

Warm-up and Stretching for Kendo instructors & students, v. 1.5.1

Eddy Devisse

Note:

The goals of this guide are:

1. To increase awareness to proper warm-up and stretching before any Kendo practice.
2. To suggest more consistency between warm-ups/stretching sessions given by different instructors.

The goal is NOT to suggest an ultimate or absolute way of conducting a warm-up/stretching program but I do believe that we, as a group, have a lot to learn on this specific subject and so here is my small contribution to it.

As beginners become intermediates and intermediates become advanced, it is all the more important to limit the risk of injury and use every method necessary (and legal) to increase performance. I believe that it all starts with a proper warm-up and stretching.

There are many other ways to stretch than are described here; I selected these specific stretches based on two criteria: 1- our familiarity with them, 2- their appropriateness in a kendo setting.

Disclaimer: this document is the result of many hours of research and cooperation. It is NOT a source of medical/orthopedic information and it shouldn't be viewed that way either. Ultimately it is up to you, instructor or student to decide what is good and appropriate for your Kendo. We encourage you to do your own research and learn more on the subject. If you have any kind of medical condition or you have concerns about your ability to follow a Kendo practice, please consult your doctor before joining a Kendo class.

The main intended readers of this document are the instructors of the San Diego Kendo Bu. This document is available for download at <http://kendo.ipmtt.net> . Please DO NOT distribute it around as the content and format is not of a quality sufficient for broad distribution.

If you notice anything wrong or have any comments/complaints, please direct them to eddydevisse@gmail.com . Please note that this guide is an open document that will receive revisions and additions over time.

New in Version 1.5

Cleaned up layout

Corrections & clarifications

Identify main muscle groups used during kendo & possible injuries (photos to come)

New in Version 1.5.1

Removed pictures.

Next version (2.0)

Find exercises for those specific muscles (assuming with/without bogu)

Suggest at least different 2 positions (ways to warm-up/stretch) for each muscle

Stretching using shinai

Stretches during practice

Additional conditioning/stamina exercises

Add web version (additional photos and videos ?)

Notes on Stretch reflex (Bouncing and jerking)

Foreword

This guide is based on my experience with Judo and Kendo training, through many years and places. Until recently, I have never been a fan of Warming up and Stretching but I have decided to put more emphasis on this now since I feel I get injured more easily and frequently. I strongly believe that a more thorough warm-up/stretching session could help prevent these injuries. Also, as instructors in a University setting, I feel it is our responsibility to put more emphasis on proper health practices that will benefit the students.

Warm-up and stretching are often perceived as a boring and annoying part of the class, but it doesn't have to be like that; students will be more interested if they learn something new (muscles, injuries) and feel the positive effects (through explanation of the benefits) of warming up and stretching.

The bottom line is that anything that can be done to reduce the risk of injury can only be a good thing.

The structure of this document is as follows:

1. Identification of the muscle groups used in various Kendo movements
2. Warm-up and stretches necessary to cover those groups, based on various scenarios:

About Warm-up & Stretching

Warming-up and Stretching are two different things and achieve different purposes. Warm-up is always done first, then stretching.

In Kendo, it is customary to combine both the warm-up and the stretching in the same session. It should last no less than 15-20 minutes and cover all body parts used during the course of the practice. It is then followed by stamina-conditioning exercises using the shinai.

Why warm-up?

- To elevate your body temperature
- To increase your blood flow
- To get you ready for what is to come...

Here' s what a good Kendo warm-up should do:

- Raise your heart rate
- Include movements that mimic Kendo movements (suri-ashi, suburi,...)

Why stretch?

- To reduce risk of joint sprain or muscle strain
- To reduce muscle soreness and tension
- To increase mental & physical relaxation

Here' s what a good Kendo stretching program should do:

- Allow you to increase your flexibility (most important for your legs)
- Protect your body from injury due to a hard workout
- Allow your muscles to support you until the end of the practice

Notes:

- Stretching should be done when tissue temperature is highest (i.e. after warm-up) because it is safer and more productive for the muscles.
- Stretching should be done to the point of tension, not pain.

Kendo and Muscle Groups

The following are movements in Kendo where your muscles are the most in demand. Therefore it is only logical that you treat them properly before you are about to use them to their fullest capacity. A proper warm-up and stretching session will help you to avoid injury and increase your performance (among other things).

In the description below, I assume that your technique is proper and in accordance to the accepted rules of Kendo. Moving your head sideways to avoid an attack, moving in ayumi-ashi instead of suri-ashi, having a too solid grip on your shinai or hitting with the strength of your shoulders will put you and your partner at risk of injuries and will strain some muscles not usually used in Kendo. Always follow the indications of your sensei & instructors.

Suri-ashi

Body area: Legs & lower back / hips

Main muscles used: left Soleus, left Gastrocnemius, Quadriceps, Hamstrings, Gluteus *, ... muscles in the feet

Possible injuries: Achilles Tendon rupture, Shin Splint, cramps...

* Many other muscles are involved such as the Adductors and Sartorius. We won't enumerate all of them, assuming their contribution is less significant and that stretching the listed muscles will cover them as well.

Kamae (chudan)

Body area: Legs, arms & lower back

Main muscles used: left finger Flexors, left Brachioradialis, Abdominals, left Soleus, left/right Gastrocnemius, Quadriceps, Hamstrings, Gluteus

Other: Vertebrae muscles (Illiopsoas, Quadratus Lumborum, Erector Spinae), Achilles tendons

Possible injuries: none, as long as position is straight and body is still.

Launch - Tobi-komi

Body area: Left leg & lower back / hips

Main muscles used: left Soleus, left Gastrocnemius, left Achilles tendon, Quadriceps, Hamstrings, Gluteus, Abdominals, ... muscles in the foot

Possible injuries: Achilles tendon inflammation/rupture, shin splint (soleus), cramps (calves, ham., quad),...

Ki-Ken-Tai – Fumi-komi

Body area: Shoulders, forearms, Legs, lower back / hips

Main muscles used: Flexors, Extensors, Brachioradialis, Brachialis, Soleus, Gastrocnemius, Quadriceps, Rotator cuff, Triceps, Hamstrings, Gluteus, Abdominals, ... muscles in the foot

Possible injuries: right Achilles tendon inflammation/rupture, right knee inflammation, right foot sole/ankle, shoulders, forearms, hips...

Zanshin

Body area: Legs, lower back / hips

Main muscles used: left Soleus, left Gastrocnemius, Quadriceps, Hamstrings, Gluteus, Abdominals, ... muscles in the foot

Possible injuries: Achilles Tendon rupture, Shin Splint,...

Receiving - Kote

Body area: Forearm

Main muscles used: right finger Flexors, right Brachioradialis,

Possible injuries: inflammation of muscles above

Receiving – Tsuki

Body area: Neck *

Main muscles used: Scalenes, Splenius Capitis & Cervicis, Posterior Cervicals

Possible injuries: shock and misalignment of C1-C7 cervicals *

* results of a missed Tsuki are not covered here as it is not a “proper” technique. Nonetheless, you should assume it can and will happen and prepare accordingly, i.e. stretch shoulder pectorals, rotator cuff & sternocleidomastoid.

Receiving - Tai-atari

Body area: Neck, head, arms/wrists, upper & lower back

Main muscles used: neck muscles described above, Vertebrae muscles (Illiopsoas, Quadratus Lumborum, Erector Spinae), finger Flexors, Brachioradialis

Possible injuries: same as above in addition to back sprain, finger/wrists sprain, concussion...

Suggested exercises for warm-up and stretching

After identifying in the previous pages the muscles involved in usual Kendo movements, we can now suggest a series of warming up movements and stretches that will allow the body to perform at its best with minimal risk of injury.

Very Important

Before the practice, it is very important to spend a few minutes on your own, loosening up your body either through a light jogging, some jumping jacks or preferably some shinai swings until you sweat lightly and your heart rate increases. This “pre-warm-up” will help activate blood circulation in all joints and muscle groups and prepares your body for the more serious and thorough group warm up/stretching that follows. If time permits, you should also stretch more sensitive parts on your own (Achilles tendon, calves, shoulders, neck, and knees...).

One of the main purposes of the group warm-up is to initiate the practice together as a group, to build up the atmosphere of the class. That' s whykiai (ichi-ni-san-...) should be strong and honest; it' s your last chance to empty your mind and focus on the practice ahead. Movements should be large and fluid in order to make sure all parts are properly “activated”.

Some exercises that follow should be seen as “optional”; they can be added if it is necessary (if the instructor plans on a class that will be more demanding on one part of the body, or if the student has special needs). A few minutes should always be given after warm-up/stretching for personal exercises.

Points to keep in mind

- Start from the head, going downwards to the toes (arms – upper body – hips – legs). This way you won't forget body parts.
- Joint rotations first, muscle stretches second
- Keep body lined up properly
- DO NOT JERK OR BOUNCE the body during stretching; this is a dangerous and out-dated method
- Observe carefully the position of the instructor if you are unsure of what to do
- Do movements completely, with as much focus as possible
- Listen to your body to know when to go more or less deeply in a stretch
- All exercises should be done left and right, for at least a count of ichi->hachi (two counts preferably)

Group Warm-up exercise

As explained previously, before stretching it is absolutely necessary to increase your heart rate and blood flow. If not, the benefits of stretching will be very minimum. Here are common exercises done in Kendo at the start of the class:

- Jogging around the gym
- Suri-ashi around the gym
- Shinai swings
- Jumping jacks

... Anything that can raise your body temperature and blood flow/heart rate...

Arms

Muscles to warm-up and stretch: Flexors, Extensors, Brachioradialis, Brachialis, Rotator cuff, Triceps.

- Warm-up : Arm rotations (forward & backward): arms stretched to the sides. Smaller circles to bigger circles.

- Stretch : Shoulders – shoulder & upper back

- Stretch : Shoulders– triceps & top of shoulders

- Warm-up : Wrists rotations

- Stretch : Wrists/Hand/fingers/forearms stretches

Optional

Finger clasps (arms extended, fingers stretched/closed fist alternatively)

Elbow rotations

...

Hips & Back

Muscles to warm-up and stretch: Abdominals, Latissimus dorsi, Vertebrae muscles (see previous), Quadratus lumborum, Rectus abdominis...

- Warm-up : Hip rotations (legs stretched apart, small & large circles with upper body)

- Stretch : Side muscles
 Standing
 Sitting

- Stretch : Front-Back (legs stretched apart, reach back and forward)
 Standing
 Sitting

Optional

Spinal twist – Upper/lower back, hips, ribs

Lower back stretch – Lower back, hips

Legs

Muscles to warm-up and stretch: Quadriceps, Hamstrings, Gluteus, **Gastrocnemius, Soleus,...**

- Warm-up : Knee rotations (knees together, rotate without full bending)

- Stretch : Inner thigh– groin

- Stretch : Hamstrings
Standing
Sitting

- Stretch : Quadriceps
Standing
Sitting

Stamina & Conditioning exercises with shinai – examples

The following are some of the traditional exercises done in all dojos:

- Suri-ashi (front/back/left/right, in lines or one big circle)
- Jouge-buri (large swings, all the way back and front)
- Katate-suburi (one-handed)
- Men-Uchi (ikkyodo, nikyodo)
- Sayu-men
- Kote-men, Men-men, Kote-Men-Do, ...
- Haya-suburi (Alone or w/ partner)

...

Cooling down

After Kendo, especially if you have pushed your body to its limit, it is a good idea to spend 5-10 minutes to "Cool down".

Benefits of cool down:

- Provides your body with a period of adjustment to rest,
- Helps maintain & enhance flexibility
- Contributes to reducing muscle soreness and cramping
- Helps bring back your heart rate to a resting level
- Aids in the dissipation of waste products (lactic acid,...)
- Reduces the level of adrenaline in the blood

Cooling down after a practice is as important as warming up. All it takes is 5 minutes and should immediately follow the practice: light stretching exercises like the ones done at the beginning of the practice are sufficient. It will help you reduce stiffness and get your body ready for what's next in your day. That evening or the next morning, you'll spend less time thinking "Boy, Kendo's hard and it hurts!" but instead: "I can't wait for the next practice!"

Bibliography – Suggested reading

Stretching, Bob & Jean Anderson, Shelter Publications, ISBN 0-936070-22-6

Sport Stretch, Michael J. Alter, Human Kinetics Pub; 2nd edition (January 1998) ISBN 0-88011-823-7

Web links

Sports Medicine

<http://www.sportsmedicine.com>

About.com - Orthopedics

<http://orthopedics.about.com>

About.com – Walking - Stretching and Flexibility Exercises

<http://walking.about.com/cs/stretching/>

Warm-up (technical details)

Detailed benefits of the warm-up:

- Increases the blood flow to active muscles (therefore increasing metabolism and muscle temperatures)
- Increases your heart rate and prepares your cardiovascular system for work
- Increases the rate of energy release in your body (metabolic rate)(due higher muscle temp)
- Increases the exchange of oxygen from hemoglobin
 - Hemoglobin releases oxygen more readily at higher muscle temperatures; therefore facilitated oxygen utilization
- Increases the speed of nerve impulses (due higher muscle temp), facilitating body movements
- Decreases the muscular tension
 - Enhances the ability of connective tissue to elongate/stretching
 - Greater economy of movement because of lowered viscous resistance within warmed muscles
 - Increased speed of contraction and relaxation of warmed muscles