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ПРОДВИЖЕНИЕ НАШЕГО СПОРТА ЧЕРЕЗ ЗНАНИЕ
PROGRESO PARA NUESTRO DEPORTE MEDIANTE CONOCIMIENTO

International Journal of Wrestling Science

The official journal of the International Network of Wrestling Researchers (INWR)

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Editor in Chief

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Reviewers

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Editor's Comments

I am happy to announce the first articles the *IJWS* has published from Cuban researchers-Professors Ricardo Enrique Ibáñez Díaz and Jorge Clemente Noriega Gómez. We honor this milestone with the cover photo of the great Cuban wrestler Mijaín López who has won 4 Olympic Gold medals. Will he be going for number 5 in Paris?

Included in this issue are the proceedings from the SCIENTIFIC SYMPOSIUM HELD AT THE 2022 BELGRADE WORLD CHAMPIONSHIPS with the theme: *"Using the Scientific Foundations of Olympic Wrestling to Advance Our Sport."* Participants represented 22 countries.

The Honorary Rayko Petrov Lecture was given by Prof. Dr. Bahman Mizaei entitled:*Challenges Confronting the Preparation and Performance of Elite Wrestlers*. He is shown receing the Rayko Petrov Trophy from UWW President Nenad Lalovic

Outstanding Young Researcher Awards went to Salvador Angosto Sánchez (University of Murcia, Spain) and Marina Rueda Flores (Polytechnic University of Madrid)

Sincerely yours in the advancement of Wrestling,

David Curby

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Director of the International Network of Wrestling Researchers
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ORGANIZATION OF THE TACTICAL PREPARATION IN GRECO-ROMAN WRESTLING IN THE JUVENILE CATEGORY - A PROPOSAL

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ABSTRACT
In this investigation a proposal is made for the organization of the tactical preparation in Greco-Roman wrestling for youth. It has three phases; diagnosis, organization and evaluation of the process. We worked with the team of the youth category of the provincial Sports Initiation School [Escuelas de Iniciación Deportivas Escolares, EIDE] of Villa Clara, for its implementation different methods were used, such as document review, interview, observation, systemic approach, modeling and; historical-logical and inductive-deductive methods. The organization of the treatment of tactical preparation in youth wrestlers of the Greco-Roman style, guaranteed the increase in the state of competitive performance of the wrestlers during the different moments of the preparation cycles, causing the increase in sports results. From its application it was found that the level of tactical effectiveness was raised in the fighters of the youth category of the Greco-Roman style achieving 100% effectiveness in medals, since the four athletes who participated in the Youth Olympiad achieved one gold, one silver and two bronze medals.
Key words: organization, tactical preparation, tactical situations.

INTRODUCTION
At present, for different reasons, diverse criteria are observed on how a sports training macrocycle should be organized and planned, however, practice shows that from the methodological, organizational and dosage point of view, there is not a single way to achieve the victory in competitive sport (Rosemary, 2019).

The author himself defines the planning system as the set of elements that are organized in logical order for the structuring and programming of the contents that reflect the scientific knowledge provided by the pedagogical, psychological, biological sciences, among others, which allow the distribution and interrelation of the loads, methodologically, with the aim of obtaining the maximum sports form of the athletes at the desired and precise moment for the competition.

The preparation in the youth category is made up of five components: physical, technical, tactical, psychological and theoretical preparation. In this regard, Morales (2008) states that tactics has been one of the least treated components given, among other aspects, because its treatment is more complex. In this sense Fernández et al., (2022) state that one of the weaknesses of the Cuban fighters in the Tokyo 2020 Olympic Games, was the tactical application, which shows that this component continues to present deficiencies in its treatment.

In Olympic Wrestling, tactical preparation has been addressed by authors such as Mazur (1972), Petrov (1976), González (2017), Ibañez & Navelo (2019) and González & Cañedo (2020). They offer a group of elements that guide the athlete's tactical actions. but are limited to giving tactical recommendations. In addition to being proposals in which their teaching method is directive, which according to Jiménez (2010) is characterized by a focus on the technical-tactical.

- The student is a passive subject, since the coach occupies the leading role in the process.
- Emphasis is placed on the development of the execution mechanism, on the training load, and tactical actions are not considered, nor are partial performances in this regard during training and competition.
- The types of situations are decontextualized with little resemblance to the real combat situation, since they focus on technical execution.

In this sense, studies carried out in the province of Villa Clara in thesis of master's degrees and specialties by, López (2009); Toledo (2009); Guevara & López (2014), reveal that in the pedagogical practice present in the

teaching-learning process for wrestling in the province, the aforementioned methodological procedure predominates.

In accordance with what was discussed above, the problematic situation faced is characterized by limitations in the treatment of the tactical preparation of the Greco-Roman style wrestler of the youth category, one of the main insufficiencies presented at the Rio 2016 Olympic Games.

Hence, the main objective of the research is focused on organizing the tactical preparation process in the Greco-Roman wrestling youth category.

METHODS

For this study, we worked with the 16 Greco-Roman style Olympic Wrestling coaches of the country who participated in the National Youth Olympiad in the 2018-2019 Course to which a survey is applied and the 13 Olympic Wrestling coaches of the province of Villa Clara selected to carry out the methodological workshops. The team where the proposal is applied has a total of 13 fighters. Their ages are between 15 and 18 years old and the sports age is between 5 and 10 years old.

The study is part of the scientific-technical project of technological innovation Teaching and improvement of the way of fighting in combat sports of the Faculty of Physical Culture, of the Central University Marta Abreu de Las Villas in which its results have allowed to contribute with the work of the coaches of this sport in the province of Villa Clara.

Taking into account the objectives that must be answered, the research is based on the use of theoretical, empirical and statistical-mathematical methods:

Systemic approach: It allowed the establishment of relationships and interdependencies between the component elements of the proposal.

Modeling: It allowed an approximate mental representation of the object of study, to analyze its particularities, study new relationships and qualities of said object and experiment with them.

Document analysis: It was used with the objective of analyzing normative and methodological documents of the process, related to the subject under study.

Pedagogical or training experiment: It was used to assess the implementation and results of the designed proposal.

Survey: It was used with the objective of obtaining information about how the tactical preparation treatment is carried out and to verify the cognitive and practical needs that the coaches have about the object of study.

Observation: It allowed verifying in practice the characteristics of the treatment of the tactical preparation, in the different moments of the preparation and competition.

Measurement: It made it possible to measure test results and observations, associated with tactical preparation, from the assumed theoretical position.

Interview: It allowed the coaches who apply the designed proposal to collect information about the progress of the process.

Expert consultation: Used to assess the viability of the proposed methodology based on their criteria.

RESULTS

Three phases are used for the organization of the tactical preparation process:

- Diagnosis
- Organization of the process
- Evaluation

1st Phase-Diagnosis

Goals: Diagnose the current level of development of the wrestlers' tactical preparation, which allows determining the performance groups for the organization and individualization of said preparation.

a) Application of the tactical tests, the theoretical test to give a mental solution to the different tactical situations and a practical test to give a motor solution to said situations.
b) Observation in training to determine the efficiency and tactical effectiveness of the wrestlers.
c) Assessment of the current state of the wrestlers' tactical preparation.
d) Determination of the performance groups for the individualization of the tactical preparation of the wrestlers.

It begins with the application of testing in the first weeks of training, firstly the theoretical test is applied to provide a mental solution to the different tactical situations that the wrestlers' face, the test is structured in four moments, the first is dedicated to tactical situations of knowing how to do, the second to the tactical situations of deciding, the third to the tactical situations of applying and the fourth to the tactical situations of creating.

Subsequently, the practical tactical test is applied to give a motor solution to the different tactical situations that are posed to the wrestlers, the same previous ones are applied with the difference in the type of solution, the evaluation is carried out by the coaches and the investigator. To evaluate these tests, the scale proposed by (Fernández et al., 2011) is used. Where the answer must be found in the shortest possible time expressed in seconds:

- 5 to 10 seconds —- Very Good
- 11 to 15 seconds — Good
- From 16 to 20 seconds ---– Fair
- From 21 to 25 seconds ----Bad
- From 26 to 30 seconds ----Very Bad

To evaluate the tactical effectiveness from the observations, the scale proposed by Fernández et al., (2011) is used, which expresses that the wrestler who scores:

- + 75% Very Good
- 50-75% Good
- 35-49% Regular
- 20-34% Bad
- - 20% Very Bad

To evaluate the effectiveness, the use of resources to achieve the motor solution in the tactical situation presented is taken into account.
Tactical Resources Adequate Inadequate

From the results obtained in the application of the tests and the observations, the coaches determine the weaknesses and strengths in the tactical order that the wrestlers present and proceed to determine the performance groups for the organization of the process.

Objective: Organize the tactical situations to be worked on by each performance group in the different stages of preparation.

The following describes how this process is organized.
For the tactical high-performance group, in the general preparation stage, work begins with a group of problematic teaching activities that are related to the fundamental aspects of Olympic Wrestling such as grappling, attacks, falling, control , defense, imbalance, posture and displacement and counterattack that allow to consolidate knowledge in the theoretical order and mobilize the thinking of the wrestler's in search of solutions from answers that in the theoretical - practical order offer the same, at the same time and taking into consideration the technical program of the category, tactical situations of knowing how to do and deciding according to the objectives set for the training unit are included.

In the special preparation stage, the tactical situations to apply and the spaces for reflection for the tactical situations to create are intentionally included.

In the competitive stage, all tactical situations are worked on, considering the competitive exercises that are going to be used in training, as well as the different types of stops that are made.
In the medium tactical performance group, work begins with problem situations, taking into consideration that they are found at the beginning of the preparation and, just as in the previous group, serve as consolidation, tactical situations of know-how are also included.
In the special preparation stage, the tactical situations of deciding and applying are worked on, and in the competitive stage, the tactical situations of creating from the reflection spaces.
In the group with low tactical use, work with general tactics begins in the general preparation stage, taking into account the criteria of Morales (2008), which defines it as the development process aimed at training and enhancing mental skills. In athletes who will develop the bases for carrying out the special exercise, work is also done with problem situations.

In the special preparation stage, tactical situations of knowing how to do and deciding are included, taking into account the progress they show, and in the competitive stage, the tactical situations to be applied are worked on and spaces for reflection are intentionally included for the situations. Tactics to create from the aspects of greatest strength in these.

DISCUSSION

To corroborate the application of the proposal, observations were made at three moments of the preparation to evaluate the efficiency and effectiveness of the wrestlers in the competition scenario, analyzing for this in the first observation in the National Team Tournament, the second measurement was made in the National Cup "January 28" held in Villa Clara with the participation of the eight best teams of the National Olympiad of the previous year and the third measurement in the National Olympiad, a fundamental event for which the wrestlers prepare. The results of these are shown below:

Results of the application of the work tests

It starts from the central problem of the investigation, which consists of solving the insufficiencies in the tactical preparation in the training of the youth wrestlers of the Greco-Roman style.

In the evaluation of the results referring to the application of the tests, we use inferential statistics such as the non-parametric Friedman test and the sign test. To assess the observations, the non-parametric tests of Friedman and Wilcoxon were used.

Table 1 Significance values of the Friedman test in theoretical tactical solutions of tactical situations.

Tactical Solutions	**Significance**
Know what to do	0.00
know how to decide	0.00
know how to apply	0.00
Know how to create	0.00

Significance values of the sign test in theoretical tactical solutions of tactical situations.

Table 2. Theoretical solution to tactical situations of know-how.

Significance values of the Wilcoxon test in the observations made to evaluate the efficacy and effectiveness.

Measurements	First and second	First and third	Second and third
Significance	0.00	0.00	0.00

Table 3. Theoretical solution to the tactical situations of knowing how to decide.

Effectiveness in tactical situations of knowing how to decide.

Measurements	First and second	First and third	Second and third
Significance	0.01	0.01	0.15

Table 4. Theoretical solution to the tactical situations of knowing how to apply.

Effectiveness in tactical situations of knowing how to apply.

Measurements	First and second	First and third	Second and third
Significance	0.01	0.00	0.00

Table 5. Theoretical solution to the tactical situations of knowing how to create.

Knowing how to create in tactical situations.

Measurements	First and second	First and third	Second and third
Significance	0.01	0.01	0.01

As can be seen in table number one, the results of the application of the Friedman test, in the three measurements, in the different mental solutions to tactical situations there are significant differences, which corroborates that the fighters positively assimilated the work done to from the application of the proposal.

An analogous situation is observed in the results of the application of the sign test where there are significant differences when comparing the second with the first measurement, the third measurement with the first and the third with the second measurement. Although it is necessary to specify that in the case of the mental solution in the tactical situations of knowing how to create when the third measurement is compared with the second no significant changes occur, however, when the results of the frequencies in the sign test are analyzed Five positive results and four ties can be seen, which shows that there was an improvement between one test and another and even in the case of ties, they remained in the same evaluative category but with improvements in response times.

The results of the application of the tactical test for the practical solution of tactical situations are shown below:

Table 6 Significance values of the Friedman test for the practical solution of tactical situations.

Variables	**Significance**
Know How	0.00
Know Decide	0.00
Know How to Apply	0.00
Know Create	0.00

Significance values of the sign test for the practical solution of tactical situations.

Table 7 Practical solution to tactical situations of know-how.

Measurements	Second and first	Third and first	Third and second
Significance	0.00	0.00	0.00

Table 8. Practical solution to the tactical situations of knowing how to decide.

Measurements	Second and first	Third and first	Third and second
Significance	0.00	0.00	0.00

Table 9. Practical solution to tactical situations of knowing how to apply.

Measurements	Second and first	Third and first	Third and second
Significance	1.00	0.00	0.00

Table 10. Practical solution to the tactical situations of knowing how to create.

Measurements	Second and first	Third and first	Third and second
Significance	0.03	0.00	0.03

Table 11. Significance values of the Friedman test in the observations.

Variables	**Significance**
Know How	0.00
Know Decide	0.00
Know How to Apply	0.00
Know Create	0.00

Significance values of the Wilcoxon test in the observations made to evaluate the effectiveness.

Table 12. Know-how effectiveness in tactical situations.

Measurements	Second and first	Third and first	Third and second
Significance	0.00	0.00	0.00

Table 13. Effectiveness in tactical situations of knowing how to decide.

Measurements	Second and first	Third and first	Third and second
Significance	0.01	0.01	0.15

Table 14. Effectiveness in tactical situations of knowing how to apply.

Measurements	Second and first	Third and first	Third and second
Significance	0.01	0.00	0.00

Table 15. Effectiveness in tactical situations of knowing how to create.

Measurements	Second and first	Third and first	Third and second
Significance	0.01	0.01	0.01

As can be seen in table number eleven, when the observations are compared between them at different times, it is observed that there are significant differences in the results that allow us to assert that there was a positive influence on the results that show the proposal in the youth Greco-Roman wrestling team. .
An analogous situation occurs when the analysis of the results of the application of the Wilcoxon test is carried out, where significant changes are shown when we compare the results achieved in the effectiveness of the tactical solutions of knowing how to do, decide, apply and create in the observations made, Except for the comparison between the second and third moment in the tactical situations of deciding where 6 positive and three negative ranges are appreciated, this is associated with the fact that the third moment is carried out in the scenario of the fundamental competition where several factors converge in making this decision. type of decision, however, if the number of comparisons is analyzed, it can be noted that significant changes occur in 91.66%.

CONCLUSIONS

The diagnosis of the current state of the methodological conceptions used for the treatment of tactical preparation in youth wrestlers of the Greco-Roman style revealed, among other aspects, insufficiencies in the application of tactical methods, as well as their contents and a guiding role of the coach in said process, which limits the possibilities of the wrestlers in terms of their independence in decision-making.
The determination of the tactical demands, tactical contents and tactical situations in the youth fighters, base the organization for the treatment of the tactical preparation.

The phases proposed for the organization of the wrestler's tactical preparation allow the coach and the athlete to develop the process effectively from the tactical situations, which gives it a particular distinction.
The experts consulted offered positive criteria about the proposal for the development of tactical preparation, about its social utility and formal quality, by meeting the essential requirements such as generalization, applicability, relevance, feasibility, originality and importance.

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STRUCTURE FOR PLANNING IN YOUTH OLYMPIC WRESTLING THROUGH THE INTEGRATED MACROCYCLE WITH ACCENTED LOADS- AN ALTERNATIVE

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ABSTRACT
The present investigation arises from the need presented by the Olympic Wrestling coaches of the youth category (16-18 years) of the Schools of Sports Initiation Schools (EIDE) to organize the structure of the training of their teams. Its objective was to design a structure for the planning of training in the youth category of Greco-Roman Wrestling through the Integrated Macrocycle model, the design of this scientific result is based on contemporary conceptions of accentuation of the load in the organization of sports training. Methods of the theoretical level, the analysis of documents, the systemic approach, the survey and the criteria of specialists were used. The designed planning structure was submitted to the criteria of specialists, who endorsed its possible application in practice.
Keywords: Planning Fights, accentuated loads, Integrated Macrocycle

INTRODUCTION.
Training planning is a fundamental instrument in sports performance management, since the planning structures, the forms of training organization and its contents form a close link with the desired performance dynamics. The current state of the training structures for the youth category teams presents insufficiencies in terms of their updating according to the recommendations for the organization of contemporary sports training, which limits the development in their transition towards high-level training.

Another limitation that is pointed out to the application of planning structures according to this classic model Matveev (1983), is given in the great amplitude of the preparation cycles, generally characterized by a broad stage of general preparation, which does not It offers the possibility of participating in competitions, which in short periods of time are presented in contemporary sport, due to the limitation of the training of specific skills.

This current problem of the organization of training has caused changes in the contemporary conception of the preparation of the athlete, which can be observed mainly in the appearance of short planning structures with the concentration of loads of only functional orientation, the reduction of the objectives to develop in the different phases of these structures, the successive development of capacities taking advantage of the residual effect of certain workloads, the application of loads according to the principles of biological adaptation, the increase in the use of specific work means in the content of training, with its corresponding high intensity, and others that determine a notable difference in the current characteristics of planning. (Navarro 2003; Martin & García 2010; Di Costa 2012; Costagliola 2014; García Manso 2015; Badallo 2017). The elements described above show us the contradiction between the training structure recommended by the Comprehensive Program for the Preparation of the Athlete (PIPD) of Wrestling in Cuba for the youth category and the existing recommendations about the contemporary structures proposed for training planning. in those ages.

METHODS
Different methods of the theoretical level were used in the investigation, it was also necessary to use the analysis of documents to study the normative and methodological documents of the training process referring to the youth category. Through the Systemic approach, the relationships and interdependencies between the component elements of the structure were established: the macrocycles, their duration, the phases and the succession of the contents corresponding to them.

The specialist criteria and the survey were used in order to obtain the specialists' assessment of the designed training structure. After carrying out a workshop where its characteristics were explained, a survey was applied to a sample that met a series of requirements established by the necessary and sufficient researchers to fulfill the objective pursued.

Analysis of the Comprehensive Preparation Program for the Fighting Athlete
In the analysis of the normative documents of the PIPD, it was observed that in relation to the planning structures for the different categories, it establishes teaching programs for the ages corresponding to the sports areas and training plans for the high-performance centers Sports initiation schools (EIDES) and Academies When referring to the levels of EIDE, it establishes the cyclical planning of Matveev (1983), authorizing only other forms of training for academies.

Table 1. Proposal of planning structures for different categories. (PIPD)

Age Category	Type of Planning
7 – 8	Teaching Program
9 – 10	Teaching Program
11 – 12	Teaching Program
13 – 15	Double periodization training plans
16 – 18	Double periodization training plans
18 - 20	Training Plans

Regarding the structures for training planning in the youth category, their proposals are not updated according to existing contemporary trends in training theory, since the double periodization of Matveev (1983) that he recommends maintains the same conception that this author raises in his fundamentals of training, because even in the double periodization organized with six-monthly training cycles, the conception of acquisition, maintenance and temporary loss of sports form is maintained, on the one hand, the increase in the use of means of specific work on the content of the training, which must already occur at those ages, and maintains the orientation to parallel work of various capacities from different directions.
In addition to the limitations expressed above, if the foundations of Matveev's Theory (1983) are taken into account, there will be no possibility, according to the dates of the competitions, of carrying out two semester cycles with a double periodization.

RESULTS
Analysis of the proposed structures of accentuated loads.
When analyzing the existing criteria regarding the structures of the model of accentuated loads of blocks with progressive orientation, García & Navarro (1996) recommend that in this model the loads should have a less concentrated character than in the block model of Verjoschansky (1982).), likewise recommends that training should be directed preferentially to the special work of the objective being pursued. This author considers it of great importance in this model to keep in mind the succession and interconnection of the loads that are applied from one block to another to guarantee the residual effect of these loads between blocks of different functional orientation.

In the case of the accentuated load planning model according to integrated macrocycles, it is characterized by Navarro (2003) for containing all the training needs, but recommends that they should be concentrated in short periods of time. He considers that the same conception should be maintained as in the progressive orientation blocks in terms of the recommendations regarding the succession and interconnection of loads.

Each macrocycle should have a duration between 6 and 12 weeks, (table 2) including general, special and maintenance preparation phases, the duration of these phases should be between 1 and 5 weeks and will depend on the nature of the macrocycle according to the orientation of its contents and at the time of the preparation cycle through which it passes.

The general phase is characterized by the volume of training, and the intensity must be increased in the special phase. Regarding the content of the phases, the succession in the effect of the loads must be taken into account, in this way a training directed towards aerobic resistance in the general phase can follow mixed or anaerobic resistance in the special phase. In the maintenance phase, the training will be aimed at competitive actions and the development of their speed.

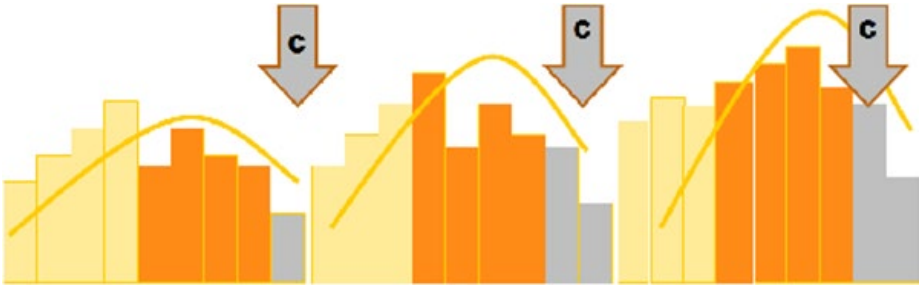

Figure 1. Cycle composed of 3 integrated Macrocycles

These macrocycles are repeated throughout the preparation cycle (Fig. 1) successively guaranteeing from one macrocycle to another, the use of the residual effect of the loads received in the previous macrocycle. At the end of each Macrocycle the athlete will be able to participate in competitions (See Table 2).

Table. 2 Organization of the Integrated Macrocycle

Planning Units	Characteristics	Duration
Cycle	Set of several integrated macrocycles whose final objective is the maximum result in the main competition	25 to 30 weeks
Integrated Macrocycle	Set of several phases, with integration of specific volume and intensity appropriate to the performance of the specialty	6 to12 weeks
Phase Macrocycle	Set of several microcycles with a concentration of certain training contents	1 to 5 weeks
Microcycle	Set of several days of training that reflect the functional orientation of the Annual phase where they are located	3 to 7 days

. Source: Navarro (2003)

Planning structure proposal for the Olympic Wrestling of the youth category
Objectives
• Achieve the competitive state of the wrestlers at the level necessary to maintain the accuracy of technical-tactical actions with high intensities of effort until the end of the bouts.
• Guarantee the efficient operation of combat actions and their variants, according to the ideal model in correspondence with the characteristics of the fighters.
• Achieve through the model of accentuated loads of Integrated Macrocycle, the necessary physical condition, to obtain high yields in the youth national championship from the succession and interconnection of the functional orientation in the different phases and macrocycles.

DISCUSSION
Description of the training cycle
Cycle I of training figure 1, will last 25 weeks, which in turn includes 3 integrated macrocycles and three preparatory competitive moments. (Tournament for National Team, Villa Clara Cup and Sancti Spiritus Cup). The first 2 Macrocycles will guarantee the preparation for the Sancti Spiritus Cup in the 3rd macrocycle, the strongest of the cycle in which 10 provinces participate and the best fighters in the country will perfect the aspects with deficiencies to face the final stage.

Table 3. Structure of the first preparation cycle.

CICLO I																									
MACROCICLO I								MACROCICLO II								MACROCICLO III									
Fase General			Fase Especial				M	Fase General			Fase Especial				M	Fase General			Fase Especial					M
G	G	G	E	E	E	E	C	G	G	G	E	E	E	E	CP	G	G	G	E	E	E	E	E	CP
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25

Characteristics of the load in the macrocycles.

Integrated Macrocycle I

Objective: To strengthen the musculature of the youthful Greco-Roman wrestler, as a base to face the first cycle of training.

Made up of eight weeks, three for the general phase, four for the specific phase and one for the maintenance phase. The general phase begins with three microcycles to achieve anatomical adaptation, which would prepare the fighter for the demands of both general strength loads through auxiliary exercises and combined with weights, integrated with technical exercises according to individual characteristics.

In the specific phase, the method begins to be used according to the type of force according to the maximum result (RM) Cuervo et al., (2003), starting with resistance to force general exercises with auxiliary means combined with special exercises with the partner and auxiliary exercises with weights.

In the maintenance phase (microcycle eight), the volume and intensity of the loads will be low, using the specific rhythm of the competition and its speed to obtain the planned competitive results, in the first preparatory competition of the Team Tournament.

Integrated Macrocycle II

Objective: To relate the development of strength endurance to the special efforts of the juvenile Greco-Roman wrestler.

Made up of eight weeks duration, three for the general phase, four for the specific phase and one for the maintenance phase. In the general phase, strength preparation continues with strength resistance work, combined with general exercises with auxiliary means and general individual exercises as well as auxiliary and combined exercises with weights using an intensity between 50-60% of the RM .

The specific phase begins the work with special exercises with the partner, integrated with the technical actions for the development of rapid strength with intensities of 65-75% of RM.

In the maintenance phase, in microcycle 16, it is combined with competitive modeling, the acquired work of rapid strength and resistance to strength is maintained to achieve the objectives with a view to the Villa Clara Cup preparatory competition.

Integrated Macrocycle III

Objective: To develop resistance to rapid strength as a determining capacity for performance and its transfer to specific exercises in Wrestling.

Made up of nine weeks, three for the general phase, five for the specific phase and one for the maintenance phase. In the general phase, the accent of work is focused on rapid strength between microcycles 17, 18 and 19, combining work with general individual exercises and special exercises with a partner, as well as auxiliary exercises with weights with percentages per plane of 20%. for the arms, 35% for the trunk and 45% for the legs. The maximum values for the intensity will oscillate between 75-85%.

In the specific phase, which contemplates microcycles 20, 21, 22, 23 and 24, the work of resistance to rapid strength is accentuated, with an intensity between 55-65% of the RM, specific exercises with the partner and auxiliary exercises.

In the maintenance phase (microcycle 24) the maximum strength test is performed, which will allow the comparison of the results in relation to the previous macrocycles. In the phase, a competitive modeling is carried out with a view to the Santi Spíritus Cup preparatory competition.

Cycle II of training shown in Table 4, will last 16 weeks, this includes 2 integrated macrocycles and two competitive moments, one preparatory to the 1st Category National Championship and the fundamental competition, the Youth National Games.

Table 4. Structure of the second cycle of preparation.

CICLO II															
MACROCICLO IV									MACROCICLO V						
Fase General				Fase Especial				M	Fase General			Fase Especial			M
G	G	G	G	E	E	E	E	*CP*	G	G	G	E	E	E	*CF*
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41

Integrated Macrocycle IV

Objective: Maintain the strength levels acquired in the determining capacities by increasing the specific work in the cycle.

Made up of nine weeks, four for the general phase, four for the specific phase and one for the maintenance phase. The general phase, made up of microcycles 26, 27, 28 and 29, in which the work accent is focused on rapid strength through general exercises with auxiliary means in succession with special exercises with a partner, increasing the intensity to 70-80%. of the RM, the repetitions will be between six and 10 per series.

This will allow to continue with the resistance to rapid strength in the specific phase and the specific exercises with the partner, the percentages for planes that will be applied are 25% for the arms, 35% for the trunk and 40% for the legs.

This phase includes microcycles 30, 31, 32 and 33, the fast force resistance work is performed with intensities between 55-65% of the RM.
In the maintenance phase (microcycle 34) a competitive modeling is carried out, whose objective is to make different forms of stops to maintain the rapid force acquired in the previous phase to obtain the competitive results that were planned with a view to the preparatory competition. 1st Category.

Integrated macrocycle V
Objective: To apply to specific technical-tactical actions the strength levels acquired in determining capacities.
Made up of seven weeks, three for the general phase, three for the specific phase and one in the maintenance phase. In the general phase, exercises with the partner combined with specific exercises with the partner are applied in microcycles 35, 36 and 37, exercises will be performed for the development of strength resistance with values between 45-55% of the RM, for the auxiliary exercises, the percentages per planes that will be applied are 20% for the arms, 30% for the trunk and 50% for the legs, three sessions are maintained per microcycles and the rest time between sessions is between one and three. minutes.
In the specific phase, specific exercises are applied with the partner, in microcycle 39 the final maximum strength test is performed, in a way that allows evaluating the objectives planned in the cycle and thus quantifying the levels of strength achieved during the planned cycles. will accentuate the resistance to rapid force for auxiliary exercises with intensities between 55-65% of the RM, the percentages for planes that will be applied are, 25% for the arms, 30% for the trunk and 45% for the legs by its proximity to core competence.

The maintenance phase in microcycle 41, arrives at the fundamental competition of the High Performance National Youth Olympiad, whose objective is to compete at the highest level, it is advisable to maintain general strength levels but not to develop it.
The training loads will have a single functional orientation, so they will not be diluted in the different capacities, in this sense they will be directed towards those energy systems predominant in the fighter's efforts. (Mixed, anaerobic lactic anaerobic alactic).
In general, preparation means with a special character will be used in the training in correspondence with the characteristics of the fighters. As another characteristic of the specialization, the preparation combats will be increased, allowing these, on the one hand, to increase the special training loads and, on the other, guarantee the operation of the strategic combat system. (See Table 4).

Evaluation by specialists of the proposed structure
To assess the specialists' criteria on the proposed structure, 10 coaches from the youth teams of the provinces of Ciego de Ávila, Villa Clara, Guantánamo, Santiago de Cuba and Artemisa were surveyed in the National Championship of the 1st Category. All Graduates in Physical Culture, with more than 10 years of experience in working with this category.

In question No. 1 aimed at knowing the relationship between the weeks dedicated to the General and Special Preparation stages, a marked increase in the duration of the time dedicated to General Preparation was observed. Of these, 6 used a ratio of 12-10 and 12-5 and only 2 dedicated more time to special preparation. Results are shown in Table 5.

Table 5. Coaches Allocation of Training Time

Stages	General	Special	# Coaches
Weeks	12	5	3
	12	10	3
	8	6	2
	7	13	2

Regarding the criterion of the possibility of applying the proposed structure in a range from 1 to 10, 1 rated it 8, 3 rated it a 9 and 6 rated it a 10.

Regarding the duration of the Macrocycles and the Phases, as well as their succession, 9 of them valued them as Very adequate and Quite adequate.

Very Adequate	Fairly Adequate	Adequate	Not Adequate
6	3	1	

On the succession of conditional capacities in the different macrocycles. 8 classified it between quite adequate and very adequate.

Very Adequate	Fairly Adequate	Adequate	Not Adequate
6	2	2	

The 10 coaches surveyed considered that the proposed structure allows training to be oriented in a more specialized way towards the operation of the Olympic Wrestling teams in the youth category than the current structure proposed in the PIPD.

CONCLUSIONS

The current state of the training structures for the teams of the youth category of Olympic Wrestling in the EIDE presents insufficiencies regarding its updating according to the recommendations for the organization of contemporary sports training, which limits the development of the wrestlers in their transition to high-level training.

Load accentuation models should be applied whenever a certain level of development has been reached, which occurs in the youth categories. These will allow adaptation based on a more selective orientation of the preparation contents and their successive modification in short training periods.

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INTER-RATER RELIABILITY AND THE PREDICTION OF MINIMUM WRESTLING WEIGHT USING A-MODE ULTRASOUND AMONG EXPERIENCED AND INEXPERIENCED ASSESSORS

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ABSTRACT
The purpose of this study was to examine the inter-rater reliability between four assessors [two experienced (E1 and E2) and two inexperienced (I1 and I2)] using both US and skinfold methods (SF) to determine percent body fat (%BF) and minimum wrestling weight (MWW). Sixteen college-aged adult males (20.8 ± 1.6 yrs) participated in this study. Both US and SF measurements were taken at the chest (CH), abdomen (AB), and thigh (TH). The 3-site Jackson & Pollock method was used to determine body density and %BF. There was no significant difference in %BF determined by any of the 4 assessors when using US (E1=12.8±4.7%; E2=13.8±5.4%; I3=13.2±5.4%; I4=13.4±5.4%; p=0.120) or SF (E1=10.3±5.0%; E2=11.2±6.3%; I3=10.5±4.7%; I4=10.2±4.9%; p=0.094) methods. The SF correlations between the experienced and inexperienced assessors ranged between 0.843-0.989. The US correlations between the experienced and the inexperienced assessors ranged between 0.643-0.978. The standard error of the estimate (SEE) for SF determined %BF between experienced and inexperienced assessors ranged from 0.76-1.64%, while the SEE's for US determined %BF ranged from 1.26-1.74%. Compared to E1, the MWW's determined by E2, I1, and I2 using SF identified 4, 6, and 6 wrestlers that would be certified at a different weight class, while US determined MWW's identified 4, 3, and 4 wrestlers that would be certified at a different weight class. The results of this study demonstrate acceptable inter-rater reliability for the assessment of %BF using US when administered by both experienced and inexperienced assessors.
Keywords: body composition, body fat, skinfold

INTRODUCTION

The accurate determination of percent body fat (%BF) is important in the prediction of health risks (Kopelman, 2007) and in the determination of a wrestler's minimum wrestling weight under the National Collegiate Athletic Association (NCAA) Weight Management Program (WMP) (NCAA, 2019). As such, it is important that the procedures and instrumentation provide accurate and reliable results in the determination of the wrestlers' minimum wrestling weight (MWW). Handheld A-mode ultrasound (US) units utilize similar procedures and measurement sites to skinfold (SF) and may serve as an alternate method of assessment in measuring %BF. It's ease of use, small size, and relative low cost compared to other body composition methods (e.g. dual energy x-ray absorptiometry or air density absorptiometry) may make it a suitable method for the assessment of body composition in a sport setting.

The validity and reliability of SF is well established (Loenneke et al., 2013; McRae, 2010; Jackson, 1978; Heyward & Stolarczyk, 1996) making it one of the most common assessment methods. Of the NCAA approved methods (SF, ADP, underwater weighing), SF is considered to be the most commonly used given its ease of use. As with any body composition testing method, the validity and reliability of SF may be impacted by the type of caliper used, the prediction equation used, or the technician's skill (Heyward & Stolarczyk, 1996). Studies have demonstrated the validity of US (Utter & Hager, 2008; Smith-Ryan, Blue, Trexler, & Hirsch, 2018), however, mixed results (Ripka, Ulbricht, Menghin, & Gewehr, 2016; Wagner, Cain, & Clark, 2016; Smith-Ryan, Fulz, Melvin, & Wingfield, 2014) in which US has been shown to yield lower %BF compared to a criterion such as DXA, have led some to question the use of US which is not permitted for use during the NCAA weight certification procedure. That said, US is often considered an acceptable method for body composition testing and monitoring of %BF Smith-Ryan et al., 2018; Johnson et al., 2017; Ripka et al., 2016; Wagner et al., 2016; Smith-Ryan et al., 2014; Bielemann et al., 2016). Measurement error for US may be similar to those observed for SF in which the technician's skill may impact the results. The reliability of US has been recently examined with positive results where it has been shown to be a reliable method of assessment (Wagner et al., 2016; Smith-Ryan et al., 2014; Bielemann et al., 2016; Hendrickson, Davison, Schiller & Willey, 2019; Ribeiro et al., 2020; Miclos-Balica et al., 2021). A single study has examined the inter-rater reliablity of inexperienced examiners using A-mode US (Wagner & Teramoto, 2020). The results revealed an inter-rater reliabliity for US to be equal to or superior to SF measurments taken by the same

examiners. This study (Wagner & Teramoto, 2020) remains the only study to our knowledge examining the inter-rater reliability of A-mode US and inexperienced examiners. However, no study to date has examined the inter-rater reliability of A-mode US among experienced and inexperienced examiners while also predicting MWW's of the participants, therefore, the purpose of the present study was to determine the inter-rater reliability and of US determined %BF and MWW's among four different assessors (two experienced/two inexperienced).

METHODS

Participants

Participants consisted of 16 college-aged men between the ages of 18-24 (20.8±1.6 years). The body mass and height of participants was 79.2±14.3 kg and 173.2±7.6 cm, respectively. The present study was approved by the University's Review Board and informed consent was obtained from each participant prior to testing. Any participant taking diuretic medication within seven days of testing was excluded from the study.

Instruments-Tests

A urine specific gravity test (Usg) was performed using a handheld refractometer (Atago PEN –Wrestling; Atago U.S.A., Inc.; Bellevue, WA) to assess hydration. SF and US were used to predict %BF. SF measurements (Lange, Cambridge Scientific Industries, Inc., Cambridge, MD) were determined at the chest, abdomen, and thigh. US measurements (BodyMetrix Pro, IntelaMetrix Inc., Livermore, CA) were also taken as the chest, abdomen, and thigh. The MWW was determined using the %BF determined by each assessor using both SF and US. The MWW determination utilized the participants' hydrated body mass (BM) in the following equation: MWW=(BM-((predicted %BF/100)*(BM)))/095.

Procedures

All measurements were performed during a single testing session. Participants underwent hydration testing utilizing Usg. All participants reported with the required Usg < 1.020 and proceeded to complete the body composition testing. All participants completed SF and US testing performed by four different assessors. Two experienced assessors each had > 10 years' experience completing body composition testing procedures. The two inexperienced assessors had no formal training other than a lab session in class overviewing skinfold measurements. Prior to testing, one of the experienced assessors provided each of the inexperienced assessors a 10 min tutorial on the SF and US testing methods. No other training was provided. The order of testing (SF or US) and the order of assessor were both randomized.

The same sites (chest, abdomen, and thigh) were used to calculate %BF determined by both SF and US. A trained assessor marked the three skinfold locations prior to any testing. The same skinfold caliper was used to record all skinfold measurements which were measured to the nearest 0.5 mm on the right side of the body. Each site was be measured three times, with the median value recorded for analysis. %BF was determined using the Jackson-Pollock 3 point method using the following formula for body density and %BF: Body density = 1.1093800 – (0>0008267 x sum of skinfolds) + (0.0000016 x sum of skinfolds^2) – (0.0002574 x age) and %BF = [(4.95/body density) – 4.50] x 100. This process was completed by four different assessors in a random order to calculate %BF.

US determined %BF was assessed using a handheld type-A ultrasound device. Adipose tissue thickness was assessed at the chest, abdomen, and thigh according to the manufacturer's specifications. The 3-site Jackson and Pollock method was also utilized for the US measurement and an unavailable, proprietary equation was used to determine %BF. This process was completed by the same four assessors in a random order to calculate %BF.

Statistical Analysis

A repeated measures analysis of variance (ANOVA) was used to determine if differences were present between the %BF determined by each of the four assessors when using either SF or US. A series of linear regressions were performed in order to evaluate the inter-rater reliability and relationship between %BF measurements and individual site measurements (chest, abdomen, and thigh) taken by each of the four assessors. A standard error of the estimate (SEE) was also determined to better describe this same relationship. Statistical significance was set *a priori* at $p<0.05$ for all tests. All data are presented as mean ± standard deviation (M±SD).

RESULTS

The ANOVA failed to identify any significant difference between %BF determined by any of the four assessors for SF ($p=0.094$) (Table 1). The SF correlations for %BF measurements and site measurements between the experienced assessors ranged between 0.837-0.987.

Table 1. Ultrasound and skinfold measurements for the four assessors.

	E1	E2	I1	I2
%BF SF	12.8±4.7	13.8±5.4	13.2±5.4	13.4±5.4
%BF US	10.3±5.0	11.2±6.3	10.5±4.7	10.2±4.9

There was no significant difference between percent body fat measured by each of the assessors using SF (p=0.094) and US (p=0.120). %BF=percent body fat; SF=skinfold; US=ultrasound; E1=experienced assessor 1; E2 = experienced assessor 2; I1=inexperienced assessor 1; I2= inexperienced assessor 2.

The same correlations between the inexperienced assessors had a similar range between 0.901-0.966 (Table 2). The SF correlations between the experienced and inexperienced assessors ranged between 0.843-0.989. The SEE for %BF between the two experienced assessors and the two inexperienced assessors was 1.05 and 1.26%, respectively while the SEE between experienced and inexperienced assessors ranged between 0.76-1.64%. The smallest SEE (0.76%) was between an experienced and inexperienced assessor. The largest SEE's were found in the SF measurements of the thigh (1.18-4.74mm) and abdomen (1.72-3.37mm).

Table 2. Skinfold correlations between experienced and inexperienced assessors.

	E2-%BF	E2-Chest	E2-Abd	E2-Thigh	I1-%BF	I1-Chest	I1-Abd	I1-Thigh	I2-%BF	I2-Chest	I2-Abd	I2-Thigh
E1	0.987 (1.05)	0.924 (2.25)	0.961 (2.52)	0.837 (4.74)	0.965 (1.28)	0.916 (2.05)	0.908 (2.86)	0.843 (2.99)	0.989 (0.76)	0.911 (2.05)	0.976 (1.72)	0.890 (2.27)
E2	–	–	–	–	0.942 (1.64)	0.977 (1.08)	0.870 (3.37)	0.922 (2.16)	0.975 (1.13)	0.966 (1.29)	0.945 (2.59)	0.972 (1.18)
I1	–	–	–	–	–	–	–	–	0.966 (1.26)	0.954 (1.52)	0.901 (2.96)	0.959 (1.57)

All values p<0.001. Standard error of the estimate (SEE) reported in parenthesis. %BF=percent body fat; Abd=abdomen; E1-experienced assessor 1; E2=experienced assessor 2; I1=inexperienced assessor 1; I2=inexperienced assessor 2.

The ANOVA failed to identify any significant difference between %BF determined by any of the four assessors for US (p=0.120). The US correlations for %BF measurements and site measurements between the experienced assessors ranged between (0.947-0.992) and were slightly larger than the same measurements for SF. The same correlations between the inexperienced assessors were slightly lower ranging between 0.643-0.932. The US correlations between the experienced and the inexperienced assessors ranged between 0.643-0.978. These values are similar to those of SF, however, the abdomen site measurements for the inexperienced assessor 2 were poorly correlated with the other assessors (r=0.643-0.697) although still statistically significant (p<0.007). The SEE for %BF between the two experienced assessors and the two inexperienced assessors was 1.28 and 2.17%, respectively, while the SEE between experienced and inexperienced assessors ranged between 1.26-1.74%. These SEE's are only marginally greater than the SEE observed for SF (<1% body fat). The largest SEE identified among US measurements for the abdomen (1.65-3.90mm).

Table 3. Ultrasound correlations between experienced and inexperienced assessors.

	E2-%BF	E2-Chest	E2-Abd	E2-Thigh	I1-%BF	I1-Chest	I1-Abd	I1-Thigh	I2-%BF	I2-Chest	I2-Abd	I2-Thigh
E1	0.974 (1.28)	0.969 (0.92)	0.947 (1.65)	0.992 (0.38)	0.951 (1.73)	0.875 (1.96)	0.883 (2.31)	0.961 (0.84)	0.951 (1.74)	0.959 (1.20)	0.652 (3.90)	0.975 (0.66)
E2	–	–	–	–	0.974 (1.26)	0.912 (1.65)	0.931 (1.80)	0.963 (0.82)	0.960 (1.57)	0.964 (1.11)	0.697 (3.69)	0.978 (0.63)
I1	–	–	–	–	–	–	–	–	0.922 (2.17)	0.782 (2.51)	0.643 (3.77)	0.932 (1.11)

All values p≤0.007. Standard error of the estimate reported in parenthesis. %BF=percent body fat; Abd=abdomen; E1-experienced assessor 1; E2=experienced assessor 2; I1=inexperienced assessor 1; I2=inexperienced assessor 2.

Compared to E1, the MWW's determined by E2, I1, and I2 using SF identified 4, 6, and 6 wrestlers that would be certified at a different weight class. When using US, there were 4, 3, and 4 wrestlers, respectively, that would be certified at a different weight class. In each comparison the determined weight class never differed by more than one weight class.

DISCUSSION

The present study found that there were no significant differences between %BF measurements taken by experienced and inexperienced assessors when using both SF and US. The SEE's between all assessors ranged between 1.05-1.26% when measuring %BF using SF. The same SEE's between all assessors ranged between 1.26-1.74% when using US. This means that the difference between experienced and inexperienced assessors 95% of the time is between 0-1.26% BF and 0-1.74% BF when using SF and US, respectively. Wagner et al. (2016) examined the reliability of SF and US using experienced assessors and found an average difference in %BF between assessors to be 1.9% when using SF among male participants which is slightly larger than the SEE (1.05-1.26%) reported here and the average difference between the trained assessors in the present study (0.9%). The US measurements obtained in the same study (Wagner et al., 2016) found a very small average difference in %BF determined by US among the two experienced assessors (0.2%) and while this average appears smaller than the SEE reported here (1.26-1.74%), the average difference among the trained assessors in determining %BF using US in the present study was similar at 0.7%.

There is only a single study from which to compare the reliability among inexperienced assessors when using US (Wagner & Teramoto, 2020). The correlations and inter-rater reliability values demonstrated in the present study are similar those in that previous investigation (Wagner & Teramoto, 2020). The present study is the first to compare experienced and inexperienced assessors and while one might suspect there to be greater correlations among the two experienced assessors compared to the inexperienced assessors, this was not the case in the present study. This may be attributable to the ease of use when using US. Other studies (Wagner et al., 2016; Wagner & Teramoto, 2020) have found US to demonstrate reliability that was superior or equal to SF when using inexperienced (Wagner and Teramoto, 2020) and experienced (Wagner et al., 2016) assessors.

In addition to %BF, the site measurements demonstrated highly significant correlations as well when comparing the four assessors in the present study. The largest differences observed between assessors were seen among thigh and abdomen measurements using SF and among abdomen measurements using US. This is not surprising as the abdomen and its often greater deposit of fat compared to other regions of the body can make it the most challenging to measure. A study examining inter-rater reliability among two experienced assessors found the abdomen to be the least reliable site when using US, while SF site measurements were very reliable (Perez-Chirinos et al., 2018). A study utilizing inexperienced assessors found the inter-rater reliability to be the least reliable assessing the abdomen using SF, while the US measurements for the abdomen proved to be very reliable (Wagner & Teramoto, 2020). The abdomen appears to pose the greatest challenge for both methods likely due to the larger concentration of abdominal fat making measurements more difficult.

There are no other studies to which we can compare the predicted MWW's of both experienced and inexperienced assessors using both SF and US. However, in the present study, the total number of wrestlers who would be assigned a different minimum weight class was 16 and 11 when using SF and US, respectively, while comparing three assessors to the E1 assessor. There was slightly greater consistency when using US compared to the currently NCAA approved method of SF assessment when determining MWW. This number might also seem large since four would represent 25% of the sample, however, this assessment is consistent with what a team might experience depending on the assessor selected. In cases where participants were assigned a different weight class in the present study, the difference in the lowest allowable weight was often less than ½ kg. From a practical perspective, these data identify a similar consistency when predicting MWW using both SF and US among both experienced and inexperienced assessors.

CONCLUSION

The results of the present study demonstrate acceptable inter-rater reliability for the assessment of %BF using US compared to SF when administered by both experienced and inexperienced assessors. The measurements taken by experienced and inexperienced assessors did not differ significantly.

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Commentary

I SWEAR IT UPON ZEUS, SOCRATES DID NOT FAVOR WRESTLERS OVER RUNNERS

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INTRODUCTION
A quote that is attributed to Socrates states, "I swear it upon Zeus an outstanding runner cannot be the equal of an average wrestler." It can be found at several internet sites that ostensibly list the famous quotes of Socrates. It has been further circulated by people in the wrestling and combat sport community as an outstanding endorsement of wrestling. Did Socrates really say "I swear it upon Zeus, an outstanding runner cannot be the equal of an average wrestler"?

First, some background. Socrates was a Greek philosopher who lived from approximately 470 BC to 399 BC. He did not write anything on his own, or at least nothing he wrote survives to this day. Everything we know about him comes from his students and biographers. Chief among these are students Plato and Xenophon, and biographers Plutarch (46 AD to about 119 AD) and Diogenes Laërtius (third century AD).

To see if Socrates said anything like the quote attributed above, I queried many sources online, and then I reviewed the following works. Each initially showed some content involving Socrates and wrestling:

- Plato's Statesman
- Plato's The Republic
- Plato's The Apology
- Plato's Alcibiades I
- Plato's Meno
- Plato's Lesser Hippias
- Plato's Laches (Courage)
- Plato's Sophist
- Plato's Charmides
- Plato's Laws
- Xenophon's The Memorable Thoughts of Socrates and The Memorabilia
- Xenophon's The Apology
- Xenophon's The Economist
- Xenophon's The Symposium
- Xenophon's Hellenica
- Diogenes Laërtius' The Lives and Opinions of Eminent Philosophers
- Plutarch's Morals
- Plutarch's Essays and Miscellanies
- Aristophanes' Eleven Comedies
- Aristotle's A Treatise on Government
- Marcus Tullius Cicero's Tusculan Disputations
- Voltaire's Socrates
- S. G. Goodrich's Famous Men of Ancient Times

The following sources provide the most relevant information.

From Xenophon - Socrates on Running and Wrestling: Everything Is Beautiful, In Its Own Way
In Xenophon's The Memorable Thoughts of Socrates, 3-8-2 we read an exchange between Aristippus and Socrates:

> *"Would you say," pursued Aristippus, "that the same thing may be beautiful and ugly at once?" [Socrates:] "I would say that it might be good and bad. Often what is good for hunger is bad for a fever; and what is good for a fever is very bad for hunger;* ***often what is beautiful to be done in running is ugly to be done in wrestling; and what is beautiful to do in wrestling is ugly in running****. For all things are reputed beautiful and good when they are compared with those which they suit or become, as they are esteemed ugly and bad when compared with those they do not become."*

In the same work, using another translation called The Memorabilia, the translator rendered the conversation in this way:

> *"Aristip. Do you mean to assert that the same things may be beautiful and ugly?*
> *Soc. Yes, to be sure; and by the same showing things may be good and bad:*
> *as, for instance, what is good for hunger may be bad for fever, and what is good for fever bad for hunger;*
> ***or again, what is beautiful for wrestling is often ugly for running;***
> *and in general, everything is good and beautiful when well adapted for the end in view, bad and ugly when ill adapted for the same."*

According to Xenophon's writing on Socrates, Socrates considered wrestling and running to have merits, and be equally valuable.

Plato's Lesser Hippias has a lengthy discussion that mentions running and wrestling as well, but they are simply examples of exercises that could be done poorly or well.

Plutarch on Wrestling
In Plutarch's Morals, he quotes Homer's Odyssey, saying:

> “For we are not good boxers, nor good **wrestlers**, nor yet swift **runners**,' for in all these points we are less fortunate than the beasts. But by our experience and memory and wisdom and cunning, as Anaxagoras says, we make use of them, and get their honey and milk, and catch them, and drive and lead them about at our will. And there is nothing of fortune in this, it is all the result of wisdom and forethought."

In Plutarch's Essays and Miscellanies, Plutarch takes part in a conversation debating which is older: wrestling or boxing ("cuffing" in the text), and whether or not Homer ranks boxing first, wrestling second, and racing third. Plutarch concludes:

> "And therefore, it is likely that cuffing is set first, wrestling next, and racing last; for the first bears the resemblance of charging or warding the blows; the second, of close fighting and repelling; the third, of flying a victorious, or pursuing a routed enemy."

This is the closest we get to one of these writers placing wrestling before running, but it's still behind boxing in this example.

Cicero on Wrestlers
I was surprised to learn that Cicero did not think very highly of wrestlers, writing in his Tusculan Disputations the following: Book II XVII page 80. (Project Gutenberg's Cicero's Tusculan Disputations, by Marcus Tullius Cicero. https://www.gutenberg.org/files/14988/14988-h/14988-h.htm)

On bearing pain:

> "You may often hear of old women living without victuals for three or four days; but **take away a wrestler’s provisions but for one day, and he will implore the aid of Jupiter Olympius**, the very God for whom he exercises himself: he will cry out that he cannot endure it.
> Great is the force of custom! Sportsmen will continue whole nights in the snow; they will bear being almost frozen upon the mountains. From practice boxers will not so much as utter a groan, however bruised by the cestus."

It sounds like Cicero was also boxing man.

Plato the Wrestler, and His Words from Socrates

According to Diogenes Laërtius, Plato was so involved in wrestling that he received the name "Platon," in place of his given name, perhaps because of his broad shoulders. (This is explained more clearly.)
"And he was taught learning in the school of Dionysius, whom he mentions in his Rival Lovers. And he learnt gymnastic exercises under the wrestler Ariston of Argos. And it was by him that he had the name of Plato given to him instead of his original name, on account of his robust figure, as he had previously been called Aristocles, after the name of his grandfather, as Alexander informs us in his Successions.
But some say that he derived this name from the breadth (πλατύτης) of his eloquence, or else because he was very wide (πλατὺς) across the forehead, as Neanthes affirms. There are some also, among whom is Dicæarchus in the first volume on Lives, who say that **he wrestled at the Isthmian games**."

Plato was definitely a wrestler, but did he say anything relevant about Socrates' views on wrestling?
In Plato's Charmides we see Socrates engaging in another exchange that mentions running and wrestling:

> "And in playing the lyre, or **wrestling**, quickness or sharpness are far better than quietness and slowness?
> Yes.
> And the same holds in boxing and in the pancratium?
> Certainly.
> And in leaping and **running** and in bodily exercises generally, quickness and agility are good; slowness, and inactivity, and quietness, are bad?
> That is evident."

That's it. Again, Socrates is just using these activities as examples that can be done well or poorly.

CONCLUSION

Nowhere could I find evidence of the quote attributed to Socrates. Socrates served as a hoplite in the Peloponnesian War (431–404 BC). People who have fought in those sorts of battles tend to emerge a little wiser than those without similar experiences. Thus, when I read the original quote that prompted this research, I had a tough time believing Socrates would invoke Zeus' name when putting down runners versus wrestlers. It did not fit the character of the man of whom I knew only a little. I hope after reading this post we can remember his words:

"[O]ften what is beautiful to be done in running is ugly to be done in wrestling; and what is beautiful to do in wrestling is ugly in running.
For all things are reputed beautiful and good when they are compared with those which they suit or become, as they are esteemed ugly and bad when compared with those they do not become."

Note: this image is from The Death of Socrates (1787), by Jacques-Louis David.

PRESENTATIONS FROM SCIENTIFIC SYMPOSIUM AT THE 2022 BELGRADE WORLD CHAMPIONSHIPS- September 14, 2022

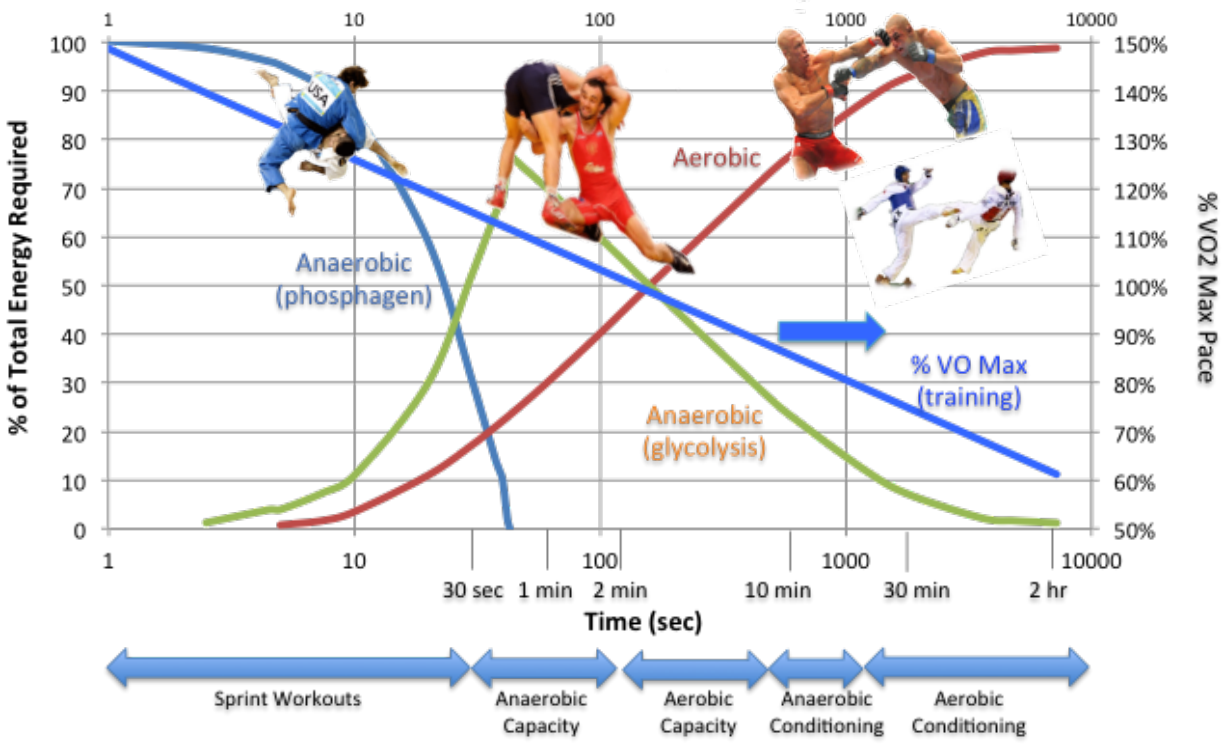
"Using the Scientific Foundations of Olympic Wrestling to Advance Our Sport."

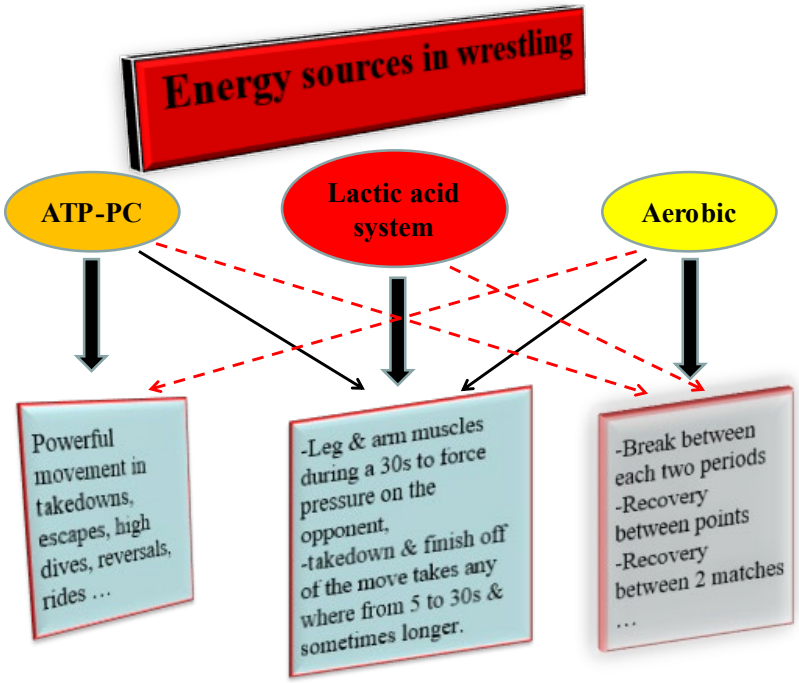
Rayko Petrov Honorary Lecture

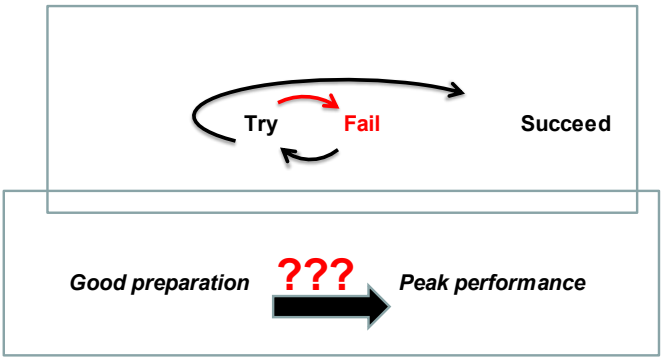
Bahman Mirzaei
University of Guilan, Iran
bmirzaei2000@yahoo.com

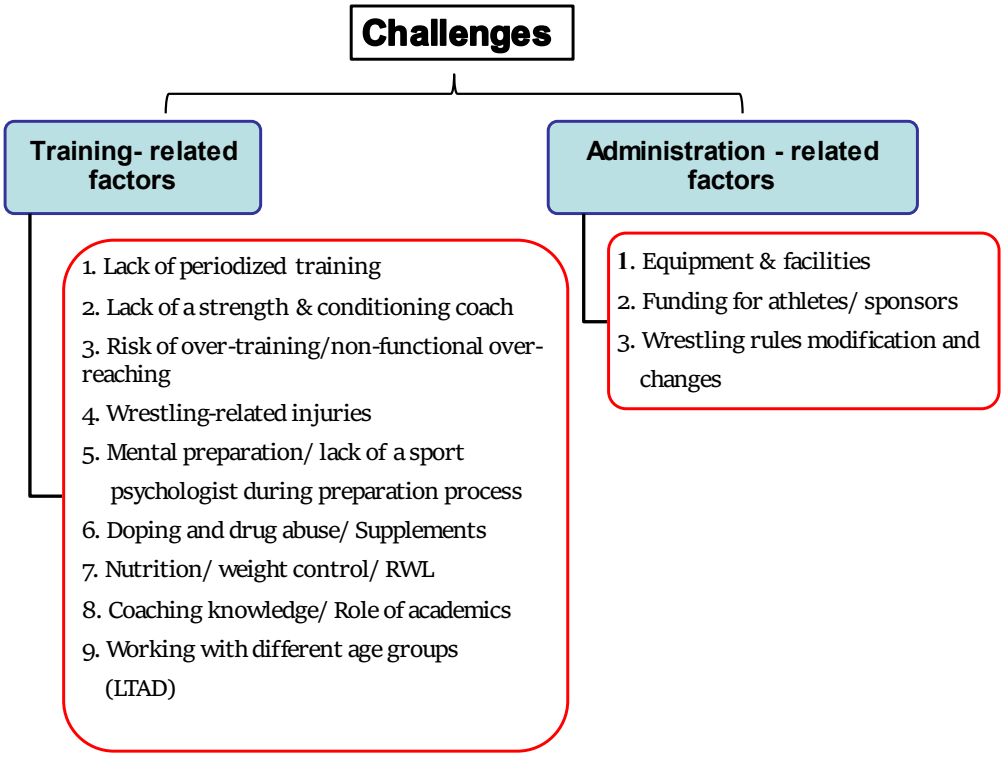
Challenges Confronting the Preparation and Performance of Elite Wrestlers

Combat sports represent **~25%** of the Olympic medals and **wrestling**, as an attractive and intense sport discipline is one of them…

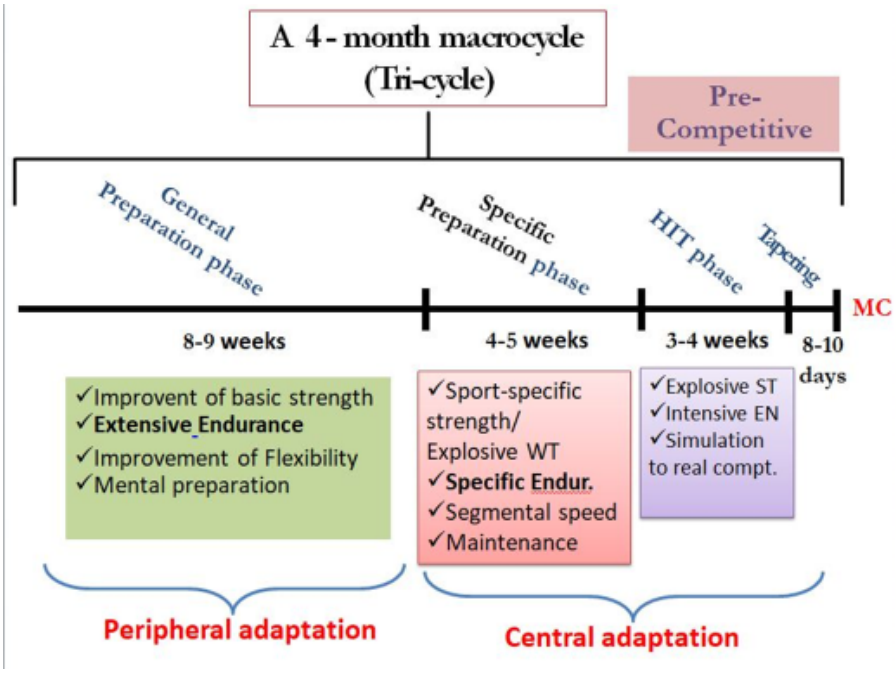



Energy sources in wrestling
ATP-PC
Lactic acid system
Aerobic
Powerful movement in takedowns, escapes, high dives, reversals, rides …
-Leg & arm muscles during a 30s to force pressure on the opponent,
-takedown & finish off of the move takes any where from 5 to 30s & sometimes longer.
-Break between each two periods
-Recovery between points
-Recovery between 2 matches
…


Try
Fail
Succeed
Good preparation
???
Peak performance

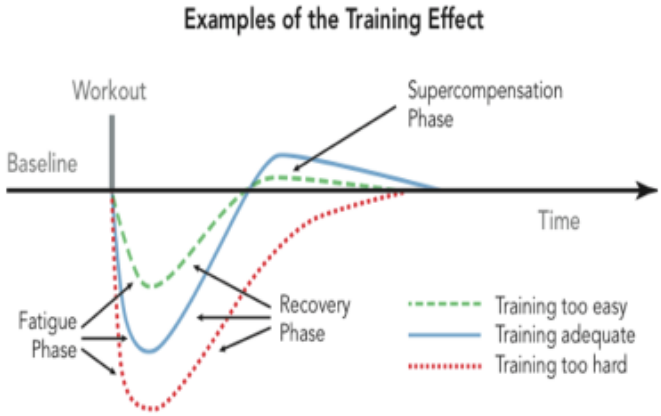

Challenges
Training- related factors
Administration - related factors
1. Lack of periodized training
2. Lack of a strength & conditioning coach
3. Risk of over-training/non-functional over-reaching
4. Wrestling-related injuries
5. Mental preparation/ lack of a sport psychologist during preparation process
6. Doping and drug abuse/ Supplements
7. Nutrition/ weight control/ RWL
8. Coaching knowledge/ Role of academics
9. Working with different age groups (LTAD)
1. Equipment & facilities
2. Funding for athletes/ sponsors
3. Wrestling rules modification and changes

1. Lack of periodized training



2. Lack of a strength & conditioning coach

3. Risk of over-training/non-functional over-reaching



Fatigue is an excuse, and excuses are not tolerated. This mindset is exactly what makes **wrestling one of many sports that consistently breeds cases of overtraining**

4. Wrestling-related injuries

Sprains and strains (37%-39%),
Fractures (22%-26%),
Contusions and abrasions (15%-16%)
The wrist, hand or finger account for approximately 18% of these injuries, followed by the head and neck at 15%,
and the shoulder at 12% to 15%.
Result of a descriptive epidemiologic study in Tokyo OG:
Shadgan B. et al (2021) Participants: 286 senior qualified wrestlers
Result:

- Rate of 9.8 injuries per 100 athletes (12.1% in men; 5.2% in women) and 8.7 injuries per 100 bouts
- Among the 3 styles, FS showed the highest rate (12.8%).
- More injuries were observed in the low-weight categories (64.3%).
- The most common injury type was skin laceration and contusion (60.6%) due to direct contact
- The most common site of injury was head and face (71.4%). In sum, 21.4% of all injuries were categorized as moderate and severe.

5. Mental preparation/ lack of a sport psychologist with team

Sport psychologists can also help wrestlers to:

- Enhance performance
  - via various mental strategies, such as visualization, self-talk and relaxation techniques
  - Overcome obstacles and achieve their full potential
- Cope with the pressures of competition
- Recover from injuries.
  - Tolerating pain after injury
  - Adhering to their physical therapy regimens, or adjusting to being sidelined.

6. Doping and drug abuse/ Supplements

7. Nutrition/ weight control/ Rapid Weight Loss (RWL)

Impact of unhealthy RWL practices

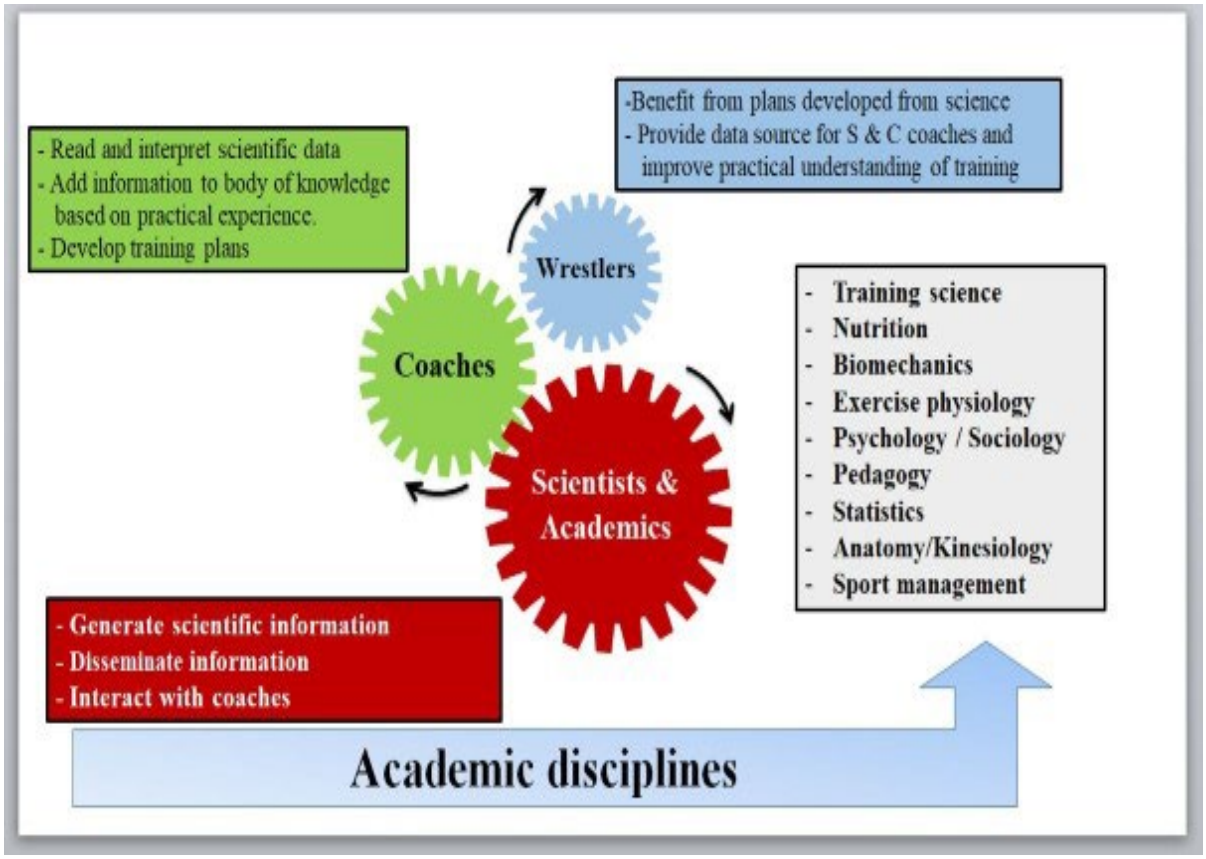
Acute….

- Decreased cognition
- Electrolyte imbalance and loss of fluids
- Poor storage of muscle glycogen
- Cardiovascular and thermoregulatory impairment
- Even death

Chronic….

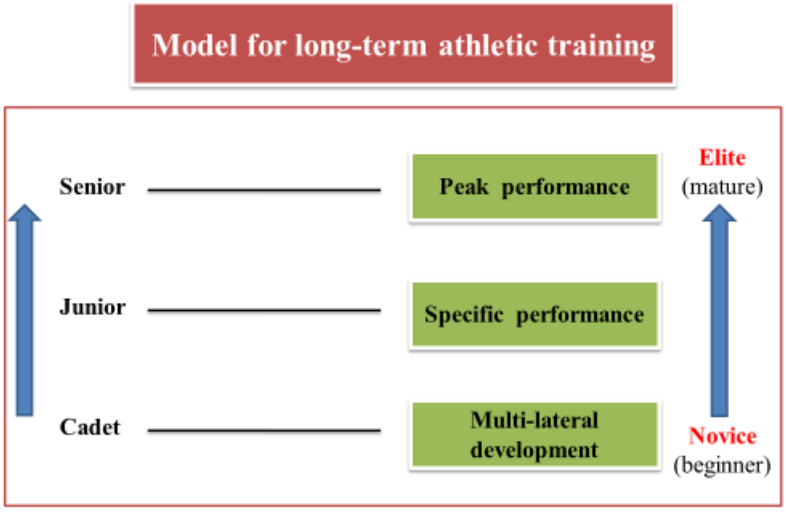
- Micronutrient deficiency
- Lowering of RMR
- Depression of sex hormone concentration
- Reduction in markers of bone synthesis
- Loss of muscle mass & impairment of growth in adolescent wrestlers
- Disorder eating and disturbed food relationship

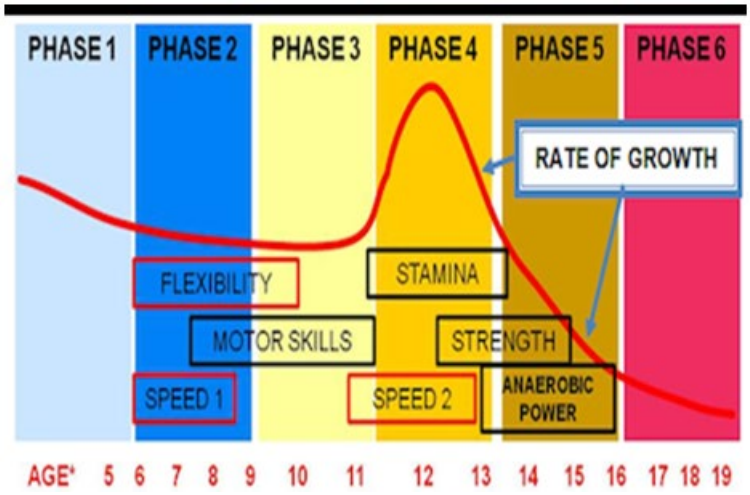
8. Coaching knowledge/ Role of academics



Long Term Training

- Early Specialization Sports
  - Gymnastics
  - Rhythmic Gymnastics
  - Figure Skating
  - Diving
  - Table Tennis
- Late Specialisation Sports
  - Combat Sports/ (Wrestling)
  - Athletics
  - Rowing
  - Team Sports





Sensitive Periods for Physical Capacities

S's	Male (age)
Suppleness (flexibility) Speed 1	6 - 10
Skill (Technique)	9 - 12
Stamina (Endurance) Speed 2	13- 16
Strength	16- 19

Administration- related factors

1. Equipment & facilities
2. Funding for athletes/ sponsors
3. Wrestling rules modification and changes

PSYCHOPHYSIOLOGICAL STATE AND DECISION MAKING IN ELITE WRESTLERS

Daulet Turlykhanov[1], Georgiy Korobeynikov[2], Lesia Korobeinikova[3], Markus Raab[4], Ivanna Korobeinikova[5]

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ABSTRACT
PURPOSE: The research of relation with psychophysiological state decision making in elite wrestlers.
METHODS: The 29 elite Greco-Roman wrestlers were examined. The psychophysiological states of wrestlers were studied by complex methods. For decision making test were research by time on choice of differential stimulus. All of wrestlers given the written agreement to the research according to recommendations of the Biomedical Research Ethics Committees.
RESULTS: The analysis of research showed the improvement of speed of decision making and ability of visual perception as indicator of quality of special skills in elite wrestlers. Moreover, the increasing of decision-making property accompanied with simultaneous increase of impulsiveness and level of emotional strain in elite wrestling. The high speed of decision making related with better level of anticipation in elite wrestlers. These it is accompanied with balance between processes of arousal and inhibition. A high speed of decision-making requires a greater strain in the autonomic regulation of the heart rate
CONCLUSION: The psychophysiological state affects the possibility of decision making in elite wrestlers. The decision making in elite wrestlers associated with balance of processes between of arousal and inhibition, optimization of non-verbal intelligence and emotional stability.

CONCEPT

- The analysis of current sources is shown prevalent of psychophysiological studies in sport psychology related with elite athletes training support (Raab et al., 2015; Furley et al., 2021).
- Modern Olympic wrestling is characterized by development of spectacularity and intensity of the fight (Tünnemann et al., 2016; Mirzaei et al., 2018; Cynarski et al., 2021). In recent changes of rules of competition resulted to density and intensity of a wrestling match (Dokmanac et al., 2018; Latyshev et al., 2021). This is process affect to revision of opinion about training and improvements of special wrestling preparation (Mirzaei, Curby et al., 2011; Slacanac et al., 2017).
- Thus, there is a need to develop an algorithm for diagnostic of psychophysiological states and correction of decline of adaptation process for elite wrestlers.

HYPOTHESIS

- We hypothesize that faster decision making in athletes during competition situation correlates with regulatory mechanism of psychophysiological functions.

PURPOSE

Determine the links between psychophysiological state and fast or slow decision making in wrestlers.

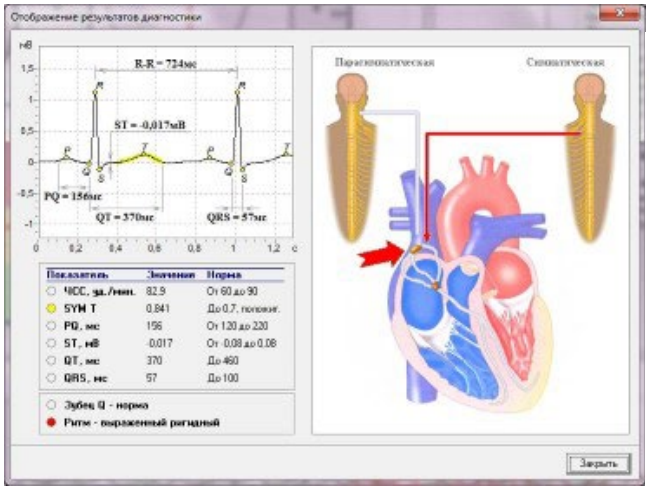
SUBJECTS

The 29 elite Greco-Roman wrestlers (Mean age: 16,54±5,22, Mean sport experience 7,37+5,22), members of the Ukrainian team were examined.

METHODS

The time of decision making limited the abilities of athletes to perception and information processing from environment information.
We used the median to separate wrestlers into two groups: fast decision making (n=15) and with increased time of slow decision making (n=14).

Heart rate variability (HRV)



Heart rate monitor«Fazagraf» (Ukraine)
- Time-domain methods;
- Frequency-domain methods;
-Geometric methods.

Decision making
The decision making is a main characteristic of cognitive processes in wrestling competition (Chen et al., 2017; Soto et al., 2020). The decision making requires the need of perceiving external information, by anticipating and responding to actions of the opponents.

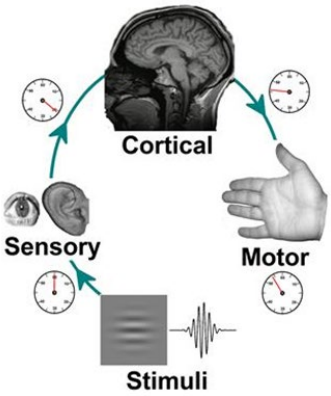
Results
- **The faster decision making correspond with increasing of capacity of visual analyzer and predominance of impulsiveness in wrestlers.**

The variables of decision-making time test in wrestlers (median, lower and upper quartiles)

Variable	Fast time of decision making (n=15)	Slow time of decision making (n=14)
Dynamism, conventional units	56,18 51,60; 58,85	50,19* 44,15; 58,88
Capacity of visual analyzer, conventional units	1,34 1,30; 1,37	1,12* 1,07; 1,21
Decision making time, ms	470,00 410,00; 500,00	560,00* 530,00; 620,00
Impulsiveness, conventional units	-0,38 -0,47; -0,36	-0,42* -0,44; -0,21

Legend: * p =.05, for the wrestlers of different time of decision making

Visual Motor Response
The visual motor reaction were estimated by latent time. According to opinion the sensory motor response reflects the possibilities of human to quickly arousal of neurons (Sherman et al. 2021).



The variables of visual motor test response in wrestlers with different decision-making time (median, lower and upper quartiles)

Variable	Fast time of decision making (n=15)	Slow time of decision making (n=14)
Latent time of response, ms	326,31 315,77; 342,17	352,83* 315,54; 369,10
Stability, %	12,12 9,794; 15,36	13,87* 12,75; 15,30

Legend: * p =.05, for the wrestlers of different time of decision making

The decrease of latent period of visual motor response in wrestlers with fast decision making means the increase of speed of information processing. This is accompanied with emotional strain in wrestlers.
Non-verbal Intelligence - One of the main properties of information processing is non-verbal intelligence. In wrestlers, non-verbal intelligence is associated with stimuli from the competitive environment (coaches gestures, the place of the competition, the atmosphere in the hall, the behavior of the referees, etc.).

The variables of the Ravan non-verbal test in wrestlers with different decision-making times (median, lower and upper quartiles)

Variable	Fast time of decision making (n=15)	Slow time of decision making (n=14)
Accuracy, number of errors	2,86 2,27; 3,99	3,12* 2,68; 4,82
Stability, %	3,54 3,31; 4,50	4,21* 3,47; 5,05
Arousal, conditional unit	0,29 0,02; 3,22	0,09* -0,82; 1,66
Arousal trend, conditional unit	21,26 -65,64; 128,85	61,14* -68,06; 176,37

Legend: * p =.05, for the wrestlers with different time of decision-making

The results obtained indicate the connection of anticipation with the balance between arousal and inhibition of the nervous system, which leads to a acceleration in the decision-making in wrestlers.

Heart Rate Variability

One of the main properties which influence to psychophysiological state of human is heart rate variability. The changes of parameters of heart rate variability characterized are not only state of cardiovascular system, but the adaptation processes of whole organism of athlete (Laborde et al. 2007).

Data of heart rate variability in wrestlers with different decision making time (median, lower and upper quartiles)

Variable	Fast time of decision making (n=15)	Slow time of decision making (n=14)
NN, ms	750,00 654,50; 867,50	736,00* 644,00; 922,00
SDNN, ms	50,50 28,50; 64,50	69,00* 35,00; 117,00
CV, %	6,04 4,48; 7,45	9,33* 5,10; 11,53
HRV triangular index, conditional unit	8,29 6,52; 11,26	12,94* 9,37; 18,67
Mo, ms	725,00 650,00; 850,00	700,00* 625,00; 775,00
AMo, %	39,24 34,80; 52,48	32,60* 24,32; 48,00
HRV rang, ms	236,30 130,85; 339,85	361,80* 181,60; 505,90
Stres Index, conditional unit	112,15 59,73; 325,70	62,99* 20,44; 195,70

Legend: * p =.05, for the wrestlers of different time of decision making

The fast of decision making in wrestlers links with mobilization of internal resources of athletes. But, this provokes an increasing level of tension regulatory mechanisms of the autonomy nervous system.

Data of frequency-domain method of heart rate in wrestlers with different decision-making times (median, lower and upper quartiles)

Variable	Fast time of decision making (n=15)	Slow time of decision making (n=14)
LF, %	47,10 36,90; 58,45	46,15 27,50; 54,30
HF, %	38,95 24,25; 44,95	37,10 19,40; 50,00
LF/HF	1,35 0,82; 2,225	1,34 0,55; 2,58

Legend: * p =.05, for the wrestlers of different time of decision making

Analysis of frequency-domain method of heart rhythm the found no significant of differences between both groups wrestlers. Obtained results indicate that the spectral analysis in normalized units eliminates the differences between the studied groups of athletes.

Correlation relation between decision making time and values of psychophysiological state in elite wrestlers

Variable	Fast time of decision making (n=15)	Slow time of decision making (n=14)
Speed of information processing (non-verbal test Raven)	**0,37**	**-0,89**
Accuracy (anticipation test)	**0,56**	0,15
Arousal (anticipation test)	**0,42**	**0,52**
SDNN	**0,39**	0,06
HRV rang	**0,40**	0,08
LF	**-0,33**	-0,17
HF	**0,35**	-0,07
LF/HF	**-0,50**	0,01

Obtained data of correlation analysis are showed the bigger numbers of reliable correlation coefficient in wrestlers with fast decision making. Thus, the improvement of decision making in elite wrestlers carry out by promotion of anticipation and optimization of autonomic system regulation of heart rate.

CONCLUSION

Decision making performance varies between athletes correlates with visual perception, impulsiveness and level of emotional strain indicate avenues for future causal studies. We conclude that understanding individual differences in decision times of wrestlers underlying psychophysiological processes needs to be assessed before recommendation to training regimes can be provided.

IMPORTANCE OF INTERNATIONAL UNIFICATION OF DIAGNOSTIC PROCEDURES FOR BASIC AND SPECIFIC PREPARATION OF ADVANCED WRESTLERS

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INTRODUCTION

Raising the level of fitness preparation is important segment of training programs and a condition for adequate preparation of wrestlers for top achievements in sports.

Inadequate "foundation" of fitness preparation in younger age groups causes narrowing of sports achievements later in the sports career. Furthermore, the importance of certain fitness abilities for success in a fight is different for wrestlers of different styles (Greco-Roman or freestyle), of different ages and different weight groups. These facts have been known for many years (Starosta and Trecewski 1998; Baić et al., 2006; Baić, 2006.), and many authors in Croatia monitored the state of fitness preparedness of wrestlers of different age groups (Marić i sur., 2003; Baić, 2003, 2006; Cvetković et al., 2005; Sertić et al., 2005 and many others).

Earlier investigations did not consider the importance of coordination abilities for success in wrestling Tumanjan GS. (1984), Cabrić M. (1976). A large number of researchers were mainly engaged in researching the strength of wrestlers (Clarke, et al, 1984, Song and Garvie (1980) Rasch et al, 1961; Kelly et al, 1978) or specific endurance (Horswill, et al (1989)
Preobraženski (1978) divides wrestlers into two categories
1. those who conquer by strength
2. those who win with endurance (high pace of battle)

Control norms of fitness preparation (Gukov, 1978)

Exercises (tasks)	Wrestler Weight	Age Category									
		under 13 y		under 14 y		under 15 y		under 16 y		Under 17 y	
		Satisfactory	Good	Satisfactory	Good	Satisfactory	Good	Satisfactory	Good	Satisfactory	Good
1. Left hand grip force	under 50 kg	25	27	28	30	33	35	38	40	42	45
	under 60 kg	27	29	30	33	35	38	40	42	45	48
	under 70 kg	/	/	33	35	38	40	42	45	46	48
	over 70 kg	/	/	/	/	40	42	45	48	50	54
2. Right hand grip force	under 50 kg	27	28	29	31	34	36	38	42	44	46
	under 60 kg	28	30	32	34	36	38	42	44	46	50
	under 70 kg	/	/	34	36	39	42	44	46	48	52
	over 70 kg	/	/	/	/	42	44	46	48	52	55
3. General force	under 50 kg	75	80	85	90	100	105	110	115	120	125
	under 60 kg	80	90	95	100	110	120	125	130	135	140
	under 70 kg	/	/	100	105	115	125	130	135	140	145
	over 70 kg	/	/	/	/	125	135	135	140	145	150
4. Medicine ball backward throw (3kg)	under 50 kg	7	8	10	12	14	15	16	17	17	18
	under 60 kg	9	10	12	14	16	17	17	18	19	20
	under 70 kg	/	/	14	16	18	19	19	20	21	22
	over 70 kg	/	/	/	/	19	20	21	22	23	24
5. Medicine ball forward overhead throw with both hands	under 50 kg	6	7	8	10	11	12	12	14	13	14
	under 60 kg	7	8	9	11	12	14	14	15	15	16
	under 70 kg	/	/	10	12	13	15	15	16	16	17
	over 70 kg	/	/	/	/	14	16	16	17	17	18
6. Standing long jump	/	165	170	175	185	190	195	200	205	210	215
7. Pull-ups	/	6	8	10	13	14	16	17	19	20	24
8. Push-ups with feet on the "Swedish ladder"	/	20	25	27	30	32	34	35	37	38	40
9. Squats with same weight partner	/	8	10	12	14	14	15	15	16	16	18
10. 60 meter run	/	10.0	9.4	9.2	9.0	8.6	8.4	8.2	8.0	8.0	7.8
11. Max push-ups 15 sec.	/	8	9	9	10	10	11	11	12	12	14
12. Max pull-ups 15 sec.	/	4	5	5	6	/	6	6	7	7	8
13. Sit-ups to 90º with fixed legs in 10 sec	/	6	8	10	11	12	14	16	17	17	18

Standards of basic and specific abilities of wrestlers aged 19-20 (Hoffman and Holloszy 1979)

Num	Control tests	Under 48 kg	Under 52 kg	Under 57 kg	Under 62 kg	Under 68 kg	Under 74 kg	Under 82 kg	Under 90 kg	Under 100 kg	Over 100 kg
1	3200 cross country run (min)	12-14				14-16			16-19		
2	10x20 sprint	2.8-3					3-3.2				
3	High jump (cm)	40-50				50-60			40-50		
4	Standing long jump (cm)	250-270				270-290			240-260		
5	Max Pull-ups	25-35				10-20				5-10	
6	Pull-ups in 10 sec	9-10				8-9		7-8		3-6	
7	Rope climbing 5 m (sec)	5-6				6-9				9-12	
8	Push ups max	50-75				40-50				30-40	
9	Sit-ups in 30 sec	18-20				16-18				14-16	
10	Bench press (kg)	60-65	65-80	70-90	80-95	80-100	90-105	95-110	100-115	110-120	120-140
11	Max squat (kg)	75-90	90-100	90-105	95-115	100-130	110-140	115-145	115-150	120-160	130-190
12	Clean (kg)	70	80	90	95	100	110	115	120	130	140
13	Max dummy throwing in 1 min	20-22				18-20		16-18		14-16	
14	Max Bridge flips in 1 min	30-32				25-30		22-25		20-22	

Scoring scale for Bulgarian basic and specific tests of wrestlers in the 52 kg category (Petrov, 1997)

Bodovi (z)	Bodovna skala (P)	Test 1	Test 2	Test 3	Test 4	Test 5	Test 6
2,0	97,73	20,14	17,56	24,05	254,93	4,08	470,64
1,9	97,13	20,44	17,96	23,70	253,53	4,1	473,14
1,8	64,41	20,74	18,36	23,35	252,13	4,11	475,64
1,7	95,55	21,04	18,76	23,00	250,73	4,13	478,14
1,6	94,52	21,34	19,16	22,65	249,33	4,14	480,64
1,5	93,32	21,64	19,56	22,30	247,93	4,16	483,14
1,4	91,93	21,94	19,96	21,95	246,53	4,17	485,64
1,3	90,32	22,24	20,36	21,60	245,13	4,19	488,14
1,2	88,5	22,54	20,76	21,25	243,73	4,2	490,04
1,1	86,44	22,84	21,16	20,90	242,33	4,22	493,14
1,0	84,14	23,14	21,56	20,55	240,93	4,23	495,64
0,9	81,69	23,44	21,96	20,20	239,53	4,25	198,14
1,1	78,82	23,74	22,36	19,85	238,13	4,26	500,64
0,7	75,81	24,04	22,76	19,50	236,73	4,28	503,14
0,6	72,58	24,34	23,16	19,15	235,33	4,29	505,64
0,5	69,15	24,64	23,56	18,80	233,93	4,31	508,14
0,4	65,54	24,94	23,96	18,45	232,53	4,32	510,64
0,3	61,79	25,24	24,36	18,20	231,13	4,34	513,14
0,2	57,93	25,54	24,76	17,75	229,73	4,35	515,64
0,1	53,99	25,84	25,16	17,40	228,33	4,37	518,14
0	50	26,14	25,56	17,05	226,93	4,38	520,64
-0,1	46,01	26,44	25,96	16,70	225,53	4,40	523,14
-0,2	42,87	26,74	26,36	16,35	224,13	4,41	525,64
-0,3	38,21	27,04	26,76	16,00	222,73	4,43	528,14
-0,4	34,46	27,34	27,16	15,65	221,33	4,44	530,64
-0,5	30,85	27,64	27,56	15,30	219,93	4,46	533,14
-0,6	27,42	27,94	27,96	14,95	218,53	4,47	535,64
-0,7	24,39	28,24	28,36	14,60	217,13	4,49	538,14
-0,8	21,18	28,34	28,76	14,25	215,73	4,51	540,64
-0,9	18,40	29,84	29,2	13,98	214,3	4,5	543,14
-1,0	15,86	29,14	29,56	13,55	212,53	4,53	545,64
-1,1	13,56	29,44	29,96	13,20	211,53	4,55	548,14
-1,2	11,50	29,74	30,36	12,85	210,13	4,56	550,64
-1,3	9,68	30,04	30,76	12,50	208,73	4,58	553,14
-1,4	8,87	30,34	31,16	12,15	207,33	4,59	555,64
-1,5	6,68	30,64	31,56	11,80	205,93	4,61	558,14
-1,6	5,48	30,94	31,96	11,45	204,53	4,62	560,64
-1,7	4,45	31,24	32,36	11,10	203,13	4,64	563,14
-1,8	3,59	31,54	32,76	10,75	201,73	4,65	565,64

Legend: Bodovi – points; Bodovna skala – point scale; Test 1 - throwing a training dummy backwards (10 times) - evaluation as a function of time; Test 2 - gutwrench (12 times) - evaluation as a function of time; Test 3 - clean - number of repetitions; Test 4 - standing long jump (in cm); Test 5 - running 30 m; Test 6 - running 3 x 800 m with 1 min of rest (in minutes).

Evaluating the preparedness of wrestlers based on "Z"-points (Petrov, 1997)

"Z" Values	% Cases	Evaluation for a wrestler X
under -1.6	5.48	Very weak
From -1.6 to -0.7	18.71	Weak
From -0.7 to +0.7	51.62	Medium
From +0.7 to +1.6	18.71	Good
over +1.6	5.48	Very good

PROBLEM

However, the problem, both in Croatia and mostly abroad, is that almost every researcher or trainer wants to monitor the state of physical fitness through their own "set of tests". Such non-unified procedures for diagnosing the state of preparedness of fitness abilities have a whole series of scientific, professional, organizational and material shortcomings.

Among many, the following disadvantages stand out in particular:

- the impossibility of collecting a sufficiently large and high-quality sample of wrestlers in order to create model characteristics (normatives) of wrestlers of different styles (Greco-Roman or free), age groups or weight categories;
- the impossibility of comparing the obtained results with previous researchers or trainers in the country and abroad, because almost as a rule researchers and trainers do not use the same "set of tests";
- the impossibility of comparing the results obtained by the same athlete over a longer period of time due to the fact that, almost as a rule, coaches change by age group and with them the „set of tests " that these coaches apply; -considerable resources and time are invested in diagnosing the state of fitness preparedness of wrestlers, and the overall usefulness of the obtained results, scientific and professional, is not great

AIM

The aim of this presentation is to propose two unified sets of tests for assessing the general and specific fitness preparedness of wrestlers (one for younger and one for older age groups), which should be used in the long term in all wrestling teams and wrestling clubs.

CONDITIONS THAT SETS OF TESTS FOR THE ASSESSMENT OF FITNESS PREPARATION SHOULD SATISFY

According to the authors Starosta and Tracewski (1981, 1998), test sets for the assessment of fitness preparation should be closely related to the facts obtained from scientific research and the experiences of wrestling experts. These authors say that such test sets should satisfy a whole series of very important conditions:

- They should include the development of all those abilities necessary for a wrestler to achieve significant success in competition; they should contain tests that are met as requirements in previous training, and that have a high reliability index; the number of tests evaluating a certain ability should be adequate to the importance of that ability for success in wrestling; tests should be accessible to every wrestler regardless of their age, mass, weight category, sports achievement;
- the test set should include those tests that do not require special equipment, and as a result such a test set could be used in every wrestling club; the performance of reliable tests should be precisely regulated (by a manual) in order to ensure the objectivity of the results, etc.

SET OF TESTS FOR ASSESSING THE FITNESS PREPARATION OF YOUNGER AGE GROUPS OF WRESTLERS (UP TO 15 YEARS)

For the testing of younger group wrestlers, it is proposed to unify the use of a test set of 12 valid and reliable tests for assessing physical fitness. All proposed tests are used in primary and secondary schools in the Republic of Croatia (7 tests, Findak, V. et al. 1996).

The remaining 5 tests are tests that, in addition to the 7 already mentioned tests (Findak, V. et al. 1996), were used in the scientific research project "Monitoring changes in the anthropological status of children in wrestling sports."

SET OF TESTS FOR ASSESSMENT OF CONDITION PREPARATION OF OLDER AGE GROUPS OF WRESTLERS (CADET, JUNIOR AND SENIOR)

To assess the general and specific fitness abilities of wrestlers over the age of 15, an existing internationally known set of tests by Polish experts is proposed (Starosta and Tracewski 1981; Starosta, 1984; Starosta and Tracewski 1998).

- This set of tests consists two parts: I. - Tests of general preparation and II. - Tests of specific preparedness.
- General preparedness tests:
- - to assess coordination, the maximum turn around the longitudinal axis in the vertical jump is used;
- - to assess agility is used zig-zag running so called „envelope" and running with turns.
- To assess the absolute maximum strength (1RM) is used bench press, jerk and clean
- to evaluate repetitive strength are used pull-ups, dips, sit-ups with twists with weights;
- to assess explosive strength the maximum vertical jump and sprint at 20 m are used;
- for aerobic endurance, running for 1500 m is used,
- and to assess flexibility we used bending backwards from lying face down

Specific preparation tests consist of acrobatics tests: forward pass, backward pass, forward somersault in squat position and backward somersault in squat position; and specific wrestling tests: strive-so-called merr-go-round (roundabout), wrestling bridge from above upper so-called bridge execution, the catch (snatch) from the neck, bridge arrival (coming), and suples with a manikin.

Table. Motor abilities required during the performance of a set of tests of general and specific readiness in advanced wrestlers (Starosta, W.1998)

Code	Name of test	Physical (fitness) abilities					Coordination					Abilities					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	General physical abilities tests																
1	Maximum turn in jump					+	+	+	+	+	+	+	+		+		
2	Zig-zag run, so-called envelope	+					+	+	+	+	+	+	+	+	+		
3	Run with turnover	+					+	+	+	+	+	+	+	+			
4	Pull-ups	+	+	+						+		+		+	+		
5	Arm bending and stretching with Support on parallel bars	+	+	+						+		+		+	+		
6	Maximum load press in recumbent Position		+												+		
7	Forward lean with rotation (with load)	+	+	+						+		+		+			
8	Maximum load snatch	+	+			+				+	+	+			+		
9	Lift of maximum load on chest	+	+							+							
10	Squat with maximum load		+														
11	Maximum high jump with boot feet	+	+			+	+		+	+		+					
12	30 m run with flying start	+	+									+					
13	1000 m run (1500 m)			+						+							
14	Trunk bending (back bench)		+		+							+					
	Special fitness tests																
15	Forward pass	+				+	+	+	+	+	+	+			+	+	
16	Backward pass	+				+	+	+	+	+	+	+			+	+	
17	Forward somersault in squat position	+				+	+	+	+	+	+	+			+	+	
18	Backward somersault in squat position	+				+	+	+	+	+	+	+			+	+	
19	Strive - so-called merr-go-round (roundabout)	+	+		+		+		+	+	+	+			+		
20	Bridge from above upper, so-called bridge execution				+			+	+								
21	The catch (snatch) from the neck	+	+		+		+		+	+							
22	Bridge arrival (coming)	+			+				+	+							
23	Supples wrist with manikin	+	+	+	+	+	+	+	+	+	+	+	+	+			+

CONCLUSIONS

The recommended set of tests for evaluating the fitness preparation of younger age groups of wrestlers meets the conditions set by science and the profession.

It is very important that a large number of wrestlers of younger age groups have already been measured with the tests from that set.

To assess the physical preparation of wrestlers over the age of 15, the internationally known set of tests by the Polish authors Starosta and Tracewski is recommended. A large number of top Polish wrestlers and a significant number of top Croatian wrestlers were measured with the specified set of tests. Due to its long application and model standards of fitness preparation for Greco-Roman and freestyle wrestlers, of all weight and age groups, it represents a huge value in a scientific and professional sense.

In the long term, the implementation of such unified procedures for diagnosing the state of preparedness of fitness abilities of younger and older age groups of wrestlers all over the world would have a whole series of scientific, professional, organizational and material advantages.

It is necessary to make additional efforts so that the implementation of such unified sets of tests becomes a international practice in many wrestling clubs and wrestling national teams.

GENDER EQUALITY RESEARCH PROJECT - CONDITIONS FOR EFFECTIVE EQUALITY IN WOMEN'S WRESTLING

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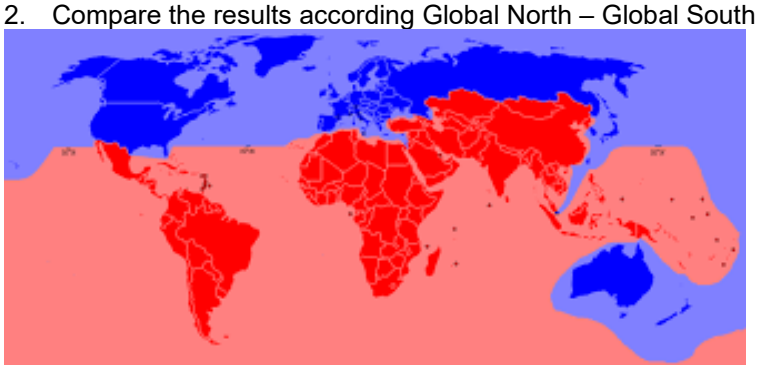
The International Olympic Committee has given a priority to sports organizations' initiatives to improve women's actual attainment of roles and positions, in particular leadership, across the organizations' administration and governance. Analysis of good practices/policies that include empirical evidence of change/improvements within NOCs and national sports federations in the Global South.
Achieving effective gender equality in sport has become a global need for all the agents involved in the process, in order to guarantee an integral practice that promotes the well-being of the protagonists.
One of the tools used by organizations that aim to reduce the gender gap in sport is to understand the main conditioning factors that interfere with equitable practice. In many cultures combat sports are incompatible with the constructed ideal of femininity where fighting is associated with male strength, thus creating gendered power relations (Hovden & Tjønndal, 2017; Kavoura et al., 2015). The **main objective** of this study aims to evaluate the conditions of effective equality in the practice of women's wrestling.

Specific Objectives:

1. Compare the results according gender perspective.
2. Compare the results according Global North – Global South



Target Audience

METHODS

A 7 option, Likert survey consisting of 35 items along 5 dimensions was constructed.

Social Recognition (7 items): The SR aims to measure the degree of respect and appreciation that the protagonists perceive from social agents, both direct and external to sport, as well as the support of family and friends.

1. I feel respected and valued by people directly linked to my sport.
2. I feel respected and valued by people outside my sport.
3. I believe that society respects me and values me as a player/referee/coach/director.
4. I have to do more to prove that I am valid to carry out my sports functions.
5. I have experienced situations that have made me feel socially undervalued by people directly linked to my sport.
6. I have experienced situations that have made me feel socially undervalued by people outside my sport.
7. My family respects my sports career.

Material Barriers (5 items): The MB assess the obstacles related to infrastructure, sports equipment and the time variable.

8. I have enough and adequate material to carry out my sports functions.
9. I perform my sports functions in a suitable facility.
10. I have favorable schedules to practice my sports work.
11. I have easy access to the sports facilities to perform my duties at any time.
12. I have a high financial cost to transport myself to the sports facility.

Accessibility and Growth (7 items): The AG covers the aspects of sport initiation, institutional support, training received, possible abandonment and the existence of female role models.

13. I have found it difficult to start my sports career.
14. My close friends and family have supported me to start my sports career.
15. I can freely make important decisions in my sports career.
16. I have thought about abandoning my sports career.
17. I think it's difficult to move up in my sports career.
18. I have male/female examples that motivate me to grow within my sports career.
19. I am more comfortable when there are more women in my sports career.

Balance Between Work and Family (7 items): The BWF has been conceived as an opportunity to combine sporting life with family and work or academic life.

20. I can easily combine my sports career with my family life.
21. I can easily combine my sports career with my work/studies.
22. Having children interferes or can interfere with my sports career.
23. I have thought/I plan to abandon my sports work to focus on my family, work or academic life.
24. I have to find jobs or academic programs with flexible hours to carry out my sports work.
25. I prioritize my sports life over my family, work or academic life.
26. I have to have a job to be able to sustain my sports life economically.

Empowerment (9 items): EMP is directly related to the degree of decision-making of the protagonists, their leadership, resilience and development of competencies during their sporting career.

27. I can overcome the adverse situations that occur in my sports career by myself.
28. I can express my feelings and opinions regardless of my sports position.
29. I have opportunities to access a position of power and leadership within my sports career.
30. My sports work makes me feel satisfied and optimistic with myself.
31. Overcoming adverse situations in sport has helped me to have more confidence and self -esteem.
32. I consider that I can be important to help others in their sports career.
33. I feel greater control over my life when there are more women in my sports environment.
34. I believe that my role as an athlete/coach/referee/administrator helps reduce gender inequality in sport.
35. Now I believe that I have greater control over my life than at the beginning of my sports practice.

Demographic Information was also collected.

DISCUSSION AND FUTURE STEPS

In this preliminary work the survey has been put on-line in 5 languages (English, Spanish, Portuguese, French and Russian) with an invitation to participate sent to all national federations by UWW.

The objective of this study aims to evaluate the conditions of effective equality in the practice of women's wrestling. Therefore, we ask that ANY WOMAN (ATHLETE, COACH, REFEREE OR ADMINISTRATOR) be able to complete the following survey VOLUNTARILY and TOTALLY ANONYMOUSLY. There are no right or wrong answers, so we ask you to react to the statements as sincerely as possible. The estimated completion time is 10 minutes. The research will be carried out by researchers from the University of Murcia in collaboration with the UWW Scientific Commission. The data collected through this study will be treated confidentially while maintaining security. This study has been approved by the

Research Ethics Commission of the University of Murcia, with ID: 3742/2022. Accepting this questionnaire means giving your informed consent. Survey link: https://www.idi4sport.com/

1. The responses will be used to establish validity and reliability.
2. **Information activities** carried out by stakeholders, such as publication of news on their websites or social media to increase the impact and dissemination of the project.
3. **Results and Analysis** shared with UWW.
4. **Produce Scientific publications** in conferences and indexed journals.

THE EFFECT OF A HIGH-INTENSITY TRAINING UNIT AT A HIGH TEMPERATURE ON WEIGHT AND SOME BLOOD COMPONENTS AMONG YOUNG FREESTYLE WRESTLERS

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The aim of this experiment is to know how much the wrestler loses weight compared to some blood components when training at a high intensity in hot weather.

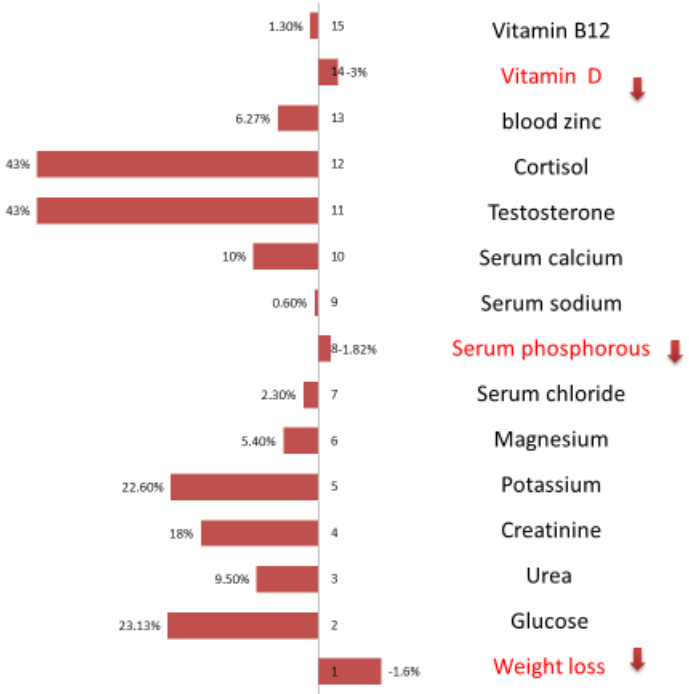
Study procedures

Preparing (5) volunteers from the Iraqi national team in freestyle wrestling, ages (17-20) years.
The process of weighing and taking blood samples was carried out before and after the training unit by a specialized medical team.
The players started in the high intensity training unit for a period of 90 minutes in which the maximum heart rate reached 190 beats/min at an outside temperature of 44°C inside the hall, the temperature was 38°C with a humidity of 20%.

RESULTS

Variable	Subject 1		Subject 2		Subject 3		Subject 4		Subject 5	
	Before	After	Before	After	Before	After	Before	After	Before	After
Vitamin B12	1200.5	1195.7	234.5	255.1	1099	1090.3	552	549	432.7	475
Vitamin D	39.4	38.6	13.32	12.8	30.21	29.32	24.71	23.4	28.56	28.11
Zinc	59.3	60.8	61	88.3	77.8	70.33	72.4	70.7	79.3	81.6
Cortisol	11.2	13.4	8.4	12.4	7.8	13.1	9.9	13.4	10.1	15.2
Testosterone	718.2	925.1	382	566.8	504.9	758.9	270	322.9	500.34	821.4
Calcium	10	10.21	9.31	10.8	9.3	9.96	8.8	10.5	9	9.6
Sodium	137.2	135	138.1	136.8	141.5	142.5	135.2	138.4	139.1	142.5
Phosphorus	3.74	3.51	4.14	4.5	4.3	4.03	3.44	3.78	3.6	3.57
Chloride	98.4	99.5	100.66	105.7	101.2	101.32	99.3	102.7	100.6	102.5
Magnesium	2.2	2.09	2.28	2.5	2.3	2.41	2.08	2.24	1.98	2.19
Potassium	4.57	5.16	3.9	5.12	3.9	5.01	4.16	4.97	3.61	4.43
Creatinine	0.68	0.83	0.9	1.23	0.71	0.86	1.0	1.12	0.7	0.83
Urea	25	25.38	28	36	32.16	34.36	38	42.9	31	36
Glucose	95.21	117.5	72.1	91.2	100.8	150.73	99	126.48	123.02	117.56
Weight Loss	61.9	61	63.2	62	72	70.9	75	73.8	79.1	78

nu	Variables	change type	percentage change
1	Weight loss	decrease	1.6 %
2	Glucose	increase	23.13 %
3	Urea	increase	9.5 %
4	Creatinine	increase	18 %
5	Potassium	increase	22.6 %
6	Magnesium	increase	5.4 %
7	Serum chloride	increase	2.3 %
8	Serum phosphorous	decrease	1.82 %
9	Serum sodium	increase	0.6 %
10	Serum calcium	increase	10 %
11	Testosterone	increase	43 %
12	Cortisol	Increase	43 %
13	blood zinc	Increase	6.27 %
14	Vitamin D	decrease	3 %
15	Vitamin B12	increase	1.3 %



CONCLUSIONS

1. An increase in the testosterone and cortisol hormone variables in the blood by a high rate of 43% after the high intensity training unit at a temperature of 38° C.
2. An increase in glucose, creatinine, potassium and calcium in the blood counted as a high intensity training unit at a temperature of 38°C.
3. A slight decrease in the levels of vitamin D and phosphorous in the blood, after the unit of high intensity training at a temperature of 38° C.
4. The percentage of weight loss is 9.25 % after the training unit with high intensity, at a temperature of 38° C.

MAGNETIC FIELD THERAPY FOR PREVENTION AND REHABILITATION IN COMBAT SPORTS

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Innovation is new or significantly improved introduction of a product (goods, services) or a process. In Anglo-American literature: "Innovation is a new idea, a more effective device or process", Also: "A novel device is often referred to as an innovation" (Funk & Wagnalls: Standard College Dictionary. Canadien Edition, Toronto, Montreal, Winnipeg, Vancouver. During the design work, when solving tasks and problems, the designers try to ensure the novelty and progress of the technical result.

The main task is to ensure the economy of the solution, in addition to the modernity and practicality of the product. In order to assess profitability, it is necessary to consider the entire innovation process by realistically planning the number of production batches.

The purpose of this work is to present the application technique of a new, modern, electronic device: SANZA. In our studies, we mainly deal with wrestling and combat sports in general.

The presented electronic device can be effectively used not only by athletes, but also by non-athletes, almost all age groups.

A new area of the prevention and rehabilitation in combatant sports was introduced using the pulsed electromagnetic field for therapy. Special electronic devices were developed to realize different electromagnetic signals and modulation systems to optimize the effects of this therapy method.

“The clinical use of this technique has revealed the fact, that the magnetic field possesses anti-inflammatory, anti-edema, painkiller, antihistamines actions, improves blood circulation in tissues and their regeneration. Consequently, the magnetotherapy decreases emotional tension, stabilize sleepeng, improves thropic tissues, and causes hypotonic effect.” (Citation from Prof.Dr.V..N. Levenets, Director of the Central Traumatology, Kiev, Ukraine).

Maxwell's equations form the basis for describing electromagnetic parameters. Fourier analysis makes it possible to describe the stimulation signal for sine and cosine components and to evaluate the biological effects of the different signal compositions. /Prof. Dr. W.A. Kafka, Kottgeisering, Germany. /

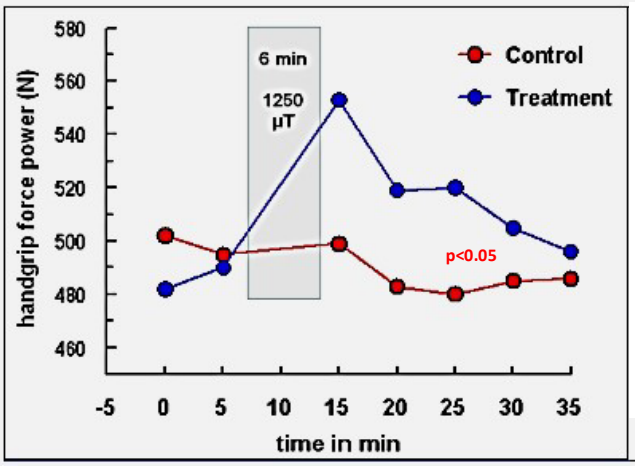
Else Knaf MD (2017) gives a wide range of application descriptions and specifics when using stimulation with electromagnetic fields (EMF). The author summarized the Sanza user indications in infectious diseases, eye diseases, skin diseases, gynecological diseases, ear, throat, nose diseases, mental disorders and mental syndrome (stress).

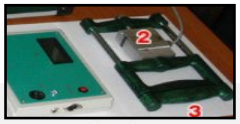
In our previous work on the study of human blood, we found a significant disruption of thrombotic accumulation of erythrocytes caused by electromagnetic influences with a parameter of 100 uT, bipolar stimulation, frequency: 20 Hz with quadratic envelope, 5 min. As Kafka (2000) interpreted his own research on this subject, “the resulting rejection of the erythrocytes leads to an increase in the individual surface areas and thus to an improvement in gas exchange in connection with increased oxygen release and better perfusion properties”.

In our experiment, we used electromagnetic stimulation on the forearm. Students took part in the measurement. B = 1,250 uT, frequencies: 20/200 Hz, bipolar electromagnetic stimulation was applied, 6 min. We measured handgrip forces with a computer-connected universal electronic dynamometer prior to stimulation. After the stimulation, we immediately measured the hand grip forces and repeated them five times every five minutes. The results showed in most cases a significant increase in handgrip forces after stimulation, twenty-five minutes later they decreased and reached the original values.

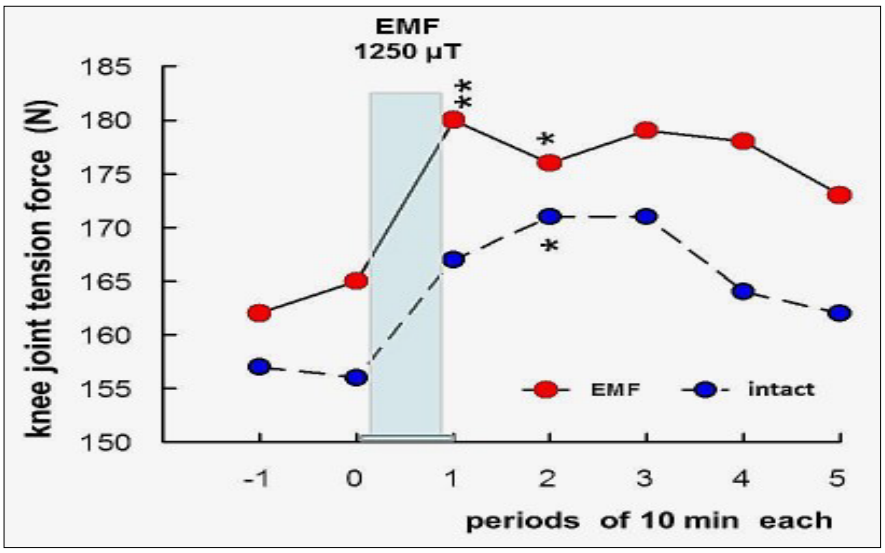
Measurement of Choice Response Time and Number of Choices During EMF Stimulation (β00 μT) and Discrimination Ability Neurological Response Speed

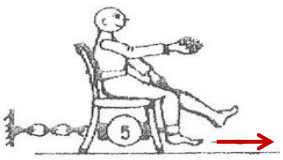
Influence of EMF stimulation of the right forearm on hand clamping force

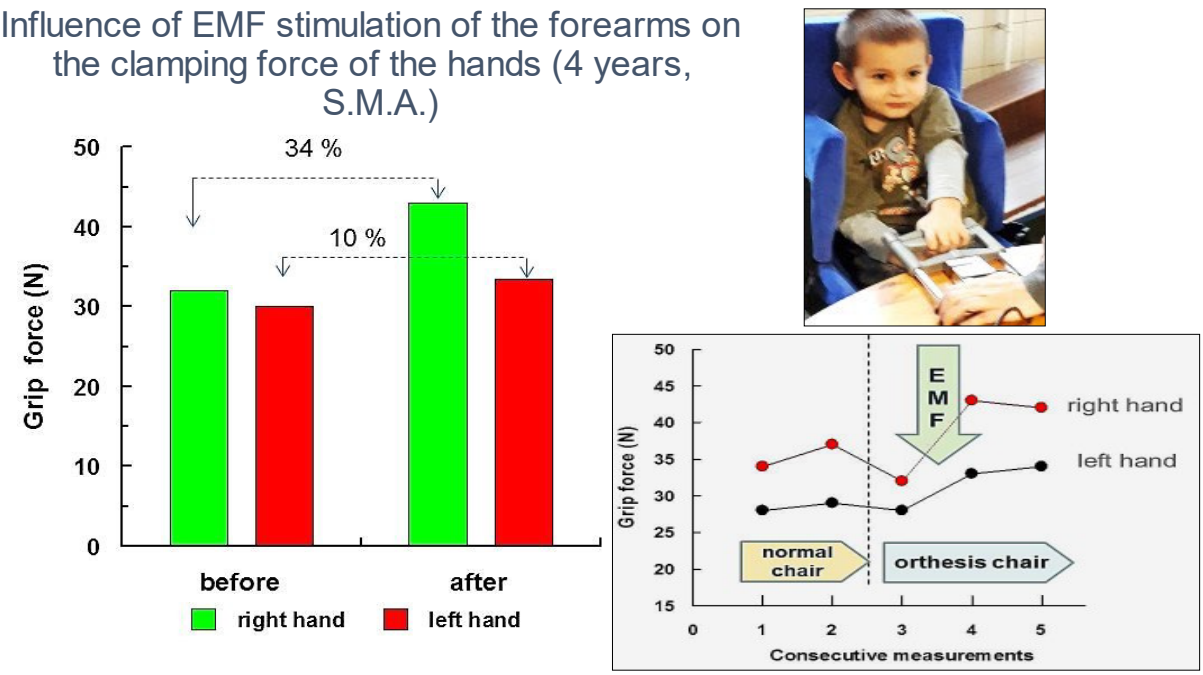




Mid-thigh EMF stimulation increases knee extension strength on stimulated and intact legs (age: 76 years, n = 22)







VITAL	ALPHA	RELAX	ANTI STRESS	SPORT	SLEEP
In the morning: stimulating, activating	Midday: increases concentration	Afternoon, evening: relaxing, regenerating	In the evening, if necessary: muscle relaxing, facial acupuncture using PEN	if necessary: activating, increasing performance	In the evening, at night: promotes sleep
LYMPH	**BONES**	**ACUTE**	**INFLAMMATION**	**FAVORITES**	**MANUALLY**
If necessary: promotes the removal of water accumulations, stimulates lymph flow	If necessary: Has a supportive effect on all bony structures as well as tendons and cartilage	If necessary: Supportive with bruises and acute injuries	If necessary: Used for all inflammatory forms or as a tolerance program for initial reactions	Speichern von frei wählbaren Parametern	Parameters can be freely selected

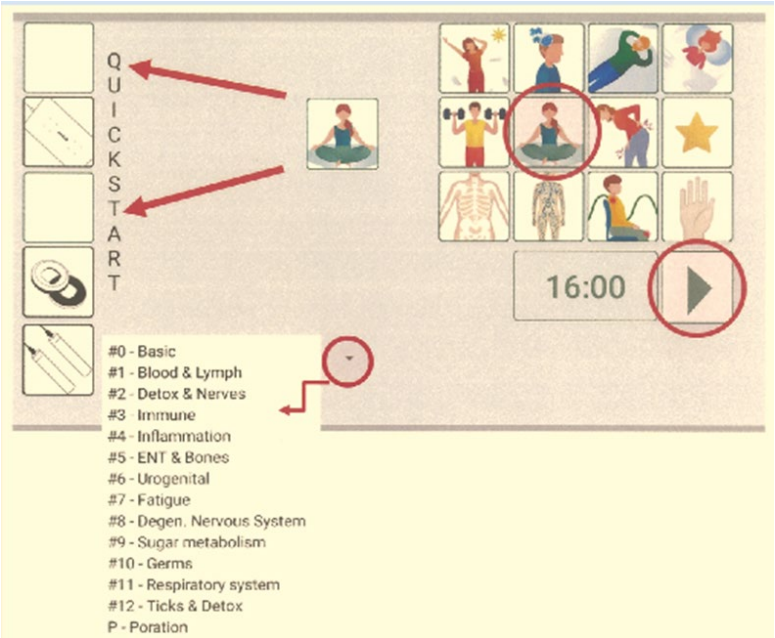
Special treatment possibilities - Sanza device

Parameter ranges for magnetic therapy-Sanza device

Two independent output channels for applicator coils, which are capable of generating independent waveforms, frequencies, intensities, modulation modes simultaneously

- Envelope waveforms: Sine, Sawtooth, Inverse Sawtooth, Square
- Envelope frequency: 0.1 – 60Hz
- Pulse modulation frequency: 150, 200, 250, 300, 400, 1000, 2500, 5000 Hz
- Pulse modulation duty cycle: 25%, 50%, 100%
- Intensity: 10 – 10.000uT (current: 6mApp – 3App)
- Polarity: Positive only, negative only, bipolar
- Time: 1 – 3600 sec
- Skip function: always on, 1:1 min on:off, 2:2 min on:off

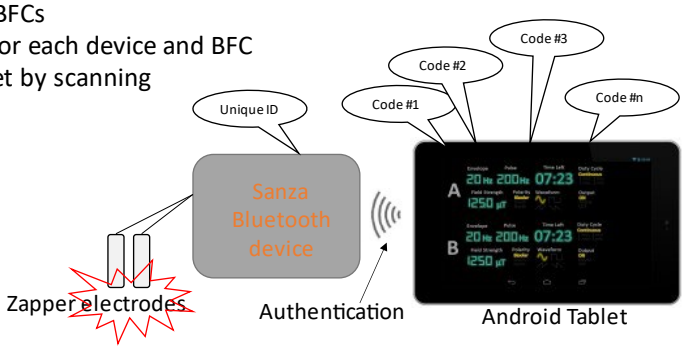
The display of the tablet makes it possible for very easy handling, choice of treatment (pictures) and the bio-current spectra BFC No.: 0-12 (below) setting of the induction value of the electromagnetic field.



BFS Bio Frequency Current generator
Sanza specialities

- Current generator with adjustable output peak current
- 250-450uApp output current
- Applied part meetshas isolated output
- Exact frequencies, waveforms, phase hops, etcare specified

- New method for basic chipset and optional extensions
- No physical device for different BFCs
- Specific code can be purchased for each device and BFC
- Code can be entered to the tablet by scanning on the virtual keyboard



The device and instruction services can be ordered at the following addresses:

GF Mr. Christian Pichler
STA-Vertriebs-GmbH
Kleßheimer Allee 13
A-5020 Salzburg
+43/699/16560911
christian.pichler@sanza.eu
www.sanzanet.com

Mrs Petra Pichler
Santerra Forschungs- und Vertriebs-GmbH
Ahornstrasse 21
83451 Piding, Germany
Tel: 08651-714803
Fax: 08651-714807
Email neu: petra.pichler@sanza.eu www.sanzanet.com
UID: DE212325254
EAR WEEE-Reg.-Nr. DE 85903359

IN MEMORY OF PROFESSOR PODLIVAEV - A REFLECTION ON OUR COLLABORATION

Maria Ogurtsova

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I was lucky enough to work together with Professor Boris Podlivaev. I'd like to share with you his work principles, which he taught me, ideas and directions of the future work that he planned.

We first met in the ROC Innovation Center, where he came for scientific support for the women's wrestling team. Our scientific team always finds individual approach to the specific coaches' and athletes' tasks, but not many of them are ready to really integrate scientific knowledge into their work. Boris Anatolyevich knew exactly which goals and objectives to achieve, what tasks needed to be performed in the national team and how we could be useful in that way.

During our work together:

1. We set up a systematical testing of the national team and reserve - 3 times a year, with 12 tests.
2. We tested different methods of physical characteristics monitoring during training camps and the annual cycle.
3. Made analysis of how athletes' qualities, which have been previously defined by tests, affect the personal wrestling style.
4. Implemented objective tests to be done during competitions.
5. Conducted testing for injury prevention.

The following items have proved as a successful strategy for the introduction of scientific knowledge for making coaching decisions:

1. Identification of issues that require support and additional information.
2. Optimal testing schedule and flexible approach to work schedule (convenient for athletes).
3. Design of reports with individual integral indicators that are understandable for everyone.
4. All-hands regular team meetings to review results, discuss use of the data.

According to the Professor, it is a very important task to record experience and transfer the knowledge to trainers. A large book has been created based on inputs shared by many of you. A course was developed for trainers in (technique, physical training, nutrition and psychology), which has not yet been launched. Some chapters about psychology of wrestling included: Periodization of mental training, Motivation, Injury and other important issues. We await its publication.

Now I work in the Moscow sports system and we have planned an educational program for wrestling coaches and are developing screening for young athletes. Professor Podlivaev would be happy to know that his work goes on and more and more athletes and coaches interact with scientific support.

ABTRACTS

COMPARISONS OF ANAEROBIC PERFORMANCE BETWEEN PUBESCENT AND POST-PUBESCENT WRESTLERS

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The research aimed to compare the anaerobic performance of pubescent and postpubescent wrestlers. Methods: 29 Freestyle and Greco-Roman Wrestlers were part of the study sample, with the following physical characteristics (mean ± SD): age: 14.99±1.83 yrs.-old, body mass: 54.68±16.80kg, height: 161.06±12.78cm, body fat: 12.09±4.11%, BMI: 20.58±3.79 kg/m^2, sports experience: 3.66±2.27 years, of the different wrestling clubs of the Barinas State, Venezuela. The qualification of the wrestlers in pubescent and post-pubescent, was performed by evaluating secondary sexual characteristics following Tanner's criteria. Anaerobic performance was measured with the lower and upper body's Wingate test (WAnT). Results: statistically significant differences were reported between the two groups of wrestlers classified by maturity category (pubescent vs. post-pubescent) when compared with the anaerobic performance indices obtained in the Wingate test [Peak Power (PP-Watts and Watts/kg); Average Power (AP-Watts y Watts/kg); Fatigue index (FI-%)] for the lower and upper body. For the PP absolute (Watts) of arms and legs (**p <0.01), PP relative (Watts/kg) of arms and legs (*p <0.05), AP absolute (Watts) of arms and legs (***p <0.001) and the AP relative (Watts/kg) of arms and legs (**p <0.01). Meanwhile, the percentage of fatigability (FI) of both lower and upper body did not show statistically significant differences. Conclusion: the Wingate test for the lower and upper body, performed in isolated form, discriminates the anaerobic performance of adolescent wrestlers in sports training when the maturation categories classify them.
Key words: wrestlers, sexual maturity, performance anaerobic.

DIFFERENCES IN ANXIETY AND SOME BEHAVIORS CAUSED BY COVID BETWEEN CROATIAN AND FOREIGN WRESTLERS

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ABSTRACT
INTRODUCTION: In 2020, 2021 and part of 2022, COVID 19 caused changes in the lives of a large number of people. The media has greatly influenced the behavior and anxiety of people in the world. This problem has especially resonated in sports, where training and a large number of competitions are prohibited. The aforementioned was expressed in wrestling. The aim of this work is to determine the differences in anxiety and behaviors caused by the COVID 19 pandemic between Croatian national wrestling representatives and national wrestling representatives from foreign national teams (Arm, Aus, CZ, Fin, Lit, Hun, Mol, Pol, Ned, Por, SAD, Esp, Srb, Swe, Sui, Ukr). METHODS: The sample of respondents consisted of 45 Croatian national team wrestlers and 71 foreign national team wrestlers. Each respondent filled out a survey questionnaire consisting of demographic data. After that general information, the questionnaire was followed by questions about recovering from COVID-19 and vaccination. It was further followed by the part of The COVID-19 Anxiety Scale, which refers to the self-assessment of anxiety caused by COVID-19, which consists of 5 questions. This was followed by The COVID-19 Safety Behavior Checklist (CSBC), which consists of 7 questions related to some behaviors related to COVID 19. Differences between the two groups were established using the Mann–Whitney U test. RESULTS: Statistically significant differences were observed in seven variables. The difference was first noticed in variable V2 (Have you received the corona virus vaccine). Regarding the part of the survey for self-assessments of anxiety, a statistically significant difference was observed only in one variable: V7 (How much, in your opinion, is this virus more dangerous than the flu virus?). Furthermore, in the part of the survey related to behaviors related to COVID 19, statistically significant differences were observed in 5 variables: V8- I wash my hands more often and more thoroughly than usual, V9- I avoid places with a lot of people, V10- I follow news related to the spread of COVID more often. 19, V12- I use hand sanitizers, V13- I avoid shaking hands with other people.

CONCLUSION: Although foreign wrestlers are vaccinated less than Croatian wrestlers and although they think that COVID is not much more dangerous than the flu, they adapt their behavior to the recommended measures to fight against COVID to a greater extent than Croatian national team members and thus significantly contribute to reducing the spread of this disease.
Keywords: mental health, pandemic, forms of behavior, national team

METRIC CHARACTERISTICS OF THE SPECIFIC WRESTLING FITNESS TEST AND SPECIFIC WRESTLING PERFORMANCE TEST

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PURPOSE: Measuring in sports is one of the most complex issues since it represents an intertwining of several correlated specific characteristics and abilities which in most cases cannot be measured in a direct manner which wouldn't violate the unity of the body. Since wrestling is a sport that implements open and closed motor patterns of applied technical elements, it is very challenging to test a wrestler in any given combat conditions, i.e. situations in which the opponent offers active resistance, because the levels of physical, technical, and tactical readiness in a match/testing is an important variable that cannot be controlled, so the use of a wrestling dummy is often resorted to. Although laboratory tests are scientifically valid, reliable, and sensitive, it is often the case that they fail to reproduce the situational sporting and competitive exertions. It should also be noted that, based on the analysis of previously published research papers, i.e. created specific tests, the number of which is insufficient, none offers completely and precisely defined basic metric characteristics. Due to this state of affairs, two new tests have been created – the Specific Wrestling Fitness Test (SWFT) and Specific Wrestling Performance Test (SWPT), both of which can be utilized in field and laboratory conditions. Each metric characteristic of said tests has been individually analyzed in a series of publications, therefore the goal of this paper is to display and unify obtained results.
METHODS: Metric characteristics are determined by the conditions and standards that qualify a test or a measuring instrument for measurement purposes and are crucial for the application of said instrument in scientific research as well as in practical terms for diagnostic and selection purposes. Reliability is defined twofold, by using the "trial-to-trial" and "day-to-day" methods (Marković et al., 2017; 2021). Validity is defined by the degree of correlation between designated tests and the Specific Judo Fitness Test (Marković et al., 2021). Finally, sensitivity is determined through an analysis of the differences between the contrasted competitive groups of varied success: national league, first league, and second league competitors (Marković et al., 2022).
RESULTS: The tests have shown reliability at the level of Cronbach's Alpha = 0.721 - 0.958 and ICC = 0.779 - 0.977, the degree of validity in the range of R^2 = 0.850 - 0.904, and sensitivity at the level of p = 0.000 - 0.021.
CONCLUSIONS: The SWFT was developed to mimic the physical and metabolic loads of wrestling combat, while the SWPT additionally mimics the structure of combat as per the current rules. While the SWPT showed higher validity and could be recommended for periodical assessments, the SWFT is simpler, easier to administer and could be performed within a training session for quick screening. Therefore, both tests are reliable, valid and sensitive and can be used practically and scientifically as part of a short, medium and long term planning process.

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DIFFERENCES IN SELECTED VARIABLES FOR ASSESSMENT OF SITUATIONAL EFFICIENCY IN BEGINNER WRESTLERS DEPENDING ON THE METHOD OF LEARNING AND IMPROVING TECHNIQUES

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INTRODUCTION: Wrestling is a very complex and energy-demanding kinesiology activity and quite often the improvement of techniques takes place only in the dominant side, which is criticized by wrestling experts and scientists. The goal of this manuscript is to compare the situational efficiency of beginer wrestlers who trained symmetrically to the left and right side with the situational efficiency variables of beginner wrestlers who trained asymmetrically only to the dominant side. METHODS: The sample consisted of 115 beginner wrestlers who were divided into two groups. The experimental group performed training symmetrically in both sides (n=61), while the control group performed training asymmetrically only in the dominant side (n=54). During the training process included in this research, 48 hours of training were conducted. The competition was held according to the Scandinavian competition system with 5 wrestlers in each group. Six variables were observed to assess the situational efficiency of wrestlers (General efficiency, Point efficiency, Pure efficiency, Activity, Success, Superiority). Differences between the control and experimental groups were determined using univariate analysis of variance. RESULTS: Univariate analysis of variance for each variable separately determined a statistically significant difference between the arithmetic means in four of the six variables for assessing situational efficiency in wrestling - General efficiency, Point efficiency, Activity, Superiority. CONCLUSION: It is evident from the results that beginner wrestlers who practiced symmetrical learning and improving techniques in training are better in all variables for assessing situational efficiency. Because of this, we can conclude that in order to improve competitive efficiency in a wrestling match, wrestling elements must be learned and improved in both sides symmetrically.
Key words: symmetric learning and improvement, asymmetric learning and improvement, dominant side

THE DESIGN AND APPLICATION OF A MAXIMUM ARM RESISTANCE TEST FOR PAR TERRE DEFENSE IN IRAQI NATIONAL SENIOR TEAM GRECO ROMAN WRESTLERS

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Dr. Wisam Yaseen Burhan- Iraq - Ministry of Education
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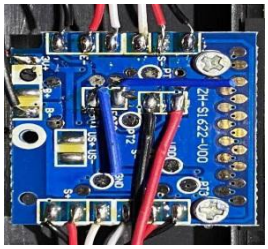
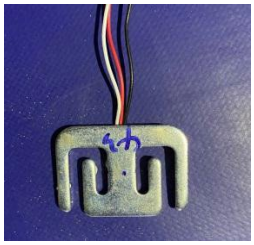
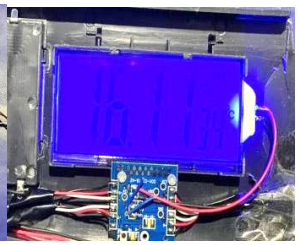
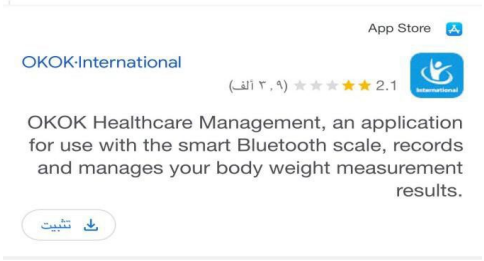
There is no doubt that every sports game has characteristics that characterize it and goals that it works to achieve through training, testing and measurement to achieve these goals. The fact that the sport of wrestling requires a great effort that does not stop when learning its tactics.
Testing and measurement are important things that a wrestler needs and the coach needs to know their true level in order to develop their capabilities and draw the training map accordingly, and since the par terre defense for the gut wrench hold from requires maximal physical effort, especially on the arm, to resist the competitor's




attempt to break the moment of inertia of the wrestler, who in turn tries to increase the force imposed on the mat by the palm, it can be useful to measure this force.

For this reason, the descriptive approach was used in the survey method, and the research community included the wrestlers of the Iraqi national team for Greco roman wrestling for senior for the year 2021-2022 in Al-Qadisiyah Governorate in Iraq, which numbered (8) wrestlers. The mean and the standard deviation of the body mass was (54 ±5.50) and preparations were made to design the test of the maximum arm resistance to counter the gut wrench hold in Greco roman wrestling for men, following a review the studies and discussing with experts and specialists in this matter.
Test name: The Maximum arm resistance to the gut wrench hold in Greco roman wrestling
Purpose of the test: To measure the maximum resistance of the arm to the gut wrench hold
Tools used: the factory electronic palm, iPad or mobile device, straps.



Description of the performance: The wrestler rises from a defensive position with him wearing the electronic palm manufactured with his hand resting on it and the palm of the palm containing sensors that measure the weight imposed on the mat. At the top of the palm there is an electronic screen that gives us a reading of the weight imposed and the competitor wrestler tries to press the upper arm trying to spin (Wrap the wrestler to score a point, and the electronic palm device can be linked to the (Koko international) program, which can be installed on smart mobile devices and iPads via (Bluetooth) to synchronize reading the screen in the palm with the program on the mobile to facilitate reading the maximum resistance. Recording: Recording the highest reading a wrestler reaches in kilograms.
After applying it to wrestlers to see the results, it appeared to us as shown in the following table:

Variable	Measuring unit	Mean	Stdev	Median	Skew	Max	Min
Maximum	Kg	36.875	6.512	37.500	0.105	45	30

As for the most important conclusions reached by the researchers: The maximum test gives us a real reading of the resistance placed on the mat by the wrestler while resisting the gut wrench. The reading corresponds 100% between reading the screen on the top of the palm and the reading in the (Koko International) program located in the mobile or iPad.
Recommendations:

- The test can be used to give quantitative values of the gut wrench hold resistance of wrestlers in seasonal tests.
- The quantitative values extracted from the test can be used in building training programs according to individual differences.

PRE-START CONDITIONS IN FREESTYLE WRESTLERS

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PURPOSE: This study revealed the characteristics of pre-start anxiety in freestyle wrestling athletes. The task of the study was to find out the intensity in the structure of athletes' pre-competition anxiety. METHODS: The object of the study were the athletes of the wrestling team of the National Sports Academy – “Vasil Levski” from Sofia/Bulgaria. The study included 24 athletes aged 18-25 years, divided into two groups of 12 subjects each. The Competitive State Anxiety Inventory - 2 (CSAI - 2) was used, the scale contains 27 items, 9 in each subscale: cognitive anxiety, somatic anxiety and self-confidence. RESULTS: Analysis of pre-start anxiety scores revealed no statistically significant difference between the two groups with respect to cognitive, somatic anxiety and self-confidence. The studied wrestlers were characterized by moderately pronounced pre-start anxiety scores. Significant correlations were found on neuroticism with cognitive and

somatic anxiety (r=0.42; r=0.36) and on psychoticism with somatic anxiety and self-confidence (r=0.43; r=-0.42). CONCLUSIONS: The obtained results reveal the significant influence of neuroticism, as a component of their typological features, on the psychological state and, respectively, pre-start anxiety of wrestling athletes. This also determines the need to apply targeted influences in the process of training to increase their emotional stability. This information could be useful for coaches and wrestling competitors, as it was found that each competition is a task of increased difficulty and with an unclear solution.

UKRAINIAN ORIGINS OF IVAN PIDDUBNY

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PURPOSE: The research of origins of legendary wrestler of first part of 20 century Ivan Piddubny METHODS: Records of church metric books of the end of the 19th century in the State Archives of Ukraine, archival documents of the village of Krasenivka, Cherkasy region (in the 19th and early 20th centuries - Poltava province) and historical sources were studied.
RESULTS: Ivan Piddubny was born on September 26, 1871 in the family of Ukrainian Cossack Maksym Piddubny in the village of Krasenivka, Zolotonosha district, Poltava province. Form his sport carrier Ivan Piddubny was win six World Championships (1904-1947) and did not lose a single fight. Our research showed that in total there were more than 250 families, about 700 people, in the genealogical tree of the great Piddubny family. For a long sports life, Ivan Poddubny won a lot from great wrestlers. In 1920, at the age of 56, Ivan Piddubny won the USA freestyle wrestling championship. He finished his sports careered at age 70. Ivan Piddubny is very popular in Ukraine. By a resolution of the Parliament of Ukraine, the 150th anniversary of Ivan Piddubny was celebrated at the state level. A Greco-Roman wrestling tournament, an International Scientific Symposium (UWW Scientific Commission) and commemorative medals were organized.
CONCLUSION: By origin and self-identification, in life, Ivan Piddubny is Ukrainian. He lived in difficult times, despite this, he never gave up his Ukrainian origin and considered himself a Ukrainian.

EATING DISORDERS ASSOCIATED WITH WEIGHT-LOSS PROCESSES IN SPANISH HIGH-PERFORMANCE WOMEN'S OLYMPIC WRESTLING ATHLETES. A QUALITATIVE STUDY

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OBJECTIVE: The aim of this study is to qualitatively analyse the eating behaviours and possible eating disorders associated with weight-loss processes in Spanish high-performance women's Olympic wrestling athletes.
METHOD: The sample consisted of 22 elite female wrestlers selected by purposive sampling, establishing as inclusion criteria: (i) having been Spanish champion in any age category; (ii) having been part of the Spanish national team participating in at least one international championship; and (iii) suffering or having suffered from an eating disorder. Semi-structured interviews were conducted online, by video call, due to the pandemic, with a duration between 20 and 40 minutes. Statistical analysis was conducted using NVivo10 software.
RESULTS: The results showed that wrestlers made dangerous weight losses, using inadequate procedures (i.e. cessation of intake in previous days). Within this theme, the following categories were highlighted: a) Lack of adequate information, related to the health risks involved in weight loss processes, and b) Risky practices, regarding the methods used to perform weight loss processes.
CONCLUSIONS: In Olympic Wrestling, many of the sportswomen have to drop down to lower categories in order to obtain a certain advantage over their rivals. However, they do not take into account how these practices influence their health by using inadequate procedures. These rapid and significant weight losses produce negative effects, especially in the female population, generating, among other pathologies, an incidence of eating disorders. The information obtained coincides with some existing aspects in the literature that have addressed this issue and provides some elements of interest for reflection on possible solutions to

prevent this poor relationship of nutrition in the new generations and the treatment of existing eating disorders.

ANALYSIS OF COMPETITIVE ACTIVITY IN THE GRECO-ROMAN WRESTLING

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PURPOSE: to carry out a study and comparative analysis of the competitive activity indicators of the Greco-Roman style wrestlers of a high level of skill of different weight groups to identify trends in the dynamics of technical actions and technical and tactical preparedness. METHODS: analysis of protocols and videotapes of the final fights of Greco-Roman wrestlers at the competition 2021 year (European Championship, Asian Championship, Pan American Championship and World Military Championship). In total 118 final matches of high-qualified athletes were analyzed, the following indicators were recorded: duration of bouts; number of technical actions; efficiency of standing and parterre techniques; effectiveness of defense in standing and parterre; productivity of standing and parterre techniques. RESULTS: wrestlers were divided into three weight groups: lightweight (55 kg, 60 kg, 63 kg, 67 kg); middleweight (72 kg, 77 kg, 82 kg, 87 kg); heavyweight (97 kg, 130 kg). Analysis of technical skills made it possible to establish that the wrestlers of the lightweight group perform most often and effectively: knocking over (20 % of all technical actions), turnovers (15 %), back belt throws (11 %), counter hold in parterre (10 %), counter hold in standing position (9 %), reverse turnovers (8 %), reverse belt throws (7 %), pushing out of mat (6 %), takedowns (4 %), twisting throws (4 %), back arch throws (3 %) and other technical actions (3 %). Wrestlers of middleweight group perform: turnovers (27 %), back belt throws (17 %), pushing out of mat (17 %), knocking over (11 %), takedowns (11 %), twisting throws (7 %), counter hold in parterre (6 %) and other technical actions (4 %). Wrestlers of heavyweight group use: pushing out of mat (24 %), turnovers (21 %), counter hold in parterre (14 %), takedowns (13 %), knocking over (10 %), twisting throws (10 %), back arch throws (6 %) and other technical actions (2 %). The analysis of dynamics of attacking actions showed that the number and effectiveness of attacks by the end of the fight among wrestlers of light and middle weight groups increases and in wrestlers of a heavy weight group – decreases. It was established that the key characteristics of the preparedness of highly qualified fighters with equal volume of technical and tactical actions were their speed and strength capabilities, special endurance and the ability to overcome the growing difficulty of combining high rates of combat and maintaining the effectiveness of technical actions. CONCLUSIONS: it is determined that the study of competitive activity allows the trainer-teacher to organize the training process more efficiently, timely identify shortcomings in the athlete's preparedness and make certain adjustments to the training plan.
Key words: elite wrestlers, comparative analysis, weight groups, technical actions, technical and tactical preparedness.

AMPLITUDE-TIME CHARACTERISTICS OF BRAIN ACTIVITY AND ITS RELATIONSHIP WITH INDIVIDUAL-TYPOLOGICAL PROPERTIES OF THE WRESTLERS' NERVOUS SYSTEM

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PURPOSE: Peculiarities of amplitude-time characteristics of cortical reactions in Greco-Roman wrestlers with different individual-typological properties of the nervous system.
METHODS: The 27 elite Greco-Roman right-handed wrestlers, aged 18-27, took part in the research. During the competitive activity, a video recording and analysis of the technical and tactical actions (TTA) were carried out. In the research the EEG-testing methods were used and the amplitude-time characteristics of the wrestlers' brain activity were determined, related to the implementation of the motor reactions in the Go-No Go-Go task paradigm. Cognitive evoked potentials were analyzed in frontal, central and parietal cortex. We determined the latency periods of N_2 and P_3 components and amplitudes of N_2 and P_3 waves. Also, we studied individual-typological properties of the nervous system – functional mobility of nervous processes (FMNP). The mathematical statistics were used.

RESULTS: We established a pronounced dependence of TTA indicators and the effectiveness of competitive activity of wrestlers on genetically determined individual characteristics of the wrestlers' FMNP. Wrestlers, who had a higher level of FMNP of the nervous system, were characterized by higher expert evaluations of fighting efficiency and TTA of fighting. Performance of the motor task in the Go-No Go-Go paradigm was accompanied by the predominance of the latent component N_2 in the areas of the parietal cortex mainly in the right hemisphere and the amplitude of the component P_3 in the frontal region of the left hemisphere. In wrestlers with a high level of FMNP, a statistically significant higher response of the cortex, according to the latent component P_3 and the interpeak amplitude of the P_2N_2 interval were found, than in wrestlers with a low level of the examined typological property of the nervous system. A local potential shift in the interval of N_2P_3 peaks was registered in the right central and parietal regions with greater amplitude in the left hemisphere, which indicated a higher power of the inhibitory process of wrestlers with a high level of FMNP.
CONCLUSION: Amplitude-time characteristics of brain activity in elite Greco-Roman wrestlers with a high level of FMNP were characterized by higher expert evaluations of the effectiveness of the fight and TTA of conducting the match, than individuals with a low gradation of the studied typological property. EEG characteristics of induced brain activity under the condition of cognitive information processing in the Go-No Go-Go paradigm of elite wrestlers with a high level of FMNP revealed statistically significant higher power and speed of the braking process, than in wrestlers with a low level of the studied typological property. Amplitude-time EEG characteristics of brain activity and individual-typological properties of the nervous system, together with technical and tactical preparation, can be recommended as criteria for evaluating the prospects of wrestlers.

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