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INDUSTRY VIEWPOINTS

A Coaching Intervention Using Judo Principles to Reduce Head Impacts in Women's Rugby Union

By Anna Stodter[1], Joseph Lillis[2], & Katrina McDonald[2]

Abstract: *This case study used principles from judo for falling and landing to create and deliver a coaching intervention, aiming to promote safe and effective contact technique and reduce head impacts in women's rugby union. Forty athletes and two coaches at a university club received the intervention, with eleven taking part in focus group and individual interviews evaluating their experiences. Results highlighted the distinct nature of women's rugby culture, the importance of confidence in contact, supporting players' safety, and ways to progress coaching interventions for the benefit of the sport. This research can be used to inform future injury prevention strategies which incorporate cross-sport knowledge translation as well as athletes' and coaches' perspectives.*

Keywords: *rugby; judo; safe falling; contact confidence; women's contact Sport*

There is a gender data gap in sport science and women's contact and combat sports, meaning it is necessary to advance and apply the evidence base on women's sporting experiences, performance, and injury prevention. Head injuries sustained during sport participation is an important issue that must be addressed (Koshida & Ishii, 2022). Research in women's rugby union (rugby) has combined instrumented mouthguards with biomechanical and video analysis to suggest that players making tackles (tacklers) and players being tackled (ball carriers) are at risk of head impacts with the ground through uncontrolled falling mechanisms, linked to neck strength (West et al., 2022; Williams et al., 2020). Yet existing research lacks effective knowledge translation, neglecting athletes' and coaches' perspectives and limiting implementation strategies to reduce injuries. Principles from judo, especially *ukemi*, a technique for falling safely by breaking the fall (McDonald et al., 2022), may provide a useful avenue to develop 'best practice' techniques for other sports such as rugby. However, evidence is required to inform utility and adaptations. This research addresses a gender data gap by presenting a case-study coaching intervention which aimed to use judo principles to reduce whiplash-style movements and related head impacts with the ground in women's rugby union.

CONTEXT

This research followed a women's rugby team competing in the British Universities and Colleges Sport (BUCS) Premiership from 2018 to 2022. The first author (AS) is a sport coaching academic and UKCC (United Kingdom Coaching Certificate) level 3 qualified coach of the team, who approached the second author for coaching input. KM, a judoka of over 30 years' experience, is a level 3 qualified judo coach and an academic with expertise in safe falling. After initial discussions and introductory coaching sessions, there was an enforced nine-month period away from rugby, strength and conditioning, and contact training due to COVID-19 restrictions. On return to rugby during a condensed season (2020 – 21), KM and AS created and delivered a 10-week coaching intervention aimed to re-introduce safe and effective contact technique focusing on falling and landing. This case study report explains the approach taken and explores participant perceptions of the intervention.

PARTICIPANTS

Forty athletes and two coaches from the case study team were involved in the intervention, with eleven volunteering to take part in evaluative interviews (see table 1).

Table 1: Participant characteristics

	Mean age (years)	Gender		Playing / coaching experience (years)
		Male	Female	
Athlete	24.1	0	9	5.13 ± 3.33
Coach	49	2	0	20 ± 14.14

PROCEDURE

All participants provided informed consent before completing the novel 10-week training intervention. A primary aim of the intervention was to minimise uncontrolled mo-

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vement dynamics in contact situations, particularly head to ground contact, through contact preparation for players via *ukemi* practice to develop technique when falling and landing. The intervention sessions comprised fifteen-to-twenty-minute technical practices, whereby athletes were led by KM. This took place within rugby training sessions on grass, supported by AS and the team's two other rugby coaches. The protocol is outlined in Table 2, with aims identified and phases linked to coaching cycles.

Table 2: Intervention protocol overview

RUGBY COACHING PLAN	LANDING AND FALLING PROTOCOL	AIM FOR PHASE
Cycle 1: Fundamentals- 'become a ball player' (run, pass, kick)	Learn to manage yourself	- Introduce rolls - Mobility, including different animal movement, and acrobatics - Falling, focusing on the key principles, in the four directions
Cycle 2: Race for space- 'scan > think > adapt> act'	Learn to manage others	- Body weight with others - Lifting and carrying others
Cycle 3: Final preparation & peaking for the varsity match	Contact and Combat	- Competitive contact - Combat games - Complex falls (e.g., applying the learnt principles from falling in competitive situations)

Phase 1: Learn to manage yourself

The aim of this was to introduce three specific areas: rolls, mobility exercises involving close contact to the floor, and basic falling principles. This first phase was developed so that players would learn to control their own body and movement before other factors such as other players or more dynamic actions were brought in. This phase is broken down into three core activities in Table 3.

Table 3: Phase 1 Learn to manage yourself

ROLLING	MOBILITY	LANDING/FALLING
Backwards roll Teddy bear roll Triangle roll Forward roll *Mae Mawari Ukemi* (forward rolling breakfall)	*Animal movements*: Gorilla Caterpillar Bunny Duck Monkey	*Ushiro Ukemi* (Backwards breakfall) *Mae Ukemi* (Front breakfall) *Yoko Ukemi* (Side breakfall) Table (from all 4's position)

An example from this phase can be seen in Figure 1, where the players are using *ukemi* principles and rolling, but from their hands and knees in contact with the floor to simulate a rugby-related start position.

Figure 1: Table exercise from Landing and Falling

Phase 2: Learn to manage others

In phase 2, building on the players' learning to manage their own body and movement, other players were added alongside more complicated mobility and bodyweight exercises.

Table 4: Phase 2 Learn to manage others

BODYWEIGHT	LIFTING AND CARRIES
Handstand Cartwheel Handstand walking Handstand forward roll Wheelbarrow	Piggyback Piggy front Baby carry Firefighter lift Elbow carry *Kata-garuma* carry

An example from this phase can be seen in Figure 2. This is from the Lifting and Carries exercises, with each player carrying their partner forwards. The key points to note for this exercise were to use a strong stable athletic base to avoid dropping their partner, to take small steps, and to work together to provide balance.

Figure 2: Piggy front exercise from Lifting and Carries

Phase 3: Contact and Combat

Phase three involved building upon the two previous phases by adding further variables such as a ball and competitive elements. The key principles of falling were tested in more competitive, combative situations, adding an element of decision making and rugby specificity. Table 5 gives an overview of this phase.

Table 5: Phase 3 Contact and Combat

COMPETITIVE CONTACT	COMBAT GAMES	COMPLEX FALLS
Tackle exercise to add ball presentation after landing Exercise to off load the ball, then land safely Landing exercise in a game of touch rugby	Sumo ring Drop height and fight for the ball in pairs Team exercise with the ball in the centre, each player has a number and will try and retrieve the ball back to their team's starting position	All fall exercises are now completed on the move Direction of fall exercise completed in a drill format with a ball Falling exercise with the added element of not knowing when you are going to fall and need to safely land

Figure 3 highlights an example of the Competitive Contact and Complex falls sections with two snap shots of the activity, where the players are linking rugby off loading skills with the safe falling and landing techniques.

Figure 3: Tackle Exercise with safe falling and landing incorporated

Following the 10-week intervention, player participants were invited to engage with follow up focus group interviews (N = 4), and coaches took part in individual interviews (N = 2). These semi-structured interviews explored participants' experiences, attitudes, perceptions and beliefs surrounding the coaching intervention and wider contact training in women's rugby. Questions were based on previous research into players and coaches' experiences of head injuries in rugby (Salmon et al. 2022), with prompts used to gain additional information or clarity. Example questions included "what are your experiences of contact training in rugby?" and "would you add anything or change anything about the content of the activities?". Interviews were conducted by a research assistant to minimise the influence of relationships and power dynamics between coach-researchers and participants. Interviews took place online via Microsoft Teams and were recorded then transcribed verbatim.

DATA ANALYSIS

Thematic analysis was employed to summarise the key features of the combined interview data (Clarke, Braun & Weate, 2016). First, familiarisation and generation of initial codes took place. For example, one participant said, "the element of falling, is just not something that is introduced in women's sport", which was coded as 'physical preparation'. While codes captured an idea, subsequent stages involved constructing, reviewing and defining themes or central organising concepts containing more than one idea. Here, the 'physical preparation' code became part of a 'supporting safety' theme together with codes relating to interventions, control, and awareness. This iterative process took place with cycles of refining discussions between the authors and through writing the report (King, 2004). The analysis led to the construction of four themes to explain players' and coaches' perceptions of contact training with insight into the context of the intervention case study.

RESULTS

The four themes: *women's rugby culture, confidence in contact, supporting safety, and progress*, are outlined using quotations from participants to illustrate meaning.

Women's rugby culture

While some players had played several different sports from a young age, others were "brand new" to women's rugby and valued being able to take up the sport as a beginner in a friendly and fun environment. Participants noted that "everyone's got a very wide variety of experience but it's such an inclusive sport". They acknowledged the difference between women's and men's rugby as an important factor, in particular where men have "just had so much more experience with [contact]".

Confidence in contact

Relating to their overall experiences of rugby, participants emphasised the importance of their personal assurance with contact, as a tackler, ball carrier, support player, or as a coach. Players spoke of enhancing their readiness for contact through training and match experiences with contact (individual or observed) and being taught 'best practice' technique. While gaining confidence through the intervention's emphasis on preparing their bodies for impact and using momentum was perceived as important for beginners, one experienced player noted additional relevance for returning to play:

"A major thing as well that I've had is just the confidence - especially if you're returning from injury especially concussion."

Coaches agreed that:

"...having that confidence going into contact knowing [players] have been through something quite thorough already, or a building block like that, is great".

Alongside this, coaches felt it was important to be confident and engaging when delivering contact training, especially with new techniques or approaches.

Supporting safety

Participants valued the support of the coaching intervention in enhancing athletes' overall safety. For example, one player summed up, "this is fun, this is different, and we're being looked after", while others highlighted the importance of raising awareness:

"I think like it's been helpful kind of being conscious of your own safety. I think that's really important when you play rugby and being aware that you need to protect your head and you need to protect certain parts of your body."

For coaches, awareness was more about keeping "up to date with all sorts of progressions in training...and research going on at the moment", in line with an accountability for safe and effective practice.

Progress

This final theme encapsulates the value, potential progression, and implementation of the intervention, as well as the development of injury prevention strategies for advancing rugby as a whole. Participants recognised the worth of falling and landing technique training with one coach stating, "I was convinced before it even happened of the usefulness of it, if we could adapt it properly." Suggested adaptations included more rugby specificity and integration into game play. As this participant exemplified,

"...we could be doing something more rugby applicable... if the sessions remained as they were with a bit more of a rugby focus, linked more into contact training, maybe a bit shorter, I think that's how I would see them as being more useful."

Continued development of this and similar coaching and head injury prevention strategies was seen to play an important role in the future progression of rugby, as explained by this coach:

"The next twenty years of the game is going to be sort of crash and burn, if it's not dealt with correctly. There's a lot more to come to help the longevity of the game."

DISCUSSION

Women's rugby culture, confidence in contact, supporting safety, and progress were perceived as important factors in contact training and the success of the coaching intervention. The significance participants placed on women's rugby culture as distinct, combined with emphasis on confidence in contact, aligns with other recent work (Dane, Foley & Wilson, 2023; Ryan, Daly & Blackett, 2023). This reinforces the need for training and coaching interventions to be informed by women's experiences and context-specific needs in contact and combat sports (Dane et al., 2022). Findings suggested that the intervention enhanced participants' awareness of, and the need to support, players' safety using contemporary coaching strategies, particularly in women's rugby where support has been inadequate (e.g., Ryan et al. 2023). Including players' and coaches' views is vital in advancing the impact of injury prevention research, knowledge translation, and interventions (Heyward et al. 2022). The protocol and findings from this case study are useful for coaches working in other similar contexts, and for those designing injury prevention interventions, while acknowledging the need to adapt for different groups, abilities, and environments. In addition to participant perceptions of welfare and benefit, the findings connect to the idea that progressively introduced, game-based combat sport activities can be beneficial for movement and technical-tactical skill development in team sports like rugby (e.g., Morales, Fukuda, Curto et al. 2020). The application of principles from judo to another sport, in a collaborative manner, was vital in the development of the novel 10-week training intervention. The transferability of *ukemi* to other sports and settings needs greater exploration and evidence to support positive athlete outcomes and knowledge translation with coaches. To build on this initial work, longitudinal mixed-methods research is needed to enable evaluation of skill development, reductions in head impacts, and related injuries with larger sample sizes.

CONCLUSION

This case study aimed to promote safe and effective contact technique and reduce head impacts in women's rugby union, using principles from judo for falling and landing, to create and deliver a coaching intervention. Players and coaches who participated in the intervention valued confidence in contact through 'best practice' techniques, which raised awareness of and support for their safety, and suggested ways to progress injury prevention strategies within the distinct culture of women's rugby. The findings substantiate the idea that safety and effective performance go hand-in-hand, and supporting these aspects through coach-led injury prevention interventions can advance the sport of rugby as a whole. The implications for judo and judo coaches, is emphasised by the importance of a collaborative approach in sharing the principles from *ukemi*, but in also recognising the fundamental principle of *Jita-Kyoei* and the mutual welfare and benefit that the

principles from judo can offer participants across sports. Future research could benefit practice through drawing upon existing safe falling and landing principles from judo and integrating athletes' and coaches' experiences to develop an evidence-informed curriculum to progressively enhance safe technique which minimises head impacts and related injuries.

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The Educational Value of *Nage-no-kata* Through the Different Reactions and Effects on the Interaction Between *Tori* and *Uke*

By Slaviša Bradić[1], Mike Callan[2], Chikara Kariya[3] & Llyr Jones[4]

Abstract: *The popularity of judo kata in the world today is in progression. In addition to the large percentage of national judo federations that have Nage-no-kata in their Dan grade promotion curriculum, one of the reasons is the introduction of kata competitions at all levels. Regardless of this, it is fundamentally important to understand the educational value of Nage-no-kata. The original idea of practising kata in Kōdōkan jūdō is its educational value because its kata form was created precisely for learning the basics of techniques and the principles of judo (Kano, 2005). The value of Nage-no-kata as a means of education in judo development is manifested in physical, technical and mental parts. Different levels of knowledge of Nage-no-kata condition its potential application in training and daily training.*

Keywords: *Kodokan judo; Nage-no-kata; education*

Nihon-den Kōdōkan Jūdō was founded in 1882 in the small Buddhist temple of *Eisho-ji*. The founder, *Kanō Jigorō*, from his own experience practising and studying the martial arts of Japan, such as *jū-jutsu*, created a system that directed the goals of practice from pure struggle to personal training and the maximum development of his physical, mental and intellectual abilities (*Kanō & Kōdōkan* (Tokyo Japan), 1986). *Kanō* implemented four ways of teaching judo (Kodokan, 2009). Teaching methods included two training modes and two ways of lecturing. The four ways of teaching judo are: *kata, randori, kogi* and *mondo*.

Kata is the first of the teaching methods, gaining its importance due to the increase in the number of students, thereby reducing the possibility of individual or small group instruction. Speaking at the University of Southern California in 1932, *Kanō* gave the following definition of kata, explaining that the attacks and defences are prearranged.

Kata, which literally means 'form,' is a formal system of prearranged exercises, including hitting, cutting, kicking, thrusting, etc., according to rules under which each combatant knows beforehand exactly what his opponent is going to do (Kanō, 1932).

Kanō Jigorō gained his experience in practising kata from his career of practising in *Tenjin Shin'yō-ryū* and *Kitō-ryū-jūjutsu* in which practice was based on *kata* and *randori* (Watson, 2008). The practical training in *Kōdōkan jūdō* consists of *randori* and *kata* which is partially inherited from the old schools of *jū-jutsu* (Stevens, 2013). The history of the development of the official *Kōdōkan jūdō kata* traces the parallel development of judo from the very beginning. *Nage-no-kata* was formed in the period from 1883 to 1885 as well as *Katame-no-kata* and *Ju-no-kata* (Watson, 2008). The forms and techniques of the *kata* themselves have changed through history and the meeting of masters of different martial arts schools in 1906 in *Dai-Nippon Butokukai*, where *Kanō Jigorō* was presiding, is considered important for defining the form of *kata* as we now know it. (Callan et al., 2021). The big meeting was held at the initiative of *Dai-Nippon Butokukai*'s chairman, *Oura Kenmu*, who appointed *Kanō Jigorō* as chairman of a commission of 20 masters from various *jū-jutsu* schools. At the long meeting, *Nage-no-kata* and *Katame-no-kata* were defined, while the other *kata* were defined later due to different opinions and long discussions (Hoare, 2009).

Until 1906, *Nage-no-kata* had 10 techniques, and after the meeting of the commission, the number of techniques added to 15 techniques (Bennett, 2009). *Kanō Jigorō* himself emphasised practising *kata* in judo for several reasons. Practising techniques that were banned in randori such as *atemi-waza* or techniques for real combat (*shin-ken-shobu*), were ideal through *kata*. He also emphasised that the value of *kata* is like grammar in writing because it ideally serves for the correction and proper learning of judo technique (Kano, 1887).

Today, *kata* is practised mainly for the reason of exams for rank advancement, so the perception of educational value is very small. The value of *kata* exercise for progress and learning is rarely considered. This is the case in many countries for reasons of insufficient education of coaches and stereotypes of the opinion that *kata* is 'only part of tradition and necessary only as an exam element for dan grade belts.'

This is an indication that the development of judo *v* through their intrinsic value needs to be directed towards judo coaches because they are the immediate link, the transmission of knowledge to the judo population (Bradić & Callan, 2018)

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Figure 1. Judo *kata* divided into groups according to educational values

The value of *kata* practice can be defined in several chapters that permeate each other. Although interest today mainly refers to only a few of the elements listed below, it is important to know all possible values of *kata* because it is the only correct way to fully acquire judo knowledge. All official *Kodokan kata*, in their essence, express the ideal goal of practising judo; harmonised and good use of mind and body, physical and mental principles, and technique of judo. Through practice, all judo elements are perfected and harmonised, which have an extremely positive effect on the development of judo practitioners (Jones & Hanon, 2010).

Learning basic techniques and principles in their original form

All *kata* contain techniques and principles in their original form. An example can be found in any technique or series. In *Randori-no-kata* (*Nage-no-kata* and *Katame-no-kata*), all techniques have a logical sequence of learning, action, and reaction between *tori* and *uke*. It also has a positive effect on the development of the body and the principles of proper use of energy and preparation for upgrading the technique.

Development of awareness in the execution of techniques

Given the specificity of *kata* (maximum concentration on techniques, rhythm, breathing and other aspects), the element of awareness of performing movements develops to achieve perfect harmony between attack and defence, *tori* and *uke*, and maximum concentration.

Symbolic role

The *kata* itself is a symbol of a particular idea of teaching, school, or style. Its performance presents the preservation and durability of the quality of the original form. *Kata* practices thus remained in the legacy of *Kōdōkan jūdō* as an integral part of the curriculum. Each of the official *katas* has its own history and development path. Therefore, in a way *kata* also represents the cultural value of judo.

Preservation of 'living thoughts and ideas'

Kata includes a set of techniques with principles and a specific order. All this was created in ancient times, in different processes of judo development, influenced by the philosophy and ideas of each period. Performing *kata* provides a link between today's modern age and the very beginning of judo.

Exhibition

The presentation of *kata* is an excellent demonstration of the richness of judo, of techniques and principles. Throwing techniques with actions and reactions, ground fighting, holding procedures and realistic releases, self-defence techniques where elements prohibited in sports combat are applied, movements that show superior coordination and synchronisation, and deeply significant movements that imitate movements in nature, are excellent exhibition content, an appropriate presentation of judo.

The unification of physical and mental aspects

Practising *kata* is a great way to unite the physical part of performing the technique with mentally following it. Given the specificity of performance (maximum concentration, complete silence, and reduced ability to communicate between *tori* and *uke*), it leads to a symbiosis between physical movements and the mental part of the personality.

Practice

Performing *kata* is excellent practice before performing *randori*: techniques are performed on the left and right sides (*Nage-no-kata*), holding and escaping are practised with full force and are yet precisely determined (*Katame-no-kata*), self-defence is performed with real attacks (*Kime-no-kata*, *Kodokan Goshin-jutsu*), movements prepare the body for training or relax it (*Ju-no-kata*, *Seiryoku-Zenyo-Kokumin-Taikku*). All this creates a practice that is in direct correlation with the correct execution of the technique and is an excellent base for further upgrading of the technique in free combat, *randori* or *shiai*. All of the above gives us a clear picture of the complexity and values that judo *kata* provide (Ishikawa & Draeger, 1962).

Today's trends place judo *kata* basics as educationally important and this is one of the reasons that kata are an integral part of the IJF Academy programme through which many judo coaches from all over the world pass. Methodical work at the IJF Academy presents *Nage-no-kata* and *Katame-no-kata* to students, emphasising educational values useful for judo training and the understanding of judo techniques and principles.

Kata competitions have also contributed to the development of the popularity of judo *kata* and with the support of the *Kōdōkan Jūdō Institute*, the true role of *kata* and their need are often highlighted. There are exercises that teach unbalancing, body positioning and throwing principles: *Kuzushi-Tsukuri-Kake*. Emphasising the educational value of judo, kata is emphasised through the need

to understand and apply the principles of *Riai* (Uemura, 2015). The reason for this is that competitive *kata* is sometimes performed more as a demonstration of technique and pure form without real interaction and understanding between *tori* and *uke* thus losing the original value of the judo *kata*. It should not be forgotten that the *kata* competition is only one relatively new and small part of the study of *kata*.

Mental effect

In its performance, *kata* is a classic example of a physical form that is highly correlated with the mental level of the practitioner. The physical part itself requires certain preparation and mastery but the key to a quality performance is high mental preparation. Memory related to movement and synchronisation with a partner develops maximum concentration and self-control (Callan et al., 2021).

METHODS

The methods used encompass observation and learning process of the authors in practising and evaluating the performance of *Nage-no-kata* of judo practicioners all over the world as well as literature sources on *kata* values.The performance of the *Nage-no-kata* is conditioned by the interaction between *tori* and *uke*. The educational value is the same for both if all key technical elements are performed with understanding. A methodical approach that involves upgrading the main technical elements with details that are geared towards perfection have a complete effect only as the movements and techniques themselves are understood.

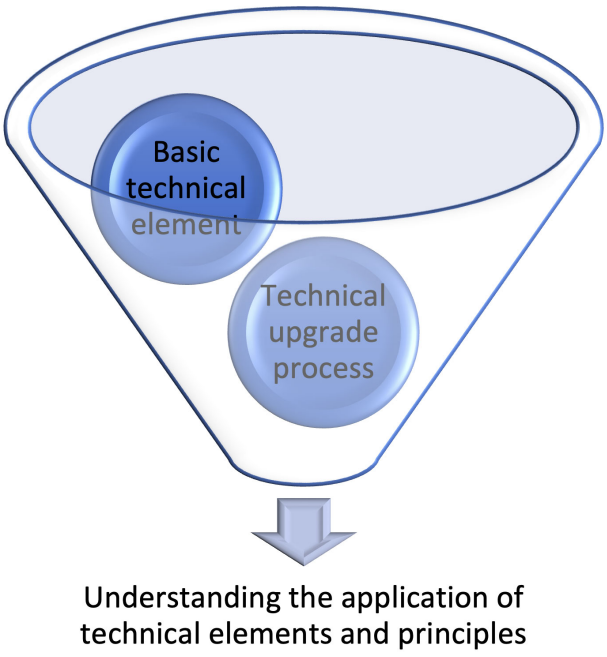


Figure 2. Presentation of the complete process of learning *kata* for *tori* and *uke*

The interaction between *tori* and *uke* is crucial for developing the applicability of techniques and principles. By increasing the interaction, the educational value of the *kata* also increases. If the performance of the form does not have interaction involved or it is minimal, the educational value is very small, even negligible. A high standard of assessment of the quality of *kata* is impossible without considering the work of *tori* and *uke* together. In competitive judo *kata*, the performance of the *kata* is evaluated equally for *tori* and *uke*. This is valorised by evaluating a technique involving the movement and role of both *tori* and *uke*. However, to evaluate the complete knowledge of judo *kata*, it is necessary to swap the roles of *tori* and *uke* after the first demonstration. Such a procedure offers a clear picture of knowing judo *kata* from both perspectives. In the *Kōdōkan*'s certification system for judo *kata*, it is necessary to demonstrate both roles: *tori* and *uke*.

This is the essential difference between *kata*'s competitive value and educational value.

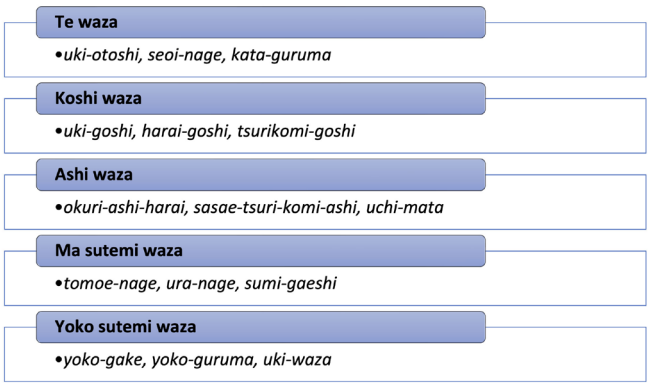
Competition can be a tool by which the technical and mental levels are developed maximally but often it is not primary because in competition the result is naturally the main goal.

The educational value is universal and permeates through all forms of practising *kata*. Understanding the structure of techniques and principles through practice creates the basis for their implementation in all aspects of judo. Thus, the principles of the technique can be applied and adapted easily to situations in randori or self-defence, *goshin-jutsu*. Educational value is also associated with the level of mental components such as concentration and self-control (Callan & Bradic, 2018).

Nage-no-kata techniques are divided into 5 throwing groups identical to the classification of *Kōdōkan jūdō* technique (*Jigoro Kano*, 2005).

The performance of *kata* is conditioned by harmonious and rhythmic action between *uke* and *tori*. The original idea of practising *kata* is to learn the basic technique and principles of judo, so we can conclude that *kata* in its original form is an educational method. Although the educational value of *Nage-no-kata* is often viewed exclusively from the position of *tori*, with a high-quality analysis of all technical elements and sequences of *kata*, the role of *tori* in relation to *uke* is the same.

Table 1. *Nage-no-kata* techniques



The role of *uke* is not only as an assist but a role requiring as much knowledge of judo techniques and principles as *tori*. Performing *kata* well requires synchronisation through the development of a sense of the principles of judo technique (Bradić & Callan, 2018).

Therefore, full knowledge of *Nage-no-kata* is possible only through practising both roles in the *kata*. In addition to the ceremonial part of the *kata* (which includes the rei salute), technical elements of movement, distance, *kumikata*, *ukemi*, etc. are used in the *kata*.

This increases the value of learning and practising *kata* as basic skills are developed (Hoare, 2007).

The general technical elements that *Nage-no-kata* contains are:

• Walking technique – *Tsugi ashi, Ayumi ashi*
• Stances – *Shizen hontai, Jigo tai* (traditional defensive stance without holding *judogi*)
• Throwing techniques – *Te-waza, Koshi-waza, Ashi-waza, Ma-sutemi-waza, Yoko-sutemi-waza*
• Striking techniques - *Atemi-waza*
• Vital Point (*Kyu-sho*) – *Tento*
• Falling technique (*Ukemi-waza*) – *Yoko-ukemi, Mae-mawari-ukemi*
• Movement - *sabaki*
• Bow - *rei*
• Distance - *maai*
• Grip: a way of holding the *judogi* - *kumikata*
• Action-reaction - *go-no-sen*
• Breaking opponent's balance - *kuzushi*
• Positioning - *tsukuri*
•Execution techniques - *kake*.

Adoption of motor movements of tori in each of the techniques in *Nage-no-kata*:

• Use *uke*'s action for *sabaki, kumikata, kuzushi*
• Performing *kuzushi* at a key moment of the technique
• Achieving a proper *tsukuri*
• Finding solutions to *uke*'s reaction to the *kake* phase
Adoption of motor movements of *uke*:
• Attacking techniques, *sabaki, shisei - posture, kumikata, kuzushi*,
• The body's reaction to *tori*'s technique,
• *Ukemi*.

Common elements manifested through the interaction between tori and uke:

• Rhythm,
• Breathing,
• Orientation.

When all the values and elements are added together that *kata*, in its structure, contains at the technical level from basic to complex movements and principles, and mental components such as self-control, memory and focus and all this of course in harmony and interaction with a partner, the value of the *kata* definitely becomes very high (Bradić, 2018).

Table 2. The execution of *Nage-no-kata* technique analysed with the relationship of reactions between *uke* and *tori*

RB	Name of technique	*Tori*	*Uke*
1.	*Uki-otoshi*	• Moment to take initiative from *uke* • *Kuzushi-tsukuri-kake* • *Zanshin*	• Start the action • Keep the balance • *Ukemi*
2.	*Seoi-nage*	• Moment to start defence against punch attack • *Kuzushi-tsukuri-kake* • Solve the problem of *uke*'s defence • *Zanshin*	• Start the action • *Atemi-waza* • Vital point (*tento*) • Keep the balance • *Ukemi*
3.	*Kata-guruma*	• Moment to take initiative from *uke* • Prediction of *shime-waza* (change the grip) • *Kuzushi-tsukuri-kake* • *Zanshin*	• Start the action • Keep the balance • Defend on *tori*'s back • *Ukemi*

4.	*Uki-goshi*	• Moment to start defence against punch attack • *Kuzushi-tsukuri-kake* • Change the grip control during the kake phases • *Zanshin*	• Start the action • *Atemi-waza* • Vital point (*tento*) • Keep the balance • *Ukemi*
5.	*Harai-goshi*	• Moment to take initiative from *uke* • Better control of *uke*'s body (change the flow) • *Kuzushi-tsukuri-kake* • *Zanshin*	• Start the action • Keep the balance • Defend with better body position • *Ukemi*
6.	*Tsurikomi-goshi*	• Moment to take initiative from *uke* with high grip • Prediction of *uke* reaction • *Kuzushi-tsukuri-kake* • *Zanshin*	• Start the action • Keep the balance • Defend with better body position • *Ukemi*
7.	*Okuri-ashi-harai*	• Moment to take initiative from *uke*, moving to the side • Catch the moment during the *Kuzushi-tsukuri-kake* phases • *Zanshin*	• Start the action with movements to the side and grip • Keep the balance • Defend with side movement • *Ukemi*
8.	*Sasae-tsuri-komi-ashi*	• Moment to take initiative from *uke* with grip • *Kuzushi-tsukuri-kake* • *Zanshin*	• Start the action with moving and grip • Keep the balance • Defend with body • *Ukemi*
9.	*Uchi-mata*	• Moment to take initiative from *uke* with small step and grip • Starting circular moving • *Kuzushi-tsukuri-kake* • *Zanshin*	• Start the reaction with small moving and grip • Keep the balance • Defend with body • *Ukemi*
10.	*Tomoe-nage*	• Start action with small step and pushing *uke* • Find position for *kuzushi—tsukuri-kake* with change the middle grip • *Zanshin*	• Start the reaction with small step, moving backwards and grip • Keep the balance and defend with body • *Mae-mawari-ukemi*
11.	*Ura -nage*	• Moment to start defence against punch attack • *Kuzushi-tsukuri-kake* • Solve the problem of *uke*'s defence (block the sholder) • *Zanshin*	• Start the action • *Atemi-waza* • Vital point (tento) • Keep the balance • Defense by pushing the shoulder • *Ukemi*
12.	*Sumi-gaeshi*	• Start with *jigotai* and old style grip (without catching the judogi) • Start action with pulling *uke* • *Kuzushi-tsukuri-kake* • *Zanshin*	• Start with *jigotai* and old style grip (without catching the *judogi*) • Start reaction with defending with body • *Mae-mawari-ukemi*
13.	*Yoko-gake*	• Moment to take initiative from *uke* • *Kuzushi-tsukuri-kake* • *Zanshin*	• Start the action with moving and grip • Keep the balance • Defend with body • *Ukemi*

14.	*Yoko-guruma*	• Moment to start defence against punch attack • *Kuzushi-tsukuri-kake* • Solve the problem of *Uke* defence (catch the neck) • *Zanshin*	• Start the action • *Atemi-waza* • Vital point (tento) • Keep the balance • Defence with catch the neck • *Mae-mawari-ukemi*
15.	*Uki-waza*	• Start with jigotai and old style grip (without catching the judogi) • Start action by pulling uke • Kuzushi-tsukuri-kake • Zanshin	• Start with jigotai and old style grip (without catching the judogi) • Start reaction by defending with body • Mae-mawari-ukemi

In the entire interaction between tori and *uke* during the execution of techniques, synchronisation and a sense of rhythm is required. One of the methods and recommendations for properly maintaining the rhythm is to monitor the rhythm of breathing. As explained by Otaki and Draeger (1983), just before each element in the *kata*, *tori* and *uke* perform one breath as a period that positively affects the temporal, technical and mental synchronisation. It should also be emphasised that in different levels of practising *kata*, various technical elements and principles are also developing. The initial stage includes the order and rough frameworks of the technique while with further practice the levels develop according to mental components and understanding.

The interaction between *tori* and *uke* is conditioned by the given order of *Nage-no-kata* techniques where the action of *uke* action provokes a solution for tori that ends in a throw. Also, during the *uke* action and the *tori* reaction, *uke*'s reaction to *tori*'s technique often appears. This increases the complexity of the *kata* itself, as *tori*'s role requires additional problem solving for a new problem.

Examples are found in the central part of the technique just before the throw itself by *tori*, when *uke*, with a certain movement, tries to resist, block or avoid the tori's attack. At that critical moment tori finds a solution and applies the technique to *uke*. This level of interaction belongs to an advanced stage of *Nage-no-kata* knowledge and is often not noticeable during performance or demonstration due to the speed of execution.

However, by knowing, recognising and analysing these elements, the educational value of *Nage-no-kata* becomes great and understandable.

Table 3. Example of problem solving during uke's reaction to tori's application of the technique

TECHNIQUE-ACTION *TORI*	***UKE* REACTION**	**ACTION *TORI***
Seoi-nage	• Body and blockage of the hand	• Lowers the centre of gravity and pulls
Uki-goshi	• Body	• Keeps position and attracts *uke*
Okuri-ashi-harai	• Moving to the side	• Continues to move and performs a throw
Ura-nage	• Body and shoulder block	• Pulls the centre of gravity of *uke* on itself
Yoko-Guruma	• Neck block and control	• Rotates and descends below *uke*

The development of mental capability in the practice of Nage-no-kata is conditioned by the development of judo mastery. The physical level of kata performance is a manifestation of the level of mental preparation (Fukuda, 1973). In Nage-no-kata, as in other judo kata, various mental aspects are developed that can later be applied in other aspects of judo training and life. Kata practice has a great influence on the development of the following mental components: memory, concentration, sense of rhythm, self-control.

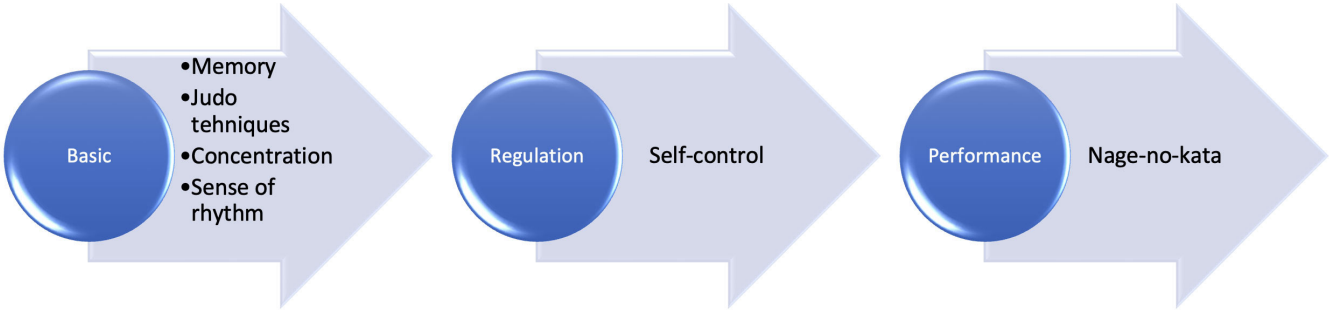


Figure 3. Presentation of the physical and mental process when performing *Nage-no-kata*

Memory development is necessary for performing a set of different techniques and movements. The influence of movement and muscle work associated with the part of the brain responsible for motor skills has a positive effect on the development of memory and memorisation (Žagar, 2018). Performing physical exercise with demanding mental focus in humans has an impact on the development of various physical and neurological mechanisms. Such developed mechanisms can be easily adapted to other activities (Páez & Martínez-Díaz).

The development of concentration is extremely high because the mental focus towards continuous execution of movements must be constant. Any lack of concentration or connection with the movement manifests itself in an error in the execution of the movement. The level of concentration associated with the movement determines the quality of execution of the movement, which in *Nage-no-kata* is most visible through the technique. The developed concentration and focus on movement are applicable in other parts of judo training as well as in everyday life.

Rhythm is something by which the performance of *Nage-no-kata* can be judged. The lack of synchronisation between *tori* and *uke* is easily visible even without a good knowledge of *Nage-no-kata*. Increasing the level of rhythm in the technique itself and synchronisation with the partner determines the quality of the execution of the *kata* itself.

All the mentioned mental processes are united by the factor of self-control. The development of self-control in *tori* and *uke* affects the management of memory, concentration and rhythm. The mechanism of self-control manifests mental states into physical states through emotion regulators (Takšić et al., 2006). Awareness during the execution of movements and techniques in *Nage-no-kata* detects the quality of execution and the subjective assessment of the practitioner (regardless of *tori* or *uke*). The continuity and quality of the performance of the upcoming techniques are conditioned by emotion regulators (the exerciser can be angry, happy, scared, etc.), conditioned by the factor of self-control (Smojver-Ažić et al., 2016).

CONCLUSIONS

Structural analysis of *Nage-no-kata* shows a large part of the technical elements of judo that are perfected by the interaction of *tori* and *uke*. The level of training in *tori* and *uke* correlates with an understanding of the movements, techniques, and principles of *Nage-no-kata*. Progression in technical performance is related to the mental level. The mental aspect in exercisers is associated with the mechanisms of concentration and self-control and they are mutually dependent in the progression of performance.

The educational value of practising *Nage-no-kata* for *tori* and *uke* is the same and the importance of training and knowledge is the same for both.

Increasing the level of *Nage-no-kata* demonstration requires a high level of training of technical details, principles, torque, reality, rhythm, and maximum synchronisation.

Nage-no-kata , like other *kata* in judo, is one of the mechanisms that positively influences the development of physical, spiritual and mental cultivation in accordance with the philosophy of *onore-no-kansei* (Kawamura & Daigo, 2000).

The mental capability that *Nage-no-kata* develops is extremely broad because it contains related mechanisms that co-ordinate memory, concentration, sense of rhythm and self-control. Therefore, we can conclude that *Nage-no-kata* is a combination of physical activity, judo technique and principles guided by mental components.

In accordance with the principles of *Kōdōkan jūdō* set by *Kanō Jigorō*, we can conclude that kata practice is fully correlated with the principle of mutual prosperity for self and others, *jita-kyoei* (Kano, 2016).

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The Psychology of the Major Career Transition from Club Environment to Full Time Training Centres for Elite Female Judoka

By Jo Crowley

Abstract: *It could be hypothesised that female athletes need a well-defined, progressive and individually flexible programme of psychology to manage the transitions through their careers successfully. Influences on learning can be varied and include language used in coaching, coach education, consistency of approach and an understanding of challenges and pitfalls of a high performance pathway, specifically in judo. Specifically, there can be a great deal of stress induced at the point elite athletes transition from club environments to full time training centres. In order to assist athletes with managing that stress, it is necessary to know why the stress occurs, when the stress occurs and what can either exacerbate or alleviate such stress. This research note is focussed on research literature regarding elite female judo athletes aged 14-21, their potential coping strategies and how they can manage such a major career transition successfully.*

Keywords: *career transitions; psychology; female judoka; stress*

Considering the perceived needs of elite female judo athletes aged 14-21 during a period of transition from club to full time environments, the aims should include the management of athletes' expectations with a view to having a positive effect on progression and so a progressive and individual programme of psychological development should permeate staff practices and training, as highlighted by Olusoga et al (2009); be targeted carefully to support individual athletes through varying transition events, as suggested by LEVY et al, 2009, while MILLAR et al, 2011 support this, saying, "where athletes' needs do not influence their learning experiences, learning is diminished"; provide consistent and positive language."… "It is important for coaches to be aware of what they say and what impact this has on athlete learning." (MILLAR et al, 2011); be robust and progressive. This should lead to fostering a high performance pathway that produces a continuous stream of high performance athletes, alongside the coaches and other practitioners of the future, who are psychologically aware, strong and capable of achieving at the highest level and who can survive the normal and unusual pitfalls of a career in sport.

Literature Review and Discussion

Samuel and Tenenbaum (2011) examine the nature, frequency and significance of transitions and athletes' perceptions of them. They argue that the role of sport psychology should be exactly determined, using longitudinal studies to identify process and moderating factors, and emphasise the need for cross-cultural studies. They assert that sport psychology consultation should be an integral part of the athletic experience and that athletes should be made aware of its availability through change events.

Roberts (2001) agrees, linking motivation and success to perceived behavioural control. This implies that in periods of transition, there are more unknowns and therefore there is a perception of reduced behavioural control which can affect motivation.

Morris, Tod and Oliver (2015), in describing the Stambulova model, differ slightly from that view, in that they assert that preparation for coping with stresses can create the desired balance between athletes' resources and barriers to counteract the demand of change they experience. The study highlights the need for coach training, targeted resources and a proactive intervention programme.

Debois, Ledon, Argiolas and Rosnet (2012) argue similarly, that there is a wide range of transitions through an athlete's career, some of which may be common to athletes from many sports. They also suggest that the timing of psychological intervention should be evaluated to be most effective.

Anshel, Sutarso and Jubenville (2009) argue that female and male athletes employ different strategies and mechanisms in managing a range of stresses. They argue that we need to improve our understanding of the moderating variables of gender. Women perceive less control over environmental factors but were more negatively affected by coach-related stressful events than their male counterparts. Women perceived their male coaches as authority figures, but their female coaches as more concerned

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with their personal development. Further, female athletes cope with stress by social support and help-seeking and need a positive relationship with their coach to make progress.

Tamminen, Holt and Neeley (2013) examined the stresses on nine female athletes across a range of sports. They determined that the shared experiences of adversity were isolation, emotional disruption, questioning ability, and understanding experiences within their perceived expectations. They argue that negotiating adversity in female athletes may have positive outcomes for personal growth, in terms of initiating a process of questioning their identities and searching for meaning.

Hardy, Jones and Gould (1996) agree, citing the different approaches of male athletes, who tend to measure their cognitive anxiety and self-confidence against their opponents, whereas female athletes were more introspective.

Similarly, Hollings, Mallet and Hume (2014) identify a positive approach as a significant factor in whether or not athletes progress successfully from junior to senior level. The successful athletes committed themselves to a clearly-defined and realistic goal, continued to achieve success through periods of transition and had a single dominant identity and key strength. They all made sacrifices, but lack of guidance and personal management from within the sport was identified as a highly significant factor. Kaiseler, Polman and Nicholls (2009), however, lodge the responsibility for coping with stress with the athlete themselves, citing mental toughness and hardiness as the most significant factors.

Levy et al (2009) have devised a comprehensive breakdown of organisational stressors and their frequencies, along with athlete responses. This has not been gender-defined. Olusoga et al (2009) outline a similar range of stressors for coaches. It could be hypothesised that the combination of athlete stress and coach stress will impact on relationships, coping strategies and their effectiveness and therefore performance. Similarly Arnold and Fletcher (2012) also examined a range of stressors and organisational stressors particularly. They argue that leadership and personnel have a pivotal role in creating an environment in which athletes can thrive, although they do not draw specific differences between male and female participants.

Millar et al (2011) draw on a number of noted aspects of coaching and stress and coping to note that language and communication play a significant role in coach and athlete relationships and this can either enhance or detract from development and therefore performance.

It could be noted that a variety of bias exists within this topic, that can skew conclusions and forward recommendations: gender bias of athlete and of coach and of researcher, specific environment, age range of participants, socio-economic background of participants and researchers and so on. There may also be a controversial issue at hand, whereby, as Tamminen (2013) suggests, the differing male and female coping strategies offer different responses to the transitional events in any environment and therefore in an environment where little focus is given to the psychology of transition, it could be argued that one gender may succeed naturally without intervention, whereas the other gender may succeed with intervention at the expense of the other.

I assert that both genders can be accommodated when a proactive approach to tackling transition events is in play, which considers the gender bias of psychological response. It must be possible to put programmes in place that offer progress and success for both male and female athletes, despite differences in specific, individual needs, delivered by a core staff in any sporting environment.

Possible Benefits for National Judo Federations

There is an opportunity to produce a summary report for national federations, highlighting stressors and coping mechanisms employed by young, elite, female judo athletes. The information supplied could offer federations a resource for coach development and themes could be considered when producing training programmes and when encountering major career transitions with individual athletes.

CONCLUSIONS

An amount of stress is caused when any change is made to an athlete's environment, support personnel, programme or goals, but it is the development of effective, controllable coping strategies that will determine whether or not the athlete is able to manage the stress and grow from it through these transition periods. Adversity can equal growth when both the adversity and the goal are understood and managed through a robust, well-resourced and consistent programme.

There is a lack of research around coping strategies for and the perception of stressors which consider gender, with regard to elite athletes. There is however a small body of evidence concerning female elite athletes and their stress, anxiety and coping mechanisms and so it may be possible to outline ways to support female athletes through career transitions effectively.

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Universality and Applicability of the Shu-ha-ri Concept Through Comparison in Everyday Life, Education and Judo

By Slaviša Bradić[1], Chikara Kariya[2], Mike Callan[3] & Llyr Jones[4]

Abstract: *In the tradition of Japanese martial arts, the concept of Shu-ha-ri is often mentioned. The aim of researching this concept is to better understand the principles of learning Japanese martial arts, primarily judo, through history. It also seeks to prove the universality of values that permeate to the present day and applicability in the learning process, not only in martial arts but also in everyday life.*

Through the concept of Shu-ha-ri we can read the characteristics of the different stages of learning and relationships in the learning process between all elements, from the teacher, the student, the degree of mastery and mutual relations. By comparing some every day, easy-to-understand processes of learning, growing up and maturing, with judo and an emphasis on a specific part such as judo kata, the universality of the Shu-ha-ri concept is shown. Through this example and comparison, certain specifics of the judo kata learning process between sport competition and understanding, and awareness of performance are also shown.

Keywords: *Shu-ha-ri; Kodokan judo; kata; learning process*

Shu (守)-*Ha* (破)-*Ri* (離) is a concept that occurs in the history of Japan, intimately associated with the martial arts *bujutsu*. In Japanese, *bu* (術) means war or martial and *jutsu* (術) means art or skill (Draeger, 1973). The *Shu-ha-ri* concept was first introduced by Fuhaku Kawakami as *jo-ha-kyū* in The Way of Tea, '*Sado* 茶道' (DeCoker, 1998).

The concept is related to the learning process and the relationship within the learning between the student and the teacher, or the factor that transfers knowledge according to the factor that acquires knowledge. Within the process itself, certain characteristics occur that are universal and applicable to different spheres of life. Often, these concepts or parts of the concept can also be found in philosophical and religious directions such as Zen and Buddhism. In the context of Buddhism, a concept known as '*shoshin*' (初心), meaning 'beginner's mind' or 'heart of a beginner,' can be compared in some way with the principle of *Shu-ha-ri*, because maintaining an open and modest mind is extremely important regardless of advances in knowledge or experience. In practice, this implies a return to the beginner's spirit and the will to learn regardless of the high level of skill achieved (Miller, 2008). (Miller, 2008). The modern Japanese education system is influenced by Confucian values relating to the strict respect and obedience of the elderly because of faith in their benevolence and wisdom. In the Edo period, these values were present for 400 years when the *Tokugawa* government began recognising and stratifying social classes. After the Meiji Restoration, class systems were abolished but hierarchy still played a major role in modern Japanese society, especially within the school system (Miller, 2008).

In martial arts, the concept of *Shu-ha-ri* is found in different periods and schools of martial arts. The concept contains the stages that a student goes through while training in martial arts and their attitude towards their teacher and school (Espartero et al., 2011). The tradition of this concept continues and is present in today's judo. The very concept of a person's development is associated with the maximum development of physical, psychological and mental traits through judo, for the benefit of one's own social community (Kodokan Judo Institute, 2009). The process of development in judo is associated with different systems of training and learning under the guidance of the teacher as an authority. Various forms of training serve to effectively adopt the techniques and principles of judo, and traditionally are divided into four components, *kata* (forms), *randori* (practice), *kogi* (lesson) and *mondo* (discussion) (Kano, 2016)

In each of the existing components, the concept of *Shu-ha-ri* can be applied, which is also its greatest value because it can be applied to all spheres of human development. (Jones & Hanon, 2010).

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The aim of the research is to compare and explain the universality of the concept of *Shu-ha-ri* through basic human relationships, judo development and a specific part such as kata exercise.

METHOD

Concept explanation of *Shu-ha-ri*

By analysing the Japanese concept of *Shu-ha-ri* and comparing it to various aspects and applications that occur in the context of learning and developing skills, the universality of this concept will be shown. Given that this concept is used in various fields, such as martial arts, art, business world, etc., *Shu-ha-ri* describes the three stages of progress and understanding in the learning of a discipline (Klens-Bigman, 2002).

Fundamentally these three concepts can be presented in the following definitions:

The word *Shu* (守) – denotes protecting, adherence, copying, listening, watching. At this stage of learning, a person focuses on imitating the basic techniques, rules and procedures that form the structure. The disciple follows instructions and authorities and tries to accurately copy what they were shown or told. The goal is to develop a fundamental understanding of the discipline and direct learned knowledge towards the search for perfection and reaching mastery. This stage is fundamental to the development of skills and the subsequent upgrading of other stages.

The word *Ha* (破) – denotes breaking, deviating, demolition or breaking. Once the student can follow and listen to the rules, they begin to challenge a settled mindset and look for alternatives. The student begins to understand the reasons behind the techniques and rules and can think critically and experiment with their own interpretations and variations. The goal is to develop creativity and independence in the application of what is learned. At this stage, the beginner questions the rules or laws and their applicability to different groups of situations. The '*Ha*' phase implies one way of separating from the unquestionable loyalty of the student in the structure they had in the first phase.

The word *Ri* (離) – denotes deviation, freedom, separation or being distant. This is the final stage for students but only for exceptionally gifted ones. At this stage of learning, a person has achieved a high level of skill and understanding of the discipline and begins to rely on their own experiences. After fully adopting the fundamental principles and awareness of them, they get rid of strict rules and proposed methods and begin to react according to their intuition and adaptation to different situations. At this stage, the goal becomes to achieve your own unique interpretation of the discipline and achievements of the highest level of skill.

The *Shu-ha-ri* (protect-break-separate) concept explains the importance of the process of initial learning and adherence to traditional methods (*Shu*), the importance of the process that affects personal development and the willingness to start introducing one's own innovations and experimentation (*Ha*), and ultimately to create one's own style and approach through the line of individuality (*Ri*) (Sakaue, 2018). This concept can be applied in various fields with an emphasis on its value as a powerful tool for skill development and advancement in any discipline.

The research will cover the comparison of the *Shu-ha-ri* concept to different segments of life, showing the universality of concepts from fundamental to specific. The analysis contains comparisons of the following situations of application of the *Shu-ha-ri* concept:

- The concept of development within the family
- The concept of development in the educational process
- The concept of development in judo with an emphasis on kata exercise

The analysis of these concepts will show the specifics, similarities and differences from the perspective of the *Shu-ha-ri* concept. By presenting the processes in all these situations, the goal is to find links in these processes and to explain their correlation by comparing them. The situations that have been selected are primarily to prove possible correlation from fundamentals such as family processes to educational processes, to judo training and extremely specific processes such as judo kata practice.

RESEARCH DESIGN

The purpose of the research is to understand the concept of *Shu-ha-ri* in the context of skill development in traditional and contemporary disciplines through a cross-section of different examples.

The goal of the research is to investigate and analyse the application of the concept of *Shu-ha-ri* in the process of skill development in various disciplines and spheres of life, and judo as the ultimate application and clarification. The research will identify certain factors that show the application of the *Shu-ha-ri* concept. By analysing existing sources on the concept of *Shu-ha-ri* through literature, we can see the historical role of the concept in Japanese society (DeCoker, 1998). The application of such a concept is related to a wide spectrum of human life that includes physical and psychological relationships (Saito, 2020). The social aspect, along with the family, spiritual or martial aspect, contains a pattern that is identical in its relation to certain stages of human development (Tomozoe & Wada, 1993). Research aimed at clarifying the concept is directed with the goal of clarifying its application in judo activities. Through training, judo activity can be seen in different processes and relationships of the judoka towards their environment and knowledge but also towards rela-

tionships and processes within the personal development of judo skills (Jones & Hanon, 2010). The identification of the key elements and characteristics of *Shu-ha-ri* in each discipline will help us better understand the purpose of the original idea and its applicability to this day.

The expected results of the research are aimed at identifying the key elements of the successful application of *Shu-ha-ri* in various disciplines. The research also aims to develop an understanding of the differences in the approach to *Shu-ha-ri* between traditional and contemporary disciplines. The research will contribute to a better understanding of the concept of *Shu-ha-ri* and its application in different fields, providing guidelines for more effective acquisition and development of skills in different disciplines.

DISCUSSION

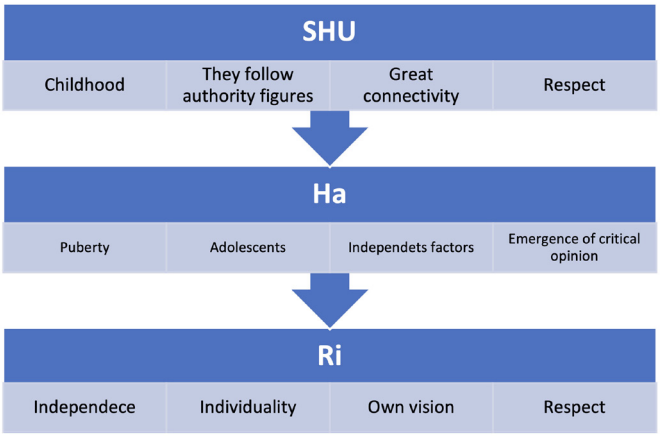
The universality of the *Shu-ha-ri* concept can be linked to any concept of learning or development. Although it is not directly related to Japanese religion and philosophy, its principles can also be applied in this area (Klens-Bigman, 2002). If we analyse the application to some basic things and relationships such as family, then through the growth of children within the family we can also follow the concept of *Shu-ha-ri*. The development of a child begins with their parental relationships and them following their parents and elders through respect. The child through their growth and development is greatly influenced by parents and elders as authority figures.

In the Shu phase, children follow and adhere to the rules, traditions and instructions given to them by older family members; how to treat other family members or how to behave appropriately in certain situations. Children at this stage learn the foundations and basic skills that are necessary for proper functioning within the family.

At the Ha stage, young children begin to explore and understand the rules and traditions they learned in the first stage. They develop critical thinking and begin to question existing ways and look for new ways to solve problems or perform tasks. They also begin to express their opinions about the rules of the house or family values, ask questions and bring up new ideas. At this stage, family members gain independence and develop their own identity.

In the Ri phase, the young grow up fully and mature into adults. They become experts in a particular field or aspect of family life and understand the rules and traditions, but they can overcome the limitations of these rules and create something new and innovative. At this stage, family members go from children and young people to being people, who, as mentors or leaders, take care of other members and share their knowledge and experience.

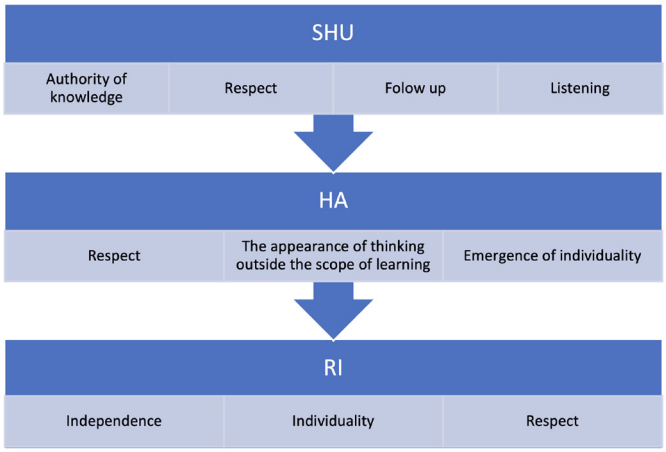
It is important to note that these stages are a continuous process and that family members can be at different stages for different areas or aspects of family life. Also, the *Shu-ha-ri* concept is applied at the individual level, so each family member can be at a different stage compared to another member.



Schema 1. An overview of the *Shu-ha-ri* concept using an example of a child growing up in a family

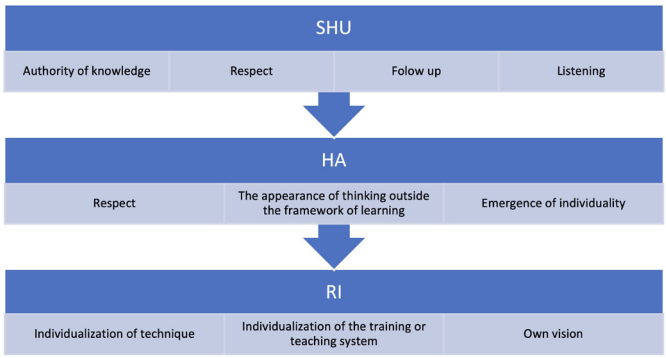
The concept of *Shu-ha-ri* in the educational process is defined through different stages where the student, like the familiar example, first follows the authority of the teacher based on the knowledge, trust and experience of the teacher. The specificity of education is that unlike a parent or family, the teacher and authority in education is selected either independently or as a decision of a parent or guardian. At the first stage of education in the concept of Shu, the student flawlessly follows his teacher and tries to copy as much knowledge as possible. At this stage, the factor of authority of knowledge is greatly correlated with respect.

At the Ha stage, the student has already reached a certain level of knowledge and gains confidence so that they begin to think and conclude on their own. Gradually, additional questions arise that direct the student frequently and beyond the field of knowledge they received from their teacher. This opens new perspectives on knowledge and thinking. At the Ri stage, the student matures in the sphere of knowledge and begins their path. They are independent, thinking and with an open mind. It should be noted that sometimes the development does not involve the entire cycle but it can happen that the student reaches only two stages (Shu-ri), while the third stage arrives very late and sometimes this never happens. Such students are usually devoted to further transferring the knowledge they have acquired, whether it is done in the work for which they have been educated or to work as teachers.



Schema 2. View of the *Shu-ha-ri* concept using an example of students in the education system

In Judo the development of an individual *Shu-ha-ri* concept is connected in a similar way as previous examples from life. An example in the Shu principle, when a student listens to his teacher or coach mostly for reasons of trust and respect for the authority that the teacher or coach has because of his knowledge and behavior. (Tomozoe & Wada, 1993). Progression in the adoption of techniques and principles of judo proportionally increases the confidence and authority of the teacher or coach. In the development process, a judoka begins to form as a master, which also brings awareness of the acquired knowledge and the possibility of applying this knowledge. Thus, we enter the phase of Ha where a certain individuality and specificity expressed through manifestations of a certain judo technique or principle begins to appear. A typical example is when a student, from a basic learned technique, begins to carry out certain modifications. At this stage, new thinking and ideas begin to open in students, which differ to a lesser or greater extent from the learned knowledge. In the last stage, Ri judoka becomes an independent master who preserves their connection with all stages of learning and their teacher through respect, but in the technical and conceptual part they begin to express self in their own individual way (Yiannakis, 2011). The whole concept of *Shu-ha-ri* can be applied to the process of learning and adopting all judo techniques and principles but also only for a particular technique or segment of judo.

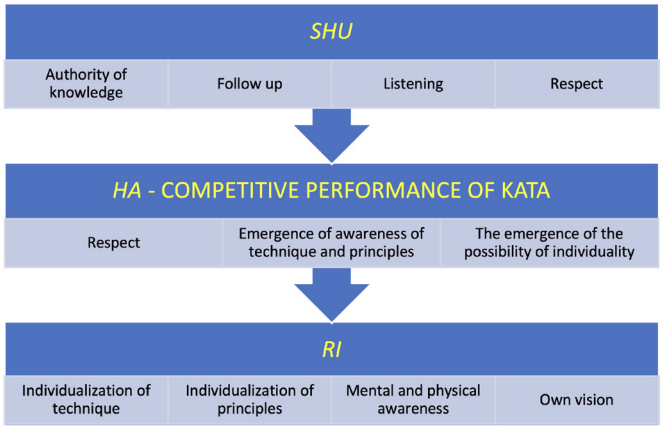


Schema 3. An overview of the *Shu-ha-ri* concept using an example of students in the process of learning in judo

In the judo *kata* segment, the principle of *Shu-ha-ri* can be manifested as in all other processes. The specificity of judo kata exercise in this concept is that the first two phases of *Shu* and *Ha* are mainly based on the same principles as in the previous ones. In the *Shu* phase, the student is fully committed to learning and taking direction from their teacher and in consideration there is generally authority-based respect, following all instructions with impeccable trust. In the *Shu* phase, there is a realisation and awareness of the techniques and principles of judo through *kata* but the student does not manifest them because they adhere to the principles of the given form (Jones & Savage, 2019).

Principle *Ha* is typically representative of judo *kata* mastery sufficient for performance, and knowledge of judo *kata* foundations for competition. At this stage, the importance of external effect and representation of technique still prevails in relation to understanding techniques and principles.

In judo *kata*, practice is a concept that opens manifested individualities through the sum of acquired and learned knowledge, training through the physical and mental levels and through the performance of *kata* with its own individuality.



Schema 4 . View of the *Shu-ha-ri* concept on the example of students in the process of learning in the *kata*

The above example of kata exercise can be applied to any other form of judo training. The specificity of the foundation is that the training process achieves mastery through mechanical repetition, but the intermediate level is sufficient for *kata* competitions because the final level of *Ri* cannot be measured in the way that *kata* competition in judo takes place. The first and second levels can be sufficient for kata competitions if the physical level of technique is maximally developed. The final stage of *Ri* requires mastery through mindfulness and the inclusion of the mental part.

In general, in judo development, the *Shu-ha-ri* concept highlights the natural process of judoka development. Premature specialisation or emphasis on one principle without a link to another can cause deviation in learning. A typical example is the forcing of techniques focused only on the result, in children, when later it is much more difficult to build on with other techniques due to poorly adopted basic techniques and principles. Equally, in the practice of competition *kata*, the principle of aesthetics is emphasised the most, which can significantly slow or even block the complete understanding of *kata*.

CONCLUSION

From all the above, we can conclude that the concept of *Shu-ha-ri*, through the presented examples, contains the principle of universality. In the first example of the basic principles of life through growing up within the family, the principles of *Shu-ha-ri* can be clearly seen, explained, and understood. The principle of education contains very similar principles and examples as possible problems. The relationships, parent to child, student to teacher, teacher or coach to student or student's attitude to the practice itself and practice of a particular technique or form, contains great similarities to the principles of *Shu-ha-ri*. In the whole concept, of course, anomalies can occur that can manifest themselves through certain conflict situations or misunderstandings within the relationship between authority and students.

Regardless of everything though, the concept of *Shu-ha-ri* can be seen as a formula very clearly, for a clear presentation of the learning process, the process of mastery towards achieving awareness, physical or motor mastery and the manifestation of one's individuality. Through its deep philosophical background and tradition in martial arts the *Shu-ha-ri* concept has retained its universality through the applicability and clarity of its content. It is also interesting that the concept of *Shu-ha-ri* is in some cases only partially expressed, i.e., it is possible that in some cases of life situations and learning processes only one or two parts of the principle are reached while the third may never be reached. An example can be in education when we use only what we have learned for life, in martial arts, including judo, when only with learned techniques and physical development we achieve results but do not reach the ultimate understanding and do not manifest our individuality. Judo *kata* is a classic example of the *Shu-ha-ri* concept offering all possibilities. Through competition *kata*, we can see a high level of technical, motor and physical expression but it is not necessary that awareness and understanding is present in the background.

This research contains a short overview of examples and explanations but is limited by the scope of possible examples and the specificity of certain possible research topics around the *Shu-ha-ri* concept, which can continue in the future on this platform.

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Dual Career in Judo
Too Good to be True?

By Marko Kumrić [1], Tomislav Marijanović [2]

Abstract: *A relatively short career span and an absence of assurances of success in sport has sparked considerable interest in the pursuit of dual career pathways for elite athletes. Unlike benefits of a dual career, which are commonly overstated, the pitfalls, often resulting in dropout in either constituent of the dual career, are largely under-appreciated. As judo has risen to become a very competitive Olympic sport, engaging in dual career pathway in judo can be particularly challenging. Therefore, the aim of this qualitative study was to explore contemporary challenges in undergoing dual careers in judo, as viewed from the standpoint of elite judoka from Croatia that successfully follow such a pathway, but also from their respective coaches. Our study showed that even though they encountered many obstacles due to their academic careers, both athletes and their coaches unequivocally confirmed that they would undertake the dual career pathway again. However, since only athletes accomplished in both fields were interviewed, it remains uncertain whether these results translate to a future generation of athletes that considers pursuing dual careers.*

Keywords: *judo; dual career; academic career; elite sport*

Elite sport has undergone a process of professionalisation over the last half century (Vilanova & Puig, 2013). Although professionalisation enabled elite sport to be recognised as a well-respected full-time job, this process increased the overall burden on athletes, both in terms of success and health. Widely recognised as a healthy lifestyle, elite sport is burdened by many adverse effects on health (fractures, early arthritis, concussions, etc) (Kelly et al., 2022; Chapon et al., 2022; Frey et al., 2019). Except for the fact that a significant amount of time and effort must be invested without any guarantee of success, elite sport represents one of the shortest career pathways (Simenko, 2022; Keung & Enari, 2022). In fact, averaging ~10 years for individual, and ~13 years for team sports, there is a scarcity of professions with such a short career span (Keung & Enari, 2022; Baker et al., 2019). This problem is further accentuated in sports in which career earnings are low (Hong & Hong, 2023). Taking into consideration long preparation time, short career, lack of success assurance, and health repercussions, one can argue that elite sport is one of the highest-risk occupations.

According to multiple authors, the combination of elite sport and higher education, also referred to as dual career, could represent a viable 'bail-out' strategy (Mateu et al., 2018; Vidal-Vilaplana, 2022). The benefits of dual careers have even been recognised by the European Commission (EC), which provided a reference framework on dual careers in guidelines published in 2012 (European Commission, 2012). Furthermore, some of the most respected universities in the world, such as Oxford and Cambridge, emphasise their sport results as one of their main achievements. Unlike the benefits of dual careers, which are commonly overstated without critique, the pitfalls, that ultimately result in dropout in either constituent of the dual career pathway, are under-appreciated (Sáez et al., 2021). The challenges of a dual career are especially cumbersome in certain academic fields, such as medicine, law and civil engineering, where dual career pathways being undertaken are extremely rare.

From an historical standpoint, there are several sports in which the development of sport was taking place in academic surroundings (Brousse, 2021). Accordingly, such sports should offer a more appropriate framework for engaging with a dual career pathway. One of these sports is judo, which originated in Japan in the late 19th century (Gatling, 2021). The unbreakable bond of judo and academy is perhaps best reflected in a quote by the founder of judo, Jigoro Kano, "*Nothing under Heaven is more important than education. The teaching of one virtuous person can influence many. What has been learnt by one generation can be passed on to a hundred.*" Despite this historical relationship, as judo has risen to become a competitive Olympic sport and, engaging in a dual career pathway in judo has become increasingly challenging.

Therefore, the aim of the present study was to explore contemporary challenges in pursuing dual careers in judo, as viewed from the standpoint of elite judoka who follow such pathways successfully, but also from their respective coaches.

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METHODS

In this qualitative research conducted at the University of Split, School of Medicine, Split, Croatia, we included 4 elite judoka, 3 women and one man, aged 22 to 30 years, all competing for the national judo team of Croatia. As two of these judoka were coached by the same coach, we agreed that the response of this coach applies to both judoka. All coaches were national team coaches, two of whom are head coaches of the Croatian judo team. Each of the 4 participants has won a medal at either European or world championships at senior level and one participant is a double world champion. Two participants have already graduated (kinesiology and electrical engineering, respectively), whereas two participants are still students (electrical engineering and law, respectively). In addition, the authors of the present study are also professional level judoka, one holding a medical degree and a PhD in the field of pathophysiology (M.K.) and the other, his lifelong coach (T.M.), is a master of kinesiology. Of note, the second author (T.M.) underwent a dual career pathway as well, winning a medal at a European championships while already being a master of kinesiology. The background of the authors was compulsory to address, as although the authors of the study were not formally interviewed, they did provide comments pertaining to the questions included in the interview. Hence, there is a possibility that their background could represent a bias.

All participants underwent a structured interview that consisted of six questions, separated into two groups. The first group consisted of four questions and all questions were equal for coaches and athletes. The second group comprised two questions and the questions were different depending on whether the respondent was an athlete or a coach.

The questions in the first group were:

Q1: "*What are the three primary benefits of pursuing professional sport and an academic career simultaneously?*"

Q2: "*What are the three primary issues with pursuing professional sport and an academic career simultaneously?*"

Q3: "*How does pursuing an academic career affecs success in professional sport?*"

Q4: "*In your opinion, how does pursuing a professional sport career affect success in academia?*"

In the second group, the questions for athletes were:

Q1: "*What were the biggest obstacles in succeeding in either of the two career pathways?*"

Q2: "*Would you take the same dual pathway if you could do it all again from the beginning?*"

The questions for coaches in the second group were:

Q1: "*In the case of the athlete that you coach, what were the biggest obstacles in succeeding in either of the two career pathways?*"

Q2: "*Would you advise your athlete to take the same dual pathway if you could do it all again from the beginning?*"

RESULTS AND DISCUSSION

Benefits of a Dual Career

When does one decide to undergo a dual career pathway? A child dreaming of becoming an Olympic champion will rarely dream of being an engineer at the same time. Based on the authors' experiences, the idea of undertaking an academic pathway, in a young athlete's mind, is usually instilled by parents who are afraid of the lack of success assurance in professional sport. Those fears are well-founded. From a statistical standpoint, the chances of even reaching the Olympics in most sports is roughly around 1:10000 and accordingly, the chances of winning a medal are much lower (De Bosscher et al., 2008). Obviously, the athlete must spend many years in training before they can recognise if they will be able to compete, not to mention win a medal, at the Olympic Games or not. throughout those training years, the athlete is not able to have a separate occupation in most instances and is therefore incapable of generating additional income. Furthermore, as recognised by two of the respondents, injuries and other unpredictable factors might further hinder success:

"*There is no guarantee of how long one will be able to compete actively, due to injuries and other factors we can't control.*" – Athlete

"*Simultaneous engagement in academic and sports career minimises the consequences in case of failure in the sports career due to internal or external factors.*" – Coach

A separate problem arises in sports such as judo, in which prize money from tournaments and overall career earnings are relatively low, which thus impedes elite level judoka from securing their futures, in terms of financial resources. There are many Olympic sports in which a lack of financing represents significant impediment, for instance, wrestling, taekwondo and surprisingly even tennis; except for the 100 best positioned athletes, professional tennis is not as cost-effective as generally perceived, considering the high expenses involved. Yet, in general, judo is much more relatable with the former in multiple aspects: tournament system, training type and duration, competition duration etc. Accordingly, the participants of this study consistently underscored the role of an academic career as a back-up:

"*For me, the main benefit of pursuing an academic career alongside sport is the security it gives me for the life after the end of my sports career. In judo, most incomes depend on our performance and results, so there is no gua-*

rantee whatsoever that we will be able to live comfortably after ending our careers." – Athlete

"*I think it's an advantage that you still have two (or more) options of what to do for the rest of your life.*" – Athlete

"*Earning a degree has markedly reduced the burden regarding my future after sport.*" – Athlete

"*By earning a degree, an athlete expands their career and life opportunities after completing their sports career*" – Coach

"*I think that studying along with training enriches the athlete with additional knowledge in another area besides just sport. In that way, the athlete has another occupation when they are done with their sports career.*" – Athlete

Professional athletes are widely considered to be one of the most disciplined and devoted groups of people (Rose et al., 2023). These merits can largely be attributed to years of strict, everyday training regimens, although it should be noted that a pooling phenomenon is also present, as the authors observed that most elite-level athletes would not become so successful if they lacked the discipline trait in the first place. Adding academic responsibilities into the equation can only improve these merits. It is therefore unsurprising that athletes and coaches in the study consistently recognised the development of organisational skills as important benefits of a dual career:

"*I think that the biggest benefit of a dual career is that you become a well-organised person due to the number of obligations you have.*" – Athlete

"*Sport also teaches me many life lessons, especially how to get up after a defeat and discipline that helps me balance my commitment between studying and training.*" – Athlete

There are numerous ways in which sport can aid in achieving academic success, spanning from physiological processes to the development of advanced psychosocial skills (Hong & Hong, 2023). Ample data confirms that physical activity can significantly improve learning skills (attention, working memory, learning-time) by affecting multiple neurophysiological mechanisms, such as secretion of neurotrophins and growth factors (Knaepen et al., 2010; Zoladz et al., 2008). Furthermore, the development of organisational skills can markedly improve academic success. Another important aspect is coping with stressful situations, as athletes, especially in combat sports, tend to engage in such situations on an everyday basis, making them more resilient. In accordance with the available data, our participants managed to recognise these perks as well:

"*Sport has helped me in the way that I have developed patience; I can handle stressful situations and defeats better and adapt easier to new situations and people in life.*" – Athlete

On the other hand, a handful of skills developed in the academic setting can be useful in judo. For instance, regular studying improves overall mental focus, which can be very important in long and exhausting contests. In addition, academic surroundings can widen the scopes for athletes, enabling them to reflect on their sport careers from different aspects, thus helping with personal development. It is very common for athletes to have a problematic psychological trait that impedes them from evolving as athletes. A very efficient way of overcoming this trait can lie in observing them from a different perspective.

"*I believe pursuing an academic career has a positive impact on my judo because it forces me to challenge myself intellectually in ways only doing spors couldn't and it benefits my judo.*" – Athlete

"*Brain exercise from studying has helped keep my mental health sharp.*" – Athlete

Finally, participants also highlighted some additional benefits of a dual career that were not recognised initially by the authors. For instance, two participants indicated that dual careers enabled them to stand out and even become role models for their generations, while one participant underlined the social benefits in terms of meeting new people, travelling and creating memories. An important observation was made; although athletes and coaches had very different academic backgrounds (from civil engineering to law), no significant differences were found in terms of attitudes toward the benefits of a dual career pathway.

"*You may gain a little more respect and become a role model for the younger generation.*" – Athlete

"*It enabled me to stand out from my generation.*" – Athlete

"*I believe that the main advantages of playing sports while studying at the same time are that in my youth, in addition to studying (which is the daily routine of most of my peers), I was able to do the sport I love, travel the world and create numerous life-long memories.*" – Athlete

Pitfalls of a Dual Career

There are only a few pitfalls associated with a dual career choice. However, these obstacles can contribute to significant faculty dropout, poor sport results or sometimes even both. On an everyday basis, a major pitfall is the fact that for efficient training one must rest in the meantime. For instance, most judoka train twice a day and if they have to study or go on lectures between training sessions, it is doubtful that they will be capable of participating in the second training session efficiently, especially as the same pattern is repeated five times a week. On the other hand, over a bigger timescale, athletes encounter a problem with class attendance. In most sports, including judo, athletes spend more than 100 days per year outside their hometown. Although there are some university-level regulations allowing athletes a more lenient approach to class attendance, many university professors are not in favour of excusing athletes.

The pitfalls concerning dual careers strongly depend on the

type of study programme undertaken. However, challenges posed by respective study are more dependent on course loads than on the complexity of the programme. Thus, an athlete can be easily misled into applying for a "less complex" study programme but with a significant course load, which in fact poses a bigger obstacle to success in a dual career pathway than some programmes described as being harder or more academically demanding. Except for the course load, it is crucial if courses are obligatory. As previously mentioned, athletes have to spend a significant amount of time outside of their hometowns. Therefore, if classes are mostly obligatory, it is physically impossible for athlete to fulfil all duties and then the athlete is compelled to choose between the two. This was a significant issue in the career of one of the authors and also in participants of this study:

"*For me, the biggest issue is the organisation of my responsibilities at university, with how much travelling I have to do. This year I have been on the road every two or three weeks, on training camps which would last up to two weeks each. During exam periods it can be very difficult to co-ordinate absences. Another issue I have to face is time management during the day, especially when I have mandatory lab exams between practices, which take up most of my day.*" – Athlete

"*I cannot meet all my student obligations on time*." – Athlete

It is crucial to address both the need for athletes to properly recognise the downsides associated with a dual career and the concurrent implications for success in each respective pathway:

"*In my opinion my sports career is going to slow my studies down because I can't keep up with the pace of my university like other students so it will take me a few years longer to finish. But that's something I'm counting on since judo is my priority right now.*" – Athlete

"*I was aware from the start that my academic career will not go as fast as I planned, owing to obligations associated with judo*." – Athlete

"*A dual career carries a probability to negatively affect the optimal realisation of the athlete's competitive potential and a risk of the extension of the time required to complete the studies.*" – Coach

The above-noted obstacles are universal, i.e., consistent across most countries and sports. Nevertheless, coping strategies can differ from university to university, thus explaining the obvious differences in success rate of dual careers between them. The primary issue is the lack of a system to regulate the enrolment and pathway of elite athletes in universities. Thus, the athletes commonly wander through the education system relying on lenience of professors, heads of departments and deans.

Cambridge University is one of the most representative examples of how dual careers should be supported by educational institutions but not just for its vast and illustrious sporting history. Firstly, in the UK, athletes and national governing bodies have established the Talented Athlete Scholarship Scheme (TASS), a Sport England funded partnership that conducts a Dual Career Accreditation Scheme aimed at recognising an education institution's commitment to dual career support. Cambridge is one of the TASS-accredited institutions. Moreover, they developed the University of Cambridge Athlete Performance Programme (UCAPP), a programme that helps both athletes and coaches achieve in dual career pathways in multiple ways: sport specific strength & conditioning plans, free access to sport facilities, nutritionist support, sport psychologist and lifestyle support, various workshops, and the use of university channels to raise their sporting profile. Finally, their Strategy for Sport 2023-2027 even predicts the establishment of an athlete performance programme for university staff and community members.

Development is also evident in Croatia. In co-operation with the Croatian Olympic Committee (COC), Croatian Rectors' Conference has issued an official rulebook which provides a set of benefits for student-athletes. These benefits include adaptable dates and times for exams, advantages in the choosing of student dormitories, pairing with a mentor, the possibility to apply to fewer courses per semester, the possibility to transfer more ECTS credits per year, the possibility to freeze student status, a more lenient approach to class attendance, and university-funded scholarships. In addition, COC has recently established a career centre for athletes which aims to promote help for those on a dual career pathway by organising projects, professional counselling, and by providing them with relevant information concerning student-athlete rights, job opportunities, student dormitories, and subsidies.

Dual Career: Go All-in or Fold?

The double-edged situation of a dual career choice is perhaps best reflected in the following quote by one of the study participants:

"*A huge problem occurs when you have to choose between an important exam or a competition because it prolongs the achievement of your goal.*" – Athlete

Nevertheless, although the challenge of succeeding in both aspects of a dual career cannot be overstated in general, the authors deem it worth addressing that academic responsibilities in terms of studying are rarely the stumbling block. A highly organised athlete almost always finds time for studying, regardless of the surroundings. Personal experience from the authors and study participants has involved finding time for studying in vans, aeroplanes, competition halls and on public holidays. Yet, as previously discussed, the inability to attend classes and the generally insufficient recognition of athletes by universities, represent a significant impediment to a dual career. A positive side is that athletes, at least elite judoka, are well aware that academic obligations might worsen their sporting results and vice versa. The personal view from the authors (i.e. both the athlete and his coach) is that achieving a career in medicine si-

gnificantly hampered his success in judo. Even though the authors always gave priority to judo in terms of effort and commitment, strict policy on attendance at medical school prevented him from attending many training camps, which are crucial for judoka development. Interestingly, the field of medicine has many common meeting points with elite sport, as the process of accomplishing results in elite sport resembles that of becoming a medical doctor. In both instances, a lot of effort needs to be devoted for many years before one can generate observable results in terms of financial reimbursement and self-accomplishment. In addition, coping with stressors while maintaining the highest level of precision and concentration is a common thread between an athlete and a physician.

Regardless of all the downsides presented, the authors, athletes and coaches unequivocally confirmed that if given the chance, they would engage in both pathways again, although some of them noted that they would make certain adjustments with respect to increased focus on judo:

"*I would have definitely chosen the same pathway even if I didn't succeed in either of those!*" – Athlete

"*I would not change a thing, all day, every day!*" – Athlete

"*I would take a dual pathway for sure, perhaps with a little more emphasis and focus on my sports career than on the academic side. I would take advantage of more benefits as an athlete at the university regarding agreements about exams and devote myself more to sport.*" – Athlete

"*I would advise my athletes to do the same, as they wanted*" – Coach

Athletes' and coaches' irrational behaviour most likely reflects the typical nature of elite athletes, i.e. breaking boundaries (Amaral Gabriel, 2021; Martinovic et al., 2022). Regardless of the sport, elite athletes almost always defy one or more commonly accepted concepts. There are numerous examples. For instance, who would say that it is possible to run 20 km/h for 2 straight hours? However, marathon runners do exactly that. The authors believe that this is the main reason why athletes gain so much respect, because in general, people tend to appreciate things that only a handful of people can do. If everyone could deadlift 500 kg, no-one would care to watch strongman competitions. Engaging in a dual career is yet another example of defying these concepts. An athlete burdened by an overbooked competition calendar, exhausting training camps and injuries decides to take up a completely new mental challenge, one which could impede their progress and for which they have no assurance of benefit in the future: they may even have to pay sometimes. The authors are confident that if this idea was pitched to the general public no-one would have accepted it, except perhaps future elite athletes. Notably, even though the athletes and coaches were consistent in attitudes towards redoing the dual career option, a different level of scepticism was noted with regards to the pitfalls, depending on academic background. More critical views were noted by the author (medical school) and one of the athletes (kinesiology) than by the athlete in law school. The discrepancy may reflect a difference in course loads as law school has fewer occupied courses then the former, despite similar levels of course complexity.

Nevertheless, one must not run into conclusions too soon. As our sample of interviewed dual career judoka was exclusively comprised of accomplished athletes/students, it was expected that these athletes would be keen to support such a pathway, representing an important survivorship bias (Sanderson et al., 2007). Hence, such bias does not permit the reader to infer transferable conclusions regarding the respective pathway solely based on the information presented in this study. A putative sample that would be representative in this regard would be selected from a population that has chosen to undergo sport and an academic career simultaneously, meaning that the sample also includes people who failed to achieve in either of the two. On a separate note, an additional motivation of pursuing dual careers in judo are small career earnings which, in a sense, compels the judoka to find alternatives for the time when their career in sport finishes.

CONCLUSION

Professional athletes commonly defy rules and perspectives accepted by the general population. Attitudes concerning dual careers in sport are no exception. The results of this study imply that although participants are well-aware of significant pitfalls of dual careers, both athletes and their coaches unequivocally confirmed they would pursue the dual career again. However, our results were impacted by a noteworthy survivorship bias, since we included only athletes who are accomplished in both fields. Considering that many athletes fail to earn academic degrees if they undergo professional sport, and as many of them decide to quit sport because of academic obligations, current results cannot pertain to future generations of athletes that consider undertaking a dual career pathway. Hence, a young athlete who wishes to engage in both elite sport and an academic career cannot reach an informed decision based on testimony by elite athletes exclusively, although they can surely be motivated by them. Personal advice that the authors can offer to a young athlete with similar ambitions is to either choose a study programme that is not burdened by significant course loads or postpone engaging in an academic career. If atletes do engage in university level study during their sports career, the authors strongly recommend researching student-athlete rights beforehand as utilising these benefits can facilitate success significantly in a dual career. Specifically, athletes may alleviate the stresses of their dual pathway by tailoring times of the exams, applying to fewer courses per semester, having a more lenient approach to class attendance, going to professional counselling (e.g. nutritionist, psychologist), and by applying for university-funded scholarships. On the other hand, coaches and athletes should also tailor their yearly plans for competitions and training camps to maximise success in both fields. This especially pertains to judo, as the competition and training camp season in judo spans almost the whole year, at least in senior-level judo. Additionally, universities should constantly improve programmes for high-performance athletes, preferably with stringent quality control schemes such as TASS.

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INDUSTRY VIEWPOINTS

The *Kuzushi* Revolution

By Neil Adams

Every technique in judo relies on the correct use of the hands to break the opponent's balance and control the technique from start to finish. Getting the correct pulling action on the sleeve and directing the throwing action with the lapel is crucial to the start and finish of each throwing action. Without them working together the throw fails, or at least falls short of the ultimate goal of *ippon*.

It was a disappointment to observe the high number of failed techniques at the 2019 cadet and junior world championships. So much emphasis seemed to be on winning at all costs; throwing skills seemed to be lacking and technical emphasis seemed a low priority. This was one of the main reasons that so many penalties for dropping were incurred at these events.

Rules should absolutely dictate skill development; therefore, coaches have to realise that it is their responsibility to teach and develop the throwing skills of their *judoka*. The rules cannot be blamed for athletes not being able to execute throws. As a referee supervisor, I hear many coaches blaming the rules for penalties being awarded against their athletes, especially, it seems, when a particular decision does not go their way. They are missing the main point here. Scoring *ippon* has to be our main objective and our throwing skills need to be perfected from the very beginning of a *judoka*'s career. It is not just about winning, especially with this age group. Later, in senior ranks, it is the athletes with excellent skills in *kuzushi* who are throwing for ippon and can graduate onto highly skilled *kumi-kata*. The current rules are aimed at promoting top judo technique and tactics, in a positive manner. The goal of judo is to throw, hold or submit for *ippon* and the rules direct technical development that way. Coaches and athletes who do not train for this are giving themselves a much more difficult learning pathway.

Technical failure occurs when all aspects of the throwing action are not working together as a whole. Laying a solid foundation at the early stages of development is crucial to overall development and overall success. If we look at the way some clubs are structured we can see that they are very much result-orientated as opposed to building technical foundations. I think that in many cases, restricted practice time can be the problem. Some clubs have a practice time of only 45 minutes; others are fortunate if they get 1.5 to 2 hours and within that time they have to fit in all aspects of the practice: warm up, skills, *randori* and cool down. Often skills are rushed through in order to get to the *randori* part of the class. Everyone wants to jump to what they perceive to be the good part. If possible, clubs should elect for a 'skills only' night of the week. A foundation of skills needs time, practice and concentration and cannot be rushed.

Laying a solid technical foundation at the beginner stage is imperative but we must also realise that as our levels progress and we develop more advanced strategies for our judo, the precision of the techniques needs to be more exact and honed.

Learning the principles of our sport and how it works is part of the learning process. If you look at a perfectly executed throw by a skilled practitioner, it looks effortless and easy. Of course, we know it is not easy and that lots of hard work and repetitive practice made the effortless movement successful. Many coaches will say that many hundreds of *uchi-komi* is what is needed. I agree and disagree.

Uchi-komi (repetition) can be good if done correctly and it can be bad if done incorrectly and too quickly. If you cannot do it properly slowly, you are never going to do it properly by speeding up the turn. It all depends on how the technique is broken down and then put back together again. Repetition makes permanence and that does not necessarily equal perfection. Therefore, each repetition needs to be as perfect as we can possibly make it.

It is by understanding the mechanics of a technique and how it all works that we can have a better understanding of how important *kuzushi* is in the execution of a throwing action. The sleeve hand (*kuzushi* hand) starts the throwing movement no matter which direction the throw is aimed at. The lapel hand (*tsurite*) is the hand that directs the technique. This, I call the direction hand. Without the correct use of the hands working together, the technique will inevitably break down and fail.

The sleeve hand starts the throwing movement and everything else follows. The *tsurite* hand follows instantly after the pull of the sleeve hand. There is a difference between instantly and immediately as' instant' makes it look as if it is done simultaneously. 'Immediately,' is in the case of attacking immediately; there is a small amount of time to set things in motion before executing the movement. Therefore, this is a visual representation of progression. Once the hands are in motion – 1 then 2 - they have created the space for the feet and the body to manoeuvre into place before the execution of the throw. Without the correct pulling action, the rest of the body can't follow and is instantly pulled out of shape, causing the collapse of the technique.

This becomes even more complex when movement, balance and direction come into the equation; when adjustment comes into play the hands become an instrument

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of control. It is necessary to use your hands to determine where you want your opponent to go as well as then making the necessary adjustments to the technique.

Coaches need to play a big part in the skill development process and keep a close eye on necessary adjustments at each practice. Laying a good skills base is imperative. This must start at the local club level and continue through to the national team level. For a development system to work properly, the coach education system must first be solid, so athletes who are coming onto the national team have strong fundamental skills, ready for the world stage. It must be like that or club coaches must give their athletes over to more time with highly skilled coaches for the athlete to progress. It's what I call 'progression, not possession.' There are very few athletes who are able to coach themselves in this manner and the majority of athletes follow their coach's instructions to the letter. Therefore, the responsibility lies with the coaches and their abilities.

So, what is the *kuzushi* revolution?

The *kuzushi* revolution is all about getting coaches to recognise the importance of initiating technique correctly, convincing coaches and instructors that it is an imperative skill that needs attention in order for their players to progress to the highest level.

The underlying concepts of movement, balance and direction are essential as well. If you rush these basic principles or just gloss over them before complete understanding is established, it will be a longer journey to that championship title. For example, if we do not use *kuzushi* and *tsurite* in the right order then it is impossible to rotate the feet, body and head in order to execute the technique. Movement, balance and the direction of the throw are established at the start of the *kuzushi* and underpin the whole process. Understanding how our body reacts or should react to each of these concepts will help the *judoka* in their overall learning of each technique. Without that understanding, there could then become a 'band-aid' effect where *judoka* try something new to compensate for the lack of something else which I think is really a lack of understanding of an underlying principle. A phrase I hear a lot is 'turn the head!' from coaches. Yes, turn your head. However, if you turn it too much you will over rotate and take the entire technique out of shape and effectiveness. The athlete will only get a *waza-ari* at best, not the ippon they were hoping for and putting all their effort into achieving. This is where *uchi-komi* and *nage-komi* practice needs to always be under the watchful eye of the coaches. Skills always need careful scrutiny and constant readjustment throughout the practice.

The *kuzushi* revolution and study of the fundamental concepts enable us to understand the importance of Jigoro Kano's fundamental principles, found in his teaching tool, the *gokyo*. It also helps us to understand the working mechanics of each technique and their order of play. Learning these points from the beginning and developing readjustment strategies early in the learning process creates a solid foundation that allows *judoka* to throw from different angles and from various grips. It is the start of creating adaptability for the athlete which will serve them more and more as they progress through the stages of competition. All of these are essential in the learning process and create a champion as an end result.

Jigoro Kano created the fundamental principles of our sport as an educational tool. It is an Olympic sport as well as a martial art. Jigoro Kano, the father of judo, made a comprehensive study of ancient self-defence forms and integrated the best of these forms into the base of what judo is today. By taking all of the superlative parts of the *ju-jitsu* schools and taking away some of the precarious parts, he created Kodokan Judo.

The true essence of all judo concepts is maximum efficiency (best use of energy). Most of us who practise judo can relate to that amazing feeling of euphoria when it all comes together at the right time. When we perform that perfect throw, it is effortless.

Judo has developed over the years and the development pathway is often determined by the rules and regulations of the time. The rules now dictate that upright throwing is more prevalent than leg grabs or more wrestling styles of throwing. This certainly takes us back to the more traditional concepts of our sport. I am all for innovation but without losing sight of the traditional fundamentals. The goal is to get people back to the traditional forms of throwing, of course keeping safety for the athlete in mind.

You cannot blame current rules for the amount of penalties incurred during a contest. It is not the rules' fault. Coaches should shoulder some of the responsibility as there is a growing trend of looking for penalties to win a fight as opposed to looking for the ippon finish; looking for the tactical win as opposed to the more technical ippon win.

In essence, to be a good coach and/or instructor, the responsibility for skill acquisition and delivery must be taken very seriously. Really, the future and the survival of the sport and art depend on it. Like any other job or leadership role, be it paid or voluntary, we need to keep up-skilling and be at the forefront of technical development. Coaches have an incredibly important job as it is they who are determining how the next generation of *judoka* know their craft and how it knocks on to further generations from us.

It all starts with *kuzushi*. It all ends with your legacy.

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Commentary on Published Paper (Vol.3, No. 01)

By Samuel J. Stellpflug

I have read "Loss of Consciousness in Judo: Similarities and Differences Between Traumatic Brain Injury and Choking Techniques (*shime-waza*)" (The Arts and Sciences of Judo, Vol. 3 No 1) and would like to commend the authors for their hard work and for sharing their review and perspective (Singh Lota et al., 2023). In the article, the authors provide background on loss of consciousness (LOC) from both traumatic brain injury (TBI) and from neck compression manoeuvres (choking techniques, *shime-waza*). They go on to compare and contrast the physiology of TBI and neck compression, along with the immediate and long-term impact of LOC from both causes. I would like to emphasise some of the great points the authors made and would also like to add some clarification on some portions of the manuscript. Some of the comments I make and references I offer include information on neck compression techniques used within other grappling sport contexts, however all of it is analogous to judo and applicable to the discussions here.

There are many aspects of the authors' discussion that are outstanding and worth highlighting. During the description of the physiology of neck compression manoeuvres, the authors point out that there are multiple structures being compressed, as opposed to isolating the discussion to the impact of compression of the carotid arteries (Stellpflug, Menton, Corry, et al., 2020). In doing this the authors avoided a pitfall common to much of the existing literature on this topic. Another common pitfall the authors avoided was during the discussion of deleterious effects of LOC. There have been attempts to lump together the impact of transient neck compression with the impact of TBI, both short and long term (Hubbard et al., 2019; Lim et al., 2019), and as the authors point out, this is a mistake (Stellpflug, 2019; Stellpflug & LeFevere, 2019). The physiology of TBI and neck compression manoeuvres are different and the short and long term impacts are different. While TBI is well-established as a common cause of many complications, the same is not true for repeated neck compression (Stellpflug, Schindler, et al., 2020).

The first content area I would like to clarify is the description of the timing of LOC from a neck compression manoeuvre. The authors state that LOC may occur within 10-20 seconds after the onset of neck compression. LOC may occur within 20 seconds but stating it this way could be misleading to readers looking for more exact information and associated referencing. The literature-established average range of time to LOC from neck compression onset is roughly 5 to 19 seconds and most studies fall into the range of 7 to 11 seconds. This includes studies on compliant volunteers (Ikai et al., 1958; Ikai M, Yamakawa J, Ogawa S, Akutsu K, Masuda M, Matsumoto Y, 1958; Mitchell et al., 2012; Ogawa et al., 1963; Rodriguez et al., 1991; Rossen et al., 1943; Suzuki, 1958) and highly trained fully resisting combatants (Stellpflug, Menton, Dummer, et al., 2020).

The second content clarification I'd like to offer is with regard to the commonality of LOC during training and competition within grappling sports. The authors state that players are rarely rendered unconscious in chokehold situations as verbal or non-verbal signals by uke should trigger release of the chokehold. This is true; however, a striking number of grappling athletes are rendered unconscious. In a survey including participants from multiple grappling sports, including jiu jitsu and judo primarily, more than 25% of over 4400 participants reported having been choked to LOC at least once (Stellpflug, Schindler, et al., 2020). Within the most prominent mixed martial arts promotion in the world, 15% of the fights have ended with a choke finish, and LOC from a choke has occurred 129 times (Stellpflug, Menton, & LeFevere, 2020) [this comment draws from the referenced paper's dataset updated through to 30th July 2023].

The last content item I'd like to provide some additional context for is that the authors indicate that proper application of *shime-waza* should not cause significant injury. They go on to say that the literature only includes one case of carotid artery occlusion and that, as of 1987, no deaths had been reported from *shime-waza* within judo, but that deaths have occurred with neck compression application outside of the judo context. While arterial dissections, ischemic strokes and deaths are rare from neck compression events within organised grappling sports, they have occurred. Even with very restrictive study entrance criteria, a recent case series illustrated 10 cases of various combinations of carotid artery dissections, vertebral artery dissections and ischemic strokes; this series included one death (Stellpflug et al., 2022). These events occurred within jiu jitsu as opposed to judo but the majority were during training with the traditional *gi* and are analogous to the neck compression events occurring in judo.

Thanks to the authors for bringing the comparison of TBI to neck compression into the light and to the editor for allowing me to contribute. I mean the above commentary in the most respectful way possible and my intention is simply to benefit the readership of the ASJ Journal along with the grappling community in general.

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