

# Consciousness of Movement\*

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## Abstract

This paper discusses mindful movement in the context of the practice of the Chinese internal arts (*neijia* 内家), particularly some aspects of the theory of movement and martial expression given by the traditional literature on *Taiji Quan* 太極拳. Those traditional theoretical descriptions are then compared with the notion of proprioception as it is understood in the contemporary Western discipline of cognitive science. The main intent of this discussion is to explore what is meant by the phrase “consciousness of movement” from the perspectives of these two different disciplines. Although the language of the two descriptions is very different, there are significant functional parallels in the resulting theories, and I believe that the two approaches to movement have a lot to offer each other.

The first half of this article contains an extensive presentation of Chinese terminology, including detailed analyses of the meaning of some of the key terms. Understanding the linguistic context is a great help in reaching a conceptual understanding, which in turn contributes to the development of a sound practical understanding. For the most part I use the modern *Pinyin* 拼音 romanization of Chinese characters, except where I am quoting another author directly or where someone's name is presented using a particular spelling. The Romanization of names is particularly problematical, with authors often using neither the *Pinyin* nor the older Wade-Giles conventions, instead using their own idiosyncratic forms. I have typically respected the preferences of the authors concerned and provided the Chinese characters for clarification. In places I have also chosen to provide my own translations of important passages from various works of *Taiji* literature. My approach to translation is guided by the general considerations and detailed worked example given in Wright (2007) and I am further indebted to Mark Wright for personal help with the Chinese material; errors, of course, remain my own responsibility. For completeness, a glossary of the Chinese terms used is also provided at the end of the article.

The material presented here is excerpted from my larger work *Taiji: Mind and Movement*. (Schöter, in preparation).

## Introduction

Standing practice, holding a particular posture for extended periods of time, forms a key component of most of the Chinese internal arts. This practice is descriptively named Standing Post (*zhan zhuang* 站樁). In this practice, when we stand, the mind must be engaged, filling the body's structure with intent. Even within a fixed posture, the body is never really completely still; we must become aware of all the small adjustments and accommodations that the body automatically employs, we must be sensitive to the release as some aspect of the structure relaxes a little more. Then, when we move, flowing through the transitions of the sequence of the hand form, the mind must follow the movement, and we must find the inner stillness that provides the background to the outer movement. Further, when we work with a partner, in what ever context, we must be aware of their movement, of their still centre, of their intent. All of this might be summarized as developing consciousness of movement and, on this topic, Wu Kong Cho 吳公藻 says (Wu, 1980 p26):

*...be aware that even though people are naturally endowed with consciousness of movement, this skill is very difficult to achieve fully.*

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\* A shorter version of this article is currently under submission to the Journal of Asian Martial Arts.

In contemporary Western language, consciousness of movement is perhaps best captured by the concept of *proprioception* – this is the complex neuro-muscular feedback system that acts between the joints, tendons and muscles and the central nervous system. An exploration of the mechanisms of proprioception, and a direct comparison with the traditional Chinese explanation of mindful movement, may help the practitioner of the Chinese internal arts to develop their consciousness of movement in constructive ways.

### Three Key Terms

The three key terms from Chinese internal arts that have a direct bearing on the discussion in this paper are: *yi* 意, *qi* 氣 and *jin* 勁. Before discussing how these different concepts relate to each other, I shall discuss each of them individually.

#### The Individual Terms

The term *yi* 意 carries two distinct, but related meanings: the first is “idea” and the second is “intent”: it is the second sense that is of relevance here. The character itself is composed of two parts. The lower part is *xin* 心 which means “mind/heart”, the two concepts being closely related in Chinese thought; this is the domain where all mental activity originates. The upper part of the character is *yi* 音, which means “tone” or “sound”. Thus, we could gloss the compound character as meaning “the tone in the mind”, which gives a nicely poetic interpretation of the meaning of “intent”.

Figure 1: The Character *Yi*



Figure 2: *Santi Shi*

Intent is a certain quality of mental awareness, a particular type of mental state. Let's take basic awareness as an undirected, receptive mental state, taking in whatever is presented to the sensory field. We might call this the neutral state of *xin* 心. In contrast, having intent adds a sense of directedness to the base state. Typically, having an intent is the direct and immediate cause of an action, and this is a key aspect of the term in the context of the martial arts. Kaptchuk (2000 p59) translates *yi* 意 as “consciousness of potentials” and, whilst he does not justify this interpretation linguistically, it gives an interesting dimension to its use in this martial/movement context, particularly when we consider the development of standing practices. When we stand, particularly in asymmetric postures such as *Santi Shi* 三体式, even though there is no movement, the structure is filled with intent (see Figure 2). In this context, “consciousness of potential”, being aware of the possibilities for movement, whilst abiding in stillness, captures something of the essence of the practice. He says (*ibid.* p60) that this faculty is “responsible for discerning various directions and perspectives”. Part of the

martial role of *yi* 意 is to make a technique happen, but for a technique to work effectively, it must be appropriate to the situation encountered. Thus, being aware of the potentials the opponent is bringing, and of the resulting directions available for your counter, is certainly a key aspect of actualizing one's intent effectively.

Moving on to the next term, *qi* 氣 is a multi-layered concept, covering a wealth of meaning in many different domains. The original, and literal

Figure 3: The Character *Qi*

meaning of the word is that of “air”, “gas” or “vapour”. The radical is 气, also pronounced *qi*, meaning “steam” or “vapour”, whilst within the radical is the character 米 *mi*, meaning “rice”. Thus, the compound concept could be glossed as “the steam rising from cooking rice” or, less literally, “nutritious vapour”. See, for example, the analysis of the character in Zhang & Rose (2001 pp3-5).

*Qi* 氣 is used in many different contexts in Chinese thought. In metaphysics it refers to the base, original state from which all other energies and substances derive their nature and from which all forms condense. In this most abstract of meanings it is conceptually close to the quantum flux of modern physics, from which all actual particles emerge and ultimately return. The variable, constantly shifting nature of *qi* 氣 is perhaps what makes it most hard for the Western mind, encultured, as it typically is, with Greek atomism and Cartesian dualism. It is only in the recent history of Western science, with the discovery of quantum mechanics and relativity, that we have conceptual tools of sufficient sophistication to begin to really appreciate what *qi* 氣 is and does. In Zhang (2002 p45) Einstein's famous equation relating energy and mass  $e = mc^2$  is suggested as “the best translation of the Chinese word *qi*”. It is neither energy nor matter, but that which is common to both.

In slightly more concrete terms, in Chinese medicine, *qi* 氣 is the specific energy that flows through our meridians, where its subtle movements through, and influences on, the organs of the body can be interpreted and manipulated through acupuncture, mindful exercise and other techniques. This specific manifestation of *qi* 氣 is not considered completely separate from its universal manifestation: the former is a localized expression of the latter, linking the human being into the whole of creation through the single universal “substance”. Within the human body it has a number of distinct roles, including energizing and protecting in various ways. Kaptchuk (2000 p48), describing the various functions of *qi* 氣, says “Qi is the source of all movement and accompanies all movement.” He is keen to point out that it is not the *cause* of movement; as we will see, that role belongs to *yi* 意.

In physical training, the practice of *qigong* 氣功 provides a rich method for developing and strengthening the body's *qi* 氣. *Gong* 功, combining “work” *gong* 工, and “strength”, *li* 力, in this case means literally “working to strengthen”. *Qigong* 氣功 then, meaning “working to strengthen the *qi*”, uses postures and repetitive movements co-ordinated with the breath to relax the body, open the meridians, and allow the body's natural, intrinsic energy to flow unimpeded. Only when a relaxed and natural state has been achieved can *yi* 意, *qi* 氣 and *jin* 勁 all come into the correct relationship as described in more detail below. In Chinese internal martial arts, and in *Taiji Quan* 太極拳 the role of *qi* 氣 is central in supporting movement and technique.

If I were trying to summarize *qi* 氣 in functional terms I might say that it is what connects the mind to movement, both in terms of actively supporting and passively sensing. Such a definition will then lead me to suggest, once we have some more of the conceptual structure in place that, when discussing movement, *qi* 氣 shares certain key attributes with neuro-muscular proprioception. I do not mean this in a reductive way, but merely offer it as an interesting functional analogy.

These first two terms, *yi* 意 and *qi* 氣 are, to borrow Zhang's (2002) title, *Key Concepts in Chinese Philosophy*. He defines *qi* 氣 as one of the principle ontological concepts in Chinese metaphysics,

and *yi* 意 as a key term in Chinese psychology. He does not mention *jin* 勁, but its importance in the martial arts becomes clear when we realize that Yang (1996 pp106-107) gives 53 distinct forms of *jin* 勁 for *Taiji Quan* 太極拳, each corresponding to a particular physical expression of energy.

The dictionary meaning of the character *jin* 勁 is “vigour” or “energy”. However, in the context of martial arts it has a more specific meaning. Let's consider the structure of the character: firstly it contains *li* 力, which is a picture of a tendon and has the meaning of “strength” or “power”. The extra element in the character is *jing* 冫, which is a picture of water flowing beneath the surface. Thus, the compound character 勁 adds the idea of flow 冫 to basic strength 力 and we can therefore interpret *jin* 勁 in the martial context as meaning something like “internally flowing strength” (Harbaugh, 1998 p10).

Figure 4: The Character *Jin*

The varieties of *jin* 勁 are sometimes equated with actual martial techniques, but really they are more general than specific techniques; they are the foundational forms of expressing energy that combine to make the specific techniques. Thus, one *jin* 勁 may be a component of many techniques, and any individual technique will be composed of a number of *jin* 勁 combined. For example, *pan jin* 盤勁 is rooting energy. This is the ability to connect your centre down into the ground, and it is a basic skill required for many techniques, both defensive and offensive: when dealing with an opponent's incoming force it is vital to be well rooted to avoid being overwhelm by their assault, and equally, when issuing energy into an opponent, your structure must be connected to the ground for your force to have real impact. Conversely, even a simple offensive technique such as *Parry and Punch* will have many energetic components. Specifically, as already mentioned, you must have *pan jin* 盤勁 for the technique to carry real power; further, *zhuan jin* 轉勁 twisting energy, is released through the waist to generate the force, which is finally delivered into the opponent as *da jin* 打勁 striking energy.

As well as active energies, the term *jin* 勁 is also used to describe more passive energies. Perhaps first among these is the ability to stick and adhere to an opponent so that your movements are not separate from their movements. This is called *zhan nian jin* 沾黏勁, literally touching and sticking energy. Once you can stick to your opponent, then other energies such as listening, *ting jin* 聽勁, can be developed whereby you use physical touch to sense your opponent's latent energy. This must be complemented by understanding, *dong jin* 懂勁, so that you know the meaning of what you are feeling, and can learn to gauge your opponent's intent before it becomes manifest. This dual nature of *jin* 勁, its active and passive forms, will be important when we come to consider how the western notion of proprioception is used to describe and explain mindful movement.

### The Contribution of the Traditional Forms

The syllabus that I teach is called *Wu/Cheng Taiji Quan* 吳/鄭太極拳 after the family responsible for the development of the initial style *Wu* 吳, and the Hong Kong based teacher Cheng Tin Hung 鄭天熊 (1930-2005) who developed his own unique interpretation of that tradition. Within this syllabus there are a range of forms which all contribute a particular developmental aspect to the training. This is made explicit in Cheng (1990 p33), the translation is my own:

太極拳家	<i>Taiji Quan jia</i>	The <i>Taiji Quan</i> expert
練拳在於修心，	<i>lian quan zaiyu xiu xin,</i>	trains the fist in order to repair the mind,
練劍在於養氣，	<i>lian jian zaiyu yang qi,</i>	trains the sword in order to nourish the <i>qi</i> ,
練刀在於培志，	<i>lian dao zaiyu pei zhi,</i>	trains the sabre in order to cultivate the will,
練槍在於益智，	<i>lian qiang zaiyu yi zhi,</i>	trains the spear in order to augment wisdom,
練功在於長勁。	<i>lian gong zaiyu chang jin.</i>	trains the <i>gong</i> in order to strengthen <i>jin</i> .

Let's consider this passage in the context of the three key concepts of *yi* 意, *qi* 氣 and *jin* 勁 discussed above. Firstly, training the hand form (*quan* 拳) helps to “repair” the mind. Although usually translated as “cultivate”, this is a literal translation of *xiu* 修 and, I feel, an appropriate emphasis in this context: generally someone's proprioceptive sense is good enough for day to day life, but is lacking in terms of the refined movement required for the practice of *Taiji* 太極. In order to improve one's proprioception, to better guide the *qi* 氣, the mind itself must be trained and the quality and focus of the attention improved.<sup>1</sup> This explains why the hand form is taken to be the foundation of *Taiji* 太極: it repairs and cultivates the mind, so that it is able to function correctly in partnership with the *qi* 氣 and *jin* 勁; that is, the mind is the container and generator of intent, which is the prerequisite for developing *qi* 氣 and thence *jin* 勁.

The passage also says that training the sabre (*dao* 刀) cultivates the will. In English, we might gloss “will” as involving intent maintained over an extended period of time. The Chinese character translated as “will” in this passage is *zhi* 志. The meaning of this character is conceptually related to *yi* 意. Firstly, both have *xin* 心 as the radical, and are concerned with a developed state of mind. In *zhi* 志 what is held in the heart is *shi* 士; the modern meaning of this character is “scholar”, but Wieger (1927 p203) traces the meaning back to the image of a small plant ascending from the ground, and by extension, this carries the idea of something developing. Thus, *zhi* 志 can be understood as “something developing in the mind/heart”, and I suggest that, practised correctly, the sabre develops intent over an extended period of time.

In traditional Chinese medicine *yi* 意 and *zhi* 志 are both aspects of a larger capacity called *shen* 神, meaning “spirit”, which is the aspect of the self which “recognizes and pursues ultimate goals” and thus makes possible self-cultivation and self-transformation; it is the source of the “self-awareness that fosters the human experience of authenticity and personal experience” (see Kaptchuk, 2000 pp58-66). So, based on this passage, we should expect the combined practice of the hand form and the sabre together to provide the vehicle not just for training the mind *xin* 心, intent *yi* 意 and will *zhi* 志, but also to contribute to the broader development of an individual's spirit *shen* 神.



Figure 5: The Secret Sword Hand

Moving on to the next key term, *qi* 氣, the passage says that training the sword (*jian* 劍) nourishes the *qi* 氣. The sword is the most complex form in the *Wu/Cheng* 吳/鄭 syllabus, the sequence is quite long with very little repetition in the

<sup>1</sup> As a brief linguistic aside, note that the Chinese for “attention” is *zhu yi li* 注意力, literally “the strength of concentrated intent”.

patterns. Like the hand form, performance of a complex sequence requires mental discipline, and therefore trains the mind, a necessary prerequisite to developing *qi* 氣. However, the additional requirement of co-ordinating the movements of the sword, with its straight, fine blade, makes it necessary to extend one's *qi* 氣 into the weapon. This idea, perhaps initially strange to the Western mind, finds surprising support in the cognitive description of proprioception, as we will see below. In connection with this extension of *qi*, the role of the hand not holding the sword is vital. The empty hand should be lightly held in the shape of “the secret sword opening the *qi jin* 氣勁” as shown in Figure 5. This hand shape balances the *qi* 氣 in the body with the *qi* 氣 in the weapon, and helps distinguish *yin* 陰 and *yang* 陽 through the form, with the movements of the empty hand mirroring the movements of the sword (see, for example, Yang, 1996 p36). Every movement of the body should appear in the weapon and every movement of the weapon should be driven from the body. Of course, this is true for all the weapons, but the delicacy of the sword techniques, in contrast to the strong forces expressed through the sabre, require and help develop great sensitivity. That delicate sensitivity, in turn, helps to foster awareness of the movement of *qi* 氣 in the body.

Finally, in this context, training the *gong* 功 is said to strengthen the *jin* 勁. Here, *gong* is a reference to the *nei gong* 內功 exercises, literally meaning “internal work”. Little is written about this aspect of the practice in the *Wu/Cheng* 吳/鄭 syllabus, but Cheng states directly that it “is the most important part of the art of Tai Chi Chuan” (Cheng, 1983 p176). The *nei gong* 內功 are specific forms designed to condition the body in various ways. These exercises are similar, in some respects, to *qigong* 氣功 but are focussed on developing *jin* 勁 rather than *qi* 氣. There are two separate sets of exercises in this practice, a *yin* 陰 set and a *yang* 陽 set, each comprising of twelve exercises and, whilst the two sets have a lot in common, each has a particular emphasis. The *yin* 陰 set focusses mainly on strengthening the constitution, building strength in the lower body and back and, in particular, developing foundational *jins* 勁 such as *pan jin* 盤勁 (rooting energy) and *peng jin* 棚勁 (buoyant structural energy). In contrast, the *yang* 陽 set focusses more extensively on training the ability to release energy, *fa jin* 發勁, in various ways.

Cheng identifies three distinct stages in the development of *nei gong* 內功. These are, firstly, *Inner and Outer in Unity*, meaning simply that breath and movement are harmonized. It is a feature of this syllabus that generally no deliberate effort is made to co-ordinate the breath and movement, instead this is allowed to arise gradually and naturally as the body becomes more familiar with the movements. The second stage is called *Mind and Body in Unity*, where the mind directs every action. This is the stage at which consciousness of movement comes to fruition. The final stage is called *Heaven and Thought in Unity*, and the dedicated practitioner who reaches this stage has moved beyond formal technique, and every movement and action is naturally in accord with the flow of the moment. As well as being stages of the specific practice of *nei gong* 內功, these stages can also be seen to apply to the art as a whole and, further, will find resonance when we turn to consider the cognitive mechanisms of proprioception, below.

Of course, all elements of the syllabus contribute to the training of all three of these key requirements. In addition to training the mind, the hand for also trains *qi* 氣 and, through careful and mindful articulation of the body's structures, lays the foundation for *jin* 勁. The spear form is also a very important vehicle for training *jin* 勁, with numerous techniques requiring the release of energy through the weapon. In this way, the use of an external physical medium provides valuable feedback to the practitioner on the quality of their expression. Further, the various forms of pushing

hands (*tui shou* 推手) are the primary method for training the sensing *jins* 勁. Thus, we can see that over the complete syllabus, all of the key concepts required for developing consciousness of movement are trained.

### Relating the Three Concepts

Having explored the individual meanings of the terms, and what traditional vehicles exist for training the corresponding skills, I shall now consider how they interrelate to create a complete description of mindful movement. Consideration of the relationships between these concepts has long been a focus of Chinese thought. For example, the following passage is from Mencius (372-289<sub>BCE</sub>) cited in Zhang (2002 p47):

*The will is the general of the qi and the qi is the fullness of the body... When the will is concentrated then it moves the qi; when the qi is concentrated then it moves the will.*

The enduring consistency of this ancient view is brought home when we consider the Wu 吳 family literature, the root of my own lineage, which contains a description of this process, making the connection between these elements explicit. In the chapter on listening energy *ting jin* 聽勁 the following phrase appears (Yang, 2002 p30):

以心行意,	<i>yi xin xing yi,</i>	By means of the mind move intent,
以意行氣,	<i>yi yi xing qi,</i>	by means of intent move the <i>qi</i> ,
以氣運身,	<i>yi qi yun shen,</i>	by means of <i>qi</i> mobilize the body,
聽而後發。	<i>ting er hou fa.</i>	listen and then release!

Here the mind is described as first moving intent, which then moves the *qi* 氣. This makes it clear that the mind must have a focussed direction, to which the *qi* 氣 then responds. This, in turn, imparts movement to the body, and finally, by listening sensitively to your opponent's energy, you are able to release your own *jin* 勁 in an effective technique.

This movement from mind (inner) to technique (outer) clearly has a specific direction, resulting in a manifest expression, which does not account for the working of the sensing *jins*. Referring to the Mencius quote above again, note that it is also suggested that *qi* can influence the mind, which is a flow of information in the reverse direction. For example, with listening *ting jin* 聽勁, one uses contact with the opponent in order to “hear” the small movement that presages the actual execution of a technique. In this context employing the *jin* does not result in manifesting a movement, but instead requires being sensitive to the movements in your own *qi* caused by the opponent's intention. Typically, before you can listen effectively, you have to have contact with your opponent; if the mind is clear, then the relationship between the touch and perception is immediate, as the Wu 吳 family literature makes clear (Yang, 2002 p28):

身有所感,	<i>shen you suo gan,</i>	[When the] body has some feeling,
心有所覺	<i>xin you suo jue</i>	[then the] mind has some perception

Wu Yu-Xiang 武禹襄<sup>2</sup> also wrote on this aspect of *Taiji* movement. In his essay “Secret of the Four Words” (Yang, 2001 pp13-15) he discusses “suffusing”, “covering”, “matching” and “swallowing”. Suffusing, *fu* 敷, is the process of extending my *qi* 氣 into my opponent's body, which is a prerequisite for being able to sense his movements. The literal meaning of *fu* 敷 is to spread out, or apply (Harbaugh, 1998 p201) – as in the way one would apply a cream to the skin, and this captures the character of how your *qi* 氣 should extend to interact with your opponent. Yang's commentary says that “if you can suffuse the Qi from your own body to your opponent's body, you will be able to feel (listen) the opponent's intention.” Thus, in this context *qi* 氣 is acting as a conduit, transmitting information back to you.

Zhang & Rose succinctly summarise the relationship between these three components of mindful movement (2001 p143):

*The power of qi is inseparable from the development of the power of mental concentration and the ability to focus the mind – and the qi – in a particular movement, at a precise location, in a given moment.*

Let us now turn to an investigation of the Western concept of proprioception.

## Proprioception

Proprioception is, broadly speaking, the body's ability to monitor its own state. In the context of this article I am interested in the proprioception of the muscular-skeletal system; the body's ability to monitor and adjust posture and movement. Gallagher (2005 p73) suggests that proprioception acts at two distinct levels. Firstly, it involves “non-conscious, physiological *information* that updates the motor system with respect to the body's posture and movement.” [His emphasis]. Secondly, that information provides the basis for our proprioceptive awareness of posture and movement. There is far more information in the system than we are actually aware of – all of the minute aspects of a movement are present in the information, but typically awareness will only contain the information necessary to achieving the goal of the movement.

This distinction between proprioceptive information and proprioceptive awareness is closely related to a further distinction that Gallagher explores, that between *body schema* and *body image*. Body schemas are low-level motor programs that monitor and control our movements. These schemas take the proprioceptive information and the goal of the individual, and then generate and control the necessary movements to realize the goal. The intentions and goal of the individual may be consciously articulated, but the resulting actions of the schemas are unconscious. In contrast, a body image is composed of conscious perceptions, attitudes and beliefs about one's body. These two levels are not completely separate and developing a description of their interaction is part of Gallagher's project. For example, he gives an extended case study of someone who lost proprioception as a result of a neurological condition. Their automatic body schemas therefore became inoperative and they had to completely reconstruct their movement capabilities using conscious information and their body image.

This extreme case shows that consciousness can be used to drive movement directly, even when low level motor control capabilities are not functioning correctly. This makes the mind an extremely

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<sup>2</sup> Note that this is a different family to the Wu family to which I trace the origin of my style. The Wu family originating my style is written 吳 in Chinese, whilst the Wū family mentioned here is written 武.

powerful faculty, able to overcome severe functional deficiencies in the body's mechanisms. But how might body schema and consciousness interact when both are fully functioning? I suggest that the movement practices embodied in *Taiji Quan* 太極拳, and the Chinese internal arts in general, can operate at the interface between conscious image and unconscious schema, and thereby facilitate a two-way interaction between these levels.

### Studying Taiji and Proprioception

Before exploring *how* the specific training strategies of the Chinese internal arts influence proprioception, it is important to cite a scientific study which confirms that the practice actually does have a *real* positive effect on someone's proprioceptive skill. The study I will discuss here was performed by Xu, Hong, Li and Chan and published in the British Journal of Sports Medicine in 2004 (Xu, *et al.*, 2004).

In particular, they were interested in the effects of the practice of *Taiji* 太極 on proprioception in the ankle and knee joints of older people. Their study population was divided into three groups: long term *Taiji* 太極 practitioners, long term swimmers and runners, and a sedentary control group. The fact that both of the exercise groups were long term practitioners is important as, of course, the benefits of any exercise regime, and particularly *Taiji* 太極, only really accrues over an extended period of time. The study measured each person's ability to detect passive movement of the ankle joint, and of flexion and extension of the knee joint. For ankle movement, they discovered that the *Taiji* 太極 group had significantly better proprioception than either of the other two groups, and that the runners and swimmers were not significantly better than the control group. For knee flexion, again the *Taiji* 太極 practitioners were markedly better than both of the other groups, and the swimmers and runners were, again, not significantly better than the control group. However, for knee extension, there was no significant difference between any of the groups. The conclusions of the study clearly state that the practice of *Taiji* 太極 results in improved proprioception in the ankle and knee joints when compared with swimmers, runners and sedentary controls. Although the study was conducted with elderly practitioners, I feel it is reasonable to assume that these benefits are available for experienced practitioners at all ages.

So, having established that the practice of *Taiji* 太極 does have a positive influence on proprioceptive awareness, we shall now turn to a consideration of why and how this might be so.

### Movement Training and Proprioceptive Feedback

At the outset of training internal movement, most of the activity is taking place at the conscious level – intent is required to drive every detail of the appropriate actions and, where intent is lacking, the movement will be vague and unfocussed. Thus, when learning a new movement, beginners typically find that some detailed aspect of the technique is missing. I suggest this is because the developing schema driving the movement is not sufficiently articulated to realize all aspects of their intent. Through persistence and repetition within a reflective practice, the schema is gradually refined, bringing more aspects of the movement into its scope. It is important that the practice be reflective – that is, proprioceptive awareness must feed back into the process, correcting the actions of the schema and thereby refining the connection between intention and movement. At the same time a corresponding process operates in the other direction. By fully engaging consciousness in the movement, finer and finer aspects of the movement become available to our awareness. Aspects of movement that are initially imperceptible become, through repetition, part of the conscious experience of the practice. This process allows more proprioceptive information into

consciousness, which then becomes available to complete the feedback loop required to effectively train movement.

We could characterise this, broadly, by talking about cognitive understanding and somatic understanding. Wu Cheng-Qing 武澄清 (eldest brother of Wu Yu-Xiang 武禹襄) seems aware of this distinction, and its importance, when he says (Yang, 2001 p32):

*The marvellous trick within must be comprehended from the deep heart. This cannot be passed down orally. When the mind knows, then the body will know. When the body knows, it is better than only the mind knowing.*

This two-way refinement of movement and consciousness gives rise to a paradoxical situation. Firstly, the repetition built into the practice automatizes certain aspects of the performance. At the outset, I must consciously attend to all the detailed aspects of each movement, ensuring that they are correct. Then, through repetition, those movements gradually become more and more automatic, until I do not really have to attend to them during performance. They become programmed into schemas. Of course, reflective practice is important to ensure that the movements which are automatized are correct in all the important aspects. The question then arises as to the role of consciousness in the performance of an automatized routine. This is where the paradox arises, for having expended the effort to make the movements automatic, to program them into effective and efficient body schemas, consciousness should be directed to attend to ever finer and more subtle aspects of the movement; consciousness remains engaged with the execution of the schema.

In psychoanalysis, deautomatization is a process which “involves an unravelling of the psychological operations that organize, limit, select and interpret perceptual stimuli by reinvesting those operations with conscious awareness.” (Suler, 1993 p48) This is a direct psychic parallel to the somatic process engaged in when learning *Taiji* 太極 movement. I am sure that most experienced movement practitioners have had the experience of an everyday movement unfolding into a previously unimagined rich sequence of exquisite articulations; opening a door, or walking down the street, is suddenly invested with a new wealth of somatic detail. This is a spontaneous experience of the deautomatization of a “normal” movement and, whilst this could conceivably happen outwith a dedicated movement training, the conscious engagement with the explicit process of movement is really the key preparation for this shift of awareness.

### Some Personal Examples

A concrete, if somewhat mundane, example of this from my own experience involves opening doors; specifically, heavy fire doors. Firstly, because the door is heavy, the act of opening it already requires more effort than if it were light and could be moved without effort. This increase in effort brings with it an increase in the attention to the movements and the mechanics of the action. If the door opens away then a pushing energy is required, whilst if it opens towards then a pulling energy is used. Either way, the structural connection from the hand, through the body, and down into the ground becomes a major part of the action. Once the structural connection is in place, then a shift of the weight and a turn of the waist opens the door without any need for effort in the arm. Thus, opening a door becomes more than opening a door, it becomes an opportunity to explore *jin* 勁.

Walking up stairs on the balls of the feet is another opportunity to explore one's awareness of the internal dynamics of the body's structure. In this case, the correct alignment of the pelvis allows the push from the feet to transmit directly up through the spine and it is almost as if one is being drawn

up the stairs by the crown of the skull. This is an example of the “suspended head top” of *Taiji Quan* 太極拳. This is sometimes referred to as *ding jin* 頂勁 (literally meaning “top energy”) where the chin is tucked in slightly allowing the head to extend upward (Wu, 2006 p12).

### Extending Proprioception

The scope for developing and extending consciousness of movement becomes even greater when we consider partner work in *Taiji* 太極. Gallagher, talking about dancing, says that his “body has to take into postural-schematic account the moving extension of my partner” (2005 p37). That is, Gallagher is explicitly suggesting that one's body schema can actually include aspects of someone else. The sensing drills and pushing hands practices of *Taiji Quan* 太極拳 excel at developing this aspect of consciousness. The more relaxed and calm you can be, the more receptive your consciousness becomes: it is common to talk of becoming one with your partner's movement, of making their movement your movement. In free pushing, an experienced practitioner will be aware of their partner's balance, structure and even their intent. This happens when your own proprioceptive awareness becomes sufficiently subtle so as to extend into the body of another human being; that extended awareness brings information that can then be integrated into and used by your own body schemas. This is essentially the same idea that Wu Yu-Xiang 武禹襄 discussed in terms of suffusing *fu qi* 敷氣, extending your own *qi* 氣 out to cover the opponent and directly sense their intention and movement.

Again, a personal example may help clarify the kind of experience a practitioner may eventually expect. On one occasion I was practising free-style pushing hands with a more senior practitioner, someone who is usually more than capable of tying me in knots or bouncing me across the room. During this practice I was simply trying to keep my mind empty. At a particular point in the exchange I felt what, in retrospect, I described as a “gap” in my partner. At that point I released my energy into the gap and, much to my surprise, my partner lost his balance. After the bout, without any prompting from myself, he said that he should not have changed his mind about what he was about to do. Somehow, I had felt that change of mind and, in an instant and almost without conscious direction, had taken advantage of the gap in his intent. This is a direct example of a key *Taiji* 太極 principle described by Wu Yu-Xiang 武禹襄:

勁斷意不斷      *jin duan yi bu duan*      energy [may] break, [but] intent [must] not break

This says that one's energy, *jin* 勁, may break during an exchange with an opponent, but the intent, *yi* 意, should not break (see Yang, 2001 p9). That is, one's energy may, indeed *must*, change and transform, one moment expressed through yielding, and the next attacking. Once the attack completes, whether it was successful or not, the energy must change again. However, within the constant transformation of the expression of energy, one's intention must continuously fill the movement. In this particular case, my partner allowed their intent to falter for a moment, and I was sufficiently attuned to take advantage of the lapse.

In another brief comment, Gallagher opens up an even wider possibility than that of extending proprioceptive awareness into another human being: namely, that it “incorporates various significant parts of its own environment into its own schema. The carpenter's hammer becomes an operative extension of the carpenter's hand.” (2005 p32) For the martial artist involved in weapons training, this is a familiar idea, the sword does indeed become an extension of the self. Above, I

noted that practising the *Taiji* sword (*Taiji Jian* 太極劍) trains you to extend *qi* 氣 into the weapon and, as *qi* 氣 is the medium of sensation, this will in turn lead to a physical extension of awareness.

The Wu/Cheng 吳/鄭 syllabus contains a partner exercise called “sticky swords” that seeks to train the extension of awareness into the weapon. The two participants touch the blades of their swords together and then, in a manner similar to pushing hands, try to sense each other's energy and intention in order to penetrate the other's defence and touch their blade on the opponent's body. The important potential of this extension of awareness is highlighted in a story told by Lowry (1986 p148). Describing a famous Japanese swordsman who was particularly successful in duelling, he says:

*Coming close enough to touch the point of his opponent's weapon [with the point of his own sword], he could feel whether it was being held stiffly, or with calm suppleness. If the grip was of the former kind, he was sure of his victory. If it was of the latter, though, it indicated a skilled warrior, and in that case he would quickly flee the scene.*

In terms of the Chinese theory, this ability arises as a result of extending *qi* 氣 into the weapon, thereby enabling a refined sensitivity to the quality of the opponent's state. In the Western theory, proprioception is extended outward by means of one's body schema incorporating external elements into their representation. The language is different, but the underlying experience is the same.

## Conclusions

All of these ideas, Chinese and Western, serve to highlight the key role of consciousness in the development of movement practice. Indeed, Ming (1994 p35) says that “refinement of consciousness is the essence and true nature of martial arts.” He goes on to describe (p38) a process very similar that that outlined above in terms of the development of body schema, only using language perhaps more familiar to practitioners of the martial arts:

*Attunement of the physical form undoubtedly can induce conscious and unconscious changes in the state of the breathing, as well as changes in the state of energy and inner force. The results of this attunement all should bring about a psychological attunement, and then lead to attunement of the consciousness cultivating the exercises. The feedback goes on, as refinement of consciousness fosters the progress of refinement of mind, refinement of energy (including breathing), and refinement of the body (or physical form); and then the tuning of the physical form is again arranged by a new consciousness adapted to new conditions.*

Thus, we see that the contemporary explanatory paradigms of cognitive science are in potential agreement with the techniques of the traditional Chinese arts when it comes to the refinement and development of the individual through movement: engaging consciously with posture and movement creates an effective feedback system which results in positive modifications to the practitioner's consciousness.

## Glossary

Cheng Tin Hung	鄭天熊	(1930-2005) my teacher's teacher. Although they share the same family name, there is no relationship to the teacher named Cheng Man Ching 鄭曼青.
da jin	打勁	striking energy.
dao	刀	sabre – the generic term for the Chinese curved single-edged sword.
ding jin	頂勁	literally “top energy”, sometimes described as suspended headtop, the extension of the intent upwards to keep the spine correctly aligned.
dong jin	懂勁	literally “understanding energy”, the ability to interpret the opponent's intention by sensing their energy.
fa jin	發勁	emitting energy – the various ways in which force can be issued into the opponent in an explosive release.
fu qi	敷氣	suffusing <i>qi</i> – the technique of extending one's <i>qi</i> to cover the opponent and thereby sense the movement of their <i>qi</i> .
jian	劍	the Chinese double-edged straight sword.
jin	勁	internally flowing strength – the generic term for the various ways of using the body's physical energy in the internal arts.
nei gong	內功	literally “working to strengthen the internal” – a set of exercises in the Wu/Cheng syllabus aimed specifically at developing various jins.
nei jia	內家	literally “internal family” – a group of Chinese martial arts including <i>Taiji Quan</i> 太極拳, <i>Bagua Zhang</i> 八卦掌, <i>Xingyi Quan</i> 形意拳, and <i>Yi Quan</i> 意拳.
pan jin	盤勁	rooting energy – the ability to connect one's centre down into the ground.
peng jin	棚勁	buoyant, structural energy – bringing the muscular-skeletal system into correct alignment so as to minimize the use of local muscular strength when manifesting technique.
qi	氣	literally “nutritious vapour” – the universal substance/energy from which all other substances, energies and forms condense.
qi gong	氣功	working to strengthen one's <i>qi</i> – exercises to develop and strengthen the body's intrinsic energy.
qiang	槍	spear.
quan	拳	fist – also used as a classifier to name styles of martial art, and to refer to the hand form with the <i>Taiji Quan</i> syllabus.
Santi Shi	三体式	literally “three body posture” – an on-guard stance for sparring, used extensively as a standing posture. Called “Seven Stars” in the Wu/Cheng syllabus.

shen	神	spirit – the faculty which includes the mind, intent and will.
Taiji Quan	太極拳	literally “great polarity boxing” – a martial style based directly on the theory of yin and yang.
ting jin	聽勁	listening energy – the ability to detect how one's opponent's energy is moving before it becomes physically manifest.
tui shou	推手	pushing hands – a range of partner work exercises in Taiji Quan designed to allow the practitioner to develop and train the subtle sensing jins.
Wu Chien Chuan	吳鑑泉	(1870-1942) the second generation of the Wu 吳 family, usually credited with the foundation of the family style as a distinct lineage.
Wu Kong Cho	吳公藻	(1903-1983) the second son in the third generation of the Wu 吳 family, and the first to write a book on the theory of the style.
Wu/Cheng	吳/鄭	the name now given to the lineage that is the source of my syllabus, being the name of the family (吳) which initially created the style, and the name of the master (鄭) who later modified it.
Wu Cheng-Qing	武澄清	(1800-1884) oldest brother of Wu Yu-Xiang 武禹襄. Also a significant exponent of the theoretical aspects of <i>Taiji Quan</i> .
Wu Yu-Xiang	武禹襄	(1812-1880) founder of the Wu 武 style of <i>Taiji Quan</i> and a significant contributor to the theoretical literature of the art.
xin	心	mind/heart.
yi	意	intent – the tone held in the mind.
zhan nian jin	沾黏勁	literally “touching and sticking energy” – the ability to physically connect to an opponent and remain in contact with them so as to make it possible to listen and interpret their energy and intention.
zhan zhuang	站樁	literally “standing post” – a range of standing meditations where the practitioner holds a fixed posture for an extended period of time.
zhi	志	will – development in the mind.
zhu yi li	注意力	attention – the literal meaning is “the strength of concentrated intent”.
zhuan jin	轉勁	twisting energy – the use of rotation, either in the waist or in a limb, to generate force.

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