

Sport and Health

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This review ties in with the review of ‚sport and health‘, which was published in the ‚International Journal of Physical Education‘, issue 2/2000. Basis of this review are monographs and anthologies in German language as well as articles published in specialist journals from 2000 and 2001. The following journals have been looked through systematically: Sport Science, Sport Instruction/Body Education, Spectrum of the Sport Sciences, Psychology and Sport, Sport Pedagogy, „Motorik“, Prevention, Practice of „Psychomotorik“ as well as Health Sport and Sport Therapy.

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1 Introduction

Research in Health Sport is well established in German Sport Science since the 90s. This can be shown with the activities of the „Health Commission“ of the German Federation of Sport Science (dvs). Its annual conferences as platforms for the discussion of different topics of Health Sport meet high interests. The ‚Health Commission‘ looks after the interests of the German Federation of Sport Science in the politics of Sport and Health and tries to strengthen the importance of health-enhancing physical activity. This is done in cooperation with other representatives, e.g. from sports medicine or sport therapy. The carrying out of special conferences with partners, for example in the year 2000 together with the German Association of Health Sport and Sport Therapy, is one of the expressions of endeavors for cooperation. The seal of quality „Sport for Health“ has been installed on the part of the German Sport Foundation, which is used for the marking of health oriented sport in sport clubs.

A global understanding of health is now accepted in sport science, which considers equally physical, psychological and social aspects of health and uses integral and resource oriented health models for theoretical frameworks. But the topic health sport is still treated differently by the various sub-disciplines of sport science.

The articles of Becker, Bös, Mohr, Tittlbach & Woll (2000) and Schlicht (2000) should be cited in regard of the formation of theories for sport and health. Becker et al. (2000) deal with different models for habitual health and start out with a bio-psycho-social model for the explanation of health, the “requirement-resource-model” of Becker. The results of a longitudinal study are presented which analyzes the impact of mental health, life satisfaction and physical exercise on perceived health. The consideration of physical exercise is very important from the perspective of sport science. Schlicht (2000) pleads for a change of paradigms in health psychology in his article on „health behavior in everyday life“. This change of paradigms should find expression in the inclusion of the perspective of public health in sportpsychological research. Schlicht presents the first considerations for a conceptual frame work for the research of health behavior in everyday life and out-

lines a research program. His article gives worthwhile hints for the self-understanding of sport psychology respectively future research approach for the health topic.

Questions about the determinants of physical exercise, this means the influencing factors on individual and populational level are also asked. Health-oriented forms of interventions can be differentiated into the areas of primary, secondary and tertiary prevention. Measures of interventions in these areas can be differentiated for target groups. They are concentrated individually or treat special population groups. They aim on effects on health status, effects on behavior as well as on effects on conditions. Also, questions on the settings, that means on the suppliers of health sport as for example, schools or sport clubs, are coming up against the background of determinants of health-enhancing physical exercise.

These outlined theoretical remarks give an orientation for the structure of this review. The focus of this article is health sport, oriented in prevention. For a review of sport and health it is very often difficult to find the bounds between preventive and rehabilitative sport. For the rehabilitative sport, the publication on sport therapy of Schüle & Huber (2000) is cited, which can be characterized as a handbook and gives an extensive overview on the actual state in sport therapy. Even, that the book is mainly focusing on sport therapy, relevant aspects for the area of preventive health sport (e.g. models for health, management of quality in the health area) are picked out at different spots.

2 Health Sport: Conference Proceedings

Sport scientific conferences deal with the topic ‚sport and health‘ more and more. In the first place, the annual conferences of the ‚Health Commission‘ in the dvs must be named. The conference in the year 2000 was held in cooperation with the German Association of Health Sport and Sport Therapy and had the topic „securing of quality in health service“. The keynote lectures as well as the articles of the sessions were published in the journal ‚Health Sport and Sport Therapy‘ (volume 16, issue 5) for the preparation of the conference. The keynote lectures of Brehm (2000) and Huber (2000) sort out the common fields of health sport and sport therapy, but define also their different aims and structure. Pfeifer, Brehm, Rütten, Ungerer-Röhrich & Wegner (2000) have carried out an analysis of the actual situation in education and the necessary key qualifications for people working in health sport. With that, they show, that questions about the education in the sport scientific area ‚health‘ has meanwhile a central meaning. The many session articles show the range of the conference topics for conditions, target groups and settings in health sport and sport therapy.

The conference in the year 2001 of the commission was again planned in cooperation with the German Association of Health Sport and Sport Therapy, which was organized internationally and had the topic „interventions in health sport and sport therapy“, had to be cancelled due to organizational reasons and was postponed in the year 2002. But the scheduled keynote lectures, as well as the abstracts for the sessions, had at the time of cancellation already been published in the journal ‚Health Sport and Sport Therapy‘ (volume 17, issue 5). Lectures in English language were planned. The publications in German language include the topics „sport management in communities“ (Woll & Illmer, 2001), „interventions in movement therapy“ (Bührlen, 2001) and „wellness – perspectives for a change of paradigms in health sport and sport therapy“ (Lagerstrøm, 2001). Additional articles were assigned to the sessions „programs for specific indications and training“, „methods for the securing of effects of interventions in health sport and sport therapy“, „population based concepts for interventions“ and „varia“.

The report of the annual conference of the Association for Sport Psychology (see Janssen, 2000), which took the areas „performance and health“ as „future topics“ into consideration, is only mentioned at this point. The sessions „health in school and occupation“ and „theories and concepts of health research“ have been carried out for the health topic. The two health-related keynote lectures from Schlicht (2000) and Wagner (2000a) will be discussed further on.

The conference „health sport“ of the Gymnastics Association in Niedersachsen (Niedersächsischer Turnerbund) is an example for conferences oriented on practice, carried out from sport associations. The results of this conference are summarized in the report of Langer, Nickel & Trienen (2001). The volume includes a variety of information and practice reports from the areas leisure- and health-related sport as well as sport therapy.

From the theoretical point of view, the article of Woll & Bös (2001a) gives an overview on the relation of sport and health as well as on health education. The handling of the conference proceeding is not easy, due to the layout which offers no good legibility and hinders a fast orientation.

3 Health Sport: Conditions and Characteristics

The importance of the training of cardiorespiratory fitness with its effects on physical and psychological factors on health is known and verified since many years (see for example Knoll, 1997; Schlicht, 1994, 1995) and is at first place of the training forms in health sport. Long time, health-oriented strength training has not been taken into account. The book of Zimmermann (2000) tries to close this hole. He wants to give a contribution to the “perfection of theory and methodology of health oriented strength training and of the identification of special starting points for empirical research” (p. 10). Starting out from theoretical positions on musculoskeletal strength training, Zimmermann defines the strength training oriented on primary prevention as a “form of training with regular and systematic, moderately dosed strength related neuromuscular strain, which will result in functional and morphological adaptations, requires less time and induces only careful physical strain” (p. 30). This definition distinguishes strength training which is oriented on primary prevention from strength training which is oriented on rehabilitation. Zimmermann emphasizes the importance of strength training during life-span. For the meaning of Zimmermann, the effects of such a strength training oriented on primary prevention should “not only be restricted on the functional optimization of the whole body muscles, but should also influence further systems of organs and functions of the whole body (i.a. posture and musculoskeletal system, heart circulatory system, metabolism, nervous system/psyche), in the sense of integral prevention” (p. 31). For the description of the state of the art of the effects of musculoskeletal strength training, Zimmermann uses these five physical areas to put consequently the examined literature in order. This systematic description of the research literature in a review is one of the main elements of Zimmermann’s work. But the question comes up, why the author not has used meaningful meta-analytical methods for evaluation in view of his extensive analysis of literature. He restricts his work to determine mean values of several studies. Methodological downstrokes have to be made for the meaningfulness of the results due to the reasons that the criteria for the study selection have not been revealed and that there is no description of the literature sample (e.g. quality of studies). Despite this, the book gives an interesting insight into the variety of health oriented strength training. Zimmermann formulates general methodological principles for strength training oriented in primary prevention on the basis of aspects for determination and of the health-related relevance in the second part of his book. Finally, he explains in detail the – in his opinion - „most effective organizational form“, the “moderate dynamic strength endurance oriented circle-training (also known as circle- or circuit-training)” (p. 191). Especially these two chapters hold the promise of „orientation on practice“, which was made in the subtitle of this publication (e.g. variants in programs for strength training including hints for training for beginners).

Ziemainz, Herold & Müller (2001) also deal with health oriented strength training, but concerning the effects on psychological health exclusively. They present results of a cross-sectional pilot-study, where they analyzed the postulated effects of Kieser-training on variables of psychological health. Kieser-training is a special form of musculoskeletal training with machines, which is offered in commercial fitness-centers. It prefers the so called „one-set-method“ in contrast to the „several-sets-method“. Altogether, 133 subjects, which trained a different time span, were investigated with questionnaires concerning different aspects of psychological health (self effectiveness, stress tolerance, mood, body concept, psychosomatic troubles, motivation for participation). The results show, that there are no general effects of the training on psychological health. Only some sub-scales (motivation for participation, body concept) showed significant effects. Though, the authors stress themselves the limited meaningfulness of the results due to the study design. The results should be analyzed again in a longitudinal control-trial including didactical and methodological modified programs respectively program contents (S. 231).

One part of psychological health, the state of mood, is analyzed by Schneider & Wydra (2001). They analyze the effects of different forms for relaxation. In a leisure time sport group of 15 women with the average age of 30 years, doing fitness-oriented gymnastics, it was analyzed, “if a variation of the relaxation sequence at the end of the course could influence the mood” (p. 10). The relaxation elements stretching, breathing and progressive muscle relaxation were included. Altogether, all three methods result in significant improvements in different mood dimensions. But the results show also, that the methods induce different effects on the mood states. “In direct comparison, progressive muscle

relaxation is superior to breathing elements concerning the improvement of rest and the reduction of agitation. Also, it is superior to stretching concerning the improvement of contemplativeness" (p. 12).

Wydra (2000) discusses from a sport pedagogical point of view the generally asked question of strain control in health sport and sport therapy (see also the books of Weitzl, 2001 and Buskies, 2001, mentioned below). Starting with the "strain-demand-concept" of occupational physiology, Wydra indicates the strain control as a problem of the competency of acting, which is a personal resource of the individual and moderates the degree of the relation between strain and demand. Therefore, the aim of sport pedagogical care should be "the development and strengthening of resources of every individual in a way, that he is capable to control his strain himself" (p. 83). Particularly, Wydra refers to the "concept of the ability to act" of Kurz, which should be considered in health sport also. "From this point of view, strain and demand are less a problem of training methodology, but more an aspect for the pedagogical care of participants" (p. 81). In this context Wydra presents a few problems of strain control (subjective control and control via heart rate monitoring) and their improvement via corresponding educational measures. He strengthens his statements with results (also own results) of empirical studies. But the stated results are not always verified exactly with bibliographical references and aspects as design, sample, etc., are not always described sufficiently.

Questions of diagnostics are very close to the topic of strain control. At this point, it must be referred to the second, fully reworked and extended edition of the „Handbook of Motor Testing“ (Handbuch Motorische Tests) (Bös, 2001). From the health perspective, one of the remarkable features of this new edition of the „Handbook of Motor Testing in Sport“ (Handbuch sportmotorischer Tests), published in 1987, is the manifold characterization of special tests and diagnostic methods in health sport. The area of behavioral motor tests, already included in the first edition, was extended. A new chapter, including tests for the analysis of basic motor functions in the area of health-related physical activity has been added. Also, methods for the analysis of physical activity and exercise and diagnostic methods in sport psychology have been added, which mainly refer to health related fields of application. This new edition constitutes an indispensable basic work, also for people working in health sport.

For sport practice, the book of Brehm, Pahmeier & Tiemann (2001) offers a convincing and unified concept for the making of health sport programs for adults with the motto „healthy and fit“. A framework concept is presented in a form, which is compact and relevant for practice as well, which includes remarks for basic aims, for target groups and for structure. The practice part presents two programs: a basic program for the sports hall and a program for a fitness center. The contents are described in detail, illustrated and worked up in examples for 12 course sections. In the last chapter they do not forget remarks on management and securing of quality. It must be added, that the authors have tested the concept many times in practice and have also evaluated it scientifically, what cannot be taken for granted, normally. Everybody working in practice should have this book in his basic literature.

Riemann & Gläser (2001) report results of the evaluation of preventive courses of the IKK in Baden-Württemberg. These are courses in the areas of movement (backschool, gymnastics, cardiorespiratory fitness) and relaxation (relaxation by self-hypnosis, progressive muscle relaxation, stress management), which are carried out by an occupational health insurance. Before and after the courses, the participants of the courses in both areas were investigated in writing about the quality of the offers as well as the dimensions of health related life quality. As a result it can be seen, that the courses often have a mixed character in their offers (e.g. elements for relaxation are also offered in the movement courses). Therefore, an evaluation is very difficult. Altogether, the participation at the courses results in improvements in the participants' own aims as well as in the dimensions of health related life quality. But it still needs to be evaluated with longitudinal study designs if the achieved effects remain stable.

4 Determinants of Health Sport

Questions about compliance and drop out have a long tradition in sport. But the German speaking sport science has treated these questions rather restrained in the area of leisure and health-related sport. Wagner (2000b) provides an important contribution with her

publication about the determinants of adherence of exercise in health sport (see also Wagner, 2000a). Starting with the phenomenon drop out, different existing theories and models for the prediction of health-related behavior are discussed and analyzed with regard to the own study approach. Personal, social and program specific factors (regarding content and concept as well as rooms and materials) are differentiated theoretically as determinants for the adherence of (health-related) exercise and are discussed with regard to their empirical evidence. Wagner examines within the framework of the integrative study model for the adherence of exercise in health sport programs to what extent chosen determinants can be proven empirically and which relationships can be shown especially with consideration of course of time. For that, 288 participants of two health sport programs of varying length (10 weeks respectively 12 months), with the age of 28 to 63 years, were investigated with a questionnaire concerning their sport behavior. Wagner found out that personal, social and program specific factors contribute to the explanation of variance. But she also found out, "that on the one hand, not all analyzed factors were consistent significant predictors of short-time and long-time adherence, and that some factors were important for the adherence of exercise in the one year sport program, only for special predicting time intervals, on the other hand. ... Altogether, the results confirm the integrative approach of the study concept" (p. 245). It could be proved, that the motivation of participants of (health related) sport programs changes in the course of time and should be taken into consideration for the program concept. The achieved empirical evidence of the effects of program specific parameters, as atmosphere and behavior of course leader on the adherence of the participation in exercise, should be stressed. In total, the high-quality work of Wagner, which was honored with a research prize of the German Association for Sport Psychology, gives an excellent overview of the topic.

5 Health Education with movement and sport

The handbook Sport Pedagogy (Haag & Hummel, 2001) shows the importance of this topic by attending an own chapter to the area of health education (Woll & Bös, 2001b). The necessarily short form of the article gives an overview on the relationships between health and health education, the thoughts of lay public and the underlying social norms on health in a historical perspective. Also, present concepts of health, especially health education in school sport are described, which should be embedded between objective and subjective points of view of health education.

Scharenberg (2000) and Knappe & Ilg (2000) present concepts of health education with movement and sport in elementary school. While Knappe & Ilg present an unified concept, which sometimes holds the risk of dominating movement education (example: health week „fair play“), the thoughts of Scharenberg (2000) on saluto-genesis as a concept for movement education in elementary school are more to be seen as ideas, which result in generally formulated principles of didactic behavior. Restrictions are to be made in this article in the theoretical part: the empirical proofs of the effects of lack of movement are pretty vague and the sketched understanding of the saluto-genesis concepts still needs to be discussed. It is still to question if the concept really assumes "that we should not found out the risk factors for their elimination, but for being able to live with those in harmony" (p. 14).

The article of Günther & Baron (2000), oriented for practice, deals with fitness promotion as one part of health education with sport in school. Ideas for the implementation of different diagnostic tools for the assessment of pupil performance are presented.

Krüger (2000) deals with conceptional ideas for sport in vocational schools. Background of his ideas are the transformations of vocational schools into vocational colleges in the land of Nordrhein-Westfalen. This results in innovations in sport at these schools. This can already be seen in the renaming of sport in „sport/health promotion“, which considers more the life situation of trainees and "focuses more on the integration into the occupational qualification and the construction of general development of competencies" (p. 257). Krüger discusses the special chances, but also the problems, which can come up by these new orientations of the subject, and for the education and for the self-understanding of sport teachers.

6 Health Sport with children and youth

Leaving the scholastic framework, Rütten & Ziemainz (2001) present ideas and empirical results on the relationship of infrastructure for physical activity, physical education and health. In the framework of the explorative study, it is analyzed, "to what extent the quality of living surrounding on the one hand and the quality of physical education on the other hand relate to fitness and health" (p. 73). The study is one part of a study on sports development in communities. For this study part, 241 scholars of grade 5 to 9 were investigated concerning their perceived health, the assessment of physical activity in school and the assessment of their possibilities to be physically active in their direct living surroundings. Additionally, the fitness level of these children was analyzed with motor tests. Altogether, the results show a relationship between the quality of living surroundings and perceived health as well as between the quality of physical education and fitness level of children. Rütten & Ziemainz state, that it has to be assumed, that there exists a complementary relationships between physical education and infrastructure for physical activity: "Only, if both is offered in good quality, an optimal promotion for children can take place. Obviously, the one aspect can not replace the other" (p. 77). Though, the results must be restricted: They are based only on the children's assessments of physical education in school and their living surrounding.

Paletta (2001) concentrates exclusively on youth and health promotion with sport and movement. Starting point of her thoughts is the importance of the body in its many dimensions, processuality and the ability for self-development in the youth (p. 19). Paletta characterizes youthful culture of movement as "analysis of adolescent problems with sport and movement and an out of that resulting new-organization of body and self" (p. 21). From that, you can derive the question, how a model for movement- and sport-related health promotion must look like, to secure equally the "potential and result of successful interactions with the social surrounding and the environment" (p. 22) of youth. Paletta develops an own model of an interactive health pedagogy with exercise and movement with the method of hermeneutic understanding, using the analysis of existing concepts of health promotion (concept of training, concept of body experience, concept of interaction). Her model contains the categories „existence (exploring/discovering/deducing)“, „analysis“, „dynamic stabilization“ and „playing“. Paletta describes in detail the organizational parameters for all categories, the basic configurations of interaction as well as corresponding patterns of interaction for young people, acting in exercise and movement. Though, the model deals extensively with promotion of development in youth, not only with health promotion. Altogether, the publication of Paletta gives a variety of interesting ideas. But in the theoretical part of the clarification of terms (e.g. health promotion), it becomes obvious, that the actual knowledge of the German sport science is only basically considered.

The study of Sygusch (2000a, b, c; 2001) deals not with questions about health promotion, but with the subjective concepts of health of young persons. The study is published numerously in form of a monograph and several articles. This shows the relevance of the topic as well as the quality of his work. The theoretical framework of the study is formed by the research of self-concept. Especially the analysis of health sport concepts in the context of movement and sport has been ignored so far. The study of Sygusch closes this hole. The central question of this work is, "if boys and girls of different physical activity level differ in subjective health sport concepts concerning behavioral aspects" (2001, p. 380). Already with the formulating of the central questions, Sygusch refers on assumed sex specific patterns of behavior, which can be put down to differences in the socialization of body and movement of boys and girls. The presented results were derived from a secondary analysis of the representative youth sport study in Nordrhein-Westfalen of Kurz, Sack & Brinkhoff. 2425 young persons of all school forms in the age between 12 and 19 years were investigated about their physical activity as well as their self estimation of their health status. The evaluation concentrates on the aspects „experience of physical restrictions“, „physical performance in sport“ and „consumption of tobacco and alcohol“ differentiated for the factors sex, exercise level, membership in sport clubs and type of exercise. In summary, the results show, that the extent of exercise really relates to health sport concepts: "Young athletes estimate themselves more healthy and indicate a better physical performance in sport, but they do not indicate less physical restrictions than non-active young persons" (2000c, p. 193). The results obviously show sex specific differences in the perception of health. Also differences can be found dependent on the type of sport.

“The results indicate, that the fulfillment of sport specific norms and forms of expression – on the one hand attention on and control of the body, and on the other side hardness and strength – also result in the perception of body and health” (2000c, p. 194). Against the background of the actual discussion about social importance of sport clubs (study of Brettschneider), the results of Sygusch about the consumption of tobacco and alcohol are of special interest. They indicate, that “the sport club has no proofed global influence, so that it can be inferred, that the awareness of athletes on health is better than the one of non-active young persons” (2001, p. 392). Obviously, there exist typical „milieus of consumption“ for each type of exercise. Though, the results give no information, if the relationships are effects of socialization or of selection. Sygusch restricts, that the “question is still not answered, if the persons, joining a sport club, are those, which perceive and present their body and their health in a special way, or if exercise in sport clubs has a further-reaching influence on the forming of health perception” (2001, p. 397). Sygusch finally shows possible approaches for a health promotion, especially consequences for physical education. Thus, he makes clear, that the knowledge of subjective health concepts plays an important role for programs in health sport (2000c, pp. 194ff.).

7 Health Sport with Seniors

Against the background of demographic changes the sport with elderlies and seniors gets more and more important. In 1999 two conferences concerning this topic have been held. The reports have been published in 2001.

Baumann & Freiburger (2001) present the results of an international sport scientific symposium in Erlangen in 1999 „From high performance to health sport? Aims – teaching – controlling“. The book deals thematically with the wide span from high performance level to health sport, but most of the articles concern the areas of health sport and sport therapy as well as the target group of seniors. The articles are separated thematically into the two main focuses of „medicine and sport“ and the „pedagogical and psychological area“. Due to the integration of international authors, the articles give interesting insights. From the German articles, the articles of Weitzl (2001) and Buskies (2001) about the aspects of (objective as well as subjective) strain control are of special interest concerning the topic of health sport. Wydra has worked with the topic of strain control already in 2000 (see above). The presentation of health sport oriented programs should be stressed in the pedagogical-psychological area (see for example Brehm, Hahn, Mehnert & Sygusch, 2001).

Daug, Emrich, Igel & Kindermann (2001) report the results of the interdisciplinary congress „physical activity and aging“ in Saarbrücken. While the symposium in Erlangen dealt mostly with health sport with seniors, the congress in Saarbrücken included apart from aspects related to physical activity, also pedagogical, psychological and social dimensions of physical activity of elderlies, based on an integral understanding of physical activity. The point of view went beyond sport science on to the mother sciences and their findings about elderlies. Health is only one, but very important dimension of the activities of elderlies, and is analyzed in several articles. Next to the introducing lectures, the single articles are put into five sessions: activity and aging from the point of view of movement and training science, of pedagogy and psychology, of internist sport medicine, of sociology and of orthopedical sport medicine. Each of these five areas is introduced and structured thematically. The corresponding keynote lecture gives an overall view about the range of this topic, which is continued in the sessions. In this way, the book gives an excellent overall view about the actual state of the art in the area of „physical activity and aging“. This in particular, since most articles are of high scientific quality.

Next to these congress proceedings, two articles in journals should be named. Kolb (2000) shows perspectives of a sport geragogy including the health perspective, with regard to „moved aging“. Mögling (2001) concentrates on the health effects for older people of Tai Chi Chuan. In his international review, he gives an overall view about the state of empirical research on the effects of Tai Chi Chuan and tries to put this, until now, neglected topic into the focus of sport science.

8 Perspectives

So far, the review on the basis of selected publications. Finally, I will focus on the perspectives of research in sport science.

In summary, it is very positive to see, that scientific works consider more and more the aspect of securing of quality of health sport programs. These approaches should be intensified in the future and should be better combined with aspects of quality management in health sport. Specific forms of interventions in health sport must be developed and evaluated in different areas, which should include clearly formulated aims and appropriate methods. These should focus especially on the improvement of psychosocial health resources, which is seldom in the center of research interests so far. Population based intervention concepts will also be part of the research focus in the future. Those have to be part of a lasting sport development in different areas of life.

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