

Michaela Knoll, Universität Karlsruhe (TH)

Sport and Health: The German Perspective. Review 2002/2003

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The review comprises German monographs and anthologies as well as articles published in professional journals between 2002 and 2003. This review ties in with the reviews published in the 'International Journal of Physical Education' issue 2/2000 and issue 2/2002 about sport and health. Apart from monographs the following journals were looked through systematically: Sport Science, Sport Instruction/ Body Education, Spectrum of the Sport Sciences, Psychology and Sport, Sport Pedagogy, "Motorik", Prevention, Practice of "Psychomotorik" and Health Sport and Sport Therapy.

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1 Introduction

The 7th reprint of the sport science dictionary (Sportwissenschaftliches Lexikon – Röthig & Prohl, 2003) published in 2003 shows the topic Sport and health as an individual topic has been established by now. Compared to the previous volume of 1992, you can find new entries such as 'sport for health', 'hyperactivity', 'exercises for coronary patients', 'rehabilitation sports', 'back school' or 'overuse injury in sports'.

In health sport research there is a variety of studies about the relationship of physical activity, exercise and health parameters. As a theoretical point of reference German-speaking sport scientists use integrated, resource-based health models from a socio-scientific point of view. Fuchs (2003) provides an overview about the current state of theory creation about sport, health and public health. He explains the stage of research in regards to the epidemiology of physical exercise, discusses the relationship of public health and health promotion and the hence deducible public health perspective of sport. In detail, Fuchs gives empiric evidence about the effects of physical activity on physical and mental health and discusses empiric records about the effectivity of sport-related intervention. The author presents the associated question for the determinants of sport adherence as well as the notion of the underlying model in a differentiated way and introduces interventions in different settings (local authority districts, workplace, sports club, school). Fuchs not only summarizes the current theories and empiric findings but presents his own model of theory-driven sport promotion.

During the last years the question of evidence-based health-sport-programs has gained in importance. In addition to Fuchs' publication, the article by Rütten and Abu-Omar (2002) is to mention, which deals with evidences to promote physical activity through population-related interventions. Lagerstrom, Huber and Baldus (2002) bring starting points for quality management in health and rehabilitation sport to discussion and present quality criteria for fitness and health centers (Baldus, Huber, Krell & Lagerstrom, 2002).

2 Development of the topic Sport and Health

It is striking that German sport scientists have been making an endeavour to popularise the relevance of the topic beyond the sport science. The articles by Schlicht, Kanning & Bös (2003), Bös & Brehm (2003) and the journal "Public Health Forum" (Issue 4/2003) with its special issue "Sport and Exercise" are good examples of this trend, as well as the articles by Brehm & Sygusch (2003) about "Prevention in sport clubs" and by Schlicht (2003a) about "Sport and exercise" published in the compendium "Psychological health promotion – diagnostics and prevention".

By order of the Conference on psycho-cardiology Schlicht, Kanning and Bös (2003) issued an expertise about psychosocial interventions to affect the risk factor "lack of exercise". In their expertise they give an introduction about the relevance of the lack of activity and give a detailed overview about the state of the research regarding the effects of physical activity on cardiac risk reduction. The authors compile studies about motivation and adherence rate of exercise programs and show the current state of research. In a third step they explain the currently most important theory models and strategies of health behaviour. The expertise closes with an overview about campaigns and projects.

The compendium "Public Health – Health and health care" (Schwartz et. al., 2003) was reprinted in 2003 in a second, completely revised and extended edition. Besides psychosocial aspects and a balanced diet, "physical activity" was picked up as the central theme of health behaviour. The article by Bös and Brehm (2003) gives a review of basics and empirical studies about effects of physical activity on health parameters. The authors present the often published model of qualities and primary objectives of health-enhancing physical activity and their realisation and give some advise on program interventions.

The special issue 4/2003 of the "Public Health Forum" journal focused on "Sport and exercise" is also remarkable. Rütten and Abu-Omar (2003a), who were in charge of this issue, want to highlight the peculiarity of the public health-perspective of exercise and sport. Their focus on health-enhancing physical activity goes beyond exercise and includes everyday activities, and also aims at a population related promotion of physical activity with adequate political and environmental measurements (p. 2). The collection of relatively short articles in this special issue give an excellent overview on the current stage of research about sport and exercise in the range of public health (especially the articles by Brehm & Bös, 2003; Mechling, 2003; Pfeifer, 2003a; Schlicht, 2003b; Sygusch, 2003), but also refer to current problems, e.g. the classification of physical activity and health-enhancing physical activity or evidence commitment and quality assurance of those programs.

Set interdisciplinarily, the individual faculties within sport science approach the topic "sport and health" differently. Seewald (2003), who is cited exemplarily for this trend, addresses the issue to what extent health is a topic for motology and wants to highlight ways to a motology-related health term. The compendium "Leisure sport" (Dieckert & Wopp, 2002), addresses the topics "fitness and health" as an independent approach of leisure sport in a subchapter of its own. The chapter written by Woll and Bös (2002) gives an overview about the systematic classification of the terms fitness and health, about trends in sport development, the question of quality of health sport as well as consequences resulting from this for sport practice.

Several articles, which discuss methodical aspects of health sport research within the documented time span, are worth mentioning as well. The article by Wagner and Singer (2003) for instance, presents a questionnaire to record data about the habitual physical activity of different population groups. The questionnaire is based on a field study with 1928 test persons at the age of 20 to 65 years and aims at the factors characterizing habitual physical activity. The factor-analytical results "corroborate the belief that habitual physical activity comprises at least three distinguishable dimensions. This includes physical activity during working hours, during workout and leisure time (excluding physical exercise)" (p. 393). The research by Wagner and Singer contributes to recording physical activities in contrast to physical exercise. In his publication Bös (2003a) presents the "2 km Walking Test" used worldwide and shows relevant age- and gender-specific standard values for Germany. This motor activity test is a simple method of testing to diagnose the general aerobic stamina in leisure and health sport, which can be used excellently for epidemiologic studies. The standard values are based on records of 3526 people aged between 16 to 89 years. In their article Bös and Wydra (2002) approach a similar direction. They discuss the significance and the feasibility of the "Fitness Basis Test" published in 1990 as a function-oriented motor activity test. Relying on the records of more than 700 people at the age of 15 to 90 the authors make suggestions for the test evaluation and present benchmarks for performing the test. The test can be performed very economically and suits for "embedding in a sequential diagnose strategy" (p. 201).

3 Health sport: Conference Proceedings

Sport scientific conferences increasingly deal with the topic "sport and health". The annual conferences of the 'Health Commission' of German Federation of Sport Science (dvs) are to be mentioned. The annual meeting 2002 with the topic "Interventions in health sport and sports therapy" was held in cooperation with the German Association of Health Sport and Sport Therapy. The keynote lectures as well as the speeches in the sessions were published in the 'Health Sport and Sport Therapy' journal (issue 5/2001).

The dvs commission's annual conference 2003 was held in cooperation with the German Association for Sports Medicine and Prevention as a bridging of health sport and sports medicine. The publications were published in an abstracts volume (special edition of the German Journal for Sports Medicine, issue 7-8/2003). The feature articles by Bös (2003b), Pfeifer (2003b) and Rütten & Abu-Omar are of particular interest.

The conference volume "Physically active local district – healthy local district" by Woll, Illmer and Bös (2002a) is not directly referred to health sport, but closely connected with this topic. It summarizes the articles and results of two conferences about local sport promotion. Apart from some practically oriented articles about health promotion through physical exercise in different settings, the theoretic articles by Woll, Illmer and Bös (2002b) and Rütten (2002) are to mention, which explicitly deal with the chances and problems of local sport development as a contribution to health promotion.

4 Health Sport: Conditions and Characteristics

Along with the question of the effects of physical exercise on health questions for the determinants of physical activity, i.e. the individual and collective influence factors, arise in sport scientific health research.

This review focuses on the prevention-oriented health sport and discusses bridges and connections to forms of therapeutic sport. Due to the 20th anniversary of the German Association of Health Sport and Sport Therapy in 2003 a number of articles, which give an overview of the specific work of the association as well as of the development and the significance of exercise and sport in rehabilitation in general, were published (among others Deimel, 2003). The article by Stoll & Schega (2003), who plead for a resource oriented sport therapy, is interesting from a prevention point of view.

Hölter, Beudels and Brand (2002) bridge prevention and rehabilitation with their article about body concept and exercise therapy within psychosomatic medicine. They present the results of an explorative study about the interrelations between psychic health and body related parameters of the self-concept and how those parameters changed with patients of a hospital for psychosomatics and psychotherapy. The study is based on Antonovsky's salutogenesis model and shows the opportunities of an exercise therapy program, which uses the training of physical- and psycho-related competences and particularly creative methods as measures for psychotherapeutic interventions. The sound and carefully carried out study presents results about the realm of health sport and sport therapy, which has been mostly neglected so far.

Zarotis, Tosunidis, Athanailidis, Pappas and Lagerstrom (2003) and Zarotis, Athanailidis, Tosunidis, Katsagolis and Lagerstrom (2002) give an overview about the impact the social change in values has on sport, health, and body as the central theme, and about the history and future of fitness-sport. Neß (2003) discusses the significance of wellness for health sport, but the article hardly meets the criteria of scientific standards. Lagerstrom, for example, by no means talks about – as Neß quotes him – a "panorama shift" in health sport due to the perspective wellness, but discusses the question of a paradigm shift.

For the realm of workplace health promotion the overview article by Bös, Gröben and Woll (2002) published in the journal for health sciences can be mentioned. The authors discuss interrelations between sport, physical activity and health and present underlying health models in the realm of workplace health promotion. The results of a research study about the acceptance and effectivity of workplace health promotion programs, which was carried through by the authors, are presented in this article.

Tiemann, Brehm and Sygusch (2002) discuss the “extensive institutionalization of evaluated health sport programs” at the example of the cooperative attempt of the AOK Westfalen-Lippe. The evaluation of the health sport programs of this statutory health insurance shows that these offers “reach those people who are indeed particularly at risk to become ill, but who are also very difficult to get and who are significantly underrepresented in those health sport programs” (p. 232).

The importance of endurance training for physical and psycho-social factors of health has been well known and documented for years (cf. e.g. Knoll, 1997; Schlicht, 1994, 1995) and takes the leading position within the trainings measures of health sport. Thematically, Spanaus' (2002) publication about “heart rate control in endurance training” relates to this topic. Spanaus presents the results of an extensive survey about the maximum heart rate of achievement-oriented leisure cross-country skiers. From a health sport point of view especially the chapter about diagnostic methods for training control in endurance training must be highlighted.

The various forms of health-oriented strength training have been hardly realized for a long time. A lot of publications were published about this between 2002 and 2003, for example the volume by Buskies and Demski (2003) about “back fitness”, which goes far beyond the common topic of back exercises, or by Buchbauer (2003), who picks out “strength training with weight lifting and fitness equipment” as a central theme. Both publications mainly address practical persons.

Köstermeyer, Abu-Omar and Rütten (2003) discuss back pain prevention. On the basis of evaluated studies they analyze effects of different intervention attempts in the view of intervention effects, effects on pain, sustainability and cost efficiency. “The results show that interventions with the help of a well-directed physical activation (strength training, endurance training and fitness training) in primary prevention seem to be more effective than educative interventions (back training)” (p. 179). Alfermann, Küster and Stiller (2003) present results about the psychological effects of back training programs in their article. In their study they answer the question, “which psychological effects on the subjective condition can be achieved by integrative back training programs” (p. 186). In a quasi-experimental design they took record of 32 experimentees of adult age. The authors recommend to interpret the results very carefully: they indicate that positive changes can be mainly achieved in the realm of the subjective feeling of pain.

The trainer manual about the strengthening of psycho-social resources in health sport, which was created by Brehm, Pahmeier, Tiemann, Ungerer-Röhrich, Wagner and Bös (2002) and published by the German Gymnastics Association, is very useful for practical persons. Here the reader gets competent and concrete basic information about psychosocial resources and methodic help for the realization in sport practice. With this manual the German Gymnastics Association contributes to quality assurance in coaches education and qualification.

5 Determinants of health sport

The questions of adherence and dropout have been discussed for a long time, the topic is even being discussed in health sport extensively. Zarotis,

Athanailidis, Pappas, Tosunidis, Mitrotasios and Lagerstrom (2003) deliberate over the question which age-related motives women in fitness-sport have, and present the results of a survey with 3248 test persons in health-oriented fitness clubs. As expected, the fitness and health motive turns out to be the central motive for physical exercise throughout all age groups.

Wagner (2002) discusses “the relevance of selected personal, social and program related factors for maintaining physical exercise in health oriented programs for short or longer periods” (p. 150) She states that the stage of research regarding people’s participation in physical exercise is quite diverse: according to that neither aspects of starting or maintaining physical exercise nor the various ways of physical exercise done during the study are distinguished systematically. The models used can often only be verified to some extent, in which health-related cognition and social aspects of the test persons’ environment is hardly recognized. It’s these research results Wagner derives her own evaluation approach from to check the “relevance of significant personal, social and program related factors for maintaining physical exercise in health programs” (p. 143). She presents the results of two field studies with 288 participants aged between 28 and 63 years. Comprisingly, the results show a differentiated picture. On the one hand, there seem to be factors, which “are relevant for maintaining physical exercise at any time” (p. 151), on the other hand one can expect that “the participant’s motivation and therefore the personal and situation-related influence factors are changing with increasing duration of the program or physical exercise” (p. 151). Wagner is of the opinion that the results show the need for a carefully planned and organized health-oriented sport program, if the number of dropouts is to be reduced effectively.

6 Health sport with children and youths

The “First German Report about Sport for Children and Youth”, which had been waited for a long time, was presented in 2003 (Schmidt, Hartmann-Tews & Brettschneider, 2003). In a number of reviews the current stage of research about different aspects of sport for children and youth is presented, such as the topic “health” (Sygusch, Brehm & Ungerer-Röhrich, 2003). The authors present approaches for the analysis and intervention of health and health promotion during childhood and adolescence and discuss the stage of research about interrelations of physical exercise and state of health in this group. The 16 presented studies comprise different age-groups, partly include motor ability tests and are mainly based on questionnaires. Cross-sectional studies are methodically more common, the results can therefore only describe the situation and can not be used do cause analysis. The studies analyze particularly physical resources (e.g. physical performance capability, risk factors and health problems), psycho-social factors (e.g. self- and body-concept, social support), wellbeing in regards to health as well as the health and risk behaviour of children and youths. Finally Sygusch, Brehm and Ungerer-Röhrich present intervention studies to improve health through physical activity for this age-group in different settings (e.g. school, sport clubs and sport associations). On the whole the authors state that the available data are inconsistent and complain about the “lack of evaluation” in most of the intervention studies: “There is hardly any

evidence about the acceptance and effectivity of health-oriented initiatives.” (p. 83).

The journal “Sport instruction / Body Education” published an special issue with the topic “Chronically ill children at school” (issue 11/2003). In her overview article Dordel (2003) makes suggestions for the integration of children with congenital heart defects into school sport. Thus she draws the attention to the possibilities (but also limits) of school sport in regards to special needs of chronically ill children, which go far beyond the mere question of pulse rate profiles. Sticker (2003) gives an overview of how to handle medical certificates for school sport participation of chronically ill children in regards to grading in physical education. Majewski (2003) explains how to handle the topic “epilepsy and (school) sport”. For the sake of completeness the article by Blaumeister (2003) is mentioned here, which presents his thoughts about “motoric conspicuities in school sport as a sign for inner distress of children and youths” – an article, which admittedly rather ends up in discussing the (possible) contribution of school in general and teachers in particular in regards to fighting against social grievances.

Skrodzki (2002) deals with the phenomenon of attention deficit hyperactivity disorder (ADHS), who explains the specific forms of motor control and discusses the chances to influence this problem with well directed motor skills training. ADHS is one of the most frequent diagnose of child psychiatry in Germany. Nachtwey (2003) presents ways of supporting affected children through judo.

Issue 5/2003 of the journal “Health sport and sport therapy” deals with the topic “posture and back pain”. In an introductory article Ludwig, Mazet and Schmitt (2003) discuss postural dysfunction of children and youths. In a research 379 children and youths aged between 9 to 17 years were tested with orthopedic, biometrical and biomechanical methods. The results show that the phenomenon ‘posture’ is complex and that there is need to influence posture with complex training samples. With “Kid-Check” Ludwig (2003) introduces an interdisciplinary project for posture diagnosis of children and youths.

Baschta and Purschke (2002) discuss a special aspect – i.e. sport and nutrition as the central theme of health-oriented education – in regards to considerations about preventive health education at school. They present a “curriculum about the topics of sport and nutrition”. It is a pity that the curriculum is only described roughly – who the curriculum is related to (kind of school, grade etc.) remains unclear. Anyway, the authors do mention that the whole thing is still in the “testing phase” and that a scientific evaluation is missing so far.

Reuter and Buskies (2003) discuss forms of strength training for the target group of children and youths from a health-oriented perspective. The authors are particularly interested in the children’s and youths’ ability to “manage the load in strength training with the help of their subjective sense of load ... and achieve strength effects and positive changes of body weight and body constitution” (p. 372). The data of three studies with a number of 195 pupils aged between 10 and 16 years are presented. These studies show that even a training offer once a week is enough to achieve health enhancing strength effects. The article by Michel & Ziezio (2003), who discuss the questions of back fitness from a more practical point of view, goes into a similar direction. Anyway, current studies about fitness level of children and youths (e.g. Bös et al., Dordel or Kretschmer)

were not mentioned and the studies mentioned instead are lacking a complete list of references.

Bös, Opper and Woll (2002a, b) present results of their study “Fitness in the elementary school”. In this study the authors developed methods to record the physical fitness of elementary pupils and, based on these data, presented a representative review of the elementary pupils’ activity behaviour and state of fitness and health. For this the authors collected data of 1442 boys and girls aged between 6 and 11 years. According to the authors the results show that the movement behaviour of today’s children has changed depending on their social class: on the one hand they do physical exercise in sports clubs to a high extend, on the other hand the fancy-free outdoor play has become less important. The high extend of psycho-social problems and the huge number of overweight children and their bad motor skills performance is as significant as the interrelation of motor skills and the number of accidents at school. For some motor skills the data support the assumption that the motor skills performance of children and youths have decreased compared to former generations. Based on their results the authors create intervention strategies against the background of current processes of school development. The practice brochure “Fitness modules – concepts for everyday play” (Woll, Kauchner-Eisner & Bös, 2002) for teachers at elementary schools was created in connection with the research project mentioned above.

The article by Kretschmer (2003) is of special interest in regards to this topic, since he critically discusses existing surveys about motor skills performance of elementary pupils and does not see any evidence that motor skills of this generation has in any case become worse. In his remarks Kretschmer refers to the missing evidence that the lack of exercise, which is often mentioned, is in fact the reason for the decreasing motor skills performance of children and youths.

Oltersdorf, Kipp, Bös, Woll and Riemer (2002) pick up the topic “Physical activity and nutrition” in their report about the ongoing local project “Healthy Karlsruhe – healthy children in the city” which different local authorities, health institutions and scientific institutions are participating in. The longitudinal project aims at the “positive interaction of nutrition behaviour and motor behaviour” in regards to the maintenance and promotion of the health of primary school pupils. To verify the effects of the planned intervention program test instruments are being developed to record the nutrition and movement behaviour as well as the physical performance and fitness of children aged 3 to 6 years. In this article the authors explain the goals and the design of the survey and present the general set-up for its realization and the accompanying scientific studies. First results are presented in the article by Bappert, Woll and Bös (2003).

7 Health sport with seniors

Titze (2002) discusses the importance of movement promotion in nursing homes and picks up approaches of physical education for seniors. The study gives useful information about the problems of the program evaluation in this setting, although the study is explorative in character (only 6 probants).

In his article about physical exercise and motor performance of seniors Köpsel (2002) presents selected results of the ‘Interdisciplinary Longitudinal Study of Adults’ (ILSE-study). Since 1993 this study has been carried out within the scope

of a project on federal government and land level lead by the German center for old age research in Heidelberg. Two cohorts (age-groups of 1930/32 and 1950/52) with nearly 1400 participants are compared with each other. The focus of Köpsel's article is the description and analysis of the motor performance of elderly people of the age-group of 1930/32. As expected the elderly men achieved better results in regards to their physical condition, whereas the women got better results in regards to flexibility (p. 398). 14 different test methods were used. However, the "validity of the concept of motor performance could not be verified by a factor analysis explicitly" (p. 398). Nevertheless, the presented standard values for ten out of 14 tests will be helpful for future research in this field.

Woll, Tittlbach, Bös and Opper (2003) present a subset of results of a – unfortunately still scarce - longitudinal study about the interrelation of physical exercise, fitness and health of the age-group of 40 to 65. The study with an intercultural parameter setting has been started in 1992: the study includes a survey carried out in parallel with identical measures of a finnish sample. In Germany approximately 500 people aged between 35 and 65 years were tested at three different dates (1992, 1997, 2002). The data show "that physically active people describe their health condition in a more positive way than people who are physically non-active, no matter what age and nationality"(p. 38).

Müller, Bremer, Schott, Meißner-Pöthig, Schulz, Lemperle und Bös (2002) present the results of an outpatient therapy concept for health promotion of overweight women (N=60) above 40 years. It could be shown that connecting an outpatient nutrition offer with a targeted physical exercise program (here: walking) improves vitality and increases weight reduction.

8 Perspectives

If one finally throws a glance at the perspectives of research in sport science, one can draw the positive conclusion that evidence based aspects of interventions are gaining importance. This approach, which played a central role at the annual meeting of the dvs health commission, is likely to loom large in the future, too. In the future the implementation of methodically secured test methods for checking the methodological evidence of intervention programs will (have to) become more important. Thus binding quality standards for health programs can be defined on the basis of empirically verified evidences; the keeping of those quality standards must be assured by an adequate quality management. When scientific-based health sport programs are created, specific interdisciplinary forms of intervention (e.g. combination of physical activity and nutrition) must be developed and carried out according to the target group and the setting. Thus sport science can make its (important) contribution to a comprehensive health promotion.

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