

# Integrative Perspectives on Human Growth and Development: Insights into Acupuncture-Point Function from Developmental and Evolutionary Viewpoints

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## ABSTRACT

While research examining Chinese medicine frequently explores the mechanisms of acupuncture and evaluates acupuncture protocols for disease treatment, little is written addressing growth and development from the Chinese medical perspective, including how changes over the lifespan interconnect with point and channel function. No published research addresses connections among evolutionary biology, growth and development, and acupuncture-point function rationale. Nonetheless, acupuncture as a system is understood, in large part, as utilizing points along channels that have functional significance. What those channels are and how they develop over the lifespan is seldom addressed, and not agreed upon. The arena of growth and development can provide critical insight into acupuncture-point indications, as well as expanding the understanding of acupuncture physiology into the realms of evolutionary biology and developmental biology.

**Key Words:** Complementary and Alternative Medicine, Meridians, Rehabilitation Medicine, Acupuncture Points, Growth and Development, Integrative Medicine

## INTRODUCTION

ALL MEDICAL SYSTEMS RECOGNIZE that growth and development, from infancy to old age, is a part of the human process. The ways that these changes are mapped over time vary, and the lenses used to categorize these maturations often yield insight into myriad aspects of how we grow into the world and into and through our bodies. Many studies have examined mechanisms of acupuncture from the biomedical viewpoint<sup>1,2</sup>; yet, no consensus exists on exactly what an acupuncture channel or point is, or how to integrate Chinese and Western views on human physiology.<sup>3</sup> Considering growth and development may help advance this discussion.

In Chinese medicine, perhaps the best known-look at growth and development is found in the *Huang Di Nei Jing*, in discussion of the “cycles of seven and eight.” These define growth periods much like the layers of an onion,

“bookending” critical developmental stages. It is said that females mature in cycles of 7 years, and males mature in cycles of 8 years.<sup>4</sup> See Box 1.

Another window into classical views on development includes passage through the “Four Gates of Life”: puberty; “marriage”; “childbirth”; and menopause. These gates represent major neuroendocrine shifts in physiology, with “marriage” translating to “pregnancy” and “childbirth” readable as the shift to postgestational physiology governed by lactation. Men and women share puberty as a common gate, but beyond that, male physiology is not seen as having further profound shifts.<sup>5</sup> This constellation of changes also defines the possible, expressible variations governed by the *Chongmai* system, also known as the penetrating-vessel system or thoroughfare vessel system. The *Chongmai* system governs reproductive physiology and behavior, and encodes culture in the organism, so that mating behavior in adulthood is directed with cultural influence, and mating

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BOX 1. CYCLES OF JING EXPRESSION: *JING* EXPRESSION IN FEMALES (CYCLES OF SEVEN)

- At the age of 7, the Qi of the Kidney abounds. The [first] teeth are substituted and the hair grows long.
- With two times seven, the heaven *gui* arrives, the controlling vessel is passable, and the great thoroughfare vessel abounds [with Qi]. The monthly affair moves down in due time and, hence, [a woman] may have children.
- With three times seven, the Qi of the Kidneys has reached its normal level. Hence, the wisdom teeth emerge and [females] grow to reach their full size.
- With four times seven, the sinews and bones are firm and the hair has grown to its full extent. The body and the limbs are in a state of abundance and strength.
- With five times seven, the Yang brilliance vessel weakens; the face begins to dry out; and the hair begins to fall off.
- With six times seven, the three Yang vessels weaken [in the upper sections]. The face is all parched and the hair begins to turn white.
- With seven times seven, the controlling vessel [*Renmai*] is depleted and the great thoroughfare vessel is weak and [its contents are] diminished. The heaven *gui* is exhausted. The way of the earth is impassable. Hence, the physical appearance is spoilt and [a woman can] no [longer] have children.

**Note:** Cycles of Eight follow for men and are similar. It is critical to understand that this progression describes that of the average person who “does not follow the Way [of the Tao]... Those who follow the Way, they can drive away old age and they preserve their physical appearance. Although their [bodies have] has lived... long [lives], they are [still] able to produce children.”<sup>4</sup>

Source: Ref. 4; Unschuld and Tessnow translation.

choices are predicated upon acquired experience. (Yuen J. *The 8-Extraordinary Vessels (Qi Jing Bai [sic] Mai)*. Lecture given at the Swedish Institute, January–March, 2004; transcribed by Nicholas V. Isabella III.)

### *TIAN GUI (HEAVENLY WATER)*

Transition to adulthood (pubertal development), according to the classical Chinese view, is heralded and facilitated by the arrival of *Tian Gui*. *Tian Gui* sustains the reproductive cycles of the organism, until, as *Jing* depletes, *Tian Gui* departs and leaves the individual no longer sexually viable.<sup>4</sup> There is disagreement among authors as to what exactly *Tian Gui* is per se, but, regardless, as is characteristic of Chinese medical understanding of physiology, *Tian Gui* is a clearly observable phenomenon about which postulations can be made.<sup>4,6,7</sup>

As children approach puberty, they undergo the predictable shifts in development that are observed transculturally, including enlargement of the genitals and breasts, changes in voice and skin, and, for girls, menarche. The child also develops new vision for mating targets, and relationships with individuals who were previously only playmates become influenced by romantic feelings and overlays. Indwelling neurohormonal circuitry matures under the influence of the gonadal and gonadotropin systems.

According to a Western standpoint, current thought on the arrival of puberty and its changes should be thought of as “coming from above.” One author wrote: “It is important to recognize the onset of puberty not as a gonadal event but rather as a brain event. Gonadal maturation is initiated by

a nervous system that is informed by permissive internal and external signals.”<sup>8</sup> We see, then, parallel phenomena presenting between “the arrival of *Tian Gui*” and the powering-up of the gonadal axis.

Puberty must also be seen as part of the innate plan of the organism as it develops from a presexual to a sexual status. Humans carry the legacy of sexual reproduction; hence, the circuitry for that mechanism must be encoded in our genome, be epigenetically modifiable, and be reliably expressible with personal permutation, barring disease or genetic divergence. In order to reproduce successfully, in addition to functional, physical reproductive organs, individuals must be able to seek a mate, engage in culturally appropriate mating rituals, and successfully position him- or herself for copulation. As discussed later in this article, this process involves specific hypothalamic nuclei that are sexually dimorphic and coordinate mating behaviors.

According to the Chinese perspective, classically, much of what could be considered the behavioral aspect of mating results from early learning/imprinting upon preexisting systems. This imprinting occurs most deeply in utero and in the first year of life. This time period is governed by the activities particularly of the *Renmai* (Conception Vessel) and *Dumai* (Governing Vessel). These vessels encode critical information about environment, parenting patterns, and core resources. More complex encoding of the *Chongmai* vessel occurs over the first 6–8 years of life per Yuen. This subsequent encoding builds upon the bedrock established in the *Renmai* and *Dumai* vessels, and adds cultural specificity. (Yuen J. *The 8-Extraordinary Vessels (Qi Jing Bai [sic] Mai)*. Lecture given at the Swedish Institute, January–March, 2004; transcribed by Nicholas V. Isabella III.) The

*Renmai* and *Dumai* preexist the imprinting, but the imprinting is critical to the later function of these vessels.

According to the Western modern perspective, it is understood that, “[a] critical period of brain sexual differentiation occurs during late embryonic and early postnatal life, the manifestation of most of these effects does not occur until much later in life, beginning in puberty, when the gonads begin to produce large amounts of steroid hormones. In the absence of fetal imprinting, the pubertal activation of sex-specific mating behaviors never occurs.”<sup>9</sup> Furthermore, “[i]n rodents and primates, acquired experiences between birth and weaning can have profound effects on the quality and intensity of parenting behavior that is expressed toward neonates in adulthood...many...hormonal and neuronal systems organize their long-term functions and regulatory capacity in relation to interactions that the infant has with a caregiver and later on with peers.”<sup>10</sup>

Synthesis of these viewpoints, Chinese and Western, follows easily. In both systems, the individual is seen as having innate neurohormonal circuitry that is influenced by early experience and then matured later in the pubertal timeframe. Both early and pubertal experiences are critical to the successful expression of adult mating behavior, including the copulatory act itself and subsequent parenting patterns.

### HOMUNCULAR PHYSIOLOGY AS A CORE TO FUNCTIONAL HUMAN PHYSIOLOGY

As previously mentioned, there remains debate in the various schools of Chinese medicine regarding what an acupuncture channel is, but a window into the Taoist interpretation of this can be found. Before exploring this view; however, it is crucial to recall and recognize that a primary organizing principal for the mammalian nervous system is that of the homunculus. The theory surrounding this representative, evolutionarily preserved structure for connecting the central nervous system (CNS) with the external body is well-established and described for all mammals and many other members of the animal kingdom. Homuncular representations can be traced from the distal spinal cord to and throughout the neocortex, including both evolutionarily newer structures, and more primitive midbrain and brainstem structures.<sup>11–15</sup> While the brain certainly has other methods of informational organization, this structural architecture is core. The ability to locate, manipulate, and create meaningful associations among body parts, endocrine responses, and nervous-system status is at the heart of being able to respond appropriately to situational challenges, such as eating, defense, and mating. The scores of cross-referencing homuncular representations throughout the brain enable this capacity, allowing experience to be recorded to a physical map and allowing the physical form to access mental phenomena.

It should also be recognized that, consequent to the development of a “mirror neuronal” system in the CNS, humans and other animals are able to recognize and copy the body postures of other creatures. This ability allows the organism both the capacity to create meaningful associations among postures and to communicate inter- and transspeciesly via body posturing. The ability of the brain to create and recognize posture-context–meaning relationships underlies our ability to use our bodies in coherent and situationally appropriate ways, and to respond to the “body language” of other creatures.<sup>16–18</sup> This ability also underscores the primacy of posturally encoded meaning, rooted in the homuncular architecture, to the evolutionary success of the species.

If we accept, then, that the body has a carefully preserved, evolutionary architecture consisting of a circuitry that allows meaningful posture-context responses (homuncular organization)—the expression of which are experientially influenced, and some of which mature during critical developmental timeframes such as puberty—then it is not a difficult stretch of the imagination to postulate the acupuncture channels as a Chinese map of that circuitry and conceive of acupuncture points as functional loci that are active during specific activities.

Classical Chinese Medicine, rooted in Taoism and Shamanism, prizes observation of nature and natural phenomena, above all else, as a guide to knowledge. It also, being shaped further by Confucianism and Buddhism, highly values structure, sequence consistency, and energetic dynamics. Hence, we might presume, that the classical Chinese understanding of human physiology represents an explanation of observed, natural phenomena, organized in a form that the people of those times believed had a valid mathematical structure. Being such, this cataloging of human physiologic data would be (to the degree that it is structured and understood correctly), another view of human physiology that should parallel Western understanding, once Western understanding itself evolves to a degree that accurately describes that same organism.

Subsequent to this belief system and method of knowledge acquisition, many classical Chinese practices, such as the *Dao Yin* exercises of Taoist sexual practice, can be seen easily as an exploration and application of homuncular theory. These practices involve the conscious direction of energies through and around the body using physically mapped pathways, such as up the middle of the back, along the *Dumai* (Governor Vessel), and down the midline of the front, along the *Renmai* (Conception Vessel). These practices seek to store or access energy in and from locations that would clearly have CNS correlates, such as the centers of gravity, corresponding to the *dan tien*. These practices also seek to create visualized associative relationships that are believed to facilitate novel physiologic responses.<sup>19</sup> Each of these pathways and “depots” is imbued with meaning. The ability to move the seat of attention to and

through these various sites, while often crosslinking imagery with them, is seen as the key to mastering the very energies of life. This is, in essence, an intentional exploration and manipulation of the homuncular map and the associative neural circuitry that crossreferences various homuncular forms within the CNS. Western science may be skeptical of some of the health claims that are put forth as possible based on these practices, but the neural basis for the practice is certainly sound and consistent with Western understanding of human physiology.

## DISCUSSION

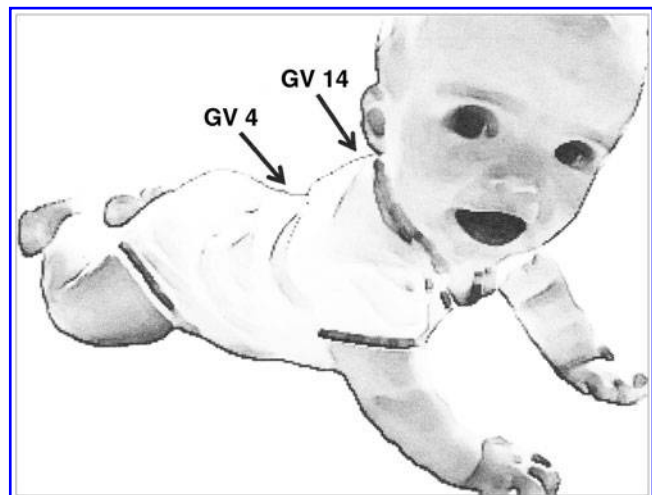
The *Dumai* is the Director of Exploration and the backbone of physical posturing critical to mounting and Yang copulatory-behavior—changes over the lifespan. Returning to growth and development, a specific example of the application of homuncular theory can be seen in the evaluation of the *Dumai* vessel (primary channel, primary branch), running from the sacral region, up the mid-back to the neck, and progressing over the head, and the points GV 4 (*Ming Men*) and GV 14 (*Da Zhui*) on this channel. Noted Taoist teacher Jeffrey Yuen, LAc, describes this: “Two to 3 months after a child is born, [that child] start[s] involuntarily contracting the muscles at the back of [the] neck and lower back at the areas of GV 4 and GV 14. Taoists say, *the child sees the horizon but cannot judge his relation to it. . .*” Yuen then adds: “A little later...the pulsating contractions at GV 4 cause the child to stand, walk, and go after what it is [he or she has] seen and become interested in...Whenever you see or think about something you want to have and go after, these points are stimulated.” (Yuen J. *The 8-Extraordinary Vessels (Qi Jing Bai [sic] Mai)*. Lecture given at the Swedish Institute, January–March, 2004; transcribed by Nicholas V. Isabella III.)

From this description of the progression from pre-ambulatory to ambulatory, we see the application of associative homuncular theory. Yuen describes indwelling circuitry that matures in sequence. This particular circuit governs the ability to raise the head, see the horizon, lift the body to standing, and move toward a distant goal. This is the dawn of the interplay and associative recording between physical posturing and cognitive experience, occurring in primary reference to the *Dumai* vessel. This experiential overlay might be said to “thicken” over the lifespan, as the cortical homunculi enlarge in response to the repeated usage of any body part.<sup>11</sup> The *Dumai* will develop complex but predictable interconnections with other vessels, and reference countless experiences in various contexts. It is, in addition, arguably encoded in maturational shells, making data sets accumulated distinct by time periods but still juxtaposed.<sup>4</sup> At the root, all associations stemming from Yuen’s example trace back (or carry a common thread) to the early experiences centered around GV 4 (*Ming Men*) and GV 14 (*Da*

*Zhui*). These points remain, at the core, connected to that early exploration—that association between raising the head, seeing a distant horizon; staring at the stars; and feeling wonder, motivation, and the desire to explore. Myriad later life experiences will find grounding in this core-associative posturally encoded “soil.” Taking the posture can be used to facilitate the invocation of the feeling. Consequent to mirror neurons, seeing someone else take this posture may induce the response as well. (*Note*: This would be GV 14—predominant, GV 4 secondary posturing; Fig. 1.)

These points also connect to the ability to create a solid base with the hips and raise the body up, hinging at Lumbar 2, and rolling the eyes up to meet a new level—all demonstrating one’s “get up and go” (GV 4—predominant, GV 14 secondary posturing; Fig. 2). These points can be accessed throughout the lifespan to restimulate these same sets of related drives, and getting to the earliest depth of the point associations would be hypothesized to correlate to accessing the purest, most-primitive of experiences. These points would also be thought to access that innate drive that pushes the child forward, preexperience, to lift his or her head for the first time. Needle technique would be considered by many practitioners as critical to achieving any predictable effects, but also guiding the patient’s mind during the process would be classically consistent, as noted in the *Huang Di Nei Jing*.<sup>20</sup>

Understanding the brain’s use of homuncular mapping enriched by associative learning, we can see this postulated Chinese medical outlook as an application of theory very consistent with Western understanding of neurology and brain development. We can also hypothesize that a procedure such as acupuncture could regulate neural accessing of these specific body regions, and potentially change the encoding of information that has and will accumulate “on top” of these portions of the map. In application, individuals who have a fundamentally low drive to explore (*Dumai*-



**FIG. 1.** Early head-lifting posture: GV 14 is the primary reference point.

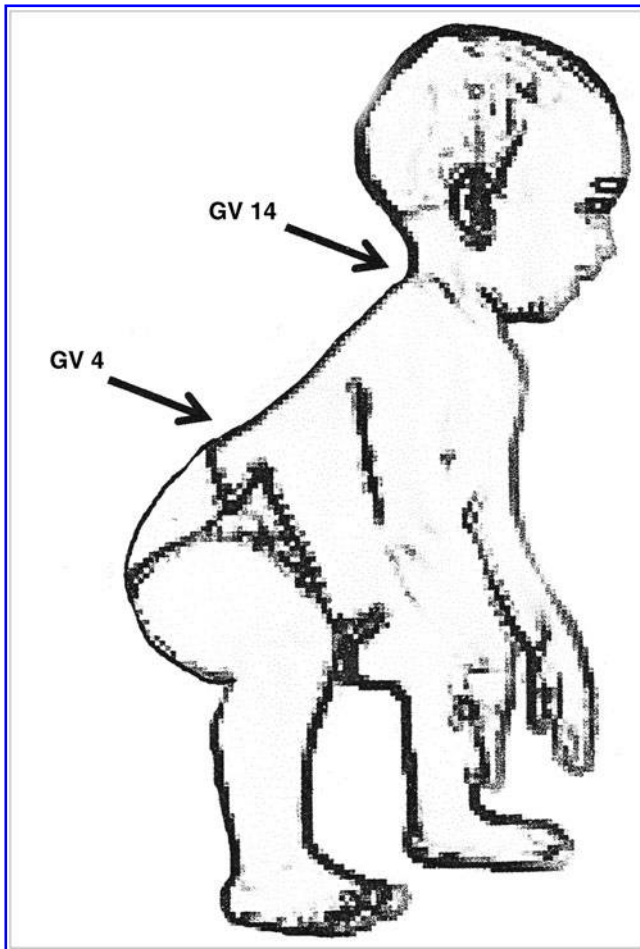


FIG. 2. Early standing: GV 4 is the primary reference point.

Deficient pathology) might be treated through tonification methods applied to these points. Individuals who are overly aggressive in seeking the exploration of distant horizons and are unable to remain grounded (*Dumai*-Excess pathology) might be treated through sedation of these points. Individuals who develop obstructions along the association pathway of the *Dumai* because of negative experience might benefit from dispersing methods of treatment. Different weighting of the points while needling would begin to divide the target of the Qi by associative category (e.g., GV 4 or GV 14 predominance). Later in life, this might be highly prized. (Note: It is the modest and metaphorical nature of Chinese language and culture not explicitly to name “mate-seeking” in the set of *Dumai* behaviors, but this would indeed be included in the interpretation of “seeking to explore the horizon” or not having the drive to seek. This set of associations emerges postarrival of *Tian Gui*, and optimizing *Dumai* function in this domain has been a high priority for humans transculturally for eons.)

Looking toward puberty, GV 4 (*Ming Men*) is a critical point in understanding sexual drive, and is known to be associated with Essence, Ministerial Fire, the Kidney sys-

tem, and the lumbar spine.<sup>21</sup> Why might this be? This point is noted to act as an early primary reference point in posturing associated with pushing up and standing, wonder, exploration, and possibly confidence, and achievement. Postarrival of *Tian Gui*, this area becomes sexualized and can be seen as a primary locus to reference pelvic tilt and expanse of thrust in copulation posturing. (It is the primary focus of sensory feedback from the dorsal apex of the pelvis as a hinging mechanism for thrusting and withdrawal during coitus. The ventral feedback returns through pressure and sensation centering at Stomach 30 and *Ren* 2. The intensity and relationship of the sensations returning to the CNS from these loci give feedback necessary to modulate both positioning and intensity of action.) It is also a primary region, the proper stimulation of which, signals lordosis positioning in both humans and other species postpubertally, although it should be noted this mechanism may be cogoverned by the *Renmai*.

To clarify, homunculus theory demands that we always ask the question regarding how we know what we are doing physically at any given moment. The answer to this involves sensory feedback, including proprioceptive and other signals, from specific body regions, acting within a context. The proprioceptive signals sent from GV 4 (*Ming Men*), for example, using an experiential map of the body/locus when it is engaged in context-specific activity, give the region its core associative meanings, with context and maturation delineating the sensory fields. This, in turn, defines an array of superficially distinct “point indications” for that locus. These associative meanings may be quite far afield on the surface, but all connect back to the early drive and youngest associations.

Looking again toward pubertal maturation, we see that there is a set of associative meanings that are not available to human beings prior to the arrival of *Tian Gui*. The body has a presexual set of associations that will lay the foundations for sexualization of the circuitry upon activation of the gonadal axis, but, until that activation occurs, the child remains ignorant of the associative possibilities of certain body regions. Because of the functional significance of each body region, correct, context-specific stimulation of an area may lead to a set of specific responses that would not be expected by stimulation of other, differently utilized body regions. For example, contextually inappropriate stimulation of a region such as GV 4 (*Ming Men*) would not be anticipated to lead to certain sets of responses. Poking someone aggressively at this site would not, in most circumstances, lead to sexual encouragement. Directed stroking of the area by a desired mating target might. Physical response is context-specific and informed by the quality of, consent to, and timing of energetic input. In addition, directed stroking of a different body region, say the inner nostril, might be virtually never associated with sexual encouragement, although for the species, the mapping system is highly accommodating in this respect.

Interestingly, it is known that specific hypothalamic brain centers—such as the sexually dimorphic nucleus of the

preoptic area (SDN-POA) and the anteroventral periventricular nucleus (AVPV)—are affected by prenatal conditions and will mature at puberty differently when mothers of subjects are stressed in the third trimester versus not being stressed.<sup>22</sup> Hypothalamic brain regions are known, in general, to coordinate contextual and environmental information with physical responses and body posturing. In the cases of the SDN-POA and AVPV, this includes copulatory behavior. It may be fruitful to explore the relationship between hypothalamic brain regions governing copulatory behavior—including mate seeking and mounting postures—and the primary acupuncture reference loci involved in those same biologic functions: loci including, but not limited, to GV 4 (*Ming Men*) and GV 14 (*Da Zhui*).

It should be reiterated that we must be cautious in designing research protocols and needling methods to address specific biologic functions aimed at affecting specific brain regions. The key to accessing certain sets of information in any given patient, as has been pointed out, would be predicted best to involve the conscious directing of the patient's attention toward specific contexts that help reach specific layers of meaning. For example, needling GV 4 (*Ming Men*) in a specific manner while directing the patient's vision toward changing careers, might activate different brain regions than having the patient visualize hip thrusting during intercourse to promote sex drive. (Or, perhaps, this needling would stimulate some of the same regions, which would be interesting.) The single point has many contextual uses, and, hence, the neuroendocrine changes that it may promote could be very different depending upon how the Qi is directed during the treatment. This places the relationship and conveyed intent of the practitioner to and with the patient as paramount to specific success, as does the skill of needling or other method of treatment.

Within this paradigm of care, to *not* inform the patient and engage him or her in the treatment plan is to misunderstand the system itself, and would be anticipated to lead to lesser or no results. Studying this system may thus demand quite novel frameworks, as “placebo control” would have a significantly different implication. That said, it is possible that any stimulation of, for example, GV 4 (*Ming Men*), engages the earliest, even preexperiential motivational energies, and would then convey general benefit to the individual, regardless of needling intent. This would dull the differences between treatment and control groups.

## CONCLUSIONS

Human growth and development is noted to proceed in an orderly fashion by numerous medical systems, although the language used to express observations about these shifts varies greatly. In both the Chinese and Western frameworks, prenatal and early childhood experiences are observed to be recorded by or imprinted upon the developing child, and

strongly affect later expression of adult behaviors. These maturational changes bloom at puberty, which represents a critical window of development when energies emerge that transform the body and mind from presexual to sexual states. There is observed in both systems to be indwelling circuitry that governs stereotyped posturing linked to complex behaviors. One such subset of postures involves the correlation of specific spinal flexion and extension with the early development of standing and walking and an associative sense of wonder. These same postures also connect postpubertally with the performance of aspects of copulatory behavior and the relevant applications and associations of that posturing.

Both of these developmental timeframes, early childhood and pubertal, build upon the early experience and energies of seeking to “explore the horizon,” although the targets of that exploration change as the individual passes through the first of the Four profound Gates of Life. The inner drive to rise and explore precedes learning; yet that drive's expression is affected dramatically and critically by experience, encouragement, and effort. Physiologic responses and specific activities are coordinated through a physically mapped architectural network of homunculi that coordinate form and function, and allow associative meanings to be linked to body regions and postures.

Many of the complex point indications in acupuncture theory can be explicated through understanding the body itself to be an experiential map, rich in meaning, integrating both innate (prenatal) and lived (postnatal) data into this associative homuncular “tapestry” that we can access and affect via myriad treatment methods. Examining the changes in how sensory input and postural utilization of the specific regions of GV 4 (*Ming Men*) and GV 14 (*Da Zhui*) evolve pre- and postarrival of *Tian Gui*, offers a window into how developmental changes modulate the maturation of the nervous and endocrine systems in relation to human physical bodies and the meaning-filled postures human forms can take. This also enables envisioning how physical posturing and cognitive association interplay, and how acupuncture theory could be applied toward affecting this circuitry for health. It is hoped that these considerations might enrich the field of medicine and provide guidance for research rooted in a truly integrative understanding of, at a minimum, mammalian physiology.

## DISCLOSURE STATEMENT

There are no conflicts of interest to disclose.

## REFERENCES

1. Bowsler D. Mechanisms of Acupuncture. Online document at: [www.us.elsevierhealth.com/media/us/samplechapters/9780443049767/978044304977.pdf](http://www.us.elsevierhealth.com/media/us/samplechapters/9780443049767/978044304977.pdf) Accessed January 3, 2015.

2. Kawakita K, Okada K. Acupuncture therapy: Mechanism of action, efficacy, and safety. A potential intervention for psychogenic disorders? *Biopsychosoc Med*. 2014;8(1):4.
3. Hobbs RF. President's message: AAMA focusing on acupuncture research, as survey revealed high priority. *AAMA Newsletter*, August 2011;1.
4. Unshuld P, Tessenow H. Discourse on the true [Qi endowed by] Heaven in high antiquity. *Huang Di Nei Jing Su Wen, vol. 1*. Berkeley & Los Angeles: University of California Press; 2011:37–44.
5. Scott J, Barlow T. Stages of growth and problems at puberty. *Acupuncture in the Treatment of Children, 3rd ed*. Seattle: Eastland Press; 1999:501–519.
6. Maciocia G. Sexual Life in Chinese Medicine. Online document at: [maciociaonline.blogspot.com/2011/07/sexual-life-in-chinese-medicine.html](http://maciociaonline.blogspot.com/2011/07/sexual-life-in-chinese-medicine.html) Accessed January 3, 2015.
7. Feng-Wu L. A preliminary exploration of the treatment of menstrual irregularity based on Chinese medical pattern discrimination: Section 1. Menstrual physiology. *The Essence of Liu Feng-Wu's Gynecology*. Boulder: Blue Poppy Press; 1998:123–124.
8. Sisk CL, Zehr JL. Pubertal hormones organize the adolescent brain and behavior. *Front Neuroendocrinol*. 2005;26(3–4):163–174.
9. Gore AC. Developmental programming and endocrine disruptor effects on reproductive neuroendocrine systems. *Front Neuroendocrinol*. 2008;29(3):358–374.
10. Fleming AS, Kraemer GW, Gonzalez A, Lovic V, Rees S, Melo A. Mothering begets mothering: The transmission of behavior and its neurobiology across generations. *Pharmacol Biochem Behav*. 2002;73(1):61–75.
11. Kandel ER, Schwartz JH, Jessell TM. The functional organization of perception and movement. *Principles of Neural Science, 4th ed*. New York: McGraw Hill; 2000:340–348.
12. Nambu A. Somatotopic organization of the primate basal ganglia. *Front Neuroanat*. 2011;5:26.
13. Grodd W, Hülsmann E, Lotze M, Wildgruber D, Erb M. Sensorimotor mapping of the human cerebellum: fMRI evidence of somatotopic organization. *Hum Brain Mapp*. 2001;13(2):55–73.
14. Wilson P, Snow PJ. Somatotopic organization of the dorsal horn in the lumbosacral enlargement of the spinal cord in the neonatal cat. *Exp Neurol*. 1988;101(3):428–444.
15. Duerden EG, Finnis KW, Peters TM, Sadikot AF. Three-dimensional somatotopic organization and probabilistic mapping of motor responses from the human internal capsule. *J Neurosurg*. 2011;114(6):1706–1714.
16. Kraskov A, Philipp R, Waldert S, Vigneswaran F, Quallo MM, Lemon RN. Corticospinal mirror neurons. *Philos Trans R Soc Lond B Biol Sci*. 2014;369(1644):20130174.
17. Carney DR, Cuddy AJ, Yap AJ. Power posing: Brief non-verbal displays affect neuroendocrine levels and risk tolerance. *Psychol Sci*. 2010;21(10):1363–1368.
18. Denson TF, Pedersen WC, Ronquillo J, Nandy AS. The angry brain: Neural correlates of anger, angry rumination, and aggressive personality. *J Cogn Neurosci*. 2009;21(4):734–744.
19. Ruan FF. Sexual techniques of the Taoists: Myths and methods. Section 1: Historical survey of Taoists' sexual techniques. *Sex in China: Studies in Sexology in Chinese Culture*. New York: Plenum Press; 1991:52–74.
20. Ni M. The five failings of physicians. *The Yellow Emperor's Classic of Medicine*. Boston: Shambhala; 1995:292–293.
21. Deadman P. Section: The Governing Vessel. *A Manual of Acupuncture*. Ann Arbor, MI: Journal of Chinese Medicine Publication; 1999: 536–538.
22. Rhees RW, Al-Saleh HN, Kinghorn EW, Fleming DE, Le-phart ED. Relationship between sexual behavior and sexually dimorphic structures in the anterior hypothalamus in control and prenatally stressed male rats. *Brain Res Bull*. 1999;50(3):193–199.

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