



Orchard Kung Fu

The Martial Way of Vitality



Pendulum Step Training

I find the *Zhonbi-bu* (Pendulum Step) to be a fascinating study in kinetic energy absorption, redirection and conservation. It is much more difficult to master than the *Shui Long-bu*/Water Dragon Step (which has many challenges of its own) but high-quality performance is predicated upon a solid foundation in the *Shui Long-bu*.

So, the first step is to ensure you have eliminated the errors in the *Shui Long-bu*. You should be able to turn smoothly (inside or outside) with no loss of momentum or balance at a normal circle-walking speed (Speed 2). So, identify and eliminate any Water Dragon Turn problems first.

Essentials for the *Zhonbi-bu*:

1. Maintain an upright ridgepole throughout the turn.
2. Develop the hip and foot flexibility to step into the correct foot position with great precision.
3. Ensure you are clearly shifting your weight from one foot to the other.
4. Keep the *yao* connected and not broken in martial practice.
5. Keep the knees over the toes; no twisting at all.

The essence of the feeling of the pendulum step is found at the moment of reversal of direction of momentum. The simple shift from left to right in *ma bu* (horse stance) gradually loads the right leg as the body approaches the limit of its travel to the right. Typically, you will do this by slowing (losing momentum), stopping (momentum = 0, maximum inertia), breaking inertia, gaining momentum by pushing and moving leftward; similar to an ice skater shushing to a full stop before driving in the opposite direction. This is terribly inefficient in regards to conserving momentum.

It is more effective to redirect your momentum than it is to stop and start. Before exceeding the capacity of your horse stance to shift rightward, your right leg must transform the momentum from right ward to leftward by curving the mass of your body through a three-dimensional ellipse. Your mass must drop and flow along a curve that exists between your two hip joints; they must work freely, and in co-ordination. If you take the *ma bu* lateral shift and add rotation of the *yao* (body) at the level of the *kua* (hip joint – inguinal crease), this momentum-bending ellipse becomes more obvious. Beware the danger of over-emphasizing the horizontal element of the curve; you have nothing without the vertical dimension.

Once you can feel this ellipse reliably, shorten your stance until you can feel it in *wuji bu*. Play back and forth between the extremes of *wuji bu* and *ma bu* until you never lose the elliptical curving of your momentum. Then begin to approximate the shape of a *ba bu* (eight stance, toes inward) as you shift from one foot to the other. Finally, begin to feel it as you change from a



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linear dragon step into a *zhonbi-bu*, reversing direction momentarily 180 and then continuing on your initial path.

After mastering the basics above, try the advanced exercises.

Advanced Exercises

1. Slowly move through the step with precision, working on alignment.
2. Temporarily lift the foot that seals the turn off the ground to emphasize the weight shift. Many people place their feet without shifting in the manner Shifu described above. I find actually lifting the foot tests your balance and control but, more importantly, it forces you to shift your weight. Only allow this action until you are consistently lifting your foot, then dispense with it; your foot should stay on the ground (with only slight weight on it) when done correctly.
3. Increase the speed with which you walk paying attention to the centrifugal forces developed during the rotation. If your butt sticks out, or you lean forward, or your hands are not coordinated with the rotation of your centre, this will cause you to wobble, thus losing (or leaking) energy in multiple directions creating a complex unbalancing force from which it is extremely difficult to recover. You should be able to, in the end perform the step at the same rate/timing that you walk at (every weight shift is one beat).
4. Hold a bowling ball at three-quarters of your full arm extension. Walk at fast enough speed to notice the drag created by the ball at the moment of the change in direction. Exaggerate it to create a sense memory of the real forces involved and notice how it throws your body off. Then notice how you must compensate with your body to control and redirect the force of the ball into the earth and back in the opposite direction. You should bend the elbows (slightly) and draw the momentum into your core and down to your feet so you can feel the weight shift of the feet absorbing, redirecting and driving the weight back in the new direction. Do not misunderstand: you are shifting a weight efficiently from one direction to the opposite losing as little momentum as possible, not dropping it into or bouncing it off of the ground.
5. Do the same exercise with a heavy coat held high on the end of a broom stick.
6. Walk forward in a linear fashion with a partner 12-18" behind you walking at the same pace. At some point perform a *Zhonbi-bu* (at the same pace that you're walking) to either side turning 180 degrees behind you. Your partner should not slow his pace; he just walks forward as if you are not there. Immediately place your hands upon your partner's frame and use the momentum of your turn and the weight shift of your legs to pulse (gently) the partner away from you. Immediately redirect your movement (you didn't stop did you?) 180 degrees back to you original direction and continue walking a few steps.
7. Do the previous exercise on the circle.
8. Perform a *zhonbi-bu* in front of a hanging bag so that when you go into the turn, you can press the bag as in exercise 6.



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9. Do exercise 8 so you press the bag as you come out of the turn (pressing to your travelling direction).

Avoid turning the dynamic pendulum step into a simple stop-and-go change in direction. Study it carefully. It must become an instinctive action that occurs when the situation calls for it rather than something you pre-plan. As long as you continue to notice the need to set up before performing the *zhonbi-bu*, you will find benefit in practicing these drills.

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