

# Eco-Friendly Bedding Fit for Athletes



For Olympic Games  
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**Eco-friendly bedding offering superior sleep comfort will be provided to the Athletes' Village for the Tokyo Olympic and Paralympic Games.**

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## KATO KYOKO

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EVERYONE'S body shape is different. In athletes especially, muscle distribution tends to vary depending on the sport they play. Judo athletes weighing a hundred kilos or more, for example, have high muscle volume throughout the body, whereas swimmers have broad shoulder muscles, and some female track and field athletes can weigh at the thirty-kilogram level.

The Tokyo 2020 Olympic and Paralympic Games Official Bedding Partner airweave undertook the development of premium bedding products that are suited to each athlete's individual body shape. The company will provide customizable bedding to the Athletes' Village to ensure that all of the approximately 18,000 Olympic athletes staying there are able to get high-quality sleep.

The bedding developed by airweave has very distinct characteristics. All items, from mattresses to bed frames to duvets, are made of recyclable and hypoallergenic materials and possess superior

functionality.

For example, the bed frame is made of cardboard. "A member of the bed frame development team came up with the idea of using cardboard to make a bed frame after seeing strawberries packed in cardboard in a supermarket," says airweave president Takaoka Motokuni.

The development team conducted verification testing of bed frames made from cardboard, wood and metal. In one experiment, for example, 150-kilogram and 50-kilogram weights were dropped from a height of 30 centimeters, simulating an athlete jumping up and down on the bed frame. After carrying out various experiments of this kind, it was found that cardboard has higher impact resistance when compared to wood or metal as it can create many beams to enhance its strength. It was also more lightweight, less costly and easier to process.

In addition, the 10-centimeter thick mattress, which directly supports sleep, is made from an original resin fiber material called "airfiber®," instead of the more commonly used spring coils and urethane material. The mattress is divided into three components: head and shoulders, lower back and legs. Each

The three-piece modular mattress (the sections marked with “100”)  
Photo: Courtesy of airweave



The cardboard bed frame  
Photo: Courtesy of airweave



part has a different firmness level depending on the density of fiber.

“If you sink too far down into the mattress it is difficult for you to roll over. The muscle power (energy of the muscles) needed to roll over requires your brain waves to be activated, interrupting your deep sleep. In other words, in order to improve sleep quality, ideally you need a mattress that allows you to roll over during sleep using less muscle power,” says Takaoka.

However, it is difficult to make bedding that is suited to the individual body types of some 18,000 athletes. Up to now, airweave has provided mattresses to a large number of athletes and collected data on their body types. The company developed a system that uses a cloud database to decide the firmness level when the body shape, weight and sport played are entered into the system, enabling bedding to be customized to the body type of individual athletes.

“Athletes can customize the mattress according to their body type by swapping the order of the three blocks in accordance with the patterns recommended, enabling them to get a good night’s sleep by using less muscle power to roll over,” Takaoka says.

Modeling a best-fit mattress arrangement  
Photos: Courtesy of airweave



#### Mattress pattern

Below is the recommend mattress pattern for you.



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