
MUSIC PRINCIPLES APPLIED TO AIKIDO TECHNIQUES PART II

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ABSTRACT

In Part I of this article (Paz-y-Miño C. & Espinosa, 2004) we discussed how some music principles can be applied to various aspects of aikido training, including stretches, single-person routines to develop balance and mind-body coordination, rolling and falling. Here we expand on this idea and discuss how these principles can also be applied to partnered techniques of neutralization, projections-throws, weapons, breathing exercises, and meditation. Our goal is to provide students and instructors with novel tools for learning and teaching aiki arts.

INTRODUCTION

In Part I of this two-part article, we indicated that *aikido* (*aiki* = harmony; *do* = path, the way of) and music have numerous similarities, particularly rhythm and harmony. We stated that a technique's flow of movement, its rate of speed, and the congruent and pleasant arrangement of body motions define aikido's rhythm and harmony. Simple music notation and a percussion instrument (see Supplement) were used to discuss how music principles can be applied to various aspects of aikido training, including stretches, single-person routines to develop balance and mind-body coordination, rolling and falling. Here we expand on this idea and discuss how these principles can also be applied to partnered techniques of neutralization, projections-throws, weapons, breathing exercises, and meditation. Not only aikido but every martial art—or physical discipline—has its own pace, which the student should discover. Learning to move according to this rhythm will allow the martial artist to adequately match an attack, blend and flow with it, and finally neutralize it.

THE CONCEPT OF TEMPO IN AIKIDO

An essential component of aikido's rhythm is its tempo. We define aikido tempo as the rate of speed of an aikido technique or routine. It is possible to mark aikido's tempo by counting, or chanting, numbers at specific intervals. A more precise method is to use a metronome, a device which produces clicks (e.g., every second) to indicate the tempo of music (see Supplement). We recommend adjusting the metronome to 60 beats per minute (one second = one unit of aikido music); this pace induces appropriate mind and body coordination while practicing aikido. Slow and gentle training will let the student discover when to speed up.

All photos courtesy of
A. Espinosa & G. Paz-y-Miño C.

SUPPLEMENT: BASIC AIKIDO MUSIC NOTATION

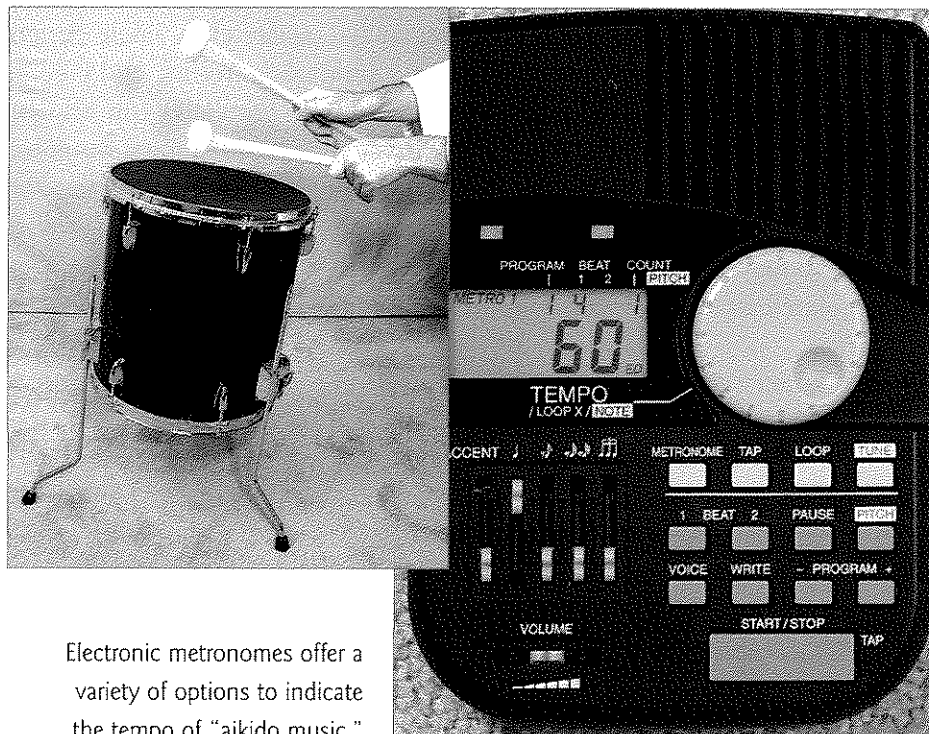
Like in music, the duration of aikido techniques can be indicated by different types of notes (Figure 1). Here we arbitrarily assign the following duration to these notes: whole note = four seconds; half note = two seconds; quarter note = one second; and eighth note = half a second. The unit of aikido music is the quarter note. In consequence, one whole note equals two half notes, one half note equals two quarter notes, and one quarter note equals two eighth notes (Figure 1-A; there are also other notes in music, like the sixteenth, thirty-second and sixty-fourth notes; they are too fast to illustrate the aikido principles discussed in this article). All notes have their corresponding rests or pauses (Figure 1-B) which in music indicate silence. In aikido, however, there is no silence, just pause.

Aikido music is divided into equal parts called measures (Figure 1-C); bar lines indicate the beginning and end of a measure. Two dots, placed between double bars, indicate repetition of the aikido sequence within one or more measures. Double bar lines show the end of an entire aikido routine, which may include numerous measures.

Time signatures and note values: Time signatures are placed at the beginning of a sequence of aikido music. The most common time signature is 4/4 which consists of four quarter notes per measure (one per second; Figure 1-A). The top number shows the number of beats on the drum or the number of vocal counts chanted by the aikido practitioner (i.e., one, two, three, four...) in each sequence of aikido techniques. The bottom number simply specifies that the note in each beat corresponds to a quarter note.

In Figure 1-D, the 4/4 time signature indicates one arm circle per second, which is represented by the four quarter notes. The aikido practitioner shall count out loud each number, matching the rhythm kept by a drummer or a metronome.

A floor tom-tom drum or any other percussion instrument with a loud-low-frequency vibration can be used to mark aikido's tempo.



Electronic metronomes offer a variety of options to indicate the tempo of "aikido music."

whole note 4 sec half note 2 sec quarter note 1 sec eighth note 1/2 sec

whole note rest 4 sec half note rest 2 sec quarter note rest 1 sec eighth note rest 1/2 sec

First measure: bar lines indicate the beginning and end of a measure Second measure Third measure: two dots, between opposing double bars, indicate repetition Fourth measure: double bar lines (far right) show the end of a routine

First measure: starting position, left arm up. Counting begins. Whole note rest, 4 seconds, no movement, only ready posture! Second measure: "arm circles" with the left arm begin. Third measure: "arm circles" with the right arm begin.

I-A: Types of notes used in aiki music.

I-B: Rests or pauses.

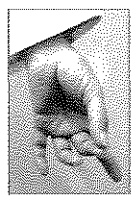
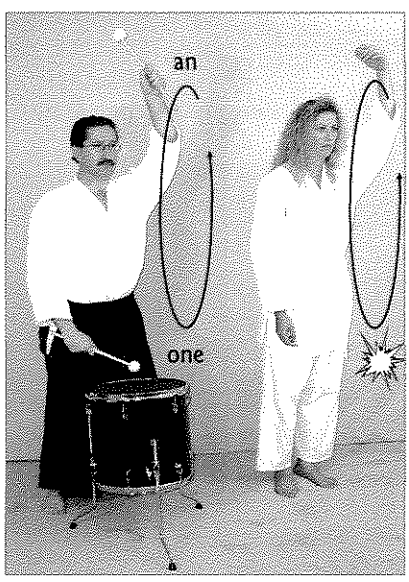
I-C: Measures and their notation and symbols.

I-D: Arm "circles."

FIGURE I

This apparently simple exercise is the foundation of numerous aikido routines, particularly wrist techniques like the ones shown in Figures 2-6. Rather than "arm circles," the aikido practitioners perform elliptical trajectories with their hands, while the shoulders remain relatively immovable. The practitioners allow their hands to fall with gravity and catch them when the hands reach the lowest point in the elliptical trajectory; then, they take their hands up again. The student on the right matches this point in the trajectory with the rhythmic beating of the drum (left) and uses an excellent learning/teaching tool, the finger tap (borrowed from music) to accurately match her physical action with the rhythm (inset).

Note that each down movement of the arm circle corresponds to a drum beat (or a finger tap). Every time that the arm is up, the drum stick is also up. In correct aikido music this "up" should be chanted as "an." Therefore, the aikido practitioner shall count "one an, two an, three an, four an," emphasizing the down part of each arm circle and matching it with the count of the number. The up portion of the arm circle should be gentle while it matches the "an" part of the chanting. Because a quarter note equals one second (above), the "an" is chanted half second apart between two counts (i.e., one an two an three an four an). This simple method gives aikido practitioners an even better sense of timing (i.e., no unequal gaps or silence—pauses—between counts: e.g., one..... two... three..... four...). This principle also helps us indicate how fast a technique should be performed. For example, techniques with weapons (Figures 7-9) are usually practiced at a frequency of one every half second (time signature 2/4), which corresponds to eighth notes (above). In contrast, breathing exercises or meditation (Figure 11-12) are usually performed at slow tempo: one every sixteen (4 whole notes) or one every second (quarter note), respectively.



TECHNICAL SECTION

In the following figures we indicate how to apply basic music principles to diverse aikido routines. Adopt the starting position (“pause”) as indicated in every figure before proceeding to chant out loud the aikido tempo (set the metronome at 60 beats per minute).

PARTNERED NEUTRALIZATION TECHNIQUES

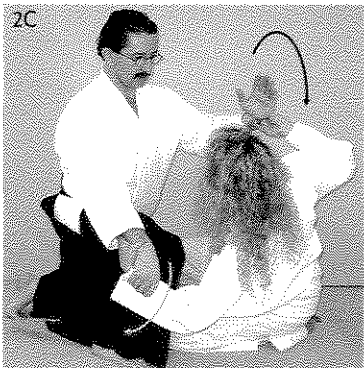
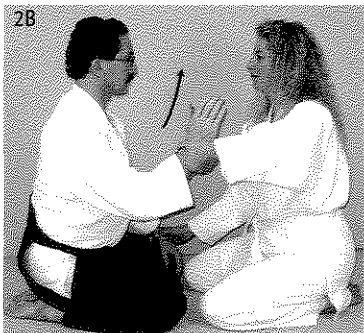
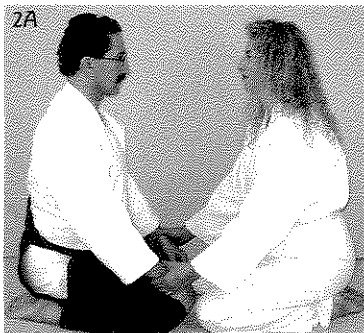
Projections & Throws

In this section, we divide all aikido techniques into various components—discrete steps—that match the specific counts of a time signature, either 4/4 or 2/4. With practice, however, all these techniques should be performed in one continuous motion.

FIGURE 2

Lateral projection from *seiza*

2-A Starting position: sitting *seiza*, attacker (right) performs two-handed wrist grab of both wrists. Out-loud counting begins (time signature 4/4). 2-B one an: defender (left) moves right hand upwards, fingertips pointing to sky. 2-C two an: defender’s left hand mirrors the initial motion of the right hand and then he leads the attacker out and back down to her rear diagonal side. Note how the defender’s right knee rises up and how he twists the attacker’s wrist with his right hand at the same time that the left hand addresses the direction of her movement. 2-D three an: attacker turns completely over her hip and break falls. 2-E four an: defender finishes with a neutralization: knee over the attacker’s head and continuous twisting of her arm.



1 an 2 an 3 an 4 an 1 an 2 an 3 an 4 an
 Starting position (pause) 2A 2B 2C 2D 2E

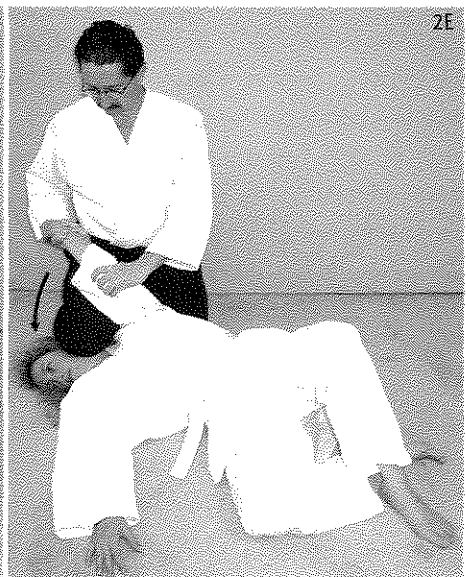
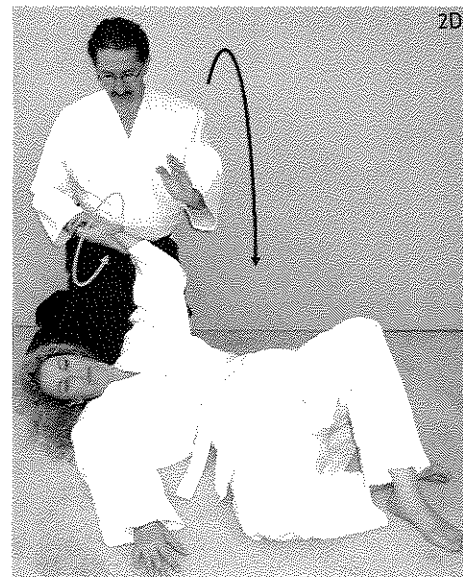
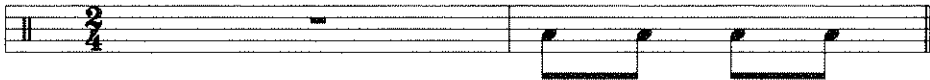


FIGURE 3

Backward projection from standing: "Heaven-Earth" throw

3-A starting position: standing, attacker (left) performs two-handed wrist grab of both wrists. Out-loud counting begins (time signature 2/4). 3-B one: defender (right) moves right hand upwards (Heaven), fingertips pointing to sky, while the other hand remains extended toward the mat (Earth). 3-C an: defender steps in (short step with the right foot) and raises his right hand even further. 3-D two: defender steps even further with the right foot while leading the attacker back down. 3-E an: attacker falls backward onto the mat.



1 an 2 an 1 an 2 an
Starting position (pause) 3A 3B 3C 3D 3E

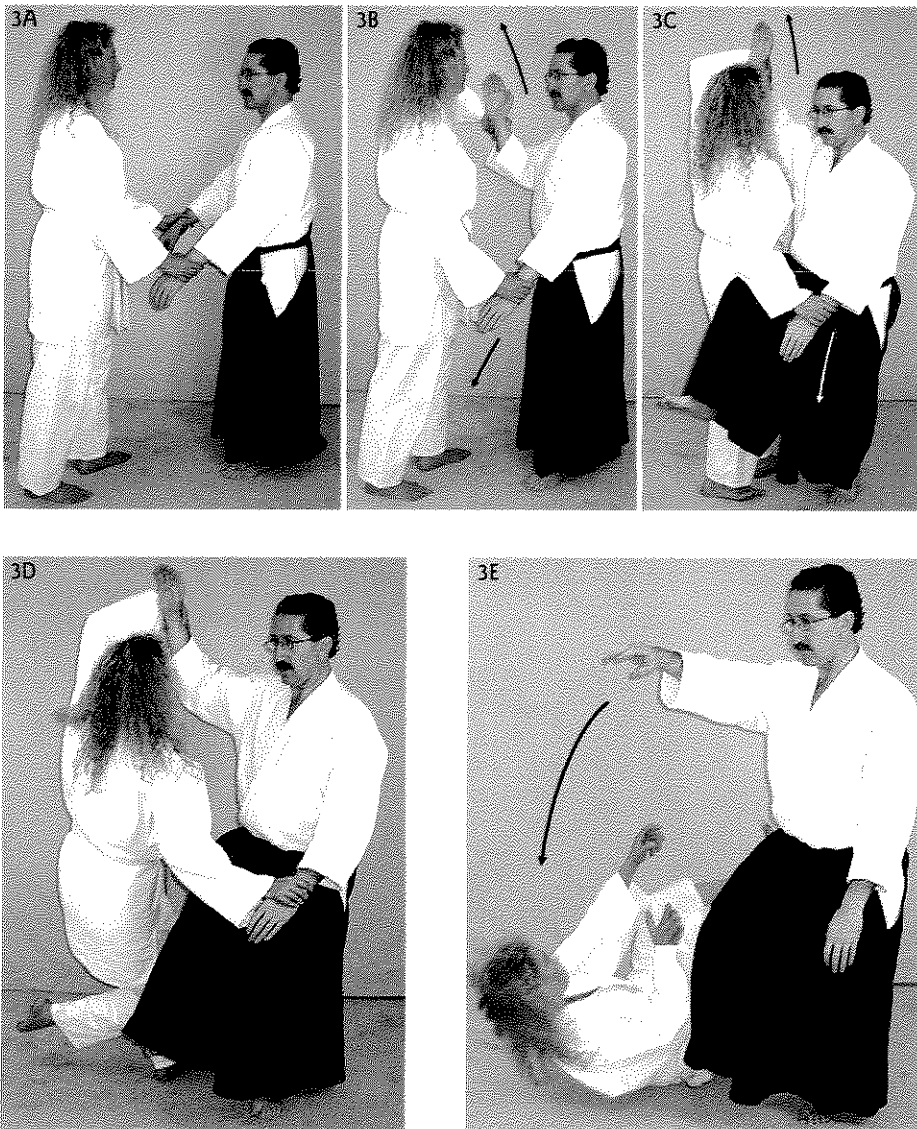
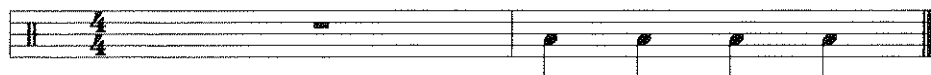


FIGURE 4

Neutralization of a punch to the face

4-A starting position: attacker (left) and defender face each other. Out-loud counting begins (time signature 4/4). 4-B one an: attacker (left) strikes with a punch to the face. At the same time, defender leads the attack up and slightly out. 4-C two an: defender enters with the right foot at the same time that hooks the attacker's striking arm with the left hand and projects her down to her diagonal side. 4-D three an: as the attacker is falling onto the mat, the defender strikes the jaw with his open hand. 4-E four an: defender leaves the attacker's individual space. With practice, this routine should be performed fast (time signature 2/4).



1 an 2 an 3 an 4 an 1 an 2 an 3 an 4 an
Starting position (pause) 4A 4B 4C 4D 4E

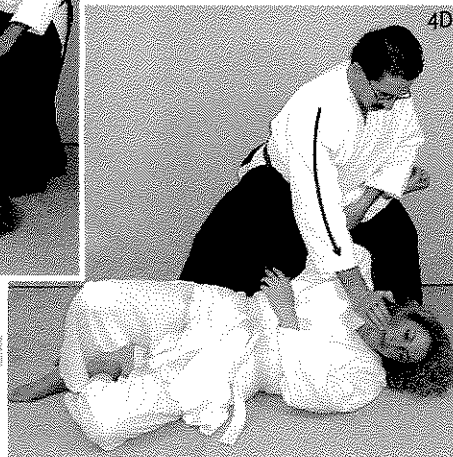
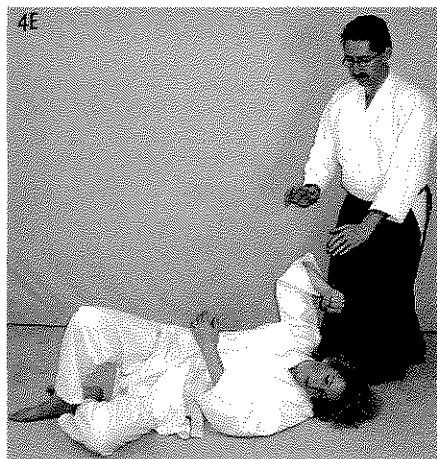
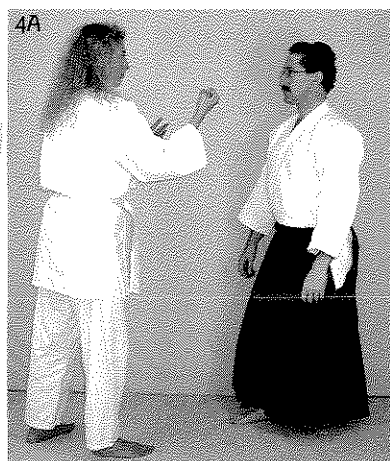
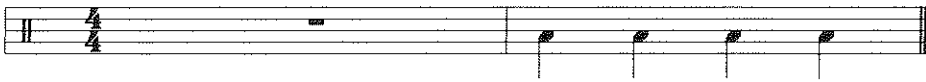


FIGURE 5

Neutralization of a two-handed lapel grab

5-A starting position: attacker (left) performs two-handed shoulder/lapel grab. Out-loud counting begins (time signature 4/4). 5-B one an: defender (right) raises both arms (fingertips up). 5-C two an: defender enters and hooks one of the attacker's arms with one hand at the same time that he redirects the attacker's chin up and to the side (detail). 5-D three an: defender projects attacker down to her diagonal side. 5-E four an: defender immobilizes the attacker by securing one arm and pressuring (or striking) just below the armpit area with a one-knuckle-fist (see detail). Be gentle, a slight pressure to this area generates pain. With practice, this routine should be performed fast (time signature 2/4).



1 an 2 an 3 an 4 an 1 an 2 an 3 an 4 an
 Starting position (pause) 5A 5B 5C 5D 5E

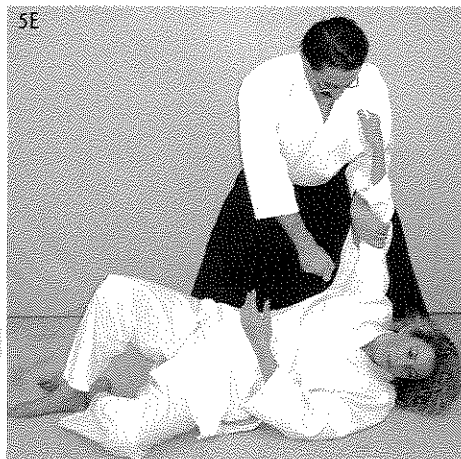
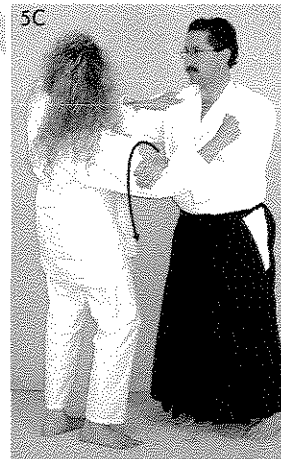
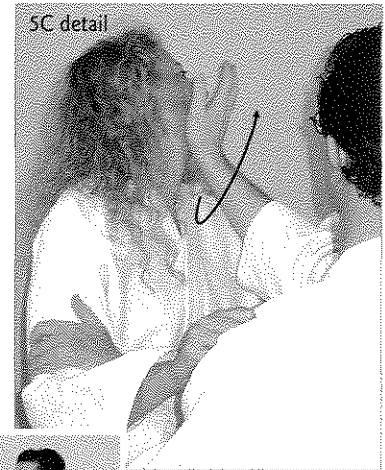
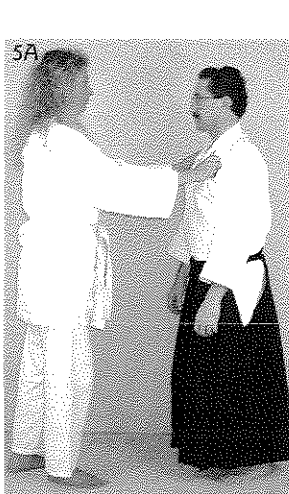
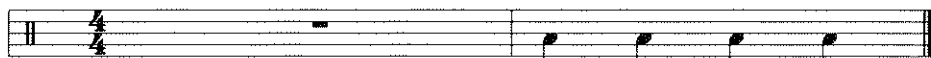


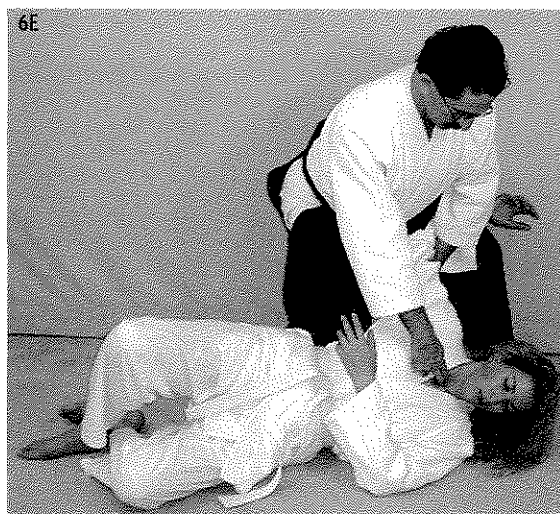
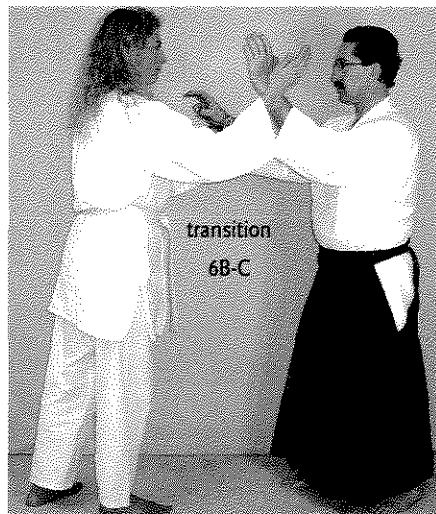
FIGURE 6

**Neutralization of a combined attack:
one-handed wrist grab and open-hand strike to the head/neck**

6-A starting position: attacker (left) performs one-handed wrist grab. Out-loud counting begins (time signature 4/4). 6-B-C one an: attacker performs open-hand diagonal strike to the head/neck at the same time that the defender (right) raises the free hand to redirect the attack up and out (transition 6-B-C). 6-C two an: Immediately, defender liberates his right hand and uses two of his fingers to deeply pressure slightly above the suprasternal notch. Be gentle, a slight accurate touch of this area generates pain. 6-D three an: Defender projects attacker down by manipulating her arm and continuing pressuring above the suprasternal notch. 6-E four an: defender immobilizes the attacker by securing her right arm with the hand, resting his right knee on her thorax, and maintaining the pressure on the suprasternal notch. With practice, this routine should be performed fast (time signature 2/4).



1 an 2 an 3 an 4 an 1 an 2 an 3 an 4 an
Starting position (pause) 6A 6B 6C 6D 6E



WEAPONS

FIGURE 7

Draw and cut with a wooden sword (*bokken*)

7-A starting position (pause): sitting seiza, holding the sword with the left hand. Out-loud counting begins (time signature 4/4). 7-B one: grab the sword with the right hand. 7-C an: fast draw of the sword and horizontal cut (edge of sword out). 7-D two: swing the sword next to your left shoulder area and prepare to cut again. 7-E an: cut perpendicularly to the mat. 7-F three-an: prepare to return the sword to the starting position (slower motion). 7-G four: return the sword to the position in B (imagine you are inserting a sword back into its case). 7-H an: return to the starting position. With practice, the two cuts should be performed very fast (time signature 2/4), while the intermediate motions remain gentle.



1 an	2 an	3 an	4 an	1 an	2 an	3 an	4 an
Starting position (pause) 7A	7B	7C	7D	7E	7F	7G	7H

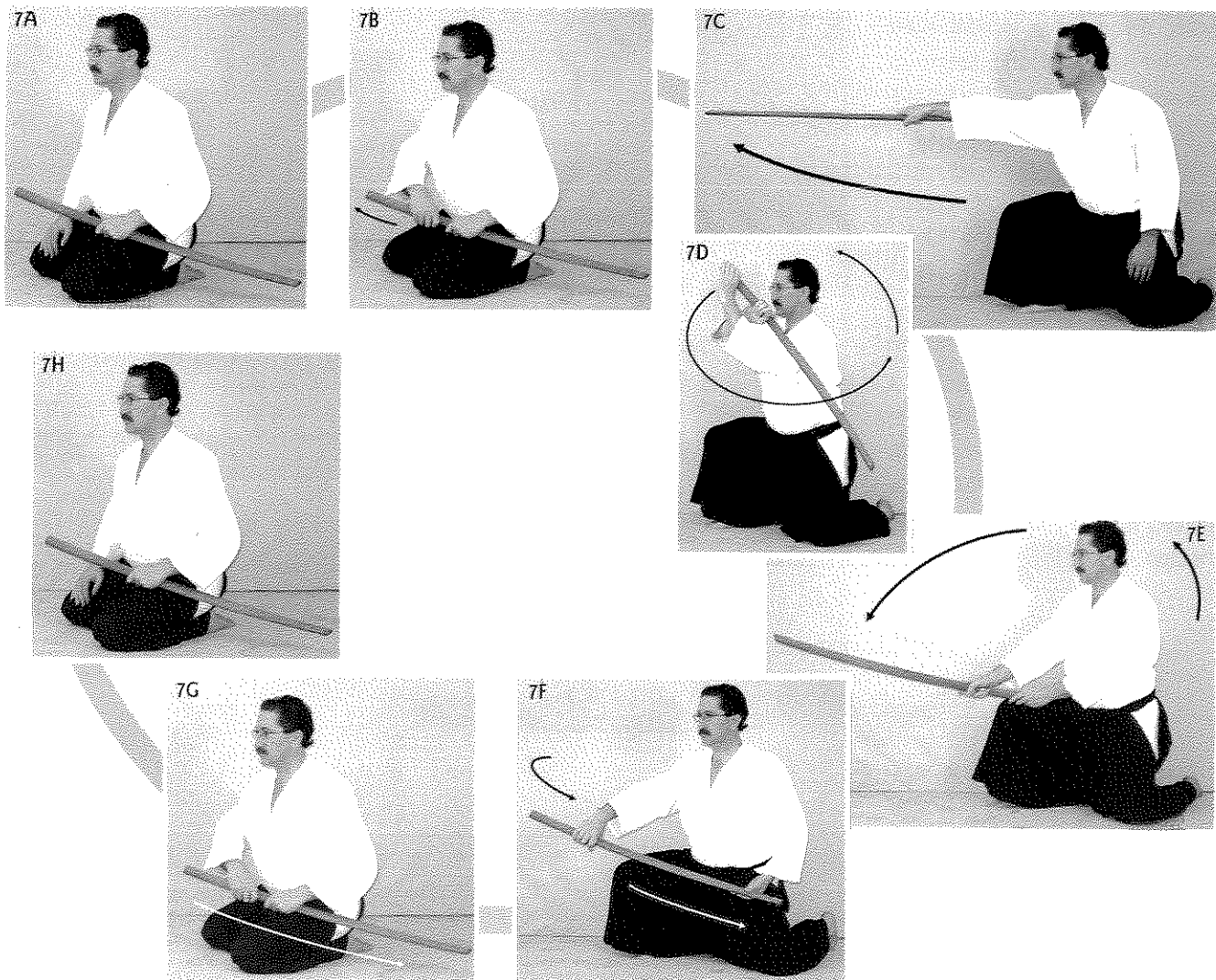
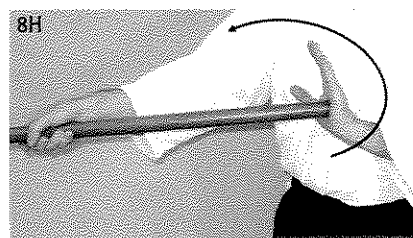
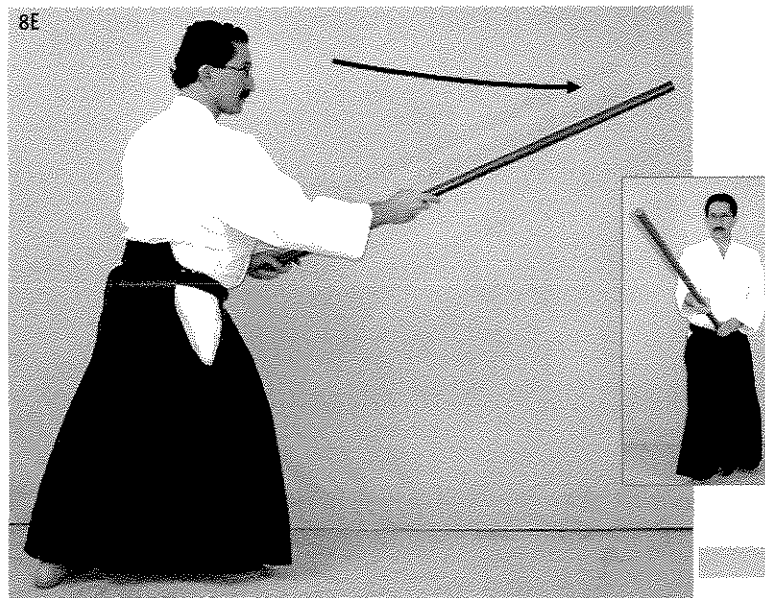
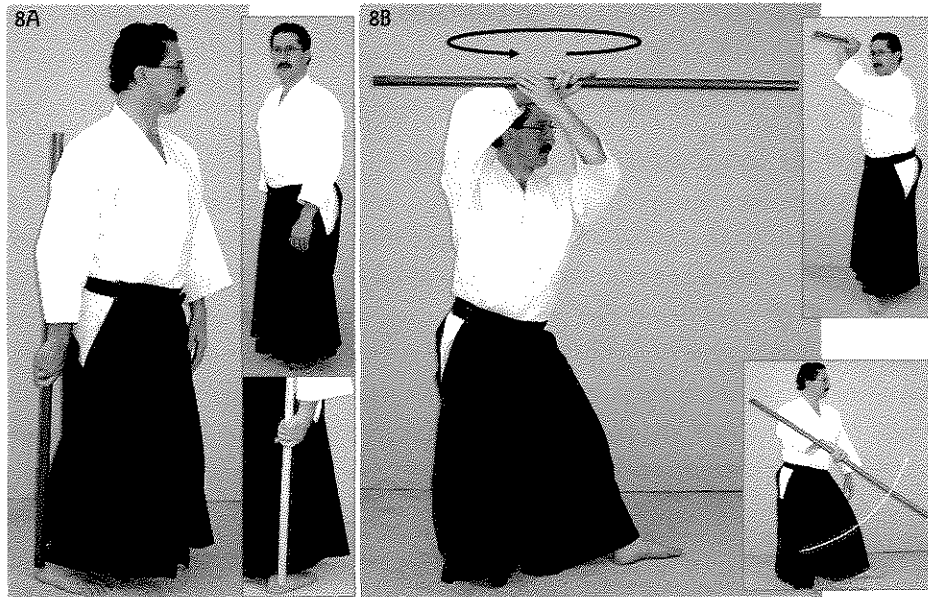


FIGURE 8

Staff routine

This whole routine should be performed in four seconds. **8-A starting position:** standing with the left foot forward and holding the short staff with the right hand. From a frontal view, the staff should not be visible to the opponent. To effectively hide it, place one end of the staff behind the lateral malleolus or uncle bone (inset) and the other end behind the armpit and shoulder area. Out-loud counting begins (time signature 4/4). **8-B one:** raise the staff and perform an over-head swing. **8-C an:** step forward with the right foot and execute a side-diagonal low-level strike. **8-D two:** another over-head swing. **8-E an:** step forward again with the right foot and perform a side-diagonal upper-level strike. **8-F three:** turn left 180° and swing the staff over your head. **8-G an:** step forward and strike vertically (upper level). **8-H four:** push one end of the staff with the left hand in the direction indicated in the figure; this will facilitate the rotation of the staff (centered in the right hand) like a propeller (**8-I**). Continue swinging the staff (**8-J**), at the same time turn left 180° in preparation to finish the routine. **8-K an:** return to starting position.



1 an 2 an 3 an 4 an 1 an 2 an 3 an 4 an
 Starting position (pause) 8A 8B 8C 8D 8E 8F 8G 8HJ 8K

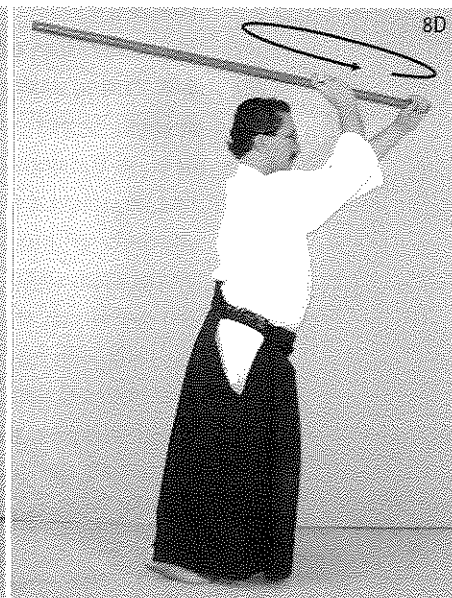
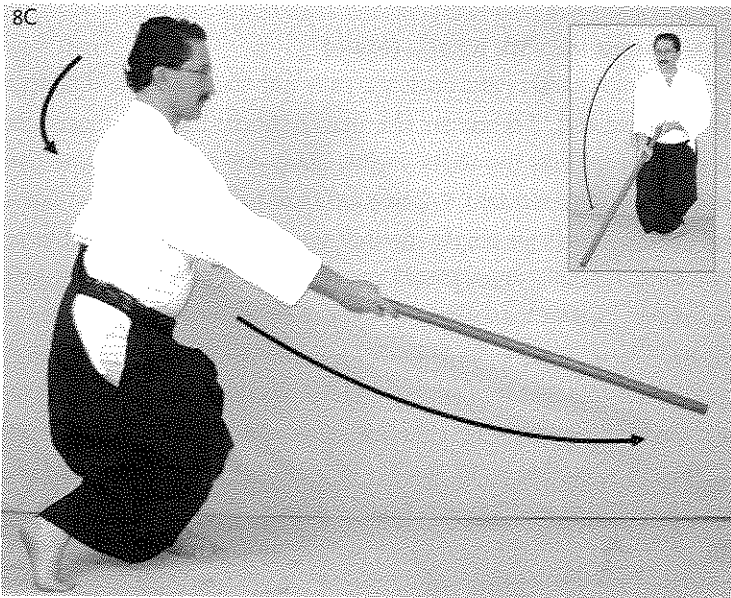
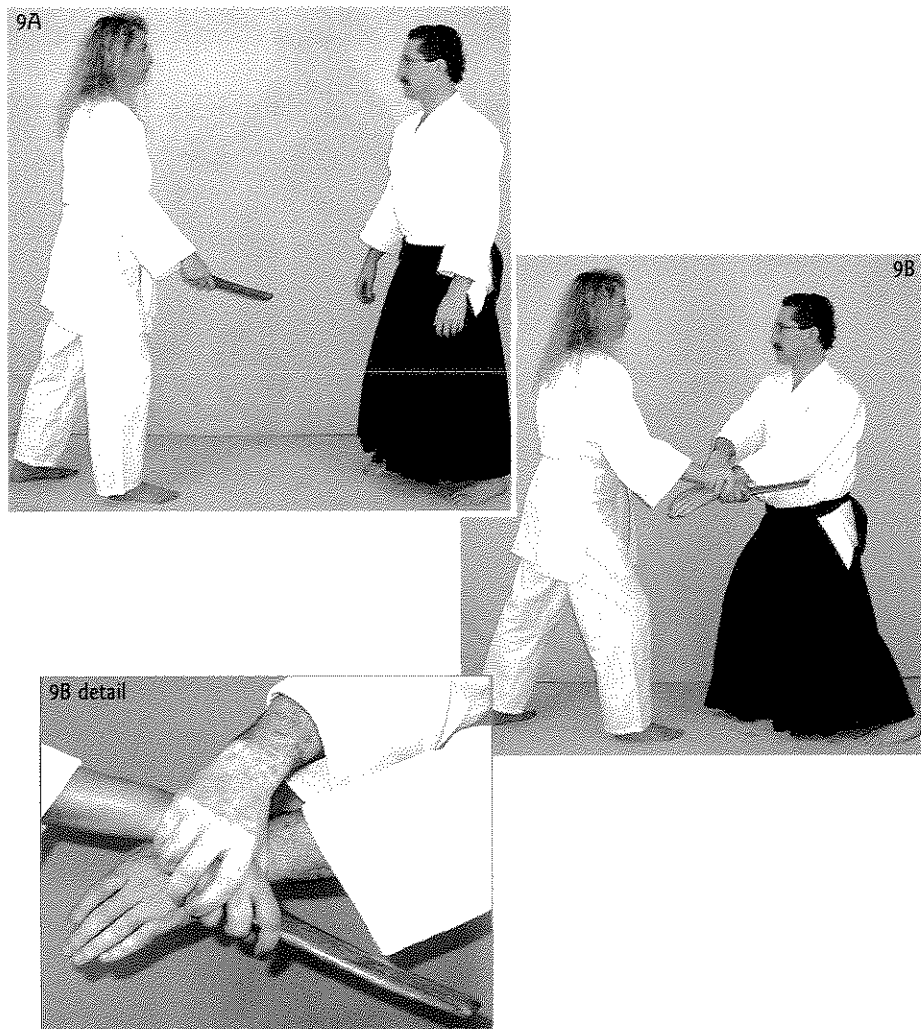


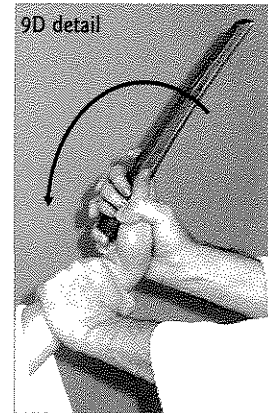
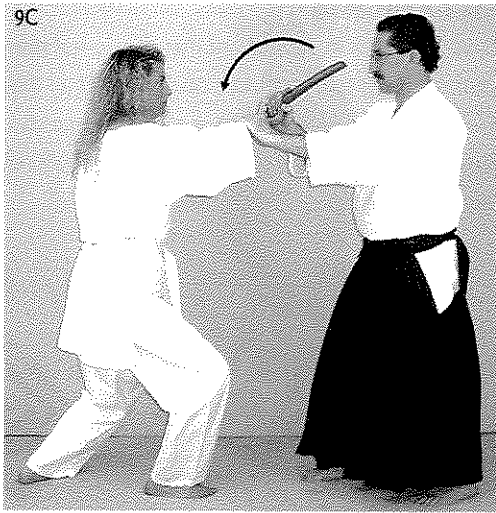
FIGURE 9

Neutralization of a thrust attack with a knife (*tanto*)

9-A starting position: standing, attacker (left) holds the knife with the right hand. Out-loud counting begins (time signature 4/4). 9-B one an: the attacker thrusts the knife toward the defender's abdomen; defender redirects the attack slightly down and out at the same time that he secures the attacker's wrist (9-B detail). 9-C two an: immediately, defender bends the attacker's wrist toward her shoulder (knife points upwards; see detail) which takes her down on her knees (9-D). 9-E three: defender steps forward and then turns right 180° placing himself to the side of and slightly behind the attacker (9-F). 9-G an: defender gains control of the knife with his left hand by redirecting the knife down in the direction of the attacker's shoulder (9-G detail). 9-H four an: defender leads the attacker down and pins her by placing his left knee over the shoulder blade area (wrist control is maintained). Using the handle end of the knife the defender assures control of the attacker by pressuring behind and below the ear (inset). Be gentle, a slight pressure of this area generates pain.



1 an 2 an 3 an 4 an 1 an 2 an 3 an 4 an
Starting position (pause) 9A 9B 9C 9D 9E 9F 9G 9H



BREATHING EXERCISES

To discuss breathing in the context of rhythm, we must introduce another music notation element, the tie (Figures 10-A-B). This symbol connects two or more notes together so that one sustains the note—therefore the sound—for a long period of time, e.g., like the continuous sound when an iron gong is struck (Figure 10-C). Think of breathing as the sound of a gong which is rhythmically struck every sixteen seconds.

FIGURE 10A



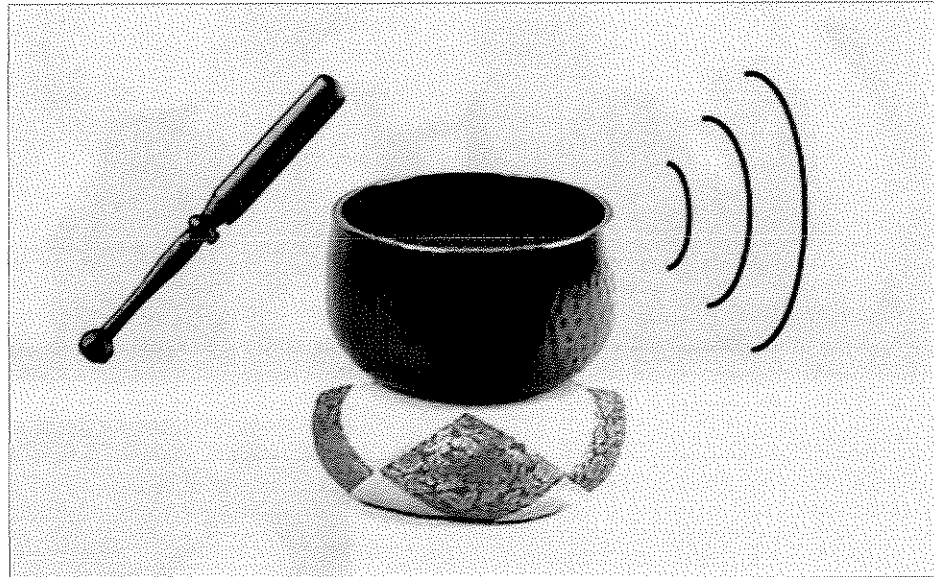
I an 2 an 3 an 4 an I an 2 an 3 an 4 an I an 2 an 3 an 4 an I an 2 an 3 an 4 an

FIGURE 10B



I an 2 an 3 an 4 an I an 2 an 3 an 4 an I an 2 an 3 an 4 an I an 2 an 3 an 4 an

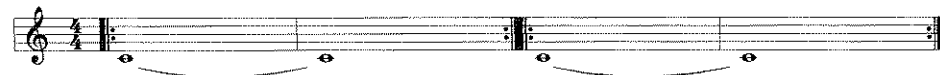
FIGURE 10C



FIGURES 10 A-B-C

The tie lines symbolically connect notes together and indicates continuous sound. 10-A: Four quarter notes per measure are tied together (four measures). 10-B: Because a whole note is equal to four quarter notes (see Supplement), we can rewrite the passage in A using only whole notes. Aikido's breathing can be represented by music notation as the long-lasting sound from an iron gong (10-C), which is struck every sixteen seconds (see also Figure 11).

FIGURE 11



I an 2 an 3 an 4 an I an 2 an 3 an 4 an I an 2 an 3 an 4 an I an 2 an 3 an 4 an

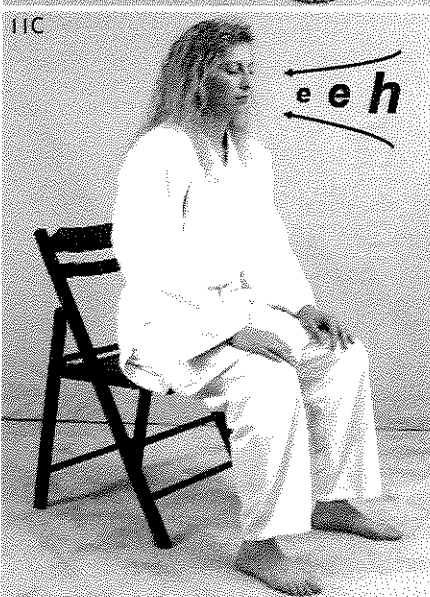
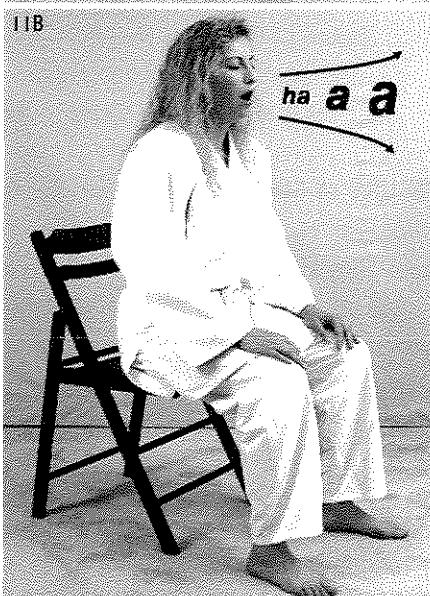
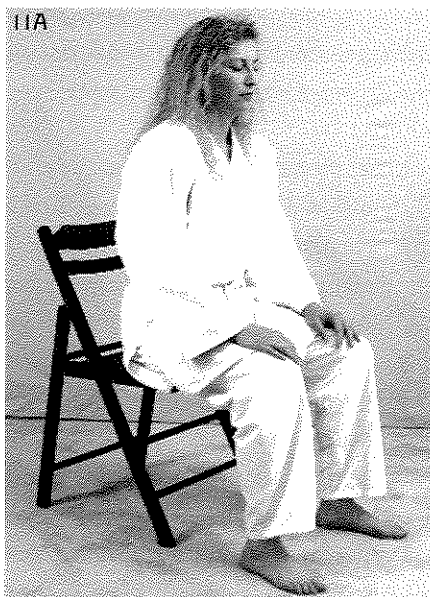
11B: Exhale calmly through the mouth,
making the sound "ha" (16 seconds).

11C: Inhale calmly through the nose,
making the sound "eh" (16 seconds).

Practice breathing exercises in the following manner:

1. Set the metronome at 60 beats per minute.
2. Sit comfortably in an upright position, with the back straight as illustrated in Figure 11-A. Close your eyes.
3. Take in a deep breath of air (do this naturally with no effort at all!), open your mouth wide, placing your tongue behind your lower front teeth and begin to exhale calmly, making the sound "ha." When opening the mouth, try tipping the head slightly back, so that the jaw does not interfere with the airflow in the throat region (Figure 11-B). With practice and relaxation, you will be able to exhale for sixteen seconds, or more. This is analogous to the way a singer breathes.
4. Close your mouth, and gently begin inhaling through the tip of the nose. Try to listen to and feel the airflow deep inside the nasal cavity; the sound "eh" should be easily detectable (Figure 11-C). As with the exhalation, inhalation should last sixteen seconds, or more.

Rhythmic breathing is an essential aspect of aikido training. Practice sessions of 10 minutes before, between, or after intense bouts of physical activity. This will induce appropriate ventilation and efficient aerobic metabolism, which will improve your tolerance to endurance training. This method is based on relaxation. Do not hyperventilate!



MEDITATION

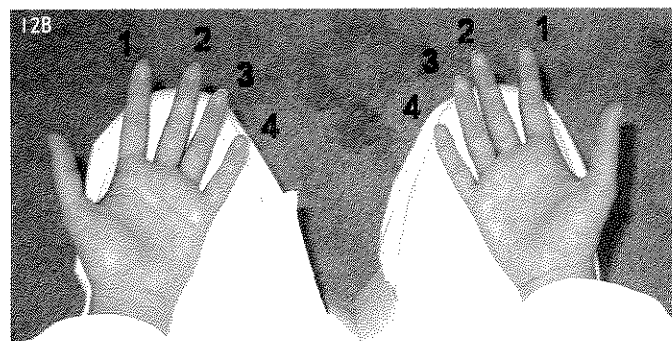
Meditation can be practiced in different ways. The method we recommend here is based on rhythm and works with almost anyone.

1. Set the metronome at 60 beats per minute. After a few sessions, you will probably want to slow it down to 40 or even 30 beats per minute.
2. Sit comfortably in the same upright position discussed in the breathing section of this article (above). Rest your hands palms up on your thighs and close to the knees. Close your eyes and breathe normally (Figure 12-A).
3. Listen to the rhythm marked by the metronome and count in your mind "one an, two an, three an, four an," numerous times.
4. With each silent count, imagine feeling slight movements in your fingertips, like small contractions of the muscles which are perceptible but not necessarily visible (this will happen naturally). Starting with the left hand, match each count with the flexion of a specific finger, in the following order: "one an" will correspond to the index, "two an" to the middle finger, "three an" to the ring-finger, and "four an" to the little finger (Figure 12-B). Ignore your thumb. Now, repeat the same routine with the right hand. Then, alternate left and right hands... Relax and free your mind of distracting thoughts, the key is to repeat this simple method over and over again.

FIGURE 12 Meditation (see text for details)

Meditation elicits what in scientific terms is known as the relaxation response, a state of mind-body interaction characterized by a reduced movement of the skeletal musculature, as well as decreased blood pressure and respiratory rate. Aikido practitioners meditate daily to calm their minds, concentrate their attention in complex mental/physical tasks, and minimize fatigue (by simply not thinking about it). Four elements are necessary to elicit the relaxation response: finding a quiet environment (this seems to be essential for beginners), consciously relaxing the body's muscles (e.g., physical relaxation while sitting), focusing for ten to twenty minutes on a "mental device" or constant stimulus repeated mentally (e.g., rhythmic counts that match the movements of your fingertips), and assuming an attitude of calmness,

which includes disregarding distracting thoughts. With practice, only two of these elements become essential to elicit the meditative state: the mental device and a calm attitude.



1 an 2 an 3 an 4 an 1 an 2 an 3 an 4 an 1 an 2 an 3 an 4 an

Starting position 12

Left Hand
index middle ring little

Right Hand
index middle ring little

CONCLUDING REMARKS

Aikido implies a harmonious dialogue between the attacker and the defender. The defender must learn to detect the attacker's rhythm, match it, and blend with the intrinsic speed of the attack. Knowing when to pause and when to continue determines the outcome of this dialogue.

In this two-part article we have shown how music notation can help us "write" and understand the "rhythm" inherent to aikido. Keep in mind that aikido practitioners are just like musicians: at some point in their development they want to interpret aikido's rhythm in unique manners. Some learn to move fast, others emphasize motions in specific parts of a sequence (accentuating the expression of an "aikido note" or "pause"), and a few improvise by simplifying or prolonging the components of the "song". They all are, however, governed by the laws of physics that impose a natural pace to the movements of their common human anatomies.



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