

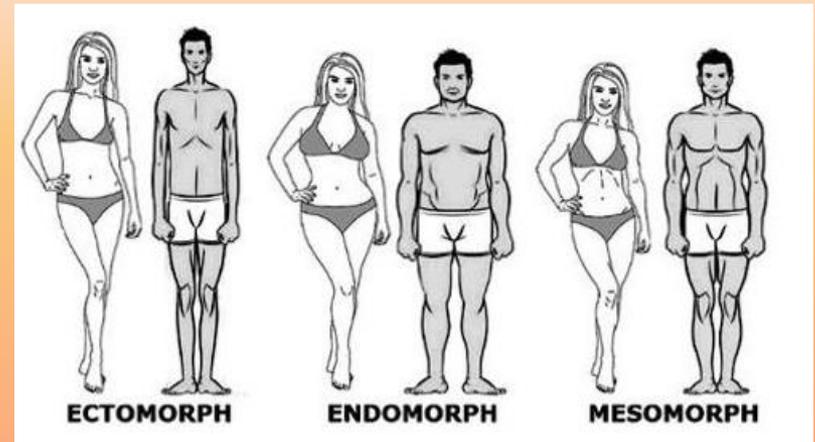
*THE 8th INTERNATIONAL CONFERENCE  
“ANTHROPOLOGICAL AND TEO-ANTHROPOLOGICAL VIEWS ON PHYSICAL  
ACTIVITY FROM THE TIME OF CONSTANTINE THE GREAT TO MODERN TIMES”*

## **EFFECTS OF JUDO ON THE ANTHROPOLOGICAL STATUS OF ATHLETES: SYSTEMATIC REVIEW**

Faculty of Physical Education and Sport, University of East Sarajevo<sup>1</sup>  
Faculty of Sport and Physical Education, University of Nis<sup>2</sup>

Authors :Marko Samouković<sup>1</sup>, Anja Lazić<sup>2</sup> & Kristina Mladenović<sup>2</sup>

- **Judo** is a weight – based sport that has an impact on all parts of the anthropological status. It appears that morphological, physiological and technique-related variables in competitive judo are in high correlation and means that improvement or deterioration of any of these variables have effects on other.



- The aim of this paper was to summarize the effects of judo on physical, morphological and cognitive abilities in professional athletes from young age to periods after professional career compared to non – judo population and to other martial arts athletes

# INTRODUCTION

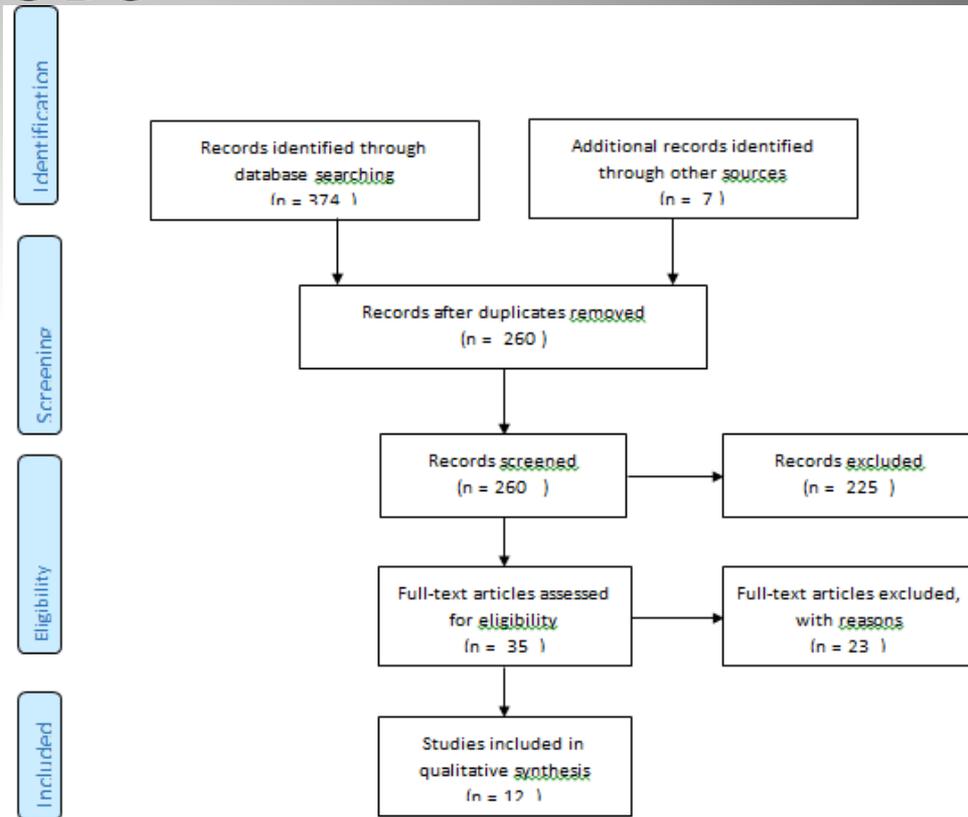
- Judo is defined as weight – based sport , thus, judo athletes have a tendency to increase the amount of lean muscle mass, decrease the amount of body fat, and decrease total bodyweight
- It is not possible to make an ideal morphological example of judo athlete
- Elite male judokas have only 10% fat mass , with respect to female judo athletes who differ in body composition, metabolic factors and hormonal performance and to young judo athletes



- The aim of this review was to gain insight into judo effects on physical, morphological and cognitive abilities in professional athletes from young age to periods after professional career compared to non – judo population

# METHODS

- **Search Strategy** :The Scholar, PubMed, MEDLINE, ERIC, ResearchGate electronic databases were searched until 28. February, 2021.



- **Inclusion Criteria:**  
For inclusion within this review only original articles, written in English were considered. Articles published during the last 15 years, were only taken into account
- **Exclusion criteria** : Studies were excluded of the the review if they were not written in English ,non human investigations, Judo athletes with disabilities

# RESULTS

- A total of 12 studies were passed the criteria and analyzed. Morphological, Physical and Cognitive abilities were presented.
- Judo athletes have a higher BMI compared to the non-sports population and to non – judo athletes. Gender differences show that men have more muscle mass and a lower percentage of fat. These changes occur during maturation combined with specific high intensity training.
- Male Judo Athletes has shown higher development of physical fitness abilities than females
- Elite Judo Athletes higher level physical fitness than Sub – Elite athletes. Practicing judo has positive effects on cognition. Especially in decision making, spatial abilities, sense of direction and Dynamic Visual Activity (DVA)

## Part of Table 1. Body composition and physical fitness

Reference	Study type	Judo level	Aim	Participants	Variables	Results
[29]	Exploratory study	Sub-elite JA	Changes in anthropometry and physical fitness during one season	n = 44; n = 20 M Age: 14.1 ± 1.2 n = 24 F Age: 14.1 ± 0.9	Anthropometry HS VJ Balance	↑ BH ↑ BM ↑ Balance ↓ small, p > 0.05 between variables HS VJ
[30]	L	Elite female JA	Anthropometric changes of assessed as juniors and later as seniors.	n = 12 F Age: 16.64 ± 1.26	Anthropometry	↑ BM ↑ BH ↑ FFM ↑ BF ↓ % FFM ↑ Width of upper limbs ↑ Endomorphic and monomorphic components

## Part of Table 2. Cognitive abilities

Study type	Aim	Judo level	Participants	Variables	Results
T	Cognitive performance and neuroelectric responses during a selective attentional task	Judo black and white belt athletes	n = 34 n = 29 M n = 5 F WB – 18 Age: 25.2 ± 5.8 BB – 16 Age: 26.5 ± 7.9	Anthropometry YY IR1 SJFT SMT	↓ cognitive behavioral performance ↑ P300 in the middle frontal gyrus in BB ↑ N200 in cuneus in BB ↓ latency of P300 in the precuneus
T	Effects of judo in DVA	Young and old Judo athletes and non - athletes	n = 90 M JA – n = 45 YJA – n = 30 Age: 27.6 ± 3.8 OJA – n = 15 Age: 64.1 ± 4.5 NJA – n = 45	DVA measure	↑ DVA in athletes ↑ Oblique effect in older ↑ DVA in OJA
T	Effect of Judo on various spatial abilities		n = 97 JA – n = 52 Age: 19.1, ± 5.6 NJA – n = 45 Age: 20.2 ± 3.5	Route retracing Shortcut finding performance	↑ Spatial abilities in JA ↑ Sense of direction in JA ↓ Wayfinding
T	Differences on gray matter volume	Professional JA And NJA	n = 26 JA – n = 8 Age: 25 ± 1.8 NJA – n = 18 Age : 25 ± 2.9	Voxel-based morphometry	↑ Grey mass in JA
T	Effect of expertise sustained attention task	Professional JA and NA	n = 21; SA – n = 11 Age: 25.4 ± 11.5 NA – n = 10 Age – 25.05 ± 9.05	ERP	↑ Controlled attention in SA,
Study type	Aim	Judo level	Participants	Variables	Results
T	Cognitive performance and neuroelectric responses during a selective attentional task	Judo black and white belt athletes	n = 34 n = 29 M n = 5 F WB – 18 Age: 25.2 ± 5.8 BB – 16	Anthropometry YY IR1 SJFT SMT	↓ cognitive behavioral performance ↑ P300 in the middle frontal gyrus in BB ↑ N200 in cuneus in BB ↓ latency of P300 in the precuneus

# DISCUSSION

- Judo athletes have a higher BMI compared to the non-sports population
- The increased BMI is the consequence of greater muscle mass in athletes, which is a determining factor for success in judo. Male judokas have higher body height and body mass but also a lower percentage of fat compared to female judokas
- Young judo athletes have better performance compared to all groups, although with aging there is a decline in this ability which may result in altered speed in solving visual tasks
- Judo training has positive effects on cognitive functions such as selective attention sense of direction, spatial abilities and DVA
- The weakness of this review paper is the number of researches included in the analysis, because the anthropological status is a large and complex dimension. Cognitive abilities were not studied in female athletes

# CONCLUSION

- Judo is a sport that has an impact on wide range of dimensions of the anthropological status.
- Especially on the *physical*, *morphological* and *cognitive* abilities and their correlation which performance depends on
- Differences in the influence of judo exist in relation to gender, categories, age as well as in relation to different martial arts.
- However, it is necessary to point out the disadvantages of professional judo, especially in nutritional status, where rapid weight loss and weight gain in short period may lead to an increase number of health problems compared to the non – judo population and altered performance.
- *The knowledge about long – term judo effects are scarce and future investigations are needed.*

*THE 8th INTERNATIONAL CONFERENCE  
“ANTHROPOLOGICAL AND TEO-ANTHROPOLOGICAL VIEWS ON PHYSICAL  
ACTIVITY FROM THE TIME OF CONSTANTINE THE GREAT TO MODERN TIMES”*

## **EFFECTS OF JUDO ON THE ANTHROPOLOGICAL STATUS OF ATHLETES: SYSTEMATIC REVIEW**

Faculty of Physical Education and Sport, University of East Sarajevo<sup>1</sup>  
Faculty of Sport and Physical Education, University of Nis<sup>2</sup>

Authors :Marko Samouković<sup>1</sup>, Anja Lazić<sup>2</sup> & Kristina Mladenović<sup>2</sup>