Shinai (Bamboo Sword)

Bamboo for Shinai

In the past skilled artisans in Japan produced the shinai, but due to the shortage of craftsmen as well as raw material, today Japan depends on foreign countries to provide substantial quantities of shinai and other kendo bögu (equipment). Countries such as Taiwan, Korea, and China supply an estimated 85 percent of shinai and other equipment. As the quantity of non-Japanese products increases, it becomes more and more urgent to set general standards for shinai and equipment.

Recently, at the request of the Zen Nihon Kendo Renmei, the Japanese manufacturer has set a strict standard for such equipment.

Bamboo is native to many Southeast Asian countries. There are over 600 different species of bamboo. In Japan, varieties include: madake, mōō chiku, hachiku, kurochiku, and others. They grow very well in the south, but have some difficulty in the north. Madake is the most suitable in making shinai because of its thickness, hardness, malleability, and flexibility. The circumference of the bamboo for a shinai should be approximately 18 cm. Only about 150 cm of the bamboo growing above ground should be used for a shinai. The bamboo does not have annual rings like trees, but with each passing winter it will harden its grain. This improves the flexibility of bamboo.
In Kyoto, bamboo is harvested at three years. In Kyushu, it is harvested at five to seven years. The most appropriate month to harvest bamboo is October or November, because the bamboo absorbs less water during these months. For a shinai, the ideal thickness of bamboo is twice as thick at the trunk as at the tip (kensen).

**History of the Shinai**

According to one theory, Kamiizumi Nobutsuna was the first to make shinai from bamboo. He repeatedly split the end of a length of bamboo, then wrapped it with leather. He called this a fukuro shinai (wrapped bamboo sword). Some people think this type of shinai was used during the match between Kamiizumi (Kōzumi) Nobutsuna and Yagyū Muneyoshi. Even today in Yagyū Shinkage ryū, this fukuro shinai is used for practice.

Bōgu consisting of men, dō, kote, and tare was improved and widely used by the Jikishinkage ryū expert Naganuma Shirōzaemon in the mid-Tokugawa period.

Nakanishi Chūzō was the first person to make the shinai in its present form, four pieces of bamboo: tsuru, sakigawa, tsukagawa, and tsuba. The length originally varied, but around 1856, the Kōbusho (Tokugawa military office) forbade the use of a shinai longer than 3 shaku 8 sun (117 cm).

**Parts of the Shinai**

The parts of the shinai are shown in Fig. 1. The monouchi (striking zone), Fig. 1b, is defined as one fourth of the entire shinai located between the nakayui (Fig. 1h) and the kensen (sword tip, Fig. 1e). The tsuka (Fig. 1c) is covered by the tsukagawa (handle sheath, Fig. 1k), which is made of leather. The sakigawa (leather cap, Fig. 1f) keeps all four pieces of bamboo tightly bound at the kensen with the small metal fasteners, tomegane or chigiri, shown in Fig. 1o. The nakayui (middle tie, Fig. 1h), which is a small leather strap, secures the tsuru to the shinai at one end of the monouchi. The komono (Fig. 1i) is used to hook the tsuru as it goes through the tsukahimo. The tsuka himo (Fig. 1j) ties the open end of the tsukagawa and fastens to the tsuru (Fig. 1l), which is usually made of nylon or koto (a Japanese musical instrument) strings. The tsuba (Fig. 1m) is made of leather or plastic, and the tsubadome (Fig. 1n) is made of rubber.

The term shinai derives from “shinau,” meaning to flex. This is in contrast to the real sword and bokken (wooden sword), both of which are rigid.
Manufacture of the Shinai

The art of shinai-making requires splitting the bamboo along the grain, correcting the curvature, and shaving the bamboo into an appropriate thickness. It takes about ten years to master these skills. The most proficient craftsmen can make only thirty to forty shinai a day. The bamboo harvested in the autumn and winter months are split roughly and dried in the shade for approximately six months while being exposed to the dry winter air. Craftsmen avoid drying bamboo in direct sunlight because sunlight robs the bamboo of resin and flexibility of grain.

It takes approximately twenty steps to make a shinai. When splitting the bamboo, craftsmen prefer to use a machete that cleaves bamboo along the natural grain. In contrast, a machine will cut straight regardless of the natural grain, thus severing the fibers. Where the bamboo curves, craftsmen straighten it with a tamegi (straightening
Purchasing a Shinai

When you purchase a shinai, you must pay close attention to the following characteristics.

Thick wood and relatively light weight indicate that the bamboo was young. Slightly reddish coloration is preferable over light coloration. Dark stains near the knots are thought to indicate stronger bamboo. Also, a clear and prominent grain over the cut surface is thought to indicate durability in bamboo. If a fine powder spills from the shinai when it is swung, it may be worm-infested. Examine it carefully for evidence of worm infestation, such as the presence of tiny holes.

When buying a completed shinai, make sure that the sakigawa (leather cap) is not too thick, that the tsukagawa (handle sheath) is firm, and that the tsuru (string) is taut. A nakayui (middle tie) should be in the correct position and tightly bound. A loose tsuru or loose nakayui can cause the sakigawa to come off the shinai. The danger is that when you strike the men (headgear), the sakigawa can come off and the tips of bamboo can pass between the mengane (men bars) to pierce your opponent’s eyes.

Make sure that the bamboo piece does not cave in and slide between adjacent bamboo pieces when you press it with your fingers. This happens when the individual pieces are not well balanced. You can check this by looking at the neat and even grooves between the individual pieces. A good shinai has greater tensile strength. If you bend the shinai by pressing the tip on the floor, it should spring strongly.

It is common to have four knots in a shinai. The ichiban bushi (first knot) is at the largest diameter of the shinai. There are two knots located above and one knot located below the ichiban bushi. It is prudent to buy two or three shinai with the knots in similar locations so that when one shinai is damaged, you can salvage the undamaged parts to make a new shinai. When assembling the different pieces of bamboo into a new shinai you must make a saw mark at the same level on each piece so that the tomegane or chigiri (small metal fastener) fits into all pieces at the same level. Another way to alter a shinai to your taste is to shave off bamboo near the tsukagashira (butt end) to form an oval called a koban (an old Japanese oval-shaped gold coin). It is relatively simple to shave about 10 cm of tsuka (handle) near the tsukagashira with a plane to form an oval. Some people like the feel of an oval-shaped tsuka in their hands because the tsuka of a real sword is shaped like a koban. The four pieces of bamboo should be of equal thickness.
It is preferable to buy a shinai made from a single bamboo. However, shinai are often made from different bamboos, because south-facing knots are slightly higher than those facing north, due to the differential growth rates between the north and the south sides of the bamboo. Inspect your shinai carefully to make sure it is free of any damage or physical defects.

**Size of the Shinai**

The most appropriate length of a shinai for an individual kendo practitioner is from ground to about the height of the chest (see Fig. 2a). The weight of the shinai should be such that one can freely swing it without strain. It is easier to swing the shinai when the center of
gravity is closer to the *tsuka*. The diameter of *shinai* varies and depends on individual preferences. However, the *shinai* must fall within the minimum and maximum standard range of weight and length set by the Zen Nihon Kendo Renmei. To get the proper length of a *tsuka*, grab the *shinai* at the *tsuba* with your right hand and bend your right elbow. The *tsuka* end should touch the inner portion of your right elbow (see Fig. 2b). The following tables show *shinai* length and weight regulation (1999 revision).

### Table 1: Shinai Dimensions for *Ittō*

<table>
<thead>
<tr>
<th>Gender</th>
<th>Middle School</th>
<th>High School or Equivalent Age</th>
<th>University and Adult</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>Both</td>
<td>≤114 cm (37)</td>
<td>≤117 cm (38)</td>
</tr>
<tr>
<td>Weight*</td>
<td>Male</td>
<td>≥440 g</td>
<td>≥480 g</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>≥400 g</td>
<td>≥420 g</td>
</tr>
<tr>
<td>Diameter</td>
<td>Male</td>
<td>≥25 mm</td>
<td>≥26 mm</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>≥24 mm</td>
<td>≥25 mm</td>
</tr>
</tbody>
</table>

### Table 2: Shinai Dimensions for *Nitō*

<table>
<thead>
<tr>
<th>Gender</th>
<th><em>Daitō</em> (long sword)</th>
<th><em>Shotō</em> (shorter sword)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>Both</td>
<td>≤114 cm (37)</td>
</tr>
<tr>
<td>Weight*</td>
<td>Male</td>
<td>≥440 g</td>
</tr>
<tr>
<td></td>
<td>Female</td>
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<tr>
<td>Diameter</td>
<td>Male</td>
<td>≥25 mm</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>≥24 mm</td>
</tr>
</tbody>
</table>

*The weight of the *shinai* without the *tsuka*. The diameter of the *tsuka* should be about 9 cm.

*Shinai* are customarily measured by *sun* (39 *sun* is *sanku*; 38 *sun* is *sanpachi*; 37 *sun* is *san nana*; and 36 *sun* is *saburoku*).

1 *shaku* = 10 *sun* = 100 *bu* = 30.22 cm = 11.9 in.
1 *sun* = 10 *bu* = 3.03 cm = 1.19 in.
1 in. = 2.54 cm = 0.84 *sun*
1 *oz* = 28.6 g; 100 g = 3.5 *oz*
**Types of Shinai**

*Shinai* come in different lengths and weights but the shapes also vary (see Fig. 3). The *dō* area (first knot above the *tsuka*) of the *shinai* determines the type. The *dōbari shinai* (Fig. 3a) is the thickest. Its center of gravity is near the handle, making it effective in *suriage waza* (sliding

![Fig. 3. Types of shinai: (a) dōbari (round); (b) chūbuto (medium); (c) hosomi (slim).](image-url)
up technique). The chûbuto shinai (Fig. 3b) is thicker than the hosomi and thinner than the dôbari. The hosomi (Fig. 3c) is the thinnest.

**Care of the Shinai**

As is true with any kendo equipment, the shinai should be used with great care. Shinai represents a Japanese sword that was considered to be a spirit of the samurai and as such it should be handled with respect. Never step on or step over a shinai. If you have to go to the other side of a shinai, remove it first or go around it. Never use a shinai as a cane or lean on it. Young kendo practitioners should be taught not to play around with the shinai before and after practice. When practice is finished store the shinai in a shinaibukuro (shinai sack) and keep it in a cool place.

Depending on how often and intensely you practice, your shinai may last anywhere from a few days to many months. The durability also depends on the material the shinai is made of. The synthetic carbon shinai lasts longest but it does break eventually. A heat- and smoke-treated shinai is fairly hard and durable. This type of shinai is treated to retain the natural resin of the bamboo longer and is more brownish than natural bamboo. The natural bamboo shinai is weakest of the three but with proper care it can last longer.

Probably the most detrimental element to the life of shinai is drying of the bamboo. A shinai should be disassembled and oiled thoroughly before use. It is ideal to oil after each practice but if this is not practical, you should take it apart and oil it at least periodically. Use a soft cloth saturated with light oil to wipe the bamboo. If the shinai splinters you should immediately take it apart and repair it so it does not split completely and injure your opponent. You can repair the splinters by shaving off the splintered area with a knife or plane. Also it is important to shave off the sharp edges of the length of shinai with a knife or plane to keep the bamboo from splintering. You should use a rubber bottle opener or something of similar, resistant material to remove the tsukagawa to avoid excessive stretching of the leather. If the tsukagawa is too loose, moisten it, then dry it in a cool area, allowing it to tighten over the tsuka as it dries.

**How to Tie the Shinaibukuro**

The shinaibukuro comes in many different styles. The modern shinaibukuro comes with zippers and snaps, and the use of it is self-explanatory. But the traditional shinaibukuro must be tied, as shown in Fig. 4.
Fig. 4. Tying the shinaibukuro:
(a) Step 1: Put two cords together and wrap them around the shinaibukuro. Pass the cords under the last two cords wound, leaving a loop on each side, as shown in (a).
(b) Step 2: Turn over the free ends and fold one loop over them, as shown in (b).
(c) Step 3: Pass the end of the second loop through the loop made by the folded free ends, as indicated in (b). Then pull the two loops and free ends to tighten the knot, as shown in (c).
The Chigiri or Tomegane (metal fastener)
A small square metal fastener fits into the grooves to secure the four pieces of bamboo. When different pieces from different shinai are put together, new grooves are cut evenly to fit the new shinai, as illustrated in Fig. 5.

How to Tie the Tsuru (String) and Nakayui (Middle Strap)

The Sakigawa (Leather Cap)
The sakigawa (Fig. 6) plays an important part in making the shinai safe. The thickness of the sakigawa is 2 mm and with the 22 mm thickness of the shinai, the diameter of shinai over 37 sun is 26 mm (22 mm + 2 mm + 2 mm) and 25 mm (1 mm less) measured at 1 cm from the tip for high school students and adult women, respectively. In nitō ryū (the two-sword school), the daitō (long sword) is 25 mm for men and 24 mm for women. The shōtō (short sword) is 24 mm for both men and women. This is considered a safe diameter because the mengane are up to 15 mm apart at the widest opening (monomi or mushamado). All sakigawa are 5 cm in length. If your sakigawa becomes damaged, you should replace it with a new one. You should not attempt to mend it. The damaged sakigawa could expose the tip of shinai and endanger your opponent. One end of the tsuru is tied

Fig. 5. Grooves cut to fit the new shinai: (a) original groove; (b) with chigiri; (c) new groove cut evenly with original groove; (d) new groove cut evenly with original groove.
Fig. 6. (a) Dimensions of the *sakigawa*; (b) inside view of the *sakigawa*; (c) schematic diagram of the *sakigawa*.
securely to the sakigawa using a moyai musubi (bowline knot). The sakigawa wraps around the tip of the shinai with the sakigomu in it.

The three types of sakigomu (rubber stopper) are shown in Fig. 7. Fig. 8 illustrates how to tie the tsuru to the sakigawa in a moyai musubi (bowline knot). Fig. 9 shows how to tie the tsukahimo. Fig. 10 demonstrates how to tie the tsuru to the tsukahimo. See Fig. 11 for tying of the tsuru.

Fig. 7. Three types of sakigomu: (a) side views (17–24 mm); (b) top views.
Fig. 8. Tying the *tsuru* to the *saki-gawa*: (a) Insert the *tsuru* into the tiny hole in the *saki-gawa* from the inside, bring it halfway around the outside of the *saki-gawa*, and reinsert it from the outside. (b) Make a loop in string 2. (c) Insert string 1 through loop 2. (d) Bring string 1 behind and around string 2, and back through the loop. (e) Tighten the knot by pulling strings 1 and 2.

Fig. 9. Tying the *tsukahimo*: (a) Thread the *tsukahimo* through the slit in the cuff of the *tsukagawa* and reinsert it into a slit at the opposite side of *tsukagawa*. Insert one end of the *tsukahimo* into a slit in the opposite end of *tsukahimo*. (b) Pass the free end of the *tsukahimo* under and over the joined ends to form a loop. Insert the free end into this loop. (c) Tighten by pulling the loose end. (d) Schematic diagram of the knot.
Fig. 10. Tying the tsuru to the tsukahimo: (a) If you are using a komono, the tsuru goes through the lower portion of it. (b) If you are not using a komono, thread the tsuru through the tsukahimo, then thread the tsuru through its own loop, as illustrated.
Shinai (Bamboo Sword)

How to Use the Komono (Leather Hook)

Komono literally means “small piece.” It is a small piece of leather that can be cut off the nakayui (middle strap). You can make a hole or a slit in the middle as illustrated in Fig. 12. The komono serves as an anchor to the tsuru, as it loops around the tsukahimo.

Fig. 11. Tying the tsuru: (a) Pass the tsuru under the knot of the tsukahimo, then tie the tsuru in an overhand knot around the tsukahimo and itself. (b) Wrap the tsuru tightly around the tsukahimo several times, then tie it off with another overhand knot. (c) Schematic diagram of the tied tsuru.
The Nakayui (Middle Strap)

The purpose of the nakayui is to secure the tsuru (string) to the shinai to prevent the sakigawa from coming off on impact, as the shinai bends and the distance between the tsuka (hand guard) and kensen (sword tip) shortens. The nakayui is tied at a quarter of the length of the shinai (including the tsuka) from the kensen. To prevent the nakayui from moving around during practice some instructors recommend a knot in the tsuru. The nakayui is tied securely to the shinai, as shown in Fig. 13.
How to Trim the Tsukagawa (Leather Handle Sheath)
Occasionally it is necessary to trim the tsukagawa to fit different shinai. See Fig. 14.

Fig. 13. Tying the nakayui to the shinai: (a) Tie a small knot in the tsuri to secure the nakayui. Insert the free end of the nakayui into the hole at the other end of it. (b) Alternatively, the tsuri can go through the opening of nakayui. (c) Wrap the nakayui around the shinai three times. Hook the free end around the tsuri. (d) Loop the free end of the nakayui around the tsuri on the other side of the wrap. (e) Bring the free end back up and around the tsuri once again. Then tuck the free end under the loop. (f) Tighten the nakayui by pulling the free end.
The Bokken or Bokutō (Wooden Sword)

Bokken or bokutō means “wooden sword.” The bokken is made from a variety of woods such as oak, cherry, loquat, and ebony. The bokken is often used during Nihon Kendo Kata practice. The parts of the bokken are shown in Fig. 15.

Fig. 14. Shortening the tsukagawa: (a) Cut the tip off with a knife or scissors to the appropriate length. There are two ways to proceed: Either (b) cut slits along the rim and thread a string through, or (c) make a gather and thread a string through the rim. (d) Push the edges inward, which will bury the end. (e) Purse the end by pulling the string. Tie the string tightly in a square knot or surgeon’s knot.
The Japanese Sword

Japanese swords are used for Nihon Kendo Kata or iai practice and performance. It is important to be familiar with all the parts of the sword so that you can handle it with safety and respect. The parts of the Japanese sword are shown in Figs. 16, 17, 18, and 19.
**How to Hold the Shinai**

It is important to hold the shinai correctly. The left hand grasps the *tsuka* with the base of the little finger wrapping the *tsukagashina* (Fig. 20a). The ring and middle fingers snugly grasp the *tsuka*, but the index finger and thumb grasp it loosely. The right hand is about one fist width above and has a grip like the left (Fig. 20b). Grasp the *tsuka* tightly with the little and ring fingers, but less tightly with the middle finger. The index finger and thumb should hold the *tsuka* very lightly. Both thumbs point toward the floor, and the web of each thumb and index finger form a V over the midline of the *tsuka* (Fig. 20c).
Fig. 18. Parts of the Japanese sword (handle, hand guard, and blade): (a) habaki (metal collar or sleeve); (b) seppa (washers/spacers); (c) tsuka (hand guard); (d) fuchigane (brim pommel); (e) tsuka (hilt); (f) mekugi (rivet); (g) menuki (hilt ornament); (h) cross section of the blade.

Fig. 19. Parts of the Japanese sword (schematic of hand guard): (a) habaki (metal collar or sleeve); (b) seppa (washers/spacers); (c) tsuka (handguard); (d) fuchigane (brim pommel); (e) kashiingane (butt pommel); (f) mekugi (rivet); (g) menuki (hilt ornament).
Fig. 20. Holding the shinai: (a) View from the left. The left hand grasps the tsuka with the right hand placed one fist length ahead. (b) View from the right. The base of the little finger of the left hand wraps the tsukagashira. (c) View from front. The web of each thumb and index finger form a V over the midline of the tsuka.