

FEELING
Hatsumi Quotes Understand Good Play
Pages 85 to 89

“You should be able to do magic with your fingertips. Please focus on the feeling of your fingertips. If you get stuck just open your fingertips”

The fingertips have the attention and power of the body behind them.

“It is important to train like this so you can begin to understand your own limitations of movement and adjust to overcome them.”

Moving inside your own framework.



“If you have to use an ounce of strength to get this to work you are doing it wrong. If you do not understand this feeling then all your training is for nothing.”

Movement orientated power

“There must be a balance of Movement and Non Movement”

Dragonfly at rest

“It is important to practice so that your movement is the minimum necessary to complete the task.”

Minimal Dose Maximum effect.
In nature this is known as ‘ephemeralisation’ (doing more with less).

“You’ve got to learn to utilise the space between you and your opponent. Distancing is very important”. Jutai Jutsu Hatsumi’s theme for 2002

Working in the space

“To get this to work you have to move very lightly and naturally so that your partner does not feel you pulling, out of awareness.”

Extra sensory movement.

Working in the Space

In ancient times, technological advances were not supported by science. The evidence of these skills were in the hands of the 'do-ers', craftsmen and artisans. Many skills were honed to high levels of expertise without the formal education that is emphasised today. This was achieved through using whole brain pattern recognition more than biased left-brain analytic methods.

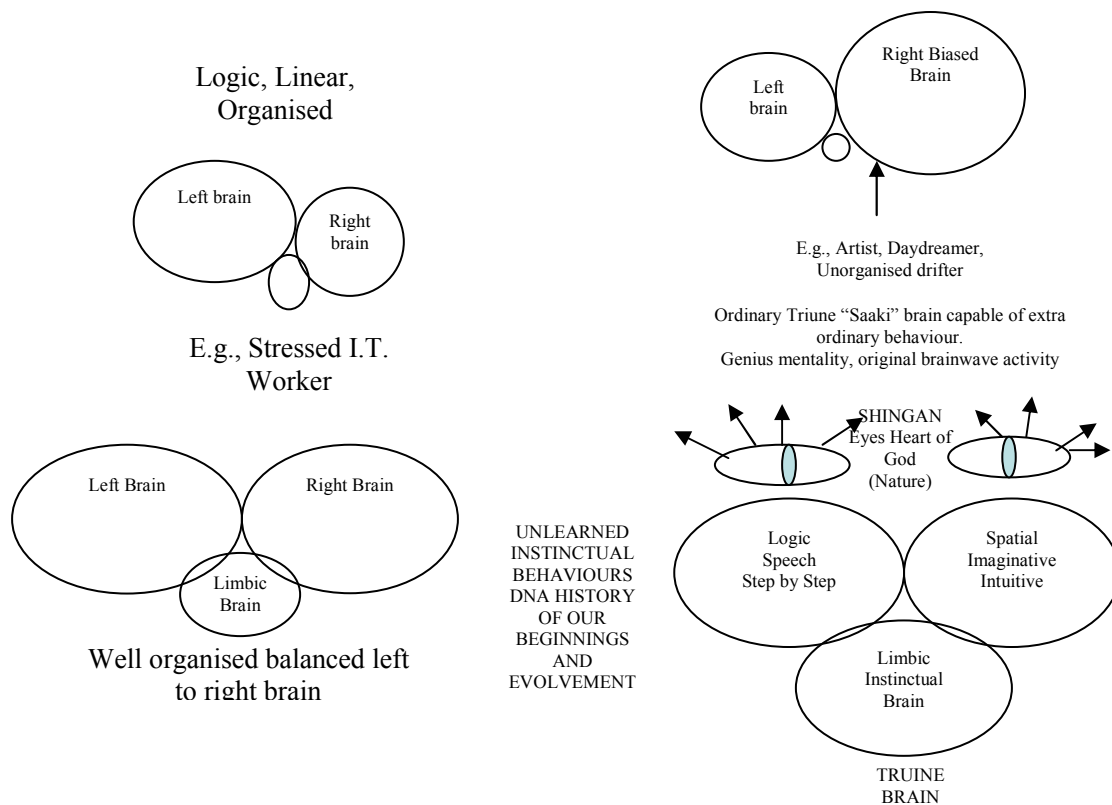
Logic brain thinking dominates modern society as we live in a world of computers and monitoring of information. The left hemisphere of the brain processes logic thought and is linear and organised in its thinking mode.

The right hemisphere is credited with being spatial, imaginative and intuitive. When the two hemispheres integrate we become well organised both in thought and movement. Our earliest brain was the limbic brain formerly known as the Rhin Encephalon or nose brain. This ancient brain functioned out of instincts and unlearned behavioural patterns.

Prelearned and instinctual behaviours would elicit physiological body patterns as a protective survival strategy. Physiology elicits chemical change and this obviously stimulates body functions and specific areas of the brain.

When people become stressed or use either hemisphere of the brain dominantly, the brain desynchronises and becomes imbalanced. This results in a lack of integration in the brain producing energy and co-ordination disturbances which can produce symptoms of lack of concentration and lowered energy states.

Most exercise forms are ipsilateral or use only one side of the body with a bias of muscle activity. Golf, tennis and snooker are examples of a one sided activity. Even more one-sided forms of exercise emphasise muscle activity to the point of specialisation or bias leading to strain.



Physiology and feeling are in natural balanced and instinctual behaviours

Expressed through our movement!

Dr. Hatsumi's training in Tai Jutsu (natural movement) integrates the brain's neural pathways to work as a triune brain. This produces a natural physiology and a balanced chemistry.

With a triune brain mentality, our physiology is coupled with instincts, intelligence and logic. Hatsumi describes this body feeling as SHIN SHIN GATA. To see with the eyes and heart of God (Nature).

In ancient times, the instinctual brain would elicit natural movement behaviour in keeping with the ecology of the environment and the need for survival. Ancient man needed to be a predator but all the time aware he could be predated on.

SHIN SHIN SHIN GATA

(Seeing with the eyes and Heart of Nature)

The very essence of Dr Hatsumi's budo training is Tai Jutsu. It is more than body movement applied to a task. Its feeling becomes a synesthesia of the senses expressed through the body as a FEEL experience.

Shin Gi Tai Ichi is an ancient concept of forging together your technique, spirit and heart into your movement behaviour. This think, act and do process connects the human mind and nature.

“Discovery is a connection between the human mind and nature”
Soto p49, (When teaching becomes learning).

Hatsumi teaches in a multi dimensional style expressing that knowledge is absorbed and you should become like a child and discover new things with curiosity. Seeing, walking and acting are all interconnected in one proprioceptive feel.

Children act predominantly with a right brain mentality and include speech and actions into one complex physiological function, directed towards the solution of the problem at hand.

Children also exhibit a rise in Alpha brain wave production, which is associated with relaxation. A child's imagination plays a big part in linking ideas and memory. This childlike curiosity and involvement of a task with play is also thought to be linked to our limbic system to connect instinctual behaviour to rational thought.

A Swiss psychologist Jean Piaget made a study of children's intellectual development. His findings show that up until the age of ten or eleven a large proportion of European children believed that the mind extended into the spatial world around them.

Dr Hatsumi describes this spatial extended sense as Saaki and the natural movement principles he teaches develop this sense. As adults we often need to reconnect with this innate and natural sense.

Natural movement is how the body forms itself. As we grow, develop and explore we are constantly organising and re-organising ourselves motorically and cognitively to keep in form.

Our cognitive and spatial awareness has to extend beyond the body. In this way the eyes, ears and nose act as extero-receptors. Information coming to our sense organs allows us to interpret or translate vibrations of sound, sight and smell into a sense with feeling.

Children naturally express this primitive trait up to the age of eleven when their conditioning adapted to what Piaget described as the 'correct view' where images and thoughts are believed to be situated in the head.

Physiologists now believe that most learning also involves an interaction between our old and new brains in the limbic system. Because of its link to emotions, many scientists have increasingly come to the conclusion that the key to more effective learning may lie in the limbic system.

Imagination and emotion are the most effective way to elicit retention, attention and memory of an experience. When the five representational systems namely: sight, smell, taste, hearing and touch are integrated the body-mind can animate, activate and associate with an experience, on all levels of intelligence. This synesthesia of the senses develops the proprioceptive feel in the body that Dr Hatsumi talks about.

Westerners tend to bias towards left-brain involvement to learn sequentially and problem solve with logic. This mode of thought can cause a desynchronisation of the brains cerebral hemispheres.

In the 1970's a psychiatrist called Dr John Diamond researched the effects of stress factors on the brain and the physiology. He used kinesiological muscle testing as the method of communication for the body to express its response to environmental factors. The basis of the study showed that the brains response to a stress factor was a shift in its balance. This response is known as desynchronisation and affects both the body and the mind.

His research demonstrates that when desynchronisation occurs as a response to a stress a previously intact muscle when pressure tested becomes weak. The study of kinesiology shows that a muscle weakness can indicate the presence of a pathological process in its corresponding organ. This is corroborated by diagnosis through acupuncture and physical or laboratory examination. (Hawkins, D. Power vs. Force p57, 2002).

In isolation, the left-brain is a 'TRY' brain and lacks the holistic or imaginative view of the right brain. When people TRY too hard to learn

this has the opposite effect and imbalances the synchronisation of the force flow of energy needed for the minds functioning. Learning should incorporate both the left and right hemispheres together with the involvement of the senses. This approach makes a greater impression in the mind, which results in a better ability for recall.

In the study of long term memory and recall visualisation has proved to be a powerful method for recall. A picture has been demonstrated to have an impact of more than sixty times a spoken word. This fact is exploited widely in the advertising of products in magazines or on television.

We need to understand the learning process as a skill in itself. The brain has an infinite capacity to learn and expand. Using the brain stimulates growth in the same way as a muscle. Every time we visualise the ability to visualise expands. Bernice McCarthy an educational researcher is of the opinion that the majority of students start off right brain dominant, yet the majority of teachers' direct teaching to left-brain assimilation.

How do we gain a better method for learning?

We need to understand that people have preferred learning styles based on brain bias and dominant representational systems. Intelligence is measured via the I.Q. system. This evaluative method was devised to bring a parity of opportunity between the rich and poor in France. Entrance to learning establishments was based on the ability of a child to demonstrate competence with mathematics and language comprehension instead of wealth being the deciding factor for selection into schools.

The human has multiple intelligences that include linguistic, musical, logical mathematical, spatial, kinaesthetic and personal. Utilising these intelligences allows a person to function on a multi level awareness of problem solving or discovery.

The creative brain is described by Thomas G. West, (In the Minds Eye p 27,) as linking an image to visual imagination. This is a non-verbal process and incorporates primarily visual and spatial elements as a manifestation of a single mode of thought. It also includes pattern recognition and creative problem solving.

Curiously enough, these traits are often associated with Dyslexia. This approach to mental awareness sorts information differently to a left-brain approach. Its predominant consideration is to concentrate primarily on similarities and only secondarily with the differences.

In ancient times, this spatial intelligence was a primal survival sense. Science shows that 150,000 years ago man made discoveries and demonstrated a creative intelligence. The ability to deduce that footprints would lead to an animal is a human trait developed during this period.

The utilisation of creative intelligence to link a pole to a flint tool to invent a spear is another example. You need to demonstrate an ability to recognise multidimensional factors of an object. Then have the ability to transform or to recognise a transformation of one object into another. The ability to couple two concepts together requires a capacity to conjure up mental imagery and then to transform that imagery.

Leonardo Da Vinci made a prototype for lock gates based on the principle of an archway. This shape proved to be stronger and more reliable than straight gates. This principle is still used today.

Mathematicians or logicians begin an experiment or process with the parts and build into a whole by synthesis. The creative or curious brain begins by observing the whole and arrive at the parts by analysis. This process is dominated by a preoccupation with wholes rather than the parts. With patterns not pieces and similarities rather than differences. (In *The Minds Eye*, p39).

Triune or complete brain activity requires training however and many people need to understand that visual modes of thought are an important factor in understanding learning.

Nature seems to be very orderly if we look for evidence of differences in the many species. Science tells us however, that the evolution of the universe is based on Chaos. Scientists describe chaos as the sensitivity to generate extremely different end results, because of extremely small differences in the starting process. If you cannot notice the similarities, in a pattern you fail to understand its form.

Dr. Hatsumi never shows a technique in the same way but will begin from the same place. This is known as Henka, variation of the technique (a way of altering slightly the technique to generate a very different outcome.)

This way of expressing movement inside a behaviour is a clue to the way Hatsumi's body-mind processes are working.

Hatsumi's movement and techniques are often described as being extraordinary. He explains that we must learn to do ordinary things extraordinarily well. Extra in Latin means beyond, the English interpretation means additional. The Greek para means beyond hence para normal – beyond normal.

This explanation describes that Hatsumi utilises all of his senses beyond normal, rather than having an extra sense. These ordinary senses and qualities are inherent in all of us.

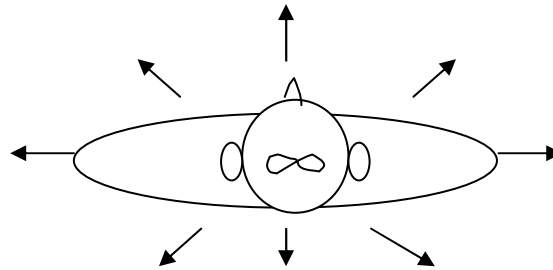
Picture Shin Shin Shin Gata painted for me by Hatsumi



“God Eyes”
“God Heart”

SHINGITAI ICHI

Movement coupled with a triune brain mentality produces an open fluid non-linear behaviour. From a zero or a balanced neutral position, it should be possible to move in eight directions.



Kuri Hoppo
Eight secret methods from zero.

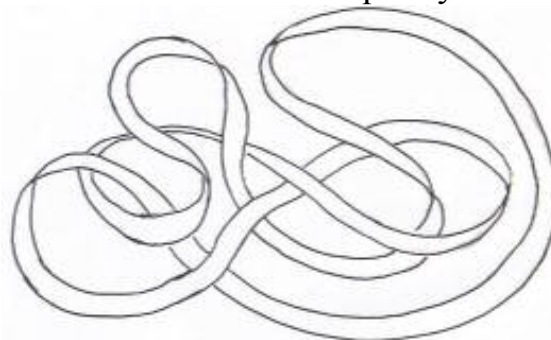
This describes the potential for eight directional movements in three-dimensional space from one point. In the martial system, the basis of Dr. Hatsumi's budo is the kata or form of movement known as the Kihon Hoppo, (basic steps or roots of the system in eight directions).

From these basic steps, Henka or variations are developed to form an infinitesimal potential for further technique development. These movements from neutral to the eight directions build into body-mind pathways to form techniques. The bodily positions are known as Kamae and are equally an attitude of mind as well as a posture or body physiology.

The body forms itself into action constantly organising and reorganising itself motorically and cognitively to keep in form

Spuybrock L. Motor Geometry p 165 (Architecture and Science)

Kamae movements are coupled together to form into techniques and then disassemble in a flow. This flow has the quality of an Amobius strip.



(An Amobius strip has no beginning or end)

This natural flowing movement becomes a walk, is known as Aruki and has inside all the aforementioned qualities. Inside the Aruki, walking patterns of Budo are all the elemental physiologies in movement expression. “Ninja exploit the Kamae of Tai Jutsu and practice walking in a way, which leaves no opening”. (Hatsumi p118)

This whole methodology was attuned to nature working in natural surrounding. Hatsumi describes this as a divine connection or attunement, the very space you are in also holds a Kamae. (P119)

Within the martial aspect of the training, the Aruki walking can be classified into three ways:

- SABAKE a decisive or action step
- SHIRABE an explorative step
- MOGURI an evasive step

These three ways and their Henka variations allowed for a variety of steps inside of your walk. Including these three ways of moving into your walk will develop better balance and co-ordination. When the body has the competence to move in any direction, forward, back and diagonal, it develops a more global sense of where we are in three-dimensional space.



MODELLING

Modelling is a very important resource in learning a physical skill. Physical skills require the knowledge from the brain, to connect with the body in one congruent and co-ordinated action. This is known as a Physco (relates to the brain), motor (relates to nerves and tissues) skill.

When learning a subject especially a physical art, it's important that we develop a "feel" for the task or practice of the art. We can have knowledge in our head of what we want to do, but the body might not have the developed neural pathways, so the skill is said to be a cognizant understanding existing primarily as information held in the brain. Developing neural pathways and tissue communication, we can bring our body into the act. This brings it to our kinaesthetic physical level or psychomotor level.

Visualising an act mentally has been proven to help in the learning of the psychomotor level of physical feel. There are two ways to visualise an act or movement. In the first, you can visualise yourself acting out the scenario as if on a TV screen. This is known as a disassociated visualisation and does not carry a very strong physical feel.

In the second way of visualising, you imagine from the inside that you are performing the task. Everything around is seen from your own eyes as you perform the act. This is known as an associated level of learning and includes attitude and heartfelt emotions.

When visualising a task of learning with our heads and our hearts, we develop a body feel for the motor skills necessary for the physical act. When we have an associated body feel, your bones, muscles and tissues feel in place or in balance. In Japanese arts, this is natural posture or Kamae is known as Shizen or neutral body pose. From this position, any movement in any direction or omni directional is possible with total body agreement. The global feeling in the body engaged in this posture or physiology is known as proprioception.

Proprioception is the sensory feedback system that feeds back information to the central nervous system. Sensory receptors known as proprioceptors are located in muscles, joints and tendons.

The central nervous system spatially organises the information from the various co-ordinated parts around the body. This coupling of information and body behaviour is a synesthesia of spatial body sense and its ability

to move as one unit. The body is suspended in a network of soft tissues and bands of fascia. The motor geometry of the body constantly aware globally of limb movement or body shape change. The alteration in tension as the body moves is monitored and maintained via neural feedback to the body's intelligence or feeling.

Our bodies operate out of proprioceptive information all the time. Our feet are richly innervated with nerve endings that tell the brain where we are standing and the physical qualities of the surface that we are standing on. So heat, shape, consistency, angle and stability of a surface would all be registered as information and adjusted to posturally and physiologically.

This feeling becomes second nature to us or as an unconscious competence so that to take a step is effortless and totally co-ordinated by the whole body. To gain an appreciation of how well developed these pathways are, try this simple task. Stand on a wobble board with someone holding your shoulders for stability and then close your eyes and start balancing. You will soon find that without the visual sense in the balancing act and the new information coming from the feet to the head for adaption, we become unstable.

Dr. Hatsumi constantly remarks in his budo sessions that all the techniques come from your walk. But he does not mean walk in the Western sense, being a series of linear sequential steps. In Japanese terms, walk or Aruki is a multi directional or non-linear ability of the body to move in harmony and with a sense of Proprioception. Therefore, to walk in a way that integrates our feelings, we can develop techniques and skills at an unconscious level of competence invoked by the automatism of walking.

In this way, any physical movement is acted out simultaneously on a cognitive brain level, an affective heart level and the psychomotor, physical body as a whole. This kind of moving is described by Hatsumi as being "meditation on the move."

"There must be a balance of movement and non movement"

Dr. Hatsumi

When the attitude, act and the body interact as one, this is known as SHIN GI TAI ICHI. This translates as spirit, the person and act as one. People confuse modelling with copying which is only a mirror image of

the act being copied. Modelling is creating the feel of the act being copied. Hatsumi told us “only the feeling is important here”.

Modelling is miming something until its three dimensionally real. The body, mind, has the ability to give you a “REAL TIME” experience of any situation you can imagine or hallucinate in an associated form; i.e., you are acting an experience kinaesthetically and with all other senses. In trance or mime, you literally act out its intended form. This rehearsed reality, gives you the feel of the outcome. Therefore, from a mental experiment or experience, you can feel the act from before the experience as a kinaesthetic hallucination, but the neural pathways hold the memory as reality. There is no distinction in the right brain between imagined or real experiences. Athletes when injured or learning a new skill are taught to visualise the act in an associated way. This facilitates speedy recovery of skill level for the athlete following injury.

Mime is a natural imitation of a movement or an intended act. Children learn by imitation and can imitate the whole physiology, mannerisms and the vocal content even down to the tone of a voice.

Imitation is the ability to steal the benefits of someone else’s learning. Scientists have now established that we have meme neurons that give us the ability to copy other people. By using the meme neurology we can copy and transmit non verbal gestures for others to follow.

In humans this has led to a social conformity which is a trait that helped us evolve as social groups. Children in ancient and nomadic lifestyles would have to learn many survival tasks quickly. This ability to mimic and recall the information is a trait that separates us from animals.

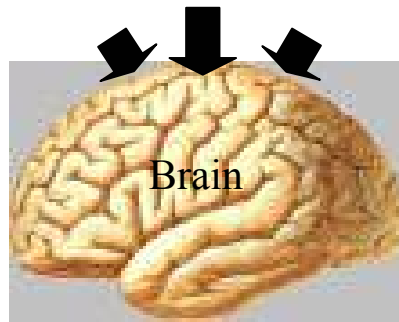
Children “make believe” all the time in their learning and play. Unfortunately, we are conditioned educationally by our peers not to “make believe.” This deschooling of a mental resource takes place by about eleven years of age.



DOMAINS OF LEARNING

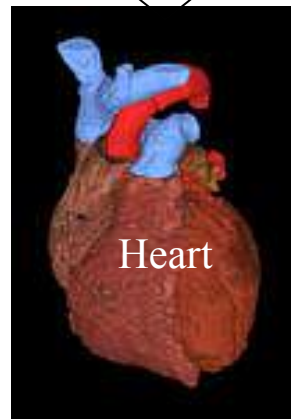
Highest form of learning is self actualisation

SHIN
SPIRIT
(Cognitive)



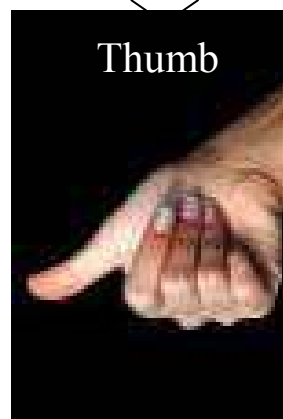
The concept of Shin Gi Tai Ichi is when you forge the elements of body mind and spirit into one act or technique.

GI
MAN
(Affective)



It merges timing, distance and technique in a no-mind or Mushin state acting from a zero energy from the potency of the void.

TAI
TECHNIQUE
Psychomotor



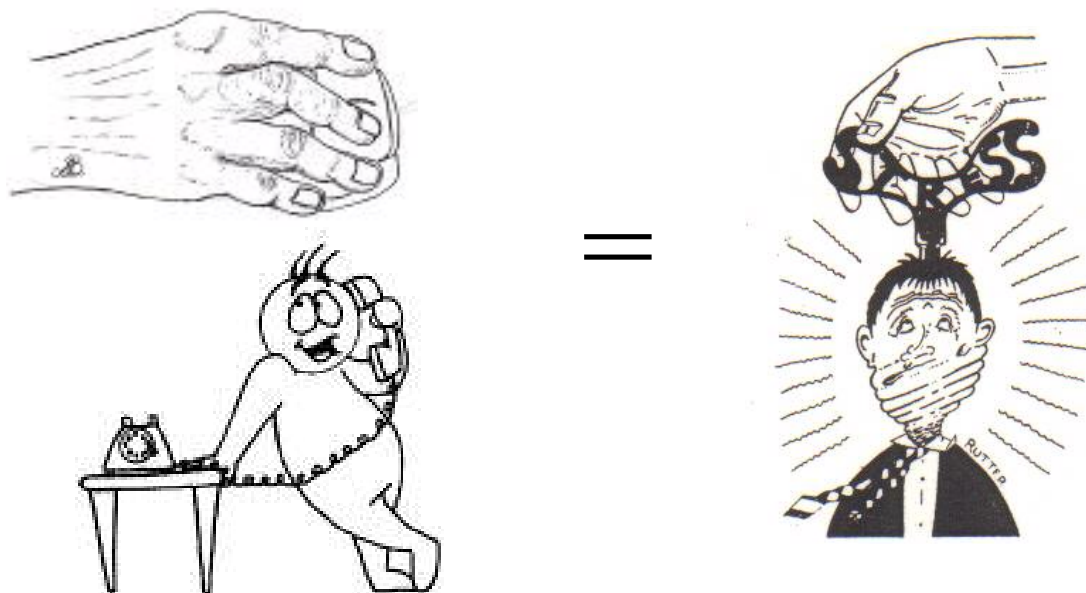
In the void the constituent elements of 'nothing' or space have the potential to become form.

ICH as one

Your body becomes an attractor to shape patterns of energy into form. This energetic shape can be transferred into a client to initiate a healing situation

These skills also had their application in natural medicine principles. We instinctually know to rub or press an area when it is injured. All animals can be observed licking, pressing or stroking areas of the body to stimulate bodily reflexes. As we evolved and developed social networks, we used our instincts less and less.

As people became more specialised in their skills, trades were developed to offer that service. Therefore, for the first time soldiers would soldier and farmers would farm. They would still have their natural potential to use their body movement skills in both practices. Over the centuries, though skills have been mechanised and many occupations include repetitive and single limb kinetic handling procedures.



Few modern skills have still maintained these basic natural movement secrets. Authentic warrior craft in Japan was handed down from family to family as a natural heritage. These skills were taught and kept intact through the governing mentor of the school.

Grandmasters protected the records of the school and produced a lineage of hierarchy. Dr. Masaaki Hatsumi is the 34th grandmaster of the Bujinkan School and is also skilled in the medicine practices of the ancient systems.

Dr. Hatsumi demonstrated several methods of pressure medicine from various countries in the East including China and India. The common denominator between them was physical contact and a way of pressing and squeezing tissue.

In these manual massage modalities, the main diagnostic tool was palpation – the feeling of the skin and tissue. Various pressures would then be applied locally or distally to balance out the factors of the dis-ease of the tissue. This way of working predates pathology and anatomical study and relies solely on a feeling.

Dr. Hatsumi explained that the feeling was the most important thing both in natural medicine and warrior craft. This feel, this Tai Jutsu would also extend to any physical skill. Farming, pottery, construction would all have their Tai Jutsu. This feel has been captured by many cultures in their dance and their Budo - or martial ways.

The Bujinkan School encompasses nine separate schools of warrior craft skills. These skills were developed in the wild from nature. Borne of nature they embraced the feeling of our natural surroundings.

I have studied these movement patterns under the guidance of Dr Hatsumi for twenty years. For the first ten years, I researched and integrated these methods into the therapeutic approach of my physical therapy. Dr. Hatsumi acknowledged the work with a Master teaching credential called a Menkyo Kaiden. (The teaching rights from an ancient school of preventative and remedial secrets). From 1995 onwards, he has guided me towards developing this feeling further.

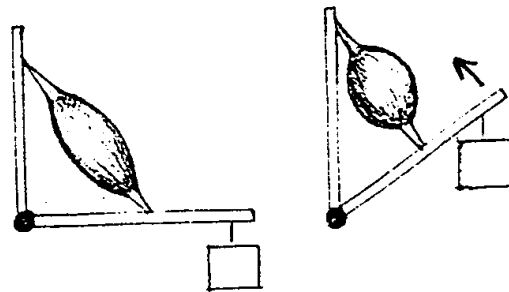
The school was known as the school of the secret of the opening flower, which translates to Hichi Buko Goshin Jutsu. The doctrines were taught to those who had mastered the martial art first. Its essence lies in its Tai Jutsu or natural movement behaviour. Moving with this skill your body can be shaped behind contact points to apply pressure on body parts as a therapeutic touch.

Inside his martial teachings are techniques that involve every conceivable direction of escape. This concept is called TONSŌ NO JUTSU, which allows for thirty-six methods of escape in six directions. The movement patterns inside these techniques are the same for the application of Anma and Seitai principles of Amatsu therapy.

This way of moving is omni directional, effortless, natural and develops power with minimal muscle involvement. Its power base is hidden inside its multiple walking patterns.

Hatsumi teaches that you must learn to float inside your walk and he is the epitome of this art. In Budo, there are three distinct ways of walking from which to take action, explore and evade obstacles. These methods allow us to walk on all kinds of terrain and climatic conditions. This would require omni directional body movements safely to follow the terrain and walk through many varying underfoot surface conditions.

Modern people tend to walk on flat surfaces with poor shock absorbency. Their direction is linear forward, left or right. This also reflects itself into modern gym equipment and exercise regimes. They are designed to follow muscle contraction over a short linear direction. This is known as an isotonic muscle contraction and is designed to approximate the origin and insertion of the muscle in the shortest distance. In this example, the bicep flexes to lift the weight. Towards the shoulder



This approach to exercise is based on Newtonian principles of a fixed point a fulcrum and a lever. Although a muscle trained in this way will develop in strength and size if fails to integrate the action holistically.

This isolates the bicep and is popular with athletes to strengthen a muscle specifically. Natural movement however, is non-linear and uses minimal muscle activity coupled with body movement to produce its power.

With our global sensory intelligence or proprioception we can stand effortlessly with minimal adaption to gravity.

Modern research has shown that just walking on a cobbled surface for thirty minutes a day lowers blood pressure and improves balance, ancient man had no flat surface to walk on.

Inside of the walking patterns of Budo are many Kamae or postures that link the spine and limbs into integrated patterns of movement.

“Inside the Aruki walking patterns of Budo are all the elemental physiologies in movement expression.” (Hatsumi p.118)

This develops the power and dexterity to form Ningu (physical body postures that allow integration of the limbs to develop power omnidirectionally without strain). Ningu is the total involvement of the body to work with a limb as a tool.

When we began to use weapons and tools they had to give us a benefit or advantage beyond our bare hands. In fighting fierce animals a spear used by several attackers could corner and wound the animal from a safe distance. When we carry objects-such as water, food, clothing, we have to adapt and merge with it into our normal body feel.

When people have lost a limb some report the fact that they can still feel its presence as if it were still there. When they are fitted with a prosthetic limb, their motor system can encompass the limb as a whole. Movement with the prosthesis is natural and integrated through the imprint of our gait or movement patterns. This connection integrating the limb to our whole body automism of walking or moving to produce a somatic intelligence or feeling.

The limbs of the body combined with fingers, toes, knees and elbows form shapes as we move. This skill goes beyond ambidexterity to being a total synesthesia of the body parts to focus and move on one place at one time.

Our bodies are capable of connecting with a false limb with a neurology acting like an extending pseudo-podia (neural extension of a simple organism seeking food or light). This pseudo – like awareness allows our neurology to expand into the limb.

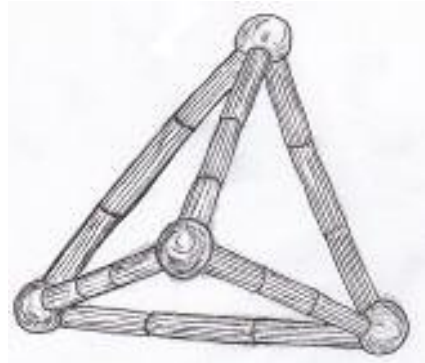
This is the same sense we adopt when using a tool or a weapon. Hatsumi explains when you are using a sword act as if you don't have one, and when you have no weapon act as if you have. This encompasses this extended feel of spatial surroundings to being a bigger presence; he describes it as a bigger 'NOW'.

This way of moving behind the tool has equal freedom and dexterity from using several limbs of the body in a balanced equilibrium. From these multidimensional body contacts, you can alter your control from any one, whilst maintaining equilibrium.

“It is important to train like this so that you can begin to understand your own limitations of movement and adjust to overcome them”

Dr. Hatsumi

This is probably best explained with a picture of a tetrahedron. In a tetrahedron, each part of the whole is governed by the interaction of the parts.



No one point is dominant but any point has the potential for control. At the junction point, the joints are known as pin joints. The whole structure balances out stress in a non-linear distribution. This quality gives the structure the benefit of having no shear, torque or friction.

Because there are no bending moments at the joints, there is no fulcrum or lever required for movement. In Japan, they describe things that occur in three's or triage is called a SANCHIN.

Sanchin principles form the underpinning of Dr. Hatsumi's art. From this base, he teaches that everything is in your walk and to understand his art advises you find and comprehend examples already existing in nature.

“Study the nature of Science and the Science of nature.”
Leonardo Da Vinci

To simplify these concepts and demystify their secrets is not enough for the western mind. We need evidence that is scientific before anything is taken seriously.

From the philosophy of Aristotle, people sought proof of science through logic and sequential analysis. This developed our left-brain logic into an Aristotelian biased method of education and scientific development, relying on logic.

As our physiology or biological functioning is linked to brain activity, we need to function with our whole brain to maintain our instinctual and protective physiology.

Hatsumi explained that science cannot always be trusted. Even the Nobel peace prize came from a man who discovered explosives.

“Science should be your servant not your master!” Hatsumi

Most of what has been scientifically studied in medicine and anatomy is explained through Newtonian physics. These explanations could not describe Hatsumi’s teachings in a way that made them understandable or reproducible.

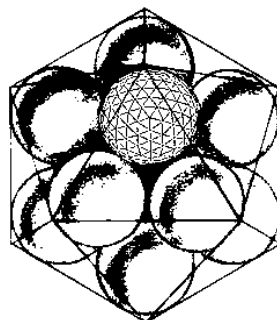
I just kept looking at Nature to understand this natural yet elusive quality of movement. Each time I noticed a phenomena of nature, I would then look for the science that explained it. This interpolation of the study of nature and science allowed for an explanation without reductionism of the facts.

Hatsumi explains that man and the universe are totally interconnected. He describes this global awareness of the whole and its parts as Gairon from the Greek, Gaia.

The Gaia Theory:

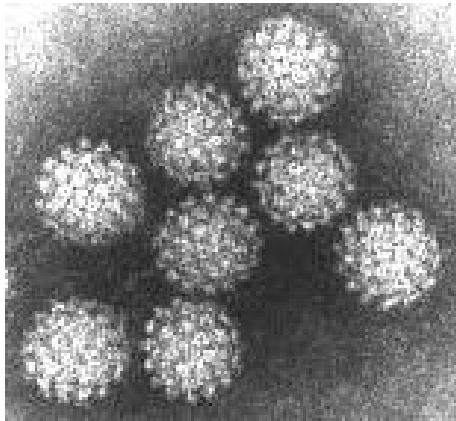
The theory that the earth and everything on it constitutes a single self regulating living system. (Collins dictionary and thesaurus) 3rd edit 2004

As in the case of the tetrahedron even cells follow this grouping and arrange themselves as when they close pack arrange themselves into a structural shape. This forms a natural packing shape that can build into structures that can maintain themselves against stress and pressure. This quality is known as tensegrity or the ability to balance tension with the integrity of the structure being uncompromised.



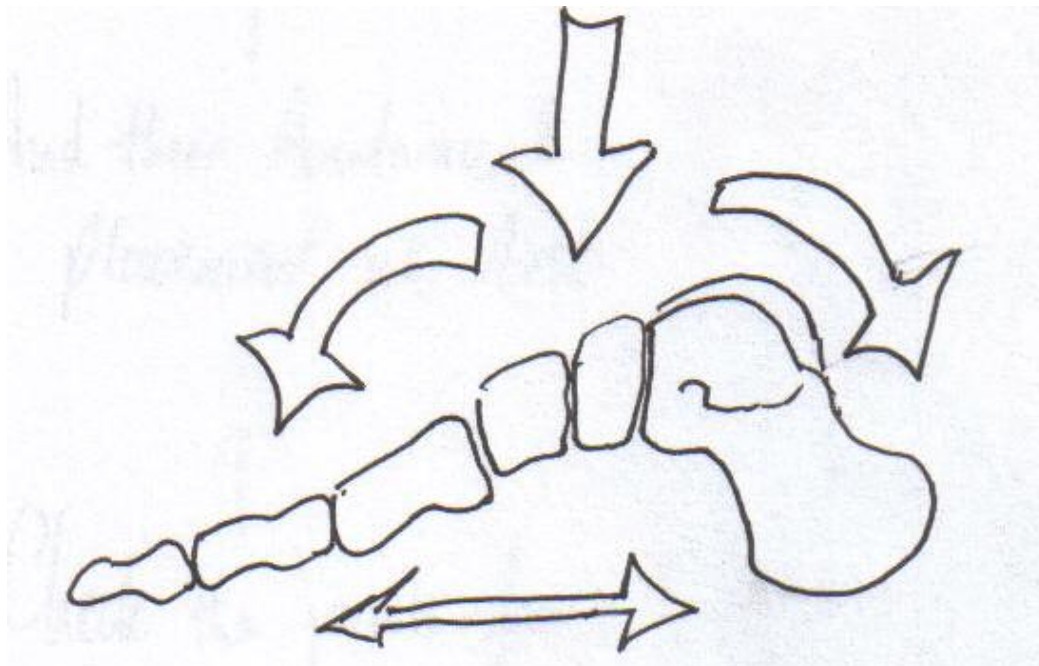
Picture with kind permission of Dr. S. Levin

The smallest or closest packing of tetrahedrons becomes an icosahedron. This pattern is ubiquitous existing everywhere as patterns in a virus or a dandelion.

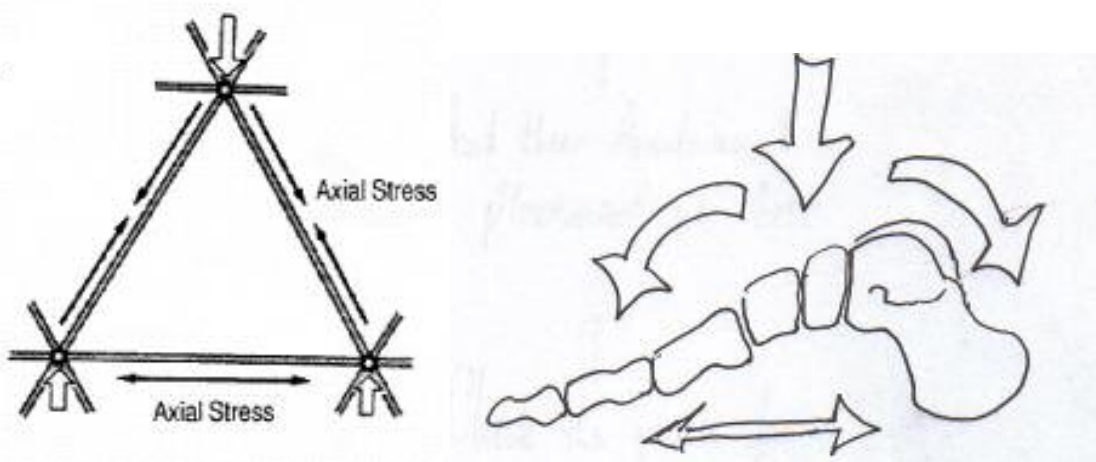


Pictures with kind permission of Dr. S. Levin

This ability to equalise stress is also evident in the structure of the foot. Tri axial equilibrium exists in the human foot as its weight distribution mechanism.

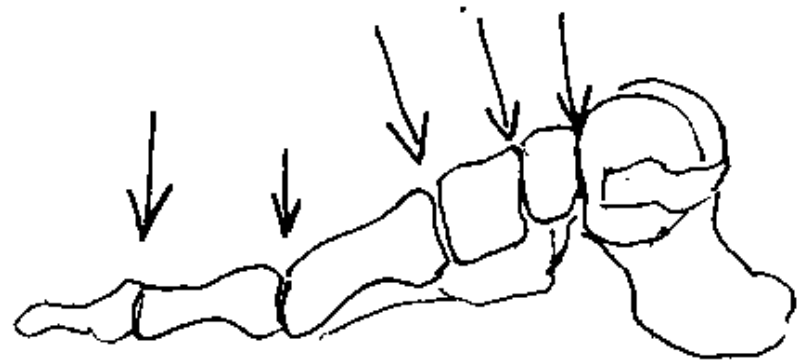


The weight distribution in the human foot utilises the same dynamics as the pin joint truss of the tetrahedron.



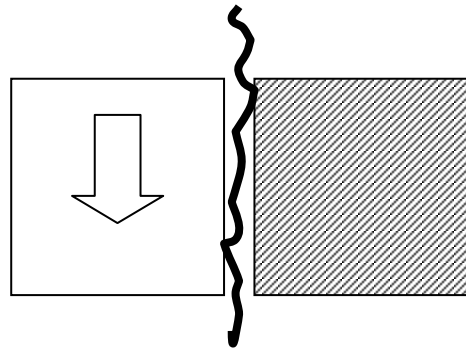
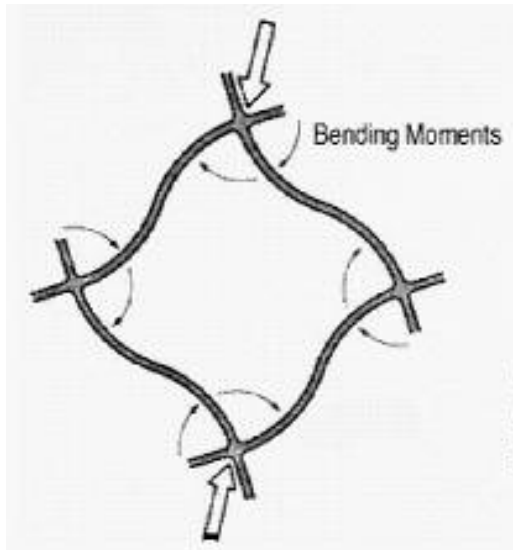
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This concept explains the structure and stress capabilities of the anatomy of the foot.



Side view of foot bones

If the foot bones acted in a Newtonian way, the vertical positioning of the joints would be compromised by the compressive loading forces of gravity. As the foot walks in trilateral equilibrium the weight of the body mass is suspended by the ligaments and the soft tissues.

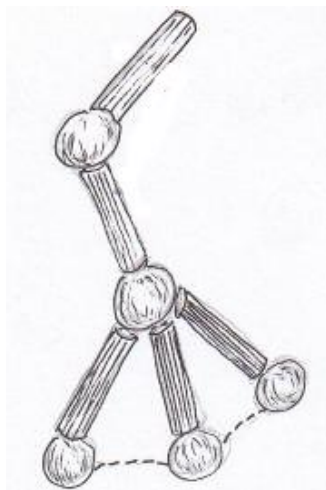


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In a square construction, each corner is subject to torque leverage and needs a fulcrum. This would lead to massive stress to the foot bones if this were the model we walked from.

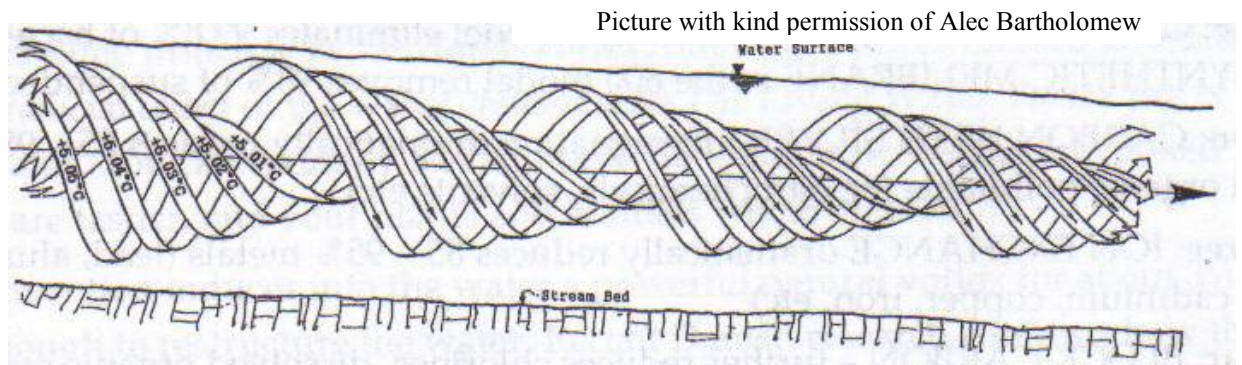
In the Biotensegrity model, you need to acquaint yourself with the structure of the tissue to be able to perform in this way. This is discussed in-depth on the chapter on Biotensegrity.

The evolvement of a ducks foot is based on a Sanshin. With three podia joined by webbing. This produces a triaxial equilibrium for shape change and liquid propulsion to drive it through the water.



As the foot pushes the water backwards it then trails and curls inwards. This produces vortices in the water that produce lift and forward thrust. These dynamic qualities of air and water are produced by simple

movement. Air and water revolve around fulcrums within themselves and are controlled by temperature and viscosity.



The Vortices and Fulcrums of water in a stream.

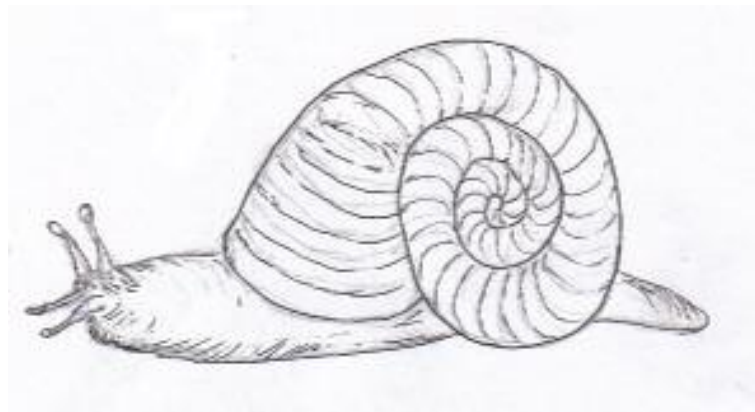
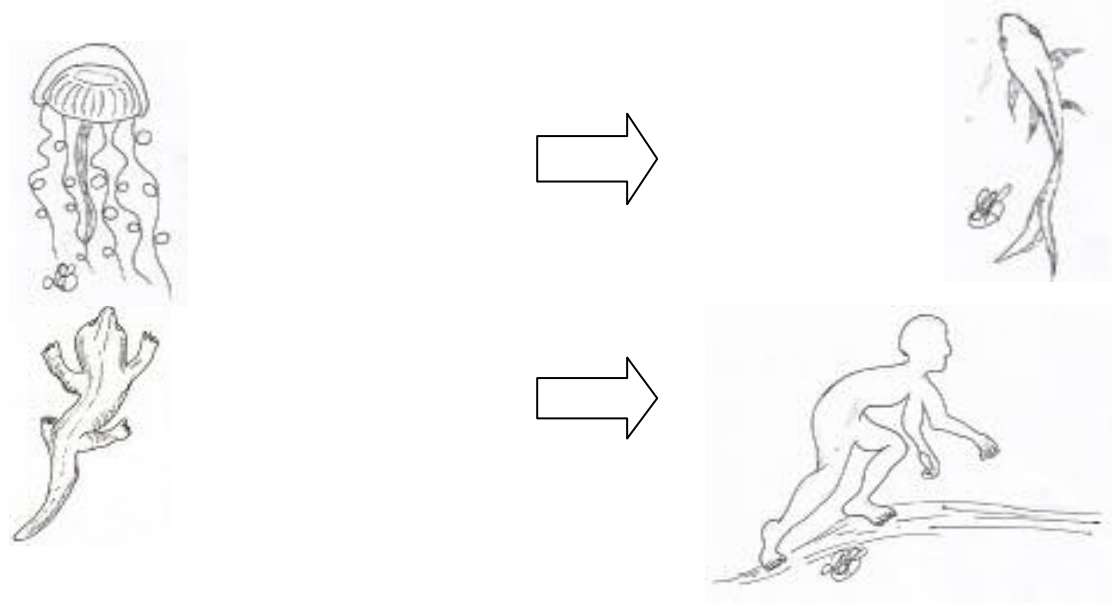
Water spirals constantly organising and re organising itself according to the temperature, heat causes water molecules to rise and cooler to descend.

The fulcrum of a stream is made up of water at 4°C. This fulcrum of water in a river carries the food and debris collected from the river bed. The trout when feeding in a river will stay/swim motionless in the fulcrum collecting the passing food.

As this trilateral arrangement evolved in biological species as tissue growth or specialisation it was always in harmony with environmental stress factors.

This governed both shape and function of the limb or organ in the space of the environment it worked in. The main environmental factors are that water and air producing either compression or compressive forces.

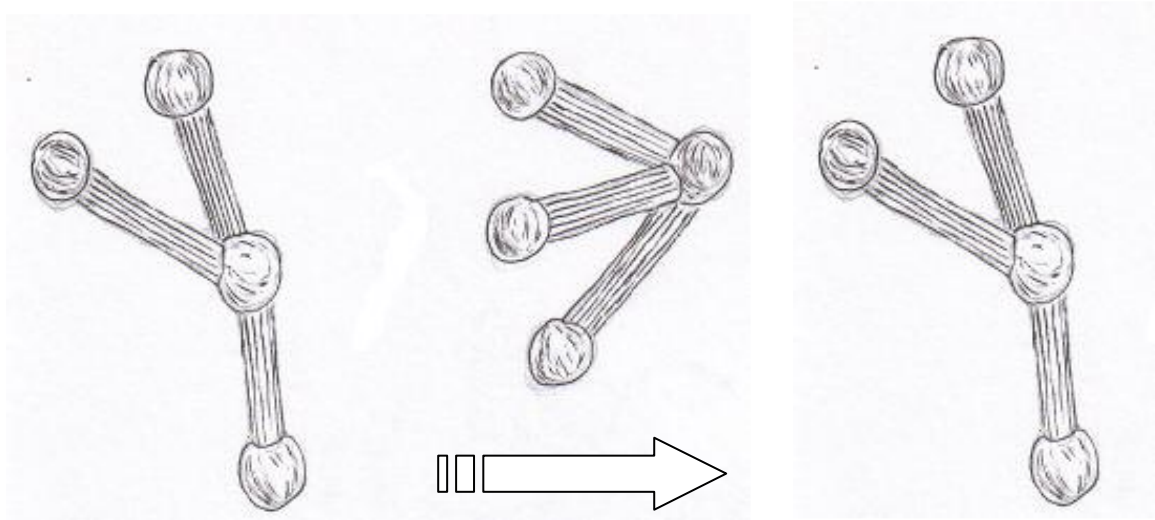
As aquatic species left the water, a gill could adapt into a wing or a fin into a limb.



The resultant pressures that resist the growth of an organism also predict its shape as it forms against that resistance. In nature, wherever growth meets resistance it coils producing a vortex of expansion.

Therefore, propulsion through these mediums would govern their shape, being the most functional and minimal in its use. This quality of minimum expenditure, maximum output is ubiquitous in nature and is called ephemeralisation.

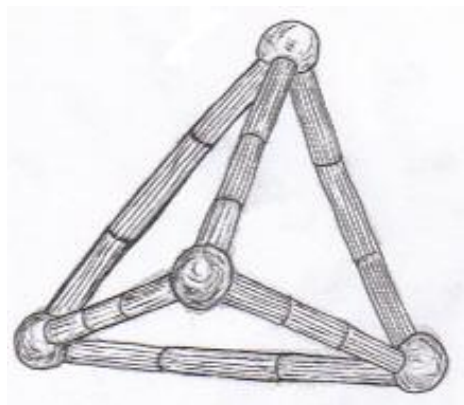
In a study of the mathematics of bacterial swimming scientists found that, the bacteria's molecular arrangement is a trilateral arrangement as well.



On movement, the organism closes up together and then opens, producing a forward thrust. What is unusual is that the movement is produced without any retro propulsion. This approximation of parts for propulsion requires minimal effort and minimum brain activity or intelligence expenditure.

For the organism to swim in water the viscosity could be likened to a human wading through treacle. The molecules of water would be larger than most bacteria. This method is now being adapted by space research in the development of fuel less flight in outer space. (New Scientist 2003)

Scientific research has also developed a machine to walk on the uneven surface terrain of the moon. The buggy is called a nanobot and once again follows the same concept of the trilateral balance of the tetrahedron.



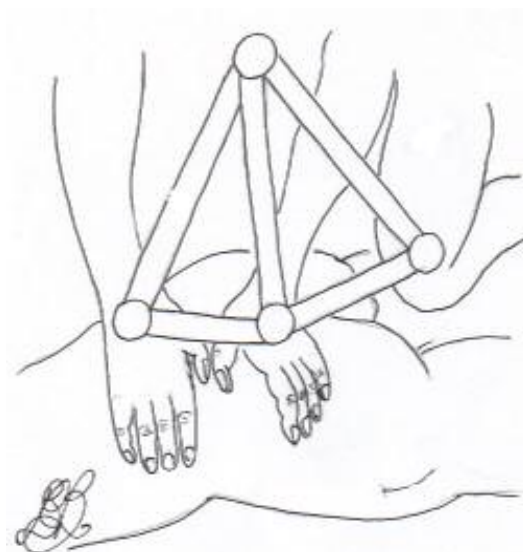
A wheel is attached to each joint on the moon buggy. In this way regardless of the shape of the topography, the wheels will always be in contact with the terrain. All these natural principles are found inside the Tai Jutsu of Dr Hatsumi's martial and medicine movements.

This approach to movement applied pressure works with the interconnecting tissues of the body. These tissues include fascia and the ligaments around joints. Using this medium, you can adjust tissue with your push/pull squeezing. This is known as SAN KAKU SHIME or tri axial squeezing of tissue and formed the base of ancient physical therapies. The massaging principles of ANMA literally means to Push/Pull AN-MA.

“You should be able to do magic with your fingertips” Hatsumi



He explained that this way of moving requires no strength but produces power. The three contacts were interchangeable for a foot or a thumb always with the same trilateral equilibrium.



This Sanshin approach to movement is our natural heritage that forms the underpinning of Amatsu therapeutics.

Hatsumi quotes “It is important to practice so that your movement is the minimum necessary to complete the task”



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