

The research program integrates factors that are of relevance par excellence for sport (emotional factors, motivation, intentions, beliefs, cognitions, personality factors and so on) into the study of human movement from an ecological perspective. A few examples will be presented in some detail in the separate contributions in this workshop.

The approach of the research program has several implications for applied sport psychology. Within this approach, in psychological skill training, for example, one should emphasize actions of the athlete and focus on affordances. Athletes operate in an environment which is full of action possibilities and their task is to select and perform that possibility that suits best their aims in that particular situation at that particular moment. Emphasis on perceiving and realizing affordances can be applied to goal setting, mental rehearsal, attentional skill training, and imagery instructions, to mention but a few. A practical implication for imagery instructions, for example, is nicely illustrated by Boschker, Bakker, and Michaels (1999). They suggest that imagery instructions should concern qualitatively different action possibilities, depending on the expertise of the athlete. The beginner perceives affordances that are quite different from those of the expert. In the workshop several other applications for applied sport psychology will be discussed.

The research program links questions that belong traditionally to the core of sport psychology to the study of human movement. In the workshop the discussion will focus on the potential of the approach as a theoretical framework for sport psychology.

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Counselling for disabled people in sport transition

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Introduction

New trends in sport psychology have emerged within the ten last years.

On one hand, the psychology of sport injury is now considered as a speciality with focus sport psychologists attention. A lot of articles were published in the literature relating to this topic (i.e. Heil, 1993, Heil, 1997, Brewer, 1997, Theodorakis and all., 1998). However, few of them deal with the psychological support of disabled people who never be able to practice their sport again, at the same level or anymore.

On the other hand, a stream of quality research has been performed in career transition. The interest for this topic has been growing and growing. But in that case again, sport or exercise psychology is seldom used with disabled people (Bardaxoglou, 1995).

This lead us to consider both approaches as interesting to start a project. The purpose of this study is double : one theory based, to clarify the sport psychologist intervention and one, more applied to describe a preliminary study relating to this topic.

Method

Theoretical approach : evaluation and orientation

According to Kielhofner model (1985), the human being is an open system where the individual and the environment are the base of our subjective experience.

The interface between sport and social psychology has been illustrated in different area : « social facilitation and cohesion as two social influence phenomena, anxiety and goal orientation as personality moderators of social behaviors, and self-efficacy beliefs and attitudes as social cognitions relevant to motivated behavior » (Brawley and Martin, 1995).

Institutionalization is developing stable patterns of social interaction that are based on formalized roles, rules and customs (Williams and Kolkka, 1998).

The frame of a psychological counselling has for this reason been analyzed in three Belgian institutions (a sport club, a rehabilitation center and a sport federation) by a questionnaire highlighting their sport practice organization. In a second time, motivation and sport proposed in the institutions have also been examined.

The aim is to underline the obstacles to an appropriate sport practice and to propose a preventing counselling program.

Applied approach

A follow up of wheelchair dance has been performed in a rehabilitation center (CTR, Brugman Hospital, Brussels). Male and female of various age join this activity where disabled and able-bodied persons meet once a week in the evening to dance together. In any case, disability occurs after a physical trauma leading to the wheelchair use.

From a social point of view, socialization into wheelchair has been described i.e. in basketball : it emphasizes the group interaction (Williams and Kolkka, 1998). From a psychological point of view, wheelchair is considered by the athlete as a part of their body (Hanrahan, 1998).

One of the priority of the pluridisciplinary medical team in the CTR is to allow the disabled people to build their future. The Life Line Inventory (Bardaxoglou, 1995), has been used to start the evaluation and a questionnaire on wheelchair dance has been proposed at the end of the experimental period.

Results

At this time, we only have the first results of the Life Line Inventory ; the drawing patterns are quite different between the subjects, as already mentioned (Bardaxoglou, 1995). Difficulties seem to occur when the subjects are confront to the representation of the crash period and of their future.

Discussion

Kubler-Ross described in 1969 the process of adjustment to loss : it occurs during different stages, including disbelief, denial and isolation ; anger ; bargaining ; depression ; acceptance and resignation. Steadman (1993) provided a seven stage model in the medical process of injury and rehabilitation, including the return to play. Clinical approach which is verified at this time by scientific tools seems to prove that disabled do not chose the same sport after their body damage than before. One explanation may be that their earlier sport practice refers to the before and after body-damage consideration.

If an « athletic injury is often accompanied by depression, tension, anger, low self esteem, problems with attention, or concentration and exercise addiction » (Larson, Starkey and Zaichkowsky, 1996, Smith, 1996 in Theodorakis and all, 1998), people who suffer of not reversing body damage have to retire involuntary. This is more difficult because not chosen as mentioned by Alferman (1997) : voluntary termination have « more often positive emotions and a more active coping process and life-style than do drop outs ».

Although, disabled athletes (wheelchair, cerebral palsy, blind) were found to hold « the same perception, cognitive behaviors, and psychological profiles as able-bodied athletes » (DePauw and Gavron, 1995, p.203). Self concept varies depending on one's level of sport ability. But sport socialization has been found different : the family and home were not of primary importance for disabled athletes (wheelchair and cerebral palsy), in contrast to the able-bodied athletes (DePauw and Gavron, 1995). For the wheel-chair athletes, a study performed during the VIII Pan AM Games identified self motivation, disabled friends and physical educators as the three leading factors for facilitating sport participation (Gavron , 1989)

Conclusion

In 1994, the King Baudouin Foundation published a brochure about the necessity to create a structure were disabled people might be orientated in sport or exercise. The sport psychologist is never mentioned : only the medical doctor, the physiotherapist and the occupational therapist. Although, there is a need for a better understanding of this kind of crisis.

From a clinical point of view, each person reacts with his/her psychological components in his/her own environment. Amateur sport practice with disabled people refers to the period of

their life when they were « in good health ». In a radical holism approach (Slife,1998), the experience includes the past, the present and the future. More than some able-bodied athletes in retirement (Bardaxoglou, 1997), disabled seem to have some difficulties to anticipate their future. This is the role of the sport psychologist as sport is described as a way to enhance socialization processes and can help disabled people to develop a better psychological adjustment to cope with their physical and social handicap.

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PERCEPTIONS OF BODY IMAGE AMONG ELITE FEMALE GYMNASTS: A PERSONAL CONSTRUCT APPROACH

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KEY WORDS: body image, personal construct theory, gymnastics, self-perceptions

INTRODUCTION

For more than 30 years there has been an emphasis on a prescribed body image in gymnastics. The so-called 'Nadia Syndrome', characterised by extreme leanness, emerged in the 1970s after the Olympic medal winning performances by Nadia Comaneci. As a consequence there is pressure for elite gymnasts to maintain a prepubescent physique. This is further intensified by the subjective nature of assessment which force gymnasts to remain small and light so that more intricate moves can be performed to impress judges. Therefore, in addition to technique success in gymnastics is enhanced by appearance of low body weight in proportion to height.

Methods of assessing body image have included figural stimuli and silhouettes, questionnaires, body site estimation and whole image adjustment procedures (Allison, 1995). Many of these measures concentrate on size overestimation in individuals with eating disorders and do not produce a complete picture of the individual's perceptions. Moreover, constructs have often been defined by researchers, rather than the participants. Consequently a different technique to measuring body image is suggested: a personal construct approach.

Personal construct theory (PCT, Kelly 1955) implies that each individual holds a personal meaning about previous experiences and emphasises the uniqueness of constructing individual theories, since each person differs in how situations are perceived and interpreted. Consequently, personal information about body image can be extracted. Although PCT has been widely used as a research tool there is a dearth of research in sport and specifically with reference to body image although, Furnham et al (1994) examined female's perceptions of body shapes as a function of exercise. They found that exercisers, by comparison with non-exercisers, perceived larger, more muscular shapes to be more preferable than thin shapes.

It appears that no research to date has used PCT to determine body image perceptions in an applied sporting context. The purpose of these case studies was to determine whether elite gymnasts reinforced the importance of a body image that is stereotypical for success in gymnastics.

METHOD

Participants

Two, elite female, 19 year old gymnasts volunteered to take part in the investigation. Both participants were members of the Great Britain squad and had been participating in gymnastics for 16 and 15 years respectively.

Procedures and Materials












Repertory grid technique (Kelly, 1955) was employed to elicit constructs from the gymnasts. Four one hour sessions were used to carry out the procedure. The initial session consisted of

a semi-structured interview targeting the gymnast's achievements and overall perceptions of body image. Second, in the construct eliciting session the participants were presented with 12 silhouettes (elements) from which they selected five which represented their perceived ideal physique for competing successfully in elite female gymnasts. From these five figures personal constructs were elicited by using a self-identification triadic procedure. Three elements were presented which included the word 'myself' in each. The participant was required to state how two of the figures were alike yet different from the third. They were also encouraged to give an opposite response to create a contrast pole. Ratings grids were developed from the constructs and contrasts elicited (see Fig 1 for an example). The gymnast was required to complete the grid by rating each of the elements on a scale of 7-1 with 7 relating to the construct and 1 relating to the contrast.

RESULTS





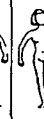





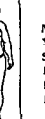
Quantitative Data

Fig. 1, Participant 1: Repertory grid, including mean and SD for each construct

Elements												MYSELF	Contrast
Construct													
strong												5	weedy
confident												5	pathetic
feminine												4	masculine
timid												4	aggressive
more muscular												4	elegant
childlike												5	motherly
quiet												4	bold
unsporty												2	sporty
individual												5	normal
self-orientated												6	careless

($M=3.08$, $SD=1.73$)
 ($M=3.92$, $SD=1.93$)
 ($M=4.08$, $SD=1.32$)
 ($M=4.31$, $SD=1.77$)
 ($M=3.23$, $SD=1.80$)
 ($M=3.31$, $SD=1.77$)
 ($M=4.15$, $SD=1.66$)
 ($M=4.23$, $SD=2.19$)
 ($M=4.54$, $SD=1.28$)
 ($M=3.77$, $SD=1.58$)

Fig. 2, Participant 2: Repertory grid, including mean and SD for each construct

Elements												MYSELF	Contrast
Construct													
more muscular												4	less muscular
outgoing												5	shy
career orientated												6	maternal
confident												6	wimpy
placid												4	aggressive
sporty												6	unsporty
mentally strong												5	mentally weak
dedicated												5	undedicated
assertive												6	pathetic
approachable												7	unapproachable

($M=3.85$, $SD=1.79$)
 ($M=4.15$, $SD=1.79$)
 ($M=4.15$, $SD=2.02$)
 ($M=4.15$, $SD=1.61$)
 ($M=4.23$, $SD=1.80$)
 ($M=4.0$, $SD=2.18$)
 ($M=3.77$, $SD=1.89$)
 ($M=3.77$, $SD=1.89$)
 ($M=4.54$, $SD=1.87$)
 ($M=4.23$, $SD=1.85$)

Initial statistical analysis showed that Participant 1 (see Fig. 1) rated herself above the mean for the constructs of strong, more muscular, individual, confident, childlike and self-orientated

and below the mean for feminine, quiet, timid and unsporty. Participant 2 (see Fig. 2) rated herself above the mean for the constructs of more muscular, confident, mentally strong, assertive, career-orientated, outgoing, sporty, dedicated and approachable and below the mean for placid. Due to the space constraints additional statistical results will be presented.

Qualitative Data

An interview with Participant 1 revealed that her constructs were a function of her participation in gymnastics and could be broadly split into the two categories of physical appearance and mental state. She displayed negative self-perception of her body and indicated that she did not like revealing some parts of her body in public. The gymnast also expressed weight concerns which were heightened by pressures from her coach and parents. She stated that she was confident and independent as a result of her participation in gymnastics. Participant 2 also highlighted negative self-perceptions about her body image. Specifically, she worried about what she ate, and said that increases in weight induced her to train harder, often when injured, in an attempt to lose the weight. This gymnast experienced pressure from the National squad coach to lose weight and she felt as though she was constantly being evaluated according to her size. She established that she was confident, career-oriented and a high achiever as a result of her socialisation as an elite child athlete.

DISCUSSION AND CONCLUSIONS

The purpose of this case study was to examine whether elite gymnasts reinforced the importance of a body image that is stereotypical for success in gymnastics. The interview data emphasised that both gymnasts had negative self-perceptions of their body image as they experienced pressure from significant others to lose weight in order gain success. Similar research by Harris and Greco (1990) concluded that 56% of gymnasts tested felt pressure from their coach to lose weight while Rosen and Hough (1988) found that 75% of college gymnasts were told to lose weight by their coach. This notion is further intensified by Vince Walduck a British gymnastics coach who stated... "Girls lose their ability to do intricate routines as they get heavier" (Hamilton, 1994). Therefore, the perception was reinforced that unless female gymnasts are lean and light they will not achieve success. Further, certain sports require particular body types for success at the elite level and this has important implications for all levels of sport. This is of particular concern as there seems to be potential negative psychological effects associated with this idea. Further research needs to be made into body image in similar sports and the effects that it has on participants at the lower levels.

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ECOLOGICAL SELF IMAGERY AND PERFORMANCE ENHANCEMENT

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KEYWORDS

Ecological Psychology, Mental imagery, Elite Athletes, Performance Enhancement

INTRODUCTION

The aim of this paper is to describe a specific form of mental imagery, that draws on recent theoretical and empirical developments in ecological psychology and mental imagery, that can be used as a supplementary procedure in mental training procedures.

Theoretical Context: Ecological Psychology, the Self, Skill and Imagery

When an elite/expert sports person generates an image, from an internal perspective, of the actions that she/he performs relative to a specific physical context, that image contains the *essential features* of that environment that afford and constrain the performance of their skilled action (Greeno, 1994; Moran, 1996; Neisser, 1992; Vicente & Wang, 1998). This could be the slope of the wall of a squash court, the weight and grip of a racquet, the surface of a playing field, the "heaviness" of water during a pull in a swimming stroke. By virtue of their expert status these sports persons will have learnt and selected out these features as opposed to having an actual detailed picture of the context (Marks, 1990; Vicente & Wang, 1998). Furthermore these fine grained attunements to features of the physical environment have become part of an implicit and automatically activated self information system that is embedded in any image of the person engaged in their sporting action. Thus the image is a rich and efficient carrier and organiser of essential information on the persons interaction with salient features of the sports environment (Marks, 1990; Suler, 1996).

By highlighting these imagined salient features as well as elaborating and expanding on them it is proposed that expert action or skill is better controlled and therefor enhanced.

Implications for Performance Enhancement

The resultant improvement in the "actor-environment" fit could therefore further impact on mental focus, motivation and goal specific cognitions, and emotions espoused in theories of action control, self focus and information seeking (Body, 1989; Geen, 1995). The following performance related advantages could thus ensue:

1. Images could become more vivid, controllable, contextually and performance relevant.
2. The sport person could become more situationally focussed as a result of enhancing self-situational information and would therefore experience a more efficient sense of spatial relatedness to the physical properties of the environment.
3. Goal directed and action control motivational cognitions could be automatically monitored

as a result of the person having more efficient situational definition and control of action.
4. Self efficacy and sporting self confidence would be enhanced.

Ecological self imagery scripting

An ecological-self imagery script could be used in the following intervention contexts along with other standard performance enhancement techniques:

Relaxation-energising and orientation context: Imagery generation would begin with standard breathing and relaxation routines. On exhalation, a variant to the standard procedure is introduced. The client is prompted to focus in this phase on mentally spreading inhaled energy firstly through the shoulders, arms and hands, and secondly through shoulders back, buttocks, thighs, calves and feet. During this breathing procedure attention is drawn to the physical affordances offered by the chair used for the relaxation procedure, such as the slope and shape of the back, seat and arm rests that afford the client the opportunity to be a “sitting person”. Furthermore, imagery would draw attention to the floor as an affording surface for supporting feet and legs. These surfaces/affordances would also be used to develop images of “connecting” surfaces for hands and feet during the energising breathing sequences. In sporting events where a tool such as a racquet or a basketball is used the connecting energised mental imagery is extended through the arms and hands to the objects and their associated motor action.

Sport specific imagery generation and manipulation: Ecological-self imagery used with an elite swimmer will serve as an example. Two areas of focus were the pre-competition orientation phase and the motor skill and performance phase. Firstly, an aspect of the swimmers gear that enhanced a sense of self as elite swimmer was selected. This included the feel of the bathing costume, it’s snug defining fit, swimming goggles, headgear etc. Secondly, to locate and define self in relation to salient planes and surfaces of the swimming pool and it’s surrounds, the sights, sounds and physical boundaries and surrounds of a familiar swimming pool were used in the imagery generation. Finally, relevant physical affordances and constraints relative to the motor action of swimming were generated and highlighted.

These included:

the lane float markers for demarcating an arena for the event

the starting blocks (secure stance and solid surface for pushing)

the walls/ends of the pool for defining a clear competition arena as well as for the affordance and constraint of the contact and push-off during turns

the supportive resistance of the water for the pull of the stroke (swimmers often talk of the water becoming heavier to pull in as one swims faster and stronger)

During the imagery exploration, instructions constantly drew attention to the interaction of the swimmers skills with the affordances and constraints of these environmental features.

The above procedure was presented thoroughly on two occasions with instructions on the use of the imagery during training sessions. In subsequent sessions the swimmer provided regular feedback on the use of the procedure.

Conclusion:

An imagery procedure using ecological psychology principles has been briefly described.

This technique has also been used in an exploratory experiment with interesting positive effects on motor performance in a gross motor task (van der Westhuizen & Basson, 1997). Furthermore clinical evidence from an elite swimmer, tennis player and basketball team with whom the technique has been used, point to the necessity for further investigating the theoretical principles and performance advantages in controlled studies.

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A COMPARISON BETWEEN INTERNATIONAL AND PROVINCIAL LEVEL GYMNASTS IN THEIR PURSUIT OF SPORT EXPERTISE

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KEY WORDS: Deliberate practice, deliberate play, developmental stages, sport expertise

INTRODUCTION

The development of expertise is a topic of great interest in the area of sports. The theory of deliberate practice was proposed by Ericsson, Krampe and Tesch-Römer (1993) to explain how some performers reach the elite levels by engaging in more effective training (deliberate practice). Subsequent work has extended these ideas to the sport domain. Starkes and her colleagues identified training activities that elite athletes engage in more than less accomplished athletes, both in individual (Hodges & Starkes, 1996) and team sports (Helsen, Starkes, & Hodges, 1998).

In their original work with expert musicians, Ericsson et al. (1993) had experts rate enjoyment, relevance for improvement, and effort of different types of music-related activities. Ericsson et al. (1993) found that the most accomplished musicians spent much more time on highly relevant activities such as "practice alone" compared to less accomplished expert musicians. Most interestingly, none of the musicians rated "practice alone" as the most enjoyable activity--in fact, all musicians preferred to play music for fun, take lessons with their teachers and listen to music. Given that "practice alone" was only rated as reasonably enjoyable, Ericsson (1996) proposed that adult expert musicians engaged in deliberate practice for its value for improvement of their performance, thus forsaking more immediate enjoyment offered by play.

In their analysis of the initial involvement of children in sport, Côté and Hay (in press) proposed that playing with the intention of having fun (deliberate play) was more relevant than the mature notion of deliberate practice. The present study will thus assess the involvement in deliberate play and deliberate practice during the development of international level performance in gymnastics. We will also examine the evidence for the three stages of development in sport proposed by Côté & Hay: the sampling years, the specializing years and the investments years.

METHOD AND PROCEDURE

A new interview methodology for assessing the type of activities athletes engaged in at different stages of their development in sport was developed where deliberate play and deliberate practice could be distinguished. A total of 10 gymnasts; (N=6, provincial; N=4, international) were interviewed using an interview guide and chart format. These interviews were approximately two to three hours in length. The first chart systematically assessed athletes' progression from the initial participation in various sports until their singular involvement in their chosen primary sport. A second chart assessed maturation and performances in their primary sport. In a third chart, the athletes identified developmental stages and relevant practice activities within these stages. Information gathered from these charts provided an in-depth look at the development of athletic expertise.

RESULTS

Practice and play hours for provincial and national level gymnasts are presented in Figures 1 and 2 respectively. Given the small number of participants in both groups, the data could not be meaningfully analyzed with statistical methods and we will thus be limited to describing preliminary trends. Figure 1 shows the average number of hours that the gymnasts spend in practice activities for each year during their development in gymnastics. As their sporting career advances, both provincial and national level gymnasts increase the amount of time they spend in practice. However, the gymnasts who eventually achieve international level status devote more time, on average, to practice than the gymnasts who only reach the provincial level. The pattern of results for number of hours in play activities looks more complex (see Figure 2). However, both the international and provincial level gymnasts start out in the domain of gymnastics with relatively high levels of play activities which later is reduced at older ages and after several years of experience in the domain.

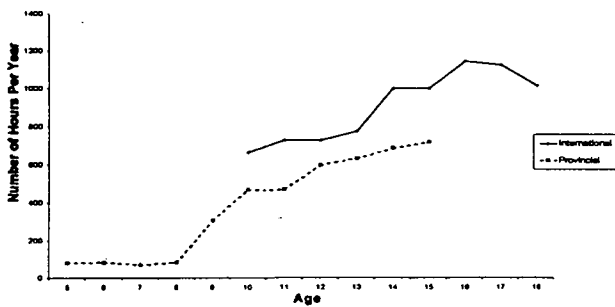


Figure 1. Mean Values for Number of Hours in Practice

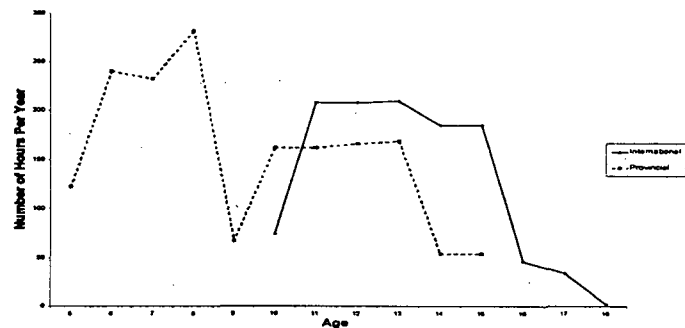


Figure 2. Mean Values for Number of Hours in Play

DISCUSSION AND CONCLUSIONS

Figure 1 shows that international level gymnasts, on the average, have engaged in more hours of practice than the provincial gymnasts when we equate their ages. Given that the international gymnasts start their involvement in gymnastics at older ages (around age 10) than provincial gymnasts (around age 5), the difference in amount of practice as a function of the first years of involvement in gymnastics is dramatic. The increased involvement in deliberate practice by the more elite performers is consistent with studies on musicians (Ericsson et al., 1993), athletes in team sports (Helsen et al, 1998) and athletes in individual sports (Hodges & Starkes, 1996). Figure 2 shows that for the first four years of involvement, international gymnasts and provincial gymnasts both engaged in comparatively high amounts of play in spite of the large differences in age at their introduction to gymnastics. This finding is consistent with Côté and Hay's (in press) hypothesis that the first few years of an athlete's involvement in sport are important for experiencing fun and enjoyment through play activities.

For the first five years of their involvement in any type of sport (referred to by Côté and Hay as the "sampling years") both the international and provincial level gymnasts sampled a wide range of activities involving a large amount of play. The primary difference between the two groups was that the provincial level gymnasts started gymnastics already at age five and sampled many different sports and activities in addition to gymnastics. Although the international gymnasts also sampled many activities from age five, gymnastics was not included in these activities until age ten. It was reported that three of the four international gymnasts at

had trained in ballet before they started their engagement in gymnastics. Because many of the movements in ballet are used in gymnastics, it is likely that early training in ballet contributed to their success in gymnastics and thus may provide a useful foundation for their subsequent gymnastics career.

The fact that both groups reported a large amount of play activities in their early involvement in gymnastic may be explained, at least in part, by the nature of the sport. Independent of the starting age, gymnasts play with the creation of new moves and gymnastics games upon their first involvement in the sport. According to Ericsson et al. (1993), these activities are not the most relevant in terms of improving specific aspects of performance, yet they may still be important in shaping movements during the early stages perhaps even essential for the development of skilled perception and mental representations (Ericsson, 1998). Consistent with Ericsson et al.'s theory, the international gymnasts were engaged in a higher number of practice hours than the provincial gymnasts in the early stages and throughout their career. After extended involvement in competitive gymnastics the international gymnasts decreased the number of hours in play activities considerably whereas the provincial gymnasts did not show a similarly clear pattern of reduction. Most interestingly, the provincial gymnasts never met the criteria for the investment years as described by Côté & Hay (in press). All of the provincial level gymnasts participated in other activities. The lack of focus on gymnastics and the associated lower levels of deliberate practice may explain, at least in part, why they did not reach the international level.

In sum, it is evident that the development of expert performance in gymnastics involves more than just deliberate practice. The play activities appear to have a definite role in their development and to offer an important bridge toward the more mature forms of deliberate practice. During the early years of involvement it is important to find an appropriate mix of play and practice activities in order to help motivate gymnasts to the next level of expertise in their sport.

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PERSONAL MEANING IN PHYSICAL ACTIVITY:

A HEURISTIC VIEW

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Participants: **Bonnie Berger** (School of Physical and Health Education, University of Wyoming, Laramie, WY, USA), **Stuart Biddle** (Department of Physical Education, Sports Science & Recreation Management, Loughborough University, Loughborough, UK), **Frantisek Man** (Department of Pedagogy & Psychology, Southern Czech University, Ceske Budejovice, The Czech Republic), **Nanette Mutrie** (Institute of Biomedical and Life Sciences, University of Glasgow, Glasgow, Scotland), and **David Pargman** (Department of Educational Research, Florida State University, Tallahassee, FL, USA).

Key Words: personal meaning, exercise, sport, intrinsic, extrinsic

Personal meaning in physical activity captures the heart of exercise: the actual human experience of exercise, or how it is perceived by the individual. An underlying theme of this presentation is that it is important for researchers and practitioners to discern personal meanings in physical activity to facilitate participants' enjoyment of physical activity and their success in adopting and maintaining active lifestyles (Berger, 1996).

Personal meaning in physical activity is interactively aligned with factors such as the goals of the exerciser, the exercise setting, and the type and intensity of exercise. Meaning also is intertwined with the participant's previous experiences. Because of these influences, personal meaning is complex and larger than the exercise behavior itself. Meaning depends on a person's conscious awareness and interpretation of the exercise and sport experience and can be categorized as intrinsic or extrinsic to the physical activity.

There is a relative lack of knowledge about what physical activity means to the participant. Reasons for this include a concentration on the utilitarian health and appearance benefits of exercise, a pre-occupation with competitive outcome, and a research focus on quantitative rather than qualitative approaches. This presentation begins to examine personal meanings in physical activity, considers a variety of research approaches in examining the broad area, and concludes with discussion of needed research and associated topics generated by the group discussion.

Examining the personal meaning of physical activity emphasizes a need to look within the participant. Some of the commonly expressed meanings in physical activity to be explored include the following: health; physical appearance; stress management; mood alteration and a sensation of "feeling good;" time alone; a closeness and intimate interaction with nature; empowerment and self-responsibility; and peak moments (Bacon, Fenby, & Lawrence, 1998; Berger & Pargman, 1999). Fun and enjoyment incorporate many of the above exercise experiences (Kimiecik & Harris, 1996). The frequent identification of fun and enjoyment by exercise and sport participants as primary reasons for participation (Douillard, 1994; Fine & Sachs, 1997) supports the inclusion of fun and enjoyment as major meanings of physical activity.

Personal Meaning in Physical Activity

Additional meanings of physical activity include opportunity for flow experiences; delaying the aging process; postponing death with immortality projects; a search for spirituality; integration of body, mind, heart, and spirit; as well as self-exploration, self-awareness, self-reflection, and experiencing personal freedom (Berger & Pargman, 1999; Leonard & Murphy, 1995). For example, delaying the aging process, a conscious or unconscious goal for some individuals, is accomplished by exercising and maintaining or increasing muscle mass, cardiorespiratory fitness, and reservoirs of endurance and vitality (Spirduso, 1995). Physical activity can be an "immortality project" that emphasizes the biomedical, mechanistic model of physical activity (Wilber, 1996). In contrast, freedom of choice is a less verbalized meaning of physical activity than is health and encourages exercise and sport specialists to move from biomedical, technological, and utilitarian goals to emancipatory goals that foster bodymind integration (Fahlberg & Fahlberg, 1990, 1997). Freedom of choice includes multiple elements or levels of choice, a need for time alone, and self-reflection.

A relatively unexplored area for investigating the meaning of physical activity is in clinical populations for whom the body has been medically compromised such as those in cardiac rehabilitation and those with diabetes. Such individuals often report that taking part in exercise programs increases self-confidence and that exercise serves as a coping strategy. This points to a meaningful connection between physical activity and self-esteem (Mutrie, 1997).

Given all that society is learning about the **mindbody** relationship, it is surprising that more is not known about the **bodymind** relationship. Physical activity has transformative powers by enabling participants to reach more of their potential with the integration of body, mind, heart, and spirit. As concluded by DeSensi (1996, p. 529), "I do wish sometimes, though, that my unique meanings and experiences weren't so ineffable so that I could share them with others and have them know and feel what meaning I have experiences. But that is my unique experience."

The literature in the area of physical activity, exercise, and mental health has been growing during the past 20 years. However as Dishman (1995) points out, the evidence has not seemed to persuade mental health organizations, such as the American Psychological Association, to endorse the role of exercise in treating mental illness, such as depression. Perhaps the evidence for the role of exercise in treating and in preventing mental illness is not convincing. Another possibility is that mental health practitioners may be suffering from a dualist focus on treating the mind (mental health) and body (physical health) as separate entities, and thus they fail to recognize the mental outcomes of a physical treatment such as exercise. Rejeski and Thompson (1993) are more optimistic and have suggested that specialists in mental health are moving away from mind body dualism. "The mind-body distinction has slowly, but noticeably yielded to the concept of biopsychosocial interactions – the position that the body, the mind, and the social context of human existence are reciprocally interdependent on one another" (Rejeski & Thompson, p. 7).

After identifying, capturing, and discussing some of these personal meanings and experiences of physical activity, participants will review the literature related to personal meaning, and consider productive quantitative and qualitative research designs necessary for further research in the area. Participants also will discuss innovative research directions and then open the discussion for audience participation.

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EFFECTS OF PHYSICAL AND PSYCHOLOGICAL STRESSORS ON CENTRAL AND PERIPHERAL VISUAL ATTENTION

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(A) KEY WORDS

Central vision, exertion, noise, peripheral visual field, physical activity, stress, visual attention.

(B) INTRODUCTION

Competitive sport is inherently demanding, both physically and in psychological terms. It has been claimed that the physical exertion and the psychological demand of competition can affect visual attention processes, especially in the periphery (Andersen & Williams, 1988). Any deficit in attention, leading to a reduction in the cues registered or the speed with which response is made to them, is likely to have a negative affect on performance. The aim of this study was to examine the effects of a moderate level of physical exertion and a moderate level of psychological stress on the speed of detection of central and peripheral visual signals.

(C) METHOD AND PROCEDURE

Participants were 20 physical education students (10 female, 10 male), aged 18 to 25 years ($M=22.0$). They had no defects of vision or motor coordination. They underwent standard consent procedures.

Central and peripheral visual attention were tested by voice and manual response respectively to stimuli presented by a semi-circular perimeter. This consisted of a number of LED lights in central vision, 50 cms from the bridge of the participant's nose, as well as an array of LED's in the periphery, spanning from 60 to 100 degrees from the centre, around each side of the perimeter. Participants sat on a standard Monark bicycle ergometer and wore headphones for all conditions. To create a moderate level of physical stress, participants pedaled at 40% of PWC (P). In the second condition (N), psychological stress was imposed, using white noise, played through the headphones, at 95 decibels (dB). In a higher stress condition (P/N), the physical and noise stressors were combined. In the control condition (C), participants sat on a standard Monark bicycle ergometer and wore headphones, but neither pedaled nor heard white noise.

Measures were errors, which were recorded when the correct response was not made in 5 seconds (timeout) from the onset of a light, and response time, the time from onset of a central signal to an oral response detected by the voice mic or from onset of a peripheral light to registration of the correct manual response, pressing a button on the handlebar on the same side as the light (high S-R compatibility).

Following consent procedures, participants underwent the Physical Working Capacity (PWC₁₇₀) test. Then they practiced under all four experimental conditions for five minutes. This allowed familiarization with the equipment, especially the modes of response. Then participants responded to central and peripheral lights under four conditions: baseline (B), with no bicycle

pedaling and no white noise; noise (N), with no pedaling, but continuous 95 dB noise; physical activity (P), with physical activity at 40% of PWC_{170} , but no white noise; and physical activity plus white noise (PN), with physical activity at 40% of PWC_{170} and white noise at 95 dB. The order of presentation of conditions was balanced across participants, with eight participants experiencing each order: baseline, physical activity, physical activity/noise; physical activity/noise, baseline, physical activity; and physical activity, physical activity/noise, baseline. There were 72 central signals and 24 peripheral signals to each side, all mixed in a random order, a total of 120 signals. Peripheral stimuli were presented in four angular ranges, 60-70 degrees, 71-80, 81-90 and 91-100 degrees from the centre of the perimeter.

(D) RESULTS

For errors, the absolute levels were low, but there was a significant One-way Analysis of Variance (ANOVA) for central errors, $F(3, 76)=2.88$, $p<.05$, with $\eta^2=.19$, quite a large effect size. Post hoc Newman-Keuls indicated that there were more errors in the P and P/N conditions, than in either the C or N conditions. Results for errors in the periphery are presented in Figure 1(a). There were significant main effects for stress, $F(3, 57)=17.44$, $p<.001$, $\eta^2=.48$, and angle, $F(3, 57)=17.46$, $p<.001$, $\eta^2=.47$, and a significant interaction, $F(9, 171)=3.03$, $p<.002$, $\eta^2=.14$. Post hoc tests indicated that error increased more as stress and angle both increased.

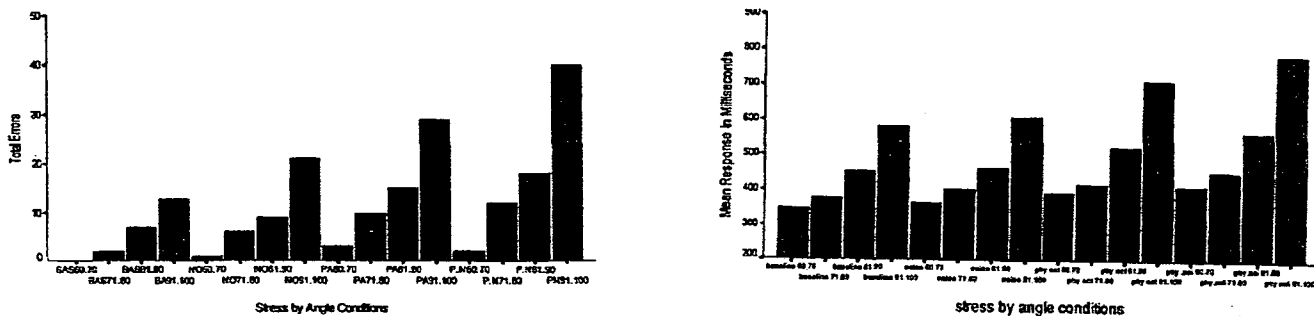


Figure 1. Peripheral visual attention performance for different levels of stress and angle ranges for (a) detection errors and (b) response times.

Larger absolute effects were observed for response times. Post hoc Newman-Keuls, based on a significant One-way ANOVA, $F(3, 76)=36.06$, $p<.001$, $\eta^2=.59$, for central response time, showed that the P and P/N conditions had significantly longer response times than the N and C conditions. The results for response time in peripheral vision are shown in Figure 1(b). Two-way ANOVA revealed significant main effects for stress, $F(3, 57)=63.50$, $p<.001$, $\eta^2=.77$, and angle, $F(3, 57)=237.15$, $p<.001$, $\eta^2=.93$, and a significant interaction, $F(9, 171)=9.53$, $p<.001$, $\eta^2=.33$. The effect sizes for response time were very large. Post hoc tests indicated that response time increased more as stress and angle both increased.

(E) DISCUSSION AND CONCLUSIONS

This study showed that exertion significantly increased the number of errors made in central and peripheral vision, even though the absolute numbers of errors were small, due to the moderate setting of exertion at 40% PWC, arrived at in pilot work, where PWC settings of 50% or above

led to substantial breakdown of the task. Larger effects were identified for response times, which slowed considerably when this moderate level of exertion was applied. The physical exertion condition was significantly more disruptive than 95dB white noise, but the combination of physical exertion and white noise had a still larger negative effect on errors and response time. For both these performance measures, a consistent pattern emerged where performance deteriorated more as the angular range increased, that is more errors and slower response occurred in the wider periphery. These effects were exacerbated by a higher level of exertion and psychological stress. In sports where performers must respond to a changing environment, visual attention performance is likely to deteriorate as exertion levels increase, along with stress levels. Substantial reductions in visual attention are most likely at wide peripheral angles, such as 80 to 100 degrees. One way to reduce such errors is to train players to initiate more scanning of the periphery. It is also possible that reducing stress might enhance visual attention.

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MOTIVATIONAL CLIMATE IN PHYSICAL ACTIVITY: A META-ANALYSIS OF COGNITIVE AND AFFECTIVE OUTCOMES

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KEY WORDS: climate, effect size, motivation, psychological outcomes

INTRODUCTION

Contemporary perspectives on human motivation favour a social-cognitive approach and the use of meta-cognitive processes of perception. Most prominent in sport and exercise psychology is the study of achievement goal orientations (see Duda, 1993). However, some have argued that the cognitive and affective responses of participants in physical activity can be more fully understood by adopting an interactionist perspective of both individual dispositional goals and motivational climates (Treasure & Roberts, 1995).

Stemming from research on classroom environments ('climates'), sport researchers have investigated correlates of motivational climate in sport settings. Two main dimensions have been identified. A mastery climate is perceived when group members are directed towards self-improvement, are praised for effort, and are encouraged to view mistakes as a valuable part of learning. A performance climate is perceived when normative performance is valued, only the best performers are praised, and mistakes are punished or viewed negatively.

Although some aspects of motivational climate studies have been reviewed in narrative form (Duda & Whitehead, 1998), the impact of different types of motivational climates on cognitive and affective outcomes should be examined by quantification of results across studies. The need for a quantitative synthesis is emphasised by the fact that many studies report statistical significance rather than show the magnitude of effects of different climates on motivation (see Thomas et al., 1991).

METHOD

A computer search was undertaken to locate all motivational climate studies in physical activity research. The search included SPORTdiscus, PsychLit, First Search, and BIDS databases, while journals considered likely to have relevant articles were also checked from 1984 to the present. These journals were the *International Journal of Sport Psychology*, *Journal of Sport and Exercise Psychology*, *Journal of Sport Behavior*, *Pediatric Exercise Science*, *Quest*, *Research Quarterly for Exercise and Sport*, and *The Sport Psychologist*. Personal files were also searched.

Fourteen studies (n=4,484) contained sufficient information to calculate effect sizes (ES) in accordance with Hunter and Schmidt's (1990) guidelines or authors provided such information on request. A list of these studies is available from the first author. The analysis undertaken involved the relationship between mastery and performance climate

dimensions and clusters of positive and negative psychological outcomes. Positive outcomes involved factors such as intrinsic motivation, positive affect, satisfaction, and positive attitudes towards the lesson. Negative outcomes involved factors such as boredom, anxiety, and negative affect.

RESULTS

The correlations of individual studies were corrected for sampling error and measurement error, hence reducing the impact of poor measurement technology. Effect sizes (ES) were evaluated in accordance with Cohen's (1992) suggestion that when analysing correlations 0.10, 0.30, and 0.50 represent small, medium and large effect sizes respectively. Effect sizes are summarised in Table 1.

TABLE 1. Effect Sizes for Mastery and Performance Climate

<i>CLIMATE</i>	<i>POSITIVE OUTCOMES</i>	<i>NEGATIVE OUTCOMES</i>
MASTERY	0.71	-0.26
PERFORMANCE	-0.30	0.46

Table 1 shows that the effect of a mastery climate on positive motivational outcomes was large. In contrast, the effect of a performance climate on positive outcomes was small to medium and in the opposite direction. When negative motivational outcomes were analysed, the impact of a mastery climate was small to medium. Finally, the impact of a performance climate on negative outcomes was moderate.

DISCUSSION AND CONCLUSIONS

Results of the meta-analysis show a positive effect for mastery climate and a negative impact of performance climate on motivation and cognition in physical activity. With the exception of the effect size for mastery climate with positive outcomes, the effect sizes are not as large as the literature seems to suggest when reviewed narratively. This provides further support for the need to quantify results of studies.

When more research is conducted in this area, a larger meta-analytic synthesis of results will be necessary to provide more conclusive findings and to strengthen, verify, or dispute the preliminary results presented here. A meta-analysis based on a larger number of studies will indicate the homogeneity of the correlations and whether there are moderators in operation. For example, research has shown that, in general, males have more performance-oriented perceptions of climate than females (Kavussanu and Roberts, 1996). Therefore, the negative impact of performance climate on motivation may be greater for males than females. Furthermore, in school physical education settings, the variability in physical ability may be greater than in sport (where samples are typically self-selected) and more students may feel low in competence. Perceptions of a performance climate in school physical education contexts, therefore, may lead to more

negative motivational outcomes than in volunteer sport contexts. Such propositions require testing.

Results indicate the importance of promoting a mastery climate. Recommendations for achieving such a climate are already available, such as Epstein's TARGET model outlined by Ames (1992). Finally, the mechanisms of why a mastery climate is motivationally adaptive requires consideration. One likely reason is that a mastery climate affords opportunity for self-determined competence.

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PREDICTING PHYSICAL ACTIVITY INTENTIONS THROUGH SELF-DETERMINATION AND GOAL THEORIES

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KEY WORDS: motivation, goal orientations, self-determination, path analysis

Contemporary approaches to the study of young people's physical activity motivation have centred on social cognitive perspectives. One of the most popular has been achievement goal orientations. However, in addition, some researchers have suggested we consider not only how we define success (a competence-based approach), but how we regulate our behaviour through qualitatively different types of reasons for acting the way we do (an autonomy-based approach). This involves the Self-Determination Theory perspective advocated by Deci and Ryan (1985) in which four main types of behavioural regulations are proposed:

- *external regulation*. Behaviour is controlled by external authority, rewards, fear of punishment, coercion, or compliance.
- *introjected regulation*. Behaviour is 'internally controlling' through avoidance of guilt and shame. It is best reflected in feelings of 'ought' or 'should' rather than 'want'
- *identified regulation*. Behaviour is 'self-determined' and occurs in accordance with one's values and goals. It is best reflected in feelings of 'want' rather than 'ought' or 'should'
- *intrinsic regulation*. Behaviour is for enjoyment and 'for its own sake'.

It was hypothesised that behavioural regulations (perceived autonomy) would mediate the effects of goal orientations on intention. Theoretical reasoning and evidence in goal orientations research, suggests that the effects of ego orientation, but not task orientation, be hypothesised to predict behavioural regulations through perceived competence. Given this mediating influence, ego was hypothesised to predict all four behavioural regulations whereas task orientation was predicted to link only with self-determined forms of behavioural regulation.

METHOD

Participants were school children (N=723) aged 12-16 years from schools in the city of Pecs in southern Hungary. All variables were assessed using a self-report questionnaire pack. All measures were available in English and were translated into Hungarian, back into English by a second translator, and checked for accuracy of meaning by the first author. The measures were: a). Task and Ego Orientation in Sport Questionnaire to assess goal orientations; b). the six Sport Competence items from Fox and Corbin's (1989) Physical Self-Perception Profile for perceived competence (PC); c). a modification of Ryan and Connell's (1989) Self-Regulation Scale assessed extrinsic (EX), introjected (IJ), identified (ID), and intrinsic (IN) behavioural regulations in the PE/sport context; d). intention (I) to participate in the future was assessed with a single-item scale.

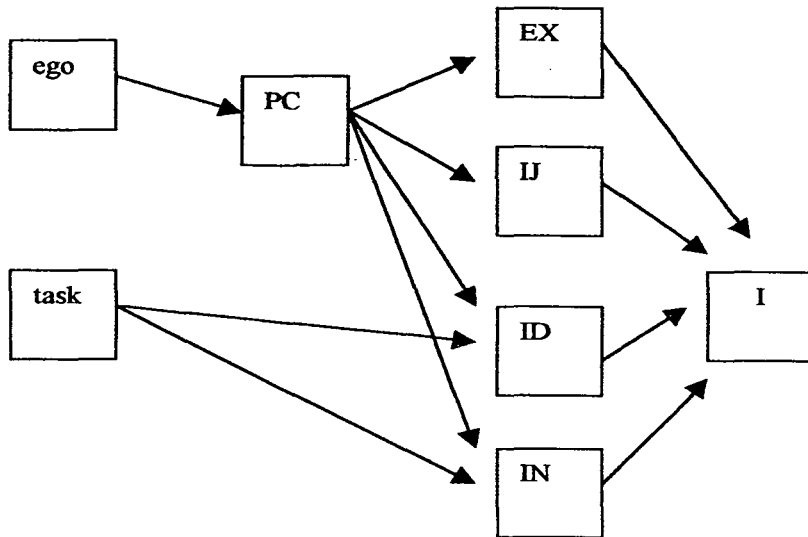


Figure 1. Hypothesised Model

RESULTS

The structural relationships between goal orientations, perceived competence, autonomy (behavioural regulations) and intentions to exercise were estimated through path analysis. The model specified in Figure 1 was tested. The fit of the data to the model was good (CFI = .91; GFI = .95; SRMSR = .09) and modification indices showed no paths to be added or dropped. The standardised solution and path coefficients show that intentions are mainly predicted by self-determined forms of behavioural regulation, with significant paths from ID to I (.283) and IN to I (.141). Paths from EX and IJ to I were not significant. Task orientation predicts self-determined regulation (ID: .292; IN: .280), as does ego orientation indirectly through perceived competence (ego-PC: .298; PC to IJ: .361; ID: .442; IN: .418). The model predicted 18.8% of the variance in intentions.

DISCUSSION AND CONCLUSIONS

Intention is best predicted by self-determined forms of behavioural regulation. Task orientation, through identified and intrinsic regulation, as well as ego orientation, through perceived competence and identified and intrinsic regulation, show the strongest links to intention. Task orientation did not have a direct effect on intention. This, in combination with the effects for self-determined regulations, suggests that the positive motivational effects of a task orientation can be accounted for by self-determined reasons for acting. This is an important conclusion suggesting that such behavioural regulations explain why a task orientation is beneficial and thus contributes to our understanding of the mechanisms of goals in intentional behaviour.

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THE CHANGING SELF IN EXERCISE AND SPORT: PERCEPTIONS OF CONTROL AND AUTONOMY

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KEY WORDS: motivation, self, self-determination

One approach to the study of the self is to investigate the motivational functions that self-perceptions might have. Contemporary approaches to the study of physical activity motivation have centred on social cognitive perspectives. One of the most popular has been achievement goal orientations as proposed by Nicholls in the field of educational psychology (see Nicholls, 1989) and developed by Duda in sport psychology (see Duda, 1993). However, in addition, some researchers have suggested we consider not only how we define success (a competence-based approach), but how we regulate our behaviour through qualitatively different types of reasons for acting the way we do (an autonomy-based approach). This involves the Self-Determination Theory (STD) perspective advocated by Deci and Ryan (1985) in which four main types of behavioural regulations are proposed:

- *external regulation*. Behaviour is controlled by external authority, rewards, fear of punishment, coercion, or compliance.
- *introjected regulation*. Behaviour is 'internally controlling' through avoidance of guilt and shame. It is best reflected in feelings of 'ought' or 'should' rather than 'want'.
- *identified regulation*. Behaviour is 'self-determined' and occurs in accordance with one's values and goals. It is best reflected in feelings of 'want' rather than 'ought' or 'should'.
- *intrinsic regulation*. Behaviour is for enjoyment and 'for its own sake'.

The role of 'self' in self-determination is complex. Activities initially uninteresting may become more self-determined through the process of 'integration' – accepting the values of the activity as worthwhile. This links closely with self-identity. As people adopt a more self-determined approach to physical activity, they may also enhance a more 'true' sense of self (one not necessarily contingent on performance, status etc). This makes the SDT approach an intriguing one for the study of self-perception processes in sport and exercise.

This presentation will summarise the key features of SDT, and in particular the main differences between identified and introjected forms of behavioural regulation and how these differences may assist in greater understanding of self-perceptions in exercise and sport psychology. Discussion will also take place on some initial findings from research that focus on the distinction between autonomous and controlling intentions and how such a distinction allows for a better prediction of behaviour than traditional measures of intentions. Support for a self-determination theory approach will be provided through a meta-analytic approach to intention-behaviour models currently popular in exercise psychology.

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PERCEIVED ADVANTAGES, DISADVANTAGES AND OBSTACLES TO EXERCISE DURING PREGNANCY.

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KEY WORDS

pregnancy; obstacles; exercise; advantages; disadvantages.

INTRODUCTION

Moderate amounts of exercise during pregnancy have somatic and psychological benefits. Several investigators (Kirkby & Birmingham, 1997; Sternfeld, Quesenberry, Eskenazi, & Newman, 1995; Wallace, Boyer, Dan, & Holm, 1986) have reported a link between exercise and reduced physical discomforts in pregnant women. As well, Kirkby and Birmingham (1997) found that, compared to pregnant women who were sedentary, those who exercised reported enhanced mood (see also Koltyn, 1994; Koniak-Griffin, 1994). Given the apparent advantages of physical activity, it would seem important to understand the factors that inhibit pregnant women from exercising. Consequently, the present study was undertaken to investigate women's perceptions of the advantages and disadvantages of exercise, and what they see as obstacles to their involvement during pregnancy.

METHOD AND PROCEDURE

Participants. 201 women volunteers (mean age, 30.1 years; range 18-47) who were either pregnant ($n=89$, 44%) or had been pregnant within the past 3 years ($n=112$, 56%). On average, the 89 pregnant women were 31.3 weeks into their pregnancy. The sample was recruited nonsystematically from women attending antenatal classes and from the general community.

Instrument. The first part of the 2-page questionnaire comprised 5 questions requesting information on demographic variables (age, marital status, and number and ages of children) and state of pregnancy. In addition, participants were asked whether they were exercising regularly during their most recent pregnancy. The second section of the questionnaire consisted of 4 requests: the respondent was asked to "List 2-4 factors which you think stopped you from exercising as much as you would have liked during your pregnancy"; to "List 2-4 reasons which you believe stop other women from exercising during their pregnancy"; to "List 2-4 benefits of exercising during pregnancy"; and to "List 2-4 disadvantages of exercising during pregnancy". Typically, the questionnaire was completed in 5-10 minutes.

Procedure. The questionnaire was presented to participants at the time they consented to participate in the project. All questionnaires were returned within 1 week; only 4 were incomplete, resulting in an effective response rate of 96.8%.

RESULTS

Exercise participation. Of the sample of 201 women, 58% ($n=116$) reported that they exercised regularly during their present or most recent pregnancy. Of the exercising women, 54% ($n=44$) said that they were currently pregnant. The type of exercise listed by women included 18 different exercise activities. The most common forms of exercise were walking (95%), swimming (39%), physiotherapy exercises (7%), and exercise bike, tennis, specialised exercise classes, gym, and aerobics (each 5%). Possible differences in exercise participation between women currently pregnant and women who had been pregnant within the past 3 years were tested by a χ^2 . Pregnant women were no more likely to have exercised during pregnancy than women who were not currently pregnant ($\chi^2 = 3.135$).

TABLE 1. Responses of 201 Women when Requested to "List factors which you think stopped you (other women) from exercising as much as you would have liked during your (their) pregnancy"

	Frequency of responses in relation to:	
	self	others
1. feelings of tiredness and lack of energy	97 (54%)	75 (42%)
2. time constraints (in general)	44 (24%)	33 (18%)
3. work commitments	43 (24%)	49 (27%)
4. demands from other children	42 (23%)	25 (14%)
5. physically uncomfortable due to size/weight of body	29 (16%)	23 (13%)
6. morning sickness/nausea	29 (16%)	11 (6%)
7. laziness	25 (14%)	36 (20%)
8. backache	18 (10%)	10 (6%)
9. weather (e.g., too hot, too wet)	17 (9%)	4 (2%)
10. home duties	12 (7%)	13 (7%)
11. general body pain or discomfort	12 (7%)	3 (2%)
12. concern for safety to fetus	11 (6%)	38 (21%)
13. lack of information available concerning exercise	8 (4%)	19 (11%)
14. health/medical condition (not specified)	8 (4%)	11 (6%)
15. lack of desire/motivation to exercise	4 (2%)	14 (8%)
16. cramps/stitches	4 (2%)	11 (6%)
17. being sedentary before pregnancy	3 (2%)	8 (4%)
18. financial cost (e.g., membership or childcare)	3 (2%)	7 (4%)

Perceived obstacles to exercise during pregnancy. Women identified more barriers to exercise in relation to themselves (48 items) as opposed to other women (39 items). As can be seen in Table 1, the 3 most frequently listed responses in relation to women's own experience were "feelings of tiredness and lack of energy", "time constraints", and "work commitments". The 3 most frequently listed responses based on perceptions of other women's experience were "feelings of tiredness and lack of energy", work commitments, and "concern for safety to the foetus".

Perceived advantages of exercising during pregnancy. Participants listed a total of 25 advantages related to exercising during pregnancy. The most frequently listed advantages of exercising during pregnancy were "maintain fitness and increase flexibility" (57%), "better birth" (51%), "maintain a healthier weight gain" (42%), "generally healthier" (29%), "improved well-being" (27%) and "better recovery after birth" (27%).

Perceived disadvantages of exercising during pregnancy. The women listed 24 different disadvantages to exercising during pregnancy. The major disadvantages were "you get tired easily" (36%), "risk of injury/strain" (21%), "risk of overexertion" (19%), "uncomfortable/awkward due to size or weight" (15%), "danger to fetus" (13%), and "risk of early labour" (12%).

DISCUSSION AND CONCLUSIONS

Three noteworthy points emerged from this study. First, the results reflected the reported attitudes and behaviours of a wide range of women: the sample involved women who were either pregnant or had recently (within the last 3 years) been pregnant and included subgroups of those who said they were exercisers and nonexercisers during pregnancy. The

women in the sample represented a broad age range (17-46 years) and resided across a widespread geographic area. Second, the reasons reported by the women for or against exercise during pregnancy reflected a variety of psychological, physical, social and environmental factors. Finally, there was disparity between what the respondents reported as advantages and disadvantages for themselves and what they perceived for other women.

It was interesting to note that 58% of the present sample reported exercising regularly during their pregnancy. This appears to be considerably higher than the 18% estimated for a U.S. sample by Clapp and Dickenstein (1984). The higher proportion in the present study could have been a consequence of several factors. In the first place, it could be that the 13 year difference between the report of Clapp and Dickenstein and the present study represents changes across time in attitudes towards exercise, or it could be that, the differences reflected cultural differences between American and Australian samples. Alternatively, the higher participation rates found in the present sample could have resulted from a sampling bias. That is, compared to nonexercising women, those who were exercising could have been more inclined to participate in a survey on "Exercise and Pregnancy". As well, women might have overstated their level of physical activity if they felt that exercising during pregnancy had definite advantages to themselves and their unborn and, thus, was more socially desirable.

Notwithstanding potential problems with the present study (e.g., use of a nonsystematically selected sample), the findings could be important in planning programs to encourage pregnant women to be more physically active.

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QUALITY MANAGEMENT IN APPLIED SPORT PSYCHOLOGY: A PROJECT FOR THE PROFESSIONALISATION OF SPORT PSYCHOLOGY SERVICES IN SWITZERLAND

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KEY WORDS:

Quality management, sport psychology services, applied sport psychology

INTRODUCTION

To enhance performance sport psychology services have become more and more popular in the past decade. The effectiveness of these interventions has been questioned in several studies (Weinberg & Comar, 1995). It was found, that most of the interventions had positive performance effect (85%), although causality could be inferred in less than half of the studies. This high percentage of positive intervention results is astonishing and could be the result of a publication bias. That means, that researchers who do not obtain significant results are not as often submitting their studies for publication as researchers with positive findings do. However, the expectations in the effectiveness of sport psychological interventions are very high. Because of these high expectations and because sport psychologists are often working in a interdisciplinary context with other (professional) specialists the external quality demands are very high. Not only to fulfil these high expectations and to achieve a high credibility of sportpsychology in the sport organisations, but also to take the responsibility for the client, a professionalisation of the sport psychology service in Switzerland is essential. The use of quality management routines are very helpful to improve this professionalisation. An instrument to accelerate professional quality management is the development and systematic implementation of a quality model.

This paper designs the theoretical framework for quality management in applied sport psychology services developed in Switzerland by the Swiss Association of Sport Psychology (SASP) in co-operation with the Swiss Federation of Psychologists.

A MODEL FOR THE OPERATIONALISATION OF QUALITY IN SPORT PSYCHOLOGY SERVICES

Fundamental impulses for the operationalisation of quality came from Donabedian (1966). In a systemic sense he suggested that the quality of a consultation process is dependent on three factors. These three factors are responsible for the quality-valuation of the consultation. The factors are (1) structural quality, (2) process quality and (3) outcome quality. (1) The structural quality concerns the personal and professional prerequisites and the available technical, infrastructural, organisational and financial resources. (2) The process quality implies the quality that is actually reached during the consultation. Important for the process quality are all activities between the consultant, his co-workers, his colleagues, other professionals and the athlete / client. The control of the process quality is one of the most important activities in quality management. (3) The outcome quality can be defined as the difference between a goal setting or objectives and the actual output. In this view the outcome quality is related to the classical evaluation research and contains an assessment of the programme utility. Because the clients are judging the quality of the consultation mostly by the performance or consultation outcome, the role of this third factor of quality management model is substantial. But it would be wrong to reduce the quality of the sport psychology service only to the outcome variable, because the structure quality and the process quality are

the fundamental bases for the outcome. Figure 1 shows the three factors and their influencing variables.

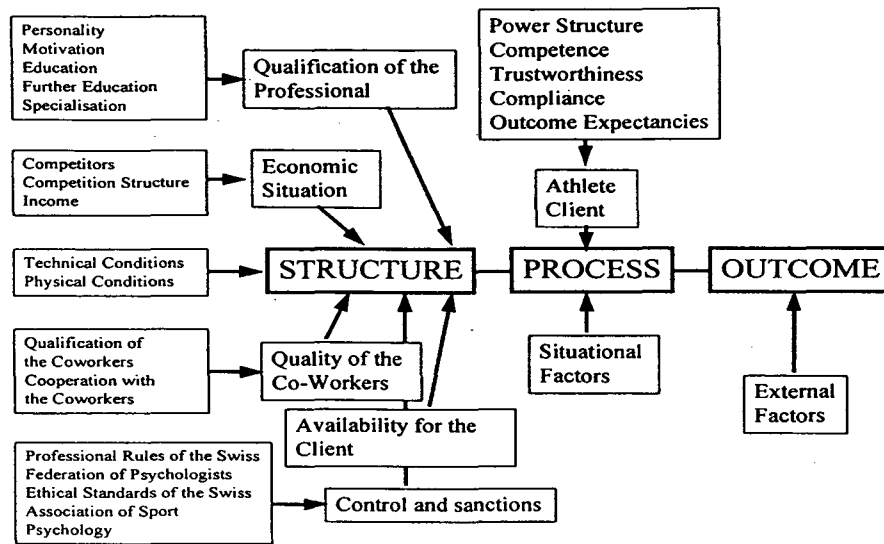


Fig. 1. The Influencing Variables of the Professional Consulting Process (adopted from Nienhaus, Schreiner-Kürten & Wilker, 1997).

To ensure the quality of the sport psychology service the project of the Swiss Association of Sport Psychology tries to take influence on all three quality factors from above. Figure 2 shows schematically the planned interventions and their estimated influences on the three factors.

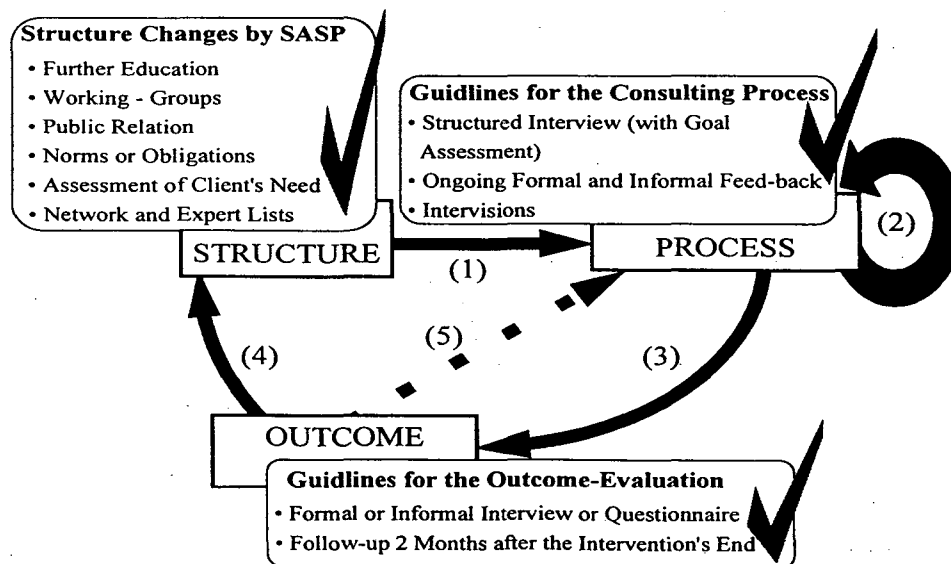


Fig. 2: Quality Management through the Influence on Structure, Process and Outcome (Evaluation) and their estimated Systemic Implications. For details see text.

The main intervention in the project of the Swiss Association of Sport Psychology is situated on the structural quality. Structural prerequisites for good practice, such as the qualification of those providing the services in terms of academic and applied training, the existence and

content of programmes for postgraduate and further education and specialisation, the establishment of a network and expert lists, the assessment of the needs of athletes, coaches and officials, and PR-campaigns and information for sport federations. All these actions could be summarised as politics of a professional federation and should have a estimated direct or indirect influence over the process quality ((1) in Figure 2).

To enhance the process quality basic guidelines for the consultation process should be worked out and could be used in the sense of a check list. These guidelines are beginning with the recommendation of a structured interview at the first contact with the client, which should at least measure the goal and objectives of the intervention, includes a ongoing informal and formal feed-back and ends with a informal or formal outcome evaluation. One of the important variable to evaluate is the goal or objective achievement, which was asked at the beginning of the consulting process. This last point marks the beginning of the measure of the outcome quality. In addition regular intervissions are also planned to enlarge the competence of the consultant. The actions to improve the process quality are supposed to have a direct influence over the whole consulting process ((2) in Figure 2) and of course a indirect influence over the outcome ((3) in Figure 2).

Last but not least the outcome evaluation, with a informal and formal evaluation as already mentioned above, should be followed by a follow up two months after the end of the consultation. The outcome evaluation has to consider the programme's impact as well as the programme's efficiency. The former is referred to as the degree to which the program produces the desired outcomes and the latter as its benefits in relation to its costs. The outcome evaluation should have an influence over the structure quality ((4) in Figure 2) and the process quality of future consultations ((5) in Figure 2) as well and could be very useful for the regulation of the improvement of the applied sport psychology services. To reach this goal necessary changes have to be derived directly from the evaluation.

The instruments for the quality management at the level of the process and outcome factor are forms, interview guides and questionnaires worked out by the Swiss Association of Sport Psychology for its members and the already mentioned systematic intervissions by the members themselves.

CONCLUSIONS / IMPLICATIONS

The lack of quality management routines in the applied sport psychology services in Switzerland has been outlined. To make further steps in the professionalisation of these services the systematic use and further development of the suggested instruments and actions seems to be substantial. The three factors, structure, process and outcome, are the basic fundament to operationalise these measures and help to come to a full understanding of the quality management and to improve the quality of sport psychology services.

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EXERCISE DEPENDENCE SYNDROME: AN IN-DEPTH INTERVIEW APPROACH WITH PARTICIPANTS AND SIGNIFICANT OTHERS

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KEYWORDS

dependence, exercise, interview, significant others

INTRODUCTION

Research into exercise dependence has utilised a variety of techniques determined by the academic discipline to which the researcher adheres. Within psychology these techniques have mainly focused on self report data gathered by survey (Carmack and Martens 1979, Hailey and Bailey 1982, Pasman and Thompson 1988, Ogden, Veale and Summers 1997). The in-depth interview examination has been largely ignored in favour of questionnaires with only one real exception (Sachs and Pargman 1979). In addition, the notion that exercise participation at addictive levels can affect relationships (Morgan 1979, Ogden, Veale and Summers 1997, Seheult 1995) has been proposed, accepted but not fully explored.

The aim of this paper was to investigate the impact of dependent exercise on interpersonal relationships by interviewing both participants of exercise in a variety of activities and their significant other.

METHOD AND PROCEDURE

Twelve participants (7 male, 5 female) and their significant others were interviewed. Participants were selected on the basis of two advertisements, which emphasised three main characteristics from research: withdrawal symptoms (Morgan 1979, Robbins and Joseph 1985, Veale 1995) continuation with exercise against advice (Morgan 1979) and adherence (Pierce, McGowan and Lynn 1993, Sachs and Pargman 1979). The advertisements were worded differently in order to account for a negative or positive experience of dependence. Participants and significant others were interviewed separately but within a two week delay. Interviews were transcribed and the results analysed using QSR.NUDIST. Analysis was based on gender, activities and relationships.

RESULTS AND DISCUSSION

Results indicated that it was more usual for both participants and their significant others to give a similar account of the exercise involvement, therefore significant others provided some verification of the participant's self report data. Where accounts differed drastically, participants played down the importance of exercise in their life in contrast to significant other's perceptions. Significant other accounts of their partner's involvement in exercise were categorised on two continuums. Support and objection defined one continuum, the other was defined by interest and disinterest. Participants whose partners expressed interest and/or support for their

involvement in exercise were more likely to enjoy their participation and not experience anxiety or interference with their relationship. Participants whose partners expressed disinterest and/or objection were more likely to experience anxiety when exercising and interference with their relationship. No connection was found between significant other's accounts and participants identification with a dependent state.

Participants who identified themselves as dependent upon exercise rationalised their involvement as a "something that has to be done" and did not believe that it caused any problems for themselves or their partners. Participants who identified themselves as not being dependent upon exercise had a tendency to give retrospective accounts about when they had been ("I'm not addicted now, but there was a time in the past when I probably was").

Two other significant elements within accounts of the exercise involvement were categorised as normalising and sacrifice. Normalising referred to participant's attempts to justify exercise behaviour. These comments ranged from a belief that the participation improved relationships within the partnership ("if I don't go out on a Sunday I'm really difficult to live with...so I am told"), to a belief that the participation was integral to self identity ("she understands because she knows it is who I am"). Sacrifice however, referred to significant others' accounts of their accommodation of the exercise participation ("I have come to accept that if I stay with him this is what he is like").

CONCLUSIONS

The previous suggestion that exercise dependence affects personal relationships has not been fully supported by this research (Morgan 1979). The exercise participation did cause tension and on occasion conflict within the relationship, but except for extreme cases, participants and their significant others managed to establish an accommodation of the exercise behaviour within the relationship which supports the findings of Estok and Rudy (1986). Longer-term relationships had adopted strategies that allowed both parties to be able to compromise the exercise participation with the needs of the relationship. In some cases the participation caused no tension within the relationship at all. How the exercise participation was accommodated within the relationship was not a factor in whether individuals perceived themselves to be dependent on their exercise or not. It is more likely that exercise dependence, except for extreme cases, will have a greater affect upon more casual relationships such as friends, acquaintances and colleagues. Further research within these relationship patterns is needed.

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THE WINGATE 5-STEP APPROACH FOR MENTAL PREPARATION

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KEY WORDS: mental preparation, biofeedback, Wingate approach

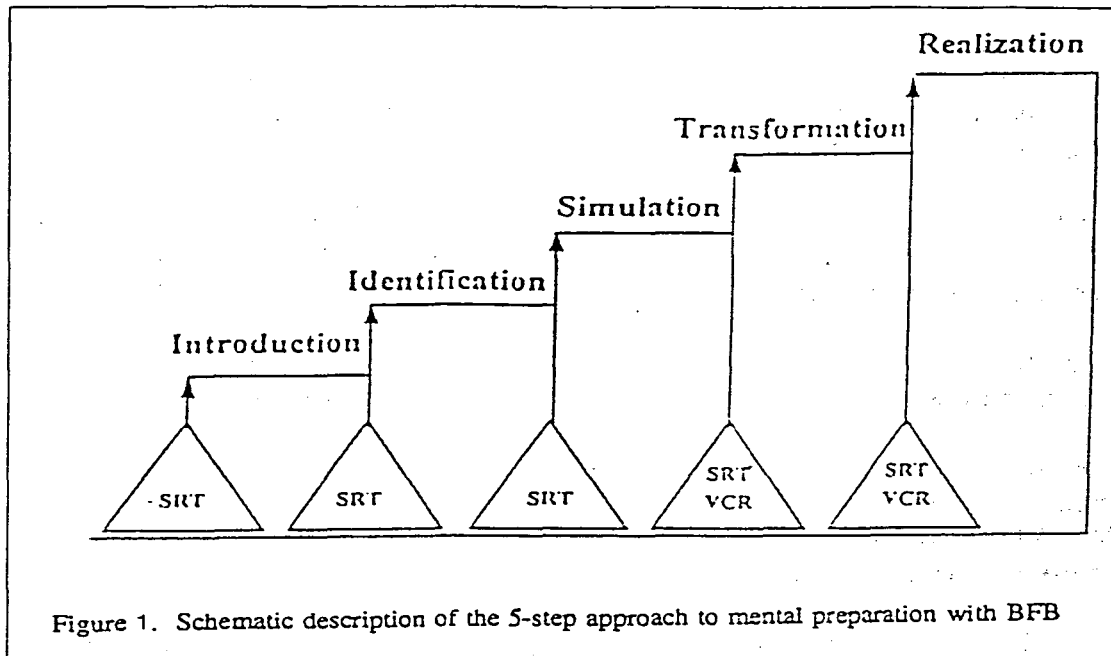
BACKGROUND

A review of the sport psychology literature reveals that a wide variety of mental training approaches or techniques has been used with athletes (Rushall, 1992; Sachs, 1991; Williams, 1993). One of the most powerful techniques for facilitating learning of arousal self-regulation is biofeedback (Collins, 1995; Zaichkowsky & Fuchs, 1989; Zaichkowsky & Takenaka, 1993). Essentially, the Wingate 5-step approach has been proposed within this framework.

To gain scientific credibility for this approach, Blumenstein, Bar-Eli and Tenenbaum (1995) investigated the effects of autogenic training, imagery and music training on physiological indices and athletic performance, using the biofeedback (BFB) device. The results of this study indicated that BFB had a substantial augmenting effect on physiological components and athletic performance when accompanied mainly by autogenic training and imagery. Simultaneously, Blumenstein, Tenenbaum, Bar-Eli and Pie (1995) presented the fundamentals of a two-stage procedure that was aimed to mentally prepare athletes for competitions. This procedure consisted of using BFB apparatus and videocassette recorder (VCR) equipment, combined with relaxation and/or excitation techniques, to simulate the sensations of competitive situations. In order to enable practitioners to successfully use the proposed method, a more detailed description of its various states was required. To meet this requirement, the Wingate 5-step approach was developed (Blumenstein, Bar-Eli, & Tenenbaum, 1997).

DESCRIPTION

The Wingate 5-step approach for mental training incorporating BFB with VCR, consists of five stages, with flexible time-session limits that can be individualized. These are (a) introduction (i.e., learning various self-regulation techniques), (b) identification (i.e. identifying and strengthening the most efficient BFB response modality), (c) simulation (i.e., BFB training with simulated competitive stress), (d) transformation (i.e., proceeding mental preparation from laboratory to field), and (e) realization (i.e., obtaining optimal regulation in competition). After each stage, the athlete is tested by the self-regulation test (SRT). In Figure 1, a schematic description of the 5-step approach to mental preparation with BFB is described.



RESEARCH AND APPLICATION

In a series of investigations, it was demonstrated that the Wingate 5-step approach may substantially enhance athletes' performance in applied settings. For example, Dreshman, Blumenstein, Bar-Eli and Weinstein (1998) compared an experimental group of 20 11-14 year-old competitive swimmers, who were treated by this approach, to a control group of 21 competitive swimmers with the same characteristics. It was found that the experimental group performed substantially better after 3.5 months of training, in terms of their results in real competitions as well as coaches' evaluations concerning their swimming technique. Moreover, the advantage of the experimental group continuously increased over time. In another study, Shitrit, Blumenstein, Bar-Eli and Yaaron (1998), using a similar research paradigm with 15-18 year-old athletes, found a similar pattern of results in judo and basketball.

In addition, adapted versions of the 5-step approach were specifically developed for a variety of sport disciplines, such as judo and wrestling (Blumenstein, Bar-Eli, and Tenenbaum, 1997b) and canoe/kayak (Blumenstein & Bar-Eli, 1998). Thus, it can be concluded that the Wingate 5-step approach is a promising mental training program, which is well-grounded in both scientific research and applied experience in elite sport.

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MENTAL TRAINING WITH BIOFEEDBACK IN COMBAT SPORT

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KEY WORDS: mental training, biofeedback, elite athletes

INTRODUCTION

A review of the sport psychology literature reveals that a wide variety of approaches to mental training have been used with athletes (Onestak, 1991; Williams, 1993). Among these approaches, biofeedback (BFB) has frequently been employed to enhance athletic performance (Collins, 1995; Zaichkowsky & Fuchs, 1989).

METHOD AND PROCEDURE

We present a 5-step approach to mental training with BFB (Blumenstein, Bar-Eli, & Tenenbaum, 1997). This approach includes (a) introduction (i.e., learning various self-regulation techniques), (b) identification (i.e. identifying and strengthening the most efficient BFB response modality), (c) simulation (i.e., BFB training with simulated competitive stress), (d) transformation (i.e., proceeding mental preparation from laboratory to field), and (e) realization (i.e., obtaining optimal regulation in competition). In our mental practice with Israeli elite athletes from combat sport (Olympic, World, European medalists in judo, wrestling, taekwondo) we developed and used a mental training program which was based on the principle of the 5-step approach.

RESULTS

In Table 1 a proposed general mental training program was developed for and applied to elite combat sport athletes.

From this proposed general mental training plan we compose weekly and individual BF training plans, which account for a period of training preparation, load peculiarities, athletes' competition experience, and his/her current mental state.

TABLE 1. Proposed General Mental Training Program for Combat Sport Athletes.

Step	Content	Mode and Length of treatment (sessions x time)
1*	Special psychophysiological diagnosis: (self-regulation test, time of reaction, special feeling: muscle time reproduction); goal setting; introductions of mental techniques: AT, muscle relaxation, imagery and concentration training, BFB training	group - individual 9-10 x 30-45 min
2*	BFB training with GSR and EMG modalities (planning recovery between fights), self-regulation test	individual - group 10-15 x 30 min
3*	BFB training with imagery and VCR system (planning competition situations: e.g., pre-start mental preparation), tactical-technical preparation. BFB training with EMG, GSR modalities after VCR demonstration	individual 20-30 x 20 min 15-20 x 5-10 min
4	Mental practice in training (hall, between training fights): brief relaxation pre-start preparation, recovery between fights	individual - group 20-30 x 1-3 min 20-30 x 3-5 min 10-15 x 10-15 min
5	Pre-start competition support: planning competition versions, recovery between matches and concentration before matches. Self-examination after competition with VCR.	individual 10-15 x 3-5 min 10-15 x 1-3 min 10-15 x 5-10 min
* Homework for Steps 1-3: Mental relaxation with music; special relaxation program with portable GSR _{BF} ; 10-15 x 10-15 min Daily relaxation practice with portable GSR _{BF} ; EMG _{BF} ; extended relaxation, 4-5 x 15 min, brief relaxation 7-10 x 5 min; brief relaxation 6-9 x 1 min.		

For example, concrete individual one-week BF training plan with VCR collection program before competition are representative below (example from wrestling):

30.6 - BF training with GSR - relaxation - 2 x 3 min

BF training with GSR and audio-visual stimulation (athlete listens to noise from last world wrestling championship) - 3-5 min.

Preview his competition match Israel-China (score 3-6) and relax-imagine with GSR control this match with corrections and following analysis of this fight together with coach.

2.7 - Relaxation with EMG-GSR_{BF} accompanied by special music program - 15 min (EMG - 0.8-0.9 μ V)

5.7 - BF training with EMG (between 0.6-0.9 μ V)

BF training with GSR - relaxation-excitation (IM competition fragments) - 2 x 5 min

Preview his competition match Israel-Poland (score 4:2), and next imagines this match (with planning and corrections).

Relaxation with GSR_{BF} - 3-5 min - preparation for next match Israel-USA and imagine this match with GSR_{BF} and competition noise from VCR program.

Analyzes this fight together with coach.

Relaxation with GSR_{BF} - 5 min

6.7 - BF training with portable GSR - relaxation-excitation-relaxation - 3 x 3 min

Preview competition match Israel-USA (score 0:1) and next imagines this match correcting mistakes and analyzing this match together with coach.

Relaxation with portable GSR_{BF} - 5-10 min

CONCLUSION

Our underlying principle of the 5-step mental preparation program presented for elite combat sport is to guide the athlete through situations with a gradual increase in difficulty or complexity, both across and within steps. Accordingly, this program enables the athlete to vividly follow his/her own progress and to experience success not only in the laboratory but also in the field. As a result, the elite athletes undergoing such a program has a greater tendency to adhere to and benefit from it.

The cumulative experience of the authors in applying this program with elite combat sport athletes over more than a seven-year period (including four European, three World Championships and one Olympic Games) has provided consistent positive outcomes, and satisfaction in participating athletes, and thus has further strengthened the program's effectiveness.

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SPORT CLIMBING: PERCEIVING NESTED AFFORDANCES

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KEYWORDS visual perception, skill, clustered information, functionality

This study tries to uncover some of the perceptual and memory processes in sport climbing. The structure of a climbing wall specifies possible climbing actions and the preferable climbing trajectory. Perceiving the climbing possibilities is called *route finding*, i.e., a climber has to perceive whether a hold is reachable and in what way a hold can be grasped or used as a foot-support. Skill in sport climbing might be related to the ability to accurately apply route finding. Several studies indicate that differences in motor skill might be, at least partially, due to differences in visual perception (Abernethy, Neal, & Koning, 1994; Beltel, 1980; Paull & Glencross, 1997; Pijpers & Bakker, 1993). This suggests that experienced climbers might perceive more accurately the various elements of a climbing wall than inexperienced climbers. Such a relationship between visual perception and skill was thoroughly studied with respect to the game of chess. Chess masters are capable of reproducing a complicated chess position after an exposure of five seconds (Chase & Simon, 1973; de Groot, Gobet, & Jongman, 1996), which seems to be inconsistent with the human short-term memory and memorizing capabilities (7 ± 2 items of information). Exceeding this capacity would imply that some kind of clustering of perceived information took place. It appeared that chess masters immediately perceived *meaningful constellations of pieces*. The present study examines if clustering of information also occurs during route finding in sport climbing.

EXPERIMENT 1

First, it was investigated if skill in climbing, like skill in chess, coincides with excellent visual perception. Second, it was presumed that expert climbers, when applying route finding for five seconds, would be able to recall a relatively large amount of information. Third, it was hypothesized that only expert climbers would focus on the functional aspects of a climbing wall.

Method

Five expert climbers (all professionally involved in climbing; their climbing skill—assessed as the maximum climbable route—ranged from 7a to 7c+, French rating scale of difficulty), 4 novice climbers (climbing skill from 4c to 5c), and 7 inexperienced participants (no climbing experience) took part in Experiment 1. A vertical indoor climbing wall (7.0 by 3.5 m.) was used. On the wall 23 holds of different shape were placed by a professional builder of climbing routes, resulting in a climbing route of difficulty 5c/6a. Also a scale model of the climbing wall was used, measuring one third of the climbing wall with 23 orange dots on it to indicate the location of the holds. Next to the scale model were 23 holds, identical to the ones used on the real climbing wall. All participants were asked to look for 2.5 minute at the climbing wall and then to reproduce it on the scale model, i.e., to place the correct hold at the correct orange dot and with the correct orientation. When the participants finished the reproduction, the experimenter provided feedback by removing the wrongly placed holds from the scale model and by turning the wrongly oriented (but correctly placed) holds upside down. For the next trials, participants looked only for 5 seconds at the wall and adjusted the wrongly placed and/or oriented holds on the scale model. The experimenter provided feedback, as before. This procedure was repeated until the entire route was correctly reproduced, however, with a maximum of 12 trials.

Results

Analyses of variance (ANOVAs) revealed that expert climbers recalled the placement and orientation of the holds significantly more accurate than novices and inexperienced participants, $F(2, 15) > 11.0$, $ps < .005$, while novices performed better than inexperienced participants (see Fig. 1). To examine whether climbers use clustered information (recalled more than 9 items), an ANOVA was conducted on the mean amount of information perceived during the 5-second trials (trials 2 to 12). This analysis showed that expert climbers more frequently recalled more than 9 items of information than novices and inexperienced participants, $F(2, 15) = 7.2$, $p = .008$. The results of an ANOVA on the functional aspects of the climbing wall sustained the hypothesis that *only* expert climbers would direct their perception toward the functional orientation of the holds, $F(2, 15) = 7.4$, $p = .007$, of the difficult passages, and of the hand-grips, $F(4, 26) > 4.0$, $p \leq .010$.

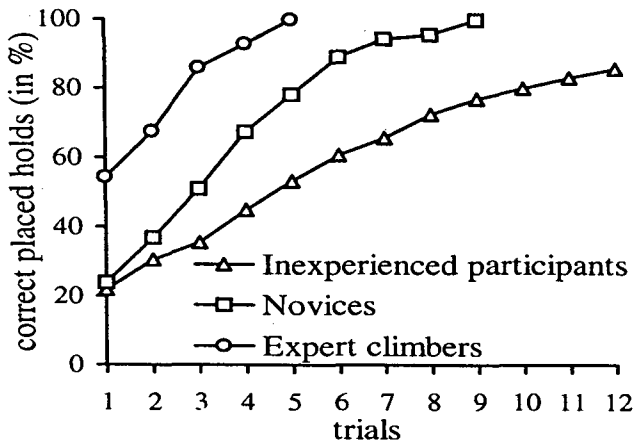


Fig. 1. Performance on the Reproduction Task by the Participants. Reported are the mean percentage correctly placed holds per trial on the scale model of the climbing wall. Trial 1 is after viewing the climbing wall for 2.5 minutes, trials 2 to 12 are after viewing the wall for 5 seconds.

EXPERIMENT 2

When expert climbers apply clustering of information, then what is the nature of this information? According to the chess-research (see Chase & Simon, 1973), such clusters consist of visual properties and chess functions. In sport climbing such visual properties will correspond to the *structural features* of the climbing wall: the shape, size, location, and orientation of the holds. *Climbing functions* might refer to perceived possibilities for climbing (i.e., affordances): reaching, grasping, and standing possibilities, and possibilities for specific climbing moves. It might be presumed that climbing functions correspond to the functional aspect as measured in Experiment 1. In line with ecological psychology (Gibson, 1979) it is argued that experienced climbers perceive (clustered) information that specifies climbing functions or affordances. For inexperienced participants such climbing functions will be hard to perceive.

Method

Two inexperienced participants ('I1' and 'I2') and 2 expert climbers ('E1' and 'E2', their climbing skill was 7c and 7a+) took part in Experiment 2. The same method was used as in Experiment 1, except that the participants were also instructed to *think aloud* during the reproduction task.

Results

The results (see Table 1) show that the verbatim reports of the *inexperienced participants* consist almost exclusively of statements referring to structural features of the climbing wall. In the verbatim reports of the *expert climbers* only about one third of their statements referred to structural features, while more than twice as much of their statements referred to perceived climbing functions. This

indicates that when looking at a climbing wall expert climbers focus on opportunities for action rather than on structural features or physical details of the climbing wall.

TABLE 1. Verbatim Reports the Inexperienced Participants ('I') and the Expert Climbers ('E').

Variable	Inexperienced participants		Expert climbers	
	I1	I2	E1	E2
Total number of statements	93	136	117	165
Structural feature (<i>wrong</i>)	90.3 % (4.3 %)	99.3 % (15.4 %)	32.5 % (5.1 %)	30.9 % (4.2 %)
Climbing function (<i>wrong</i>)	9.7 % (4.3 %)	0.7 % (0.7 %)	67.5 % (2.6 %)	69.1 % (4.8 %)

DISCUSSION AND CONCLUSIONS

Our findings show that differences in skill level coincide with differences in visual perception. Expert performance in climbing is characterized by the ability to accurately pick up the functionally relevant information for action. Such functional information will specify the action possibilities that a climbing wall offers a climber. This information might reveal affordances of different scale. Low scale affordances will include the reaching, grasping, or standing possibilities of individual holds, while large scale affordances (clustered information) will include several action possibilities or a kind of climbing choreography spread over multiple holds. Large scale affordances may be regarded to emerge from low scale affordances, suggesting a *nested* structure (hierarchy) of directly perceived climbing functions. On what scale affordances are being perceived will depend upon the interests, needs, and desires of the climber. Climbing functions or affordances reveal the properties of the environment-actor system (see Bootsma, 1998), i.e., they reveal which actions might be performed by an actor in a certain environment. The structural features of a climbing wall reveal predominantly properties of an environment, independent from the actor, and might thus include unimportant properties for the actor as well. In conclusion, expert climbers perceived low scale affordances (climbing functions) and large scale affordances (clustered information), revealing a nested structure of affordances. Novices and inexperienced participants perceived exclusively structural features (non functional information).

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THE EFFECT OF MUSIC ON PERCEIVED EXERTION AND AFFECT DURING CYCLE ERGOMETRY EXERCISE

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KEY WORDS: EXERCISE, MUSIC, RATINGS OF PERCEIVED EXERTION AFFECT

Prior research has shown that women who listened to music while exercising recorded reduced ratings of perceived exertion (RPE) and increased affect compared to exercising at the same workloads without music (Boutcher & Trenske, 1990). How music depresses work effort sense and enhances affect during exercise, however, is undetermined. For example, music may increase affect by generating positive emotional states. Exercisers could associate music with positive past experiences or music may focus attention on pleasant future events. Also music may distract exercisers from focusing on the sensation of exercising and thus exercisers may perceive exercise to be less strenuous. Whatever the mechanism, in untrained women music has been shown to positively influence both affect and RPE during moderate exercise. However, it is unclear if music also influences the RPE and affective response of aerobically fit women. For example, Boutcher et al. (1997) found that trained athletes experienced more positive affective states during aerobic exercise compared to untrained. It is feasible that trained exercisers may have lower levels of discomfort during exercise and thus music may have less impact on affect and effort sense. Thus, the purpose of this study was to compare the affect, RPE, and heart rate response of aerobically fit women during light, moderate, and hard cycle ergometer exercise when listening and not listening to music.

METHOD AND PROCEDURE

Participants (Table 1) were aerobically trained females ($n=20$) who performed two identical exercise sessions on a cycle ergometer at light, moderate, and hard workloads. Workloads were derived by estimating 55% (light load), 65% (moderate load), and 75% (heavy load) of maximum heart rate. RPE and affect were assessed every minute whereas heart rate was monitored throughout. Women participated in either a music or non-music condition whose order was counterbalanced. After a 3-minute warm-up heart rates were adjusted to the light, moderate, and heavy workloads by monitoring a Polar Heart Watch (Vantage). Each participant cycled at each workload for 6 minutes. Workload for each exercise session was identical and included the 3-minute warm-up followed by 18 minutes of continuous cycle ergometry exercise. Each woman provided her own music tape and controlled the loudness of the music during exercise. RPE was assessed using the 15-point Borg scale (Borg, 1962), whereas affect was recorded using the 11-point Feeling Scale developed by Rejeski (1985).

RESULTS

Repeated measures ANOVA was used to examine differences between the two conditions. Heart rate response was significantly different for each workload but was similar for the two exercise sessions (Figure 1). RPE during the music compared to the non-music condition was significantly lower during the light ($F[5, 95], 35.2, p<.01$; Figure 2) and hard workloads ($F[5, 95], 59.4, p<.01$; Figure 2). Affect was similar throughout exercise (Figure 3).

Table 1. Participant Characteristics

<u>Variables</u>	<u>M</u>	<u>SE</u>
Age (yrs)	20.9	(.37)
Body mass (kg)	65.9	(3.2)
Systolic blood pressure (mmHg)	114	(1.9)
Diastolic blood pressure (mmHg)	65	(1.2)

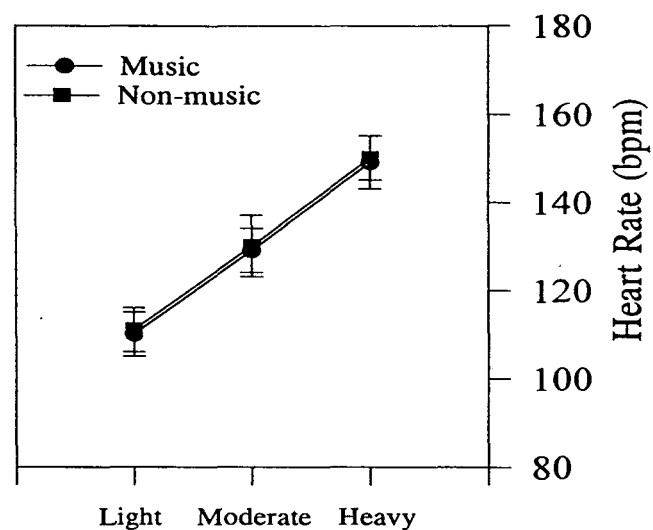


Figure 1. Heart rate response during the music and non-music conditions at light, moderate, and heavy workloads.

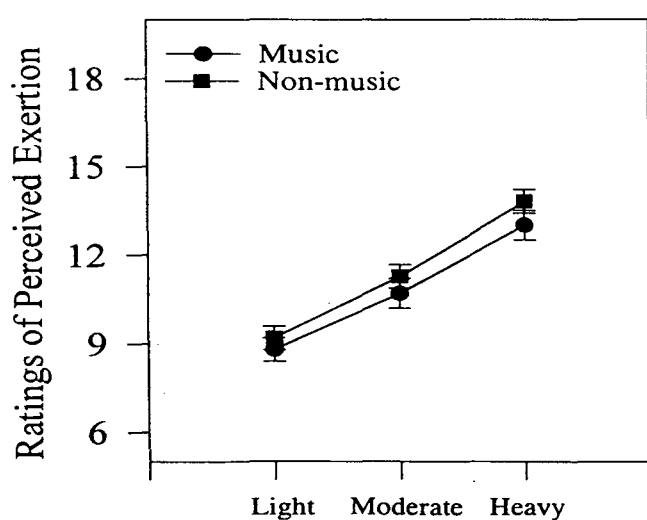


Figure 2. RPE response during the music and non-music conditions at light, moderate, and heavy workloads.

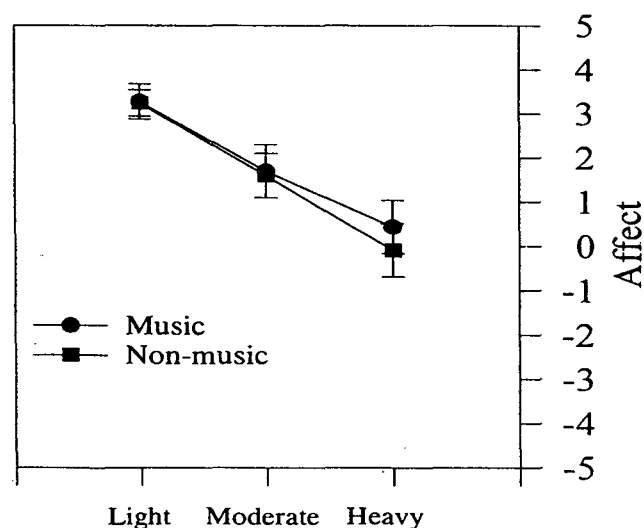


Figure 3. Affect response during the Music and non-music conditions at light, moderate, and heavy workloads.

DISCUSSION

Results of this study indicate that RPE was influenced by music whereas affect was unaffected. For RPE, responses were significantly lower during music compared to non-music for the light and heavy cycle ergometer workloads. Affect and heart rate responses were similar during both the music and non-music conditions.

The RPE results provide partial support for prior research that has demonstrated that music can depress RPE (Boutcher & Trenske, 1990). In the Boutcher and Trenske study the RPE of untrained females was reduced but only during the light exercise workload. In contrast, results of the present study indicate that for aerobically active women music was associated with lower RPEs for both the light and heavy workloads. These results do not support Rejeski's notion that the greatest influence of psychological factors on RPE is experienced during light exercise (Rejeski, 1985).

The affective response was similar during both music and non-music conditions. Thus, the affect of trained women during cycle ergometry exercise does not appear to have been influenced by listening to music. These results do not support prior research with untrained women that has shown that music elevates affect during exercise (Boutcher & Trenske, 1990). Collectively, these results suggest that the effect of music on both RPE and affect during exercise may be a function of aerobic training. That is music depresses the RPE of trained women during exercise but has little effect on affect.

It is possible that intensity of exercise can influence the effects of music on affect. Because the trained women in this study were generating high levels of work, even at the light exercise load, it is feasible that physiological afferent feedback reduced attentional capacity. Thus, not enough attentional capacity was available to allow music to elevate affect. For example, exercisers may not have had enough spare attention to focus on positive past experiences or pleasant future events. In contrast, effort sense may require less attention and thus may be more easily influenced by music. These mechanisms need to be verified by future research.

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STRESS FACTORS IN PROFESSIONAL SOCCER PLAYERS INVENTORY

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INTRODUCTION

The concept of stress became very popular since Hans Selye in 1956 used the term to describe a “general adaptation syndrome” of some kind of factors impingement on the organism. The last decade has improved the knowledge of the role of the stress in physical activity and sport. In sport, the term stress is most often understood as distress, a negative reaction. In fact, some kind of sportive situations cause or produce 3 types of negative symptoms: physical (increase in heart rate, increase in sweating, “butterflies” in the stomach, rapid breathing, tense muscles, dry mouth and desire to urinate); mental (fear, anxiety, worry, inability to concentrate, difficult making decision, feeling ill or odd and feeling out of control or overwhelmed) and behavioral (talking rapidly, nervous mannerisms like foot tapping, scowling and yawning). But also a positive stress, eustress, exists. It prepares the body for explosive activity, it causes alertness and physiological arousal, helping to maintain focus, motivation, enthusiasm and to conserve high physical energy. In other words, prepares the athlete’s organism to optimum performance.

There are a number of stressors in sports. These stressors influence performance via different processes, debilitating it (bringing or triggering negative responses), or facilitating it (helping athletes to use the individual’s resources effectively and efficiently in situations of sports competition).

Soccer players inescapably live under stress during the sportive career, and many real-life (aspects of) soccer situations operate in the ongoing performance. For example, playing at home is generally regarded as offering an advantage to soccer teams. On the other hand, conflicts with the coach and the teammates tend to disintegrate the cohesion of the team.

Considering the lack of the psychodynamics’ of the stress situations data on high technical level soccer players, the purpose of this study was to develop a “Stress Factors in Professional Soccer Players Inventory” and analyze the influence of stress factors on debilitating (distress) or facilitating (eustress) the sportive performance.

METHOD AND PROCEDURE

Subjects

The sample of this present study consisted of 59 professional soccer players from Grêmio Foot-Ball Portoalegrense (1996 World Championship finalist) and Sport Clube Internacional (1997 Champion), with mean of age 24.45 ± 3.99 years old, participating for 12.0 ± 3.2 years and professional for 5.83 ± 3.56 years.

Procedure

All the athletes were submitted to measurements of the “Stress Factors in Professional Soccer Players Inventory”. This inventory is a self-report instrument adapted from the “Factors that Influence the Performance Inventory” (Brandão & alli, 1998). It comprises 78 items of general and real-life soccer situations. The soccer players was asked at first to respond to each of the

Stress Factors in Professional Soccer Players Inventory

78 items if it has a negative, neutral or positive effect on his , to quantify the amount of the positive or negative effect on a 7-point scale, from -3 to +3.

RESULTS AND DISCUSSION

The mean scores of each "Factors that Influence the Performance Inventory" are shown in table 1.

TABLE 1 - Mean and standard deviation of each of the 78 factors

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
X	-2.72	-1.64	-1.57	-1.83	0.74	2.83	0.24	-0.64	-1.76	-1.84	0.21	-1.24	0.84	0.36	-1.81	-1.74
s	0.59	1.44	1.50	1.01	1.54	0.60	1.29	1.52	1.68	1.41	1.50	1.38	1.36	1.73	1.33	1.32
	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
X	-0.74	1.03	2.14	2.38	0.14	-0.28	-0.64	-0.45	1.90	1.24	-1.24	-1.93	-0.36	-0.09	0.79	2.03
s	1.68	1.46	1.32	0.97	1.29	1.33	1.29	1.59	1.29	1.43	1.38	1.28	0.89	1.38	1.46	1.46
	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
X	-0.98	2.02	-2.22	-1.29	-1.52	-1.62	-0.34	2.72	-0.52	-0.36	0.72	-0.21	0.52	0.14	-1.24	0.67
s	1.59	1.29	1.36	1.21	1.26	1.24	0.97	0.74	1.34	1.96	1.33	1.33	1.79	1.50	1.16	1.38
	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64
X	2.45	-0.07	1.00	2.43	-0.57	0.05	2.05	-0.90	-0.12	-0.28	-2.28	-0.76	-1.59	-0.69	-2.07	-1.02
s	1.08	0.53	1.66	1.23	1.58	1.53	1.22	1.12	1.27	1.61	1.01	1.48	1.12	1.57	1.20	1.13
	65	66	67	68	69	70	71	72	73	74	75	76	77	78		
X	-0.62	-0.47	-1.24	1.19	0.33	-0.31	-1.03	-1.03	-1.52	-1.98	-2.38	-0.56	0.05	-1.86		
s	1.46	1.54	1.23	1.49	1.88	0.92	1.28	1.17	1.11	1.15	1.02	1.46	1.37	1.21		

Table 1 shows that 27 factors were evaluated as having a very strong negative stress effect upon the sportive performance (higher -1): not being in a good shape, staying in the bench and not playing during the game, being very nervous, not sleeping well the night before the competition, having problems or conflicts with the coach, having problems or conflicts with the teammates, defeats in the beginning of a championship, being jeopardized by the referees, having bad lodgings and facilities, playing in an empty stadium, playing in a rough ground, losing by a dilated score, not scoring a goal that was practically attained, scoring a goal against your own team, losing a penalty, a long trip, participating with injury problems, a difficult family relationship, being advised that you are not going to play just before the game, receiving threats from the referee during the game, wrong plays in decisive moments, playing under very warm climate, wrong plays at the end of the match, not having a psychological training, inadequate technical/tactical training, not having a team cohesion, and let pass an easy defensible ball into your goal .

These results are in accordance with Scanlan et alli (1991), Samulski & Chagas (1996), Teipel (1993), and Gould et alli (1993) findings. Many of the distress factors were related to interpersonal conflicts with significant-other relations (coach, family, referees and teammates), physical conditions (injuries, physical fitness, and training situation) , environmental conditions of the competitions (lodgings, score, stadium, and rough), personal struggles (nervousness, sleeping patterns) and aspects of competition, a kind of competitive circumstances that induce stress.

On the other hand, 14 of the 78 factors were evaluated as having a strong positive effect upon the sportive performance (higher +1): establishing high goals (the highest one), playing against a hostile audience, playing at home, assuming responsibilities into the group, some other team wanting to book you, playing at night, doing a speed training, stretching, self

pressure to play well, coach pressure to win, knowing in advance that you are going to play, playing a traditional match, being isolated in a facility on the eve of the match, and pre-season out of the routine premises. The present findings are consistent with Kingston & Hardy (1997), they suggested that specific challenging goals produce better performance, but are not in agreement with Scanlan et alii (1991) and Gould et alii (1993) studies. In both studies, high performance expectations, pressure to play well and win and self-standards were related to negative stress. Several factors are important in successful athletic performance, including playing before a home audience. According to Snyder & Purdy (1985), coaches and athletes believe in the home advantage. For some soccer players, even a play away from home and a hostile audience are important motivation winning factors. But for Greer (apud Snyder & Purdy, 1985) the crowd booing against the visitant teams was related to a decline in the performance. Another factor related to high level sportive performance is the physical, technical and tactical regime of training, even before the season has officially started. Finally, significant events, because of their impact, have significant meanings for players. Crucial games often have memorable events embedded in them (Fine, 1985).

CONCLUSION

We can conclude that the questionnaire is a rich and valuable device to assess the potentially stressful soccer situations on debilitating or facilitating the performance. This knowledge is critical and should be taken into consideration when planning either practice sessions or the competitive season for professional soccer teams.

The findings also confirm that stressful situations have different effects upon the performance, for example, having high goals has beneficial effects on performance, but not being in a good physical condition, depress the performance.

Finally, the assessment of the stressors can show an individual's history of stressors, that may result in varying amount of psychological and behavioral disintegration or to being able to fully explore his abilities and reach a peak performance.

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HOW DO WE EDUCATE SOMEBODY MORALLY?

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Key words: moral virtues, moral education

INTRODUCTION

Moral development is a very complex issue, with many influencing factors making it extremely difficult task for any potential educator. People differ in many ways: types of personality, in kinds of experiences, in their social surroundings (as their reference-group) as well as in received education or religion. Moral models consider cognition, affection and behaviour as the key concepts, therefore pointing at the possible sources of educational intervention. Human mind can understand, develop and store information, which it may use later depending on contextual situation. According to the moral theory developed by Piaget and later extended by Kohlberg, a child develops a fairly basic understanding of norms by the end of the childhood period. By the age of 10 he can apply the norms with certain flexibility, depending on the circumstances and the context, creating situations beneficial for oneself (morality against self-interest). In the adolescence period the relation between moral understanding and personal profits tends to change. Number of situations (moral dilemmas), in which an individual is expected to behave in an appropriate way (sometimes sacrificing personal benefits) increases and although at first the individual abides the rules for the sake of one's own reputation (morality and the self), with time he internalises some of the norms, enriching them by the personal experience, reflections and interpretations (Damon, 1984). Peters believes that „moral development depends not upon explicit teacher, backed by reinforcement, but upon the interaction of the child with his social environment, which is aided or retarded by the amount of cognitive stimulation available to the child, which helps him to conceive of the social environment in the required manner” (Peters, 1981). Can we organise the child's environment in the way that will help him to develop morally?

MORAL DEVELOPMENT AND THE SCHOOL

Moral development is both parents' (children up-bringing) and school's (education) duty. It can be based on empathy, comparison, reinforcement, or other factors but in all the cases it should lead to developing cognitive understanding. Moral education needs to provide children with a wide spectrum of emotional and situational experiences happening in a specific social context. Range of methods and materials is subject-specific and depends on the teacher professional knowledge and skills but the most important factor is the moral education program and whether it is being implemented in a school as a system of references. Peters (p.157) gives three points for the moral education program to be effective in schools:

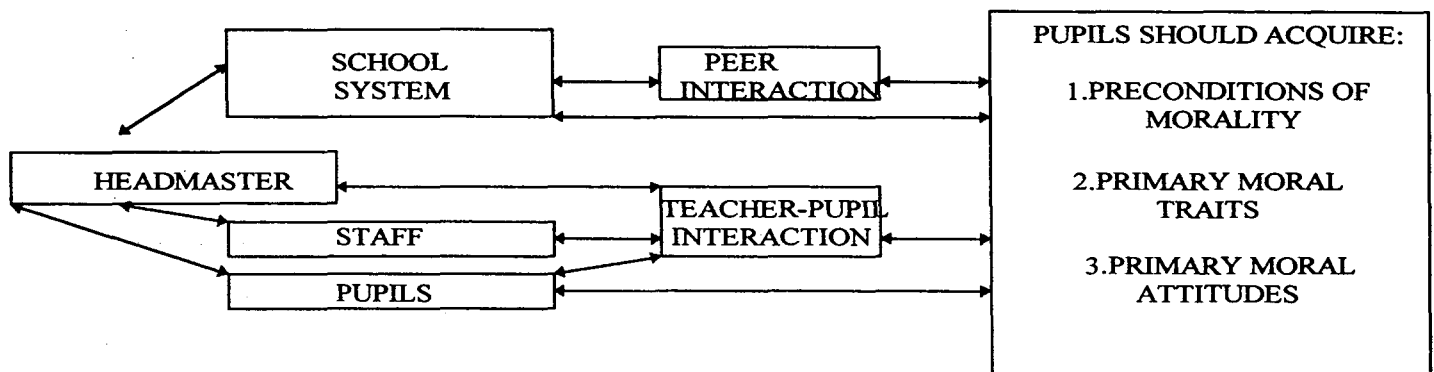
- 1) it needs to consist of the real situation occurring in life (identification with situations, which may happen to an individual)
- 2) it needs to consider relationship between pupils-teachers-parents establishing the common behavioural norms (parents should not approve of behaviour disapproved by school)
- 3) it needs to include educating methods appropriate for the age and cognitive development of children (ex. induction needs not to be used before a child is able to consider other people's points of view).

1.School as a system

School system of education can not be based on a formal structure of ruling only (neither entirely democratic nor autocratic), because modern society is a dynamically changing concept. School is supposed to prepare an individual for the active, self-depending living and education needs to be looked at in terms of reflective model (pupil-centred) taking over some responsibilities from the parents (to busy those days to bring-up their own children). For the moment school concentrates on the academic achievements of its pupils, leaving educative duties up to the mass media, street culture or in the best case to the sport organisations. As a final product of such education process we get individuals able to work effectively (and even then this is not always the case-growing unemployment figure) but not able to lead valuable social life (with some unemployed having more spare time than ever and other to busy to get involved socially even in family life).

The flow of moral influence in schools (adapted from Sugerman by Key, 1975, p.208)

Independent variables	Intervening variables	Dependent variables
Formal ogranization	Social system	Educational aims



2.Physical Education and Sport in School

The belief in sport and physical activity developing human character is dated back to the times of Plato. More recently researchers are trying to establish the possible links and relations between different sports, attitudes or personalities and the character development. Shileds and Bredemeier, basing on their findings in various reserches, stated that „nonathletes students had significantly more mature reasoning then the sport participants” (1995, p.118). Huizinga pointed at the remote connection between a game/play arena and the real life a long time ago. Sport and physical education environment provides an individual with moral dilemmas the same way other life domains do, yet concentrating them in big number per unit of time. Therefore physical education should play a central role in developing moral virtues of a person.

Carr (1998, p.120) suggests there are three ways to look at the physical education:

1) sport, games and other physical activities exhibit features (of, for example, competition and aggression) which are morally negative, therefore physical education-the teaching of sports and games-can only have negative moral educational value,

2) sports, games and other physical activities exhibit features (of, example, co-operation and team spirit) which are morally positive, therefore physical education-the teaching of sports and games-can have only positive moral educational value,

3) sports, games and other physical activities cannot be clearly shown to exhibit inherent features of either positive or negative moral significance, therefore such activities are „hived off” from wider moral concerns and physical education is, to all intents and purposes, neutral from a moral education point of view.”

As physical education aims at preparing pupils to leading quality life (active family life, health care, participation in professional sports). Is also needs to maintain its role as a moral agent, but what makes physical education different from other school subjects? Moral dilemmas may occur in every school subject lessons (in maths, biology, chemistry, physical education). The question is whether teaching gymnastics, hockey or swimming is moral education in itself? Probably as much as teaching maths, biology or chemistry. There is nothing morally special in teaching physical education except for the individual sporting experience of P.E.teachers, specific form of interactions between teachers and pupils in outside the class environment and the willingness to educate pupils not just physically but morally as well. The number of conflict situations occurring during physical education classes helps in fulfilling this moral obligation as long as the teachers have a clear hierarchy of moral values. Olympic education programs have been use in many countries to promote moral ideals. In 1995 Gibbons found that the implementation of specially designed educational program can effect changes in several facets of moral development. This hypothesis has also been supported in an olympic education project developed in Poznań in 1997.

Table 1. Results of the moral effect examination in the olympic project in control and experimental group.

Dependent variables			Examination I		Examination II		Student's test		Effect
	N	group	Mean	SD	Mean	SD	t	p	size
1.Judgement	117	control	2,39	0,2880	2,37	0,2855	t=0,53	p=0,596	Es=0,07
	107	experim	2,37	0,2806	2,61	0,2515	t=6,56	p=0,000	Es=0,81
2.Reason	117	control	3,51	0,4125	3,60	0,3959	t=1,70	p=0,091	Es=0,22
	107	experim	3,46	0,2806	3,91	0,3165	t=10,96	p=0,000	Es=1,60
3.Intention	117	control	2,32	0,2288	2,36	0,2770	t=1,20	p=0,232	Es=0,17
	107	experim	2,29	0,2844	2,59	0,2514	t=8,14	p=0,000	Es=1,05
4.Behaviour	117	control	2,27	0,2904	2,24	0,2808	t=0,80	p=0,425	Es=0,10
	107	experim	2,35	0,3101	2,01	0,2602	t=8,65	p=0,000	Es=1,10

Source: Own research (1997)

SPORT AND MORAL EDUCATION

By the time a person joints a sport club he needs to have his own hierarchy of moral values already established (through parental and school education system). Sport is governed by its own rules and the aims differ from those of schools. Once a person becomes involved in sport he focuses on winning, later on money and there is no time and nor place to teach/educate somebody morally and yet coaches get credit for their results not for their players' behaviour. Why should they care about moral conducts of their players, why should the player care themselves? The issue here is very complex and does not give a clear way out solution. Therefore moral education of future athletes has to take place on the earlier stages of

training and needs to be combined with schooling system. The coaches need to be pedagogically prepared to be able to implement moral values, specially during the 10-18 age period, when the prize of the competition does need not to emphasise winning at all costs syndrome and when the intellectual development of young players enables pedagogical processes to take place during the training. Danger hangs in the promotion of the young and immature players to the senior teams and professional competitions, before they manage to achieve the considerable level of moral development.

CONCLUSION

Moral growth is not an automatic consequence of participation in physical activity and therefore systematic and organised delivery of theoretically grounded curricula, concerning developing moral virtues such as courage, trust, loyalty, co-operation in team work through specially designed tasks (mainly in Physical Education classes) is necessary to stimulate moral development. It has to employ such strategies as „role-taking”, group dilemma discussion or exercising fair play behaviour but the most influential factor seems to be the moral attitude of the teachers, among whom the P.E. teachers are often recognized as the moral agents. Although it is important to emphasise moral values during the early stages of education, it is as much important to keep the line when it comes to more serious dilemmas, so-called life dilemmas. It seems that the biggest damage is caused by neglecting and undermining other adult carers points of view (parents, coaches, other fellow teachers, headmasters, etc.) which causes a lot of confusion in children's moral understanding of moral hierarchy of adult-world values.

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FREQUENCY AND FORMS OF SPORT ACTIVITIES UNDERTAKEN BY CHILDREN FROM NURSERY, PRIMARY AND SECONDARY SCHOOLS

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KEY WORDS: motives and frequency of leisure activities

INTRODUCTION

In pedagogical literature great importance is attached to the role of a school in preparing children and youth for sport for all. The authors purport that after leaving school is very often too late for arousing willingness and liking for movement activity (Wolańska, 1977). They also underline that carrying on physical activity is determined by success achieved in this field in school years (Engström, 1978). The aim of this paper was to show forms of interests and motives for undertaking different leisure activities among children and youth from Poznań.

MATERIAL AND METHODS

I. Pre-school Children

A research has been carried out on 164 children aged 5-6 which in 4 nurseries in Poznań. The kindergardens have been chosen to study because they placed near sports' structures such as swimming pool, bowling alley; tennis court and ski's slope „Malta”. The nurseries are in the midst local forest and parks (Janowska, Król-Zielińska, 1997).

In the research we asked children to draw three illustrations for the following subjects:

- My leisure time after nursery.
- What do you do at the weekend?
- Where were you during last holiday?

Analysis of the illustrations and conversations with children were use as a tool for the study.

II. Primary and Secondary Schools

The research was carried out in 1995/96 in 8 schools of Poznań. There were 190 boys and 193 girls examined aged 12, from 4 Primary Schools and 162 boys and 209 girls examined aged 16, from 4 Secondary Schools. The research method contained 3 parts concerning: motor performance (measured by 5 motor tests), Olympic ideals and life style (in a form of a questionnaire). For the purpose of this paper selected issues have been analyzed from the part concerning life style of the youth (Bronikowski, 1997).

RESULTS

I. Pre-school children

Tab 1. The way of spending leisure time by pre-school children.

THE WAY OF SPENDING LEISURE TIME	MONDAY TO FRIDAY		WEEKEND	
	N=164	%	N=164	%
I play with oneself at home	31	19	25	15
I play with oneself outdoors	15	9	16	10
I play with somebody at home	15	9	15	9
I play with somebody outdoors	15	9	21	13
I walk	16	10	36	22
I watch TV	39	24	30	18
other	33	20	21	13

28% of examined children spend their leisure time alone and only 9% outdoor. Some of the children spend the time after kindergarden on watching TV. At the weekends more children play together (45%) and walk. Parents spend more time with them at the weekends.

Tab 2. Where were you during holiday?

Where were you during holiday?	N=164	%
at the lake or at the seaside (mainly laying on the beach)	92	56
in my own house (mainly watching TV)	36	22
in the mountains	8	5
in the forest at the camping-side	12	7
visiting family	16	10

The highest number of examined children spent their time either at the see side or at the lake (56%). Most of the drawings showed children laying on the beach. Unfortunately 22% of the children spent their holidays at home.

Tab 3. Frequency of undertaking physical activity in leisure time among 16 and 12 years old pupils from Secondary and Primary Schools.

Frequency	Secondary School				Primary School			
	Boys		Girls		Boys		Girls	
	N=162	%	N=209	%	N=190	%	N=193	%
1. Never	7	4.3	6	2.9	4	2.1	4	2.1
2. Less then 1 a month	3	1.9	15	7.2	7	3.7	5	2.6
3. Once a month	11	6.8	23	11.0	4	2.1	10	5.2
4. Once a week	21	13.0	65	31.1	10	5.3	28	14.5
5. 2-3 times a week	30	18.5	51	24.2	41	21.6	53	27.5
6. 4-6 times a week	48	29.6	23	11.0	39	20.5	37	19.5
7. Every day	42	25.9	26	12.4	82	43.2	55	28.5
8. No answer	0	0	0	0	3	1.6	1	0.5
Test χ^2	$\chi^2 = 49.0^{**}$				$\chi^2 = 20.9^{**}$			

$^{**} \alpha < 0.05$

Most of the boys from the Primary Schools admitted undertaking some physical activity in their free time every day (43%), whereas the number of girls in the same age group practicing every day was significantly smaller (28%) with almost the same number practicing 2-3 times a week (27%). For the older group 25% of boys practiced every day with almost another 30% practicing 4-6 times a week. As for the girls from Secondary Schools 31% admitted undertaking some physical activity once a week and 24% 2-3 times a week.

Tab 4. Most frequently chosen sport activities in leisure time (not including organised sport in clubs) by 16 and 12 pupils from Primary and Secondary Schools

Secondary Schools				Primary Schools			
Boys	%	Girls	%	Boys	%	Girls	%
1.Football	23,8	1.Bicycle	33,3	1.Bicycle	32,0	1.Bicycle	45,0
2.Bicycle	16,1	2.Jogging	23,8	2.Football	29,5	2.Swimming	42,0
3.Basketball	16,0	3.Swimming	21,0	3.Skiing	17,4	3.Jogging	23,0
4.Body Building	8,5	4.Surfing	17,7	4.Swimming	15,0	4.Basketball	21,0
5.Swimming	7,6	5.Basketball	9,5	5.Basketball	13,4	5.Skates	21,0
6. No answer	47,0	6.No answer	33,3	6.No answer	44,8	6.No answer	15,0

(Ranked accordingly to the percentage of overall answers)

In both age groups almost one third of the examined pupils pointed at cycling as for the most frequently chosen leisure activity by them. Boys often play football in both age groups with some more interested in basketball. Girls showed interest in swimming and basketball in their leisure time.

Tab 5. Motives for undertaking sport activities by 16 and 12 years old pupils from Primary and Secondary Schools.

Motives for undertaking sport activities	Secondary schools		Primary schools	
	Very important		Very important	
	Boys	Girls	Boys	Girls
1. I want to be in good shape (form)	70,0 %	70,2 %	77,9 %	80,3 %
2. Because it is nice for me	59,9 %	66,5 %	73,8 %	73,4 %
3. Because it is a kind of relaxation	56,1 %	64,5 %	55,9 %	58,4 %
4. I like to be in a group	46,9 %	49,4 %	57,1 %	51,4 %
5. To be among my friends	44,6 %	48,1 %	45,5 %	46,5 %
6. I like to compete	44,6 %	39,2 %	60,7 %	44,5 %
7. For the money	18,5 %	10,1 %	18,4 %	12,1 %
8. For the sport career	17,7 %	6,9 %	29,8 %	23,1 %

In both age groups (boys and girls) pupils pointed at the need to be in good shape (form) as for the first motive. In the older group it was also important for the pupils to practice sport for enjoyment (boys-59,9%, girls-66,5%) and for relaxation (boys-56,1%, girls-64,5%). In the younger group it was even more important. It was nice for 73,9% of boys and for 73,4% of girls and for relaxation boys-55,9%, girls-58,4%. It was also important to be in a group for 57,1% of boys and 51,4% of girls. For 60,7% of boys it was important to compete.

DISCUSSION AND CONCLUSIONS

The level of physical activity of Polish children and youth in their leisure time is not satisfactory. Research by Bukowiec (1990) showed that almost 55% of Polish teenagers do not undertake any physical activity in leisure time.

The influence of pedagogical institutions upon the participants growing to „Sport for All” is very low and unsufficient. The family is an authority in this area only among pre-school children.

1. Increased physical activity (outdoor's plays and walking) occurs among pre-school children during weekends, especially with parents.
2. The possitive founding of the research was the fact that 80% of Poznań's pre-school children spend their holidays out of town. This should be a good motive for increasing physical activity with parents.
3. Along with the age physical activity increases in the peer groups, however, it is still unsatisfactory.
4. In the research population of children and youth the main motive for undertaking physical activity was the need to be in good shape. Being together with friends in a peer group was also one of the most important motives for choosing a form of spending their leisure time actively.

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MOTIVATIONAL CLIMATE AND GOAL ORIENTATIONS: REASONS FOR EMPHASIZING MASTERY CLIMATE

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Key Words: Goal orientation, Motivational climate

INTRODUCTION

Achievement goal theory suggests that not only individual dispositions but also situational factors interplay to determine the adopted goal in a given situation (Dweck & Leggett, 1988, Nicholls, 1989). When individuals engage in a situation, dispositional tendencies toward task- or ego-orientation influence the goal of action along with the environmental structure in which the action takes place. According to Dweck and Leggett (1988) "Dispositions are seen as individual difference variables that determine the a priori probability of adopting a particular goal and displaying a particular behavior pattern and situational factors are seen as potentially altering these probabilities" (p.269). Recent studies indicate that perception of the motivational climate appears either as a moderator of the goal orientations (e.g., Treasure & Roberts, 1998) or as a main predictor (Brunel, in press) but all highlight its influence on the subsequent motivational variables. In line with previous research, the aim of this study is to determine the relative influence of the goal orientations and perceptions of the motivational climate on some cognitive and volitional strategies (Corno, 1993; Corno & Kanfer, 1993) which are supposed to maintain or not the goal of action such as self-handicapping, emotional control or attentional control.

METHOD AND PROCEDURE

Participants

A total of 167 students (101 males and 66 females) attending the first year of physical education studies and who were part of a badminton course volunteered to participate. Mean age of the participants was 18.75 years \pm 3.01. At the end of a 12-week course semester in badminton, students were asked to complete a battery of questionnaires. Furthermore, to reinforce the confidentiality, the author asked the students to indicate their sex and complete birthdate rather than their names.

Measure

Achievement motivation. To assess the motivational orientation we asked students to complete the 12-item "Questionnaire des Perceptions de Succès en Sport" (QPSS; Durand, Cury, Sarrazin & Famosc, 1997) which is the French version of the "Perception Of Success Questionnaire" (POSQ; Roberts, Treasure & Balague, 1998). When completing the QPSS, the participants were requested to think when they felt most successful in sport and to indicate their degree of agreement on a 5-point likert scale (ranging from strongly disagree (1) to strongly agree (5) for all items) with six items assessing task orientation (e.g., "I work hard") and six items reflecting ego orientation (e.g., "I am the best"). Mean scale scores (composite score / number of items) were calculated for both task and ego orientation scales.

Motivational Climate. The motivational climate was measured through the "Echelle de Perception du Climat Motivationnel" (EPCM, Cury & coll, 1996). This 19-item inventory was developed to assess the degree to which students perceive their physical education classroom structure as emphasizing mastery or performance goals. The EPCM consists of two subscales measuring mastery- (9 items) and performance- (10 items) oriented climates. Participants responded to the stem "In my badminton course..." and rated each item on a 5-point likert scale ranging from don't agree at all (1) to agree completely (5). Mean scale scores (composite score / number of items) were calculated for both scales.

Cognitive variables: For this study we utilized the Questionnaire d'Evaluation et de Contrôle des Cognitions non Pertinentes (QECCnP; Thill & coll. in press). This questionnaire assesses, with four items per subscale several cognitions such as self-handicapping, distraction, self-esteem, emotional and attentional control.

RESULTS

We conducted separate moderated hierarchical regression analyses to assess separate as well as interactive effect of goal orientation and perceptions of the motivational climate on the different variables.

Self-handicapping: As Table 1 shows, self-handicapping is predicted by two main effects. In the final analysis, perceptions of a performance climate emerged as a positive predictor accounting for 17% of the explained variance whereas perceptions of a mastery climate appeared as negative predictor of the self-handicapping strategy use and brought the explained variance to 22%.

Distraction: This variable is also predicted by two main effects. In the final analysis, perceptions of a mastery climate emerged as a positive predictor accounting for 7% of the explained variance whereas perceptions of a performance climate appeared as negative predictor of the distraction and brought the explained variance to 10%.

Self-esteem: Perceptions of a performance climate appeared as a unique negative predictor of self-esteem and account for 13% of the explained variance.

Table 1 : Predicting cognitions through goal orientation and Perceived motivational climate.

	β	R^2 (cum)	t-value	P
Self-Handicapping				
Performance Climate	.225	.17	3.049	.002
Mastery Climate	-.283	.22	-5.187	.0001
Distraction				
Mastery Climate	.200	.07	2.520	.013
Performance Climate	-.222	.10	-2.786	.006
Self-Esteem				
Performance Climate	-.355	.13	-4.584	.0001
Emotional Control				
Mastery Climate	.312	.11	4.026	.0001
Performance Climate	-.179	.14	-2.308	.022
Attentional Control				
Mastery Climate	.229	.06	2.842	.005

Emotional control: As Table 1 shows, emotional control is predicted by two main effects. In the final analysis, perceptions of a mastery climate emerged as a positive predictor accounting for 11% of the explained variance whereas perceptions of a performance climate appeared as negative predictor of the emotional control and brought the explained variance to 14%.

Attentional control: Perceptions of a mastery climate appeared as a unique positive predictor of the attentional control and account for 6% of the explained variance.

DISCUSSION AND CONCLUSION

Consistent with past research (Brunel, in press), the above results indicate that after a 12-week course semester perceptions of motivational climate have a greater influence on motivational and volitional variables than goal orientations. Specifically, mastery oriented climate appears as negative predictor of the self handicapping strategies use and positive predictor of the emotional and attentional control. Mastery oriented climate seems enhance the volitional control and consequently the positive educational outcomes (Corno, 1993; Kuhl, 1992). These students tend to engage themselves in a

stronger self-regulated learning, that is persist longer at learning tasks (Wolters, 1998; Zimmerman, 1989). Conversely, when students perceive a stronger performance oriented climate, they decrease in self-esteem, tend to use more self-handicapping strategies that lead consequently to amotivation (Brunel & Treasure, 1998).

Furthermore, contrary to some studies, this research does not present interactive effect between goal orientations and motivational climate. Some authors argue that moderated hierarchical regression analysis is not a powerful test to detect moderator (cf. Treasure, in press). However, it should be hypothesized that the moderating effect of the motivational climate on the goal orientation decreases over the time during the session on the benefit of its main influence at the end of the session.

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IDEO MOTOR METHOD AND SCOLIOSIS

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Key Words: Idiopathic scoliosis, Body image, Motor control, Imagery.

INTRODUCTION

One of the most common postural deformities which is known to develop during adolescence is scoliosis. Scoliosis is a lateral deformity of the spinal column and it is divided into two distinct forms: nonstructural and structural.

Nonstructural scoliosis is a lateral curvature of the vertebral column not associated with any structural deformity of the vertebrae or intervertebral discs. Structural scoliosis is characterized by three features; 1°. the soft tissue contracts in the concavity of the curve; 2°. structural changes processes occur in the vertebrae involved in the deformity; 3°. fixed rotating deformity of a vertebrae's body which occurs with rotation toward the convexity of the curve. The most common form of scoliosis is known as Adolescent Idiopathic Scoliosis (AIS); however the main causes for it are unknown.

The adolescent period is characterized by accelerated anatomical, physiological and physical growth accompanied by social and psychological consequences. During this period the perception of self-attractiveness and external appearance are of vital importance.

When postural deformities such as AIS are developed at this stage the psychological balance of the adolescent (particularly female) is impaired (Brooks, 1980; Nachemson, 1968). More specifically, adolescents develop sensitivity toward their external appearance, body image, body posture and self concept (Collins and Ponseti, 1969).

Postural defect was reported to negatively affect body-image and self-concept (Darvin, 1970; Feldenkrais, 1966; Mehrabian, 1972). This is mainly because adolescent with an attractive external appearance are more encouraged and positively reinforced by their peers and other (Clifford & Walster, 1973).

Studies which have diagnosed adolescents who suffer from AIS claim that AIS symptoms are closely associated with exclusion, loneliness, sensitivity, anxiety and frustration (Darvin, 1970; Feldenkrais, 1966; Mehrabian, 1972; Schiller, 1950; Scott, 1951). Males more than females suffer from a lack of "self acceptance" while females suffer more from lack of "Social acceptance" as a consequence of AIS.

METHOD

Taking as starting point the studies and research of the famous physiologist Nicholas Bernstein, in which he states that the individual is a form comprising of messages, information and reactions which unite in mind and body. We can say that "feeling" and "sensory capacity" do not need to be understood as "passive acts" but, as a real and individual activity. Each perception and movement are the result of a meeting between a subject and the given environment of every behavioural manifestation. The growth of the motor nerve and the speed at which it develops varies from individual to individual, depending on his or her ability to juxtapose with the environment. This process, in turn facilitated by the subjects previous motor experiences. Consequently, motor nerve activity and final physical movement cannot be separated from sensory experience, consciousness or

intellectual capacity and they do not represent a physical displacement in relation to action but, they become the transmitted action of emotions and feeling which are expressions of personality and motivation. As a matter of fact they stand for the "language of the body" which communicates with the outside. The body's posture is a sensory experience which arouses emotions and attitudes which are closely related to the sensory-perceptual-motor experiences (Fisher & Cleveland, 1968; Schilder, 1969). Therefore, it was hypothesized that a close association will be found between the intensity adolescents with AIS engage in Physical activity and their body-image.

This Methodological approach springs from the assumption that we often understand that, in spite of a conscientious session of behavioural education the scoliosis sufferer forgets all acquired ideas in the session and in a few moments this manifests itself as imbalances and asymmetry in the incorrect attitudes present in scoliotic patient. The scoliotic subjects present great difficulty not only in feeling their own physical defects but, also in quickly identifying the corrections and above all maintaining them at length.

These are the motives adopted in this method, directed towards the exercises of self-reception of muscle vigilance, integrated by mental Imagery of motor action by means of mental-training. In this way, pupils are given the condition of feeling his own body and valuing and recognizing every imbalance and muscular tension until a postural self-condition is obtained not only in a static but dynamic sense, he will be able to transfer the acquired skill to his daily life.

PROCEDURE

The purpose of this study was to explore the relationship between engagement in physical activity between male and female adolescents with AIS treated with ideo-motor method. The sample was made up 35 females and 15 males adolescents (respective average age of 12,2 years, and 13,3 years) were diagnosed as suffering from AIS. AIS was diagnosed from X-ray examination by an orthopedic physician. The inclusion criterion was from 8° to 20° vertical deformation of the spine in both one direction and two directions.

Controls have been made every six months and the treatment with Ideo-motor Method has been carried out with three sessions each week, lasting one hour each, for a period from 3 to 5 years. The investigation was held in our Gim Center in Pescara (Italy) from 1991 through 1995 (Follow-up; 1996, 1997).

RESULTS

The study has been carried out on 50 patients affected by AIS so divided: N°17 with dorsal scoliosis; N°17 with dorso-lumbar scoliosis; N°16 with lumbar scoliosis. (Table I). At the end of the treatment we had the following results (Table II & III); Dorsal scoliosis, 76,50% improved; 23,50% worsened. Dorso-lumbar scoliosis, 58,80% improved, 41,20% worsened. Lumbar scoliosis, 68,75% improved, 31,25% worsened.

The average is the following; 68% improved, 32% worsened (Table IV). The follow-up carried out for two years after the treatment (1996/97) has given these results: 88% maintained their improvement, 12% unchanged (Table V).

DISCUSSION and CONCLUSION

The main purpose of the present investigation is to determine the percentage of improvements achieved with the treatment Ideo-motor Method between males and females. The second purpose of the present investigation is to verify what would occur at the end of the treatment.

As you can realize, the results which have been stated are even so interesting regarding the follow-up.

In fact at the end of the treatment we had a follow-up for two years whose results are highly positive as the table shows (Table V).

In conclusion the problem is not only the way in which patients are treated but the results you get at the end of the treatment and above all in the long-term effects of the improvement in the succeeding years.

We can affirm that self-perceived exercises of postural re-education can be insufficient in the treatment of AIS. With the Ideo-motor Method, on the other hand, we can obtain not only improvements in motor education, but we can achieve postural reflexes in a correct attitude, acquiring new capacity of equilibrium in all circumstances.

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TASK & EGO ORIENTATION IN YOUTH SOCCERPLAYERS

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KEY WORDS; Motivation, Goal-orientation, TEOSQ, Intrinsic, Extrinsic, Age Differences

INTRODUCTION

According to Roberts (1993) we have for some reasons not been very successful in the area of sport psychology to convey motivational considerations to coaches that could be useful in sport contexts. However, a large interest in the concepts of intrinsic and extrinsic motivation has emerged during the last two decades. Motivation is claimed to have two sources. One which stems from inside the person (intrinsic), and one which stems from outside the person (extrinsic). Intrinsic motivation are defined as doing an activity for it's own sake, motivated by feelings of pleasure and satisfaction experienced simply from the activity itself (Fortier, et. al, 1995). Motivational factors such as having fun, learn and improve skills, and the achievement of personal performance goals, are intrinsic in nature (Weiss & Chaumeton, 1992). In contrast, extrinsic motivation occurs when an athlete engage in an activity as a mean to an end, such as participation for the satisfaction derived from outperforming others, prestige of being an athlete (i.e., social status), receiving of rewards (i.e., money, parental acceptance), and the avoidance of punishment (Fortier, et. al, 1995). It is imposed that intrinsically motivated athletes are advantageous in sports since they are motivated by the activity itself, and therefore display better performance (Ibid.). Roberts (1993) argues that an emphasis on a task goal climate, which enhances motivation and striving, is important if we want our athletes to continue in the sport context. Studies of goal orientation have found that task-orientation are strongly related to persistence and effort (Treasure & Roberts, 1994). However, the context of sport is competitive and it is difficult for athletes to maintain a task orientation when facing continual evaluation with emphasis on social comparison in competitive contexts. This can have negative impact on goal orientation, leading the athlete to utilize ego-involved criteria for performance- and ability assessment that may, in turn, develop a stable ego goal orientation. The drop-out rates of athletes are legion in such contexts (Roberts 1993). In addition to the individual differences, the developmental stage of the individual also influence goal orientation and motivation. It is quite clear according to Roberts (1993), that children are able to distinguish between ability and effort and develops the achievement goals of task and ego by 12-13 years of age. At this point in development the child realize that if two athletes complete the same task at the same time, the one using more effort is viewed to have less ability than the other. Further, the child is able to set task or ego-goals and being motivated by intrinsic and/or extrinsic factors due to the situation at hand and individual dispositions (Weiss & Chaumeton, 1992). Buchan and Roberts found the 13-14 year old children to be significantly more ego-goal oriented than the 9-10 year old children (Roberts, 1993). In research with different age groups (mean age 11.3, 13.4, and 15.3) Treasure & Roberts (1994) found that normative success (i.e., comparison with others) was a more important source of satisfaction for older athletes. The relationship between task-goal orientation and intrinsic motivation are supported by considerable research by Duda and Colleagues (1995) and Kavussanu, & Roberts (1996), among others, who also concluded that ego involvement is incompatible with intrinsic motivation by its defining features. The aim of this study is to find out if athlete's motivation is primarily intrinsic (task-orientation) or extrinsic (ego-orientation) in nature, and if these sources of motivation differ between age groups.

METHOD AND PROCEDURE

The subjects (N=269) in this study were youth male soccerplayers in Sweden. The ages of subjects were chosen from the interest of which sources motivates athletes to participate through the period before they reach senior-level. The age of 13 years as a lower limit were chosen since individuals do not develop differentiated concepts between task and ego before the age of 11-12. The subjects were divided into one younger group (N=90), one 15-16 year group (N=96) and one older group (N=83). The Task and Ego Orientation in Sport Questionnaire (TEOSQ) was used as instrument in this study to determine if the athlete's motives for participation are primarily intrinsic (task) or extrinsic (ego). In particular TEOSQ was developed to assess individual differences in proness for task and ego goal orientation in athletic settings. Subjects are when completing this questionnaire asked to range the items on a 5-point scale from Strongly Disagree to Strongly Agree. TEOSQ includes 13 items where 7 are Task-oriented; for example "I learn a new skill by trying hard", and 6 are Ego-oriented; for example "I can do better than my friends". These suggestions are to be evaluated according to following question: "I feel most successful in sport when...". A swedish version of the TEOSQ was used in this study. To ensure meaning equivalence of TEOSQ items the translation and validation method of Vallerand (1983) was used to adapt questionnaires into swedish language. Results reveals a strong cross-cultural equivalence between the original and the translated version and no discrepancies were found in the final version of the TEOSQ. Subjects completed the TEOSQ in connection with a training-session during the second half of the season. Subjects were instructed that participation in the study are voluntarily and anonymous. Non of the athletes choosed not to participate. The questionnaires were checked out at returning point together with the athlete to be completed accurately.

RESULTS

Inspection of the means for the two TEOSQ subscales showed significant differences with higher levels of responses on Task (M=4.15, SD=.50) than Ego (M=2.65, SD=.82). There were no significant correlation between the two subscales ($p=.093$). A ONE WAY ANOVA revealed significantly higher levels on the Ego subscale for the oldest age group compared with the youngest age group (Table 1.) while no significant age group differences where to be found on the Task subscale.

Table 1. Group Means, Standard Deviations and Significance level

<i>TEOSQ Subscales</i>	<i>Years of Age</i>				<i>F-value</i>	<i>P-value</i>
	<i>13-14</i>		<i>17-</i>			
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Task	4.23	.49	4.09	.52	.149	.138
Ego	2.46	.85	2.87	.81	.005	.003 *

* Significant at the 0.01 level

DISCUSSION AND CONCLUSION

The results revealed that task orientation (i.e., intrinsic) are a much stronger source of motivation than ego orientation (i.e., extrinsic) in all groups which supports earlier research (Duda, et. al, 1995) among others. Thus, intrinsic motivation are a much stronger source for participation than extrinsic through all groups, suggesting in accordance with Roberts (1993),

that a focus on task-oriented climate will increase intrinsic motivation and lead to further persistence and effort in athletic settings. The non-significant correlation between the two subscales of task and ego orientation shows that a high level of one goal orientation does not exclude either a low or a high level on the other. While task involvement are at a high level in all age-groups, the findings of ego involvement as a stronger source of motivation for the older athletes compared with younger are supported by the research of Buchan & Roberts (Roberts, 1993) and Treasure & Roberts (1994). This may be due to the fact that competition level and the emphasis on favorable results increases by age. An extra effort in creating a task-oriented climate for the older athletes should be of interest for each coach while goal orientations correlation with persistence and drop-out in achievement context are to recommend as future research. By a decrease in emphasis on winning and social comparison of coaches and facilitation of skill development and personal mastery it's my strong belief that the athletic settings has a lot to gain in the areas of motivation, persistence and performance enhancement.

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DIFFERENCES BETWEEN VOLUNTARY AND INVOLUNTARY SPORT CAREER TERMINATION

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KEY WORDS: voluntary, involuntary sport career termination, top athletes, young adults

INTRODUCTION

Numerous personal, social, environmental and developmental factors influence adaptation on the sport career termination and the transition to post-sport life period. These factors influence the meaning of the termination to the athletes and dictate its practical implications for life after, and often, without sport. Coakley (Baillie, 1993) suggests that retirement from sports is not an isolated event and that is influenced by many variables which interact among themselves.

Various empirical and theoretical studies have identified several different factors of sport career termination that influence the adjustment to post-sport life period. One of these factors, that is frequently stated and has an important impact on the adjustment to retirement, is the characteristics of career termination. According to Schlossberg (Gorbett, 1985) adjustment to post-sport life differs whether the career termination is voluntary or involuntary, whether transition comes gradually or suddenly and whether exhibited emotions are positive or negative. McPherson (1980) states that athletes often have an ambivalent attitudes towards the physical and mental need to retire. Retirement from sport is traumatic even for those athletes who retire voluntarily because they have lived within the sport-subculture for their entire adult life and have to adjust to the nonsport culture of mainstream society.

Different studies (Orlick and Werthner, 1986; Ogilvie and Taylor, 1993; McPherson, 1980) report that voluntary decision on the career termination has an evident positive impact on the process of the adjustment to post-sport life. According to Sussman's findings (McPherson, 1980) the individual who retires involuntarily is less well-prepared for retirement compared to the individual who makes the decision himself. McPherson (1980) states that many of the athletes who retire voluntarily delay the retirement as long as possible. One of the possible causes for delayed retirement is the fear of the loss of identity (McPherson, 1980). The aim of this contribution is to describe some differences between voluntary and involuntary sport career termination of Slovenian athletes.

METHOD AND PROCEDURE

Sample

Subjects selected for this study were 20 of Slovenian male and female athletes aged between 28 and 39 who had retired from international competition. Subjects had been elite international athletes who were medalists in Olympic games, world and national championships. 13 of interviewed former top athletes terminated their careers voluntarily and other 7 had retired involuntarily. Subjects terminated their careers on average 7 years ago.

Instruments and procedure

Two semi-structured in-depth interviews schedule was designed to elicit qualitative information about each athlete's life, from their own perspective. Interview about person's

life in early adulthood (Cecić-Erpič, 1998) was used to determine the characteristics of subjects' lives as young adults, while the Interview about sport career termination (Cecić-Erpič, 1998) was used to determine the characteristics of the retirement from sport. Interview about sport career termination (Cecić-Erpič, 1998) investigates one's active sport career and life of an athlete, one's identity during the active sport career, the termination of the sport career, feelings that refer on the retirement, organization of the post-sport life, current identity and desired psychological counseling during the sport retirement. Subjects also answered the questions of the Combined scale of subjective well-being (Diener, 1996).

The interviews were conducted in athlete's homes or offices and were recorded on tape and then transcribed in complete detail. Athletes were first answering questions about the career termination and then questions about life in young adulthood. Answers were analyzed using the Check list for coding sport career termination and Check list for coding one's life in young adulthood. After both interviews subjects answered Combined scale of subjective well-being, which is composed of several subscales.

RESULTS

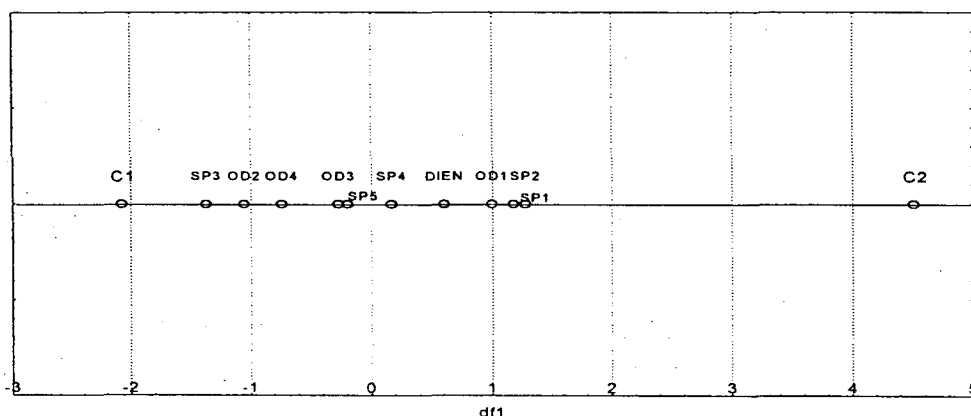


Figure 1: Presentation of group centroids by df1

Legend

C1	athletes who retired voluntarily	SP1	pseudo adjustment to retirement
C2	athletes who retired involuntarily	SP2	orientation on negative aspects of sport career
OD1	postfigurative-normative type of adulthood	SP3	integrated adjustment to retirement
OD2	closed pseudo-independent type of adulthood	SP4	adjustment to retirement with polarization
OD3	present-oriented type of adulthood	SP5	continued adjustment to retirement
OD4	moratorium of the thirties type of adulthood	DIEN	subjective well-being

Table 1: Life satisfaction scale – subscale of Combined scale of subjective well-being: One-way between subjects ANOVA

	N	mean (δ)	F	df	p
volunatrily	12	28,08 (3,45)	5,07	(1, 17)	0,038
involunatrily	7	24,71 (2,50)			

DISCUSSION AND CONCLUSIONS

Variables included in the discriminant analyses more profoundly describe group of athletes who retired voluntarily. Higher score on the "integrated adjustment to retirement" variable (SP3) and lower score on variable called "closed pseudo-independent type of adulthood" (OD2) is characteristic of athletes who retired voluntarily. They also transfer positive characteristics of sport life into the post-sport life period and into the present life structure (SP3). They were found to emphasize the smooth transfer to the post-sport life period and the absence of stresors (SP3). Lower score on the variable called "pseudo-independent type of adulthood" means that emphasizing of independence and fixation on primary family is less characteristic for those subjects who terminated careers on the basis of free will. Chosen variables can be used as descriptors of voluntary retirement from sport. These variables deficiently describe the group of athletes who terminated sport careers involuntarily.

Results of ANOVA showed that the two groups of subjects differ with respects to their life satisfaction. Subjects who terminated careers voluntarily are more satisfied with their life than those who were forced to retire from sports. That means that athletes who terminated their careers based on their own will describe their lives as closer to ideal. They also state that have achieved important goals in their lives and that they have better life conditions than athletes who terminated careers involuntarily. This results are coherent with results obtained in the studies on North American top athletes (Werthner and Orlick, 1986; Ogilvie and Howe, 1986; Hill and Lowe, 1974). These studies conclude that characteristics of career termination have an important impact on the nature of the adjustment to post-sport life period. Voluntary career termination is, according to present study and those mentioned above, connected with easier and smoother adjustment to post-sport life period.

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CARDIOVASCULAR RESPONSE TO RELAXING AND ENERGISING MENTAL IMAGERY

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KEYWORDS

Mental imagery, mind/body interaction, cardiovascular response.

INTRODUCTION

It is widely accepted that mental imagery is an effective tool for the enhancement of motor skills and for the elevation of sensations of self efficacy in a variety of domains (Rushall & Lippman, 1998). Imagery has been used to raise self confidence, reduce cognitive intrusion, aid relaxation, and to aid warm-up (Murphy & Jowdy, 1992). However, despite extensive use of imagery the cardiovascular response to imagery is undetermined. Thus it is not clear, for example, if relaxing or energizing imagery results in a decrease or increase in cardiac activity.

Heart period variability (HPV) and heart rate (HR) have been used extensively to assess cardiac activity (Porges, 1995). HPV has been accepted as a measure of the influence of the vagal nerve upon the heart and has been found to decrease during mental challenge (Boutcher & Stocker, 1996). HR can be calculated from the inter beat interval (IBI), which is the time in milliseconds between the peak voltage (R spike) of one heart beat to the next.

In view of the lack of information regarding a cardiac response to mental imagery, the purpose of this study was to assess changes in IBI and HPV to relaxing and energising imagery. Given the reported use of imagery upon relaxation and energising, it was hypothesised that energising imagery would result in a decrease in IBI and HPV respectively and that relaxation imagery would have the opposite effect.

METHOD AND PROCEDURE

Participants were physically active young collegiate males (aged 19 to 21 years) with no history of cardiovascular or cardiopulmonary disorders. Participants' characteristics are present in Table 1. Participants reported that they engaged in no more than 3 sessions of moderate intensity aerobic exercise each week. Participants performed two conditions in the supine position. Condition one consisted of 6 minutes baseline data collection (3 minutes unpaced breathing, 3 minutes paced breathing), a 1-minute gap, followed by a 5 minute *relaxation* imagery script played to them on cassette tape. Participants then received a 2-minute break in which they were instructed to open their eyes and sit upright. Participants then readopted the supine position for 3 minutes, and in the subsequent condition were instructed to listen to a 5 minute *energising* imagery script. Order of conditions was counterbalanced. HR was calculated from IBI and HPV was examined using spectral analysis at high frequency (.12 - .40 Hz).

RESULTS

A repeated measures ANOVA was carried out to examine the differences in HPV and mean IBI between the two imagery conditions. A significant main effect was found for IBI, ($F[2,22] = 7.38$, $p = 0.004$), HPV, ($F[2,22] = 4.99$, $p = 0.016$) and mean HR ($F[2,22] = 9.86$, $p = 0.001$). Post-hoc tests revealed that mean IBI was significantly higher in the relaxation phase ($p = .003$) when compared to baseline. Mean IBI in the relaxation phase was also significantly different to that in the energising phase ($p = 0.012$), but no significant difference was found between mean IBI in the baseline and energising phases (Figure 1). Mean HPV in the baseline phase was found to be significantly greater to that in the relaxation ($p = .048$) and energising phases ($p = .001$; Figure 2).

TABLE 1: Mean Participant Characteristics (Standard Errors in Parentheses)

Variable	Mean scores (n = 12)
Age (yrs)	19.8 (0.21)
Height (cm)	181.9 (2.22)
Mass (kg)	82.15 (2.50)
Systolic blood pressure at rest (mmHg)	123.9 (2.31)
Diastolic blood pressure at rest (mmHg)	77.6 (2.56)
Body fat percentage	19.8 (1.1)
Room temperature (°C)	24.3 (0.2)
Anxiety (STAI)	35.6 (2.45)

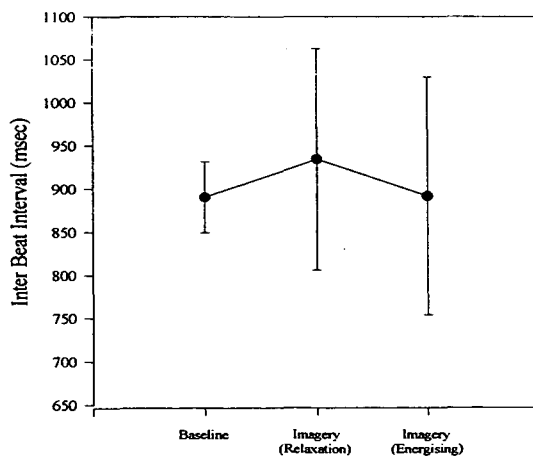


Figure 1: Mean IBI across conditions

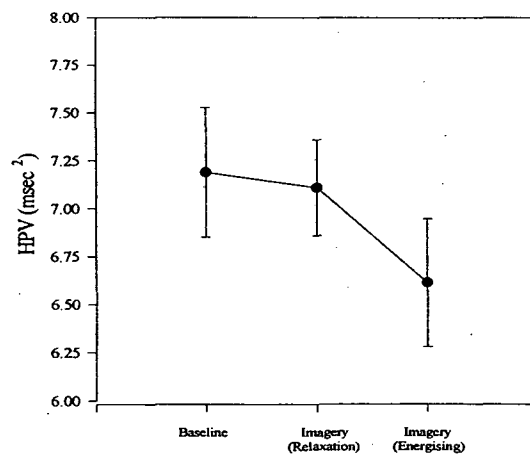


Figure 2: HPV across conditions

DISCUSSION AND CONCLUSIONS

The results of this study suggest that both energising and relaxing imagery have an effect upon the cardiovascular system. During energising imagery there was no significant decrease in IBI compared to baseline. Interestingly, there was a significant decrease in vagal influence compared to baseline levels despite there being no significant decrease in IBI, as would normally be expected. However, during relaxation imagery the reverse was observed. There was a significant increase in IBI (which corresponds to an increase in HR) in this condition but no corresponding significant increase in vagal activity.

There are several possibilities as to why the effects of energising and relaxing imagery were not as expected. Given that the relaxation condition influenced mean IBI but the energising condition did not, it is worth considering the effect of supine physiology upon vagus nerve activity. For example, it is already known that the supine position causes a reduction in cardiac influence of the sympathetic nervous system; it is plausible that the same applies to vagal activity. A future study might examine both upright and supine postures and subsequent vagal influence during similar imagery conditions. It is also possible that both imagery conditions did not produce a greater effect due to the relevance of the image to each participant. It is conceivable that unless images are of great personal meaning to the individual then image vividness, controllability, and cardiac response are likely to be lessened. Participants may not have felt the image personally arousing enough for any particular effect to transpire. It is also possible that five minutes was too long for the participants in our study to maintain image control.

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AN UNDEREXPLORED ASPECT OF ACHIEVEMENT GOALS THEORY IN SPORT: DEVELOPMENT AND PREDICTIVE VALIDITY OF THE APPROACH AND AVOIDANCE ACHIEVEMENT IN SPORT QUESTIONNAIRE (AAASQ)

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(A) KEY WORDS

Avoid, Approach, Achievement goals, Questionnaire, Validation, Predictive validity

(B) INTRODUCTION

This research reports the development and predictive validity of the Approach and Avoidance Achievement in Sport Questionnaire or AAASQ. Traditionally, goal orientation research in sport domain (e. g., Biddle et al, 1995; Cury et al, 1997; Duda, 1989; Durand et al, 1996; Roberts et al., in press), has focused on 2 approach goals: task (or mastery) and ego (or performance-approach) orientation goals. Basing on Elliot's advances (e. g., Elliot, 1997) and Middleton & Midgley works (1997), we think that in sport domain, like others social contexts, performance (or ego) orientation can be partitioned into independant approach and avoidance motivationnal constructs: the performance approach goal orientation and the performance avoidance goal orientation. Consequently, three achievement goals could be identified and assessed in sport: a mastery goal, a performance-approach goal, and a performance-avoidance goal.

(C) METHOD AND PROCEDURE

In a first study ($N = 175$, $Mean\ age = 14$), we conducted an exploratory factorial analysis on a first version of the questionnaire, based in part on Elliot (1997) formulation. The questionnaire items began with the stem "When I practise sport, ..." and five-point likert scales were used anchored by "don't agree at all (1) and "agree completely" (5). In a second study ($N = 222$, $Mean\ age = 15.2$), we conducted a confirmatory factor analysis and a test/retest reliability analysis on a second version of the questionnaire, based on the results of the first study: a 15 items version for 3 subscales (i. e., performance approach goal, mastery goal, and performance avoidance goal subscales). In a third study ($N = 182$, $Mean\ age = 14.1$), we tested the predictive validity of the questionnaire on interest, perceived competence, perceived tension, and effort consented assessed by a french version of the IMI (Cury et al, 1994, 1996), on Intrinsic Motivation assessed by a french version of the SMS (Pelletier et al., 1995) and self-handicaping strategies assessed by the SHSSQ (Cury et al, 1998). The questionnaires were answered anonymously in about 15 minutes and only volunteer subjects were accepted.

(D) RESULTS

In the first two studies, psychometric development of a 15 items version for 3 subscales was shown to be satisfactory, including adequate factorial structure assessed by exploratory and

confirmatory factor analysis, and good internal and test-retest reliability (see Table 1 for factor structure and internal consistency of the AAASQ). In terms of the predictive validity of the AAASQ, the third study indicated that Mastery goals subscale was positively correlated with intrinsic motivation, interest and effort consented subscales, Performance-Approach subscale was positively associated with perceived competence subscale, and Performance-Avoid goals subscale was positively correlated with self-handicapping strategies scale, perceived tension subscale and was negatively associated with intrinsic motivation subscales.

TABLE 1. Factor Structure and Internal Consistency of the AAASQ

	Perf. approach goal	Mastery goal	Perf. avoidance goal
When I practise sport, ...			
It's important for me to do better than the others.	.780	.043	.032
I want to learn as much as possible.	-.081	.782	-.063
I try to do not mistakes, because I don't want to be taken for a weak person.	.149	.126	-.689
I want to prove to my family, to my friends, to my teacher or to my coach that I am the best.	.914	.032	-.107
It's important for me to do as well as possible all I've been taught.	.150	.728	-.035
Sometimes I'm not doing some exercises because the others could think I'm not very good.	-.109	-.286	-.667
I try to be better than the others.	.889	.041	-.059
I really wish to improve my technique.	-.011	.813	.002
I want to avoid that the others see that I can't succeed in doing an exercise.	.084	.221	-.723
What I'm interesting in is to do better than the others.	.694	-.004	-.204
I want to be able to do all I have been taught.	-.031	.696	-.080
I am afraid to ask silly questions because one might believe I am not very clever.	.101	.096	-.710
I want to get better results than the others.	.648	.149	-.224
It is important to me to progress.	.217	.496	-.019
I avoid situations in which the others may find out I am doing badly.	.283	-.025	-.675
Eigenvalue	3.98	2.54	2.06
% of variance	26.6	16.9	13.7
Cronbach alpha	.863	.744	.745

(E) DISCUSSION AND CONCLUSIONS

This research support the central hypothesis and demonstrate the psychometric validity of the AAASQ. We consider that in sport domain, three achievement goals can be identified: a mastery goal directed toward the improvement of ability and task mastery, a performance-approach goal, focused on the demonstration of normative ability and favorable judgments of competence, and a performance-avoidance goal focused on avoiding unfavorable judgments of competence. On an other hand, the correlations between the three subscales of the AAASQ and the subscales of the IMI, the SMS and the SHSS provided for the predictive value validity of the instrument. Consistent with prior theoretical propositions (e. g., Elliot, 1997, Elliot & Harackiewicz, 1996; Middleton & Midgley, 1997), Mastery goals facilitated intrinsic motivation in sport, interest and effort consented, Performance-Approach scale was

positively associated with perceived competence in sport, and Performance-Avoid goals predicted self-handicapping strategies and perceived tension, and were negatively associated with intrinsic motivation in sport.

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DYNAMICAL MODELLING OF SKI SIMULATOR'S PLATFORM MOTION

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(A). KEY WORDS: Dynamical model, non-linear stiffness, non-linear friction.

(B) INTRODUCTION

A number of recent papers have tried to model biological rhythmic movements as self-sustained oscillators (e.g. Beek & Beek, 1988). These approaches are based on the assumption that the central nervous system employs limit cycle dynamics to produce rhythmic movements. In this framework, rhythmic movements are modelled as oscillators obeying second-order ordinary differential equations of the kind

$$m\ddot{x} + f(x, \dot{x})\dot{x} + g(x) = 0, \quad (1)$$

where x represents the position, and the dot notation is used to indicate differentiation with respect to time. The major concern of these approaches is to identify the non-linear stiffness (elasticity) and damping (escapement) functions that are exploited to produce rhythmical motion.

The aim of this experiment was to propose a dynamical modelling of the movements of the platform of a ski simulator, and to analyze the evolution of the coefficients in the model with practice and under constraints manipulation. In the present work, we considered the platform as a end-effector, assuming that its kinematics contained rich informations on the global coordination dynamics.

Our first goal was to analyze the effects of practice on platform dynamics. Vereijken (1991) showed that learning proceeded in three different stages, characterized by qualitatively distinct coordinative structures. We hypothesized that such qualitative changes in global behavior should led to significant alteration in the composition of the dynamical model of the movement of the platform. Our second concern was to study the effects of movement amplitude, as we showed in a preliminary experiment a significant decrease in frequency variability as required amplitude was increased.

(C) METHOD AND PROCEDURE

Fifteen subjects (mean age: 23.8 years \pm 2.3) volunteered for this experiment. All were occasional skiers, but none of them had previous experience on the ski simulator. The task was executed on a slalom ski simulator, which consists of a platform on wheels which moves back and forth on two bowed, parallel metal rails. The subject's feet are strapped to the platform, which in turn is fastened to the rails by means of two adjustable rubber belts. The tension of the belts was adjusted so as to maintain a consistently high level of resistance throughout the duration of the experiment.

The subjects were randomly assigned to three experimental groups. They were asked to perform slalom ski-like movements on the apparatus, with an amplitude of 30 cm (group A), 22.5 cm (group B), and 15 cm (group C). Two fiberglass sticks were vertically adjusted on both sides of the apparatus, to materialize the amplitude to reach.

Four practise sessions were conducted on four consecutive days. Each session consisted of four 4-min trials, with a 4-min break between them.

The position of the middle point of the platform was measured by a potentiometer, and sampled at a frequency of 100 Hz. For the purpose of the present paper, treatments focused on the first 15 seconds of the third minute of the first trial of each session. These position time series were filtered, and each sample was summarized in a normalized average cycle.

(D) RESULTS

Visual inspection of Hooke's portraits, especially for the 30 and 22.5 cm amplitude conditions, indicated that the local stiffness tended to decrease near the reversal point, and to increase again at the reaching of the reversal point. This suggested that a negative cubic (x^3) and a positive quintic (x^5) Duffing terms were to be included in the stiffness function of the equation of motion:

The determination of the non-conservative damping terms was not direct. We used a graphical method adapted from Beek and Beek (1988), which revealed in most cases a local Van der Pol behavior, suggesting a general equation of motion reading:

$$\ddot{x} + c_{10}x + c_{30}x^3 + c_{50}x^5 + c_{01}\dot{x} + c_{21}x^2\dot{x} = 0 \quad (2)$$

On some occasions, nevertheless, this graphical analysis suggested the addition of a quadratic van der Pol term to the model (equation 3). No evidence for Rayleigh behavior was evidenced. Note that the shape of the Hooke portraits suggests that c_{30} is negative and c_{50} positive. Furthermore, to give raise to a limit cycle behavior, c_{01} should be negative and c_{21} positive in equation (3), and c_{21} and/or c_{41} positive in equation (4).

These coefficients were estimated using a stepwise multiple regression procedure of all relevant terms x , x^3 , x^5 , \dot{x} and $x^2\dot{x}$ (plus eventually $x^4\dot{x}$ in the cases where this term appeared necessary) onto $-\ddot{x}$. These regressions revealed that equations (2) and (3) accurately predicted behavior, with coefficients r^2 from 0.992 to 1.000, and a mean value of 0.997. The best fittings were obtained for the data from group C (15 cm). As can be seen in Table 1, the estimated values for stiffness terms were of expected signs, c_{10} and c_{50} being positive, and c_{30} negative. On the other hand, the sign requirements for the linear and non-linear damping terms were met in all cases, with negative values for c_{01} , positive for c_{21} , and negative, when present, for c_{41} .

A visual examination of estimated coefficients in Table 1 suggests a strong effect of movement amplitude on stiffness components: c_{10} and c_{50} seem lower for group C than for the two others groups, and conversely c_{30} appears higher. No differences appears between groups A and B. An effect of amplitude on linear friction seems plausible, with lower estimates for group A than for groups B and C. Finally, c_{21} seems lower for group C than for group A. Table 1 also suggests a systematic effect of practice on stiffness coefficients, with a progressive decrease of c_{10} and c_{50} estimates, and a parallel increase of c_{30} . There was no clear trend concerning friction coefficients. This examination provides a first insight on the respective effects of amplitude and practice on

the stiffness and friction functions, but these intuitions have to be confirmed by statistical procedures involving individual data.

Table 1: Estimates of Stiffness and Damping Coefficients.

Group	Session	c ₁₀	c ₃₀	c ₅₀	c ₀₁	c ₂₁	c ₄₁	r ²
A	1	2.168	-2.002	0.845	-0.221	0.091	-	0.993
	2	1.833	-1.516	0.699	-0.253	0.141	-	0.997
	3	1.686	-1.285	0.621	-0.240	0.124	-	0.998
	4	1.548	-1.069	0.545	-0.229	0.108	-	0.997
B	1	2.135	-1.971	0.871	-0.185	0.103	-0.085	0.996
	2	1.950	-1.700	0.792	-0.189	0.113	-0.088	0.996
	3	1.795	-1.410	0.643	-0.166	0.016 ^a	-	0.992
	4	1.720	-1.250	0.550	-0.196	0.059	-	0.998
C	1	1.543	-0.609	0.033	-0.158	0.028	-0.037	1.000
	2	1.349	-0.380	0.003 ^a	-0.173	0.025	-	0.999
	3	1.381	-0.424	0.016	-0.171	0.023	-	1.000
	4	1.352	-0.427	0.055	-0.182	0.039	-	0.999

^a Not significantly different from zero on a *t* test.

(E) DISCUSSION AND CONCLUSIONS

This paper confirms that the graphical and numerical methods proposed by Beek and Beek (1988) constitute valuable tools for constructing dynamical models for biological rhythmic movements. Applied on average normalized cycles, excluding random noise from experimental data, these methods produce suitable models, from a qualitative (sign constraints), as well as from a quantitative point of view (fitting accuracy). Following Mottet and Bootsma (in press), we point out the necessity of a preliminary selection of relevant terms before the application of the W-method. One could note, however, that our results highlight the difficulty to obtain reliable estimates of the damping coefficients from phase-plane data. At a more general level, our results, in accordance with Beek, Rikkert and van Wieringen (1996)'s conclusions, confirm the importance of stiffness non-linearities in biological movements.

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GOAL ORIENTATIONS, PERCEIVED MOTIVATIONAL CLIMATE, PERCEIVED ABILITY AND SPORT ABILITY BELIEFS

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Key words: children, motivation, motivational climate, goal orientations, Greece, sport ability beliefs, physical education.

INTRODUCTION

Research in the physical activity domain has established the existence of two major achievement goals, namely task and ego goal orientations (Nicholls, 1989). A task orientation implies that people define success as personal improvement and consider skill acquisition and high effort as its main determinants. When an ego goal is salient success is defined as higher performance than others and high normative ability is considered as its main antecedent.

Goal perspectives vary as a function of individual and contextual differences. Research has established that task and ego orientation are two non-related dispositions (Duda & Nicholls, 1992). Another research direction has examined the motivational climate of teams and physical education (PE) classes, revealing that people perceive differently the salient achievement goals in their environment (Papaioannou, 1998).

Sarrazin et al (1996) found that a task goal orientation corresponded to beliefs that sport ability is changeable and developed through learning but an ego goal orientation was related to beliefs that sport ability is a gift and stable over time. The purpose of this study was to examine the hypotheses of Sarrazin et al (1996) in the Greek physical activity context. A positive association among task orientation, perceived task-involving climate and an incremental conception of ability was expected. The belief that ability is a natural gift and the belief that ability is something stable were expected to correspond to ego orientation and perceived ego-involving climate.

METHOD AND PROCEDURE

Participants

Participants were 674 Greek students, aged 12.69 ± 2.16 years (320 males and 354 females). All of them were living in provincial and suburban areas of Greece. The study had the permission of the Greek ministry of education, the school authorities and the informed consent of students.

Instrumentation

All measures were assessed using a self-report questionnaire pack. Measures available in English were translated into Greek, back to English by a second translator, then they were checked for accuracy of meaning by an English sport psychologist and finally they were translated again back to Greek. The measures were:

Sport ability beliefs. This is a 21-item inventory developed by Sarrazin et al. (1996) assessing 6 conceptions of the nature of sport ability (learning, incremental, specific, general, gift and stable).

Intrinsic Motivation. This was assessed using effort and enjoyment subscales of the Intrinsic Motivation Inventory (McAuley, Duncan & Tammen, 1989), adapted for PE.

Perceived competence. The physical self-perceptions profile questionnaire (Fox & Corbin, 1989) was used to assess perceived competence.

Goal orientations. Task and ego orientations were assessed using the task and ego orientation in sport questionnaire (Duda & Nicholls, 1992), as was adapted to the Greek population by Papaioannou and MacDonald (1993).

Motivational climate. This was measured using a two-scale instrument developed by Papaioannou (1998). It assesses teacher-initiated learning orientation and student-initiated competitive orientation in the physical education lesson.

RESULTS

Sport ability beliefs scale scores

Principal components analysis on students' responses to the sport ability beliefs instrument concluded to five factors. The first factor comprised 8 items suggesting an incremental conception of sport ability ($\alpha = .75$). The second factor included 4 items implying that sport ability is a natural gift ($\alpha = .73$). The third factor consisted of 3 items suggesting that sport ability is general across many sports (e.g., if one is good in one sport, one is good at almost every other) ($\alpha = .68$). The fourth factor was constructed by 3 items denoting that ability is stable and not changeable ($\alpha = .54$). The final factor included 3 items suggesting that sport ability is specific to one sport and is not generalized to other sports (e.g., a person who has a good level in one sport may not succeed in others) ($\alpha = .49$). Results referring to the last two factors should be interpreted cautiously. Based on these results five scale scores were calculated respectively.

TABLE 1. Increment of R^2 after Hierarchical Regression Analyses Predicting Sport Ability Beliefs

Step number	Predictors	Sport Ability Beliefs				
		Incremental	Gift	General	Stable	Specific
1	Perceived competence	.02*	.05**	.11**	.05**	.00
2	Ego orientation	.00	.05**	.01	.01	.00
3	Task orientation	.19**	.00	.03**	.00	.05**
4	Perceived teacher's emphasis on competition	.00	.08**	.03**	.09**	.00
5	Perceived teacher's emphasis on learning	.02*	.00	.00	.00	.03**

(*): $p < .01$, (**): $p < .001$

Sport ability beliefs and goal perspectives

Results from correlation analysis revealed that the incremental conception of ability corresponded positively to task orientation ($r = .47$, $p < .001$) and perceived task-initiated learning orientation ($r = .39$, $p < .001$). On the other hand, the belief that ability is a natural gift was positively associated with ego-orientation ($r = .27$, $p < .001$) and perceived teacher-initiated competitive orientation in the lesson ($r = .37$, $p < .001$). Likewise, the belief that

ability is something stable was positively related to ego-orientation ($r = .17$, $p < .001$) and perceived ego-involving climate ($r = .38$, $p < .001$). Five hierarchical regression analyses were computed using the five sport ability beliefs as dependent variables. In every step the following variables were entered: perceived competence, ego orientation, task orientation, perceived teachers' emphasis on competition and perceived teachers' emphasis on learning. The results appear in Table 1.

DISCUSSION

The emerged correlational pattern among goal perspectives and beliefs about sport ability supported the hypotheses. The association between perceived competence and beliefs about sport ability supports Nicholls' (1989) argument that the existing measures of perceived competence assess the normative conception of ability. The increment of R^2 when perceived climate was added in the last steps of the analyses may imply that the climate in the physical education lesson affects students' beliefs about the nature of ability. More research should be conducted examining the interaction between perceived motivational climate and beliefs about the nature of ability.

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ABOUT TWO TYPES OF ATHLETES' PERSONALITY

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KEY WORDS: personality orientation, conscious and unconscious motivation, inner conflicts.

INTRODUCTION

There are several directions in studying athletes' personality in sport psychology. Personality orientation was not in the centre of research interests of psychologists and was mainly studied in connection with different components of sport activity. Nevertheless personality orientation is considered as a system of dominating motives of behaviour and thus certainly is a central *part* in general personality structure (S.Rubinshtein, L.Bozhovitch, A.Leontiev etc.) It is a fundamental characteristics in personality development and formation.

Russian psychologists distinguish two main types of personality orientation: social and self-directed. Some sport psychologists (D.Bogdanova, L.Serova, I.Kelishhev etc.) try to reveal a personality orientation with the help of observations, inventories, compositions analysis, characteristics given by coaches. But "it is impossible to distinguish and study either motives or needs by means of observation" (L.Bozhovitch, L.Neimark), and the only right way is to analyse them in an experiment or in real activity. Fruitful experiments with athletes as subjects were carried out by O.Dashkevitch, V.Zobkov, J.Palaima. They managed to distinguish dominating motives of athletes (social or self-directed, egoistic) in laboratory and field experiments. O.Dashkevitch developed a set of experimental techniques which allowed to study athletes' level of aspiration, reactions to failure, confidence and to distinguish personality orientation on the basis of those data. Unfortunately they allow to get information only about conscious motives and thus do not reveal all sides of personality structure.

In our research work we aimed at exploring personality orientation both on conscious and unconscious levels. Sometimes domination of unconscious motives have greater effect on activity than conscious motives and decisions.

METHOD AND PROCEDURE

Personality orientation was tested with the help of four techniques. The principle methods were: Reaction time technique in V.Chudnovsky's variant and Motivational method by O.Dushkevitch. Additional data were given by Orientation Inventory by V.Bass and Scale of Altruism by W.Terner (in our adaptation for sport). The work in the frame of Chudnovsky's approach allowed us to analyse dominating motives on conscious and unconscious levels.

In addition to laboratory experiments analysis of behaviour, decisions and emotions in real competency situations was carried out.

RESULTS

The complex of testing techniques has distinguished groups of athletes which differ in the character of dominating motivation on both voluntary and involuntary levels, in real and formal effect of a motive in conscious choice of actions "for oneself" and "for the team", in the strategies of behaviour in conflict situation of choice. Besides, the data in "self-orientation" and "cooperation-orientation" (Bass) and "degree" of altruism and egoism (Turner) have been added. All that gives grounds to distinguish two main types of personality orientation: social orientation (social motives dominate on conscious and unconscious levels of motivation, domination of cooperation-orientation and high altruism) and egoistic, or self-directed orientation (domination of egoistic motives on both levels of motivation, "self-orientation" (Bass) and high egoism (Turner). Alongside ^{with} pure types a more complicated type of personality orientation has been distinguished. We call it bimodal orientation. Personal, egoistic motives dominate on the unconscious level of motivation and social motives dominate on the conscious level. This type may be considered as a transitional type from self-directed orientation to social orientation if the development of personality is going in a right direction.

DISCUSSION AND CONCLUSIONS

This work is devoted to theoretical and experimental study of the phenomenon of personality orientation in a broad context of the problem of moral motives. Distinguishing of two typed of personalities that differ in their dominating motivation, social or egoistic, allows to develop different approaches to athletes of these groups. If a coach knows peculiarities of the athlete's dominant motivation he has a chance for prognosis of the athlete's behaviour and responses under pressure, he can make correct selection of athletes for participation in different types of personal and team competitions and tournaments. Young athletes of different groups need different pedagogical treatment. The experiment has revealed a group of athletes with bimodal orientation, which is characterised by a conflict between social and egoistic motives. This shows that a problem of dominating motivation, personality orientation, is much more complicated and is worthy of further investigation, including the area of sport.

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EVALUATING THE EFFECTIVENESS OF AN IMAGERY TRAINING EDUCATIONAL WORKSHOP FOR NATIONAL DANISH COACHES

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INTRODUCTION

Despite the acknowledged important role played by the coach in the psychological skill training (PST) process, most PST programs are aimed at elite athletes while coaches have been largely overlooked (Vealey, 1988). It is essential to develop more information on psychological skills and methods to help coaches implement PST with their athletes. Vealey (1988) argued that simply gaining knowledge about psychological skills may not be enough to encourage active participation in PST. To address the passive consumption of PST knowledge some sport organisations, such as Team Denmark, developed educational workshops with a particular emphasis on PST implementation strategies. Finally, in an age of accountability, it is imperative to determine whether psychological skills workshops can effectively change behaviour in coaches and athletes (Gould, et al., 1990). Two studies with elite wrestlers (Gould et al., 1990) and one study with lacrosse players (Brewer & Shillinglaw, 1992) found respectively that 1-week and 2-week PST workshops were effective in changing athletes' perceived knowledge, importance and use of various psychological skills. The imagery component was found to be particularly effective in both studies. Hall and Rodgers (1989) conducted a 2-hour PST workshop for figure skating coaches designed to aid the implementing of psychological techniques. Imagery was the technique coaches reportedly employed most often and rated most effective.

This investigation was design to monitor changes in coaches' perceived knowledge of, importance placed on and use of imagery training. Furthermore, this study examined the short (2 months) and long term (6 months) effects that a one day imagery training workshop had on the coaches' perceptions.

METHOD AND PROCEDURE

Subjects

Subjects were 40 national Danish coaches (2 females and 38 males) representing 26 sports. Their experience at national level ranged from 1 to 13 years. The time spent with the national squad varied from 1 meeting per month to 7 per week; the meetings ranged from 2 hours to a day. Only 18 coaches returned the 2-month questionnaire to date; more are expected to follow soon. Hence the data presented here is based only on the 18 coaches who complete all three assessments.