

形意十二洪捶

Xingyi Shi Er Hong Chui

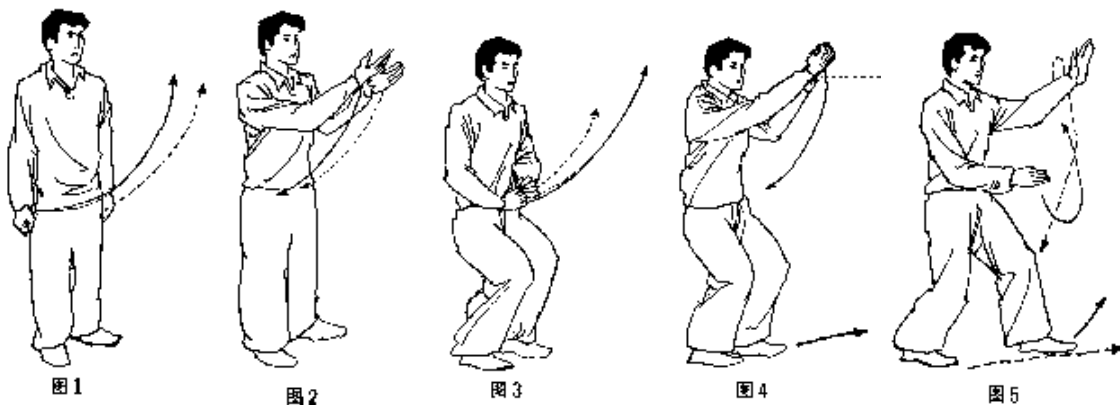
By Pei Xirong

Translated by Joseph Crandall

Shi Er Hong Chui, also called Shi Er Hong Quan, is one of the routines in Xingyi Quan. This routine uses the Five Elements Fists as its foundation and adds movements from the Sparrow Hawk, Chicken, Snake, and Swallow forms of the 12 Forms. The entire routine is made up of 27 movements. The actions of this routine are light and graceful, with many changes. They are brave, fierce, firm, and stable. The dynamics require that it be quick and slow together, and incorporate the mutual interplay of hard and soft. If you do not have a solid foundation in the Five Elements Fists, and do not have a grasp of the main essentials of the movements of the 12 Forms, then it will be very difficult to practice this routine well. Because of this, in the past, very few Xingyi teachers transmitted this routine. Therefore it wasn't taught to very many and is sometimes considered a "secret form" in Xingyi Quan.

1. Beginning Posture: The practitioner faces south and stands straight. The head is erect and the body is straight. Both arms hang down naturally. The fingers are slightly bent and stick to the seam of the pants. The heels are next to each other. The toes swing out 45 degrees making an 八 character form. (picture 1)

Both palms slowly rise up toward the front until they are level with the nose. Slowly inhale and slowly exhale. Strength is in the palm heel and finger tips. (picture 2)



Both palms overturn and go down. The palms face down. Use strength to push downward toward the lower abdomen. When the palms arrive at the navel, they change to fists. The palms face down. Simultaneously, the legs slightly bend. (picture 3)

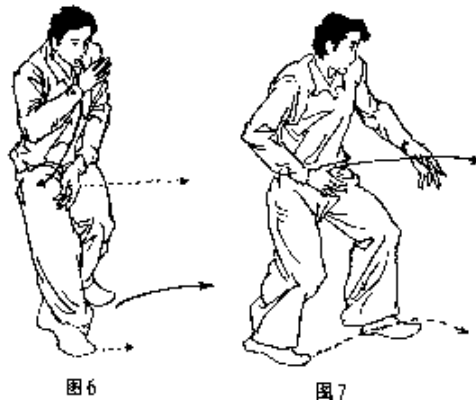
Both fists overturn upward. The palms face inward. The right arm first bends. The right fist passes the front of the chest and drills out toward the upper right front direction. The eye of the fist faces the lower left. The arm is straight and at the same time bent. The fist is level with the eyebrows. The left fist drills up to arrive below the right elbow. The legs are still bent. The right shoulder moves slightly toward the front. (picture 4)

The right fist slightly hooks toward the rear. Then it changes to a palm, overturns and pulls down to arrive in front of the abdomen. The left fist changes to a palm. It goes up from below the right elbow and overturns the wrist. Then it rotates outward to split and press down to the front. The heel of the palm strikes outward. Simultaneously the left foot takes half a step toward the front. (picture 5)

Essential points: All of the actions form a coordinated whole. It is required that the head is erect and the body is straight. Close the lips and close the teeth. The tongue touches the upper palate. Loosen the shoulders and sink the elbows. The tiger's mouths are open and round. The centers of the palms are hollow. Press down the wrists and brace the fingers. Hollow the chest and open the back. Contract the hips and hook the knees. The front is empty and the rear is solid. The toes grip the ground. Breathe naturally. The qi sinks to the dantian.

2. Sparrow Hawk Binds its Body: The right foot steps up toward the front. The left foot rises up next to the top of the right foot and the toes touch the ground. Simultaneously, the left palm inserts to the outside of the right leg with the palm facing the lower right. The five fingers are spread open and the palm faces outward. The right palm goes up and sticks to the left side of the face with the palm facing the upper left. The palm faces outward and the five fingers use strength to open up. The body slightly turns right. The left shoulder faces the front. Both legs bend. The weight is in the right leg. Look toward the front. (picture 6)

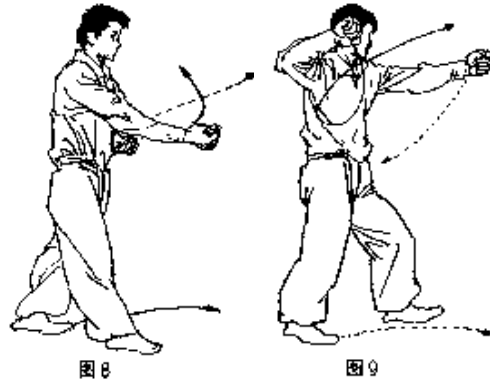
The left foot advances toward the front. Simultaneously, the right palm drops down to the right waist with the palm facing inward. The left palm strikes toward the front. The five fingers open wide. The thumb hooks inward. The tiger's mouth faces outward. The palm faces right. Both knees mutually hook. Both legs are slightly bent. The weight is in the right foot. (picture 7)



Essential points: When doing Sparrow Hawk Binds its Body, the body crouches down very low. The left leg is empty and the right leg is full. The left hand inserts downward and the right hand frames upward and you must advance at the same time. The body cannot lean forward. When the palm goes out, the rear foot must press strongly. The shoulders must be loose, the hips contract, the knees hook, and the toes grip the ground.

3. Sparrow Hawk Enters the Forest: The right foot advances half a step toward the front. The left palm changes to a fist and returns to the front of the abdomen. The right palm changes to a fist and sticks to the underside of the left elbow. As the left arm retracts, the right fist goes out toward the front and then crosses diagonally toward the right. Look at the right fist. (picture 8)

The left foot advances to the front. The right foot does not move. The front leg is bowed and the rear leg is bent. The weight is still in the right foot. The left fist strikes out toward the front. The eye of the fist faces up. Its height is even with the lower jaw. The right fist retracts to the front of the abdomen. Then it rises up past the solar plexus. It overturns and frames upward. When the right fist retracts, the palm faces down. It goes up past the chest. The palm turns to face inward. After it passes the chest, the palm overturns to face the front. It is close to the corner of the right eyebrow. (picture 9)



Essential Points: The three actions of the advance step, the framing fist, and the outgoing fist happen simultaneously as a coordinated unit. When the left fist strikes to the front, the arm cannot be stretched straight. Both shoulders sink down. The left elbow is directly above the left knee.

4. Sparrow Hawk Drills Heaven: The right fist drops down to the front of the abdomen. The palm faces inward. The left fist palm faces down. The left fist slightly hooks inward and then retracts to the front of the abdomen. Simultaneously the right foot steps up toward the front. The left foot does not move. The weight is in the left foot. When the right foot position is fixed, the right fist drills out from the front of the chest. It goes past the mouth and nose area toward the front. Its height is even with the eyebrows. The palm faces the upper left. Look at the right fist. (picture 10)



图 10

Essential points: When both fists retract, the right foot steps up next to the left foot. The right foot hangs in the air, then it drops down to its position. The right fist simultaneously flows and drills out. When the right fist drops from the corner of eyebrow, it must have wrapping energy.

5. Sparrow Hawk Turns Back its Body: The feet do not move. The right fist overturns to face down and returns to the right waist area. The left fist returns to the left side of the waist. Both palms face left. The upper body does not move. (picture 11)

The right foot makes a bow step. The left foot makes a lying step. The body and hands do not change. Both feet pivot on the balls of the feet. The body turns left 180 degrees. As the body turns, the legs shift from right bowed, left straight to left bowed, right straight. When the body turns, both fists retract to the left and right sides of the waist. After the body turns, the right foot steps up to the front. It is close to the front of the left foot. The right fist palm faces inward. It drills out from the front of the abdomen past the front of the chest. The palm faces the upper left. Both feet hook together. Use the left foot to carry the body's strength. (picture 12)



图 11



图 12

Essential points: The turning body movements must be lively. There can be no stopping or hesitation between turning the body and the drilling fist. They are a continuous whole. When turning the body, use the waist to pull the body. The eyes follow the fists. After the body turns, then fiercely turn toward the left. Look mainly at the right fist. The upper body must be erect and straight.

6. Sparrow Hawk Drills to Heaven: The right fist overturns downward and slightly hooks. Then it returns to the front on the abdomen. The left fist flows along the right arm and drills out toward the upper front. Its height is even with the eyebrows. The palm faces the upper right. Simultaneously, the left foot steps up toward the front. The right foot does not move. The front leg bows and the rear leg bends. Look at the left fist. (picture 13)



图 13

Essential Points: The left fist drilling up and the advance step happen at the same time. The body cannot lean forward. The head must push up. The shoulders ought to sink. Both knees mutually hook.

7. Sparrow Hawk Overturns its Body: The left leg bows and the right leg is straight. The weight is in the left foot. Use the balls of the feet to pivot making the body turn right 180 degrees. The body turns from the rear towards the front. Both feet change from left bowed, right straight to left straight, right bowed. When the body turns, both fists retract to the left and right sides of the waist. (picture 14)

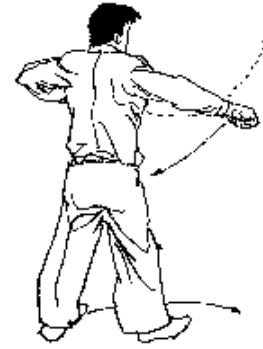


图 14

Essential points: When turning the body, use the waist to pull the body. The body weight moves from the left foot to the right foot. Changing the feet, one straight and one bowed, must have the feel of leaping. The body's left side and left shoulder are in front.

8. Sparrow Hawk Drills to Heaven: The left foot steps to the front. The right fist returns to the front of the abdomen. The left fist follows the body and drills out to the front. The body follows the change. Use the left shoulder to support first. (picture 15)



图 15

Essential points: When the left foot drills out, the body still does not turn. It has the feel of following the body then drilling. The three actions of the drilling fist, the advance step, and turning the body must be unified. It cannot have the feel of first one then the other.

The Sparrow Hawk is a fierce flying bird. It can soar to the highest heavens. Then it pounces down into the wilderness. The Sparrow Hawk's two wings have strength. Its movements are brave and fierce. In practicing the Sparrow Hawk forms of "Binding the Body", "Enter the Forest", "Drill to Heaven", and "Overturn its Body," use the arms to make the wings. They must manifest the firmness, stability, bravery, and fierceness of the two wings. Use the fists to make the tips of the wings. They must manifest the demeanor of valiantly fighting in the air. When doing "Overturns its Body" you must have a vitality that is agile yet stable. These actions must have the feeling of having the ability to drill upward to heaven and going downward to enter the ground.

In the *Martial Arts Classics*, the song says:

**The Sparrow Hawk has the ability to bind its body and enter the forest,
It also has the skills of turning back its body and drilling to heaven,
First do binding the body, then enter the forest,
Drilling to heaven and turning back the body first and last are used.**

9. Flowing Form Heng: Both fists return to the front of the abdomen. The palms face down. Simultaneously, pivot on the balls of the feet. The body turns 180 degrees to the right. After turning the body, the right fist passes the front of the chest and does Heng diagonally toward the right. The left fist doesn't move from the front of the abdomen. The left arm sticks closely to the left ribs. (picture 16)

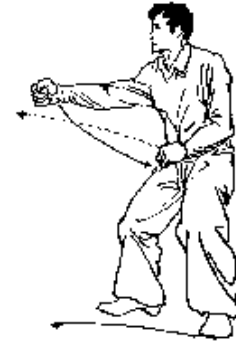


图 16

Essential points: Retracting the fists and turning the body happen at the same time. Both feet are firmly fixed as the right fist does Heng. The body cannot wave or shake when doing the turn. Both legs are slightly bent. The body must crouch down. Turning the body must be quick. The Heng Quan must be quick. Look at the right fist.

10. Turn Back the Body, Left and Right Black Tiger Leaves the Cave: The right fist palm overturns and slightly hooks. Then it returns to the front of the abdomen. The left fist simultaneously does Beng Quan toward the front. The left foot advances toward the front. (picture 17)

Pivot on the balls of both feet. Turn to the right 180 degrees. When the body has turned 90 degrees, the left fist first returns to the front of the abdomen. The right fist then follows the turn of the body and does Heng Quan toward the front. (picture 18)



图 17

图 18

图 19

图 20

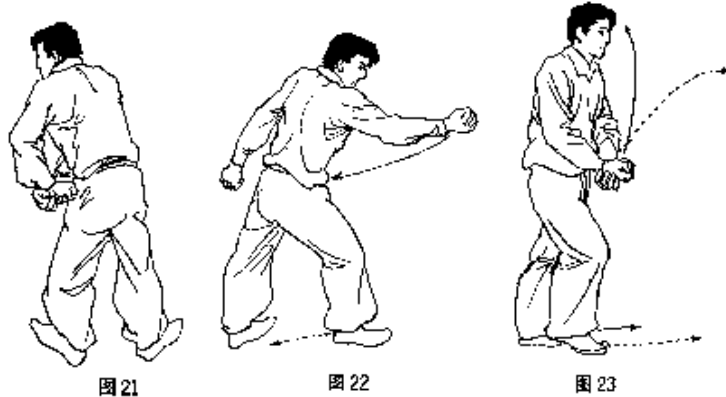
The right foot takes a big step toward the front. The left foot advances half a step. The right fist returns. The left fist does Beng Quan toward the front. The eye of the fist faces up. (picture 19)

The right foot again takes a big step toward the front. The left foot advances half a step. The left fist returns. The right fist does Beng Quan toward the front. The eye of the fist faces up. Look at the right fist. (picture 20)

Essential points: The turning body must use the feet to turn the waist, and use the waist to pull the body. Both fists, one returning and one Heng, must rely on the turning movement of the waist. The direction can have strength. The Heng Quan and turning the body must be a coherent whole. The actions must be neat and orderly. The left and right Beng Quans must have fierce brave strength. The rear foot must press the ground to get the proper fist strength.

11. White Crane Shows it Wings: The body turns left toward the rear 120 degrees. The feet do not move. The right fist palm faces up. Then it arcs to return to the front of the abdomen. The left palm overturns to face up. It makes a small arc from the upper left and returns to the front of the lower abdomen. Both fists mutually fold. The left fist is on the inside. The right fist is on the outside. The right wrist and back of the left hand cross. Both palms face inward. Both legs are left bowed and right straight. The weight is in the left leg. (picture 21)

The body turns 120 degrees toward the right. (The body turns back to its original position.) The feet do not move. Both legs are: left straight and right bowed. Simultaneously, both fists crossed in front of the lower abdomen rise up to arrive above the head. Then they part to the left and right side to strike downward. Their height is even with the chest. The palms face outward. (picture 22)



Both feet jump up. The body turns right in the air. The left shoulder is in front. Both feet drop to the ground. The right foot returns to arrive at the side of the left foot. It stands on the toes. Simultaneously, both fists go diagonally down to arrive in front of the abdomen and cross. Both arms closely wrap the lower abdomen. The palms face up and cross. The right fist is on top. The left fist is on the bottom. The left leg bends. The body crouches down supported strongly on the left leg. (picture 23)

Essential points: This sequence of actions can be divided into three parts. There must be a slight pause between each action. In each action the body, hands, and feet must be coordinated. When the fists cross, the arms must stick closely to the lower abdomen. When the fists go out to show the wings, they must be fierce. Look at the right fist. When the body leaps up and turns, you must maintain the head pushing up and the shoulders sinking. The waist presses down and the anus rises. The breathing must be coordinated with the actions. When retracting inhale. When issuing exhale. The qi sinks into the dantian. Use it help create qi.

12. Pao Quan: The right foot step up to the front. The left foot follows and advances half a step. The right fist goes up from the chest and abdomen. It passes the nose and mouth area then overturns outward. It frames by the right eyebrow area. The palm faces the front. The left fist strikes toward the front. The palm faces right. It is level with the eyebrow. (picture 24)



Essential points: The actions of the hands and feet must be coordinated. Look at the left fist.

图 24

13. Sparrow Hawk Enters the Forest: Both fists overturn. The palms face down. They return to the front of the abdomen. Both arms stick close to the body. The left foot comes close to the right foot. The toes touch the ground. The body is supported by the right leg. (picture 25)

The left foot advances to the front. The right foot follows and advances half a step. The right fist frames upward. The left fist strikes to the front. This makes a flowing form Pao Quan. (picture 26)

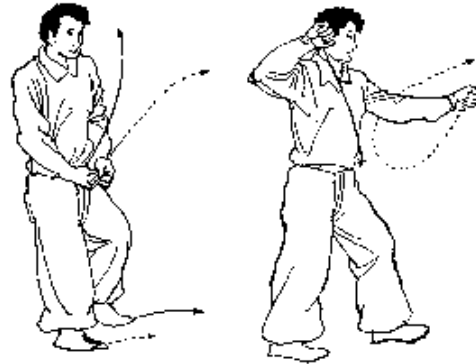


图 25

图 26

Essential points: This is advancing with the left foot and striking with the left fist. It is different from Pao Quan. The body is strongly supported by the right leg. The fist cannot waver or shake.

14. Whip the Horse Form: The feet do not move. The weight moves to the left foot. The left fist palm overturns to face inward. The left forearm blocks toward the right. The right fist returns. Then the left fist arcs diagonally down to the left and returns to the front of the abdomen. This time the body weight moves to slightly to the back leg. The left fist then does Heng Quan from the lower left toward the upper front direction. Its height is level with the nose. The eye of the fist faces the upper right. The rear leg presses the ground to aid the strength. (picture 27)

The left foot takes a big step forward. The right foot follows half a step. The left fist returns to the front of the abdomen. The right fist first faces right, then strikes diagonally upward toward the front. The eye of the fist faces the upper left. The height is level with the nose. Look at the right fist. (picture 28)

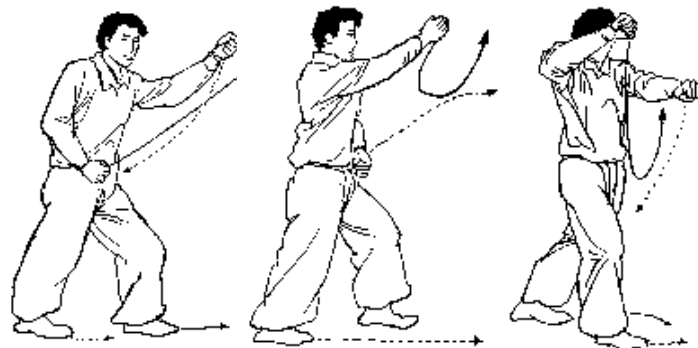


图 27

图 28

图 29

The right foot advances toward the front. The left foot does not move. The right fist goes down toward the inside and returns. Then it goes up and overturns to frame by the side of the right eyebrow. Simultaneously, the left fist goes up and strikes toward the front. The palm faces down. Its height is level with the lower jaw. (picture 29)

Essential points: The left and right Whip the Horse form strikes must use spiral energy. Strike with the eyes of the fists. The body cannot waver or shake. When the fists strike, you must use the rear leg to press the ground to aid the strength.

15. Snake Form: The right foot steps toward the front. The right leg bends 90 degrees. The body crouches down. The left foot retracts next to the right foot. The toes touch the ground. The heel is close to the ground. The left fist changes to a palm and inserts by the outside the right leg. The five fingers are spread open. The palm faces right. The right fist goes down and retracts changing to a palm. Then it inserts from the lower right to the upper left. The right palm is close to the left side of the face. (picture 30)

The left foot steps toward the front. The right foot does not move. Both legs slightly bend. The right palm retracts to the right ribs. The left palm flicks upward. The palm faces right. Its height is even with the navel. Look at the left palm. (picture 31)



图 30



图 31

Essential points: The body squats down. The distance of the left knee from the ground is about the width of one fist. It is close to the side of the right ankle. The right leg uses strength to support the weight of the body. Above and below both hand make a diagonal line. The head must be erect. The body cannot greatly lean forward. The right foot toes grip the ground. When the palm strikes, the actions must be agile and coordinated.

The snake's form coils and rotates. It is curved and straight, bending, sucking, and spitting. The movements are soft, light, and agile. The song says:

**The snake's body is clever and nimble with the lightness to part the grass,
It has the agility of curved and straight. It has the ability of bending and coiling,
Going diagonally left and right diagonal is a leaning strike.
Its horizontal energy is originally created in a hole.**

In practicing this posture, one must successively mutually penetrate. The movements are agile. It uses softness transforming into hardness. Use the palm to make the snakes head whose movements drift from place to place. In stillness, one technique can bring the victory.

16. Golden Chicken Frames Upward: The left foot returns half a step and the toes rise up. Simultaneously, the right palm turns to arrive at the rear area of the waist. The left palm uses the left elbow as a pivot. The forearm rotates from inside to outside. The palm faces outward. (picture 32)

The right foot uses strength to press the ground. The left foot is about half a foot above the ground. Then the left foot uses strength to drop to the ground. The right foot rises up by the side of the left foot. The toes touch the ground and the heel rises. Following this, the left palm overturns and comes around by the right side of the face. The palm faces outward. The right palm turns up then splits straight down. It drops down between the legs. The palm faces left. Both legs bend. The body squats down. The eyes look toward the front. (picture 33)



图 32



图 33

Essential points: The actions of the movements of the left palm and left arm must be large. The left foot jumping up and falling to the ground must make a sound. The body squatting down must be light. Up and down, both hands make a diagonal line. The whole body sits strongly in the left leg. The head must be erect. The shoulder must sink. Both knees mutually hook. The eyes look toward the front. It has the feel of a hungry chicken looking for food.

17. Golden Rooster Crows at Dawn: The right foot takes a big step toward the front. The left foot does not move. Both legs slightly bend. The right hand flicks up in a straight line. The palm faces left. Its height is even with the nose. The left palm retracts down below the right elbow to the front of the abdomen. The palm faces down. (picture 34)



图 34

Essential points: The actions of the hands and feet must be coordinated. When doing the flicking palm, the body must be erect and the shoulders loose. The right palm must use strength.

The actions of the Chicken form routine are fairly difficult. The song says:

**The golden rooster crowing at dawn can stand on one leg,
Shake the feathers issues awesome fighting bravery,
The idea of standing alone is first on the left, then on the right,
Eating rice, fighting for rice, framing upward strike.**

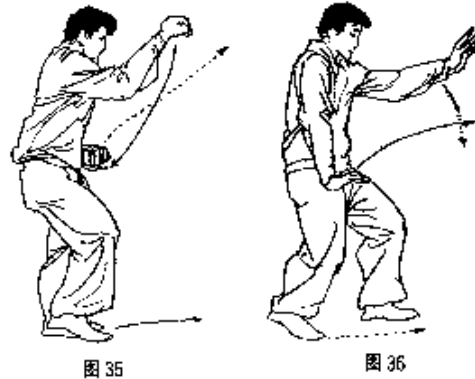
The chickens form's "Ability to Stand Alone", "Awesome Power of Shaking it Feathers", and "Its Courage to Fight" are all body methods, stepping methods, and hand methods, that have the appearance of passing through. It requires causing each part of the body each to pass through, expand and contract, leap up, and balance levelly with the appearance of the shape of a chicken. And concentrate the passing through the whole

body power using springy strength, quick strength, twisting strength and the aspect of the brave strength of the appearance of the chicken. Because of this, in practice, you must pay attention to coordinating each action. The actions are stable and quick.

18. Change Step Pi Quan: The right palm changes to a fist. The elbow bends and the fist slightly retracts to the inside. The palm faces up. The left palm changes to a fist. The palm faces up. It is close to the front of the abdomen. Simultaneously, the right foot retreats half a step. It is level with the left foot. The left foot does not move. Look at the right fist. (picture 35)

Essential points: This is a transition move in the Change Step Pi Quan. Because of this, it requires the actions be used to store strength. The speed of the actions can be a bit slow.

The right foot falls in place. The left foot quickly steps toward the front. It falls and treads toward the front. Then, the right fist goes down and changes to a palm. It retracts to arrive in front of the abdomen. The palm faces down to protect the groin. The left fist changes to a palm. It rises up along the front of the chest and splits toward the front. Look at the left palm. (picture 36)



Essential points: The actions of the left hand and left foot must be coordinated and have strength. The right foot presses the ground strongly. The body cannot lean back. The shoulders must be loose. The arms must be loose. Both knees must hook together.

19. Swallow Dots the Water: The left palm faces down and retracts toward the lower left. The right palm faces down and retracts toward the right outside. Both palms are by the left and right sides of the front of the abdomen. Then the right foot steps up close to the left foot. The right foot toes touch the ground. Both legs bend. The body squats down. Simultaneously the left palm crosses toward the right and inserts. The right palm drops straight down to dot. Both palms make a cross form. The right hand palm faces outward. The fingers point down. The left hand palm faces inward. The finger tips point to the lower right. Look at both palms. (picture 37)



Essential points: This action is divided into two sections. When retracting the palms, both hands must move together. When stepping up and dotting downward, the actions must be an integrated whole. The body is strongly in the left foot. The right foot is empty making a T step. The body must squat down, only it cannot greatly lean forward. The height of the crossed palms is even with the navel.

20. Swallow Spreads its Wings: The right foot steps back one step. The right foot is solid and the left foot is empty. The body's right side. The arms open up to the left and right sides. The height of the right hand is by the ear. The left hand is below the waist. Both hands' palms face outward. Look at the left palm. (picture 38)



图 38

Essential points: The actions of the arms spreading open must be round lively, extended, and spread. The arms must be straight and the shoulders must be level. The head is erect and the body straight. Raise the anus and contract the abdomen.

21. Swallow Spirals to Heaven: Both arms simultaneously twist, turn, and retract to cross in front of the abdomen. The left arm twists toward the left from inside. The palm faces outward. Then use the shoulder as a pivot. Turn the arm to arrive in front of the abdomen. The palm faces the left front. The right arm twists to the right from inside. Use the shoulder as the pivot to get the arm to turn up past the head. Then it drops down by the front of the abdomen. The palm faces the front. The right palm is in front. The left palm is in the rear making a cross. Both arms then, using the shoulders as pivots, simultaneously turn and rotate in clockwise directions. The left arm turns to arrive by the left ear and pause. The arm stretches straight. The palm faces right. The right arm turns to arrive outside the right leg. The palm faces left. Then, the left knee rises up. The toes stretch straight down. The right foot does not move. The body is in the right foot. Simultaneously, the left palm inserts downward by the front of the groin. The palm faces inward. The fingers point down. The right palm rises straight up. It passes the top of the head and overturns to face up. (picture 39)



图 39

Essential points: The overturning, twisting, rotating, turning actions of both arms must be coordinated. The coordination of the hands and feet must be tight. When rotating the arms, you must use twisting energy. When drilling to heaven, you must use rapid energy. The actions above are explained as a first and a second, but in reality must be a continuous whole, with alternate spacing.

22. Swallow Skims the Water: The left foot drops to the ground and slides out toward the front. Then the lying body makes a bow step. Both legs are right bowed, left straight. The left palm follows the left foot as it goes forward. It skims toward the left foot. The palm faces down. The fingers point toward the front. The right palm goes to the rear. Its height is even with the head. Both palms make a diagonal straight line. (picture 40)

Essential points: The actions of the left hand and foot are like one. When skimming the water, the body must be low.

The right leg presses the ground. The body leaps up toward the left side. Both palms, in the air, retract to the front of the chest. Then they open up to the left and right. When both arms bend, the palms face outward. (picture 41)

Essential points: The body must leap high into the air. The upper body is erect. Both arms open outward. It is like a swallow rising into the air.



图 40



图 41



图 42

When the body drops down, the right foot drops down first. The toes point toward the front. The left foot then touches the ground and quickly slides out to the left. The left foot makes a lying step. The body squats low. The right foot makes a bow step. The left palm follows the left foot and skims toward the front. The right palm is by the back of the head. (picture 42)

Essential points: Both feet must drop lightly to the ground. The body must squat down low. Both hands, skimming to the front and rising to the rear, make a straight line. The actions of the left foot dropping to the ground and making the lying step must be quick and cannot have any pauses.

23. Swallow Form Palm: The right foot presses the ground. The body turns left. Both legs are left bowed and right straight. Then the right foot steps up next to the left foot. The body squats down. The right palm strikes to the front. The palm faces outward. Its height is even with the navel. The left palm rises next to the right wrist. The palm faces down. The tiger's mouth and right wrist mutually cross. (picture 43)



图 43

Essential points: The actions of the rising body must be lively. The right foot drops to the ground with a sound. Simultaneously, the right palm strikes to the front. It uses strength in the heel of the palm. The body cannot lean forward.

The Swallow Form has the aspect of the swallow's agile actions. The actions of swallow spreads it wings must extend and spread. When skimming the water, both fall and both rise. The rise of the leaping body soars in the air. The fall must be low and can be close to the ground. It must have the feel of skimming and going out. Therefore the song says:

**The Swallow is agile and can skim the water,
Spread the wing toward the rear, quickly like the wind,
Upholding upward, raise and scoop, three times dot the water,
All the actions must be light and agile.**

24. Sparrow Hawk Spirals to Heaven: The body stands up. Both legs slightly bend. The feet do not move. Then, the right palm changes to a fist. It passes the solar plexus and drills out to the front. The left palm changes to a fist by the front of the abdomen. (picture 44)

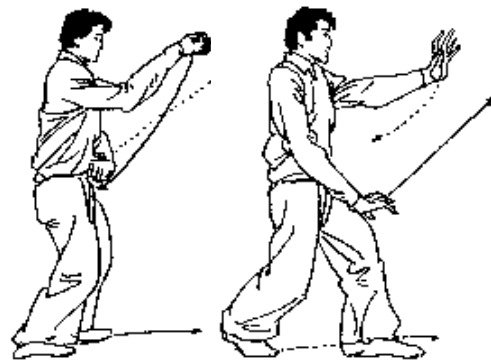


图 44

图 45

Essential points: The actions of both hands happen at the same time that the body rises up. The drilling fist must have strength. Both feet must use energy.

The left foot steps up to the front. The right foot does not move. The right fist retracts. It changes to a palm by the front of the abdomen. The left fist changes to a palm and splits out toward the front. (picture 45)

Closing form (pictures 46, 47, 48, and 49)



图 46



图 47



图 48



图 49