

Evolution, Ki and the Aikidoka's Axis

The Primary Axis

The primary axis of the human body runs lengthwise from the top of the head to the bottom of the torso. This is the first axis, the most ancestral, characteristic of all bilaterally symmetrical animals. The integrity of this primary axis is paramount and independent of the movement of the limbs. When it aligns vertically with the axis of gravity, aikido can happen.

The vertebrate primary axis is defined by a central nerve cord in the back with a flexible supporting rod in front of it. The central nerve cord is the first identifiable structure of the human embryo and always has a leading end. (The head-to-tail orientation actually starts with the workings of the DNA and the polarity of the fertilized egg.) This leading end of the central nerve cord is now the top-most part of human spinal cord, the part inside the skull between the ears, the *brain stem*. It is hardwired to go first in movement and to receive sensory input from the eyes, ears and nose.

The first pre-vertebrate movement patterns, tiny flexions, extensions and spirals, were centered around the nerve cord, propelling it forward along with the mouth, also at the leading end. The flexible rod in front of the nerve cord functioned as a spacer, maintaining the shape of the organism and the nerve cord's place in the back. It evolved into the bony vertebral column. The ancestral patterns of deep movement around the core underlie the vibrant spine of the aikidoka, the undulatory flexibility of good ukemi.

Most vertebrates move horizontally in a way that lengthens the segmented structure and reinforces the spacer function of the vertebral column. Evolution to vertical, however, means that the vertebral column and primary axis are 90° removed from our directions of movement and sensory input. Nevertheless the aikidoka must maintain the length and integrity of his primary axis.

The Limbs

The first developmental decisions of all vertebrate embryos are the same: head/tail, belly/back. Coming to land required a new mode of motivity. Fins anchored into the vertebral column and evolved into limbs, which could interface with the ground, conducting upthrust, bearing weight, and moving the primary axis.

Limbs appear relatively late in the decision-making process, budding off the sides of the four week old human embryo, led by cells destined to become the very tips of the digits. The lead cell goes to the tip of the presumptive little finger and establishes the rotational axis of the forearm along the ulna. As the *homo sapiens*' limbs elongate, they rotate 180° around their own axes, drawing the bones, muscles, nerves etc. into spirals. This life force of growth is like the aikidoka's extension of ki through the fingertips.

In both evolution and embryonic development the limbs are but an afterthought to the primary axis. Although they are the movers of the axis, they are subordinate. Although the limbs have enabled us to attain a new relationship of the primary axis to the plane of

the earth and to gravity, they ride on the movement of the primary axis.

Many land vertebrates rear up onto their hind legs. The earliest primates developed a vertebral column that was strong in almost any relationship with gravity. In their arboreal habitat they sat vertically (sleeping, especially) for hours and were capable of branch walking in infinite variations of upright. So when our more immediate primate ancestors moved back to the ground, their vertebral columns could already support a vertical axis. These primates knuckle-walked to uprightness, developing different strategies and orientations for different situations.

We sit, stand, walk and run with upright, vertical spines. However many tasks require *positions of mechanical advantage* whereby the legs hinge and the spine tilts forward: lifting, pushing, hitting a golf, tennis or baseball, lunging, koshinage, etc. All of these are an important part of the human movement repertoire. Consider also a tottering toddler's readiness to fold/squat and to crawl. The important thing is the integrity of the primary axis of the body, whose length should remain the same regardless of angle to the plane of the earth or amount of flexion in the leg joints. The plane of the back from the sit bones to the occiput should retain its integrity.

Gravity, Contact and Upthrust

With the transition to land, the vertebrate limbs migrated toward the front of the body, which could then be raised up off the ground. Evolution created thousands of elegant architectural solutions for conducting upthrust, gravity's equal-but-opposite force, through the bones. Upthrust moves through the weight-bearing points, the contact with the planet. The aikidoka moves up off his support.

Each foot has three main weight bearing points, the heel and the knuckles of the big and little toes. The five toes can buttress this tripod, and/or they can form the transverse arch with the knuckles of the toes, to support the weight of the body on the balls of the feet. The two sitbones support the primary axis in sitting and, with the two feet, form the sitting tripod. These are the main weight-bearing points of upright posture, but there are others like the knees in shikaku walking and the tops of the feet in seiza.

The Vertical Axis

When the primary axis of the body is vertical, it aligns with gravity, creating the possibility of spins, spirals, and the generation of centrifugal and centripetal forces. This vertical axis extends from the soles of the feet to the top of the head. Thinking of the opposition between the top and bottom of the vertical axis will reinforce its integrity. *Body upright* gets the sense organs as high as possible with immediate access to 360° of awareness with a turn of the head.

In the evolution to upright, the center of gravity of the body has moved to that *single point* in the lower abdomen, the hara, the energetic center of the body, from which ki emanates. Moving from the center first, the aikidoka is capable of generating vortices of movement, the spherical movement that characterizes aikido.

Ki

Ki is life force. It is the energy of the universe. In the human body, it courses through the meridians of ki, mostly parallel to the primary axis and the axes of the limbs.¹ Stuck or stagnant ki is an indication of disease. Extension of ki from the hara out the top of the head and the fingertips assists the bones in their role as spacers while increasing the radius of the aikidoka's sphere of power.

“Aikido operates from the precept that the spirit controls the body.”² Bringing the mind to the center of gravity and ki in the hara unifies the body and mind. The relatively new western medical field of psychoneuroimmunology is finally recognizing these eastern principles about the relationships between mind and body.

Theoretically one of the places ki enters the body is through the *bubbling well point* at the soles of the feet (*yongquan*, kidney 1), where it divides the foot into thirds. (Image a cat's kneading.) The aikidoka should think of rooting through this point, allowing the feet to spread as they conduct upthrust through the points of contact.

Learning to bring his mind to that single point in the abdomen unifies the aikidoka's body, mind and spirit. Extending ki from this point fills out the perimeter, imparting a tensile strength to the whole body. It supports the spacer role of the bones and encourages space in all the joints, while hardening the bones.³

Aikido in Movement

Aikido's "natural posture," *shizentai gamae*,⁴ should be the posture of the man on the street, with none of the “come and get me” attitude of the karate crouch. This embodies the aikido principle of staying out of the fight, yet allows an easy readiness to move in any direction. A natural posture suggests a supple stillness in the primary axis with a latent sense of give, as with the well-rooted willow. Many disciplines teach the imagery that a string from the heavens hooks to the top of the head to maintain verticality. A better image is that this string hooks into the brain stem, the neural material between the ears, so that the head can bobble.

The feet of the standing aikidoka should be relaxed, so that they can spread, bearing weight at the three main points of contact. Turnout should be minimal, so that more turnout is possible in movement. In hanmi, the weight could be anywhere between 100% on the back leg to mostly on the front leg, but with the primary axis always vertical. The aikidoka is ready to shift smoothly from one leg to the other in any direction and to rotate his axis at all times with willow-tree flexibility.

The knees should be soft and not locked, ready to bend in an instant. The joints of the shoulders open to the sides, a dimension that should not be diminished. Ki should be extended out the tips of the five fingers, while the *laogong* point on the palm of the hand (analogous to the bubbling well point of the foot) should be alive and receptive to the energy and impulse of attack. It is the ulnar (little finger) side of the arm and hand, the hand-blade, that wards off an attack. Although the limbs support the body and interact with uke, they are subordinate, riding on the motion of the central primary axis.

The more perfectly vertical the axis, the less the wobble and the less chance of being pulled off center. Living in the center increases the potential for movement on the periphery. The aikidoka keeps his primary axis erect, so that his sense organs are as high as possible to receive information from the horizon. He generates force from his center of gravity at that single point, creating enormous power with little exertion or movement. By lowering his center while spinning, the aikidoka can tap into the mechanical advantage of the screw. The vortices of aikido can give uke a fun ride on centrifugal force.

Extension of ki increases the aikidoka's sphere of power while mobilizing both attention and intention. For longevity in his practice of aikido, the aikidoka should cultivate softness and roundness in his movement, projections and pins.

Endnotes

1. Yang Cheng Fu: *Yang's Ten Important Points*:
"The head should be upright so that the shen (spirit) can reach the head top."
2. *Aikido in Daily Life*, Koichi Tohei,, (Rikugei Publishing House, Tokyo 1966) p.40
3. *The Essentials of Chinese Acupuncture* (Foreign Languages Press, Beijing 1980)
4. *Aikido and the Dynamic Sphere*, A. Westbrook and O. Ratti (Charles E. Tuttle Co. Vermont 1978) P.148

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- Cockrun & McCauley *Zoology* (W.B.Saunders Company, Philadelphia 1965)
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- Mitsugi Saotome Sedirep, *Aikido and the Harmony of Nature*. France 1986
- Kisshomaru Uyeshiba *Aikido* (Hozansha Publishing company Tokyo 1978)

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