

JAPANESE SWORDSMANSHIP

SHODAN THESIS



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Like the strike of a venomous snake, the Japanese swordsman is a contender to be reckoned with. His attack is almost imperceptible. He is exact. He can be deadly. The battle is typically over in less than ten seconds. This swordsman is representative of the select subset of martial artists who, through disciplined study and practice, appreciate the detail and precision that this sport demands. Rooted in ancient tradition, the Japanese sword and the art of its drawing and cutting have become one of the most precise, efficient and effective styles of martial arts.

Japan's early history was not one of a strong central government or a central leader, but rather one of warring families with their own armies led by samurai. Fighting on horseback with bows and spears, the samurai initially used swords only as a secondary weapon. These first swords were straight and sharp on both sides much like those used by Europeans. ²

In the 15th and 16th centuries, however, swords became a prominent weapon. Because of its advantages for mounted soldiers, the samurai switched from a straight to a curved sword called the tachi. This 2 ½-3 foot long sword, which was sharp only on one side, could be used two-handed or one-handed. When a warrior was on horseback, the curved sword allowed him to draw it without the sword getting caught in his gear. While the straight sword's chopping or stabbing action tended to get stuck in the target and pull the horseman from his mount, the curved sword used a slicing action that easily released from the target. Additionally, the curved sword was quicker on the one-handed draw than a straight one and could cut at a wider range of angles.²

But the curved sword's martial role had reached its peak in Japan. In the early 1600's, Ieyasu Tougawas defeated his rivals to become shogun, or supreme military ruler of Japan. For the next 250 years, a period of relative peace followed. Up to 150,000 samurai wandered around without masters. Because these samurai wanted to maintain their fighting skills in case they were called upon to fight, the practice of

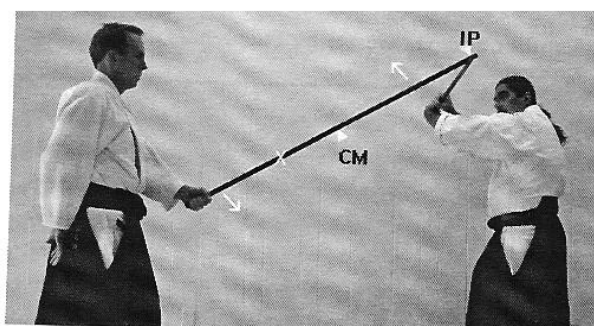
“cross road cutting” became common. A samurai would encounter an innocent person in passing, and simply cut them down for practice. ²

Since families were no longer warring, the Japanese lost the practical opportunity to test swords on the battlefield. New ways of sword testing emerged. The Japanese began testing their swords on criminals. As a punishment for his crimes, various parts of a criminal’s anatomy were cut off or he was executed. A sword tester would witness the efficacy of the sword that the executioner used. Four factors that made a good Japanese sword were strength, hardness, flexibility, and durability. Additionally, the swords were also tested on human corpses, which were stacked on a sand mound. These cuts included cutting off upper and lower limbs, a diagonal cut to take off the shoulder, and another diagonal cut to take off the head and upper chest on the opposite side. The tester then would make many horizontal cuts of the torso, and finally the hardest cut of all would be straight through the corpse’s hip. A rule of thumb was if the sword would cut through three bodies stacked up on each other then it was considered a “good cutting blade”. If the sword would cut more than three bodies it was called a “great cutting blade”.²

Around the mid 1800’s, a change in leadership took place that ended Japan’s isolation from the rest of the world. The shogun was displaced, and the emperor was reinstated as the head of the Japanese government. Japan modernized and firearms became the prominent weapon. This led to a national army patterned after western models, which sealed the fate of the samurai and his sword. Although the prominence of the sword was lost, it was still used as a weapon in the Japanese military into the 20th century. In World War II Japanese officers carried a machined sword called a “gunto”. Made and tweaked to fit the type of fighting and tactics of the day, the sword is still a highly regarded weapon of Japanese history.²

When the sword was initially developed, the process of optimizing the weapon was performed by trial and error, and even sometimes by accident. Although this crude method produced effective designs in the past, today the design of the sword can be understood through modern

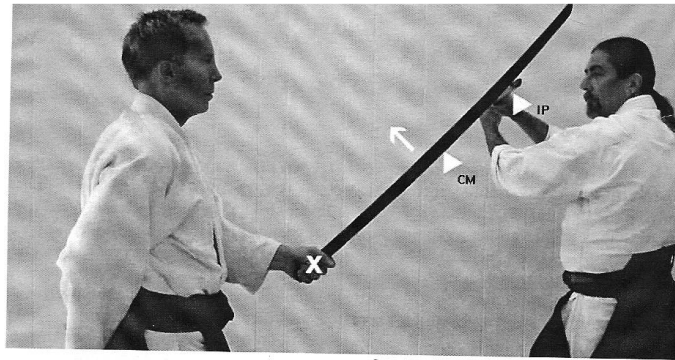
science and physics. In order for the Japanese sword to be used efficiently a swordsman needs to know how to cut and why to do it in that way. For weapons that use a linear strike, such as a sword or staff, they respond in a predictable manner when encountering a target. When the weapon strikes the target it responds to the torque that is applied. Then the weapon tries to rotate around a point further down it and on the opposite side of the center of balance from the point of impact. A sword's response can be predicted by knowing the impact point (IP) and the weight distribution or center of mass for the sword (CM).²



Striking with a staff, X marks the location of center of rotation²

Given a uniform staff where the center of mass (CM) is in the middle of the staff, and one holds it at the end and strikes an object at the tip (IP), the point of rotation (CR) will be $\frac{2}{3}$ down from the point of impact. Because the point of rotation is not secured by the hand, the staff will try to jump out of his hand and likely hit him in the chin. The amount of force from the strike that is absorbed by the hand is minimized if the swordsman's hands are at or near the center of rotation when he strikes an object. This helps to maintain control of the weapon. Adding weight to the hand-held end will move the center of mass and thus the rotation point will move in the direction of the added weight. The cruciform sword used by knights in the Middle Ages was large and heavy because a weight at the end of the hilt called a pommel moved the center of rotation to a point just in front of the hand.²

Conversely, the cavalry saber does not have a pommel to move the center of rotation. Instead, the cavalry saber is designed for using one hand and striking at a point $1/3$ of the length of the saber from the tip. If the point of impact is moved further down, the rotation point will move further down as well. This puts the center of rotation at the desired location which is near the hand.



Saber Strike₂

Although the Japanese sword is generally light, and its momentum relies more on velocity than weight, it has a hand guard which also moves the center of mass toward the hand. This weight adds momentum to the sword without slowing down the velocity of the sword's tip. In addition, the Japanese sword technique uses a two-handed grip on the sword, which places one hand closer to the CM. The traditional Japanese swordsman holds the sword with the center of rotation just in front of the forward hand. This results in great control of the weapon while maintaining the momentum required for cutting efficiency.



Strike with Japanese Sword₂

The katana, whose predecessor was the tachi, is the traditional curved three-foot Japanese sword used today. The blade of the katana is made of tempered iron. The cutting part of the sword is the first 8 to 10 inches. The single cutting edge is called "ha", the back of the sword "mune", or "mine", and the tip "kassiki". The side of the sword away from the swordsman is called "omote" while the side against the swordsman is called "ura". The katana has a two-handed grip, so the sword can be used with one or two hands. With two hands the swordsman gets more power and accuracy, but with one hand, he has a faster draw. A lesser used sword is the one-handed wakizashi which is a smaller curved sword than the katana.₂



Katana (bottom) and Wakizashi (top)₇

Today in Japan the numbers of schools that teach the art of swordsmanship are few compared to other martial arts. Over the years, many different styles of martial arts that use the sword as the weapon

have evolved. The three general categories of martial arts swordsmanship are kendo, Iaido and Battodo. Most Japanese swordsmanship schools do not only practice one of the styles. While individual Japanese schools may focus on one of these categories, they still practice aspects of the other two.

The first schools that taught the techniques of Japanese sword martial arts date back to the 15th century. "Kenjutsu" which means Japanese swordsmanship, is the ancient art of fighting with swords that was taught in the days of the samurai. Out of Kenjutsu, came Kendo, or "way of the sword", which is Japanese fencing. Today, the participants wear a uniform called a "dogi" which consists of a woven top and skirt-like trouser. They also wear protective armor fashioned after the samurai called "bogu" which includes the helmet, body protector, gloves, and hip/groin protector. Practice swords, called "bokken", are made of solid oak and are used for detailed patterns of movement called "kata". Competition swords, called "shinai", are made of bamboo.⁵ In competition, strikes simulate cuts. When one person strikes the other person with the sword, judges award a point. For the one on one match ups, the first person to score two points in five minutes wins. When teams compete, one person on each team faces one person on the other team. Eventually everyone on each team will fence someone on the other team. Whichever team won the most matches wins.⁸



Kendo¹²

Another general category in modern Japanese swordsmanship is Iaido. Iaido means "*the way of drawing with the sword.*" Iaido consist of four movements. The first is "Nukitsuke" the draw, the next is

“Kiritsuke” the immediate cutting motion following the draw, then it is “Chiburi” removing the blood from the sword, and last is “Noto” returning the sword to its scabbard. Some maintain that all the movements while the sword is outside the scabbard are technically called “Kendo”.¹ Iaido student’s main emphasis is on katas. Beginner Iaido students practices katas with dull metal swords, while very experienced Iaido students can use sharp swords.⁵

Although sword attacks are unlikely today, students practice Iaido to enhance awareness of one’s surroundings and develop the ability to deliver fast, precise strikes. This timing is honed through the practice of katas, which are typically very short consisting of between 2 and 4 moves, although some can be longer. Because it is very difficult to block a sword with a sword, blocking in Iaido katas is rare. The goal, therefore, is to disable the enemy before he has a chance to strike. Diligently, the Iaido student practices katas with attacks from the front, the behind, the left, the right, while sitting, standing, or walking. Katas include defending against grabs to attacks from behind fences and even attacks from people on horses. These short katas are generally aimed to beat the other person to the attack. Also eye contact is important in Iaido and is made with the opponent throughout the kata.⁵

While Iaido’s focus is on the skill of drawing the sword and returning it to the scabbard, Battodo’s focus is on the actual cutting technique. In Battodo, the students cut with extreme precision. These cuts require skill and diligent practice to become proficient.

The Toyama Ryu Battodo style came out of the Japanese Toyama Military academy. In 1925, this style was used to teach officers in the school how to use the katana. Throughout World War II the style developed and after WWII Toyama Ryu continued to evolve. Although today, good Battodo instructors are scarce, it has spread from Japan to the United States.

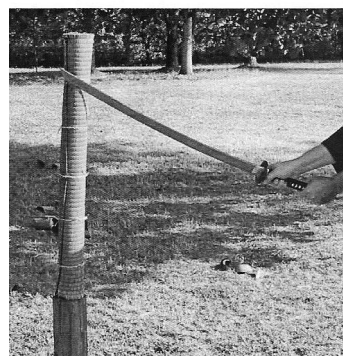
Today there are four Toyama Ryu Battodo federations. The first is the All Japan Batto Do Federation, which is headed by the 8th Dan Ueki Seiji Kaisho. The other Japanese Federation is called the All Japan Batto

Iai Federation led by Matisuo Hataya who is also an 8th Dan. The first American federation is the U.S. Federation of Batto Jutsu which was founded and led by 5th Dan Sensei Bob Elder of Orlando Florida. The last federation is in Los Angeles, California, whose instructor is Toshishiro Obata.₂

Practitioners of Battodo wear a uniform. It consists of two parts: the top jacket and the hakama which is the bottom half. The jacket can be white or dark blue usually. The hakama is most commonly worn as a dark blue or black. Beginners usually wear a white top stitched with black. Also an obi (belt) is worn around the waist.₃



Battodo Uniform ₂



Tatami mat on stand₂

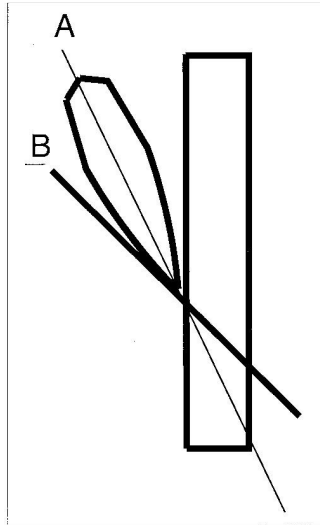
In addition to a uniform, the Battodo swordsman needs a target. Today rolled reed mats are used with or without bamboo. The purpose of the bamboo is to simulate the bony center of a limb or the spinal cord. Now these objects are used to test the swordsman rather than the sword's blade. Specifically, the targets that modern day Battodo students use for cutting are traditional Japanese flooring mats called Tatami mats. These mats are about three feet by six feet. They are made up of reeds and string on the outside with straw on the inside of the mat. These mats are replaced annually, so the old mats are used for targets. Interestingly, these are considered worthless to their

owners but Battodo students treasure them. The old mats are rolled up and tied 5 times with hemp cord or with rubber bands but these will only last about a month and tape will leave a sticky residue on the sword after the cut. Several mats can be rolled up at once to create a bigger target to cut through. Then the mats are soaked in water for 24 hours. This makes the mats easier to cut through. Most Battodo students put the mats on a stand with a pointed dowel rod sticking out the top, so that it will hold the mat steady while cutting.²

In modern day Battodo, cutting is the skill which must constantly be refined. The first step to cutting is having the right grip. Without the right grip, a bad cut will be made and possibly damage the sword and hurt the swordsman. Battodo favors a slightly loose grip of the sword with the right hand up against hand guard. The left hand is behind the right hand. A swordsman wants to grip the sword with the thumb, ring finger, and pinky. He does not want to hold on tightly with the index or middle finger, because if he does, the sword will be off balance. The fingers of both hands should be barely angled towards the tip of the blade. Gripping the sword this way, allows the swordsman to have quick and precise movements and prevents the blade from flying out of his hand. The wrist also should be bent slightly so that it is over the blade. The left hand should hold the end of the handle, and the wrist should be bent slightly inward. That way the wrists are in a line or crossed a little bit.² If the swordsman's wrist positions are not right, the sword will swing too far past the target at the end of the cut or move up or bobble up and down.²

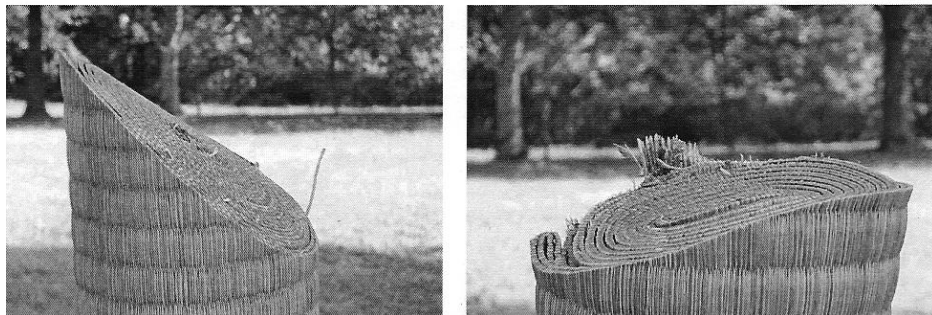
Proper Grip₂Proper Grip – Top View₂

When a swordsman lifts the sword above his head to make a vertical cut his elbows need to bend to make room for his head. Also the sword should never go beyond horizontal when over the head. If one is going to do a diagonal cut from right to left, the right foot is in front. This ensures that when the cut is finished, the swordsman will not end up cutting his own leg. The Japanese swords use a slicing motion rather than chopping one. In chopping wood with an axe, an inclined edge tries to go straight through the object. While with a slicing motion, the tip goes past the object and then is pulled through the object. The curve of the sword helps with the slicing motion. Most of the power and speed comes from the left hand, while the right hand is more of a guide and to keep the angle of the cut constant. Rather than thinking of just hitting his target, the swordsman must also focus on going through the mat and out the other side. When a swordsman does a diagonal cut through a mat, which should be at a 45° angle, the angle of the sword needs to be greater than 45° for a proper cut. The blade thickness will determine exactly what angle the swordsman cuts to get 45° . As shown in the following figure, the blade angle (A) and the cutting angle (B) are not parallel. The cutting angle (B) is tangent to the cutting wedge of the sword₂



Angle of blade vs cutting angle₂

One of the most challenging aspects of cutting is maintaining the same angle throughout the cut. If the cutting angle changes, the cut will be feathered or scooped. Both of these kinds of cut are incomplete and are not acceptable in Battodo. The swordsman wants a clean, straight cut. Another problem is being too close or too far from the target. If one is too close, it simply will not cut the mat properly. If one is too far, the mat will not be cut all the way through.₂

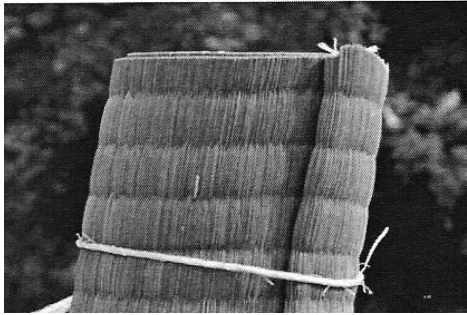
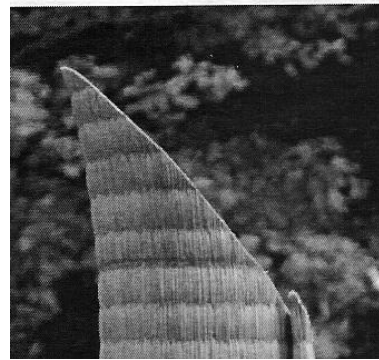


Improper cuts – both of these are scooped cuts due the change of cutting angle during the strike₂

Battodo's first basic cut is a diagonal 45 degree cut that goes from top to bottom. Keeping his back straight throughout the cut, the swordsman raises the sword over his head, and he throws the tip of the sword out then down using the wrists first, followed by the arms, making contact with the target about 1/3 of the way from the tip. Although it doesn't add much to the mechanics of cutting, the reason for starting the diagonal cut over the swordsman's head is a strategic one. Starting directly overhead, the swordsman does not telegraph to his opponent from which direction (right or left) he will strike. Therefore it is the proper way to cut and strike.²

The second type of cut is another diagonal cut that goes from bottom to top instead of top to bottom. With the right foot forward, the sword starts on the left side and goes to the right side. Since in this cut the swordsman is working against gravity, a lot of the power on the strike comes from the hips.

The horizontal strike is the third basic cut in Battodo. In this cut, the swordsman bends his knees and spreads his feet apart with both feet equal distance from the target. The height of the strike is adjusted by bending the knees not by bending the back or moving the sword up and down. The strike begins on the right or left side and is swung at the waist level parallel with the floor. The hips twist during the strike to add power to the cut. During the cut, the sword swings in a circular motion away from the body till it cuts through the middle of the target, then the sword continues to swing back around toward the swordsman's other side.²

Correct horizontal cut₂Correct 45° cut₂

Battodo also includes more advanced cuts. A “returning water” cut is where the first diagonal cut is made from top to bottom of the target then the second cut is a diagonal upper cut made on the falling piece. Another cut is through five or six mats rolled up into one. Another type is done with three to eight mats that are stood up vertically and are cut through diagonally. The last one is where four to nine mats are stacked horizontally on top of each other like bodies in a pile. These cuts of many mats simulate cutting through several bodies.₂

Battodo cuts can not only be done with the katana but also with the wakizashi which is the shorter sword than the katana. Because it lacks size and momentum, it is harder to cut targets with. In order to be effective with the wakizashi, the swordsman must use the rotation of the hip and upper body.₂

The wakizashi is held with the right hand, while the left hand is on the hip and supporting the scabbard. During the cut with the wakizashi, the elbow is kept slightly bent but does not move. The sword is grasped tightly so that it will not fly out of the hand when the strike is made. When cutting with the wakizashi, the swordsman must treat the arm as if it was part of the blade. The swordsman should cut with the center of the curve of the blade.₂

Some battodo, iaido and kenjutsu schools practice cutting on the knees. This is in case the swordsman is attacked while kneeling. To practice this cut, the swordsman must first sit up on his knees, then draw the sword with one hand. Since it is designed to be fast on the

draw, only one hand is used. So the katana should be treated in the same way as the wakizashi.²

In Battodo cutting competitions, all competitors start with zero points and the judges subtract points for imperfections. Specifically, a swordsman is judged on seven parameters: angle, quality, number, line, accuracy, safety, and bent. By angle, all horizontal cuts must be parallel with the floor and all diagonal cuts must be 45 degrees. Between 20 and 50 points can be deducted for any of the following: the cut is too steep or not steep enough; the cut is not of a good quality, (not straight but having a scooped or feathered cut), causing the stand to wobble during the cut; or starting the cut where there was already another cut so that it forms a point called a yama. Not completing the required number of cuts disqualifies the contender. This includes not cutting all the way through the mat, running out of room to do all the cuts, damaging the sword in such a way that the rest of the cuts cannot be completed, or cutting or knocking over the stand. Any type of unsafe movements like cutting towards one's front foot or putting someone else in danger results in automatic disqualification. The last way to be disqualified is if the blade is damaged or bent to such a degree that it will not go back in the scabbard.²

Clearly, the Japanese swordsman is a contender whose skill is honed to the degree of perfection. Today the martial arts of kendo, iaido and battodo are practiced by a select few who appreciate the precision that this sport demands. Begun in ancient Japan during the time of the samurai, Japanese swordsmanship maintains its ancient roots through the traditions of constant practice and study. Like a venomous snake, the proficient Japanese swordsman is quiet yet capable of being deadly in his moment of provocation.

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