SEMMELWEIS UNIVERSITY
FACULTY OF PHYSICAL EDUCATION AND SPORT SCIENCE

Budapest, Hungary

THE 15TH INTERNATIOANAL CONGRESS ON SPORT SCIENCES FOR STUDENTS

Budapest, April 26-27, 2002.

TRAINING AND TEACHING METHODS SECTION
Friday: 2:00 p.m.

1. *Zs. Kispéter:* Lab and Track Measurements of Kayak Racers
2. *Á. Molnár, R. Ipacs:* The Examination of Cognitive Functions of Passive, Regularly Tranining and Overtraining Rats
3. *Á. Bekényi, B. Komondi:* Definition of Zones of Training Intensity with Investigation of Anaerobic Threshold
4. *N. Šarabon, V. Strojnik:* Effect of Feed Back Information in Power Training
5. *R. Szabó, R. Kováts:* The characteristics of adaptation to training - Overtrainig –
6. *B. Komondi:* How Amateur Hungarian Long Distance Runners Prepare for Marathon

Coffee break

7. *Á. Kovács:* Multimedia Opportunities in Aerobics
8. *M. Petrou:* Intensive Training and Sports in Young Athletes
9. *B. Karácsony:* Practice Exercises with Ball for Overweight Children
10. *J. Nagy, E. Sárközi:* Examinations of the Motor Co-Ordinations in the Kindergarten Age
11. *P. Pribelyi:* Aquafitness in Hungary

HEALTH SCIENCE SECTION
Friday: 2:00 p.m.

1. *J. Bõsze:* Snapshots from the Health
2. *Demeter, B. Vízhányó:* Examination of Life Style Among Physical Education Teachers-To-Be
3. *Gardner:* Exercise Adherence
4. *Gy. Lacza:* A Qualitative Approach to Define the Need for Leisure Professionals in the Hungarian Society
5. *J. Bosze, Gyongyver Lacza:* What Is the Conceptualization of Being Healthy, A Comparative Study Between Hungarian Students and Foreign Students Studying in the Netherlands

Coffee Break

6. *Godin:* An Examination of Health Determinants Among Elderly Women: Health Behaviours, Screening Practices and Screening Knowledge
7. *Kate Skinner:* Alcohol and University Students: Attitudes and Practices
8. *S. Gerassimon:* Social Perseption of People With Special Needs
9. *K. Kälbli:* Movement Restrictions and Sports of Disabled People Based on a Survey of Sitting Volleyball
10. *M. Flouri:* Comparison of Cypriot and Hungarian Children with Special Needs and Motor Development Problems

HUMAN MOVEMENT AND EXERCISE PHYSIOLOGY
Ph.D. SECTION
Friday: 2:00 p.m.

1. *M. Kyriakides:* Visual and Kinesthetic Imagery in Students of Kendo
2. *I. Kun:* Psychomotor State Estimation Of 10 Years Old Soccer Players
3. *M. Varga, Z. Vass, P. Molnár:* Assessment of Early Motor Learning in Case Of 11-13 Years Old Novice Fencers
4. *Z. Keresztényi:* Quantitative Characterisation of Motor Control and Movement Performance
5. *Z. Vass, M. Varga:* Motor Skill Acquisition: Specificity or General Rule Learning?

Coffee Break

6. *J. M. Pucsok,, I. Györe, M. Dékány:* The Study of Acid Base Balance and Lactaciduria with Steroid Profile During Acute Physical Exercise
7. *L. Petridis,Á. Sziva,V. Manolas,A. Bánhegyi,G. Pavlik:* Measurements and Results of Running Ergometer, Echocardiography and Physical Condition Test on Young Waterpolo Male Players
8. *A. G. N. Raeini:* Cardiac Output at Rest and During Exercise
9. *Z. Vass:* Biomechanical analysis of Darts Throwing

SOCIAL SCIENCE Ph.D. SECTION
Friday: 2:00 p.m.

1. *L. Kleomenis:* The Impact of Global and Local Factors on Sport in Greece
2. *É.Leibinger, E. Murányi:* Change in The Primary Scholl Boys's Affectivity Towards the Teaching Material of Gymnastics Within the Last One and Half Decades
3. *Zs. Bukta:* The Relationship Between State and Civil Organisations of Sport in Hungary
4. *Cs. Hédi:* Hosting International Sport Event by the Hungarian University Sports Federation
5. *Tamás Freyer:* Measures for Protecting Order in Hungarian Football Stadia

SOCIAL SCIENCE SECTION
Saturday: 9:00 a.m.

1. *A .Radziwon:* Aggression and Personality Among Football Players
2. *B. Balogh:* Olympics on the Internet
3. *Cs. Bartha, B. Komondi:* Doping Passport
4. *Zs. Kralovánszky:* The Reasons of Different Judgement of Graduates in Physical Training in Society on the Base of Survey Made Among Hungarian and German Graduates
5. *J. Nagyréti:* Special Types of Responsibility in the Hungarain Sport Law Field
6. *A. Golets:* Behaviour Charasteristics of Young Athletes Considering Their Gender Differences

Coffee Break

7. *Cosma:* Anxiety, and Strategic Approach to Coping of Foreign Students at the Semmelweis University
8. *J. Peco:* Exercise Addiction, Commitment, Motivation and Gender
9. *Lõkös:* A Comparison Study of Body Awareness and Personality of Females
10. *Fazekas:* Examination of Personal Characteristics of Athletes as Reflected by The „Eysenck" Personal Characteristics Scale
11. *A. Benczik:* The Effect of Martial Arts to Personality Development

HUMAN MOVEMENT SECTION
Saturday: 9:00 a.m.

1. *R. Moore, E. Nussbaum, M. Locke:* The Effect of Therapeutic Laser on Stress Proteins
2. *A. Zsidai:* Spinal Analysis Using the Ultrasound Based Cms-Hs (Zebris) Motion Analysis System
3. *J. Puha:* Causes of Injuries in Human Movement System on the Basic of Kinetic and Kinematic Chain Theory
4. *C. R. Goodwin, S. D. Perry and P. J. Bryden:* The Influence of Footwear Midsole Material Hardness on Balance Control During Gait
5. *P. Berkes:* Biomechanical Analysis of The Running Stride and The Structure of The Running Shoes
6. *T. Szabadszállási:* Geometrical Modeling Of Running Stride And Results OfVerification Process

Coffee Break

7. *J. L Bruyn, S. D. Perry, P. J. Bryden:* The Effect of Lateral Preference on Gait Symmetry
8. *Cs. Fazekas:* Simulation and Control of Well-Coordinated Motion of Multisegmental Limb
9. *T. Paweł:* Muscle Torques of Forearm Rotators in Squash Players
10. *L. Révész:* Biomechanical Analysis of the Two Kinds of Swimming Starts
11. *K. Węglarz:* Effect Of Angular Position of the Forearm on the Rotator Muscle Force

EXERCISE PHYSIOLOGY SECTION
Saturday: 9:00 a.m.

1. *A. Espenlaub, Nelson Ng, P. Pierce, W. Ryan, and J. Anning:* Prediction of Maximal Oxygen Consumption from Submaximal Exercise
2. *H. Németh:* Spiroergometric and Echocardiographic Results in Female Runners
3. *M. Elena:* Work Capacity of The Basketball Players (Girls) 13 –14 Years Old Taking to Account Their Biological Intelligent
4. *J. Laki:* The Effect of Acute Exercise on Blood-Plasma and Urine Inorganic Phosphate Levels in Elite Athletes
5. *E. Najemnikova, M. Locke:* Effects of Strenuous Exercise on the Accumulation Of HSP72 in Rat Blood Plasma
6. *L. Daniusevičiūtė:* Massage Effect on The Students Predisposed to High or Low Blood Pressure
7. *M. Paisi:* Comparison of Relative Body Fat Content Estimates in Young Adult Females

Coffee Break

8. *N. Šarabon, V. Strojnik, B. Koren:* Neuro-Mechanical Alterations in Muscle as a Result of Delayed Onset of Muscle Soreness
9. *J. Leschied:* The Effects of Estrogen on Muscle Performance
10. *N. Kovács:* Jumping Athletes' Charasterics on Bone Density
11. *D. Mimidis:* The Physique and Physiological Characteristics of Cystic Fibrosis Children
12. *F. Portugal:* Comparing the Fitness Level of The Hungarian and Portugal Young Adults (20-22) Based on The Antropometric Charasteristics and Motor Performance
13. *M. Georgiou:* Physique, Body Composition And Motor Performances in Cypriot and Hungarian School-Boys Aged Between 10 and 13 Years of Age

TRAINING AND TEACHING METHODS
Ph.D. SECTION
Saturday: 9:00 a.m.

1. *J. Egressy:* Coach and Student Relationship in Swimming (Historical Review)
2. *M. Bíró:* An Observational System for Interaction and Its Implications for the Teaching of Swimming
3. *M. Salvara, J. Farkas:* Investigating Teaching Strategies Application in Greece and Hungary
4. *Cs. Ökrös:* The Analysis of Occuring Technics in Team-Handball
5. *N. Parthymos:* Introduction to the Basketball Training Program

Coffee Break

6. *Sz. Gita:* Research on Shooting Accuracy with Competitive and Handicapped Basketball Players

7. *Sz. Török, I.A. Tóth:* Therapeutic Recreation Introduction of a Special Summer Camp Program for Children with Cancer in Hungary
8. *K. Á. Vona:* An Essay on the Development of Didactic Multimedia from on its Onset to Dates
9. *B. Fügedi:* Investigation of the Influence of Learning Process for Success by Choreographed Movementseries
10. *Zsuzsanna Sáringer Szilárd:* From Task Definition to Movement Execution (A Glimpse Into the Initial Phase of Movement Learning)
11. *G. Bicsérdy:* Age and Choosing of Sports

LAB AND TRACK MEASUREMENTS OF KAYAK RACERS

Zsófia Kispéter
Semmelweis University (TF) Budapest, Hungary

Nowadays competitive sport is becoming some kind of war to be the best. There are two major factors that play important role in it: genetics and training. Through genetics we got the ability to produce energy, but to perform our best we have to maximize or to learn how to control energy production and use it as well as we can through training.
The energy production can be identified by the aerobics and the anaerobics compononents which datas are giving useful information on physiology and training.
In our research we examined 15 elite kayakers (aged between 13-14). We were curious about the relationship of the changes of the lactate levels given on vita maxima exercise and the aerobics components because earlier examinations showed that the performance has been influenced significantly by the aerobic components. Because of the lactate level measured after exercise has no correlation with the resting values and the same result was observed in the field test (2000m kayaking).

Supervisor: Dr. Tamás Szabó

THE EXAMINATION OF COGNITIVE FUNCTIONS OF PASSIVE, REGULARLY TRANINING AND OVERTRAINING RATS

Ágnes Molnár Ágnes, Réka Ipacs
Semmelweis University (TF) Budapest, Hungary

The experiment presented at the conference constitutes the first part of long-term research. In the course of this experiment we examined what influence trainings of different intensity exert upon the cognitive functions and the memory of rats: In the long run the major aim is to find out whether there exists a protein the quantitative
alternations of which affect brain mechanisms and if this proves to be the case, to be the case, to what extent the changes improve or damage cognitive functions.
The hypothesis of the short-term experiment was that both physical and physical efficiency would be positively influenced by regular exercise but would be adversly
affected by excessive training.Arrangements of the experiment
To examine the effects listed above, 12-week-old male rats were subjected to swimming training.Initial date of training:7th February,2001.
4 group were formed:
1.control group: its members did not swim
2.a group subjected to regular training: 5x60 minutes swimming per week for 6 weeks.
3.an overtrained group: 5x60 minutes swimming per week for 5 weeks 6^{th} week minimum 5x180 minutes swimming during the 6^{th} week 7th week extra swimming hours at the weekend
4.a group subjected to gradually increasing training requirement:
1th week: 5x60 minutes swimming
2th week: 5x90 minutes swimming
3th week: 5x120 minutes swimming
4th week: 5x150 minutes swimming
5th week: 5x180 minutes swimming

6th week: 5x210 minutes swimming
Behaviour Tests
1.Open-field, behaviour test (21st March)
2.Black boksz, test onpassive averting conduct to examine the capacity of emory (23rd-24th-25th March)
3. Examination of motoric functions, balance (27th-28th-29th March)
Results, Conclusion
The results of the tests verified the hypothesis of the short-term experiment. Therefore, our conclusion is that it is suggested to continue research using biochemical methods to investigate into the exact nature of molecular processes.

Supervisor: Dr. Zsolt Radák
Consulent: Helga Ogonovszky

DEFINITION OF ZONES OF TRAINING INTENSITY WITH INVESTIGATION OF ANAEROBIC THRESHOLD

Ádám Bekényi – BálintKomondi
Semmelweis University (TF) Budapest, Hungary

The presentation is about the control and training methods needed for planning the trainings of middle and long distance runners. The results of Conconi test were based on continuous running accelerated by 2 seconds at every 200 metres.
1000 metre running was also measured and was gradually accelerating. In the last 200 metres, the subjects had to strive for their maximum speed. The purpose of the present paper is to make suggestions and recommendations for training methods with which the planning of the training of middle and long distance runners may become more precise.
Method: Conconi test
Sample population: Hungarian elite middle and long distance runners

Supervisor: Sándor Molnár

EFFECT OF FEED BACK INFORMATION IN POWER TRAINING

N. Šarabon, V. Strojnik
Faculty of Sport, Ljubljana, Slovenia

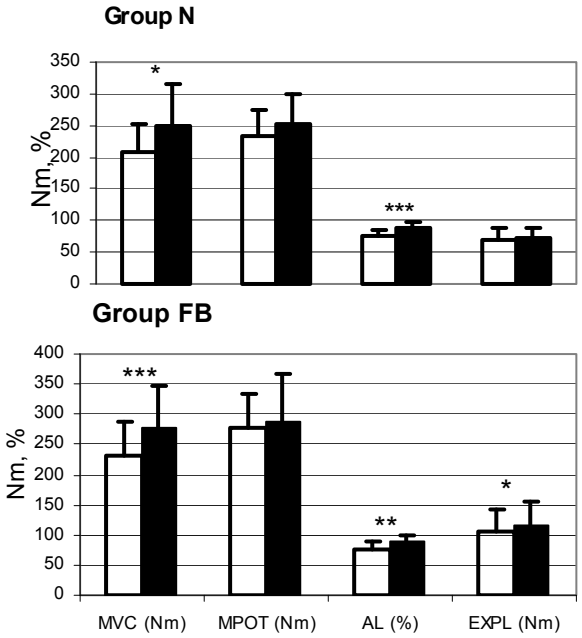


Figure 1: Means and standard deviations of the observed parameters in the standard training group (a) and in the feed-back group (b). *-P<0.05, **-P<0.01, ***-P<0.001 (pre-/post-training test).

Introduction**:** Explosive force, as a base of different technical actions in various sportive modalities, is a determinant factor in many sports performances (Reilly, 1990). Difficulties in attaining improvements in the rate of force development by training (Clutch, 1983, Bauer, 1990, Mazzetti, 2000) led us to this study. One of the reasons for this difficulty may be a missing feedback information about task execution: was it really explosive. The primary

purpose of this investigation was to compare the changes in mechanical parameters of ballistic contraction after the power training that provided feedback information about the exercise execution and unsupervised power training.
Methods and Materials: Eighteen students of physical education (age: 20,1±0,8 years) not involved in any regular sport activity took part in the experiment. They all gave their full informed consent. Subjects were randomly divided into two groups of equal size (Group N= without any special supervision; Group FB=feedback about knee angular velocity was provided). They trained seven weeks, 3 sessions per week. Training program was equal for both groups including knee-extensions. Load increased gradually during the first four weeks (slow speed of contraction) and then performed explosively for the last 3 weeks. Explosive actions were performed in accordance with preparation-execution pattern that is needed for the proper neuromuscular activation pattern (Schlumberger et al, 1999, Zehr & Sale, 1994). Pre- and post-training measurements included maximal voluntary knee-extension torque reached gradually (MVC), mean torque in the initial 100ms interval during the explosive knee extension (EXPL), maximal muscle potential defined as maximal isometric knee torque (MPOT) during superimposed electrical stimulation over MVC, and muscle activation level (AL) calculated as AL= MVC/MPOT*100. Differences between pre- and post- training measurements were tested using t-test for paired samples (at alpha error=5%, two tailed). In addition, ANCOVA was employed in order to test inter-group differences.
Results**:** Results are presented in Figure 1. Significant pre-post changes in MVC and AL were observed in both groups, in EXPL only in FB group while changes in MPOT were not significant in any group. ANCOVA showed statistically significant differences between groups only in EXPL, indicating significantly greater improvement in FB group.
Discussion: Our data indicated that only power training with the on-line feed-back information elicited significantly greater adaptations in muscles ability for maximal rate of force development. Based on these results, we suggest including a feedback information as an integral component to power training in highly motivated and moderately trained subjects to elicit optimal power performance adaptations. Presented power training had no significant effect on muscle hypertrophy.

THE CHARACTERISTICS OF ADAPTATION TO TRAINING - OVERTRAINIG –

Róbert Szabó, Richárd Kováts
Semmelweis University (TF) Budapest, Hungary

Introduction: The primary purpose of training is to increase performance and to time the record setting to the appropriate moment. The optimal quantity of the high-intensity loading is a disputed question nowadays. Athletes tend to submit themselves to overloading, which with neglected rest causes the condition called overtrainig syndrome (OTS). Despite of the high-intensity, regular trainings the achievement decreases and it is accompanied with weakness, bad mood and sensitivity of the Upper Respiratory Tract- (URTI) and other infections. The changes of the neuro-endocrine and immune system can be detected with laboratory tests. The development of the appearance of the overtraining syndrome can be explained with several theories. According to some authors the OTS agreed with the third stage of Selye's stress reaction. The purpose of this examination is to prove the training is a stressor. With this experimental we would like to create the background of later examinations, where we would study the role of the immune system in overtraining.
Subjects and methods: In the experiment 28 Wistar rats took part in four groups during seven weeks who were exposed to different loading.

1st group: intact control
2nd group: swam 1 hour for 7 weeks, 5 occasions per week
3rd group: swam 1 hour for 5 weeks, on the 6th week they swam 3.5 hours, 5 occasions per week and on the 7th week they swam 3.5 hours every day.
4th group: in the 1st week they swam 1 hour then every week they swam half an hour more. In the 6th and in the 7th week they swam 3.5 hours, 5 occasions per week. We measured the animals' body weight, the weight of their adrenal and their thymus and ACTH- and corticosterone-level. Data were analysed with one-way ANOVA by 'Statistica for Windows' program.
Result: After the experiment we found significant difference in the body weights, in the weights of adrenal and in the ACTH-level. We found decreasing tendency in the weights of thymus and in the corticosterone-levels compared to the control group but there were no significant differences. The level of the significance was determinated in 5%.
Conclusion: The long-term exercise stressor affect became certain. We could find the symptoms of the general adaptation syndrome in the experimental animals' bowels, which assumes the link between the overtraining and the third stage of Selye's stress reaction. Experimentally, controlled external factors in the rats' organism can cause the OTS.

Supervisor: Dr. Zsolt Radák

HOW AMATEUR HUNGARIAN LONG DISTANCE RUNNERS PREPARE FOR MARATHON

Bálint Komondi
Semmelweis University (TF) Budapest, Hungary

Aim: gathering of information about life style, number and amount of workouts, training methods, beverage and food consumption during the race.
Method: questionnaire and interviews
Sample population: 151 persons (25 female, 126 male)
Time of survey:
Kaiser's Plus Budapest Marathon, 30 September 2001, (78 persons)
Vienna-Budapest Ultramarathon, 19-23 October 2001, (73 persons)
Findings: The majority of the people asked is highly educated, living in Budapest or in other large Hungarian towns. 57.4 percent of the males is between the age of 20 and 34. 60 percent of the females is between 20 and 29.
Almost 90 percent of the subjects has at least 3 workouts a week. Nearly 10 percent has 8 workouts or more a week; this number is almost equivalent to the registered runners.
45 percent gave no data about the distance run in the previous year, and only 17 percent could give it precisely. Maybe it is because only 54.2 percent of the people keep a training record.
The shortest training distance of the majority (63.8 percent) is between 5 and 10 kilometres a week. Almost 80 percent of the subjects has at least one 20 kilometre long training every week.
We also examined the training methods known and used by them. The most widely used method is continuous running. Almost 40 percent of them was not able to answer the question.
Only 43 percent measure pulse regularly. Their pulse was examined at rest, at maximum intensity and during marathon.
During the race the majority consume isotonic drinks and water, grape sugar and fruits to refresh themselves, probably because the organizers of the running events provide these to them.

The purpose of this investigation is to collect and analyse data, and offer suggestions and recommendations to Hungarian leisure time runners, make the Hungarian running movement more popular and effective in order to assist the population to maintain a healthier lifestyle.

Supervisors: Sándor Molnár, Katalin Keresztesi, János Gombocz (Semmelweis University)

MULTIMEDIA OPPORTUNITIES IN AEROBICS

Ágnes Kovács
University of Nyíregyháza, Hungary

The educational aerobics programme, written in Microsoft PowerPoint XP helps those who have a desire for doing aerobics, both for beginners and advanced students. Those who wish to learn and teach can get acquainted with the three subdivisions of aerobics, like fitness aerobics, step aerobics and fitball aerobics.
The programme, with English and Hungarian versions, beyond the historical summary, helps to initiate into the anatomical background. Not just the equipment is specially mentioned, but for what we should pay attention during carrying out the exercises. The moving pictures help the acquire of the basic steps of fitness, steps and fittball aerobics.
There is a specialist language description for the trainers and the music chosen for the particular parts, makes the planning of the aerobics lessons easier.
Key words: education, multimedia, aerobics, programme

Supervisor:Ágnes Kokovay Vona (College docent)

INTENSIVE TRAINING AND SPORTS IN YOUNG ATHLETES

Marina Petrou
Semmelweis University (TF) Budapest, Hungary

Organized sport for children has been on the increase in most countries in recent years. Organized sport has been regarded as an environment for positive growth and socialization for children. Specialization at young age can deny your child the benefits of learning many skills specialized training can also present additional physiological and psychological demands on the children that may have undesirable effect on them. Children must be encouraged to participate in sports at the level that meets their interests and abilities and that they are not pushed beyond their limits.
The purpose of my search is to find out the objective good and bad outcomes of intensive training and sport specialization of young athletes. I have collected data for these study from the internet by I am going to perform a search with questionnaires among a group of 20 (male and female) people that started gymnastics at early age.

Superovisor: József Bognár, Ph.D.

PRACTICE EXERCISES WITH BALL FOR OVERWEIGHT CHILDREN

Balázs Karácsony
Student of West-Hungarian University, Gyõr, Hungary

The overweight is a big problem nowdays because recent statistics show that 30% children have overweight problem. So as P.E. teachers we must think in some suitable strategies to fight back this problem, these exercises with ball during 30 min. have positive effects in these children because aerobic exercise converts energy, then helps decreasing and reducing fat mass percentage.
The exercise with ball must have a game component because we are working with children, and this kind of game exercises with ball play a big role in the development of good health habits. We can measure the cardiac frequency with the polar heart rate monitor and at the same time with suitable video material we can see the different pulse rate values during the execution of the exercises.

Supervisor: Tibor Király

EXAMINATIONS OF THE MOTOR CO-ORDINATIONS IN THE KINDERGARTEN AGE

Judit Nagy – Erika Sárközi
Tessedik Sámuel College, Szarvas, Hungary

The objective of the study is to demonstrate that developing abilities that can be realised in the framework of teaching or acquiring motion skills has a great impact on the perfect acquisition of the motion forms in later ages. Furthermore that the pre-phases of the development of the motor abilities can be detected even in the kindergarten age (3-7 years). This age is especially sensitive to practicing and acquiring motion forms in the shape of games. By taking account of and analysing the major anatomy figures and relevant co-ordination ability level of the 1,700 children participating in the examination we can come to conclusions on the directions of motion development and the rate of loadability. Taking into consideration of all the above, we recommend the followings in pursuit of conscious planning of the motion development:

- taking note more and more of the relation of the visual perceptual ability and the motion learning;
- developing motion abilities related to basic motions;
- the diverse rhythm of the development of abilities dependent on the individual
- specific features of kindergarten learning.

The result of the performed examination can be exploited in the conscious planning of the effective motion teaching in the various organisational frameworks of motion activities.

Supervisors: Gaál Sándorné (College docent), Dr. Bencze Sándorné (College adjunct)

AQUAFITNESS IN HUNGARY

Peter Pribelyi
Eötvös Lóránt University, Budapest, Hungary

Aquafitness as most of their fitness styles have been developed in the USA. First came the ground fitness and aerobics, though we know the benefits of the underwater exercises since ages. For a long time, the only water workout was swimming, but in the last few decades aerobics instructors are gradually discovering water.
Aquafitness was used to be just a physical therapy, helping the injured athletes in their recovery. This workout-plan was so beneficial, that athletes started to use it as part of their everyday training. Years passed by until the aquafitness broke out from the confines of rehabilitation and physical therapy and became available for healthy people too. In the U.S. a bunch of people joined fitness clubs, but after a couple trainings, they are not able to workout on ground, because they began to suffer from knee and spinal problems.
Fitness also needed too much efforts from people of older ages, and overweight individuals joints injured very often during on-ground workout. Since these people need to train as well, new exercises were invented in the swimming-pools, adapting the medical aquafitness, but this time for the public.
Aquafitness began to grow in America and became very popular. In Europe, it appeared in the 90's, reaching. Hungary in the last few years.

SNAPSHOTS FROM THE HEALTH

Júlia Bõsze:
Semmelweis University (TF) Budapest, Hungary

Are we healthy just until we are able to adapt in the whole - physical, mental and communal - meaning of the word?
„To be healthy" means different things and thoughts for different people. Numerous researches explore that the state of function ability of the body significantly influences people „to live through" the health. Consequently the body is one of the stressed major points.
My previous researches warrant the inference that the body image and the self - image of students who do often physical exercises or some sports are significantly different than those who are not active in some sports.
The subjects of this research were students of teacher training college (N = 280) because I supposed that P.E. students - in the consequence of doing more sports - will more often mention such definitions as the most important in their health which are in close connection with the body or with function ability of the body.
However, in these days people have not the aim to live longer life with the protection of the health but to develop the quality of living.
According to a late research, nearly 80 percent of Germans said that the guideline of their life is reaching happiness. So, one of my aims was to determine how big part of the students choose the definition „to be happy most part of the time" as one of the most important factors of the health.
If we see and examine the healthy life there are factors that helps it and some that does not. Two factors were examined: the attitudes towards the physical exercises on the positive side and the smoking habits on the negative side.

A questionnaire was used in the research which is in close connection with the health from of Health Promotion – Practical Guide by L. Ewles and I. Simnet.
The smoking habits and attitudes towards physical exercises was examined with a questionnaire made by R. Schwarzer and his colleagues.

EXAMINATION OF LIFE STYLE AMONG PHYSICAL EDUCATION TEACHERS-TO-BE

Andrea Demeter- Barbara Vízhányó
Péter Pázmány University Pécs, Hungary

During our studies, we hear it several times that physical education can not be equaled with any other subjects. In the sense of contributing personal development it is similar to the others, still it differs for physical education is an indispensable factor in hygiene education and life-style information.
We accept the above mentioned statement, though we would like to supplement it with our personal experience, i.e. the essence of teaching P.E. successfully depence on the teacher himself. It is absolutely important to make the suitable teacher and the manifolded and vividly complete subject, that is physical education, meet.
This idea made us inquire among P.E. teachers-to-be at our University who are to teach this life-style formative subject later on.

- What is their life-style like?
- What are their dominant free-time activities?
- What do they do deliberately for their health?
- What is the case with forbidden drugs?

Such questions are is the centre of our interest and through these questions we are searching for the answer whether and how the recent attitude of P.E. teacher students' matches with their further teacher role.
In the autumn 2001, we have started the examination among 70 first-year P.E. teacher students so as to collect and analyse the most important elements of their life-style, and we would like to continue it per annum to follow the changes in their attitude and behaviour.
Epilogue
The authors are similar in the sense that they are going to be English teachers, not to mention the fact that health and healthy life-style play important roles in their lives. However, one of them is going to be a physical education teacher, as well, and she would like to be suitable for the requirements of her further profession.

Supervisor: Erzsébet Rétsági

EXERCISE ADHERENCE

Anita Gardner
Wilfrid Laurier University, Waterloo, Ontario

Research over the past twenty years has examined a number of factors associated with exercise adherence, and yet in spite of these efforts, the drop-out rate from exercise programs continues to hover in the 50 per cent range (Dishman, 2000). While many different factors have been examined in isolation regarding the exercise adherence issue, there has been little if

any attempt to examine these factors in combination such that the relative strengths of each might be assessed. The purpose of the current study is to combine a number of these previously examined factors in a model, which will measure their explanatory power regarding exercise adherence among young women. Participants are 78 undergraduate students who registered for the group fitness program offered by the Recreation Department at Wilfrid Laurier University. A questionnaire was administered prior to commencement of the group fitness program and another eight weeks later. In addition to the quantitative analysis from the data gathered at two points in time, personal interviews have been conducted with a sub-sample of fifteen. The analysis provides an evaluation of the explanatory power of a variety of previously identified factors in accounting for exercise adherence, as well as the subjective comments of a small sub-sample.

A QUALITATIVE APPROACH TO DEFINE THE NEED FOR LEISURE PROFESSIONALS IN THE HUNGARIAN SOCIETY

Gyöngyver Lacza
Wageningen University and Research Center, The Netherlands

The purpose of this investigation was to define and specify the demand for leisure professionals in Hungary. Institutional Leisure Studies started 12 years ago in Budapest with a faculty at the Physical Education Department at the teacher Training College of Eotvos Lorand University. It is important to point out that we cannot just take the example of the leisure education model of another, more developed, country due to historical, economical, cultural and social differences. Special needs of the country must be taken into account and examined in depth during the development of the leisure curriculum.
This study aimed to investigate the specific need for professionals in various fields of leisure activities. First, particular fields of leisure and recreation were defined by an extensive review of the international literature, such as Resort recreation, Therapeutic recreation, Public recreation, Company recreation Commercial recreation and Municipal recreation. Second, qualitative research was conducted through in-depth interviews with 20 key persons from all examined fields. Snowball method was used in the selection process of interweaves. The interviews focused on defining the different skills and knowledge leisure professionals need to meet the demand of certain areas. Most interviewee agreed on that there is a growing need for leisure professionals in Hungary. Many similarities were found between different fields. More precisely, on the fields of Resort and Therapeutic recreation knowledge of tourism, animation and working with groups were dominant requirements. All respondents put stress on knowledge of at least one foreign language. Surprisingly, in the Public recreation field personality features were mentioned at the first place. It is necessary for professionals programming for children, elderly or people with special needs to have deep knowledge of psychology, pedagogy and sociology. On the organizational side management skills have great importance. Further more practical experience was strongly supported. In summary one can say that professionals need a basic, common knowledge of leisure and recreation theories and of main strategies, beside certain specific knowledge is required on different areas. These findings may serve as a comparative resource tool for developing a new leisure curriculum on the higher education level.

Supervisors: Dr. T. J. Kamphorst, Dr. J. W. te Kloeze

WHAT IS THE CONCEPTUALIZATION OF BEING HEALTHY, A COMPARATIVE STUDY BETWEEN HUNGARIAN STUDENTS AND FOREIGN STUDENTS STUDYING IN THE NETHERLANDS

Julia Bosze, Gyongyver Lacza,
Semmelweis University (TF) Budapest, Hungary
Wageningen University and Research Center, TheNetherlands

People have very different conceptualization of Health. For some it means simply not suffering from illness. Others say it's much more, it is related to the concept of being fit or experiencing harmony. In general we can say that beside personality features one's opinion is strongly influenced by cultural and social environment as well.
The purpose of this study is to examine if Hungarian and foreign students have different conceptualization of Health. What are the most significant factors effecting their notion of being healthy. Does background have a tangible influence on students'opinion.
The study based on the book Egeszsegfejlesztes, Gyakorlati kezikonyv by L. Ewles and I. Simmet. Quantitative research was conducted through using multiple –choice questionnaires by Ewles and Simmet. The questionnaire contents 18 factors about the notion of being healthy and the respondents were supposed to choose the six most valuable statements from their point of view and put them into order according to their importance. The sample more specifically was taken from Hungarian students of the Teacher Training College of Eotvos Lorand University and Dutch and International Students from the Wageningen University in The Netherlands.
In terms of results, most interviewee agreed on both physical and mental health belongs to the concept of health. There were many similarities but as well differences between the conceptualization of foreign and Hungarian students. The outcome of the study is valuable to health educators, Physical Education teachers to have a better understanding of youth culture and their motives towards health and physical activity.

AN EXAMINATION OF HEALTH DETERMINANTS AMONG ELDERLY WOMEN: HEALTH BEHAVIOURS, SCREENING PRACTICES AND SCREENING KNOWLEDGE

Christina Godin
Wilfrid Laurier University, Waterloo, Ontario,Canada

The number one risk factor for developing breast cancer is advancing age. In fact, approximately 70% of breast cancer deaths occur in women 60 years of age and older. In spite of this, research demonstrates that elderly women are less likely to undergo mammography and only 54% of women aged 75 and over perform regular Breast Self Exams (BSE). With the aging Canadian population, this issue will become more significant. The purpose of this study was to examine the issues surrounding breast health among older women within Ontario, Canada. Participants (n=30) in this study include women, 60 years of age and older, who reside in retirement homes and communities. A questionnaire was utilized to assess individual health status and knowledge level. Based on the results of the questionnaire a series of interview questions were developed. A sub-sample of women were recruited to participate in the personal interviews, providing additional information about the origins and limitations of their breast health knowledge. Qualitative and quantitative analyses were employed to evaluate the data. The results of this study are consistent with previous

research findings. Only 20% of the women sampled reported regular monthly BSE and over 60% said that they have never had a mammogram or have not had one in the past five years. In addition, 67% of the women in this study scored 50% or lower on the knowledge portion of the questionnaire. These results suggest a link between breast screening adherence and lack of awareness about breast health among older Canadian women.

ALCOHOL AND UNIVERSITY STUDENTS: ATTITUDES AND PRACTICES

Kate Skinner
Wilfrid Laurier University, Waterloo, Ontario

Alcohol use patterns in the university population have been the focus of many studies in recent years. The proportion of current drinkers is highest between the ages of 20 and 24 years of age. Some of the reasons for alcohol consumptions that have been cited in the past by university students include because they like the taste, to meet new people, to escape reality, to cope with unpleasant moods and/or situations, and to improve self perception. An area of research that is lacking is the investigation into the differences between those students hailing from urban areas versus those hailing from rural areas. One study found that alcohol use was more prevalent among rural youth and that rural youth began drinking earlier. A 40 item questionnaire was distributed to Kinesiology students at Wilfrid Laurier University in South Western Ontario. The questionnaire included questions regarding alcohol related practices and knowledge, overall health practices and socio-demographic variables. Approximately 350 questionnaires were completed and analyzed. Differences between urban and rural students will be investigated and implications discussed.

SOCIAL PERSEPTION OF PEOPLE WITH SPECIAL NEEDS

Silvana Gerassimon
Semmelweis University (TF) Budapest, Hungary

Throughout this paper, the term „Social Perception of People with Special Needs", is used to describe the real situations in our lives concerning those disabled who need our help, and a human touch from us. Unfortunately this is the reality. Even if we want to close our eyes and imagine something nice, the truth is like this and can not be easily change.
This paper has not just a scientific aim, but also a human aim, which is to promote a better understanding of the situation of people with disabilities and to diminish their isolation and stigmatization. It is studied how the people in our society face people with special needs, what are the changes that the society gives to the disabled to understand the meaning of what real life is, and not being shout out or isolated of it. The major elements affecting their mental and physical abilities are also discussed.
The author states that inspite of the changes in the last century when many areas of society have been developed, there are still some fields of social life, which have not received the necessary attention. Disabled people should be given equal chances and equal treatment to have a good quality of life. There are still many things that the disabled know better and that is what we have to learn. To love and to be loved.
In order to fulfill those aims an empirical investigation was carried among the physiotherapists of the selected institutes and among the students of Physical Education and Human Kinesiology of Semmelweis University. Data were collected by questionnaires and

observations into the institutes. The results embrace a comparison between students major in Physical Education and Human Kinesiology.
Summarizing the major results the author makes some recommendations about the training of pe and hk.

Supervisor: Dr. Gyöngyi Szabó Földesi

MOVEMENT RESTRICTIONS AND SPORTS OF DISABLED PEOPLE BASED ON A SURVEY OF SITTING VOLLEYBALL

Katalin Kälbli
Semmelweis University (TF) Budapest, Hungary

Sports can have different roles in life. It can be a hobby, a means of health or an aid for losing weight. But this notion can mean much more for our handicapped companions: an opportunity for rehabilitation or even an aim of their life. Sedative lifestyle is not necessarily the result of disability. Competitive spirit, the desire for doing sports and the wish of being part of a team is a natural thing for disable people as well. Why should they be deprived of all these things?
This paper would like to present the sitting volleyball for those interested. The mainstream of this demonstration is a questionnaire of 10 items, the answers of which were received from the members of four teams. The analysis demonstrate the typical movement restrictions and the relations of the disabled to sports. At the same time the answers reflect the present day situation of this sport activity.

Supervisor: Prof. Dr. Endre Rigler

COMPARISON OF CYPRIOT AND HUNGARIAN CHILDREN WITH SPECIAL NEEDS AND MOTOR DEVELOPMENT PROBLEMS

Margarita Flouri
Semmelweis University (TF) Budapest, Hungary

There have always been people with disability all over the world, but after the scientific technical revolution, it was hoped that their number would decrease. Unfortunately it did not happened, partly because of the change in transport, that is the occurrence of accidence by cars, by planes, etc, increase and partly because both 1st and 2nd world wars and local wars caused disability to many people. It is supposed that in the eastern European region in last 15 years the nuclear catastrophe in Chemobyl produced tragically consequences in this respects, namely much more babies were born with disabilities (without legs, hands or additional mental problems) than earlier. The major aim of this paper is to study in which degree the health of these children with disabilities is promoted from a complex aspect that is from a social psychological and physical aspect. It means, on the one hand, that I want to study the kind of disabilities that the children suffer from. On the other hand, I attempt at studying, what is the relationship between the children with special needs and staff members, family members and I try to find out their level of integration in the institute and in the society. The paper on an investigation carried out among the children with special problems and children with motor development. Cypriot and Hungarian samples were selected. The method of data collection is Questionnaires, depth interviews and case of study. The results have revealed

some similarities and differences concerning the Disable children's, feelings, motivations as well as attitude and behavior of parents, the medical and society toward them. In conclusion some recommendations are formulated related to the improvement of the disable children's situation.

Supervisor: Prof. Dr. Gyöngyi Szabó Földesi

VISUAL AND KINESTHETIC IMAGERY IN STUDENTS OF KENDO

Marios Kyriakides
Semmelweis University (TF) Budapest, Hungary

Importance of imagery: Imagery is an ability which we all experience but we really know just few thinks about it. When we imagine the sport movement for e.g. before the sport we can reach a higher level or arousal and the same time our muscles are getting prepare for the sport movement. There is evidence that imagery used together with physical activity can show higher results on the athletes.
Purpose of research: My aim is to asses individual differences in visual and kinesthetic imagery of movements and to find out its effects on the athletes in visually and kinesthetically. A pilot study on this field (Seung Hwan Lee, 2000) shows that there are no real differences of movement imagery levels between male and female athletes.
Hypothesis:

1. I believe that the practice can help the amateur athletes to improve their ability to imagine movements visually and kinesthetically.
2. I hypotise that there will be differences in the pre and posttest. The performance in the posttest should be higher.

Methods: A movement imagery questionnaire was used. This questionnaire consists of four special kendo exercises. It tries to access differences between movement imagery and kinesthetic feeling. There is a pre and post application of the same questionnaire.
Subjects: I test seventeen university students of kendo class. Three males and fourteen females. They done exercise 8 weeks long together 16 hours.
Valuation methods: After the gathering of data the point values were count by mathematics statistic methods. I attend to apply a description analysis, Student-test establishing differences between the pre and posttests. Also see if there is correlation between the visual imagery and kinesthetic feeling.
Results: The mean scores of first test were: visual imagery: 16.35 points, kinesthetic feeling: 17.29 points. The mean scores of the second test were: visual imagery 20.52
Kinesthetic feeling: 19.76. The minimum values for the first test were: visual 9.00 and kinesthetic 12.00. The maximum values for the first test were: visual 22.00 and kinesthetic 23.00. The minimum values for the second test were: visual 14.00 and kinesthetic 13.00. The maximum values for the second test were: visual 25.00 and kinesthetic 24.00. when applying T-test for dependent variable the difference were 4.39 between first and second visual which mean that there the P level is < .0012. Between first and second kinesthetic feeling the difference were 3.82 which mean that the P level is <.01. The results document the effect of exercises with other wise imagery can develop during the training significantly.

Supervisor: Dr. Csaba Nagykáldi

PSYCHOMOTOR STATE ESTIMATION OF 10 YEARS OLD SOCCER PLAYERS

István Kun
Semmelweis University (TF) Budapest, Hungary

The aim of my PhD work is to create a selection system in soccer. The main thing in my system is to separate those children who are able to develop faster in respect of some important ability. I am looking for such abilities and measuring instruments which can indicate the faster development in soccer.
In the present pilot study I examine some psychomotoric ability (visual recognition, balancing, space viewing, reaction time, kinaesthetic sense, rhythmic sense) in case of nine years old soccer player, because in now days soccer the proper and fast situation recognition and decision is very important.
The nine years age is most sensitive phase for acquiring soccer techniques. In this phase appear the first signals of team-work which is limited by technical skill level.
In a soccer match the player has to pay attention to the events of the field during the execution of a technical stunt. To do it well the player needs abilities which allows him to detect and recognise and react appropriately and in tempo the slight signals which are slightly different from the background. These are examined with the Signal-Detection and reaction time measuring module of Wiener Testsystem, Fleishman test, Stabilometer, Kinaesthetic test, Rhythmic test, and a special soccer exercise to estimate the chancing from preoperatory thought to concrete operatory thought.
I hypothesised that children who have made the well, will have good performance in the special soccer test too. 20 children are involved in the experiment. The psychomotoric ability are taken in the laboratory of TF. The special soccer exercise are made on the field of TF. The soccer test was constructed on the basis of my coach experiences.

Supervisor: Dr. Molnár Péter

ASSESSMENT OF EARLY MOTOR LEARNING IN CASE OF 11-13 YEARS OLD NOVICE FENCERS

Mátyás Varga, Zoltán Vass, Péter Molnár
Semmelweis University (TF) Budapest, Hungary

The aim of the present study is to measure the psychomotoric changes of fencing technique execution during the first two month of motor learning.
We measure the kinematical parameters to estimate one aspect of coordination, and the simple and choice reaction time to assess the duration of information processing.
It was hypothesized that the movement stability will be low, so the kinematical parameters of the several executions of the same technique will differ. It means that the variability of movements will be high. These data will be compared with 2 coach's subjective opinion.
The other hypothesis of the study is - on the basis of Henry, F.M., and Rogers, D.E. (1960) and Klapp S.T.(1995) - that the simple reaction time of the techniques will be higher than that of a simple finger tapping.
It is because the fencing technique "program" consists of more chunks at the beginning of the learning process, and the scanning of the first chunk takes place in the reaction time.

The choice reaction time will be also higher, because the inner chunk complexity is high and the programming of this complex timing system takes place in the reaction time. But there is no first chunk scanning here, because there is no preprogramming so the programming begins after the stimulus with the first chunk (Klapp (1995)).
We measure 8 11-13 years old novice fencers. The reaction time is assessed with frame counting method on video. The kinematic parameters are gained from the video records (two video cameras for the techniques and one for the finger tapping) with the help of APAS.
We make these records every third week so they have five training between the experiments. Three techniques will be recorded: one simple arm technique, one complex arm technique, and one more complex leg and arm technique. All of these will be executed 24 times per experiment just like the simple finger tapping movement.
Henry, F.M. and Rogers D.E. (1960): Increased response latency for complicated movements and a "memory drum" theory of neuromotor reaction. Research Quarterly, 31, 448-458.
Klapp, S.T. (1995):. Motor response programming during simple reaction time: The role of practice. Journal of Experimental Psychology: Human Perception and Performance, 21, 1015-1027.

Supervisor: Dr. Péter Molnár

QUANTITATIVE CHARACTERISATION OF MOTOR CONTROL AND MOVEMENT PERFORMANCE

Zoltán Kerestényi
Semmelweis University (TF) Budapest, Hungary

The structure of motor variability during a motor task was investigated using computational methods. The question is, how the control, the performance and the reproducibility of human movements can be characterized quantitatively.
Healthy people and patients with movement disorders were asked to perform simple movements using the mouse of a personal computer. Geometrical figures, circles, triangles and rectangles were presented on a computer screen and the subjects were asked to draw the same figures on the screen by moving the mouse. The coordinates of the moving cursor on the screen were recorded and saved for further analysis. The subjects repeated the movements 10 times and the variances of the 10 trajectories were computed for each subject.
In this work the data of a parkinsonian patient and the data of a healthy control subject are presented and compared. Namely, the variance of the trajectories and the deviation from the drawn figures from the required ones are computed. The parkinsonian draw the geometrical figures with a higher variance and with higher error. This way we can obtain an objective view from the state of illness. The elaborated method provides a modern tool for quantitative characterization of movement performance and this may help the early diagnosis and the classification of movement disorders, and to evaluate and follow up rehabilitation processes.
This work has been supported by a grant from the Hungarian Research Fund (no. 34548) and an NKFP grant (No 2/052/2001).

Supervisor: Dr. József Laczkó

MOTOR SKILL ACQUISITION: SPECIFICITY OR GENERAL RULE LEARNING?

Zoltán Vass, Mátyás Varga

Semmelweis University (TF) Budapest, Hungary

In the last decade numerous motor learning and motor control theory existed all over the world. According to these motor learning is a process of general rule learning. Our opinion is motor learning at the highest (professional) level is more specific then general learning. To investigate this problem we asked sport university students (average age: 25) to participate in a special task learning process. We used movement analysis technique to detect the differences between the stages of learning process. The gathered data are analysed by SPSS. According to our findings we found at the first stages of motor acquisition is general rule learning, but becoming professional we state that the learning process is no more general but specific. So we emphasis that we should take into consideration the specificity in motor acquisition theories if we want to get a real knowledge about motor skill acquisition. Nowadays the most accepted one is the Schema theory[2] created by Schmidt (1975). This model is able to explain what the difference is in the control of quick and slow movement and how the human learns them. The recent motor control imaging literature has made it increasingly clear that motor acquisition is a kind of generalised motor learning and not specific ones. Studying the sport movements' execution we have recognised the limitations of the given model because the special motor control and learning structures are missing. We do not assume that the sport movements are controlled by number of generalised motor program with parameters depending on the environment conditions before movement. One hand the instant process before movement requires increased attention and the other hand this model can not explain what happens when fatigue occurs. We strongly believe that in these special cases direct neuromotor[4] connections existed and stored in an abstract way in motor programs, just like direct S-R connections. Given S-R connections increases the effectiveness of sport movements and less attention demanding occurs. Compelling neuroanatomical evidences for the existence of motor programs, which are representing special movement sequences heavily influences these statements. We have used R. Knapp (1968) motor learning theory, which was created to demonstrate the didactical aspect of motor learning. In our view we should have to take into account that, there are prominent differences between the main parameters and the main controlling strategies of sport movements and the ordinary ones. So these main differences encouraged us to create a combined motor control model on the basis of the well-known R. Knapp[5] theory and our implications. Our hypothesis is motor skills are controlled with motor programs at the professional level containing special parameters and at the beginning of the acquisition process movements are controlled only with generalised motor programs.

Supervisor: Dr. Péter Molnár

THE STUDY OF ACID BASE BALANCE AND LACTACIDURIA WITH STEROID PROFILE DURING ACUTE PHYSICAL EXERCISE

József Márton Pucsok, István Györe, Miklós Dékány
Semmelweis University (TF) Budapest, Hungary

We examined the lactaciduria and the changes of urinal steroid profile in 20 male and 10 female top judo players after acute physical exercise. The lactaciduria was measured using urinary samples after and before exercise. The acid-base balance of the athletes was

measured from capillary samples in rest and after exercise. The urinal steroid profile was examined using gas-chromatography combined with mass-spectrometry (GC-MS).
We were interested in the changes of excreted urinary lactic-acid along with the acid-base balance according to the exercise intensity. We also examined the anabolic/catabolic state of the urinary steroid samples.
There was a significant change in the amount of post-exercise dehidroepiandosterone (DHEA) in males. In females we also observed higher DHEA levels, but the change was not significant. The lactaciduria of male athletes was greater after exercise. In females we could not find any difference in post-exercise DHEA levels.

MEASUREMENTS AND RESULTS OF RUNNING ERGOMETER, ECHOCARDIOGRAPHY AND PHYSICAL CONDITION TEST ON YOUNG WATERPOLO MALE PLAYERS

Petridis L, Sziva Á, Manolas V., Bánhegyi A., Pavlik G.
Semmelweis University (TF) Budapest, Hungary

Establishment of physical condition level on water polo players by using a running or bicycle ergometer is not popular, thus the result of the measurements is not reliable. Since 1983 physical condition is measured with the help of a swimming test and the heart rate values during restitution. Our experiences until now has shown, that correlation exists between swimming test results and relative aerobic capacity.
Within this study we examined running ergometer, swimming test and echocardiographic results.
Relative aerobic capacity compared to the control group doesn't show any difference and is lower than the values of endurance athletes. However echocardiographic data show the same values as the endurance athletes. Seeking for correlations between the received results, we found that relative aerobic capacity correlates with the left ventricular muscle mass with mean time of the 6x30 meters swim. Between echocardiogrpahic data and the swimming test no significant correlation was noticed.
In conclusion, measuring relative aerobic capacity in laboratory is not suitable for water polo players, but it is still not useless to have it, however the results we receive should be evaluated in accordance to other test results (swimming test, echocardiography).

CARDIAC OUTPUT AT REST AND DURING EXERCISE

Ali Ghassemi Nejad Raeini
Semmelweis University (TF) Budapest, Hungary

The aim of this investigation was to provide data on the variability of the measurements of some key hemodinamic parameters including cardiac output and stroke volume measured by bioimpedance cardiograph.
The investigated subjects were young adult athletes (n=12) and non athletes (n=15). For the estimation of cardiac functions IKG-M401-type (made in ASK company, Budapest, Hungary) bioimpedance cardiograph and CARBO-RUB tetra polar belt electrode system were used according to Kubicek and associates (1966).
They have found: The IKG-M401-type bioimpedance cardiograph can measure the resting cardiac functions in a useful, valid and repeatable manner. Cardiac output rises linearly as a

function of oxygen uptake or power output during moderate or sub maximum exercise. For the exercise induced increase in heart rate refers significantly greater cardiac output and cardiac index. The significant correlation coefficients explain 42-48% of the total variance. Both intra-and inter individual variabilities were less between 70 and 130 bpm in these two variables. Nevertheless, the increase in the variability of cardiac output and stroke volume seems to independent of heart rate over 130 bpm.
The linear or sometimes exponential relationship between cardiac output and the other exercised cardiac characteristics cannot be excluded, nevertheless, these statistical parallelism were not close enough for the calculation of exercised cardiac output.

Supervisor: Dr. István Berkes

BIOMECHANICAL ANALYSIS OF DARTS THROWING

Zoltán Vass
Semmelweis University (TF) Budapest, Hungary

Countless methods could be employed to describe movements, depending on the characteristics of the movement that were of interest to the observer. At the most fundamental level, one can use verbal descriptors to characterise movement. Another way to illustrate movement with photographs, as was done over a century ago, using series of still photos. Such methods are of some use in describing or illustrating the basic forms of movement, but have limited value in detailed assessments of performance. In our experiment we analysed 10 professional darts player throwing technique in order to detect the smallest differences in different target area position. We created a special reference to become able to measure with APAS these relative small changes in movement kinematics. In spite of the fact that it is very interesting that how humans are able to control these small pieces, and how many practise needed to become professional darts player. To explain we present a theoretical approach to make understandable this control, and learning strategies. Otherwise we collected many beginner darts player throwing data without movement kinematics so we are able to make a comparative analyses in the field of different kind of aiming and throwing technique.

Supervisor: Tibor Szilágyi

THE IMPACT OF GLOBAL AND LOCAL FACTORS ON SPORT IN GREECE

Lappas Kleomenis
Semmelweis University (TF) Budapest, Hungary

Globalization as it appears nowadays, seems to be a part of the future, since the contemporary global changes affect many fields, such as economics, politics, and sport. In most cases the state appears to play the central role in the process of globalization. Nevertheless, over the last years international communities have played also major role in the process of globalization, mainly in sport events. The global influences have deeply touched the Greek society. Those influences can be easily witnessed within sports. The aim of this paper is to clarify the trend of the globalization in the world system and consequently, to analyze how the globalization in sport would influence sport in Greece, in general, and the sporting behavior of people, in

particular. The paper is based in a macro level analysis. Findings of theoretical research are used as well as the results of analysis of documents. The results are discussed according to the following subtopics:

- Impact of globalization on the functioning of Greek society
- Changes in life style
- Changes in the degree in which individuals deal with sport
- Loosing old traditions in sport

At the conclusion the author emphasizes the interconnectedness of global and local between the whole society and the sport system in Greece

Supervisor: Prof. Dr. Gyöngyi Szabó Földesi

CHANGE IN THE PRIMARY SCHOLL BOYS'S AFFECTIVITY TOWARDS THE TEACHING MATERIAL OF GYMNASTICS WITHIN THE LAST ONE AND HALF DECADES

Éva Leibinger, Eleonóra Murányi
Semmelweis University (TF) Budapest, Hungary

The change of regime, following the free elections of 1990, have brought about great changes in every field of life. This statement is true for the curricula (of gymnastics) as well. Gymnastics, an outstanding part of domain of physical education, could not avoid this change and modification either.

Motor testing of the teaching material of gymnastics within physical education is a frequent topic of research. Beside the motor aspects, another viewpoint of the research is the attitude of the pupils, their affectivity towards the teaching material of gymnastics.

The affectivity of boys (aged between 11 and 13) towards the teaching material of gymnastics was studied with a cross-sectional research method. The research is based on a survey of more than one and a half decade, carried out among boys of the same age. (Hamar, 1987). The aim of the research - comparing the results of the surveys at two different times – is to point out the changes in the attitude, affectivity of boys as a result of the changes of social and political regime.

The survey was carried out in the first part of the school year 2001-2002. A questionnaire was used in which altogether 300 boys participated.

Supervisor: Dr. Pál Hamar

THE RELATIONSHIP BETWEEN STATE AND CIVIL ORGANISATIONS OF SPORT IN HUNGARY

Zsuzsanna Bukta
Semmelweis University (TF) Budapest, Hungary

After the political system change in Hungary, sport and physical education faced a serious financial crisis, which was caused by the government's withdrawal from financing sport. A long term solution for that can be the co-operation between the state and the civil organisations of sport in local and regional level. In the young democracy of Hungary this task division is not yet clarified. In my research I try to analyse the relationship between local

municipalities and sport clubs, by questioning both sides. The lecture wants to make an overview on the ongoing research, and summarise the results of the first phase of it.

Supervisor: Prof. Dr. László Nádori

HOSTING INTERNATIONAL SPORT EVENT BY THE HUNGARIAN UNIVERSITY SPORTS FEDERATION

Csaba Hédi
Semmelweis University (TF) Budapest, Hungary

The political situation towards consolidation in the 1960s affected strongly the development of national sport movement. Although the 1960 Olympic Games in Rome seemed to put an end to the chances for organising Olympic Games in Budapest, struggles began for hosting international events by national sport federations. The Hungarian University Sports Federation which has an important and controversial historical background, made a big step in sport history when winning the right to organize the 1965 Summer Universiade in Budapest. We had to wait 21 years until the next international university sport event hosted by Hungary, and then, four more years (1986, 1990). The purpose of the present paper is to analyse the main factors and circumstances of sport politics, which set back the hosting of international university sport events in the 1970s and 1980s in Hungary. The study is based on the analysis of documents and interviews with sports leaders of past and present. The paper attempts to answer the following qusions: (1) Which are the results of the Hungarian University Sport Federation, reorganized after the political changes a democratic basis, in this area (2) What can explain the fact that the Federation received the organization of six World Championship in the last 12 years? (3) What are the experiences and the relationship between the successful sport diplomacy, the well-prepared bids, and the high level organization? Summarizing the results the author discusses long-term perspective of the university and Hungarian sport concerning the chances for hosting international sports competitions.

Supervisor: Dr. Gyöngyi Szabó Földesi

MEASURES FOR PROTECTING ORDER IN HUNGARIAN FOOTBALL STADIA

Tamás Freyer
Semmelweis University (TF) Budapest, Hungary

Football is one of the most popular sports in the world. The events of the matches – through the media – become widely known. The effects of the disturbances in the football stadia across the arenas and become social problems. The aim of my paper is to study the measures taken in Hungary between 1999-2001 for protecting order in football stadia and so to reveal their effectiveness. The methods for the collection of data were the following: press- analysis, analysis of different documents and – during the matches – my participant. The results discuss the measures taken by the government regarding the development of infrastructure, the formation of public opinion, the process of legislation and the efficiency of all these. The author refers to the connection between the measures and the diminishing of the disturbances. He supposes that the security forces will be able to stop the deviant football fans in the stadia.

Supervisor: Dr. Gyöngyi Szabó Földesi

AGGRESSION AND PERSONALITY AMONG FOOTBALL PLAYERS

Adam Radziwon
Academy of Physical Education, Warsaw, Poland

Aggression is rather common problem, not associated specifically with sport. However, the outcome of sport competition depends not only on the technical, tactical or physical preparation, but also on the level of aggression and even hostility or anger towards the opponent. The aim of this study was to find out whether and how practising football is associated with aggressive behaviour and whether it influences the development of personality.
Two groups of youths, aged 16 years, were studied: football players (n=30) and untrained subjects (n=30). In order to assess whether the aggressive behaviour is primary or secondary to practising football, 3 questionnaires were used: personality (NEO – FFI), aggression (Buss&Durkee) and temperament (Fcz – KT)
Significant between-group changes in personality (agreeableness), physical and transferred aggression, grudge, irritation, general aggression (aggression) and liveliness (temperament) were observed. Furthermore there was a negative correlation between agreeableness and the rate of aggression. It could be concluded that training football enhances aggression of young people.

OLYMPICS ON THE INTERNET

Bernadett Balogh
Semmelweis University (TF) Budapest, Hungary

In our dynamic word the most common word on people's tongues is the: INTERNET. I have became interested in trying to unravel what information the internet can provide me with about the Olympics.
I started to investigate this new media, and how it functions. During the survey I found out, that there is no single appropriate website to collect all the useful links and information about the Games. That's why I designed the website: www.olimpia.lap.hu. The site is not ready yet, it still undergoing development and construction, but it will follow the structure of the Startlap pages.
Throughout this survey I was interested in how informative, accurate, effective and up-to-date the Hungarian and the international pages are. I intend to explain the structure of the Startlap pages and the creation, structure and future of the olimpia.lap.hu page.
The Hungarian pages are unfortunately not as popular as the international ones. After all they are still in the midst of construction. But it is certainly a luxury to have an Internet connection at home. The websites are usually not up-to-date, nor interactive. But I hope the Internet becomes a popular medium of communication and perhaps the use of the Internet will one day become as popular as reading Hungarian newspapers on a daily basis.

Supervisor: Dr Katalin Szikora

DOPING PASSPORT

Csaba Bartha, Bálint Komondi
Semmelweis University (TF) Budapest, Hungary

Doping Passport is the title and the topic of this presentation the purpose of which is to propose a new and more efficient way of controlling doping and a more powerful battle against doping. The name suggests that it would be an international controlling and monitoring system to be used worldwide.
In fact, our Doping Passport would not stop the present practice of fighting doping. The doping tests after competitions and at random would still be made but the results would be registered and authenticated in the passport. This document would play a role not only in the registration of tests but in the anti-doping battle as well.
The main point of the passport is that only 'Doping Passport owners' would be allowed to participate in European and World Championships. The athletes must produce annually at least three negative tests and no positive results at all.
In our opinion, this document would prevent athletes from using forbidden drugs. Considering the expenses, it would be cheaper and more effective than the present method.

Supervisor: Prof. Dr. Róbert Frenkl

THE REASONS OF DIFFERENT JUDGEMENT OF GRADUATES IN PHYSICAL TRAINING IN SOCIETY ON THE BASE OF SURVEY MADE AMONG HUNGARIAN AND GERMAN GRADUATES

Zsuzsanna Kralovánszky
Semmelweis University (TF) Budapest, Hungary

Graduates in physical training treat sport and its popularisation all around the world. Whether their prestige in society influences the successes of a country in sport is discussed in this essay by means of survey and interviews made among graduates. I also made a comparison between the structure and methods of education in two respectable European universities, that is to say TF and DSHS Köln. Furthermore I examined the influence of the conflict between tradition and modernisation on this issue and the correlation between the average wages of graduates and their prestige on the base of questionnaire on the web and personal interviews.
My consequences may be the answers on the challenge of the 21st century and the European integration.

Supervisor: Prof.Dr. Endre Rigler

SPECIAL TYPES OF RESPONSIBILITY IN THE HUNGARAIN SPORT LAW FIELD

József Nagyréti
Semmelweis University (TF) Budapest, Hungary

Sport is like all of the social interactions -surrounded by social norms defined or non-defined. These norms are for protecting a given community's operations to be functionable.
No general responsibility in law is, but there are several types of responsibilities - the most important are civil liability and criminal responsibility. Consider sport law a separate branch of law, we can speak about responsibility in sport by means – the first general work of sport law called: 'Basis of Sport Law' goes into details about sport disciplinary responsibility, prohibition of using dope, individual civil law damages, labour law's material liability in sport.
I think there are a lot of further work in responsibility of sport law. On one hand in the examinating of cases mentioned above, on the other hand the responsibility of the trainer is an area untouched in Hungary by this time. This is an extremely special and difficult question: what is duty of the trainer, for what kind of actions can be a trainer held responsible, which of the trainer's shall be responsible for the damage of a sportsman suffered through his career and how can be damage estimated, charged in law instruments.

Supervisor: Dr. András Nemes

BEHAVIOUR CHARASTERISTICS OF YOUNG ATHLETES CONSIDERING THEIR GENDER DIFFERENCES

Alexandra Golets
National Univerity of physical education and sport of Ukraine, Kiev

In the recent times practical interest of numerous researchers is drawn to men's and women's behaviour in different life situations. Mostly all studies on gender disparities were based on the biological differences, but many scientists realised that social and psychological nuances of characters influence human demeanour, too. Gender research is about psychological and social differences between males and females, it studies the type of thinking, style of behaviour, habits, interests, which from the point of view of a particular culture, are described as features of men's behaviour (masculinity) or ladies behaviour (femininity).
Ladies sport is a part of Modern Olympic Movement and a very important part of life all over the world. The development of women's sport in the XIX and XX centuries made many scientists think about reasons of men's and women's psychological differences and study intellectual activity of men and women, in order to answer the question what is the cause of their unlikeness.
The aim: To study the differences of male and female type of thinking.
Methods of research: 1) questionnaire, tests, conversations
2) Information from the Internet
3) analyses of special literature
To learn why men and women behave differently in various situations we studied the environment, which surrounds boys and girls from the early childhood. They are treated differently - boys have more freedom, consequently they have more opportunities to engage in physical activity than girls. When girls become teenagers they realise that some sports, like martial arts, are not accessible to them if they want to be popular among their friends and schoolmates, it means that sometimes girls choose sports they don't like. Some researches among the school students in the U.S.A. showed that -
Boys prefer football, basketball and baseball.
Girls prefer basketball, track and field and volleyball.

According to various information about gender differences which we have received and studied from different sources we decided to make tests in order to find out type and disparity of thinking between young athletes and non-athletes (17-20 years old). 136 persons participated in our research (72 men and 62 women). According to our test which included a questionnaire there are three ways of thinking – male, female and combined.
Results of the research**:** Majority of athletes – 20 (27.8%) - showed combined type of thinking, it means that they unite male and female characteristics, which reveals that sport character can be very adaptable and athletes can settle on a compromise in various situations.
Majority of non-athletes – 16 (25%) – displayed female type of thinking, it means lack of physical activity and sport exercises, makes men less aggressive and gives them similar characteristics as women's temper.
Some sportswomen showed male type of thinking – 4 (5.5%) - which revealed that aggression, which forms during the training process, is present in their activity. According to some investigations hostility always appears between athletes-rivals because women – non-athletes display much less aggression in their activity and everyday life.
Majority of non-athletes showed combined type of thinking – 24 (37.5%) - it means they unite male and female features. Their temper is flexible and depends upon the people`s opinion and environment around them.
Conclusion: we must say that male and female athletes have a lot in common, but ladies are much more inclined for cooperation and mutual interaction.

ANXIETY, AND STRATEGIC APPROACH TO COPING OF FOREIGN STUDENTS AT THE SEMMELWEIS UNIVERSITY

Anna Cosma
Semmelweis University (TF) Budapest, Hungary

University students (56 males and 25 females) between 19-38 years of age were examined in their second language (in English) by State-Trait Anxiety Inventory (STAI), Strategic Approach to Coping Scale (SACS), and General Health Questionnaire (60-item version) (GHQ). The sample contains both physical education teacher and human kinesiology students, and medical students of the English course.
Results: Gender differences were found in two SACS subscales: the female subjects were characterised significantly higher social joining scores ($p< 0,017$), and seeking social support scores ($p< 0,014$).
Low-, medium-, and high GHQ groups' anxiety and coping strategy scores were analysed by ANOVA. Those who have the most psychological problems (high GHQ group) are significantly more anxious than the other two groups according to A-Trait scales. At the same time the state anxiety scale has significant difference only between the medium ($M=36,7$) and high ($M=42.98$) GHQ groups ($p< 0,000$). Among the Strategic Approach to Coping Scale subscales, there are two tendencies and two statistically significant differences for the GHQ groups. Nearly significant tendencies show that the high GHQ students' reactions in stressful events are less assertive, than the medium GHQ ones' ($p< 0,065$), and it is more social support seeking than in the low GHQ subjects' group ($p< 0,052$). The high GHQ group's avoidance oriented stress reactions are significantly more expressed than both in medium and low GHQ groups ($p< 0, 001$; $p< 0,011$). The comparison of medical students and P.E. students will be presented in the lecture.
Keywords: anxiety, coping strategy, self-evaluation in the second language, general health questionnaire, male medical students and P.E. students.

Supervisor: Dr. Kornél Sipos

EXERCISE ADDICTION, COMMITMENT, MOTIVATION AND GENDER

Jennifer Peco
Wilfrid Laurier University, Waterloo, Ontario, Canada

Our assumptions about exercise lead us to believe that all exercise is good. However, there is evidence to suggest that addiction to exercise may be harmful for a number of reasons (Scully, 1998). The individual may feel the need to engage in exercise regardless of any obstacle. While addiction may be seen as a negative aspect of exercise, continuing an exercise program to experience feelings of satisfaction, enjoyment and accomplishment describes a commitment to exercise. The purpose of this study is to examine the relationship between an individual's reasons for exercising and their level of addiction and commitment for a university population. Using a sample of 42 females and 41 males a questionnaire was distributed to university students incorporating the Commitment to Physical Activity scale and the Physical Activity Addiction scale. Gender differences, as well as the reasons for beginning and maintaining an exercise program were also explored. Preliminary results indicate a correlation between levels of commitment and addiction. Not surprisingly, the most popular reasons among the university sample for exercising included maintaining a healthy lifestyle, to get in shape, feeling a sense of accomplishment and stress reduction. Early suspicions indicate no gender differences.

A COMPARISON STUDY OF BODY AWARENESS AND PERSONALITY OF FEMALES

Dániel Lõkös
Semmelweis University (TF) Budapest, Hungary

Physically active, 19-22-year-old female PE students (N=34) (Semmelweis University Faculty of Physical Education and Sport Sciences), and 16-17 year-old non-sporting secondary school girls were examined by the Fischer's Body Focus Questionnaire (BFQ) and 300-item Hungarian version of the Californian Personality Inventory (CPI).
The test administration in small groups, in classroom like conditions, was done.
The aim of this study was that how distributes the attention among the various parts of the body, what is the degree of the awareness of the different body parts in female samples. Until now it was examined mainly in male samples (Kudar, 1994, 2000). The results of this study may serve as scientific background both for mental preparation of top athletes, and for rehabilitation of sport injuries.
According to the literature, significant gender differences are in the organization of body awareness, and also in connection between body awareness and personality traits. This study range to the above mentioned body awareness of the female samples and personality trait as well as the connection of body awareness and personality trait.
Furthermore we are going to compare CPI data of male and female samples, too.
Our research, published here, focuses the CPI test results of female PE students. In comparison with the Hungarian female standard values the female PE students showed unfavorable results on Self-control, Tolerance, Ego-strength, the Good impression and the

Flexibility, and favorable on Communality scales. There was no significant difference between the personality profile of male and female students.

Supervisor: Dr. Katalin Kudar

EXAMINATION OF PERSONAL CHARACTERISTICS OF ATHLETES AS REFLECTED BY THE „EYSENCK" PERSONAL CHARACTERISTICS SCALE

Andrea Fazekas
University of Nyíregyháza, Hungary

I chose this subject because I am involved in athletics as a short distance runner, consequently I know that an athlete's character, his or her view of training and competition are determining factors. Specifically I am interested to find out whether there are similarities or differences in the personal characteristics of athletes in the various disciplines of athletics such as jumping, running, throwing.
I assume that there are differences in certain personal characters of athletes in these branches of athletics that can be proven.
To quote Gegesi Kiss Pál, personal character is the summa of physical and psychological happenings based on given biological foundation and developed under the influence of natural and social environment. The human character expresses itself in activities, consequently it's thorough knowledge can be achieved through studying these activities. There are various methods of gaining knowledge of personal character such as everyday knowledge of basic human characteristics, and the scientific methods, such as observation, conversation, tests, questionnaires.
I have chosen the „Eysenck" personal characteristics questionnaire detraining to adults (16 years of age and over). One variation of personality studies with questionnaire based on factoranalitical method is the Eysenck personality questionnaire (EPQ). The EPQ that studies children's and adult's personalities based on dimensional theory, assessing four dimensions, appeared in 1975.The adaptation of the questionnaire to Hungarian material was done in London which made it possible to have a pertinent Hungarian points key. Because of it's multiple layered nature it is a very useful method to pinpoint the basic dimensions, the expression in numbers of a place on the dimensions and for the grasping of personalities.
Eysenck reached the conclusion that personality as a hierarchically organized system is made up of four basic dimensions based on theoretical, experimental and mathematical observations. This questionnaire (HEPQ) primarily assesses the dimention of psychosis, but extends to extroversion, neurosis and lying (social desirability).An other version of the questionnaire (IKE) examines the dimensions of impulses, risk taking and empathy.
The research I have done involved 45 persons, there is a standard value attached to every personality factor, in comparison to which I was able to determine how the personality characteristics of athletes differed and what type of dominance can be shown in the different branches. I shall explain this in detail in my presentation.

Supervisor: Klára Batta Balázs

THE EFFECT OF MARTIAL ARTS TO PERSONALITY DEVELOPMENT

András Beczik

Eötvös Lóránd University, Budapest, Hungary

It is a well-known fact that martial arts in addition to developing sports skills also contribute to personality development in terms of increased self-control (e.g. decreased aggression), and better coping with situations causing stress and anxiety.
These affects are attributed to the strong educational background that is supposed to have a spiritual-developmental impact on the learner of the martial art. Western cultures increasingly acknowledge these positive effects that are now being widely studies by social sciences in Western countries. The first phase of our Hungarian study (gathering various questionnaire data) has similar results.
We are going to apply the Buss-Durkee Aggression Questionnaire and the Assertivenes Questionnaire. The results will be discussed in the presentation.

Supervisor: dr.Csaba Nagykáldi

THE EFFECT OF THERAPEUTIC LASER ON STRESS PROTEINS

Robert Moore, Ethne Nussbaum* and Marius Locke
Faculty of Physical Education and Health, Department of Physical Therapy*. University of Toronto, Canada

Therapeutic laser been employed in rehabilitation clinics for treatment of muscle soreness, plantar fasciitis, lateral epicondylitis, musculoskeletal pain, rotator cuff tendonitis and rheumatoid arthritis. Results have been controversial and the mechanism by which laser works at the cellular level remains unclear. It is known that when cellular proteins become damaged or denatured, the cell responds by synthesizing a highly conserved group of proteins known as Stress Proteins (SPs). SPs are molecular chaperones thought to protect cells during episodes of stress by aiding in the folding of polypeptides or in the assembly of oligomeric structures. Therefore, the purpose of this study was to investigate whether therapeutic laser treatment to muscle would result in the accumulation of SPs (HSP 25 and 72). To do this, two groups (n=5/group) of male rats (180-200g) were anesthetized with sodium pentobarbital (65 mg/kg ip) and all hair on the anterior portion of the left hindlimb was removed. The skin over the tibialis anterior (TA) muscle was irradiated with either a 670nm laser (Lasotronic, Switzerland) for 445s or a 780nm laser (Revitalaser, Canada) for 160s. Both groups received a dosage of 145 J/cm^2. The untreated contra-lateral TA muscle served as a control for both groups. Twenty-four hours after laser treatment, animals were again anesthetized and muscles were removed, weighed and frozen in liquid nitrogen. The entire muscle was homogenized and assessed for HSP content by subjecting equal amounts of muscle protein to SDS-PAGE followed by Western blotting. In some cases, laser treatment increased TA HSP27 content but did not alter TA HSP72 content. These results suggest a single laser treatment of either 670 or 780 may be capable of inducing the accumulation of certain SPs in mammalian muscle.

SPINAL ANALYSIS USING THE ULTRASOUND BASED CMS-HS (ZEBRIS) MOTION ANALYSIS SYSTEM

Attila Zsidai
University of Technology and Economics, Budapest, Hungary

The WinSpine program (Zebris GmbH, see http://www.zebris.de) is used to analyze the posture, geometry, mobility and coordination of the trunk and spine. The program includes a data base, in which projects, patients and individual measurements are filed. On the bases of these data the measurements are run. After the measurements have been completed, those time periods that are automatically analyzed in the report can interactively be selected in the signal viewer. Moreover, the program includes a measuring data export option in the editor for further post processing the raw measured data. The report of the posture and mobility shows the spinal crest line in sagittal, frontal and transversal projection. The normal ranges given are derived from research by the Physical Medicine Clinic of the University of Munich and serve as a guide. This is a very new and quick method to control state of rehabilitation of patients. The deviations of different measurements can be compared and give a basis of the further rehabilitation procedure. This method is now in Hungary in an introduction period as a research project of the Biomechanical laboratory of BUTE together with the Children Hospital of Buda. This research will summarize the possibilities of the application of the mentioned program.

Supervisor: Dr. László Kocsis

CAUSES OF INJURIES IN HUMAN MOVEMENT SYSTEM ON THE BASIC OF KINETIC AND KINEMATIC CHAIN THEORY

Judit Puha
Semmelweis University, Faculty of General Medicine, Budapest, Hungary

Goal of sport movement as for the sport sciences is achieving an optimal movement pattern (path, velocity, acceleration, angle, angular velocity, angular acceleration) for a relevant body segment. This movement structure has to be successful in connection with the anatomical, sport oriented movement. The competitors have to move the relevant segments, and supplementary equipment on the best path. In the case of power oriented movement (throwing, jumping, running) a body segment is accelerated as result of muscular work of the athlete and get a higher and higher movement energy and impulse. The source of this modification in movement state of different body segments, muscles and joints connected to each other is working in synergy in a well-defined order between them.
Our hypothesis claims that the well-done training or work is effective only that case, when the kinematical and dynamical parameters of the segmental movements define optimal (or sometimes special) movement pattern. Under the movement the segments are working as an interconnected chain system. We investigated this system as complex kinematical and dynamical system. In our opinion the high velocity changes between the types of these chain system elements are the basic causes of injuries.
The literature deals with only open and closed kinematic and kinetic chains. This is the classical description of movement structure. But in real life we can define other types of chains, based on the relationships of the movement possibilities (degree of freedom, kinematic chains), and the relationships between the external and internal forces (dynamic chains). On the basic of this duality we can define a new kinetic chain description system, which contains kinematical and dynamical parameters and depict the interconnections between them. This system tries to make a corrected or more refined description of the types of human movement and causes of injuries.

Supervisor: Tibor Szilágyi

THE INFLUENCE OF FOOTWEAR MIDSOLE MATERIAL HARDNESS ON BALANCE CONTROL DURING GAIT

Christopher R. Goodwin, Stephen D. Perry and Pamela J. Bryden
Wilfrid Laurier University,Waterloo, Canada

This study was designed to investigate the effects that varying footwear midsole material hardness will have on balance control during gait. Current literature surrounding footwear design has focused primarily on foot stability and impact loading issues. There is a noticeable absence of research dedicated to shoe durometer (hardness) and the influence of this hardness on both postural balance and cutaneous sensation from the plantar surface of the feet. This is an important consideration given the vital information that sensory input from the bottom of the foot provides in controlling postural stability especially during a dynamic activity such as walking. A study by Frey and Kubasak (1998) reported that 42% of older people who had fallen in the preceding year were wearing soft-soled athletic shoes at the time of the fall. This demonstrates that standard athletic footwear may increase the risk of falls in vulnerable populations and balance problems in the general population. Ten healthy adult female subjects participated in the present study. Each subject walked along an 8-meter walkway with two force platforms, level with the walkway, positioned to sample force data for consecutive foot contacts. Thus allowing for the calculation of the center of pressure (COP) under each foot. Additionally, three-dimensional kinematic data was recorded to estimate the body's centre of mass (COM) during walking. Analysis will be based on COP-COM and COM-BOS (base of support) relationships during the three levels of midsole durometer: Shore A15 (softest), Shore A33 (standard) and Shore A50 (hardest). During gait, the COP gives an indication of the reactive forces acting to control the COM, and thus, provides a measure of stability. We hypothesize that the largest difference in COP-COM variability will occur in the softest material and the smallest difference in the hardest material. Also, the softest midsole should allow the COM to move closer to the BOS indicating a reduction instability. Final data analysis is underway. This investigation should uncover the relationships between various degrees of midsole hardness and how they affect total body stability during walking. The results will be an important starting point for future research in this area.

BIOMECHANICAL ANALYSIS OF THE RUNNING STRIDE AND THE STRUCTURE OF THE RUNNING SHOES

Peter Berkes
Semmelweis University (TF) Budapest, Hungary

For every sportsmen and sportswomen are very important to wear suitable running shoes in that sport disciplines where they need to run so that they can avoid suffering injury. The improper equipment causes overload and injury – (for example*:* sprains, strains.)
I would like to get answer my question with my study that which are those factors (training shoes, manufacturing process (technology), some other pieces of equipment) which determine or influence of efficiency of running motion.
The biomechanical pieces of equipment which were used:

- Footscan system – to analyse the pressure between the sole of the foot and the ground.
- Kistler system – to analyse the ground reaction-forces and torque relationships.
- Video system – to analyse the angular parameters of the leg.

Different sport shoes are based on different manufacturing process (technology). The main aim of the study is that to analyse the stabilisation elements of the shoes, which reduce the ground reaction-force between the sole of the foot and the ground and the torsion system which decrease the torsion of the sole. There is an other aim of this study. Considering of the measuring results we would like to orientate the runners that they should not to choose in variety on behalf of price, design, and trend.

Supervisor: Tibor Szilágyi

GEOMETRICAL MODELING OF RUNNING STRIDE AND RESULTS OF VERIFICATION PROCESS

Tibor Szabadszállási
Semmelweis University (TF), Budapest, Hungary

The presentation shows the first phase of development a special model for running stride. This type of geometrical modeling descries the movement only of the foot and shank, with special considering to the geometrical parameters. These parameters are local to the movement of foot, heel, ankle, knee and describe the movement paths of landmarks and angular parameters of landmark defined segments (foot, shank) and the ankle joint. We know that our model is limited in possibilities, but we can modify it and we plan to complement it other components and parameters later.
After the short overview on kinematical motion analysis and simulation methods the article describes the external parameters, the equation systems and their possibilities in the simplified model environment. The system of mechanical equations contains five parameters: velocity of running, frequency of gait, and three parameters to describe the shape of movement paths of landmarks of the lower extremity. If we know any two parameters from these five, we can calculate the optimal values of other three parameters.
This presentation verificates the simulation results through real movement analysis results. We identify the mistakes in connection of the model, the causes of modeling problems and the possibilities of future development. This latest defined special and limited model is not true projection of a real human movement. But finally we can show the possibilities of further and longer development. Later we can build into the model the special muscle models, joint models and their characteristics. It is very important of using the supplemented model in the work of coaches.

Supervisor: Tibor Szilágyi

THE EFFECT OF LATERAL PREFERENCE ON GAIT SYMMETRY

Jennifer L Bruyn, Stephen D. Perry, Pamela J. Bryden
Wilfrid Laurier University, Waterloo, Canada,

This study investigates the effect of lateral preference on the symmetry of kinetic measurements during gait. In past gait studies, symmetry has often been assumed and thus, many studies have relied exclusively on unilateral data collection. The results of more recent studies however, indicate that several kinetic, kinematic and electromyographical parameters

during gait may not be symmetrical due to lower limb dominance. By incorporating both hand and foot dominance into the measure of lateral preference, the study in progress examines how lateral preference affects the forces that occur during gait. The following four lateral preference groups were identified using the Waterloo Footedness Questionnaire and the Waterloo Handedness Questionnaire: right-handed/right-footed, left-handed/left-footed, right-handed/left-footed, and left-handed/right-footed. Several medial-lateral, anterior-posterior and vertical ground reaction force parameters such as maximum/minimum forces, impulses, and rates of loading/unloading were collected from consecutive left and right stance phases during steady-state gait (walking speed of 1.5 m/s). Data analysis is currently underway. It is hypothesized that the greatest asymmetry between the force parameters of the right and left lower limbs will occur in the groups with uncrossed lateral preferences (right-handed/right-footed, left-handed/left-footed) due to the strength of their biased lateral preference.

SIMULATION AND CONTROL OF WELL-COORDINATED MOTION OF MULTISEGMENTAL LIMB

Csaba Fazekas
University of Veszprém, Hungary

The analyses of human movement and locomotion rapidly developed during the last decades because computer technologies supported the application of complex mathematical models to examine the operations of the central network system) CNS and to examine the control of well coordinated motion of multisegmental limbs.
Our purpose is to learn more about the effect of biomechanical parameters of the limbs and about the control of limb movements. First we have written a computer simulation, which simulates the movements of multisegmental limbs with one- and two-joint muscles in function of frequencies of action potentials. To define the limb, the kinematic and dynamic parameters of the limb, such as anatomical and physiological data of the limb and muscles must be given. The output of the simulation is the animation of a movement and the changes in kinematic and dynamic parameters of the movement as a function of time. During the simulation the simulator takes into account the effect of stretch reflex, the effect of gravitation, the reference point and the range of motion.
Out program can solve the inverse dynamic problem. For this reason, the initial and final state of the limb have to be given. From them the program can compute the required frequencies of action potentials to set up the required forces of muscles.
You can see that the program is good for testing different control strategies of limb motion and for examination the effect of changes of movement-parameters.
Results of our research is going to be applied in development of neuroprosthesis, artificial limbs and classification of movement disorders.
Acknowledgment. This work has been supported by an OTKA grant (No. 34548) and an NKFP project (No. OM-2/052)

Supervisor: József Laczkó PhD,

MUSCLE TORQUES OF FOREARM ROTATORS IN SQUASH PLAYERS

Tomaszewski Paweł
Academy of Physical Education, Warsaw, Poland

The purpose of this study was to determine muscle torques of the forearm in various angular positions. Muscle torques were measured under static conditions, elbow flexion being set at 90º and forearm rotation positions – at 0 and 90º. The study was conducted in 20 advanced squash players and 60 non-training students.
No significant differences in muscle torques were found between squash players and students. In squash players, significant differences were found between the dominant and non-dominant upper extremities. Highest values of pronation and supination were attained in the position 90º of the forearm.

BIOMECHANICAL ANALYSIS OF THE TWO KINDS OF SWIMMING STARTS

László Révész
Semmelweis University (TF) Budapest, Hungary

The swimmers used serial starting techniques in the past few years. At first they stretch backward both of their arms in the starting position. A few years later they realised that they are able to move their body toward the water faster when they keep their arms in front of the body until the starting sign. The efficiency of starting is crucial in the short distances because the starting movement costs 25 percents of the total distance and 10 percents on 50m. On long distances (800,1500 m) the starting movement is not count so much.
Nowadays the two kinds of swimming starts are used by the competitors. These are starting dive and track start. There are a lot of ideas that which starting motion has to be learned by the swimmers. The aim of the study is to analyse the efficiency of starting movements. We would like to orientate the short distance swimmers which technique can be used.

Supervisor: Tibor Szilágyi (Head of the Biomechanical Laboratory)
Consultant teacher: János Egressy (egyetemi adjunkus)

EFFECT OF ANGULAR POSITION OF THE FOREARM ON THE ROTATOR MUSCLE FORCE

Krzysztof Węglarz
Academy of Physical Education, Warsaw, Poland

The aim of the study was to determine muscle torque of forearm rotators in pronation and supination at 45°. The study was conducted in 59 physical education students (controls) and 19 javelin throwers. Muscle torques were measured under static conditions.
Significant differences in muscle torque between the dominating and non- dominating arms, were found in students, but not in javelin throwers. Students exhibited significantly higher values of forearm rotator muscle torques compared with athletes, but only in pronation.

PREDICTION OF MAXIMAL OXYGEN CONSUMPTION FROM

SUBMAXIMAL EXERCISE

Andrew Espenlaub, Nelson Ng, Patricia Pierce, William Ryan, and Jonathan Anning
Slippery Rock University, Pennsylvania, USA

The determination of cardiorespiratory endurance can be accomplished by a variety of tests ranging from simple field tests involving bench stepping and/or running and walking procedures in the field to more controlled laboratory exercise tests using the treadmill or bicycle ergometer. In the United States the Bruce treadmill protocol is by far the most widely used graded exercise test. However, the test requires the subject to perform to maximal intensity. The purpose of this preliminary investigation is to determine if the Bruce protocol can be adapted for use as a submaximal test to predict maximal oxygen consumption. Healthy female college students 18 years or older volunteered for the study. All subjects were screened for major coronary risk factors and were accepted only if they categorized as "low risk" according to the American College of Sports Medicine risk stratification guidelines. The subjects were divided into two groups. The treadmill protocol included a warmup stage of 1.7 mph/10% grade followed by two 3-minute stages at 2.5 mph/12% grade, and 3.4 mph/14% grade. The subjects then continued to perform one or more of the following stages until exhaustion: 4.2 mph/16% grade, 5.0 mph/18% grade. Exercise heart rate was monitored by telemetry using a standard 12-lead ECG, as well as by a Polar heart rate monitor. A SensorMedics metabolic cart was used for gas analysis.

A regression equation was developed from Group 1 to predict maximal oxygen consumption based on HR response to submaximal workloads. The primary independent variable was HR response to exercise during submaximal work stages 2 and 3. Other independent variables included age, height, and weight. The dependent variable was peak oxygen consumption measured at test termination. The equation was then cross-validated against the data obtained from the second group of subjects. A Pearson Product moment correlation coefficient was used to correlate the second sample's predicted and measured maximal oxygen consumption. The growing number of non-clinical personnel conducting fitness assessment in exercise and fitness facilities, ranging from university labs to corporate fitness centers and health clubs, demonstrates a need for an easy-to-administer low-risk submaximal treadmill test. Such a standard, designed for the treadmill, would greatly benefit fitness assessment.

SPIROERGOMETRIC AND ECHOCARDIOGRAPHIC RESULTS IN FEMALE RUNNERS

Hajnalka Németh
Semmelweis University (TF) Budapest, Hungary

According to some general experience and some previous data made in male runners, long-distance runners have a higher relative aerobic capacity than sprinters/jumpers. Morphologic, functional and regulatory characteristics of the athletes' heart were also more pronounced in long-distance runners than in short-track athletes.

In the present study rel. aerobic power in a treadmill-spiroergometer (Jaeger-Dataspir) and resting two-dimensionally guided M-mode and Doppler echocardiographic parameters (Dornier 4800, 2.5 MHz transducer) were determined in 27 female track-and-field athletes (age 15-21 yr.). Results were investigated in 5 different groups formed by the athletes' main running disciplines (100, 400, 800, 3000, 10000**).** In the rel. aerobic power no significant difference was seen between the different athletic groups. Among cardiac morphologic

athletic characteristics, body size related left ventricular wall thickness and muscle mass showed higher values in competitors of the longer distances. Among functional cardiac parameters, the diastolic function characterized by the E/A quotient did not display any consequent difference, while the main regulatory parameter, resting heart rate was consequently lower in the longer distance runners.
Results indicate than in female track-and-field athletes differences in the cardiac athletic characteristics are more marked than spiroergometric results.

Supervisors: Dr. Gábor Pavlik, Dr. Andrea Bánhegyi

WORK CAPACITY OF THE BASKETBALL PLAYERS (GIRLS) 13 –14 YEARS OLD TAKING TO ACCOUNT THEIR BIOLOGICAL INTELLIGENT

Maslova Elena
National University of Physical Education and Sport of Ukraine

Elite sport today is characterized by high physical and mental loads. The popularity of women s sport is growing from year to year. But unfortunately today there is no single scientific system of sport preparation for female athletes. The training process of female is following by the same rules as those of male.
The cycle of biological changes of the female organism functioning are not taken consideration.
Female sex hormones as an important chain in adaptation-and-trofic responses of the body provide possibility of an adequate adjustment of female body environment, including training and competitive loads. That is why we consider menstrual cycle as a natural biological model for studying the impact of hormonal status changes on functional system of respiration and work capacity of female athletes at different phases of menstrual cycle, that allowds to divide it into five phases.
13-14 years old, the age is according to period of sexual ripening of young women s organism. This period is final phase of formytion and stabilization neurohormonal functions of biological regulation, their cycle character conditioning cycle direction of all vegetative systems, resulted in displaying physical qualities and character of work capacity.
Basketball --- is hard movement kind of sport, where you must show at same time speed and strength qualities, adroitness and endurance, where phycho-physiological state of women athletes influence on their results.
Aim: to define the correlation influence on work capacity of the young basketball players with individual peculiarity of their biological intelligent.
We have been inspected the athletes group (girls 13-14 years old).Their specialization is basketball. The period of training is 4 years.
Methods of research: we have been defined the phases of menstrual cycle by following means: studying of daily basal temperature, date fern phenomenon, analysis of special questionnaire; we have been destined functional possibility of athletes on the results of pedagogical and psycho-physiological tests.
Results of research:

- the standart of biological intelligent is different.
- psycho-physiological condition is depending on hormonal status.
- the changing of work capacity connects with cycle changes of women s athletes organizm.

Conclusion: this individual approach helps to save health of young athletes and improve their sports results.

THE EFFECT OF ACUTE EXERCISE ON BLOOD-PLASMA AND URINE INORGANIC PHOSPHATE LEVELS IN ELITE ATHLETES

Judit Laki,
Semmelweis University (TF) Budapest, Hungary

Introduction: during long term and/or intensive physical exercise the performance of skeletal muscle declines .The underlying mechanisms are: the accumulation of lactate, and besides that the increase of the intracellular inorganic phosphate. (P_i) (H.Westerblad)

It was observed in animals that the lactacidaemia leads to hyperphosphataemia. (Oster JR, Alpert HC) Muhlbauer et al. found that the subcutan injection of exogene glucagone results in rise of the level of plasma Pi up to the double- triple of the normal value. Other authors (Levine BS, Liput J) established that metabolic acidosis inhibits the reabsorption of Pi in the renal proximal tubules.

Questions: Is the plasma-concentration of P_i affected by acute exercise?

Are there any correlations between the blood lactate and the plasma Pi levels during exercise?
Is there any relation between the changes in the plasma glucose and Pi concentrations during exercise?
Is the urinary level of P_i increased after acute physical exercise?

Methods: thirty-eight elite male athletes (10 triathlonists, 11 mountain-bikers, 17 rowers) were subjects of the study. The exercise was performed with progressive intensity until total exhaustion (instruments: treadmill, bicycle/rowing-ergometer)
Blood was taken from the earlobe in rest, after each step of the exercise and finally at the 5^{th} minute of recovery. Blood lactate, plasma glucose and plasma P_i concentrations were measured.
In the urine samples taken before and after exercise P_i and creatinine levels were measured.

The data were statistically analyzed by Student t-test.
Results: At maximal intensity the plasma P_i concentration increased significantly compared to the resting level in each group. ($p<0,001$; $p<0,05$; $p<0,001$)
The mean lactate concentrations belonging to the individual exercise-steps showed strong correlation with the mean plasma P_i values in each group.

The plasma glucose concentrations showed positive correlation with the plasma Pi concentrations during the exercise in each group.
After exercise the urinary P_i /creatinine ratio decreased significantly ($p<0,05$) compared to the resting exercise values in mountain-bikers, it increased significantly ($p<0,01$) in rowers, and in triathlonists the increase was not significant.
Summary
As a result of acute physical exercise the plasma P_i concentration increases in each group with increasing level of intensity. The changes are mostly marked in the anaerobic phase.
The changes in the urinary P_i concentrations are not consistent.

In order to have a better understanding of the relationship in the plasma and urine Pi alterations we need to have further investigations.

Supervisor: Dr. Istvàn Györe

EFFECTS OF STRENUOUS EXERCISE ON THE ACCUMULATION OF HSP72 IN RAT BLOOD PLASMA

Eva Najemnikova, Marius Locke
Faculty of Physical Education & Health, University of Toronto.

Heat shock proteins (HSPs) are expressed when cells are exposed to different types of stress. One of the stressors capable of inducing HSPs is exercise. Due to the ability to induce HSP synthesis, exercise might play an important role in body's protective mechanisms. Although typically regarded as being intracellular, it is now apparent that HSPs are also found extracellularly, in human blood serum. Recent findings suggest that serum HSPs might play a role in vascular disease. In this study we have investigated whether the expression of HSP72 is increased in rat blood plasma after a single bout of exercise. Thirteen male Sprague-Dawley rats (230-280g) were assigned into 3 groups: (1) control, n=3; (2) 1hr treadmill run (26m/min), level grade, n=9; (3) 3hr treadmill run (26m/min) till exhaustion, level grade, n=1. The levels of plasma HSP72 were measured at 0,1,1.5,2,4,6,8,10, and 24hrs following the exercise in group (2). The HSP72 plasma levels were measured at 1hr following the exercise in group (3). Using Western Blotting analyses we did not detect HSP72 in control rat blood plasma or at any time point following the exercise. These findings do not support recently reported HSP72 and HSP60 presence in human blood serum.

MASSAGE EFFECT ON THE STUDENTS PREDISPOSED TO HIGH OR LOW BLOOD PRESSURE

Laura Daniusevičiūtė
Lithuanian Academy of Physical Education

Introduction. Heart and blood - vessels system ailments take a significant place among diseases. The hypertonia is a wide - spread disease, the etiology of which been not established entirely. Several factors can have their impact on it. They are: genetic, acute or chronic stress, obesity, kidney disease, atherosclerosis and others. This disease is treated by medicine or by physiotherapic procedures, among which massage occupies an important place. Recently more and more attention is paid to hypotonia, which can be a separate disease or a symptom of other illness. It is treated in a complex of measures. Refering to WHO (World Health Organisation) data blood pressure is normal, if it doesn't exceed 140/90 mmHg and it is hypotonic, if it is less than 100/60 mmHg for people younger then 25 years old.
The aim of the study. The aim of this study is to establish the influence of massage upon blood pressure.
The objectives. 1. To carry out the course of massage procedures to the students having high blood pressure and to estimate their influence. 2. To carry out the course of massage procedures to the students having low blood pressure and to estimate their influence.
Object of the study. The object of this study is the blood pressure of the students of Health Faculty of Lithuanian Physical Culture Academy.
Methods. 1. Blood pressure measuring. 2. Corresponding massage procedures. 3. Data statistical analysis.
Results and discussion. During the academic year 1999 – 2000 blood pressure was measured to all the students of Health Faculty of Lithuanian Physical Culture Academy. 343 students

took part in our measurements. Small tendency to high blood pressure was noticed from the first up to the fourth course students. Generally, the average of all the students' blood pressure was 116.8 mmHg systolic and 92.15 mmHg diastolic. Inspite of the average, some students had tendency to hypotension and some to hypertension. Most of those students had various complaints about their physical condition.
An experiment was held, in which corresponding massage procedures were performed to both high blood and low blood pressure predisposed students. Though blood pressure of those students didn't reach the highest or the lowest range of normal extent, but all of them complainedof bad feel, so they were chosen for the experiment. We didn't name them patients, but they were just people predisposed to high or low blood pressure. Total of 11 students got massage procedures. 6 of them had a tendency to high blood pressure and 5 of them were predisposed to low blood pressure. Each of them had 10 procedures (totally: 110 procedures were performed). The massage procedures had positive results for the both groups of students.To students predisposed hypertension had changes in their blood pressure after each procedure as follows: systolic blood pressure deceased ~ 20 mmHg and diastolic deceased ~ 10 –15 mmHg. The blood pressure of to students predisposed hypotension have increase in their blood pressure as follows: systolic ~ 7 mmHg and diastolic ~ 5 mmHg. Though this increase wasn't high comparing with blood pressure before the first and the last procedures, but it was statistically reliable.
Conclussions: 1. Massage is an effective way to regulate blood pressure for to people predisposed hypertension.
2. To raise the level of blood pressure in case of hypotonia more physiotherapic procedures are necessary (e.g. kinesitherapy, physiotherapy, medicine).

Supervisor: Ass.Prof. Nijolė Kristina Valužienė

COMPARISON OF RELATIVE BODY FAT CONTENT ESTIMATES IN YOUNG ADULT FEMALES

Martha Paisi
Semmelweis University (TF) Budapest, Hungary

Fatness and obesity is an excess of body fat frequently resulting in a significant impairment of health. However, the results of the various estimations may differ in biological respects.
The aim of the present investigation was to analyse the biological and statistical relationship between body fat estimates calculated by skinfold thicknesses and height-weight ratio.
The investigated subjects were randomly selected from the greater samples of female applicants (in the years of 2000, and 2001) to the Faculty of Physical Education and Sport Sciences (N=108). Standard human biological techniques were used for the assessment of physique and for the estimation of relative body fat content. Namley: the growth type indices (Conrad 1963), the Parízková's technique (1961), the Siri's (1961) method, the Drinkwater-Ross (1980) tactic, the equation of Slaughter and associates (1988), the BMI as one of the estimates of fatness and obesity, the Durnin-Womersley technique (1974) for the assessment of body density
The differences between the means of various body fat estimation were biologically and statistically significant. The body fat mean was the smallest by using the Drinkwater-Ross (1980) technique and the largest by the estimation of Slaughter and co-workers (1988). The closest correlation was found between the Parízková's estimation (1961) and body density. This relationship explains more than 96% of the common variance.

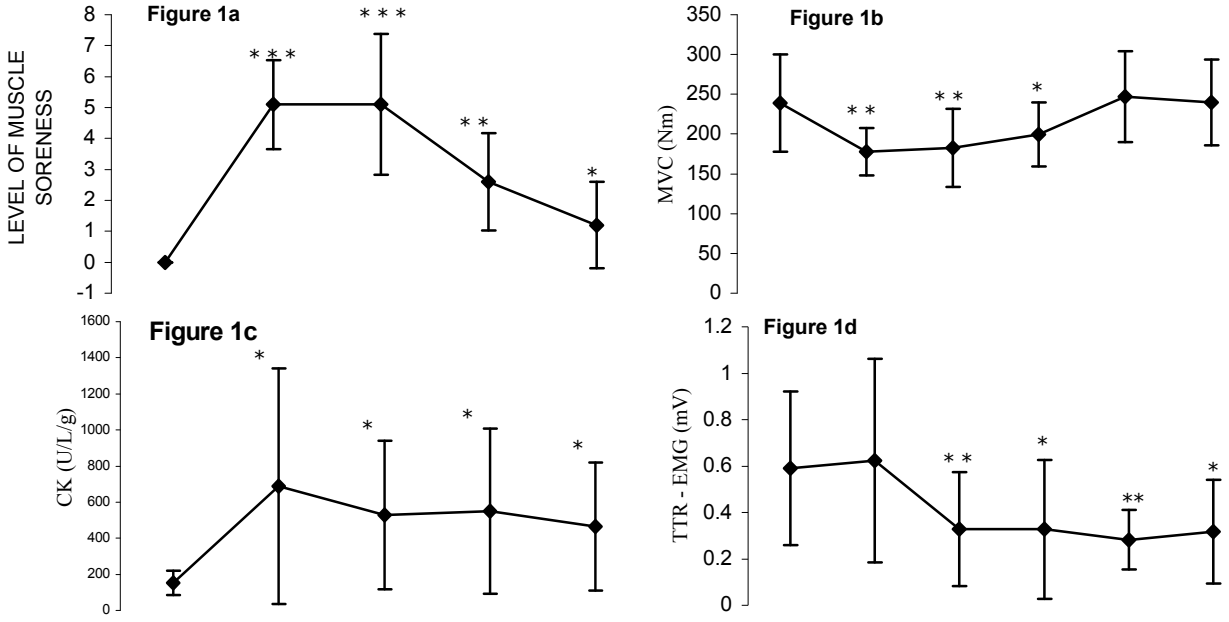
The inter individual differences in growth type were not as consistent as it was in their relative body fat content. Those girls who were qualified as fat or slightly obese can be characterised by more picnomorphic constitution than their non fat or lean counterparts. In conclusion, we do not questioned the effects of energy intake and utilization in the appearance of fatness and obesity, but the physique means a biological inclination to the development of extra adipose tissue mass.

Supervisor: Dr. János Mészáros

NEURO-MECHANICAL ALTERATIONS IN MUSCLE AS A RESULT OF DELAYED ONSET OF MUSCLE SORENESS

N. Šarabon, V. Strojnik, B. Koren
Faculty of Sport, Ljubljana, Slovenia

Introduction: In most cases delayed onset of muscle soreness (DOMS) appears as a result of involvement in unfamiliar physical activities, workouts against high loads and/or eccentric muscle contractions (ECC). All this leads to acute trauma of muscle fibers, which results in so called DOMS (Enoka, 1994). Affected muscles are consistent and stiff but also pain-sensitive. The aim of the present study was to examine kinetics of neuro-muscular alterations after vigorous ECC workout and resulting DOMS.
Methods and materials: 10 untrained subjects (3 female, 7 male), students of the Faculty of Sport – University of Ljubljana, took part in the experiment. They all gave their full informed consent. They were asked to perform 200 ECC knee extensions. Initial and final measurements involved knee extensor muscles (EMG measured from m. vastus lateralis). Tests included: mechanical response of relaxed muscle to single supramaximal electrical stimuli, EMG response to tendon-tap reflex of patellar ligament (TTR), maximal voluntary contraction (MVC), maximal rate of force development, muscle activation level, serum creatin kinaze in venous blood (CK), algometry, and personal scaling of pain level (PP). The same measurement procedure was carried out also: 2 hours, 1, 2, 3 and 4 days after the maximal ECC workout. ANOVA and paired t-test were employed to test statistical significance of changes.
Results: The most informative results are presented in Figures 1a-1d. Statistically significant differences (ANOVA) are marked *<.05, **<.01 and ***<.001.



Figures 1a-1d : ***alterations of different parameters as a result of DOMS. Figure 1a: personal scaling of pain level (PP); Figure 1b: maximal voluntary contraction (MVC);***

Discussion: ECC workouts need special treatment in sport, because repeated ECC could lead to extended impairment of muscle function. Modifications of CK, PP and TTR-amplitude are very likely related to inflammatory process which takes place in a muscle between 24 and 48 hours after ECC activity (Newham et al., 1983). From our results can be estimated that most alterations related to DOMS were of peripheral origin. Central mechanisms were improved from second day on, while the impaired neuromuscular function due to peripheral mechanisms was observable until the last day of the experiment.

THE EFFECTS OF ESTROGEN ON MUSCLE PERFORMANCE

Jessica Leschied

For years, estrogen has been linked to the prevention of cardiovascular disease and osteoporosis in aging women. It has been proven to offer protection against atheroscelerosis and high cholesterol levels. As well, over the past ten to fifteen years, an increasing amount of research has been devoted to studying the numerous effects of estrogen at the muscular level. More specifically, estrogen has been proven to influence post-exercise induced muscle damage and the subsequent repair process, and to maintain levels of strength in skeletal muscle up until the onset of menopause.

Muscle damage caused by physical activity may be attributed to estrogen's anti-oxidant properties and its' influence on membrane stability. Furthermore, females have demonstrated lower levels of creatine kinase (CK) in their circulation following exercise. The presence of CK in the bloodstream is a good indicator of increased leakage of muscle enzymes and disruption of the sarcolemma, sarcoplasmic reticulum, and mitochondrial membranes. As for affecting strength, specific muscular force in aging muscle may decline an extra 15% in women, as compared to aging men, around the time of menopause. Researchers are currently under the impression that administration of hormone replacement therapy during and after menopause, may protect against this loss of muscular strength.

Throughout the female menstrual cycle, women are exposed to generally predictable fluctuations in hormone levels, whether they are endogenous hormones or, if relying on oral contraceptives to regulate their cycles, synthetic hormones. More research is needed to determine the extent to which these hormones affect athletic performance but it is the purpose of this presentation to discuss the effects of estrogen at the muscular level.

Supervisor: Prof.Dr.Eable Noble

JUMPING ATHLETES' CHARASTERICS ON BONE DENSITY

Norbert Kovács
Semmelweis University (TF) Budapest, Hungary

Introduction: at the momentary phase of supporting on eight times as much impact force as weight of the body influences competitors in jumping events. The blow received from the ground exerts pulling, pushing and cutting forces to the bone system. It's presumoble that in bones –especially in bones of the trail leg ang spinal column- getting used to long duration loads the amount of minerals increases. The aim of our research was to prove this assumption.
Methods: 5 women (aged 21.6±1.9) and 10 (aged 25,2±3,5) took part in the study. Their sport can vary from high jump, long jump and triple jump. The jumpers had participated in regular training sessions for more than 5 years. The measurement of mineral contents and density of the bone in lumb. Vertebral (L2-L4), the proximal femoral neck of the trail leg and radius was carried out by double x-ray photo hologic DXA with absorptiometer. Mean and standard deviation were calculated in terms of certain variables and groups. The means of minerals were compared to the same age group means of the Hungarian normal population.
Result: The bone density in L2-L4 vertebrae was significantly greater than in the femoral neck in both women and men ($P<0,05$). The mineral contents of radius were lower than in the other two bones. ($P<0,001$) The female competitors' bone density in lumb. vertebrae, the femoral neck and the radius (L2-L4: 1,154±0,07 g/m2, femoral neck: 1,02±0,05g/m2, radius: 0,63±0,03 g/m2) was significantly lower than in similar bones of male competitors.
The Z-score value indicating the difference from the mean of the age group population was high for males regarding to L2-L4 vertebraes (1,86±1,17) and femoral neck (1,97±0,75). As for as women are concerned, the z- score was rather low in L2-L4 vertebraes (0,96±0,66) but it was higher in femoral neck (1,70±0,29). However, it was significantly lower than in males ($P<0,05$). In the case of both sex the main values of radius corresponded to the age group values.
Discussion: Our study indicated that results sufficient to bibliographic data were brought about in comparing females to males. The nearly same training program does not make a change in difference between the two sex. On the other hand, the women have nearly the same bone density in lumb. vertebraes and femoral neck than non exercising males, thanks to the jumping trainings. It's surprising that the training caused less bone density increase in women's L2-L4 vertebraes than in femoral neck. The mean value of mineral contents of vertebrae in males had a great standard value thanks to the fact that 3 competitors had a pretty low Z- score value (0,36±0,17), which was quite different from the other 7 jumpers' mean value. (2,61±0,39) A question comes up, whether the competitors with no significant bone density increase while training can less tolerate the long duration loads and does it appear in their result too? A further question emerges whether these competitors are genetically coded for lower bone density. This is indicated by the fact that the mineral contents is also lower in the 3 competitors' femoral neck than in the other 7 jumpers. During the analysis of the research results, further investigations are mended for answering the questions emerged. Since there's no blowing forces having impact on jumping athletes' hands, that's why it is natural that the density of the radius is sufficient to the normal population mean value.

Supervisor: Prof. Dr. József Tihanyi, László Szalma

THE PHYSIQUE AND PHYSIOLOGICAL CHARACTERISTICS OF CYSTIC FIBROSIS CHILDREN

Dimitrios Mimidis
Semmelweis University (TF) Budapest, Hungary

Cystic fibrosis is a genetic disease effecting most of the organs: lungs, pancreas, intestinal mucous glands and sweat glands, leading to abnormally viscous secretion, blocking the ducts and air passages.
The presentation is about some selected anthropometric and respiratory parameters of cystic fibrosis(CF) children measured at Children's Hospital Szabadsághegy. By the antropometric variables indices of the physique and the body composition of the children were characterised. The body measurements were taken in 13 boys and 8 girls took part in control sessions at the hospital.
Physiological parameters – respiratory test values – were taken in another group of cytic fibrosis children (n=38) registrated when participating at follow-up control measurements.
The chronological age was calculated and biological age of the children also was assessed. The results showed that CF children were somewhat physically underdeveloped compared to the reference data, their biological matuation level were behind the chronological age. It was supposed that they had more pycnomorphic body shape, because of the laboured breathing. It could not be proved by our results, because of the low subject number. The respiratory capacity results were far behind the normal values showed an obstructive airway disease though the results varied by the fact if the children had or had not used medication before the respiratory control measurements.

Supervisor: Dr. Anna Farkas

COMPARING THE FITNESS LEVEL OF THE HUNGARIAN AND PORTUGAL YOUNG ADULTS (20-22) BASED ON THE ANTROPOMETRIC CHARASTERISTICS AND MOTOR PERFORMANCE

Frederico Portugal
University of Coimbra, Portugal

Hungarian political changes gave also lot of negative impact on the characteristic of the young adults. Almost 67% of the Hungarian young adult population are inactive.
According to the report of the WHO 2001 the mortality rate of the Hungarian population increasing. First of all the main problem is the cardio vascular system disorders, and the problems of the adiposity.
The purpose of this study was to analyse the mean differences between the estimated relative body fat percentage (F%) motor performance (Cooper-test) and the young adult living in two different countries.
Moreover we started to find relationship between the antropemetric parameters and the social status at the Hungarian and Portugal young adults.
Key words:
Social transformation, Relative body fat percentage, Cooper-test

Supervisors: Manuel Joao Coelho e Silva, Ferenc Ihász

PHYSIQUE, BODY COMPOSITION AND MOTOR PERFORMANCES IN CYPRIOT AND HUNGARIAN SCHOOL-BOYS AGED BETWEEN 10 AND 13 YEARS OF AGE

Marios Georgiou
Semmelweis University (TF) Budapest, Hungary

Excess body fat or obesity, inactive life style are the major risk factors for cardiovascular diseases in general and also for diabetes.
The aim of the present study was to analyse the body built, body composition and motor performance of Cypriot and Hungarian boys aged between 10 and 13 years of age (N = 800).
Standard anthropometric techniques (estimation of relative body fat content, determination of growth type indices) and valid motor performances (30 m dash, 400/1200 m run, standing long jump and fist ball throw) were used in this investigation. Differences between the respective group means were analysed by t-tests for independent samples
The ratio of fat and obese children and adolescents is greater in the Cypriot population than that of in the different European samples (Othman 2001, Eiben et al. 1992, Kemper 1985, Malina et al 1988, Nieman 1995). The fat boys were slightly taller and markedly heavier than their non fat counterparts, however, elimination of the differences between height means did not modified the great variability in individual body masses or averages. Theoretically the taller stature of fat and obese groups can be related to the slightly advanced biological maturation.
Group means and standard deviations for stature and body mass calculated at the samples with relative body fat content less than 24.9% can be evaluated as characteristic (required) values for the Cypriot boys of the respective age groups. The Cypriot boys were slightly shorter comparing to the Hungarians.
The age dependency of growth type shown at Cypriot boys is the second publication in Europe, and the third one in a world. The inter race differences can be recognised in the group means, the timing of linearity peaks and also in the fastest changes in bone-muscle development. The mean growth type of the Hungarian boys was significantly more linear, however, more robust, than those of their Cypriot counterparts.
By the evaluation criteria of PE teachers, the motor performances of the in-vestigated boys in both nations can be qualified as good. The higher than required body fat content increases significantly the running times in both endurance tests. Only the performances of boys with body fat content less than 25.0% can be qualified as good.

Supervisor: Dr. János Mészáros

COACH AND STUDENT RELATIONSHIP IN SWIMMING
(Historical Review)

János Egressy
Semmelweis University (TF) Budapest, Hungary

From viewpoint of sport performances the coach-student relationship is an issue of primary importance. In this paper the most important the factors which determine this relation are regarded as follows: the aims of the cooperation and the degree of their realisation; the length of the cooperation; the personal characteristics of the coach and athlete involved; the style of the coach's leadership. Hungarian swimming has been undergoing significant changes from the 1950s. The aim of this paper is to analyse what was the nature of the relationship between the coaches and their world-class athletes in the fifties, sixties, seventies, eighties and in the nineties, and to discover how much part had the coaches in their swimmers successes, in their adapting to the social life after the disengagement from top sport. The method for data collection is case study and in depth interview. The interviews were carried out with world-

class athletes of the fifties, sixties, seventies, eighties and nineties and partly with their coaches. The following issues are analyzed: (1) The role of the coaches in the swimmers' sporting carreer (2) The special role of the first coach (3) The internal and/or external reasons of changing coach and/or club during the sport carreer (4) The coach as a pattern of behaviour (5) The influence of political regimes on the swimmers' and coaches' carreer. It is concluded that the cooperation was the most effective in the case when the relationship was based on mutual confidence, and not on mutual dependence.

Supervisor: Prof. Dr. Gyöngyi Földesi Szabó

AN OBSERVATIONAL SYSTEM FOR INTERACTION AND ITS IMPLICATIONS FOR THE TEACHING OF SWIMMING

Melinda Bíró
Semmelweis University (TF) Budapest, Hungary

There is a great need for aquatics at an elementary level. Death comes to many small children by drowning because of ignorance of the simplest forms of water safety and the lack of swimming techniques. For their own safety and that of others, all children should learn to swim. Who should teach them; swimming instructors or PE teachers? How should instruction be organised and who should do it?
I should like to emphasise the role of PE teachers in relation to the teaching of swimming, and then proceed to consider the observation of verbal and non-verbal communication as it occurs in the spontaneous interaction of the teaching process. Additionally I observe the whole process whereby the teaching of swimming is put into practice.
My basic purpose is to achieve a greater understanding of the teacher's role, the control he exercises while teaching, and the patterns of influence he adopts.
I intend to employ a method of recording and analysing teacher statements.
I would like to demonstrate a system and the categories of relevant teacher – student behaviour, and the verbal – non-verbal dimensions.
This system enables one to observe the physical educator's behaviour in their class setting. Interaction analysis (which is an adaptation of the Flanders system) in effect, takes a picture of the class and the PE teacher during the teaching of swimming.

INVESTIGATING TEACHING STRATEGIES APPLICATION IN GREECE AND HUNGARY

Marina I. Salvara *, Judit Farkas
Semmelweis University (TF) Budapest,Hungary

This study examined the behavioral teaching and learning time allocation in physical education classes with the use of an observational system consisting of 17 categories, which was created by the first author of this presentation and revealed the application and preference among 10 teaching strategies by Greek and Hungarian physical educations teachers. Participants in this study were 84 physical education teachers (42 Greek and 42 Hungarian) randomly selected. Their teaching experience ranged from 5 to 35 years. Throughout the duration of this study (2000-2001), teachers were teaching in 4^{th}, 5^{th}, and 6^{th} grades of elementary schools in both countries. Teaching and learning behaviors were investigated with a multi-exemplar form focused on basic human abilities: reproduction, discovery and

production that were based on systemic theory. *Descriptive* statistics, *chi-square* analysis and *MANOVA* were the methods with which teaching and learning behaviors were analyzed. The results indicated that physical education teachers in Athens applied mostly teaching strategies from 1-5 (reproduction and assimilation of the pattern) while teachers in Budapest applied mostly teaching strategies from 5-10 (discovery and production).This implies a clear difference in instructional approach. The application of a *MANOVA* model ($p<.05$), which included only the main effects of independent variables revealed significant differences between Greek and Hungarian teachers; (1) All categories applied during introduction to instruction are influenced significantly by the postgraduate studies variable of the teachers in both countries, which was also significant concerning teaching strategies targeted at discovery, (2) Greek and Hungarian teachers differed significantly in the time application of instructional process' continuation and output.

* This presentation comprises part of M. Salvara dissertation under the supervision of Pr. Dr. Edit Biro.

THE ANALYSIS OF OCCURING TECHNICS IN TEAM-HANDBALL

Csaba Ökrös
Semmelweis University (TF) Budapest, Hungary

The popularity of ball-games can see all over the world. People like sportgames because during the match-time happenings are very exciting and delicious. There are a lot of struggling
(against the opponent) unexpected turns are follow each other, players built up spectacular situations and achieve the purpose by solving difficult tasks, it's just like in normal life. The following teamsports are rise above the others: handball, volleyball, basketball and soccer, can say these are traditional team-sports in Hungary.
We can pay attention to an individual player in the game, who is like a component in a big system and on the other hand this person can be an own small system cooperating with mates. There is a question come up about this person which is more important: his excellent quality in the mentioned sport or his cooperating ability which is sometimes helps him and another time impending him at the game.
I made my research on handball teams because this sport has a special characteristic, players are possess the ball by grabbing it. It can be with one hand, possibility is given by the size of a ball. In this case the period of possession is getting longer than other " touch-games". Therefore making technical elements with ball became more variable and inscrutable. In my performance I'd like to demonstrate a few components of successful team-play, especially developing the casts inside the team, because it's needed to form specialists and necessary to play consultants on the different positions of attack.
The analysis based on this year's male European Championship and results bring interesting connection between nations and repertoire. Finally I'd like to support my performance with some action details presented by video, I hope you will enjoy it indeed.

Supervisor: Prof.Dr.Endre Rigler

INTRODUCTION TO THE BASKETBALL TRAINING PROGRAM

Nikolaos Parthymos
Semmelweis University (TF) Budapest, Hungary

The reason I decided to write about this subject is that I am from Greece, one of the countries that the past decades loved to play this game, and I am doing my specialization on this field.
What is it all about? – I will try to analyse the elements that we use in Greece (since a lot of my ideas come from Greek books) so that to build a well-prepared team for the whole season.
General: The training which will be analysed in the next lines refers to adult athletes of basketball, athletes who are 18 years old or more. To sum up, this project concerns and interests athletes who spend a great amount of time on basketball.
The training program of the pre-season period consists of 72 practices in six weeks, (36 hours in the mornings and 36 hours in the evenings).
At the beginning of the pre-season period the amount of practice is great. The tension though is estimated to be less. The closer the season period gets the less the amount of practice is, while tension increases. This happens because the players have to reach the highest level of performance before the first game. Our goal is the maintenance of that level.
It must be noted that at the end of the third, fourth and fifth week, friendly games are included, which always take place on Saturdays.
This happens because the players need to be balanced for when the time comes that each Saturday they have an official game. During the 72 practices it is necessary for the players to get prepared in all areas of basketball. These are: the technical training, tactics, and the physical condition, which is very important.

RESEARCH ON SHOOTING ACCURACY WITH COMPETITIVE AND HANDICAPPED BASKETBALL PLAYERS

Szilvia Gita
Semmelweis University (TF) Budapest, Hungary

Basketball has become one of the most popular sport games. There are more and more people all over the world who play this game from young ages. But the game is not decided only on age groups. In the last decade handicapped people are also interested in and excited about this game. Mainly orthopaedic diseases can be determined behind their illnesses. Basketball's magic could help them to feel better both in private and social life.
Wheelchair basketball spreads out in many countries and we can also find it in the program of the Paralympic Games, which indicates the wild range of mental and somatic therapeutic features of chair sports.
In the lecture we would like to present the measured accuracy results of healthy, competitive (Division I) and wheelchair basketball players. Accuracy can be the decisive moment of the game.
Success of shots from different positions and under time pressure can inform us about the level of shooting skills and its safety. As we analyse the results we have a better view if unusual shooting positions (lower limbs are not used, sitting position) have an effect on accuracy or not. We think that the results can be useful for both competitive and handicapped basketball coaches and players.

Supervisor: Dr. Prof. Endre Rigler

THERAPEUTIC RECREATION INTRODUCTION OF A SPECIAL SUMMER CAMP PROGRAM FOR CHILDREN WITH CANCER IN HUNGARY

Szabolcs Török, István Attila Tóth
Semmelweis University (TF) Budapest, Hungary

The purpose of therapeutic recreation is to promote independent functioning and to enhance the optimal health and well-being of people with illnesses and/or disabling conditions. Recreational therapy interventions include structured activities which enhance specific functional skills, organized sports activities, adventure and challenge activities, games and other programs which all providing a joyful experience for patients with chronic illnesses.
The therapeutic recreation program Bátor Tábor (Camp of Courage) has been created by the organizers based on the experiences of junior oncology patients at Barretstown Gang Camp, Ireland. The Irish model had motivated the inception of the Hungarian initiative. The goal of the initiative was to peresent a new method in Hungary and to envision further future possibilities drawing from the initial experiences. The organizer team (consisting of pediatricians, psychologists, physical education teachers, social workers and other experts from different fields) started a pilot project and organized their first summer camp in July 2001. The authors present an introduction of their program, which is unique in its kind in Hungary. The presentation includes a video presentation with a summary of the program and of the summer camp 2001. The participants of the camp were 65 kids (in two sessions) from the 10 existing pediatric oncology centers in Hungary who had received medical treatment for cancer within the past five years.
The authors hope that their program will win the support of more and moer people who think along similar lines of thought and who are committed to support. Their further planes include using objective methods for proving the effectiveness of such camps.

AN ESSAY ON THE DEVELOPMENT OF DIDACTIC MULTIMEDIA FROM ON ITS ONSET TO DATES

Kokovay Ágnes Vona
University of Nyíregyháza, Hungary

The very word 'multimedia' is thoroughly intertwining all facets of our everyday lives. Its frequent appearance demands the exact definition of this phenomena. 'Multimedia' is far more, than any single medium on its own, vying to be informative and for educational purposes, by linking them together- those media system have been available in the past few decades. What new is in the multimedia, the personal computer (PC), as the key of this driving force, information storage on multiple forms of retrieval systems, as on CD-Rom or on hard drives. This multiple option of retrieval form interactive linkage is made possible by the central position of the computer. At the time, when the user of the multimedia-applications, including real time simulation and virtual worlds, he can continuously interact. In the near future, the computer ostensibly will be more, than a symbol manipulator, but the possibility of the creation of virtual worlds with its capabilities, where the multitude of information is readily available. This essay attempts to examine from the point of view of the reaction of a curriculum, that transposes its advantages in the education system in our learning institutions. The following questions are the answers, for this, with the help of the aforementioned researched literature's help:
Has the the special didactic multimedia emerged yet?

What help does the didactic multimedia provide?
What is the importance of interactivity and visuality in the development of educational programs?
How beneficial are these educational programs?
Key words: multimedia, didactic, educational

Supervisors: Dr. Gábor Fazekas, Dr. János Gombocz

INVESTIGATION OF THE INFLUENCE OF LEARNING PROCESS FOR SUCCESS BY CHOREOGRAPHED MOVEMENTSERIES

Balázs Fügedi
Eszterházy Károly College, Faculty of Physical Education, Eger, Hungary

In the several areas of sciences human movements and investigation of movements always was a central question. It's mainly true at the sport science where learning process and attaining is a key issue from the point of view of quality of execution, precision and success. Always difficult to determine the etalon and over it the measurable and immeasurable branch of sport has different attributes.
The appearance of these sphere of thought drive us to start an examination which can help to explore the reasons of success or unsuccessful in execution.
In the present case we would like to clear up:
- the construction of the movement which causes problem;
- the connection between of the time spent on learning and different stage of learning process;
- the influence of dominant side of body for direction of movement;
- the function of using hand apparatus in learning and execution;

We used video technique for analysing movements, and hope results can help for teachers and students in the process of learning movements.

Supervisor: Prof. Dr. Endre Rigler

FROM TASK DEFINITION TO MOVEMENT EXECUTION (A GLIMPSE INTO THE INITIAL PHASE OF MOVEMENT LEARNING)

Zsuzsanna Sáringer Szilárd
Eötvös Lóránt University, Budapest, Hungary

The ability of movement is the most important biological achievement of the living world and especially of humans. Teaching humans movement is another interesting problem. It seems simple, since we have learned all the forms of movement, through natural development and the social environment. Pedagogic assistance has a great influence on the quality of movement execution.
We established a modelled situation for our research aimed at studying how 3-6-year olds are capable of executing a given movement? I shall in my presentation elaborate on our research conducted among kindergarten children. What was the path they followed from receiving the instruction to the “final status” they occupied? What kind of tools, movements, motion forms and observation attitudes did they utilize?

Supervisor: Prof. Dr. Endre Rigler

AGE AND CHOOSING OF SPORTS

Gabriella Bicsérdy
Semmelweis University (TF) Budapest, Hungary

The factors influencing the choosing one's sport have always shown great concern for the representatives and specialists.
The personal decision of the athlete should direct the choosing of the branch of sport. But according to our experiences, there are several other factors, which influence the decision process.
A questionnaire of a 362 sample of pupils and students of secondary and higher education was used to answer the questions related to the topic. The used sample made it possible to reflect the life image of the students. A special attention was paid to those questions during the compilation of the questionnaire, which hinted to the conscious or spontaneous features of the choosing process.

Supervisor: Prof. Dr. Endre Rigler