

Characteristic Movements of a Virtuoso Nihon Buyo Master -Verification of a Traditional Dance Text (Oral Tradition) by Motion Analysis-

Mieko Marumo ^{1*}, Toru Ozawa ¹, Yuki Mito ¹, Hiroshi Kawakami ¹, Yukitaka Shinoda ²,
Toshihiro Irie ²

1 College of Art, Nihon University, Toyo, Japan

2 College of Science and Technology, Nihon University, Tokyo, Japan

Our research group has been studying the traditional performing art of *Nihon Buyo*—classical Japanese dance—as a new line of research combining humanities and science. In this work, we focus on the lower back or hip ("*Koshi*") that largely determines a *Nihon Buyo* dancer's skill or technique ("*Waza*"). To obtain the new data with the force plates simultaneously, we developed a system that compares and displays the center of gravity of dancers. We employed the comparative display system to first compare dance data for a *Nihon Buyo* master, in his 80s, who is recognized as an important intangible cultural property—a so-called living national treasure—with one of his students performing the same dance. Consequently, in addition to "less up-and-down motion of the body's center of gravity" that we verified earlier, we now know that "the body's center of gravity is high," and "the trajectory traced (front to back, left to right) by the body's center of gravity is small."

The oldest theoretical text on *Nihon Buyo*, a document entitled *Bukyoku Senrin* dating from the 1660s, contains several passages describing a virtuoso *Nihon Buyo*. It maintains, for example, that "proper lower back is the foundation of a dancer's body." This is critically important, according to the *Bukyoku Senrin*, in order to "perform a graceful elegant dance" or to "achieve the necessary vigor for martial arts." So by closely analyzing the "side angle," "joint angle of the elbow" and "joint angle of the knee"; one can relatively achieve a master's "large side angle and elbow joint angle," "reduced fluctuation of the knee joint angle," "abrupt reduction of the knee joint angle," and other effects.

This kind of quantitative analysis provides valuable clues for helping understand traditional performing art-related concepts such as "*Ma*" and "*Tame*".