

***Maai* Using Breathing Techniques: Perceptions of Engagement Distance in Judo**

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1. Introduction

The word *maai* refers to the time interval that occurs at the break between two different rhythms or beats in music, dancing, or other rhythmical activities, and is also an established concept in kendo and other martial arts.ⁱ The term *ma* ('between') has also been widely studied, with the discussion covering a broad range of areas including Japanese culture and *budō* ('martial arts') theory. Its study is also a pillar of the so-called 'Japanese culture theory'. Within *budō* theory, *maai* ('engagement distance') is used as a technical term in kendo and aikido, and many studies have addressed the way in which *maai* expresses both the physical and mental distance between opponents. In judo, another martial art, however, it is hardly ever used to address this concept.

Nevertheless, in my previous studies of breathing techniques and *budō*, it was not the case that kendo and judo failed to consider *maai* in either training or competition.

In this article, I explore the perception of *maai* in judo from the perspective of breathing techniques that can provide perceptual experience and elicit improved performance, which I already covered in previous studies. Oguchi states that perceptual experience may play important roles not only in cognitive behaviour such as conjecture, judgement, and memory, but also in motor behaviourⁱⁱ (Oguchi, 2013), and focuses on the formation process of perceptual experience, setting out direct grounds for the argument on its conceptuality. This study describes the process of putting what has been sensed holistically from the use of these breathing techniques and various perceptions of physical movement to use in body movements and includes hints on the use of breathing techniques in the formation process of perceptual experience.

The objectives of this study were to create a program in which individuals attempting to express themselves can consciously identify their perceptions about their own bodies in a holistic manner and become capable of self-control, and to discuss its educational value and effectiveness in actual trials.

2. Methods

2.1 History of this study

The topic of breathing techniques and *budō* that I take up in this study arose from a previous project on breathing techniques to improve self-control on the part of prison officers at Kyoto Prison and included instructions from seven competition videos (120 min each) taken between May and July 2016.

Previous studies

Extract from Breathing Technique Session 1

○ Aims

Breathing deeply, maintaining yourself in equanimity, observing yourself

○ Content

- Know yourself through breathing.
- Know your own body through breathing and bodily movements.
- Encounter your own body through breathing and voice.

○ Points to note

- Because breathing is subtle, pay attention to the tiny things happening in your body.
- Verbalise what you felt in your body and write it down so you understand it yourself.

This was a practical task undertaken mainly to become familiar with the basics of this breathing technique.

Extract Breathing Technique Session 2

Breathing techniques for communication (*budō*)

○ On studying breathing techniques

The session included the following explanations of breathing techniques and *budō*.

Breathing techniques have a very long history in Japan, with Rinzai Zen master Hakuin's *tanden* breathing technique [Translator's note: the *tanden* is an energy field in the lower abdomen] being one well-known example. *Tanden* is regarded as important in both Noh drama and *budō* and typifies the traditional Japanese view of the body in which the belly is the centre of both mind and body. In terms of its history, the term *tanden* rarely appeared before the publication of Kaibara Ekken's *Yōkōjun* ('Precepts for Nourishing Life') (1713), but the understanding that the *tanden* was the foundation of mental and physical harmony took root in the eighteenth century, and in the nineteenth century, in particular, it became the focus in theories on healthy living. Gymnastic exercises and other whole-body

movements, which would today be classed as stretching or massage, have a very long history, having been found in the Mawangdui Han-dynasty tombs that date back to the second century BCE. Japanese physical education classes in the 1910s included breathing techniques, which were known to be helpful in children's mental and physical development.

○ Effects of the breathing technique of 'Maintaining yourself in equanimity, observing yourself'

My explanation included the following points:

- Stress relief
- Relaxation
- Psychological effects: Regulation of the autonomic nervous system (heart rate variability, improved blood circulation, improved intestinal motility, prevention of nervous exhaustion and insomnia, more effective dieting, less likely to lose too much weight, etc.)
- Slower progression of presbyopia (presbyopia is due to a decline in physical strength and occurs once the body is no longer able to conserve its stamina). Once presbyopia develops, breathing becomes shallower.

○ Why is regulation of the autonomic nervous system a good thing?

I explained the importance of exhaling, with examples. The first important thing about regulating the autonomic nervous system is exhaling. When you exhale, your muscles release their tension, making you more relaxed and putting you in a state in which you can perform at full capacity.

Practical exercises

◆ Warm your hands (hand-rubbing, ear-pulling)

This returns all nerves and organs to their proper places.

◆ Consciously control breathing movements

- Sitting down, use both hands (from the belly to the top of the head)
- Sitting down, use both arms (change the form of your breathing)
- Standing, use your upper body (breathe into your sides and back)
- Use your whole body (down when exhaling, forward when inhaling)

◆ Feel your breathing (done in groups of two or more people)

- Sitting down, with your diaphragm lowered, breath toward the front (use a vocalisation such as Mmm, Haaaa, or Aaaa)
- Let your arms go floppy (pairs)
- Feel your breathing with your back and hands (pairs)
- Make sounds back and forth
- Feel the vector of your voice

◆ Breathing so that your own movements are undetectable

Practice of reverse abdominal breathing, one of the three main breathing techniques (chest breathing, abdominal breathing, and reverse abdominal breathing)

Reverse abdominal breathing is highly effective in improving blood circulation and intestinal motility, and it is known that imposing abdominal pressure on the organs improves concentration. Breathing smoothly (unconsciously) during sports competitions may make you more effective by preventing your opponent from reading your movements.

Extracts from Breathing Technique Sessions 3–7

Six judo wrestlers underwent breathing technique observations, including individual instruction

○ A profile of the individual wrestler was obtained in advance

○ Breathing technique exercises were based on his profiles and competition videos, and were sent by post three weeks before the observation

○ Individual instruction based on a check sheet was provided on the day of the observation

○ Based on the results of the observations, breathing exercises to practice before the next observation day were sent by post within one week.

2.2 Study method

Study period: June–September 2018

Study participant: Wrestler M, 19 years' judo experience, fifth dan.

Opponent in Observation 1: Wrestler S, 21 years' judo experience, third dan.

Objective: To use breathing techniques and *maai* in judo to devise a program to improve self-expression. Matters practised at the time:

Breathing techniques during judo wrestling

Analysis method:

Analyse Wrestler M's perceptions of breathing (1) under normal circumstances, (2) during training, and (3) during competition using Tasks 1–4 below.

Task 1: Breathing-sensing exercise based on the advance questionnaire and advance breathing-related exercises

Task 2: Conscious awareness of breathing using stimuli from external to internal

Task 3: Return to regular training in light of concepts 1 and 2

Task 4: Observe *waza* moves while consciously aware of breathing

Opponents in Observation 2:

Wrestler R (smaller than Wrestler M)

Wrestler T (bigger than Wrestler M)

Objective: Improve self-expression using breathing techniques and *maai* in judo

Matters practised at the time:

Relationship between judo and breathing techniques

Analysis method:

Analysed using Tasks 1–4 on the basis of changes noticed by Wrestler M since the first observation.

Task 1: Warm-up put together based on what Wrestler M had noticed

Task 2: Apply external and internal stimuli simultaneously and engage in training to sense the changes, leading to self-control

Task 3: Confirm the relationship between perception and breathing (oral/questionnaire)

Task 4: Conclusion. *Maai* in the Big6 classes,ⁱⁱⁱ *maai* in right and left grappling stances

Expectations of tasks:

Task 1: In light of the checklist from the previous session, that the line of movement of the hips would have become more settled and that the wrestler would sense the depth of their attention to their own movements.

Task 2: Muscles and perceptions that had been dormant because of Wrestler M's own habits would be aroused, making him feel that he could move his own body freely to some extent.

Task 3: In the stages of noticing, accepting, using, resonating, deciding, connecting, deepening, and giving, Wrestler M would be in the process of mastering stage 4 or thereabouts, and sometimes stage 5 (deciding) (intuitive capacity in competition).

Task 4: Wrestler M would find it easier to stay calm. Even when facing a bigger wrestler in competition, he would be able to feel the 'maai of breathing' between himself and his opponent and give himself the space to think, leading to better performance.

Opponents in Observation 3: Wrestler N, Wrestler K (about the same size as Wrestler M)

Objective: Same as Observation 2

Matters practised at the time:

Tasks 3 and 4 from Observation 2 in greater depth, feeling *maai* in each individual movement

Task 3: As above

Task 4: As above

3. Analysis and evaluation in individual instruction

3.1 Viewpoints for judo analysis

Judo originated in Japan, but before it came to be practised as part of today's school curriculum, the practice of both judo and kendo in educational establishments was forbidden in 1945, immediately after the war, although the then Ministry of Education made no reference to amateur or extracurricular activities. In 1947, all 'military subjects' were prohibited, but the efforts of high-ranking wrestlers to popularise the sport overseas and the popularity of regular tournaments led to a request for it to be readopted in schools in 1949, and permission was granted in 1950.^{iv}

Following this chequered history, judo is today practised worldwide and is now an Olympic sport with its own World Championships.

In this process of change and development, Agemizu Kenichirō, Director of Men's Judo at

Tokai University, says that what Japanese judo emphasises today is 'flexibility in *shingitai* (heart, technique, and physique)' (Agemizu, 2017).^v

Accordingly, when analysing activities by means of exercises using breathing techniques to face oneself and know oneself, the analysis focuses on the following three points:

(1) Changes in breathing under normal circumstances.

(2) Changes in breathing during training.

(3) Changes in breathing during competition.

3.2 Analysis and discussion

The first and second on-site observations, face-to-face interviews, and judo competition videos (three years' worth) were analysed in line with the above three points.

Before the first face-to-face interview, information was collected about the wrestler concerned and competition videos were analysed.

The following facts were identified through the analysis.

(1) Wrestler M's breathing was shallow and his inhalations were short.

(2) When performing a *waza*, he inhaled (with the exception, however, of a case in 2017 when an *ippon seoi-nage* was successfully executed).

(3) The centre of his abdomen was drawn inwards.

(4) Rigidity was apparent in the left lower back.

Breathing technique tasks identified as a result of the analysis:

Task 1: Reverse abdominal breathing to deal with (1), (2), and (3) above

Task 2: 'Warming breathing' to deal with (4) above.

I would like to start by talking about the tasks. I provided face-to-face instruction after Wrestler M had been practising them for one month. At that point, the fact that he had been working hard on Task (1) for the whole month was clearly evident in his movements during training. However, because reverse abdominal breathing involves completely opposite movements to those of normal breathing, he found it very difficult to learn them and use them in tense real-life situations such as competitions. Wrestler M subsequently continued to practise reverse abdominal breathing, and it is noteworthy that by the first on-site observation one year later, he had become able to use this technique in a comparatively natural way. Next, he had also been working very hard on Task 2. This meant that the movements of his scapula and clavicle were smooth, and his left heel was planted firmly on the floor to act as the pivot foot. By the time of the first on-site observation, about one year later, this had led to well-balanced, smooth movements, but there were still many times when a left-right imbalance gave the impression of an unnatural form.

Through these efforts, before setting out for the first on-site observation, I sent Wrestler M the

following questionnaire. (Wrestler M's responses are as written; the underlining is mine.)

Question: What sort of action is breathing for you?

Answer:

Under normal circumstances: Something essential to maintaining life.

During training: Something necessary to release tension from my body and allow me to move it as I intend.

During competition: Relaxing my mind and body.

Understanding my present state.

Clarifying my intuition during competition.

Enabling me to conserve my stamina.

Question: At what times does your breathing change?

Answer:

Under normal circumstances: When something happens that evokes emotion such as joy, anger, grief, or pleasure.

During training: When I am thinking deeply about something, such as how to attack.

In competition: When I am tense.

Question: What causes changes in your breathing?

Answer:

Under normal circumstances: Speaking in front of a lot of people at work (when I feel tense).

During training: The strength of my opponent's *waza*, the strength of their grappling, their physique, etc.

In competition: The atmosphere of the competition venue.

My opponent's form.

Question: When are you aware of your breathing?

Answer:

Under normal circumstances: When I've felt sort of tired.

During training: At the moment I start a *waza* (I can't help but hold my breath).

During competition: Before a bout.

At the moment I start grappling.

While I'm grappling.

Question: When do you breathe heavily, other than after exercising?

Answer:

Under normal circumstances: When I'm very busy in my personal life or at work.

During training: When I can't move my body as intended (irritation).

During competition: When I'm losing.

When *waza* are almost ineffective.

Question: How much air do you think you inhale?

Answer:

Under normal circumstances: I just inhale, so my lungs are fully expanded to the point of discomfort.

During training: I'm comparatively relaxed, so I think I inhale quite a lot of air.

During competition: I can't exhale, which means I can't inhale, so I take in very little air.

Question: How much air do you exhale?

Answer:

Under normal circumstances: I think I hardly exhale any air.

During training: When I'm aware of it, I exhale a lot, but when I'm not aware of it I think it's shallow.

During competition: I breathe shallowly and don't exhale.

Wrestler M answered the advance questionnaire as above. The results were almost the same as those for the 'Expectations of tasks' outlined in Section 2.2, and the first through fourth on-site observations showed that these tasks were appropriate.

In Task 2, Wrestler M kept his breathing even during the application of external stimuli (centre→clavicle→side→back→lower back) and minutely adjusted his muscles and skeleton before returning to his training, during which he applied internal stimuli (calling out). This relieved the rigidity of his pivot foot (in his case, the left foot), making *waza* easier to perform successfully. Wrestler M himself recognised that it was easier for him to move his body as he intended to move it.

In Task 3, Wrestler M engaged in regular training for a while, then thought about what he had felt and how he could use this in regular training. He appeared to feel the difficulty of being aware of breathing while actually moving, but sometimes seemed to be able to read his opponent's movements in advance. I could see for myself the process whereby his body movements became freer, and even when facing a bigger sparring partner, he was able to perform impressive *waza* successfully in a way that made this difference in size irrelevant.

In Task 4, as the conclusion to this observation, Wrestler M carried out individual basic movements and observed his breathing and the movement of the *waza*. At this point, he incorporated abdominal breathing, reverse abdominal breathing, and straw breathing to collect observations from his physical sensations, with an emphasis on the successful performance of *waza* while exhaling fully.

The photographs below show a successful example of his breathing while demonstrating a *waza* (*seoi-nage*).

Square box⇒Diamond box⇒Example *waza*



Photograph 1. Square box
(Right: Wrestler M; Left: Wrestler S)



Photograph 2. Diamond box
(Right: Wrestler M; Left: Wrestler S)



Photograph 3. Seoi-nage
(Right: Wrestler S; Left: Wrestler M)

As shown in Photograph 1, when the two wrestlers were grappling in a square box, Wrestler S on the left was exhaling (relaxed), and Wrestler M, who was waiting for the chance to perform a *waza*, was inhaling (rigid). In the next photograph, when they had moved to a diamond box, Wrestler S on the left had taken a deep breath and his body looked rigid. Wrestler M noticed the moment his opponent drew that deep breath and moved to the *waza* (*seoi-nage*) shown in Photograph 3. That photograph captures the moment at which Wrestler M on the left had fully exhaled and performed the *waza* successfully, then inhaled and straightened up his upper body, while Wrestler S had yet to exhale after being thrown and was still rigid (indicated by the red lines).

The two wrestlers each described this moment as follows:

Wrestler M: When I performed the *waza* while exhaling, I had the perception that the range of motion of my joints had extended, and I was at a lower risk of injury. The transmission of force from my lower to my upper body was also smoother.

Wrestler S: I felt as if I couldn't breathe at my own tempo, which was tough. My perception was that in the instant that I thought 'This is tough. I should breathe', I was thrown. Perhaps because I was thrown when I had just inhaled, the impact when I was thrown felt stronger than usual.

This on-site observation was carried out in June, but at a judo tournament held on April 13, around two months earlier (won by Wrestler M), in the final he had successfully performed a throw with the same awareness and with the same timing as in this practice training session.

That said, it was probably because he was training in a familiar environment with a trusted opponent that Wrestler M was able to successfully integrate his breathing with the *waza* so smoothly. However, the repetition of such experiences of success can be expected to have led to real-life

actions in the April tournament and may have a major effect on his wrestling in the future. As Wrestler M said, lowering the risk of injury is one of the most important things for wrestlers.

Next, I would like to talk about the second on-site observation.

First, rigidity of the right lower back was obvious in the regular warm-up. As described above, until now it was the tendency of the left heel to lift as a result of the rigidity of the left lower back that had been seen as the problem. Because the left foot is Wrestler M's pivot foot, if the right foot tends to lift this has a major effect on his landing after evading a *waza*, and this needed to be improved (Photograph 4).



Photograph 4. Rigidity of the inside of the right foot and lifting of the left foot

However, he was now able to breathe smoothly in and out, and he was moving more rapidly to grasp his opponent's jacket. The central part of his lower back had also previously been unstable, but its position had visibly stabilised.

After the warm-up, the session moved on to 'training in sensing changes', and in order to apply an internal stimulus at the same time as an external stimulus, he was shown photographs and videos of the problems described above (external stimulus) and asked to think about why they had occurred (internal stimulus).

This was to make him notice habits of which he had been unaware, arousing muscular and internal perceptions that had been dormant, and subsequently enable him to move his body somewhat more freely.

Engaging in this work made Wrestler M aware of his own lack of coordination.

After this, to carry out Tasks 3 and 4 in the next on-site observation, he sparred alternately with Wrestler R (smaller than Wrestler M) and Wrestler T (larger than Wrestler M) while thinking about the relationship between perception and breathing.

He was asked to write down what he had felt about Tasks 3 and 4 during this on-site observation in a questionnaire.

The contents of the questionnaire were as follows (Wrestler M's responses are as written; the underlining is mine):

Task 3: Your performance has improved in line with the relationship between perception and breathing [the eight stages of breathing: noticing, accepting, using, resonating, deciding, connecting, deepening, and giving], but how much do you sense that?

Question 1. Currently, how well do you think you can perform while being aware of your breathing?

Answer 1: It depends on my condition that day, but there are now times when I can perform actions unconsciously while exhaling in a way that I was unable to do before when I wasn't completely aware of it.

Question 2: (During training) When you are doing regular training, do you ever feel 'Right now I'm breathing well' or 'Right now I'm breathing badly'?

Answer 2: Yes. When I'm breathing well, I can perform *waza* continuously and carry out throws without wasting energy. When I'm breathing badly, I generally have a strong sense of being tired and breathless.

Question 3: (During competition) When you are in a state of mental tension, how do you try and calm down?

Answer 3: I try and breathe slowly to release the tension from my body and shrug it off in a good sense.

Question 4: Has there been any change in your breathing when you aren't practising judo?

Answer 4: I'm sleeping more deeply.

Also, now when I'm irritated, I can take a little time and calm down.

With respect to Task 3, in the eight stages of breathing described in Section 2.2, Wrestler M was in the process of mastering stage 4 (resonating), and his answer to Question 2 showed that he was close to mastering stage 5 (deciding), which is connected to intuitive capacity in an extremely tense state (during competition).

Task 4 Questions about the Big 6

This asks about the *maai* (sense of distance) between you and your opponent in judo.

Please fill in the table below to indicate the extent to which you feel *maai* (sense of distance) when attempting the named *waza* against the sorts of opponents listed.

Table 1. Wrestler M's sense of distance in the Big 6

Opponent Waza	Taller than me	About the same height as me	Shorter than me
<i>Seoi-nage</i>	I try and dive beneath my opponent's hips (Photograph 5)	I try and position the middle of my back at around the position of my opponent's umbilicus	I try and keep my distance from my opponent and align the middle of my back with his chest
<i>Tai-otoshi</i>	By attacking two or three times, I go in when the distance between my lifting hand has come closer to the hand and shoulder	I go in so that my buttocks are below my opponent's abdomen	I attack keeping around the same distance as when both arms are lightly extended
<i>Harai-goshi</i>	I pull my opponent toward me and attack at the moment when he has reached the position of my sweeping foot	I go in keeping around the same distance as from the wrist to the elbow	Same as above
<i>Uchi-mata</i>	I try and get my own buttocks in below the hips	Same as above	Same as above
<i>O-soto-gari</i>	I go in so our chests are very close together	Same as at left	I get in very close
<i>O-uchi-gari</i>	I try and go in below the hips	I go in so our chests are very close together	Same as above

Although the term 'maai' is not used in judo, as explained in Footnote i, a glance at the descriptions in Table 1 makes it clear that the 'distance' between the wrestler and his opponent described by Kanō is engraved within the wrestlers when they grapple.



Photograph 5. *Seoi-nage* when grappling with a taller opponent

Photograph 5 shows how Wrestler M dives beneath his opponent's hips, as described in his comment in Table 1, in order to perform a *seoi-nage* against the taller opponent. This was the moment when he successfully executed a *seoi-nage* by literally burrowing in. (In photograph 5, Wrestler M is on the left.)

I used this to investigate the *maai* (sense of distance) between Wrestler M and his opponents based on the Big 6. I found that being aware of this during training resulted in the right distance for the *waza* being created between him and his opponent, enabling him to attack efficiently.

Finally, I will talk about the third on-site observation.

The goal of this observation was to integrate breathing and judo to overcome weaknesses.

(1) Bout with Wrestler N, who adopts a right grappling stance

Lifting of the left heel and rigidity of the inside of the right foot were visible, but after being spoken to, from the second bout he directed his attention to exhaling, and improvement was apparent.

(2) Bout with Wrestler K, who adopts a left grappling stance

As soon as the bout started, Wrestler M could be seen to be waiting for his opponent to breathe. Sometimes he waited too long and ended up holding his own breath.

When he had difficulty executing his own *waza* successfully, he lost his capacity to exhale fully and his body gradually became more rigid. When Wrestler K attempted a *waza*, Wrestler M moved further away, making him unable to use his opponent's strength to perform a counter-*waza*.

The results of this observation showed that Wrestler M felt strongly that he was poor at wrestling opponents who adopted a left grappling stance, like the opponent he fought in bout 2. This perception

that he was at a disadvantage was conveyed to his opponent when their hands engaged, and it was necessary to consider how he could try not to show it and how far he could overcome it by looking at the movement of his arms in the breathing technique. He was therefore told to slowly switch the movement of his arms and wrists from *kenka-yotsu* (opposing grip style) to something closer to *ai-yotsu* (matching grip style).

It became clear that the problem was that in *ai-yotsu*, he was able to grasp with both the pulling hand and lifting hand while feeling the arm supination movement in the breathing technique that he had been practising for two years, but in *kenka-yotsu* this changed to an arm pronation movement or a movement pushing his arms at right angles to his opponent. He therefore practised breathing technique exercises using arm movements. After that he always felt the supination movement^{vi} while grappling, and repeatedly practised reading his opponent's rhythm of breathing.

Supination movement (Figure 1) is regarded as a particularly important movement in sports including judo and badminton.

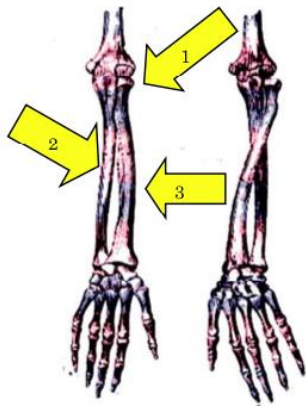


Figure 1. Bone movements during supination and pronation

As shown in Figure 1, the joint on the outside of the elbow (1) is known as the humeroradial joint, and this joint is the relay point for the transmission of force from the trunk to the extremities. It is also the joint that creates a good positional relationship between the forearm and the trunk.^{vii} Practicing with an accurate awareness of the humeroradial joint enables force from the trunk to be received in the hands, and is important both for direct grappling sports like judo and for those that employ rotation of the arms and wrists, such as badminton and volleyball. For this reason, Wrestler M first repeatedly practised inhaling while turning the left palm upwards (supination movement), keeping bones 2 (the ulna) and 3 (the radius) parallel, and exhaling while turning the right palm downwards (pronation movement), with bones 2 and 3 crossed, as shown in Figure 1, while remaining constantly aware of this joint. Once he was able to breathe

naturally during this exercise, he made adjustments to it while actually grappling.

After a while, he gradually became more successful in rapidly engaging and putting his opponent off balance, then executing a *waza* while watching his breathing, in the same way as in *ai-yotsu*.

Wrestler M said that if he continued to get used to this in training, he should be able to overcome his consciousness of being at a disadvantage, and Wrestler K said that when they grappled, he did not have the sense that Wrestler M was not as good at *kenka-yotsu*.

4. Future tasks and conclusions

4.1 *Maai* in judo

The goal of thinking about *maai* (distance) in judo is not for individual wrestlers to train with the idea simply of winning in competition, but to arrive at an objective understanding of their own body by mastering breathing techniques, and to understand their own judo by carefully directing their attention toward matters such as their positional relationship with (distance from) their opponent and the rhythm of their breathing. This involves discovering the clash of perceptions flowing between the wrestler and their opponent while judo *qua* judo is underway. The repetition of such internal experiences connected to the judo they have practised so far will not only trigger specific perceptions in response to these stimuli but will also provide unconscious encouragement for a range of different perceptual functions, so that after a while they will become capable of self-control through conscious effort.

For Wrestler M, however, the activities I experimented with in this study were simultaneously unremarkable in themselves and outside of his previous experience, and it seemed that trying to master breathing techniques had the contrary effect of disrupting his own rhythms of breathing, and he sometimes felt at a loss for reasons such as being unable to complete *waza* in a way that would not normally have been able to happen.

On the other hand, following his responses to the first questionnaire that breathing is 'something essential to maintaining life' and that 'I hardly exhale any air', as had also been evident in the advance questionnaire, his responses to the second questionnaire that 'I'm sleeping more deeply' and 'Now, when I'm irritated, I can take a little time and calm down' clearly showed that a change in his perception of breathing had occurred.

A review of the competition videos taken over a two-year period showed that Wrestler M had previously tried to relax his body by bending it and making little bouncing jumps, as if to tell himself that things were all right, but that during the study he concentrated on exhaling fully and breathing slowly; this enabled him to relax in the true sense of the word, and he was very obviously combative in competition.

The objective of this attempt to use breathing techniques to elucidate the concept of *maai* in judo addressed in this article was not solely to help wrestlers triumph in judo competitions but to enable them to fully understand their own bodies in the present moment through the repetition of conscious experience in regular training, and progressive actions must absolutely be performed in a fully conscious way. This means departing from previous fixed perceptions in judo, and as I have repeatedly stated in this article, what is important in order to be able to consciously adjust speed, direction of movement, and timings so as to achieve the desired movement of the body is to be constantly aware of one's breathing even under normal circumstances and to continue to repeatedly include breathing techniques in practice.

4.2 Conclusion

In this article concerning the concept of *maai* in judo, I described the effectiveness of incorporating breathing techniques in order to recognise 'perceptual distance', using breathing techniques that do not rely on that term.

While reviewing this process and confirming the results that it achieved, I would also like to identify and summarise issues for further study.

The breathing techniques that can offer perceptual experience that are the subject of this study are learned through the application of external and internal stimuli to the sensory nervous system. Normally, these breathing techniques take some years to master. In this paper, however, rather than insisting that Wrestler M master the techniques, I simultaneously considered both the basics of judo *waza*, including aspects of breathing techniques that he had yet to master fully, and his mental environment. It may be noteworthy that this study in which the subject attempted to master breathing techniques that he had yet to fully internalise alongside something that he had already mastered (in this case judo) had a positive effect on both aspects.

Nevertheless, more time will be required in order for Wrestler M to continue to put together a training program to direct himself and his team in the future. The development of a program to further deepen their understanding of breathing under both ordinary and exceptional circumstances is a topic for future research.

Despite the issues mentioned above, the attempts made in this study to incorporate breathing techniques into judo and to investigate basic judo moves from the perspective of breathing techniques are a new approach that constitute a step forward as the foundation for the further consideration of more general theories in the future, and I intend to continue with studies to develop this program.

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ⁱ Kōdōkan (1) *Juudou shiai kiroku* (Kendo Competition Records). Hon no Tomo-sha, 1988 [In Japanese]

(2) *Kanou Jigorou juudou shiai kiroku Bessatsu* (Kanō Jigorō Judo Competition Records Supplement) Hon no Tomo-sha, 1988 [In Japanese] Although the term '*maai*' is not used in judo, its creator Kanō Jigorō used the 'distance' between the wrestler and his opponent as the appropriate term, and in terms of its semantic content, he stated that its meaning was the *issoku itto no maai* ('the one step, one cut engagement distance') of kendo.

ⁱⁱ Oguchi Mineki. *Chikaku keiken no gainensei to higainensei* (Conceptuality and Nonconceptuality of Perceptual Experience), p. 188. The University of Tokyo Graduate School of Arts and Sciences, 2013. [In Japanese]

ⁱⁱⁱ Agemizu Kenichirō. *Juudou kihon to senjutsu* (Basics and Tactics of Judo), pp. 34–39. Jitsugyo no Nihon-sha, 2017.

The 'Big 6' are the key *waza* to be learned in judo, comprised of (1) *seoi-nage* (including *ippon seoi-nage*), (2) *tai-otoshi*, (3) *harai-goshi*, (4) *uchi-mata*, (5) *o-soto-gari*, and (6) *o-uchi-gari*. Other *waza* that supplement the Big 6 include the 'Small 4', comprised of (1) *ko-uchi-gari*, (2) *ashi-barai*, (3) *sasae-tsurikomi-ashi*, and (4) *ko-soto-gari*, but this study only addressed the Big 6.

^{iv} Watanabe Masashi, *Juudou nenpyou 1945→1955* (Judo Chronology 1945→1955). *Tenri University Judo Science Studies* 13, 28–39 (2008) [In Japanese]

^v Agemizu Kenichirō, *op. cit.*, pp. 3–5.

^{vi} Gahabka Nami. *Kokyuu ga kawareba koe ga kawaru, koe ga kawareba jinsei ga kawaru. Kokyuhou* (If your breathing changes, so does your voice; if your voice changes, so does your life. Breathing techniques), p. 8 Pamphlet, Kyoto Women's University, 2017. [In Japanese]

^{vii} Nagashima Seishi. *Kaibougaku atorasu Undoki I* (Atlas of Anatomy. Motor Organs I), pp. 26–29, 88–89, 122–123. Bunkodo, 2008. [In Japanese]