

The “Antimicrobial Bōgu” Allows for Smooth and Comfortable Keiko!

As we all know, *bōgu* parts absorb sweat during *keiko* which then causes it to produce bacteria and an unpleasant smell, a problem that becomes much more serious in the extremely hot and humid Japanese summers. We have to seriously think about this issue now because *budō* has become a compulsory subject in junior high school physical education classes. Furthermore, many schools have many sets of *bōgu* which are likely to be used more frequently. In order to try and combat the problem of unpleasant smelling *bōgu*, Tozando released a new range of “BioCLEAN” products in the summer of 2012, which have some ingenious antimicrobial properties.

Tozando asked members of the kendo club at Tsukuba University, one of Japan’s strongest kendo universities, to try these new BioCLEAN products and then give their feedback on using them.

Hayashi: I have been doing kendo since I was in junior high school and the bad odour of *bōgu* has always been a problem. To begin the conversation today, I would like to start by asking for a female's point of view on the problem of a *bōgu*'s odour. I also would like to hear about the issues that should be addressed in *bōgu* construction from the point of view of a teacher.

Kousaka: In my high school days, other people would often point out the smell of my *bōgu*. I noticed it myself whenever I wore my *men*. I tried to eliminate the smell by putting soap in my *kote* after *keiko*. However, even though the soap was perfumed, it got mixed in with the smell of my *bōgu* which created a new, specific odour. Another headache when using soap was that the inside of my *kote* became slimy when mixed with sweat and my hands became wrinkled.

Kouda: Wiping the sweat away and then drying the *men* in the shade after every practice can reduce the smell. This can work but I realize that only few people actually do it.

Kousaka: At Tsukuba University, we have a drying room especially for the kendo club. We put our *bōgu* there when *keiko* ends, but the odour does not disappear.

Arita: Since I am a man I sweat a lot, so I really appreciate the fact that I have a drying room at my workplace. However, I know it is true that the bad odour is one of the big reasons people hate kendo. To popularize kendo, I would like to get rid of this negative impression as much as possible.

Kyo: Ten years ago, I started kendo in New York. Every year, we had women guests who wished to start kendo but after one or two weeks passed, they quit doing it because they could not stand the bad smell.

Hayashi: This is a story that I heard from a *dōjō*. When a mother and child visited to watch practice, the mother became sick because of the smell and she stopped her child from starting kendo, even though he really wanted to try it. Therefore, the smell may actually affect the popularization of kendo. I also heard that if a number of members of a family are doing kendo, the inside of the house gets very smelly when the father and children hang their *bōgu* out to dry.

Kimura: When a person is interested in kendo and visits a *dōjō*, but he or she then decides not to join just because of the smell of *bōgu*, it really is a pity. If we could solve this problem, I am sure that the kendo population would grow.

Kouda: I personally feel that there are different types of *bōgu*. One keeps odours easily, but the other does not. Also, in the old days, I was not really bothered about the smell in the *dōjō*.

Kimura: I think it is because Japanese eating customs are changing as we eat more meat now. When the Japanese diet was fish and vegetables, *bōgu* probably did not smell so much. However, it seems that the body odour of Japanese is changing a lot because of the change in diet in recent years.

Kouda: We are teaching kendo in regular physical education lessons at school now. The problem is that *bōgu* used in a first period class is also used in the second period by different students. It is already smelly and unpleasant as the *bōgu* has a lot of sweat in it. Students may choose not to do kendo for their elective *budō* class again because of that. Therefore, I think it is an important issue that *bōgu* is dried soon.

Hayashi: Even though *budō* has been made a compulsory lesson in junior high schools, I think that most schools use *bōgu* that is in an unsanitary condition. I believe that a *bōgu* that has antimicrobial properties is essential for the popularization of kendo.

New materials keep the fast-drying/antibiotic action

Hayashi: We at Tozando asked members of Tsukuba University's kendo club to try our newly released BioCLEAN products. Could you give us your impressions of them?

Kousaka: I felt that the sweat was not seeping into the *kote* and my hands did not get sticky when handling the *shinai*.

Kyo: Usually, the inside of *kote* becomes softer after keiko, and then it becomes very hard when it dries. However, since the BioCLEAN *kote* is soft from the outset, I felt that I was able to grip the *shinai* well.

Arita: I have only tried it once but it really fitted well from the start. It is light and easy to use.

Kimura: Toray's Sillead, which has great fast-drying and antibiotic properties, is used for the parts that directly touch the skin. Antimicrobial fabric by Teijin (usually used in hospitals) is used for the core material. Also, Toray's antimicrobial artificial leather is used for the surface. This structure prevents bacteria to grow even if sweat reaches the surface. The biggest difference between BioCLEAN and other *bōgu* that claim to have antimicrobial properties is that our *bōgu*, created with antimicrobial materials, will be immersed in a special antibacterial solvent (made with silver ion) in the final stage of its production. This is to infuse the antimicrobial agents perfectly into the *bōgu*. Next, the *bōgu* will be completely dried in a drying machine using infrared rays. These procedures require a considerable amount of work but I believe this attentive attitude will surely enhance the reputation of BioCLEAN branded *bōgu*.

For people who would like to try BioCLEAN *bōgu*, I would recommend the "Dry Mesh Kote", a recently product developed. I think that your previous impressions about *bōgu* will change drastically from using these.

Kousaka: In a typical set of *bōgu*, if I use it in the afternoon after already using it in the morning, it feels bad as it's still wet. I have always wanted a *bōgu* that has a fast-drying action.

Kimura: When you tried the BioCLEAN *bōgu*, I guess that it was comfortable as it spreads the sweat.

Kousaka: Yes, I did not feel that was wet.

Kimura: With this BioCLEAN *bōgu*, there is also an innovation in the *mengane*. Please let me introduce Mr. Takai, the chairman of Takai Budogu Co. Ltd.

Takai: It has been 40 years since I started creating *mengane*, and it is more than 100 years if I include my father's generation. I often receive requests from all over Japan to repair *mengane*, and I have noticed that the part of *mengane* in front of the mouth often becomes rusted from spit. It is a natural thing to expel spit when you exert yourself in *keiko*, but I have always wished to solve this problem as it breeds bacteria and fungus. Therefore, I coated the *mengane* with an antimicrobial agent, which sterilizes spit that comes into contact with the *mengane*.

Kimura: With Mr. Takai, we have discussed and tried several antimicrobial materials and finally found that silver ion has the most continuous effect on metal and fiber. It has taken five years of research to reach this conclusion. Silver ion is also used in hospitals on medical appliances.

Takai: In tests we have found that the bacteria will not grow even after one or two years.

Hayashi: To make sure that the *bōgu* was fast-drying, we used Sillead and manufactured it with the "Micro-Punch" method for the inside and outside of the *kote*. This is the big feature of our new BioCLEAN Dry Mesh Kote.

Kimura: This is another innovation to enhance breathability as there are many hot and humid areas in Japan. For the top part of the hand, the material developed by Teijin was used. This material is usually used in hospital beds because it has an antibiotic/fast-drying action. Therefore, it is ok to do *keiko* every day.

Safety and usability with an antimicrobial action

Kouda: With regards to the reasons for avoiding starting kendo, there is the impression that kendo is painful, in addition to the unpleasant smell of *bōgu*. Beginners especially say that it's very painful when their *kote* is struck. Also, their opinion is that *bōgu* is not easy to use because it's hard. To encourage beginners to start kendo, *bōgu* must also be easy-to-use.

Kimura: The fundamental requirements for *bōgu* are safety and usability. If we only care about reducing odours, but the *bōgu* remains hard-to-use and it's painful when struck, that means nothing. Therefore, when we decided to create a new style of *bōgu*, we requested Mr. Susumu Kaminakamura of Budoshop, who has 40 years of experience in creating *bōgu*, to make the best *bōgu* in usability and safety together with it having antimicrobial properties. This is because our target is to create the best quality clean *bōgu*.

Kaminakamura: The difficult thing in its manufacture was gluing Sillead onto the *futon* as it is quite a soft, shiny material. Also, it was also hard to manufacture the parts for the inside and outside of the *kote* where the Micro-Punch mesh is used.

Kimura: It is easy to move hands inside the *kote* as there is less cramping up. We have tested the inside leather many times and it will not rip easily. This is the part that Mr. Kaminakamura paid particular attention to.

Arita: Kendo is becoming a compulsory lesson in junior high schools but people who do not know about kendo tend to buy cheaper *bōgu*. Also, there are many students who do kendo without much motivation, as it is a compulsory lesson. To help them enjoy kendo, we have to try to eliminate the negative aspects of *bōgu*.

Kimura: It is actually cheaper to choose a solid *bōgu* that can be used for five or ten years than rather than choosing a cheap one that disintegrates within one or two. By offering a *bōgu* that assures safety, I hope that the students who experience kendo in a school lesson will start to enjoy learning it or feel like joining the school kendo club. As for safety, the *mengane* is the part that was given the highest priority when developing. The BioCLEAN *mengane* has horizontal bars that are set at the base at a right-angle. Since it requires an advanced technique to produce this type of *mengane*, the typical *bōgu* angle is slightly skewed, but this type of *mengane* is not good at reducing impact. This is not the case for *mengane* that has right-angled bars, and it will not suffer damage from impact. I can assure that this *mengane* provides the best in safety.

Takai: *Mengane* used to be made of iron or nickel silver. To make it lighter, *mengane* made of duralumin or titanium have been developed. However, when a *mengane* becomes too light, it does not absorb impact well. Therefore, we mixed both the advantages of iron and duralumin. That is what we call an “IBB Mengane”. “IBB” means “Ideal Best Balance”. Soft iron is only used in the part where it is hit by *shinai*. Also, since the centre of gravity is different from a regular *mengane*, it fits better on the head and you do not feel the weight of it as much.

The brand new *mengane* used this time is called the “IBB BioCLEAN” which took us and Tozando five years to develop. The ring around the *mengane* is separated, and then the top and bottom are bound together. This way, it spreads the impact.

Kimura: I can even say that it feels good to be hit. The *mengane* made of nickel iron in the old days had the same feature. However, the problem was that nickel iron is a bit too heavy for our new *mengane*. Therefore, we lightened it and enhanced the impact absorption properties.

Kouda: I suppose the size of *bōgu* would be a point of concern as women’s and children’s body types are really different.

Kimura: That’s right. I have already asked Mr. Takai to create specific *mengane* for women and children. By the end of this year, we will be finishing the children’s model, “BioCLEAN Junior”, and also the women’s model. Also, we are producing *tezashi* (hand-stitched) *bōgu* as well.

Kouda: How about creating *kendogi* and *hakama*? Once I had a person show me a *kendogi* which remained odour free. There was no smell in the changing room, but it was heavy. I was told that it was made of bamboo. It would be better if I could have one that is light and comfortable to wear.

Kimura: Then, please just bring us your favourite *kendogi* and we will make it BioCLEAN as we can with other existing products. For example, if a *bōgu* in a school becomes smelly, we wash

them using a special method and immerse them into BioCLEAN solvent. The *bōgu* will then change to one that does not keep odours.

The big problem that causes odour and bacteria in *bōgu* is the way that it is dried. A typical drying method cannot kill bacteria in the central core of the *futon*, which is the source of the bad smell. In our company, we use a special infrared ray machine, one usually used in hospitals to dry beds, to dry *bōgu*. This machine kills all the bacteria in the central core. Then we treat it with BioCLEAN solvent.

Kote can be washed but since they are made of leather, they can become wrinkly if washed in a bad way. This is our company secret - a proper way to wash *kote* while keeping their shape. But again, the problem is how to dry it because bacteria grow when *kote* are wet. As you know, when you dry your clothes inside the house during the rainy season, they become smelly. It is the same thing. The important issue is to dry through to the central core in a really short time, and our special machine can do that.

Kouda: I see. In dry countries, *bōgu* would not develop odours as sweat dries very quickly.

Kimura: In addition, this silver ion fabric has high washing protection so that the effect will not be diminished much when washed many times. We are also producing Bio-Cleaned *himo* and are planning to develop Bio-Cleaned *bōgu* bags and *tsuka-gawa* as well.

I do believe that to promote kendo, it is very important to offer *bōgu* that is assured for safety and usability with cleanliness provided via an antimicrobial action. I also do not want people to quit doing kendo soon after they visit a *dōjō*. Those people, who only had two or three sessions and then leave the *dōjō* because of the smell of *bōgu*, may not have decided to quit if it was clean. Japan is now an aging society with fewer children. Therefore, manufacturers like us must keep making efforts to maintain and grow the kendo population. This is our responsibility and mission.

Text explaining pictures:

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Discussion participants (R-L): Mr. Takahiro Hayashi (Tozando), Mr. Takahiko Kimura (President of Tozando), Mr. Nobuaki Takai (chairman of Taikai Budogu Co.,Ltd), Mr. Susumu Kaminakamura (Budoshop factory director).

(L-R) Mr. Kouda (teacher and captain of Tsukuba University kendo club), Mr. Yuji Arita (teacher and coach of Tsukuba University kendo club), Ms. Kyo (research student at Tsukuba University), Ms. Tomoe Kousaka (Tsukuba University fourth year student).”

Page 2

Top left

Comfortable *keiko* in the antimicrobial *bōgu*!

Under the picture man holding *kote*

Budoshop in Kuji-city, Iwate Prefecture, manufactures this *bōgu*. The factory director, Mr. Susumu Kaminakamura, has been making great efforts in the details of *bōgu* design.

Under the picture man holding *mengane*

Mr. Nobuaki Takai, chairman of Takai Budogu Co. Ltd., creates *mengane*. He has employed various measures to solve the problems that exist in standard *mengane*.

Bottom left - picture of a man holding *mengane*

Mr. Takahiko Kimura, president of Tozando, emphasized that kendo *bōgu* plays an important role in the increase of kendo practitioners.

Page 3**Under the picture on top right**

“Sillead is used in *tenchi*, *uchiwa*, *yōjin-tare* and parts of the *men-buton* which directly touch the skin. This fast-drying material has been utilized in *bōgu* production for about the last five years.

Under the picture on middle left

IBB BioCLEAN *mengane*. The horizontal bars at the bottom have a slightly different color than the other bars. This is where the antimicrobial action has been implemented. To increase impact absorption, the ring around the *mengane* has also been redesigned.

Above the picture on bottom left

BioCLEAN DRY MESH KOTE. On the surface, BioCLEAN leather (manufactured with the MICRO PUNCH method), which has good breathability and antibiotic properties has been utilized. Also, antimicrobial BioCLEAN cotton has been used on the inside with Sillead, which has a good, fast-drying action.

Page 4**Top left**

Comfortable *keiko* in the antimicrobial *bōgu*!

Under the picture on top left

Ms. Tomoe Kousaka, vice-captain of Tsukuba University's women's kendo club (sitting on the right), and Ms. Kyo, a Tsukuba University research student, were asked to try the new *bōgu* during *keiko*.