

# Medicobiological Aspects of Selection and Orientation in Sports

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## SUMMARY

The possibilities for increasing the present-day sports results very often are associated with a detailed study of the basic limiting factors conditioning their achievement.

As per predominating conceptions in modern genetics the organism morphofunctional complex is formed during the process of phylogenetic and ontogenetic evolution and the environment influence on hereditary factors is shown in both aspects:

— morphological and functional indices changing slightly and in narrow limits - **STABLE HEREDITARY CHARACTERISTICS.**

— indices influenced by the environment conditions - **LABILE HEREDITARY CHARACTERISTICS.**

On the basis of a rich clinical material, a transversal study of 11,820 cases and a longitudinal study of 1932 cases of children 8 - 18 years old, by means of 62 indices have been elucidated the basic medicobiological indices used for selection, orientation and development of growing up sportsmen.

When establishing the functional possibilities of the organism and their prognosis one should bear in mind the acceleration influence with a view to the adolescent health safeguard and the management of the process of study and training.

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The possibilities for increasing the present-day sports achievements usually are associated with a detailed study of the basic limiting factors.

According to the predominating conceptions in modern genetics the morpho-functional complex of the organism is formed during the process of phylogenetic and ontogenetic evolution and the environmental influence on hereditary factors is shown in two aspects:

— morphological and functional indexes changing itself slightly and in narrow limits so called **STABLE HEREDITARY INDEXES (CHARACTERISTICS)**

— indexes influenced by the environmental conditions—**LABILE HEREDITARY INDEXES (CHARACTERISTICS)**.

The problem of selection and the importance of the different indexes are to be taken into consideration separately.

Abundant experimental material, based on a transversal followed-up study of 11820 cases and longitudinal 1932 cases with children aged 8 - 18 by means of 62 indexes helped to elucidate the basic medicobiological indexes used by the sports selection and orientation.

The stable hereditary characteristics include: body height, torso and limbs, bi-trochanterian diameter, body weight and composition, constitutional properties and body surface. Data analyses show first greater genetic significance of the limb length as compared to that of torso, and second, that the genetically differentiated values of the body weight are dependent on its height ( $r = 0,87$ ).

From all functional indices the maximum oxygen consumption shows the highest genetic dependence. Sportsmen with

high initial values of this index show a lineal increasing tendency from age 8 - 18. (fig. 1-2). Those with average initial values after reaching the highest level at the age of 13 - 14 decrease its values there after

The maximal anaerobic capacity (up to 81 %) determined by the 1 min. test of Seoddy has high prognosticating significance.

The increased stock of the muscle glycogen enhances the unknown parameters of this test—the relative part of the revolution, thus increasing work capacity.

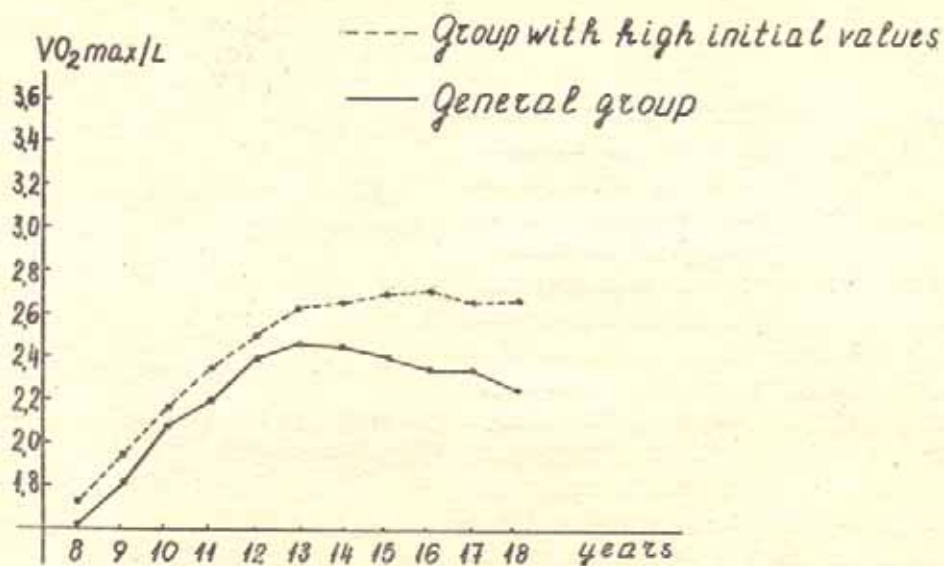
The frequency of the cardiac contractions are genetically differentiated up to 85 % on account of the regulating mechanisms.

Pulse reaction in repeated functional tests is stable especially during the trial for «standard work capacity» - PWC 170. The same concerns the time for working up the pulse up to 170 beats per minute, minute working volume in relaxation, systolic blood pressure in 1,2 and 10 min., the period of restoration etc.

Ventilation during working up to pulse 170 beats/min., and hypoxia, stability show the same genetic dependences.

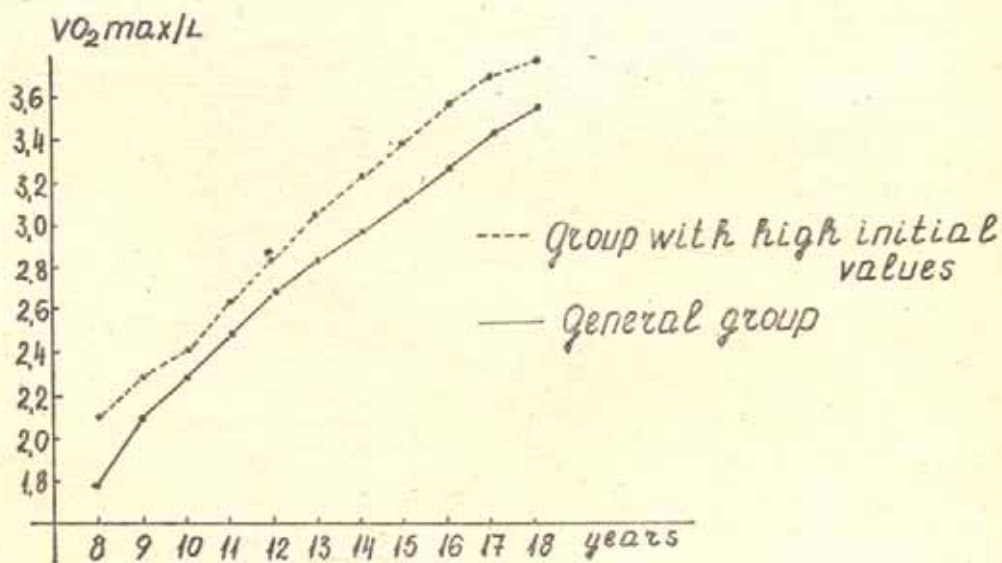
In the literature is marked the hereditary transference of some enzymes concerned with muscle contractions as: aldolase, creatin-phosphatase, adinosintriphosphatase.

Neuro - muscular functions exposing high genetic dependence are as follows: velocity of (loco) motor reaction, maximal frequency of the movement, agility, resistance to fatigue when working ergograph, etc.



Maximal oxygen consumption  
of girls 8 to 18 years

Fig.1.



Maximal oxygen consumption  
of boys 8 to 18 years

Fig.2.

The group of labile hereditary indexes includes : body diameters and circumference, subdermal fat tissue development, cardiac frequency, diastolic blood pressure in relaxation, respiration volume, time for respiration pause; minute pulmonal ventilation, some sports -technical indexes etc.

The influence of the ambiance over the labile parameters cannot improve genetically restricted indexes and get high sports achievements. Even the greatest talent cannot be developed if the process of training is eliminated.

Therefore the quality and methods of training must not be neglected.

This conclusion stressed on the importance of criteria of the primal selection in sports with leading stable morphological functions and locomotor indexes.

The follow-up and the dynamics related to the age have to be evaluated within the frame of the biological maturity and its influence over the personality development. (Tab.-1).

## CONCLUSIONS

1) The fundamental element of selection prognosis of individual development is the evaluation of the basic inherited and acquired indexes.

2) The initial sports selection must precede puberty or to be in accordance with difference periods of organism development and their influence over the basic indexes.

3) The rate of growth of the difference indexes especially in the beginning of sports training and their maturity possesses high prognosticating value.

4) Investigations on the age dynamics of some biometrical indexes and creation of necessary standards are obligatory for each country.

Table-I.

SYSTEM OF THE BIOLOGICAL AGE DEPENDENCE FOR MARKING THE DEVELOPMENT OF THE PERSONALITY AS A WHOLE

I. HEREDITARY FEATURES (OR INFORMATION) OF THE COMPLEX

INDIVIDUAL DIFFERENCES

- |                       |                                   |                                    |
|-----------------------|-----------------------------------|------------------------------------|
| —time                 | —System of receptors              | —Quality and quantity the ambiance |
| —rate                 | —System of regulation and control | —training                          |
| —rhythmics            | —endocrine system                 |                                    |
| —degree of expression | —nervous system                   |                                    |
| —accent               |                                   |                                    |

II. DEVELOPING PERSONALITY

BIOLOGICAL COMPONENTS

—Development of the Morphological

Development of the functions

Features

- |            |                    |
|------------|--------------------|
| —skeleton  | —blood circulation |
| —phenotype | —breathing         |
| —organs    | —metabolism        |
| —systems   | —methods           |

men age 15-21

men age 15-21

women - age 12 - 18

women - age 12 - 18

—bone formation age

Display of the Biological Components

- |                     |                       |
|---------------------|-----------------------|
| —body height        | —blood pressure       |
| —body weight        | —pulse frequency      |
| —shoulder width     | —metabolism           |
| —limb length        | —reaction to coldness |
| —cardiac volume     | —coordination         |
| —respiration volume | —properties of the    |
| (RV)                | locomotor reaction    |

SOCIOLOGICAL COMPONENTS

Sexual development

- primary - knowledge - political and features  
 secondary - peculiarities moral features - readiness conduct (characteristic ethnic features)

Mature age - 18 years old

men and women

Social labour activities

- sex hormones  
 —hormones of the development  
 —menstruation

Top sports achievements

- secondary sexual features

# Utilisation of the Age Dynamics in Physical Development of Young Bulgarian Sportsmen for the Needs of Sports Orientation and Selection

N. Georgiev\*, P. Slanchev\*

## SUMMARY

Investigations were carried out on 14,000 children and adolescents - 10,200 boys and 4,900 girls from sports schools and students' sport groups, aged 7 - 18 years and participating in training sections for track and fields, gymnastics, swimming, rowing, wrestling, boxing, weight lifting, basketball, volleyball, football, handball, skiing, cycling and fencing. 28 anthropometric indices and 10 derived criteria giving information about body lengths, circumferences, diameters, subcutaneous fat and vital capacity of the subjects were followed up. The obtained data were statistically treated for determining the indices of variation analysis. Comparisons of the main anthropometric indices were made between kind of sports, sex and age groups. On the ground of the established anthropometric data conclusions were drawn for the effectiveness of selection and sports orientation.

The significant raise in the level of performances in world sport is the reason for a continuous searching of new training methods, which could lead to still higher sports results. An important reserve in this respect was seen in selection and training at an early age of growing up sportsmen. The right selection and orientation of the beginners to the most appropriate for them kind of sport would determine to a great degree the further success in training and the high ranking at competitions. The phy-

sical development and its specificity in the different sports is of a great interest for the sports biotypology, the normative anthropology, and to a certain degree for the direction of sports training. The problem has been and still remains subject of numerous investigations in Bulgaria and in many other countries.

The aim of the present investigation was to establish the physical development of young sportsmen in our country and to draw up normative tables for the different

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sports, considering age periods and sex, for estimation of the physical development of a sportsman or of a group of sportsmen.

The investigations were carried out on nearly 15000 children and adolescents (10,200 boys and 4,700 girls) from Bulgarian sports schools and school sports sections in the age range of 7 - 18 years. The investigated children and adolescents were going in for 14 basic kinds of sports. There were followed up 28 anthropometrical parameters, 10 derived indices and the performances in 9 physical fitness tests. Standard tables have been drawn up on the basis of the collected data and respective regression equations have been calculated, which are used as a part of the complex system for sports selections applied in Bulgaria.

The results obtained after the statistical treatment of data indicate that the investigated sportsmen from the considered age and sex groups and kinds of sport surpass their coevals in absolute and relative values of the parameters for physical development and in performances achieved at physical fitness tests, according to the standard data for Bulgarian population (1970, 1975). These differences are most marked in the periods after the age of 11 - 12 years. This finding supports the viewpoint that the better physical development and fitness of the children and adolescents going in for sport are attained not only as a result of selection, but also as a result of systematic sports activity. The greater differences which we observed in the earlier age periods (7 - 11 years), prove that it is not advisable to make a selection for the different sports in these age periods.

The rate of increase in the investigated anthropometrical parameters shows a dependence on sex and age. This rate begins

to slow down after the age of 8 - 9 years. There are observed two peaks of accelerated rate of increase in boys at the age of 11 and 14 years, and only one peak at the age of 11 years in girls. In the age period of 8 - 11 years the rate of increase in girls goes faster, compared to boys. The respective curves cross each other in the age period of 11 - 13 years, but after the age of 13 years the rate of increase is more accelerated in boys, than in girls. After the age of 14 - 15 in girls, and after 16 - 17 years in boys, the rate of increase slows abruptly down, and there is practically no further augmentation of the values of the parameters to be noted. From the point of view of sports anthropology these data confirm that the most favorable age for a definitive sports selection for the most kinds of sport is the age of 11 - 13 years for girls, and the age of 14 - 15 years for boys.

The differential studying of the anthropometrical parameters (lengths, strength indices etc.) and of the performances in the physical fitness tests (flexibility, skilfulness, speed, endurance etc.) points to certain deviations from the general standards. In the above mentioned age periods occurs the definitive formation on the first place of bodylengths, strength and endurance indices. The speed parameters and especially those of skilfulness and flexibility reach this high rate of increase 2 - 4 years earlier, which has to be taken into consideration, when the selection for those kinds of sport, for which these physical qualities are required, will be done.

The data characterizing the physical development and the physical fitness, which we use for the needs of sports selection and orientation and the age periods in which the groups for the different sports are recruited, refer of course only to the Bulgarian population.

# Accidents Involving Fans At Football Games

G. Vrettos, A. Lioulias, M. Lioungas, P. Contoulacos

## SUMMARY

The present report refers to the classification of some 48 incidents prior to the tragic event on Feb. 8, 1981 when twenty football fans died and 100 more were injured - others very seriously and others slightly - at the KARAIISKAKI football stadium.

Subsequently, the acts of violence, self destruction and as well as the emotional situations and heart attacks are analyzed on the basis of mass psychology.

Lastly scientific explanation is furnished as to tragic event on Feb. 8, 1981.

Lately in Greece, fan injuries and mortal accidents in football games are steadily increasing.

In countries like England, Germany, Italy etc., with different psychological behaviour, acts of violence, mounds, heart attacks and deaths are also reported.

Until recently South America was on the top with acts of violence, heart attacks extreme fanatic behaviour, murders of opponents and referees and suicides.

With the tragic event of the 8th February 1981 at Stadium Karaiskaki, where 20 young people lost their lives, we would expect the fanatic behaviour of fans to be decreased and acts of violence almost eliminated. But fanatic behaviour remains the same and violence at the Stadiums increases day by day.

The tragic event unexplained at first, has a good scientific explanation, if we stand and analyse the mechanism of frantic enthusiasm, which blocks any logic and sense of danger.

Accidental injuries of athletes in general seldom ended in emergency operations in clinics and hospitals. (Fig.1).

The last two years that the First Aid Station at Stadium Karaiskaki is on operation, 48 injured persons were admitted during Sunday football games.

The above mentioned number is independent of the tragic event of 8th the February 1981, where according to the official reports 20 young people lost their lives and about a hundred were injured seriously or not.

Accidents involving fan injuries are included in following categories :

## A. Isolated personal incidents.

Most of them in this category are because of stress during the game as in cases of extreme excitement (85 %), like the scoring of a goal. We have spasm of the peripherals capillaries and release of catecholamines. This results in increased blood pressure, tachycardia (sympathicotony) and occasionally angina pectoris and heart arrests or where vessel athromatosis is present we may have infarctions of brain or heart arteries.

At the First Aid Station of St.Karaiskaki the following were admitted

- 1) During the last 4 years, we had two fan injuries resulting in death, one from cardiac arrest and the other one from acute myocardial infarction
- 2) Three cases of angina pectoris (with chest pain, high blood pressure and small or negative ST space at the electrocardiogram )
- 3) Fourteen of sympathicotony (patients with tachycardia hypertension, flassing hysteric reaction and loss of conciousness).  
The above case could be explained as hystericomorphus reactions or as inefficient supply of oxygen in the brain because of sympathicotony and tachycardia, the volume pulse and the incoming blood in the brain is decreased.  
All the above cases were released soon.
- 4) Two cases of kidney colics. These events could possibly happened by chance or could be explained from release of catecholamines and spasm of the ureters.
- 5) One case of unconsciousness with decreased blood pressure.

We further think that numerous other cases were not reported or treated at the First Aid Station at St. Karaiskaki but were otherwise taken care of.

## B. Wound injuries

Wound injuries accidentally or not are results of fanatic behavior, loss of logic thinking, loss of sense of danger etc.

In these cases part of fan behavior is ruled by mass psychology which we will mention later on.

- 1) Accidental wound injuries
  - a) Two cases of burns of lower ends among Stadium personel while trying to extinguish smoke bombs.
  - b) One case of injured genetic organs (testicles) at the overrowded entrance.
  - c) for same reason (as in b) one hand nail separation
  - d) two cases of crushed fingers by fans being stepped over.
  - e) One shoulder injury (sprain) from throwing toilet paper at the field
- 2) Wound injuries as result of act of violence.

We will first look into mass psychology behaviour. (Fig. 2). Crowd behaviour is ruled by mass psychology when at the same time and same place the crowd is under the same psychological influence and they psychologically react as group and not as individuals.

The crowd behaviour does not depend upon the quality or size of the individuals that consist the crowd, but it is an entity on its own.

The size of number the crowd is consisted of, has no limit but it has to be greater than two as long as personal opinions can't be discussed.

In the first conditional identity, the mass under the same psychological influence has to replace its logical thinking by primitive feelings and reactions. (Fig. 3).

In the second conditional identity, we observe that the crowd gets excited easily, gets angry easily, gets panicky and changes stages as easily. Its unbelievable easy to persuade it and it believes in symbols, emblems and idols. It looks at the opponent as the enemy and it doesn't accept the ones that speak with reason and logic, but accepts the ones that agree with them.

The equation of personalities (third identity) brings temporary loss of true psychology and personality of the individuals and sometimes we observe unreasonable excited individuals to lead serious and respectable otherwise individuals that for a short time are fanatic fans.

The fourth identity is very important because the individuals are feeling super self confidence, immortal and tough. They desire to show off and use their power, seeing no limits, being ruled by hatred etc., and are not willing to give in. The spirit of war is dangerously strong among them and they equate themselves with God.

Under the 5th identity we observe that the mass tends to influence and submit its members, but it also needs a leader. Leaders of groups often bring the team fan in an extreme fanatic excitement by taking advantage of the right time and creating the necessary slogans.

In the 6th identity the mass isn't responsible for its own actions. The primitive feelings rule the situation with no mental logic reaction and they don't foresee the results and consequences of their actions.

Different schools of psychology have their own explanations for above.

According to the records of First Aid Station at St. Karaiskaki were admitted :

1. One serious head injury (patient was admitted at Hospital)
2. One concussion of the brain. A hard object was thrown at a police officer (patient admitted at Hospital)
3. Five head skin injuries due to beating with clubs between fans. The skin wound was stitched and Serum antitetanic was performed.
4. Face skin, lips injuries resulted from punch exchange.
5. Five lower end skin injuries. All of them stitched and Serum Antitetanic performed.
6. Five upper end injuries, one police officer, four fans.
7. One injury resulted from punching in abdominal area.

Numerous incidents are not reported and most of them happen after the game from trouble makers that take advantage of the psychological state of the fans.

### **C. Injuries due to self destruction mania**

In this group fans have lost self control. They are ruled by mass psychology, they have lost the sense of danger, logic doesn't exist.

Fans climbing on high power columns, trying to jump over fences, attacking of an alone fan against numerous and organised opponents or police forces is not so uncommon. Fortunately in Greece we don't have yet suicides as it happens in S. America.

Injuries of this category admitted at the First Aid Station at St. Karaiskaki was :

- 1) A young fellow with passing through wound of right hand's palm with no tendon, vessel or bone damage. The accident happened when the above tried to pass over the rails.
- 2) A fan with pass through wound the thigh but no other complications from bone or vessel. On his effort to jump over the sharp iron bar of the fence.
- 3) A fan who tried alone to attack an opponents group had numerous bruises after punches on his head, face and right upper abdominal area.

We are going to analyse now the tragic event of 8th the February 1081:

At the end of a decisive for the countries championship game and a final big score (6-0), the fans of the winner had all the identities of mass psychology. They were feeling powerfull and unbeaten. They were coming at the gate No. 7 as a unique fanatic mass.

Suddenly a fan came out of ballance and felt down. Some of the crowd were screeching, some were asking for help and other behind, but not so far from the place of the accident, were pushing the previous to death. The mass behind had no sense of fear, they were in such as in a dream condition after the big triumph. Twenty fans died after shock lung and several other injuries. Hundred and even more were seriously and slightly wounded. Three months later the 21st victim of the tragic event died, succumbing to the wounds. It's clear that the tragic event was a combination of a happening by chance and self destruction identity of the mass.

Ending we wish peaceful days to all kind of sport meetings, far away from fanaticism and pation. We hope to the victory of the ancient Olympic Idea.

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## ACCIDENTS INVOLVING FANS AT FOOTBALL GAMES

1. **Isolated personal incidents**  
Stress-Spasm-sympaticotony  
(possible cardiac arrest or acute myocardial infarction),
2. **Wound injuries**
  - a) Accidental
  - b) Result of act of violence
  - c) Injuries due to self distruction mania.

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Fig.1.

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## CONDITIONS UNDER WHICH CROWD BECOMES MASS RULED BY MASS PSYCHOLOGY

1. Being at the same place the same time.
2. Common psychological external influence.
3. Common psychological reaction.
4. The role of the leader (slogans etc.).

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Fig.2.

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## IDENTITIES OF MASS ACCORDING TO MASS PSYCHOLOGY

1. The mass doesn't thing (loss of logic).
2. The mass specially feels.
3. Equation of individuals personality.
4. No sense of fear and feeling of danger.
5. The mass follows enbals and slogans.
6. No responsibility or their actions.

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Fig.3.

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SPOR  
HEKİMLİĞİ  
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COMPARISON BETWEEN ATHLETES AND SEDENTARY  
INDIVIDUALS ON MEASURES OF RESPIRATORY AND  
CARDIOVASCULAR PARAMETERS DURING RESTING  
EXERCISE AND RECOVERY PERIODS.

SUMMARY

In this research, Athletes who took part in different branches of sports were compared with the sedentary healthy university students and on measures of respiratory and cardiovascular parameters during resting (5 min), (10 % level 5 km/h. (5 min.) exercise and recovery (10 min) periods.

These measures consisted of the tidal volume ( $V_T$ ), respiratory (f) and heart rate, oxygen uptake ( $VO_2$ ) and blood pressure (BP) during the three periods.

The athletes appeared to have lower respiratory and heart rate than those of the sedentary students during resting exercise and recovery periods. The Athletes reached to steady - state, quicker than the control group during exercise period. Ventilation equivalent for oxygen ( $VEO_2$ ) of the athletes was lower than those of the control group while oxygen pulse ( $O_2$  pulse) was greater during the three periods i.e. resting exercise and recovery periods.

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## SUMMARY

### FAT FREE BODY DETERMINATION IN GRECO-ROMAN AND FREE STYLE WRESTLERS IN EUROPEAN CHAMPIONSHIP, 1980

In this article, fat free body determinations has been done in total 213 wrestlers who participated to European Free and Greco-Romen Style wrestling Championship of 1980 in Prevedza, Cheslovakia.

There was a positive correlation between the percentage of free body fat and the weight. In lighter weight groups of both style observed amount of free body fat was reduced. Mean and standard deviations of normal amount of free body fat has been determined for each weight groups of both style when the wrestler's conditioning was good.

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Tablo : 1 SERBEST STİL

| Ağırlık | Olgu Sayısı(n) | % Yağ Oranı | Alt ve Üst Değer(Range) | Standart Sapma(SD) | Standart Hata(SE) | P      |
|---------|----------------|-------------|-------------------------|--------------------|-------------------|--------|
| 48 kg   | 7              | 6.9         | 6.3-8.3                 | +0.70              | 1.39              | > 0.05 |
| 52 kg   | 8              | 8.4         | 6.8-9.1                 | +0.1               | 0.77              | > 0.05 |
| 57 kg   | 11             | 7.5         | 4.0-7.1                 | +1.1               | 0.49              | > 0.05 |
| 62 kg   | 12             | 7.5         | 6.4-8.3                 | +0.69              | 0.36              | < 0.05 |
| 68 kg   | 12             | 7.6         | 6.8-12.7                | +1.49              | 0.63              | > 0.05 |
| 74 kg   | 11             | 9.6         | 7.3-14.5                | +2.1               | 0.48              | > 0.05 |
| 82 kg   | 12             | 9.2         | 6.9-12.1                | +1.31              | 0.20              | > 0.05 |
| 90 kg   | 12             | 10.2        | 7.4-13.6                | +1.71              | 0.33              | < 0.05 |
| 100 kg  | 8              | 11.5        | 8.4-14.5                | +2.17              | 0.54              | > 0.05 |
| 100 kg  | 7              | 18.5        | 8.7-25                  | +5.27              | 0.26              | > 0.05 |

Tablo : 2 GREKOROMEN STİLİ

| Ağırlık | Olgu sayısı (n) | % Yağ Oranı | Alt ve Üst Değer(Range) | Standart Sapma(SD) | Standart Hata(SE) | P      |
|---------|-----------------|-------------|-------------------------|--------------------|-------------------|--------|
| 48 kg   | 10              | 7.3         | 5.6-9.8                 | +1.1               | 0.35              | > 0.05 |
| 52 kg   | 11              | 8.5         | 8.3-10.4                | +1.6               | 0.48              | > 0.05 |
| 57 kg   | 11              | 8.4         | 8.5-10.3                | +12.8              | 0.39              | > 0.05 |
| 62 kg   | 9               | 9           | 7.4-11.3                | +1.24              | 0.41              | < 0.05 |
| 68 kg   | 13              | 8.8         | 6.6-12.3                | +1.56              | 0.43              | > 0.05 |
| 74 kg   | 15              | 8.7         | 7.1-10.6                | +1.11              | 0.31              | > 0.05 |
| 82 kg   | 13              | 10.9        | 7.2-15.1                | +2.48              | 0.69              | > 0.05 |
| 90 kg   | 12              | 11.8        | 8.5-15.1                | +1.97              | 0.57              | < 0.05 |
| 100 kg  | 12              | 13.6        | 9.8-16.3                | +2.31              | 0.67              | > 0.05 |
| 100 kg  | 7               | 23.6        | 13-35.9                 | +5.7               | 3.28              | > 0.05 |

# Arthroscopy Of The Knee Joint

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## SUMMARY

Arthroscopy of the knee joint is an established diagnostic technique in the evaluation of knee problems. Its indications cover a wide spectrum of joint diseases including most of the menisci lesions and/or injuries especially in the younger age group. Since December 1978 we have performed 66 arthroscopies under general anesthesia and a tourniquet, using the Needlescope 2,2 mm. by Dyonics and lately the STORZ 30° and 120° of 5 mm. 46 of them were classified prior to arthroscopy as IDK's (internal knee derangements) and 20 as cases of «arthritis» with inadequate history and/or clinical, laboratory and X'ray findings. In the first twenty knees arthrotomy was carried at the same session. In the other 46 cases we operated only when the arthroscopic findings were positive. In this paper an analysis is tried of our early and late experiences and/or complications.

Arthroscopy of the knee joint is an established valuable diagnostic technique in the clinical evaluation of problematic knees. From the early works by Tagaki and Bircher, to Watanabe, Jackson, O' Connor, Johnson, Eriksson and others, a considerable time has passed. Today improved optical lenses like the Hopkin's, new powerful cold-light sources and continuous human efforts, have made arthroscopy a routine procedure in many orthopaedic departments.

In evaluating the symptomatic knee a good history and clinical examination

are of course most important, X'Rays must be taken and general anesthesia used to check the ligement structure of the joint. Arthrograms - single or duple contrast - are still in use by expert radiologists to investigate mainly meniscal lesions. But arthroscopy performed for diagnostic and or operative reasons, seems to have taken it's senior place among the forementioned techniques.

In this paper an analysis is tried of our early clinical experience in the said procedure. 66 patients with problematic knees have undergone arthroscopy between December 1978 and April 1981, at

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the Asclepion Hospital and the Hygeia Diagnostic and Therapeutic Centre in Athens, Greece. Most have had inadequate history of trauma and very few significant clinical and/or radiological positive findings. Arthrograms were not taken. The needlescope by Pyonics 2.2 mm. was used in the beginning and a 5 mm. STORZ telescope lately. The operation was performed in a regular theater under general anesthetic and a tourniquet. Normal saline was used to flush the joint. The knee remained distended during the procedure.

After establishing a scope diagnosis we subjected the first twenty patients to arthrotomy. It was very interesting to compare the clinical, arthroscopic and operative findings. In 17 cases, out of the twenty, arthroscopy revealed the correct diagnosis. In 12 cases in a positive way, in five in a negative way. There were originally 13 suspected meniscopathies and 7 arthropathies.

We failed to see - due to inexperience A) a posterior medial meniscus tear, B) a medial cyst of a lateral meniscus with a tear and C) chondromalacia lesions of a patella.

In the other 46 cases the procedure was diagnostic only. There were 33 knees with suspected meniscal lesions and 13 others with an inadequate arthritic history.

Detailed arthroscopic examination revealed a positive success rate in more than 4/5 of all meniscal cases. Only 11 patients were subjected to arthrotomy at a later stage. The other 22 have been released from the waiting list as candidates for meniscectomy. As for the 13 arthritic

knees, almost 50% of them, were later on operated for synovial disease (synovectomy and house-cleaning).

It is self evident that to scope a joint takes time and experience, like so may other procedures in surgery. But once the arthroscopist overcomes the «aquarium effect» of looking inside the knee joint, and learns to read the three dimensional working space in which he is working he realises the importance of arthroscopy in reference to the correct diagnosis.

In conclusion we believe that

1. Arthroscopy of the knee joint is a very valuable diagnostic technique.
2. It is indicated in those cases, in which the Orthopaedic Surgeon feels that the history of the patient is not characteristic and the clinical laboratory and radiological findings are inadequate to help him establish a diagnosis, and perform the proper treatment.
3. Our experience in treating 66 cases of problematic knees-in the last 2 1/2 years - has shown that success rate of more than 80% should be estimated- especially in view of meniscal lesions. In the positive cases it is suggested that one should proceed to arthrotomy during the same narcosis.
4. Arthroscopy, is by now a routine procedure in all diagnostic problems of the knee joint.
5. Operative arthroscopy and a television with a video - camera will revolutionise the treatment of many knee joint diseases in the near future.