

A Western Doctor's View on the Basics of Tai Ch Chuan

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I will not talk about my experiences with patients but use my limited knowledge in neurophysiology and psychology to clarify some of the issues in Tai Chi Chuan (TCC).

This can only be the beginning of further research into the relation between science and tradition.

These are the topics I would like to discuss with you:

Stretching

Intention

Attention

Meditation

Gongfu (Western Tradition)

Center

Posture

Relaxation/Stress

Yinyang

When I first met M. Yang Zhenduo in 1986, he told me to extend my postures and to tonify them as required in the traditional Yang Style. This implies stretching of the muscles which is a very natural thing to do as you can see in the following figure (Fig.1).



Fig.1



What happens when you stretch a muscle? Fig.2 represents a muscle with his innervation (α fibers). When an innervated muscle is stretched, it responds by contracting and developing tension.

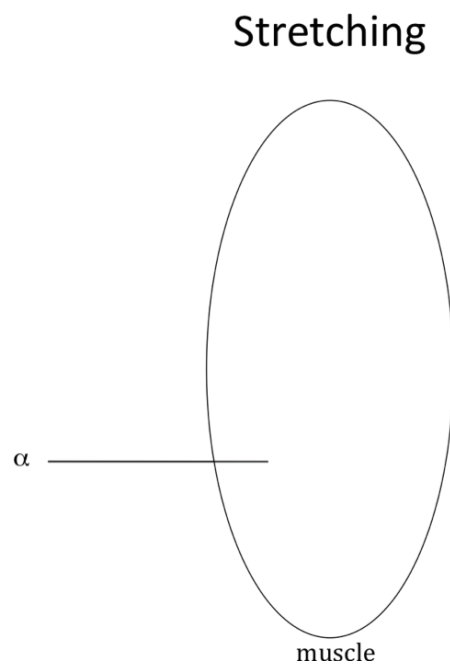


Fig.2

This is called the stretch reflex: stretching stimulates the muscle spindle which through afferents provokes an α -fiber discharge and consequently a higher tone of the muscle (Fig.3).

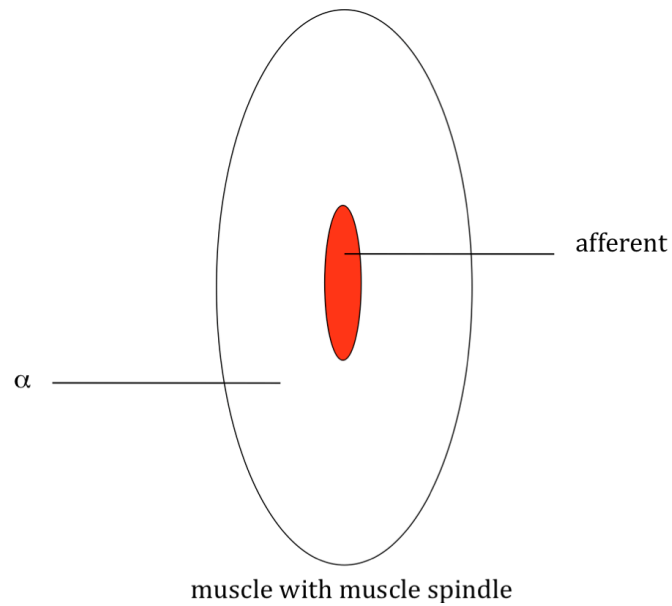


Fig.3

This is what a muscle spindle looks like (Fig.4)

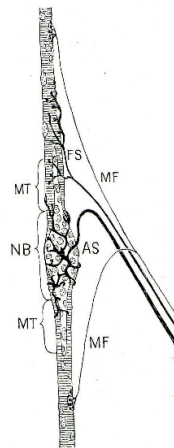


Fig.4

The muscle spindle can also be stimulated by γ -fibers which are under the influence of a descending reticular formation in the brain. On the other hand an ascending reticular formation has an awakening effect on the brain when we or the cat stretches (Fig.5).

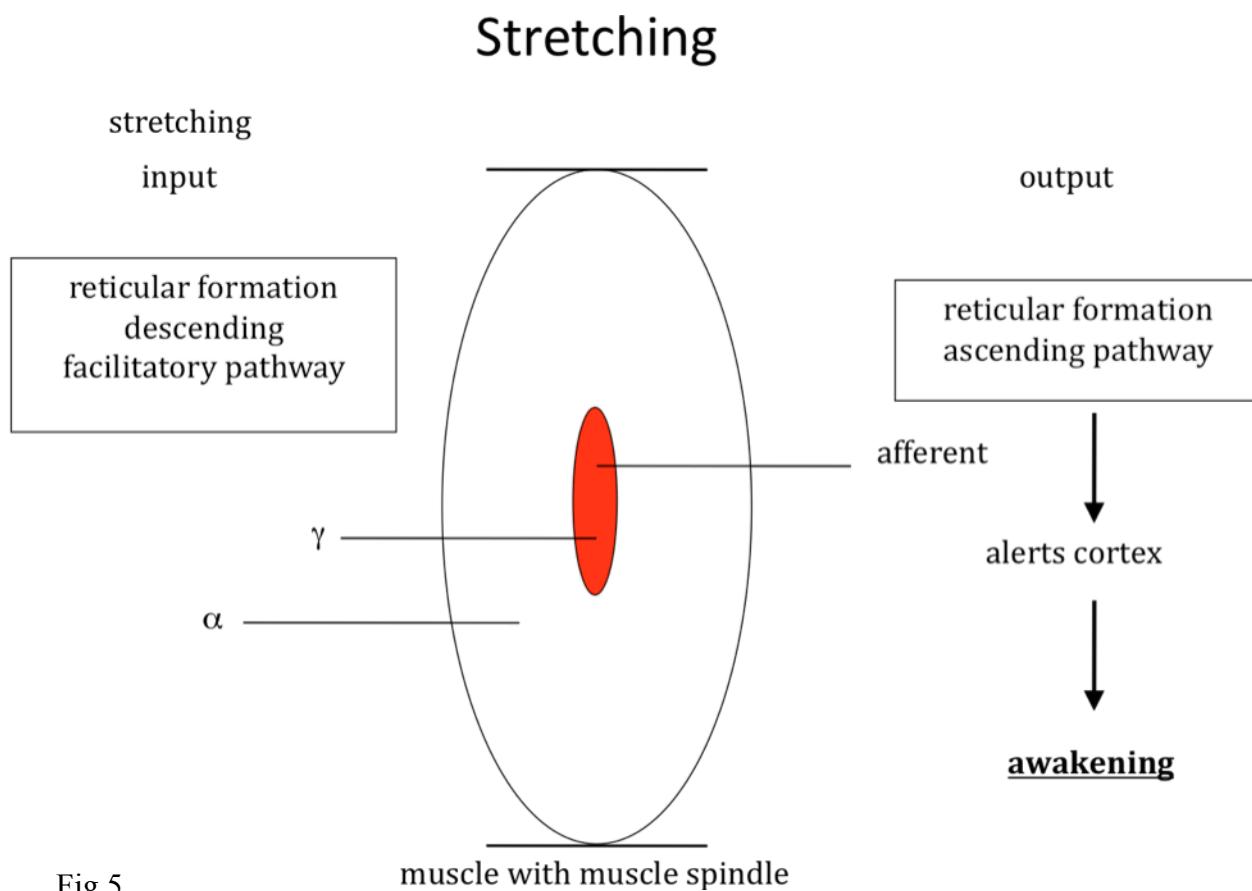


Fig.5

On a higher level we find the mind. We will study 2 of his important functions: the intention and the attention (Fig.6).

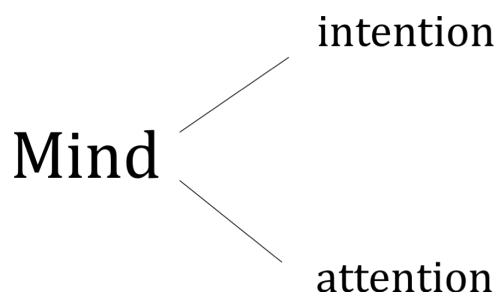


Fig.6

About the intention there is a very interesting finding: It has been shown that a particular area of the brain called the supplementary motor area (SMA) is activated when a movement is planned or intended and before the movement takes place (Fig.7). The movement must be one which demands high attention all the time.

Translated in chinese terminology we could say the SMA is where the yi is located.

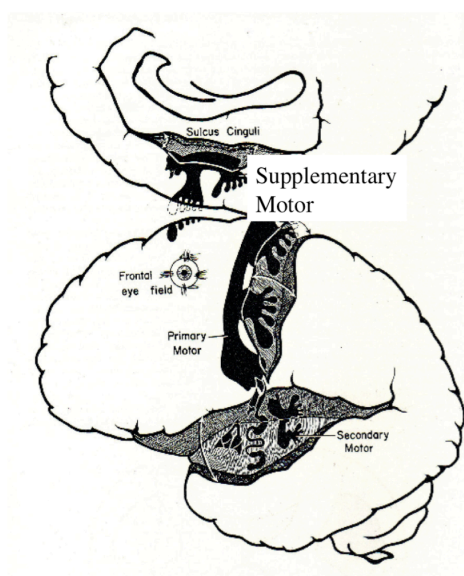


Fig.7

Attention and concentration of the mind are essential requirements in the practice of TCC. I like to compare the training of attention to the sharpening of a knife.

What about meditation and TCC? It depends on how you define meditation. I have adopted the following: to meditate is to concentrate one's spirit on one object. In this sense TCC is a form of meditation, the form being its object. The attention follows the construction of the posture. You can distinguish a yin time, for exemple in left ward-off: right leg, waist

and back from a yang time, the step, the displacement of the weight and the movement of the arm (left peng).

Using intention and attention to perform a task over some time is called gongfu in China.

Although in western tradition there is nothing like TCC we can nevertheless speak of gongfu in some cases: one example you'll find in every higher civilisation is calligraphy.

I have another example you maybe don't expect: In the Middle Ages, magnificent cathedrals were built by masons who possessed the art or gongfu of putting stones together (Fig.8).



Fig.8

This gave rise to a tradition which is said to live until now. The secret of this tradition is to combine two forms of thought: the operative with the speculative. Operative thought is the concrete thought connected to the action while the speculative thought is the one who is thinking of the future action.

But that is what we do in practicing TCC.

Later in history, the "intellectuals" parted from the "manual workers" just as speculative thought parted from operative thought. The unity of thought and the possibility to raise it to a higher level was lost. It is by practicing a gongfu like TCC that this unity is recreated, at the same time making liberty of thought possible.

During TCC there is a point where attention should always rest: the Center or Dan Tien. I prefer to call it Center because Dan Tien has implications from inner alchemy who don't apply here.

What follows is at the same time hypothetical and confirmed by the experience. By concentrating one's mind (and energy) at the center of the body, the inner force or energy irradiates into the body, the trunk and the four limbs. This is the experience we can easily make.

If we hold a specific posture (like push or single whip), it is determined by the degree and distribution of muscular tone (which will be different for each posture)

My hypothesis is that when one is centered, the different reflexes that regulate the tone are able to play their role fully and freely.

That is the equivalent to relaxation. By centering you relax. On the contrary stress means excessive tension.

Imagine the string of a musical instrument : if it sags it cannot produce a note. If it's taut, the note it makes is sharp, then it breaks. It is the right tension in the string that will produce the desired note.

Thanks to TCC, this balance between yin (loose) and yang (tense) can be reached; it is a method of relaxation enabling the different forces (jin) to act fully.

Let us imagine now the string of a bow (Fig.9). It is its energy that enables the arrow to reach its objective. Arrow and sound travel through space carried by the energy of the string. In the same way the body/spirit propel the force that reaches the opponent.



Fig.9

At the end of my talk I would like to comment on the Yinyang theory, which is at the core of TCC (Fig.10).

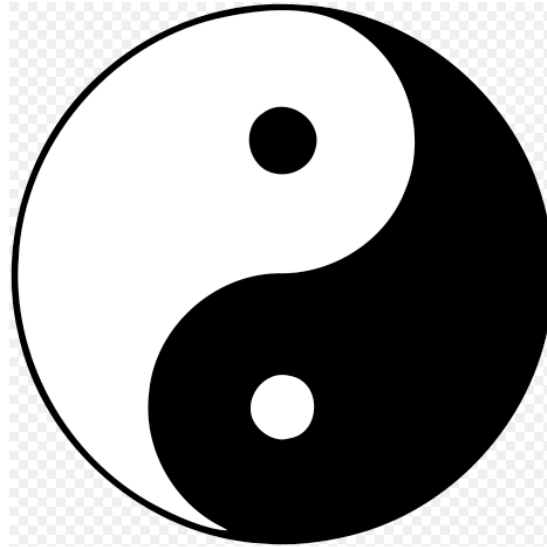


Fig.10

As you know, you could interpret it as the contrast of full and empty or open and closed but the meaning of it is much more profound: a friend of mine, an old chinese Tai Chi Master unveiled it for me. He simply said: "It's relativity" and since then, I understand Tai Chi better. Full is not without empty and open is not without closed.

The yinyang theory rejoins the modern relativity theory.