CONCEPTIONAL MODEL OF SPORT SCIENCE

© Tibor Polgár
poti@bdtf.hu

As compared to the other areas of science declared as "classical" in Hungarian society, the evolution of sport science is a new development, its commence dates back about 50 years. Its development and structure can be characterized by the attitude of the given social medium. It possesses the criteria necessary to be accepted as a science, its relationship with other fields of science is elaborated and its organizational structure is established. Beyond demonstrating the national circumstances, this study looks into the structure and system of relationships of international, primarily European sport science.

Sport science began to develop from the middle of the last century, in stages that can be separated by analyzing the interaction of theory and practice. In the empiric period the description of practical experiences, in the disciplinary period the revealing of new knowledge carried out by scientific methods was significant. The scholars of the third, inter-disciplinary period approached the problem of subdisciplines in a simultaneous, multilateral and inter-scientific way.

Among the concepts related to this discipline, different opinions are published even today on physical culture and sport as basic categories. The conceptual structure and theory deduced from the perspective of physical culture was customary primarily in the "eastern block" (Körperkultur, fizicseszkaja kultúra, testkultúra etc.). "The concept – together with its Russian equivalent "fizicseszkaja kultúra" – came into general use after the World War II in the socialist states" (*Beyer*, 1987.1.). This statement postulates connection with the obligatory policy that was dictated by the socialist regime even in the field of sciences. Leafing through the older specialist books – mainly on social sciences – the reader rarely comes across "western" quotes, used or recommended readings. As a result of this isolation, the development and theory (physical culture science, physical education science, physical education and sport science etc.) or even the practice (fight for prestige between east and west in the field of leading sports) of sport science had a special path. To clear the basic concepts very few articles are available and the authors use mainly borrowed definitions. An important analyzing study in the subject matter can be found from the beginning of the 1971s (*Takács*, 1971).

A decisive change in this subject – maybe in connection with the social transformation of regime – was brought by the 1990s. Important decision was made in December 2003 in Nyíregyháza, when the Board of Physical Education and Sport Science had to decide about the name that was necessary to the discipline classification affiliated with university teaching areas (physical culture – sport). In the interest of the international acceptance and convertibility, the board voted for the term "sport science".

In Western European countries rather the name "sport science" was used as basic category from the very beginning (in German "Sportwissenschaft", in French "science de sports") (*Beyer*, 1987.2.).

Naturally unification is not the aim, but one must notice that the countries of different cultures created their *own disciplines* on other traditions, other social, economical and ideological approach.

In 1994 a standpoint was accepted about the admission of physical culture and sport science to the scientific nomenclature of the National Accreditation Committee *(Istvánfi és mtársai*, 1994). The year 1997 also brought an important breakthrough, when The Hungarian Accreditation Committee accepted a decision about the accreditation of sport science. With this the launch of the independent Ph.D. training became also possible at the Faculty of Physical Education and Sport Sciences of the Semmelweis University (the former TF). It is to be remarked that at the TF that has been a university-qualified college since 1 September 1975, it was possible to obtain a university doctoral degree until the beginning of the 1990s. Efforts were continuously made so that the Hungarian Academy of Sciences should accept sport science in a wider range (*Biróné*, 1998). The landmark was the governmental regulation No 169/2000. (IX. 29.), in which Sport Sciences can be found independently among the Social Sciences as subsection 5.7. This fact also makes clear the *taxonomic place* of the discipline.

The interests of sport science are promoted by the Sport Science Working Board that belongs to the scientific committees of the Section of Medical Sciences at the Hungarian Academy of Sciences. Inside the Hungarian Accreditation Committee its interests are promoted by the Subcommittee of Medical, Health and Sport Sciences that belongs to the Committee of Medical and Agricultural Sciences. It is regrettable that sport science has no independent committee in any of these organizations, thus its development is limited as compared to the classical areas of science.

The *institutions* of sport science are established, assisted by high-qualified professors and researchers at the universities and colleges. Besides the research centres that elaborate and mediate the theory, sites of practice (and their network) can also be mentioned here. Among the supporters of sport science the following institutions are remarkable: the Hungarian Society of Sport Science (HSSS), the Hungarian Olympic Committee (HOC) and the National Sports Office (NSH). The Faculty of Physical Education and Sport Sciences at the Semmelweis University (TF) plays an important role, not only training sport experts at international and national university level, but also operating a Ph.D. School. It is necessary to mention the work of the Board of Physical Education and Sport Science that is the professional union of the universities and colleges of sport science training. Its aim and mission is to:

- make proposals on problems of physical training and youth sport in public and university education,
- make proposals on content and organizational issues of sport expert training,
- co-ordinate the co-operation of institutions on issues of student mobility (ensured by the credit system), student research, organization of scientific conferences, and development of the expert training,
- express professional opinion for the management of the institutions affiliated with expert training, for the professional highest authority and for national organizations,

- report on and elaborate professional materials and plans of governmental orders serving the development of physical training and youth sport in public and university education, professional sport and expert training.

The deeper cognition of sport science necessitates the cognition of its concept, functions and structure. Sport science as a subarea of the universal culture of human society is a system of ideas for reflecting physical culture – a set of scientifically proven, systematized, generalized principles, theses, laws and regularities, theories and methods (Bíróné, 2004.1.).

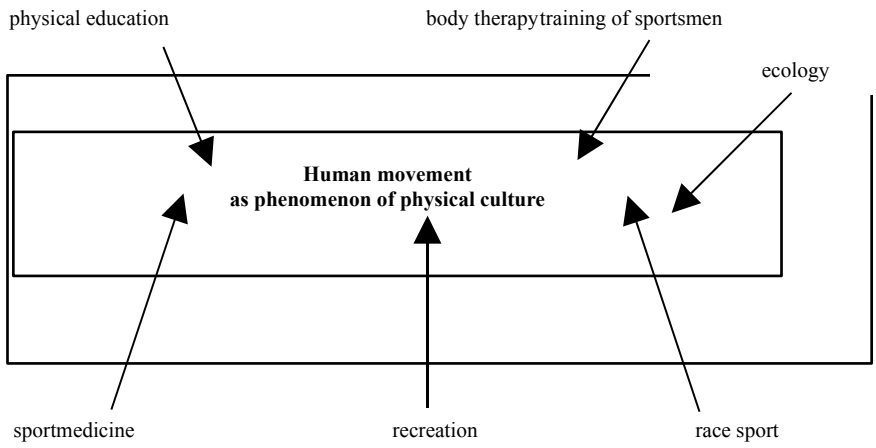
Science is a mental product appearing on the subfield of universal culture, the mental reflection of culture. Sport science is a multidisciplinary science, integrating the knowledge of natural and social sciences, the research field and subject of which are the phenomena of physical culture, especially the man involved in physical activities and sport. Its research results are utilised mainly built in training, developmental and correction processes in order to increase human health, hardiness and psychophysical ability (Istvánfi, 2000.).

The independence and differentiaton of sport science from other disciplines is possible, because it has an exact research subject, which is first of all the investigation of human disposing power and achievement increasing physical activity with the purpose of development of sport practice and theory and in order to reveal new connections. Science has influence on sport, development of the physical culture of the population, an important part of it is physical education at school and sport, related to the preventive healing activities too.

The research purpose of sport science is the increasing of the physical cultural values of the society (as the subculture of the universal culture) and with the help of these to help the persons and through them he whole society to develop. Another purpose of sport science is the research of the man doing conscious physical activity (doing sport in the broad sense) as a biological psychic-social unit (Bíróné, 2004. 2.).

The first figure shows the special conceptual theory of two scientists from a point of view of physical culture phenomenon. It connects the sport specific activities through enviromental influences with human movement as a phenomenon.

Figure 1. The structure of sport science from the point of view of physical culture



The second figure shows sport science as the central element of physical culture (Prisztóka, 1998). The division shows the internal dynamics, the relationship of the elements to each other and their reciprocal effect.

Figure 2. Structural elements of physical culture

PHYSICAL CULTURE		
practical elements	theoretical elements	subject elements (financial, social)
- body training, play-, sportactivity - condition, compensation - movement actions movement games, (exercises) - trainingforms, types of sport - development of movement education - development of sport education - movement arts - activites of the way of life (nutrition, sleep, sexuality, wasching, dressing, traffic, etc.) - creation and applicacion of hygienical habits - etc.	- theoretical knowledges to body training, types of sport, (rules, physiological-biological effects, training methods, accidentprotection, etc.) - biological knowledge about the function of the organism - hygienical knowledge - medical knowledge (care, nursing, prophylaxis, etc.) - etc.	- sites, institutes body training, sport activity - functional conditionsystems - tools for accident prevention - health conditions (medical provision) - servis - communal feeding - sport clothes - traffic conditions - infrastructure - etc.

Sport science deals with research of sport as a social and cultural product, aiming at revealing its qualitative features: they are the cultural roots of sport, the interactions between sport and other phenomena of culture, the national, regional and international characteristics of sport, the importance of sport for persons, small and big groups and societies.

It has special research methods, its terminology and conceptsystem is well-established. It systematizes and integrates its new pieces of knowledge and formulates its research results in its theories. As a result of its interdisciplinary charakcer it uses the results, instruments and methods of other disciplines and it also developes new methods and instruments. This thought is illustrated by the taxonomical approximation based on thoroughly connected medical, natural and social sciences, as well as cultural theoretics (Haag and Hummel, 2001. 2.).

Bases of medical and natural science:

- biology of sport
- medicine of sport
- biomechanics of sport
- technique of sport

Bases of social- and behavioural sciences and pedagogy:

- sportanthropology
- psychology of sport
- pedagogy of sport
- sociology of sport

Political and economical bases:

- politics of sport
- sport law
- economy of sport
- management of sport

Cultural bases:

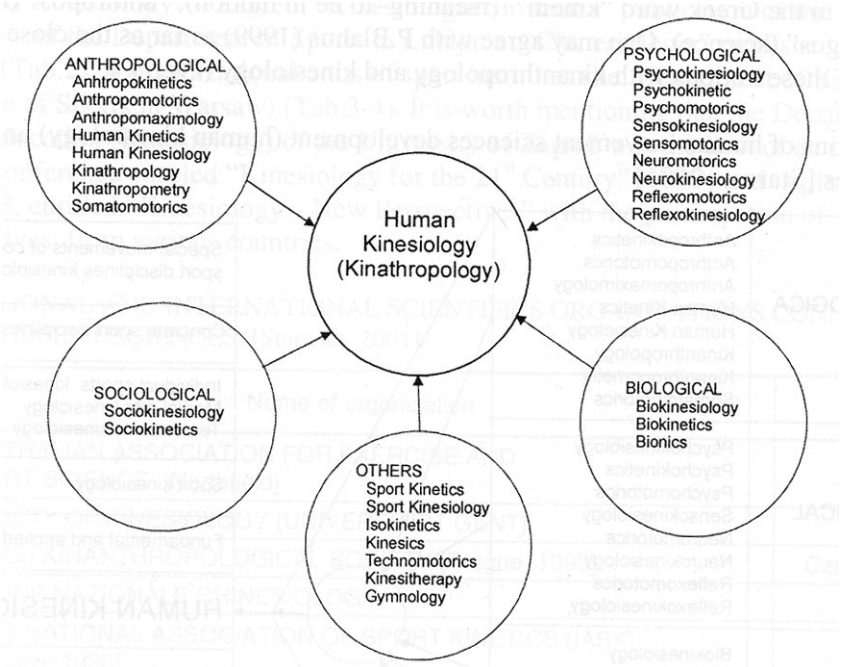
- history of sport
- comparative science of sport
- informatics of sport
- philosophy of sport

Other determining fields of sport science are the fields relating to sport and fields close to sport, which, simultaneously, harmonize with the basic categories of sport science.

Fields relating to sport:	Fields close to sport:		
Exercise, game, training	Aims	People	Vocation
Education in sport (didactics)	leisure sports	sport of women	sports kit
Practice of sport education	health sports	sport of the old	professional sport
Theories of sport education			
Science of sport education			

The different branches of the "sciences of the exercise" can be read, with similar thoughts but with a slightly different content, in Fig. 3. (*Starosta*, 2001. 1). As it can be seen, the science of the exercise is situated among the different disciplines, adopting their knowledge, experience and methods and creating its own *scientifical criteria*.

Figure 3. Classification of the kinantropology



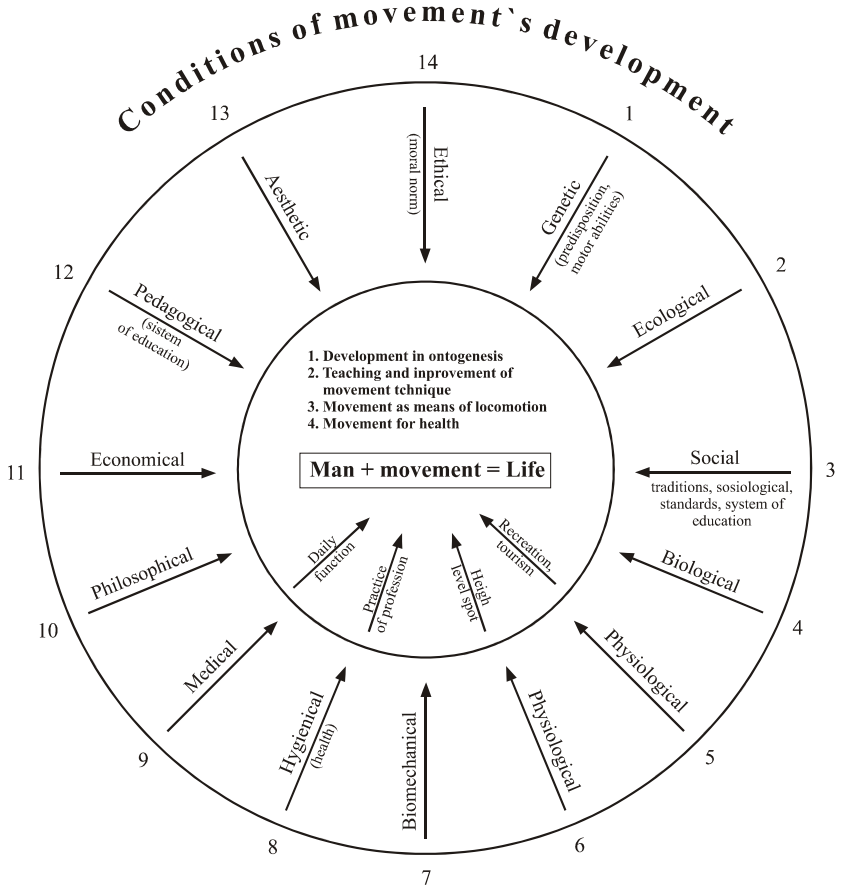
The theory-constructing function of the sport science, the integration of new knowledge into theories, is a fundamental aspect. The technical books of sport, the educational theories, the curricula of physical education and trainings etc. have been written as a result of the inductive and deductive theory-constructing activity. The inductive theorizing advances from the specific to the general, for example from the analizing of the motions to the formulating of the right technique. The deductive theorizing advances from the general to the specific, for example employing the formula of obliquely throwing into the speed, angle and height of the throwing.

A mature way of expression, as well as, the own terminology of a discipline are involved in the acknowledging a discipline. In international comparison the different cultures possesse their own terminology. The historical past, for example the development of the Slavonic and the German language areas, have similarities in their terminology. In the different languages, however, one can meet concepts which are less in agreement and

unity (sport science, science of physical education, science of physical education and sport, science of movement, science of health and sport , or for example the German word Körpererziehung (English: physical education) can be translated into two diferrent words in Hungarian with two different meanings) Terminological autonomy, however, also means the conceptional separation from the other areas of science, using the same national language. The creation of a specific system of the technical terms is a requirement for the autonomy of sport science.

The main elements of a topic, can be understood the more effectively, the more points of view are used to illustrate it. In Fig. 4. (*Starosta*, 2001. 2.), the role of sport science (science of the movement) can be seen from a different perspective: it is represented through its role in the development of movement in human life.

Figure 4. Development of the science of movement during the development of human life



1. Development during ontogenesis.
2. Teaching and development of the technique of movement.
3. Movement as displacement
4. Movement for health

Movement and man together form life that uses the knowledge of the different disciplines in the course of the everyday vital functions, practicing profession, professional sport and during the recreation and tourism etc.

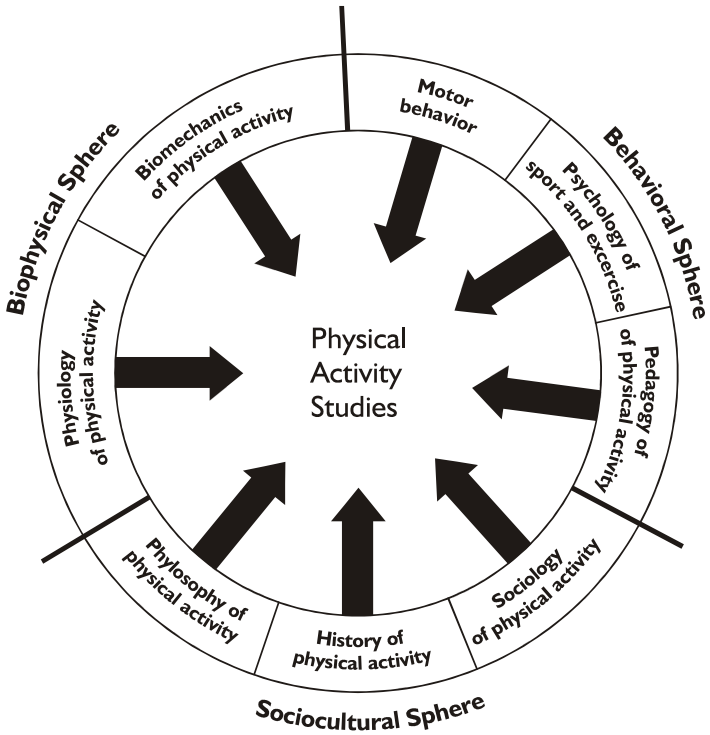
In Fig. 5 the detailed branching of sport science and, at the same time, the emphasis on its fundamental elements, its central position can be observed

from the perspective of training science (*Harsányi,* 2000). Sport science is surrounded by the umbrella of the (sport)disciplines that convert the theories of the basic diciplines into the aims of the sport science, to fulfill and improve its results. Any other door of any other discipline on the umbrella could have been opened as well, similarly detailed specialized knowledges would be found.

Figure 5. Position of training science in sport science

A different perspective can be caught in Fig. 6. (*Hoffmann, Harris*, 2000). The system of the relations of sport science is approached through the central role of the physical activity. Accordingly, the physical activity has its position between three main areas: the biophysical, the behavioural and the sociocultural spheres.

Figure 6. Science of the physical activity



The research purpose of sport science is the increasing of the physical cultural values of the society (as the subculture of the universal culture) and with the help of these to help the persons and through them he whole society to develop. Another purpose of sport science is the research of the man doing conscious physical activity (doing sport in the broad sense) as a biological psychic-social unit.

The aim of the author was to present a brief account about the present structure and inner construction of sport science, as well as about its active relationships to other disciplines. Sport scientific models give feedback about the positive, negative or valueneutral relation of a given culture or society to them, about the level of its acknowledgement. Its structure and composition reflects the role, importance and hierarchy of the main elements (physical education, studentsport, leisuresport, professional sport, sites, infrastructure, institutions, functional conditions, way of life, scientific background, tools,).

References

BEYER, E. (1987. 1): *Wörterbuch der Sportwissenschaft.* Verlag Karl Hofmann, Schorndorf, 442-443.
BEYER, E. (1987. 2): *Wörterbuch der Sportwissenschaft,* Verlag Karl Hofmann,Schorndorf, 616-619.
BIRÓNÉ NAGY, E. (1998): *A testnevelés– és sporttudomány értelmezése.* Vitaindító anyag a MTA Sporttudományi Albizottság részére.
BIRÓNÉ NAGY, E.(2004. 1.): *Sportpedagógia.* Dialog Campus Kiadó, Budapest-Pécs, 18.
BIRÓNÉ NAGY, E.(2004. 2.): *Sportpedagógia.* Dialog Campus Kiadó, Budapest-Pécs, 18.

HAAG, H. & HUMMEL, A. (1987): *Sportpedagogy. Content and Methodology.* University Park Press, Baltimore-London-Tokyo.
HARSÁNYI, L. (2000): *Edzéstudomány I.* Dialog Campus Kiadó, Budapest - Pécs, 32-33.
HOFFMANN, S. J. & HARRIS, J. C. (2000*): The sphere of scholarly study of phisical activity. Introduction to kinesiology. Studying physical activity.* Human Kinetics Publishers, Inc. Champaign, USA.
ISTVÁNFI, Cs. & HÁMORI, J. & BORHIDI, A. & EIBEN, O. & BÁTHORI, Z. (1994): *Állásfoglalás a testnevelés- és sporttudománynak az OAB tudományos nómenklaturájába való felvételhez,*1-2.
ISTVÁNFI, Cs. (2000.): *Gondolatok a sporttudományról.* Kalokagathia, 1/2. 11-16.
PRISZTÓKA, Gy. (1998): *Testneveléselmélet.* Dialog Campus Kiadó, Budapest - Pécs, 24.
STAROSTA, W. (2001. 1.): *Science dealing with human movements – the meaning, the term, the course of development.* Kinesiology new perspectives. Proceedings Book II. ISC Opatija, 23.
STAROSTA, W. (2001. 2.): *Science dealing with human movements – the meaning, the term, the course of development.* Kinesiology new perspectives. Proceedings Book II. ISC Opatija, 20.
TAKÁCS, F. (1971): *Adalékok a testnevelési és sporttudományok tudományelméleti kérdéseihez.* MTE Tudományos Közlemények I-III., 201-222.