


Psychological characteristics of beginner and advanced judokas

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ABSTRACT

Several psychological benefits have been associated with judo training, including enhanced cognitive functioning, improved emotional regulation, and higher self-confidence, with training experience being associated with higher levels of several psychological characteristics. Purpose: The current study explored the differences in training and psychological characteristics between beginner and advanced judokas. Methods: A sample of 146 judokas (77.4% male), including 67 beginners and 79 advanced, between 18 and 45 years of age, completed the Brief Resilience Scale ($\alpha = .84$), Grit Scale ($\alpha = .82$), General Self-Efficacy Scale ($\alpha = .85$), Brief Self-Control Scale ($\alpha = .82$), Brief Aggression Questionnaire ($\alpha = .75$), Satisfaction with Life Scale ($\alpha = .88$), and Mental Health Disorders Screening Instrument for Athletes ($\alpha = .79$). Results: Results showed that advanced judokas were significantly older ($p < .001$), more experienced ($p < .001$), and presented higher training frequency ($p = .013$) and volume ($p = .004$) than beginner judokas. Moreover, advanced judokas reported significantly higher resilience ($p < .001$), grit ($p = .001$), self-efficacy ($p = .004$), self-control ($p = .009$), life satisfaction ($p = .025$), and lower mental health disorders ($p < .001$) than beginner judokas. No significant differences were found between beginner and advanced judokas in aggression ($p = .172$). Conclusions: Advanced judokas were older, more experienced, and trained more days and hours per week, and exhibited significantly higher resilience, grit, self-efficacy, self-control, and life satisfaction, and lower mental health disorders than beginner judokas. Moreover, beginner and advanced judokas presented similar levels of aggression.

Keywords: Martial arts, Combat sports, Mental health, Psychology, Judo.

Cite this article as:

de Lorenzo-Lima, L., Rosario, D., Bacurau, R. F. P., Andreato, L. V., & Gaines, S. A. (2026). Psychological characteristics of beginner and advanced judokas. *Journal of Human Sport and Exercise*, 21(3), 955-964. <https://doi.org/10.55860/h73mv321>

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Submitted for publication March 02, 2026.

Accepted for publication April 06, 2026.

Published May 07, 2026.

[Journal of Human Sport and Exercise](#). ISSN 1988-5202.

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doi: <https://doi.org/10.55860/h73mv321>

INTRODUCTION

Judo was founded in the 19th century on the principles of “*Seiryoku Zenyo*,” meaning maximum efficiency, and “*Jita Kyoei*,” meaning mutual benefit and welfare (Carr, 1993). Over time, judo evolved, expanded worldwide, and made its debut in the Olympic Games in 1964 (Carr, 1993). In both training (i.e., *randori*/live sparring) and competitive settings, the primary objective of judo athletes is to achieve an *ippon*, which can be obtained by throwing, holding, or submitting the opponent, or by employing a combination of these methods (Takahashi et al., 2005). In the United States, judo belt rankings for adults begin with white and progress through yellow, orange, green, brown, and black belt, with some colour variations among different organizations (United State Judo Association, 2025; United States Judo Federation, 2021). While individual progression may vary, it is acknowledged that practitioners holding brown or black belts possess a higher level of experience and technical competence than those at lower belt ranks. Competitions following the International Judo Federation rules are divided by sex, age, weight, and skill level (International Judo Federation [IJF], 2025). For adult competitions, the skill levels are generally divided as beginner (white, yellow, orange, and green) and advanced (brown and black).

Success at advanced competitive levels in judo demands high physical and mental conditioning (Torres-Luque et al., 2016; Rossi et al., 2022), with national and Olympic training typically involving numerous hours of intensive practice each week (Franchini & Takito, 2014). Furthermore, judo training is associated with a range of physiological and psychological benefits, including enhanced cognitive functioning, improved emotional regulation, greater self-confidence, and overall advancements in physical health, strength, and balance (Origua Rios et al., 2018; Eadie, 2023; Biedrzycki & Laskowski, 2024).

Advanced judokas consistently demonstrate superior physical fitness compared to lower-rank practitioners. For instance, Drid et al. (2015) examined the fitness and anthropometric profiles of international (elite) versus national (sub-elite) judo medallists in the half-heavyweight division. While both groups exhibited comparable body composition, the findings showed that elite judokas demonstrated greater physical strength and superior performance outcomes in several key areas. In a recent study, Harat et al. (2025) investigated the strength, power, and anaerobic capacities among male judo athletes from three groups: developmental academy (participants under 19 years of age), international non-Olympic senior athletes ($M = 21.6$ years of age), and Olympic-level senior athletes ($M = 28.6$ years of age). Significant differences were identified in age, years of judo experience and overall strength, with older, more experienced, and advanced athletes demonstrating greater upper-body anaerobic power and capacity.

Training experience and competitive status appear to be associated with meaningful differences in psychological characteristics among judokas. For instance, Lorenzo-Lima et al. (2025) found that more experienced judo athletes reported higher levels of resilience, grit, self-efficacy, self-control, life satisfaction, and lower prevalence of mental health disorders. Consistent associations have also been observed between training experience and resilience in judo, as well as grit across combat sports (Garrido-Muñoz et al., 2024; Küçük, 2020; Pujso et al., 2019). Mitic et al. (2021) identified psychological distinctions among national team members from the Republic of Serbia, including both male and female judokas, as compared to athletes who were not part of the national team but trained more than five times per week, competed at the national level, and possessed more than seven years of training experience. The primary differentiating factor was self-efficacy, with elite athletes demonstrating significantly higher scores.

Given the physiological differences between elite and sub-elite judokas (Drid et al., 2015; Harat et al., 2025) and the association between combat sports training experience and psychological factors, the present study

sought to obtain a comprehensive picture of the potential psychological differences between beginner and advanced judokas. Although numerous studies have investigated the physiological aspects of judo, the literature remains limited regarding psychological characteristics in judo practitioners. Thus, the novelty of this study lies in examining the association between belt rank and a comprehensive set of psychological outcomes among adult judokas.

Therefore, the current study aimed to explore the differences in training and psychological characteristics between beginner and advanced judokas. Based on findings from previous combat sports research, it was hypothesized that advanced judokas would report higher resilience, grit, self-efficacy, self-control, life satisfaction, and lower mental health disorders than beginner judokas, with no differences in aggression between groups.

METHODS

Procedures

This cross-sectional study was disseminated via social media posts (Instagram and Facebook), and the data was collected via Google Form from May 16 to July 17, 2024. Inclusion criteria: male and female judokas, from 18 to 45 years, including all belt ranks (white, yellow, orange, green, blue, purple, brown, and black), and currently participating in at least one judo practice per week in the United States. Participants responded to demographic (age and biological sex) and judo-related questions (belt rank, training experience as years, training volume as hours/week, training frequency as days/week, and number of competitions engaged over the previous 12 months), followed by the Brief Resilience Scale, Grit Scale, General Self-Efficacy Scale, Brief Self-Control Scale, Brief Aggression Questionnaire, Satisfaction with Life Scale, and Mental Health Disorders Screening Instrument for Athletes.

The study was conducted anonymously and no compensation was offered for participation. Participants received an information sheet including the details of the study. This study received an exempt status by the Liberty University Institutional Review Board as per 45 CFR 46:104(d): Category 2. (i). clarifying that the data obtained by the author is recorded in a way that the identity of the human participants cannot readily be ascertained directly or through identifiers linked to the participants (*Electronic Code of Federal Regulations*, 2024).

Participants

The current study included 146 judokas, consisting of 113 males (77.4%) and 33 females (22.6%) from 18 to 45 years of age (33.8 ± 8.8). Participants represented 67 beginner (45.9%; white, yellow, orange, and green belts) and 79 advanced judokas (54.1%; brown and black belts). Of the total participants, 60 judokas (41.1%) reported engaging in at least one competition over the previous 12 months, and 86 judokas (58.9%) reported no engagement with competitions during the same period.

Psychological measures

Resilience was measured using the Brief Resilience Scale (Smith et al., 2008). Total scores were determined by the average of the six items, with higher scores indicating higher resilience. The Cronbach's alpha for the Brief Resilience Scale in the current sample was .84.

Grit was measured using the Grit Scale (Duckworth et al., 2007). Total scores were determined by the average of the 12 items, with higher scores indicating higher grit. The Cronbach's alpha for the Grit Scale in the current sample was .82.

Self-efficacy was measured using the General Self-Efficacy Scale (Schwarzer & Jerusalem, 1995). Total scores were determined by the sum of the 10 items, with higher scores indicating higher self-efficacy. The Cronbach's alpha for the General Self-Efficacy Scale in the current sample was .85.

Self-control was measured using the Brief Self-Control Scale (Tangney et al., 2004). Total scores were determined by the sum of the 13 items, with higher scores indicating higher self-control. The Cronbach's alpha for the Brief Self-Control Scale in the current sample was .82.

Aggression was measured using the Brief Aggression Questionnaire (Webster et al., 2014; Webster et al., 2015). Total scores were determined by the average of the 12 items, with higher scores indicating higher aggression. The Cronbach's alpha for the Brief Aggression Questionnaire in the current sample was .75.

Life-satisfaction was measured using the Satisfaction with Life Scale (Diener et al., 1985). Total scores were determined by the sum of the 5 items, with higher scores indicating higher life satisfaction. The Cronbach's alpha for the Satisfaction with Life Scale in the current sample was .88.

Mental health disorders were measured using the Mental Health Disorders Screening Instrument for Athletes (Donohue et al., 2023). Total scores were determined by the sum of the 14 items, with higher scores indicating higher symptoms of mental health disorders. The Cronbach's alpha for the Mental Health Disorders Screening Instrument for Athletes in the current sample was .79.

Statistical analyses

Descriptive data were presented as mean, standard deviation (SD), frequency, and percentage (%). Normality of distribution was assessed through Shapiro–Wilk significance, skewness and kurtosis values, histograms, and Q-Q plots. Despite significant Shapiro–Wilk tests found, the supplementary values suggested sufficient normality. Independent samples *t*-tests were performed to explore the potential group differences in training (training experience in years, training frequency as days/week, training volume as hours/week, and number of competitions over the previous 12 months) and psychological characteristics (resilience, grit, self-efficacy, self-control, aggression, life satisfaction, mental health disorders) between beginner and advanced judokas. Pearson's correlations were performance among the psychological variables explored in this study and presented as correlation matrix. Cohen's *d* effect sizes were calculated (Cohen, 1988) and interpreted as small effect = 0.2; medium effect = 0.5, and large effect = 0.8. Data was analysed using IBM SPSS Statistics (Version 30) with an alpha level of .05.

RESULTS

Table 1 presents the participants' demographic and training characteristics of beginner and advanced judokas. Results revealed that advanced judokas were significantly older (Cohen's *d* = -.755; medium effect), reported significantly higher experience (Cohen's *d* = -1.664; large effect), training frequency (Cohen's *d* = -.374; small effect), and training volume (Cohen's *d* = -.434; small effect) than beginner judokas. Moreover, no statistically significant difference was found in the number of competitions engaged over the previous 12 months between beginner and advanced judokas (Cohen's *d* = .054).

Psychological characteristics

Table 2 presents differences in psychological characteristics between beginner and advanced judokas. Results showed that advanced judokas presented significantly higher resilience (Cohen's *d* = -.597; medium effect), grit (Cohen's *d* = -.508; medium effect), self-efficacy (Cohen's *d* = -.442; small effect), self-control

(Cohen's $d = -.396$; small effect), life satisfaction (Cohen's $d = -.329$; small effect), and lower mental health disorders (Cohen's $d = -.517$; medium effect) than beginner judokas. No significant difference was found in aggression (Cohen's $d = .158$), between beginner and advanced judokas.

Table 1. Participants' demographic and training characteristics of beginner and advanced judokas.

	Beginner (N = 67)	Advanced (N = 79)	t	df	p	95% CI	
						Lower	Upper
Demographic							
Age (SD)	30.39 (8.37)	36.64 (8.22)	-4.5	144	<.001*	-8.979	-3.536
Male n (%)	47 (70.1)	66 (83.5)	-	-	-	-	-
Female n (%)	20 (29.9)	13 (16.5)	-	-	-	-	-
Training							
Experience (SD)	2.85 (4.09)	13.90 (8.20)	-10.5	118.5	<.001*	-13.125	-8.970
Days/Week (SD)	2.09 (1.04)	2.51 (1.17)	-2.2	144	.013*	-0.783	-0.050
Hours/Week (SD)	3.66 (1.91)	4.72 (2.83)	-2.7	137.5	.004*	-1.845	-0.284
Competitions (SD)	1.34 (2.88)	1.20 (2.33)	0.3	144	.372	-0.712	0.993

Note * $p < .05$; SD: standard deviation.

Table 2. Psychological characteristics of beginner and advanced judokas.

	Beginner (N = 67)	Advanced (N = 79)	t	df	p	95% CI	
						Lower	Upper
Resilience (SD)	3.46 (0.66)	3.84 (0.62)	-3.6	144	<.001*	-0.591	-0.171
Grit (SD)	3.56 (0.52)	3.82 (0.50)	-3.1	144	.001*	-0.425	-0.091
Self-Efficacy (SD)	32.58 (3.24)	34.14 (3.75)	-2.7	143.9	.004*	-2.700	-0.413
Self-Control (SD)	43.52 (6.85)	46.34 (7.35)	-2.4	144	.009*	-5.159	-0.479
Aggression (SD)	3.07 (0.91)	2.93 (0.87)	0.9	144	.172	-0.151	0.431
Life Satisfaction (SD)	24.40 (6.47)	26.47 (6.10)	-2.0	144	.025*	-4.124	-0.007
Mental Health Disorders (SD)	35.94 (8.23)	31.15 (10.07)	3.1	144	<.001*	1.746	7.831

Note * $p < .05$; SD: standard deviation.

Correlation matrix

Table 3 presents the zero-sum correlation matrix among the psychological variables investigated in the current study. As key findings, positive correlations with large effect sizes were found between self-control and grit ($p < .01$; $r = .64$), and self-efficacy and resilience ($p < .01$; $r = .50$). Additionally, a negative correlation with a large effect size was found between self-control and mental health disorders ($p < .01$; $r = -.62$).

Table 3. Zero-sum correlation matrix.

Variables	1	2	3	4	5	6
1. Resilience	-					
2. Grit	.34*	-				
3. Self-Efficacy	.50*	.40*	-			
4. Self-Control	.37*	.64*	.37*	-		
5. Aggression	-.23*	-.21*	-.06	-.45*	-	
6. Life Satisfaction	.39*	.34*	.38*	.43*	-.38*	-
7. Mental Health Disorder	-.44*	-.34*	-.27*	-.62*	.44*	-.48*

Note. * $p < .01$

DISCUSSION AND CONCLUSIONS

This study explored the differences in training characteristics (training experience in years, training volume in hours/week, training frequency in days/week, and number of competitions engaged over the previous 12 months), and psychological characteristics (resilience, grit, self-efficacy, self-control, aggression, life satisfaction, and mental health disorders) between beginner and advanced judokas in the United States.

The current results showed that advanced judokas were older, more experienced, and trained more days and hours per week than beginner judokas. These observations align with earlier research indicating that the development of skills frequently requires additional training, which is further strengthened by the competitive opportunities associated with such advancement (Franchini & Takito, 2014). For example, in a study consisting of 420 Brazilian jiu-jitsu athletes, Lorenzo-Lima et al. (2025) found that white belts train an average of 4.81 hours per week, while black belts train an average of 8.79 hours per week. In another study, researchers found that advanced sambo practitioners from European nations averaged 24 training hours per week and 4.2 hours per day (Tubić et al., 2022). While the dedication of time required to develop expertise may be expected, it is important to examine how various training methods can influence an athlete's psychological outcomes.

When examining the results of the psychological measurements, the current study found that advanced judokas exhibited higher levels of resilience, grit, self-efficacy, self-control, and life satisfaction, and lower mental health disorders compared to beginner judokas. With respect to resilience, these findings are consistent with Garrido-Muñoz et al. (2024), whose research involved a similar group. Their study of over 702 judokas found a positive correlation between resilience, age, and experience, similar to the observations among advanced judokas in the present study. Furthermore, the higher competitive groups possessed greater training experience and engaged in training more often. These results are consistent with previous research demonstrating a positive link between training frequency, experience, and resilience in judo, as well as grit in combat sports (Küçük, 2020; Pujszo et al., 2019).

Beyond combat sports, studies indicate that taking part in competitive sports over an extended period can enhance cognitive functions (Milistetd et al., 2021). This improvement may occur because increased experience provides more chances to develop skills and gain expertise that benefit psychological well-being. Research has also shown a link between skill level and grit, such as Cazayoux and Debeliso's (2019) study, which found advanced Crossfit athletes scored much higher on the 12-Item Grit scale than novice athletes. Hanton and Jones (1999) observed that swimmers with more experience utilized mental strategies to manage anxiety and competitive stressors. Similarly, Hanton et al. (2008) indicated that athletes with greater experience across several sports reported comparatively higher self-confidence and lower anxiety levels than less experienced athletes.

The findings of the present study also revealed that both beginner and advanced judokas exhibited similar levels of aggression. This is consistent with the researchers hypothesis. According to a systematic review by Lafuente et al. (2021) examining the impact of martial arts and combat sports training on anger and aggression, current research indicates that there is no clear relationship between participation in these activities and levels of anger or aggression. Kuśnierz et al. (2025) found that long-term martial arts training may help reduce aggression, though multiple socio-cultural factors complicate determining its impact. More research is needed on the relationship between aggression and martial arts.

In a separate study conducted by Lorenzo-Lima et al. (2025) which investigated the same psychological characteristics among Brazilian jiu-jitsu athletes, a combat sport closely related to judo, the researchers observed comparable findings: Brazilian jiu-jitsu black belts demonstrated higher levels of resilience, grit, self-efficacy, self-control, and life satisfaction, as well as a reduced incidence of reported mental health disorders, when compared to individuals holding lower belt ranks. Furthermore, the referenced study identified no significant difference in aggression between these groups.

This research has some limitations that should be acknowledged. First, the findings of this study should be interpreted considering that the cross-sectional design does not allow causal inferences regarding the effects of judo practice or progression. Second, despite the data collection anonymity as a mitigation attempt, the use of self-reported instruments may have led to social desirability bias. The answers may reflect the participants' implicit attitudes or personal desires regarding the questions asked. Third, the self-selection bias may limit the generalizability of the results. Fourth, the limited number of research exploring psychological aspects of judo training limited the theoretical framework and discussion of this study. In light of these limitations, future longitudinal studies are needed to determine whether favourable psychological characteristics precede long-term engagement in judo or emerge as a consequence of sustained practice and progression.

In summary, advanced judokas were older, more experienced, and trained more days and hours per week than beginner judokas. The current study suggests that advanced judokas presented significantly higher resilience, grit, self-efficacy, self-control, and life satisfaction, and lower mental health disorders than beginner judokas. Moreover, beginner and advanced judokas presented similar levels of aggression.

AUTHOR CONTRIBUTIONS

All authors meet the criteria for authorship in accordance with established ethical guidelines. Contributions are specified according to the CRediT (Contributor Roles Taxonomy) as follows:

Conceptualisation: Lorenzo-Lima L. & Gaines S. A. Methodology: Lorenzo-Lima L. & Gaines S. A. Formal analysis: Lorenzo-Lima L. Investigation: Lorenzo-Lima L. Data curation: Lorenzo-Lima L. Writing – original draft: Lorenzo-Lima L. & Rosario D. Writing – review & editing: Lorenzo-Lima L., Rosario D., Bacurau R. F. P., Andreato, L. V. Supervision: Bacurau R. F. P., Andreato L. V. & Gaines S. A. All authors have critically reviewed and approved the final version of the manuscript and agree to be accountable for all aspects of the work.

FUNDING

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

CONFLICT OF INTEREST

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this manuscript.

AI USE DISCLOSURE

In accordance with current publishing ethics and transparency recommendations, artificial intelligence (AI) tools were used solely to assist with translation and language editing, with the aim of improving clarity and readability. No AI tools were used in the generation of scientific content, including the study design, data collection, analysis, interpretation of results, or the formulation of conclusions. The authors retain full responsibility for the content of the manuscript and confirm its originality, integrity, and accuracy.

DATA AVAILABILITY STATEMENT

The data presented in this study are available upon request to the corresponding author.

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