

Notes on Test of Power

-- Tension and Resistance --

1. To understand test of power in I-chuan training it is essential to distinguish between muscular tension and muscular resistance. The distinction is important because in practicing test of power the student endeavors, among other things, to put his or her mind and body to work in such a way that there are as few periods of rest as possible. This sort of work can be accomplished only by means of muscular resistance. Tension, by contrast, is a sign that the mind and the muscles have in fact stopped working; it is, in a word, frozen resistance.

Consider the relatively straightforward task of turning one's palm over. Stand in combat stance with both palms facing upward. A simple test of power would be to turn the palms to face the floor. Naturally, some of our muscles must be marshaled to provide resistance to the proposed activity, because, in test of power, we do not have the benefit of a real weight to work against. We might therefore avail ourselves of a picture to help conjure the desired resistance: for example, imagine that someone is trying to prevent you from turning your palms over by holding each hand upward to face the ceiling. Your aim is to turn your hands over against that resistance. If we try this exercise with a real person, it is not difficult to feel the body go to work. The challenge of test of power, of course, is that we must do the real thing without the real thing: that is, we must provide our own resistance. And it is this context that the confusion between tension and

resistance is most common. By merely clenching the muscles, one may imagine that one is providing resistance when, in fact, one is simply tightening up.

2. An illustration may help. Let us reflect on the difference between squeezing a tennis ball and squeezing a billiard ball. Imagine this is done in each case quite gradually, not repeatedly. In a sense, both objects provide resistance; they both prevent the hand from collapsing into a closed fist. Because it is elastic, however, the tennis ball, unlike its rigid companion, presses back in such a way that the fingers must work constantly to keep the pressure up. Indeed, the tighter one squeezes the tennis ball, the greater the force with which it seeks to expand. Squeezing a billiard ball, by contrast, always leaves one in a static state of simply holding the ball with various degrees of tension.¹ In both cases, there is muscular work involved, but only in the first case is there resistance of the sort we seek in test of power.

The example can be misunderstood. If we simply crush the tennis ball in our hand, we may find it difficult to appreciate the difference between squeezing these two objects. However, if one takes the time actually to feel the resistance the elastic tennis ball provides, the difference should become clear.

3. To repeat: the relevant difference between the tennis ball and the billiard ball is a function of the elasticity of the former: it presses back against our attempts to collapse it. Now even if we have a very strong grip, there is in practice a limit to how small we can

¹ For all I know, this difference is a matter of degree at the microphysical level, but for training purposes, we are talking about the student's actual experience which, however it may be underpinned by molecular goings-on, does not itself take place at that level.

squeeze the tennis ball, and it is reasonable to wonder whether at the point we reach that limit the experience of resistance must become mere tension. It seems clear that this is possible, but it is not necessary. Certainly, if we actually squeeze a tennis ball for any length of time, we get tired. At that point, there are three options. First, we can simply quit squeezing. Second, we can back off a bit and squeeze down again gradually and then repeat this process. Finally, we can stick with it and keep squeezing. To prevent the resistance from becoming tension, however, we must relax as much as possible in such a way as to continue to feel the ball pressing back against our attempt to crush it. This sort of relaxation while working is called “sung/gain together.” There is no substitute for the real experience here, so I recommend actually trying the experiment with the tennis ball before moving on. See what it feels like to keep squeezing against constant resistance. This is the sensation the student must reproduce in his or her standing or in movement. It is one aim of test of power to make sure that that sensation is not lost.

4. This understanding of the difference between resistance and tension sheds new light on the concept of range of movement in test of power. The basic idea of range of movement is simply that the body as a whole must support the movement of any of its parts. For example, the recommendation to “lift weight with the knees, not with the back” urges exactly this sort of attention to range of movement. Thus, we may easily damage our backs if we try to pick something up – say, a heavy box of books – by reaching out with the hands and bending at the hips; the proper method is to keep the arms and hands close to the body and bend the knees² so as to use the leg muscles to

² And, of course, the ankles and hips!

support the work of rest of the body. So far, however, this example illustrates little more than that the body must be properly position effectively to bear weight. The concept of resistance suggests a way to go forward with this thought. Let us stick with the example of lifting a heavy box of books. Not only must the box be lifted and carried close to the body, it must also not be lifted from too low to the ground. That is to say, the knees cannot be bent too far if they are to provide appropriate support for the movement of lifting. There are no hard and fast rules for how deeply to bend the knees when lifting something, but we all know the experience of trying to pick something up from too deep a squat. It can be done, but it cannot be done (at least not repeatedly) without pain and eventually damage to the joints. Ideally, the knees should flex only to the point where the muscles begin to demand that the leg be straightened. That is to say, the muscles pulling the body in one direction meet with the response of muscles demanding that the body be pulled in the opposite direction. This demand is something that can be felt quite clearly;³ it corresponds to the resistance to being crushed supplied by the elastic tennis ball when we squeeze it. It is easy to see what this line of thought suggests about how low to stand in, say, combat stance: one should learn to stand on the point of resistance. If one stands too low, the muscles of the leg are simply clenched. If does not stand low enough, one never goes to work in the posture.

Consider, now, how all this applies to test of power. Suppose I am testing the support of my movement forward and backward within combat stance. As I shift my

³ In fact, it can be felt quite clearly first in the neck. There is a certain point in squatting down that the body simply wants to stand up again. It is interesting to compare in this connection the use Barbara Conable makes of Dart's notion of "postural reflexes." See Barbara H. Conable and William Conable, How to Learn the Alexander Technique: a Manual for Students (Columbus: Andover Press, 1991).

weight onto my front foot, there will come a point where the resistance the muscles supply to that movement demands that I shift my weight back onto the back foot. Similarly, there is a point where the weight I put onto my back foot generates enough resistance to call for movement again to the front. If I'm simply standing in combat stance, I want to be sure gradually to increase the pressure on that point of resistance. Again, if I stand too low, I'll miss the point, work beneath it, and only clench the muscles of my legs. And if I stand too high, I won't be able to go to work. If I'm moving forward and back, I will want to be sure never to move entirely out of either the front or the back points of resistance.⁴

5. I have spoken so far only of the points of resistance to be found when lifting a weight (either for real as when moving a box of books or "in imagination" in test of power). Such points of resistance, however, are to be found throughout the body and certainly at any joint. Thus, the range of movement at any of those joints should be governed by a concern to find those points of resistance. For example, in learning combat stance, students will ask how far to the front they should turn their heads. The answer is: just far enough to insure that you are working on the spine's many points of resistance. In effect, in turning the head to the left, one is turning the whole spine in that direction. At some point, the muscles that govern those joints will demand that the body turn back. That is (those are, since we're talking about the many different joints in the

⁴ If I'm practicing walking, I want to make sure that I move as seamlessly as possible from one point of resistance to another. In push-hands, I'm listening to where my opponent has stepped beyond his range of movement and lost track of his points of resistance. In short, I'm looking in all cases for "empty" movement.

spine) the point of resistance one should learn to work. Similar considerations apply, of course, to the placement of the elbows, wrists, and hands.

6. In I-chuan training, one sometimes hears about the “five bows.” These are the bows formed the four limbs and by the spine. It will not have escaped the attentive reader’s notion that my talk in these remarks of resistance vs. tension and of the light this distinction sheds on the concept of range of movement is meant to put in different terms the fundamental idea of pulling a bow. Thus, there is in pulling a bow a moment (a “point”) when the bowstring demands to be released. This is the point of maximum resistance, and it is at this point that the student of I-chuan must learn to go to work.

--- Randall Havas (August, 2005)