the dorsal-ventral and lateral waves. As stated before, this repeated wave, one in the face head and neck and the other running through the remainder of the body, could have significance in explaining recent studies of the connection between facial and bodily expression. (deGelder et al., 2005) (The peristaltic shapes of these smaller figures are shown split in half for purposes of a later mental image.)

Peristalsis in both of the smaller illustrations of section 1 is also shown divided into two pieces that are shaded differently. This is to indicate the top half of the female model is like the bottom half of the male model and so forth. This makes the logic of a mental image described below easier to understand.

Section 2 shows peristaltic forms that are close to the general form of the one above them, in section 1, yet represent some divergence in both directions from that form. The diagonal line, as in Chart 2, shows the progression of the wave through the four forms.

Section 3 adds one last distinction to the typology. Each of the four forms in section 2 is divided into two additional body forms, one that appears to be primarily enclosing its contents and the other that suggests it is releasing or expelling its contents. In the exaggerated forms, one group of shapes are rounded and the other has sharp edges. In imagery, it is the distinction between feeling “full” or “being filled” with that of feeling “empty” or “being emptied.”

At the bottom of the chart are letters A – D that link each of the eight derived peristaltic types to the four dorsal-ventral and lateral types presented earlier.

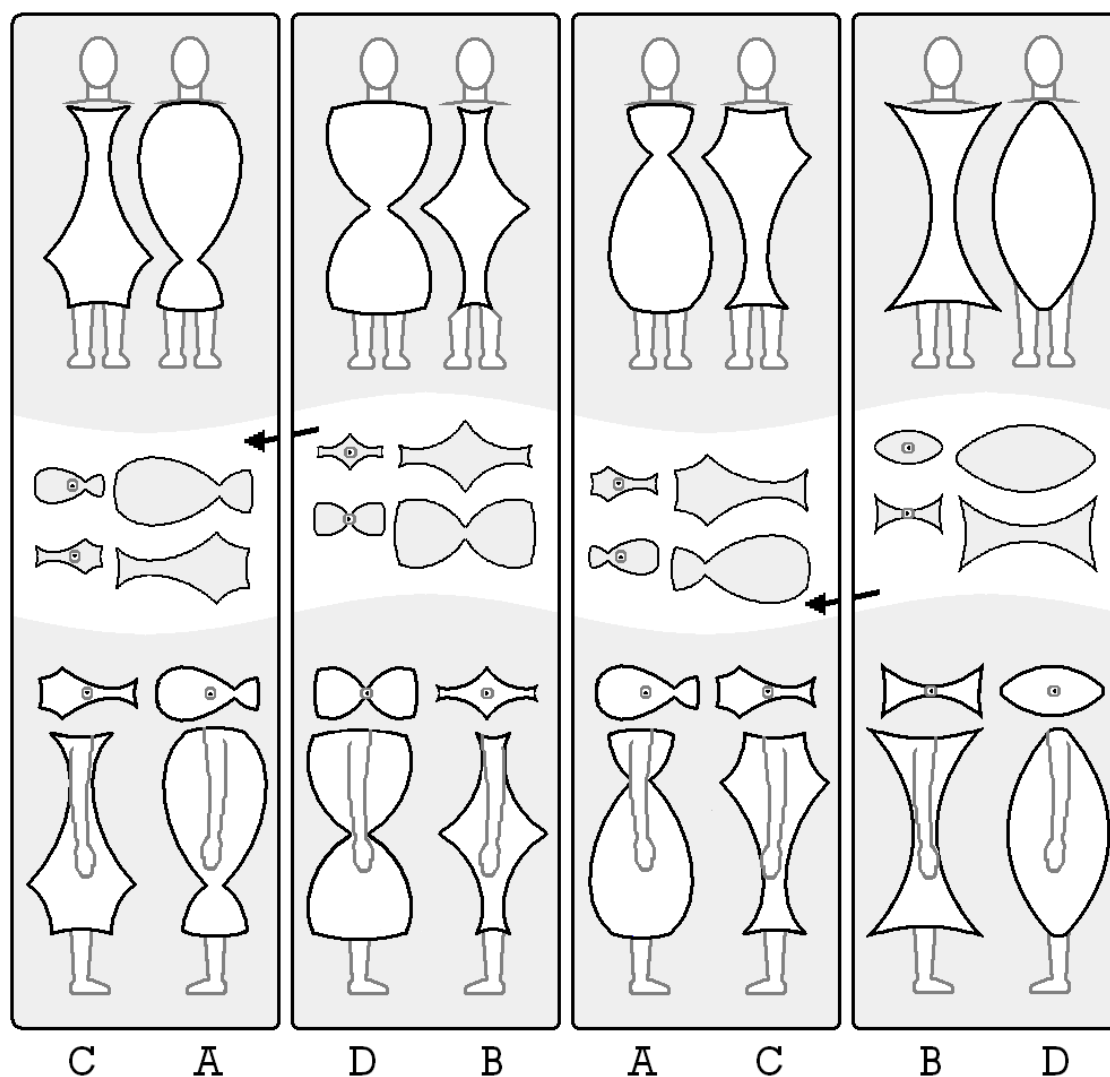


Chart 5 – Exaggerated peristaltic opposites

Chart 5 shows the various peristaltic sections, which were derived in Chart 4, placed together with their opposites. In this manner, the opposites seem to suggest couples. In fact, it is hypothesized in the model that heterosexuals with opposite tonal patterns, described by the waves, tend to couple. This model suggests a schema that can add explanation to the nature of coupling and what the adage “opposites attract” (see also Chart 7) might more specifically imply.

The top row caricatures are pairs of gender and type opposites, facing forward or backward. The bottom row caricatures are pairs of gender and type opposites, facing each other. Which are proposed as male and which are proposed as female is not indicated. The reader can playfully test their kinesthetic sense by guessing which forms represent female tonus and which male (if they have not memorized the information on the previous chart).

The center section of horizontal creatures is placed there to indicate the more direct progression of the wave through the body, a repeated wave, as it was shown in the dorsal-ventral and lateral wave discussions.

Mental image*Moving body parts and becoming your 'opposite'*

This experiment with altering kinesthetic habit involves some rather bizarre images and may take a while to take seriously. The intent of exercise is first, to demonstrate that different parts of the body generally have different tonus and second, to offer an experience to people of their tonal "opposites." We experience a particular part of our body by the nature of the tonus there. The logic behind the specific body part switching in this exercise can be surmised by reexamining all of the various wave illustrations, perhaps especially the center section of section 1, Chart 4.

It is best to be sitting up in a chair to imagine and experience this exercise most effectively. Avoid being analytical until you have given a good mental effort to the exercise. The exercise can ultimately become quite complex, so, at first, imagine that only the following body parts have switched places: switching the nostrils with the ears...and switching the arms, including the shoulders, with the legs, including the hips. The choice of what is 'switched' with what is not at all accidental. Attempt the image just as stated. Get explicit and imagine things like your 'old' fingers have become your toes and your elbows and knees have switched, though now perhaps bent peculiarly. When you mentally have tired and feel you have done enough, lightly rock forward in your chair, get up, and move about. If now walking, you will be walking on hands! Play with that 'fact' for a moment.

Other logical possibilities for this exercise may come to you after you are more familiar with it. The exercise is complete. Assess changes you sense. Did any part or all of you move involuntarily? Do extremities or facial parts feel different from before? Is there a sense of ease with a part of you that was not there before?

Refer back to Chart 4 to see that the proposed male and female models represent opposite shapes, with the top half being the same and the other gender's bottom half, and so forth. The changes in this mental image exercise can feel like changes in gender as well as changes in other qualities.

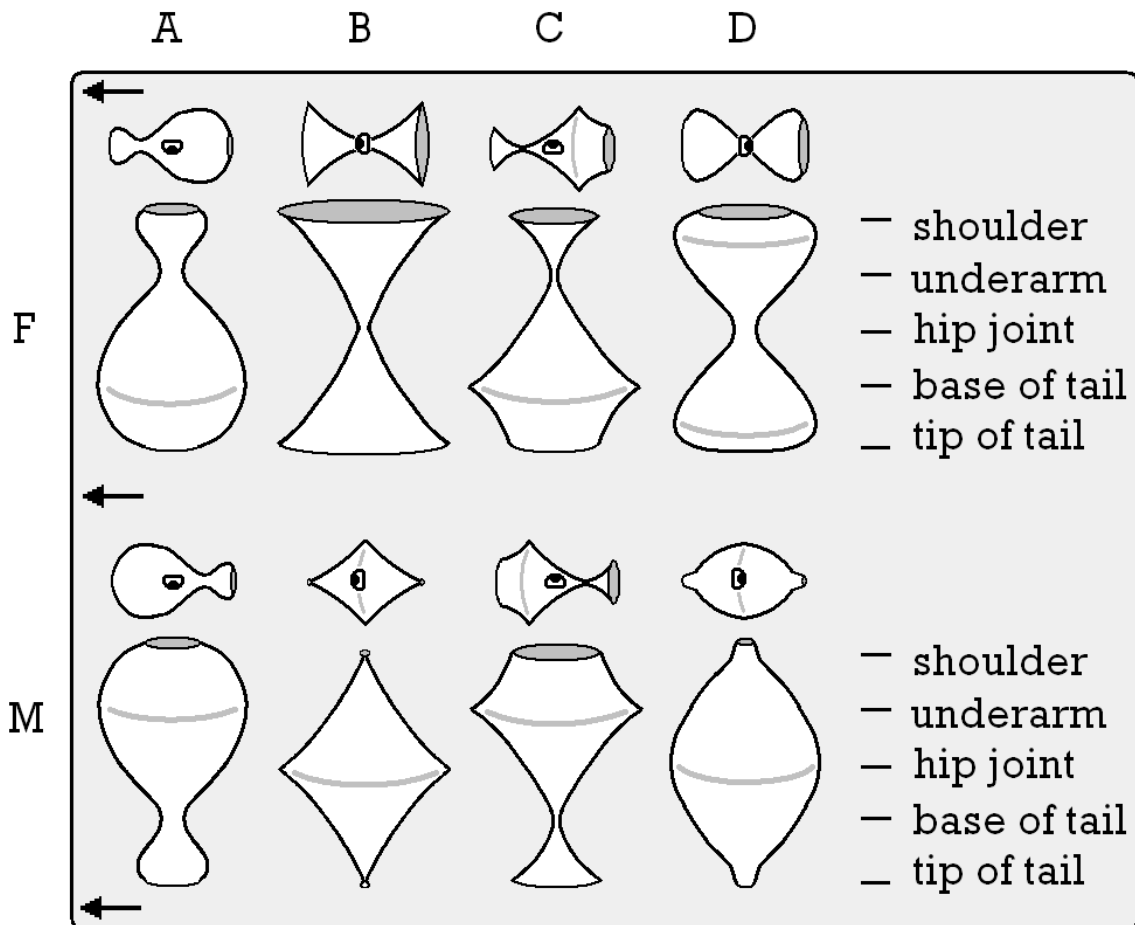


Chart 6 – Peristaltic types, extremely exaggerated, for image exercise use. The tonal qualities of arms and legs can be surmised from the index to the right of body levels. All versions are facing to the left, though whole-body peristalsis has no front, back, or lateral differences

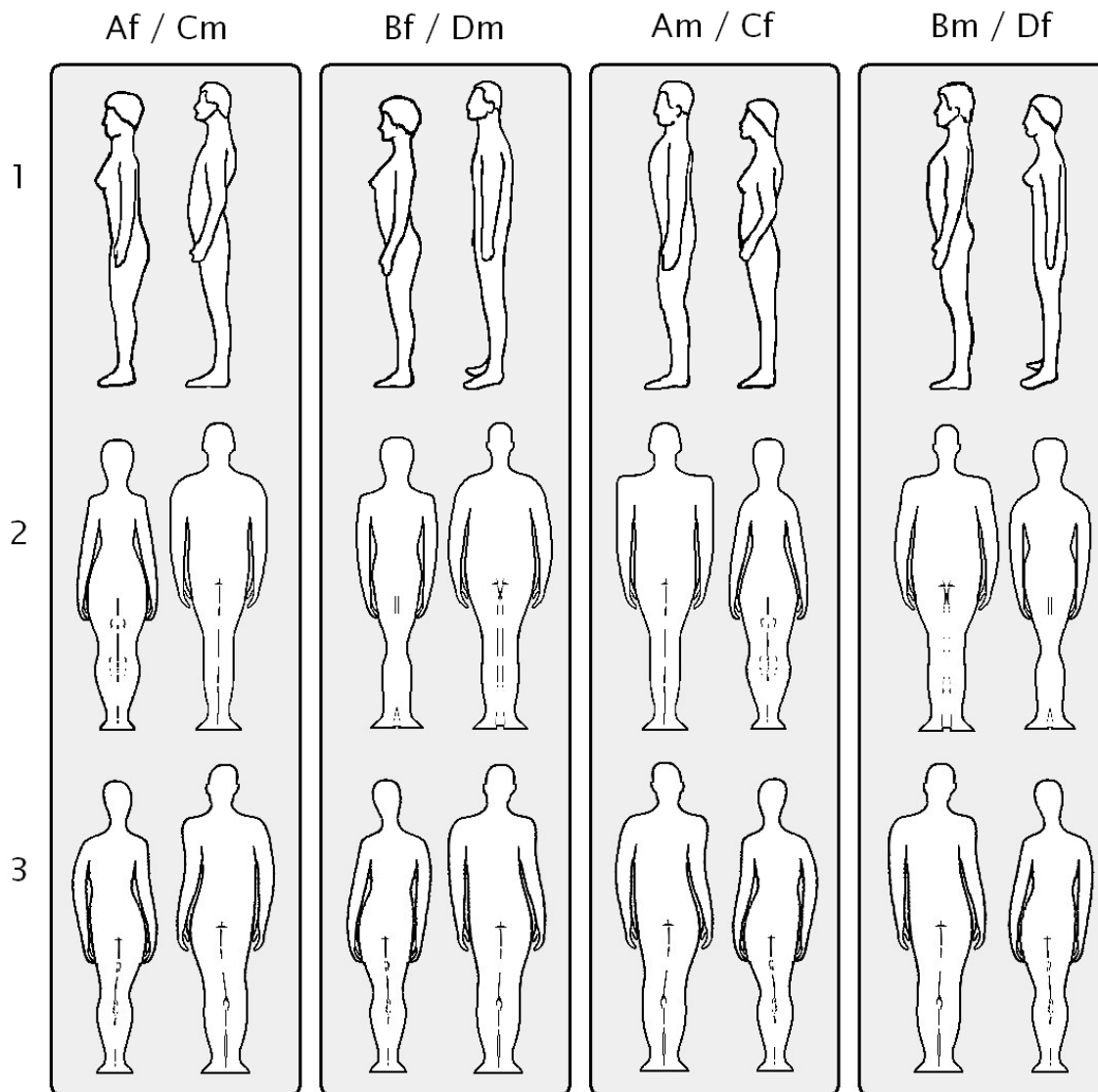


Chart 7 – *The tonal pattern tendencies of opposites. Row 1 represents dorsal-ventral wave stages, row 2, whole-body peristaltic stages, and row 3, lateral wave stages. Opposites in tonus are paired (f- female, m-male). Once again, many other factors go into creating the observable shape of an individual and muscle tonus features are not necessarily very visible.*

Conclusion

This article proposes a new way to view the body, as a shaped whole. It explores the connections between visual, kinesthetic, and somesthetic senses and the body as a whole, as a gestalt.

The mental imagery is perhaps parallel to Ideokinesis. It has proven to be valuable, primarily and as a body of imagined movement in dance education. However, the system proposed in this paper and in two previous papers, by contrast, is more concerned with the sensations and perceived structural shape and qualities of the body's surface. It considers posture, and the features of personality that derive from it, as a whole that cannot be easily parsed.

This paper explores a way of describing some diversity in personality. It is intended only to suggest one more feature to be considered in the understanding of such a complex and illusive subject. If the ideas presented here are interesting, plausible, and offer a possible useful perspective, it is hoped that some investigation and experimentation will take place. The two previous papers published are more devoted to discussion of new models for ideal structural support (posture). Reading all the papers would provide the greatest understanding of the potential for the material presented.

The value of the model presented here may be as a diagnostic, educational, and therapeutic tool. How it might fit into different disciplines is open for discovery and development. The author has used it effectively as a tool in teaching the Alexander Technique but suspects that the mental imagery could be adaptable to numerous circumstances, perhaps most especially, where movement or bodywork is involved. It is thought that children could identify with it in play therapy for improvement of posture, expressiveness, and movement. Dance and acting, both as art disciplines and as therapies, may find the models and potential imagery valuable.

References

- Alexander, F.M. (1932.) *The Use of the Self* (1984 ed.). Long Beach, CA: Centerline Press.
- Appleton, J. (2006) Postulating that our neurological models for musculoskeletal support, movement, and emotional expression come from archetypal forms in early organisms. *Medical Hypotheses*, 66: 1029-1035.
- Appleton, J. (2007) Illustrations and mental imagery of archetypal forms of early organisms – a new approach to exposing and releasing habitual and dysfunctional posture. *Journal of Bodywork and Movement Therapies*, 11: 25-36.
- Bem, T., Cabelquen, J.M., Ekeberg, O., & Grillner S. (2003) From swimming to walking: a single basic network for two different behaviors. *Biological Cybernetics*, 88(2):79-90.
- Brosi, A. (n.d.). *Biology of slugs*. Retrieved Sept. 14, 2006, from <http://www.arnobrosi.com/slugbio.html>
- Coulson, M. (2004) Attributing emotion to static body postures: recognition accuracy, confusions, and viewpoint dependence. *Journal of Nonverbal Behavior*, 28(2), 117-139.
- Damasio, A. (2003). *Looking for Spinoza: joy, sorrow, and the feeling brain*. Orlando, FL: Harcourt.
- deGelder, B. Meeren, H.K.M., Righart, R., Van den Stock, J., van de Riet, W.A.C. & Tamietto, M. (2005). Beyond the face: Exploring rapid influences of context on face processing. *Visual Perception, Part 2, 155, Fundamentals of Awareness, Multi-Sensory Integration and High-Order Perception* (S. Martinez-Conde, S. Macknik, L. Martinez, J-M. Alonso, and P. Tse, Eds.), Oxford: Elsevier.
- Ekman, P., (2003) *Emotions revealed: recognizing faces and feelings to improve communication and emotional life*. New York: Henry Holt.
- Fairweather, M.M., Sidaway, B. (1993) Ideokinetic imagery as a postural development technique. *Research Quarterly for Exercise and Sport*, 64: 385-92.
- Franklin, E. (1996). *Dynamic Alignment Through Imagery*. Champaign, IL: Human Kinetics.
- Gilligan, S. (1971). *The Heterosexuals Are Coming*. New York, NY: Fusion Groups.
- Gallagher, S. (2005). *How the Body Shapes the Mind*. Oxford: Oxford University Press.
- Hurley, S. (1998). *Consciousness in Action*. Cambridge, MA: Harvard University Press.
- Kafkani, N., Golani, I. (1998) A traveling wave of lateral movement coordinates both turning and forward walking in the ferret. *Biological Cybernetics*, 78(6): 441-53.

Krasnow, D.H., Chatfield, S.J., Barr, S., Jensen, J.L., Dufek, J.S. 1997 Imagery and conditioning practices for dancers. *Dance Research Journal*, 29: 43-64.

Morganti, F., Gaggioli, A., Castelnuovo, G., Bulla, D., Vettorello, M., & Riva, G. (2003) The use of technology-supported mental imagery in neurological rehabilitation: a research protocol. *CyberPsychology & Behavior*, 6: 421-427.

Page, S.J., Levine, P., Sisto, S., Johnston, M.V. (2001) A randomized efficacy and feasibility of imagery in acute stroke. *Clinical Rehabilitation*, 15: 233-40.

Sheets-Johnstone, M. (1999a) *The Primacy of Movement*. Amsterdam: John Benjamins Publishing Company.

Sheets-Johnstone, M. (1999b) Emotion and movement: A beginning empirical-phenomenological analysis of their relationship. *Journal of Consciousness Studies*, 6 (11-12) 259-277.

Sweigard, L. (1974) *Human Movement Potential: Its Ideokinetic Facilitation*. Lanham, MD: Harper & Row.

Todd, M. (1937) *The Thinking Body: A Study of the Balancing Forces of Dynamic Man*. Princeton, NJ: Princeton Book Co.

University of Tennessee, EEB 350: Comparative Vertebrate Anatomy, Spring 2005, PDF Repository, Lecture Materials, Limbs .pdf file. Retrieved Sept. 14, 2006, from http://eeb.bio.utk.edu/eeb350/EEB350/EFVM_Lec8Locomotion_6up.pdf

Wallbott, H. (1998) Bodily expression of emotion. *European Journal of Social Psychology*, 28, 879-896.