EXAMINATION OF A MODEL OVER SELF-CONTROLLED MOTION-LEARNING

Bund, A., Ferwagner, D.

Technical University of Darmstadt, Germany

Introduction: Self-controlled motion-learning occurs, if the learner has control over at least one component of the learning process (e.g. the use of learning hardware). The few studies on this topic show a consistent pattern. This is what the pattern says: In short-term, especially in the time when things just learned are still only being exercised, there are no significant differences between the self-controlled learning groups and the non-self-controlled learning groups in their performance skills. Nevertheless in longer-term, in a retention test, the self-controlled groups show significant better skills than the externally-controlled groups. Until now there is no conclusive explanation for this phenomena. Bund and Wiemeyer (i.R.) assume in a model, that while learning self-controlled the motivational and cognitive processes have an antagonistic effect: A higher learning motivation is compensated by a higher cognitive demand. Only in the retention test, when there is no more self-controlling necessary, the advantage of this form of exercise shows. The following learning-experiment was used to check this model with empirical means.

The learning experiment: Students of difference faculties (N=48, M=23,67 years) had to learn a baseball specific target-throw with the non-dominant hand. A learning-phase of 100 throws in two days was followed after 4 days by a retention test with 20 throws. Target misses (MRE) and quality of the movement execution as dependent variables were determined.

The model examination took place through constitution of the following groups of learners: 1) self-controlled feedback; 2) externally controlled feedback (parallel group to 1); 3) self-controlled feedback with additional demotivation notice; 4) externally controlled feedback with additional demotivation notice (parallel's group to 3). From the model the hypothesis can be derived, that the groups 3 and 4 show worse exercise achievements than the groups 1 and 2, while in the retention test the self-controlled groups of 1 and 3 come off well better than the external regulation groups 2 and 4. The following reports only the results on the target misses.

Results and discussion: All groups of learners improved their achievement during the exercise course(day: $F(1,44)=9.24$, $p<.01$; Block: $F(9,396)=11.56$, $p<.01$). In the process group specific effects stepped on (day x group: $F(3,44)=4.59$, $p<.05$). The post-hoc analysis gives a reference for smaller target misses of the groups 1 and 2 in relation to the groups 3 and 4 on the second exercise day (group: $F(3,44)=5.22$, $p<.05$). In the retention test group 1 improved their achievements better as the groups 2 and 4 ($F(3,44)=6.14$, $p<.01$).

These findings refer to back the acceptance of the model.

ERRORS IN JUDGING "OFFSIDE" IN FOOTBALL AND HOW TO BETTER DEAL WITH IT

Gilis, B., Helsen, W., Catteeuw, P.

Katholieke Universiteit Leuven, Belgium

Several authors proposed the flash-lag effect to explain the errors made by assistant referees (ASR) both in real life (1,2) as well as in computer animations and video clips (3). The most important aim of this study was to examine if offside decision-making in computer animations can be improved with specific instructions and appropriate feedback.

Belgian elite ASR (N=20), who were all involved in professional football, had to assess computer-based offside situations. In these animations, the position of the attacker relative to the offside line was experimentally manipulated. Specifically, for the onside positions, the attacker was 20 and 10 pixels behind the offside line as well as on the offside line. For the offside positions, the attacker was 10 pixels ahead of the offside line. In a first exposure, the participants had to assess a first set of 32 animations. After a 5-minute break they had to assess a second set of 32 similar animations. Eighteen months later, the same ASR had to assess the same animations of set 1 (control condition). Then instructions were given to explain the impact of the flash-lag effect. The animations were shown again and paused at the moment the ball was played. The ASR were provided with their own responses, so that they could compare their answers with the correct ones. Afterwards, they had to assess the animations of set 2 (experimental condition). Six weeks later, a retention test was done with the animations from the experimental condition.

First, the results showed less errors when the attacker was 10 pixels ahead of the offside line than 10 pixels behind the offside line. An equal number of errors was found when the attacker was 10 pixels ahead of the offside line and 20 pixels behind the offside line. This can be fully explained by the flash-lag effect.

More important was to see whether offside decision-making improved with specific instructions. First, no difference was found between set 1 (63.3%) and set 2 (64.8%) of the first exposure. It can be concluded that there is no difference between these 2 similar sets of animations. Second, an improvement was found for the control condition (71.1%). This can be explained by the repeated exposure to the same situations. Third, the better performance in the experimental condition (78.1%) compared to the repeated exposure in the control condition showed that instructions and feedback lead to better decision-making in computer animations of offside situations. Fourth, no differences were found between the experimental condition and the retention test (79.8%). Future research is needed to investigate the relationship between offside decision-making in computer animations and during actual games.

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THE RELIABILITY OF EUROFIT SHUTTLE RUN TEST ON FIVE-YEAR-OLD CHILDREN

Gundersen, K.T., Fiskum, T., Estil, L.

North-Troendelag University College, Norway

The Shuttle run test is a part of the EUROFIT motor fitness test battery, which is recommended for children from the age of six. In Norway the test is also a part of a test battery recommended from the age of four. Even if some reliability studies of the Shuttle run have been made, no reliability studies for specific age groups as young as five years old has been reported. For younger children less or different motivation may influence the test results and reduce reliability. Two studies were carried out in two different kindergarten groups. In the first study (n = 7) the test was carried out in accordance with the standards in the test manual, while the test procedure was changed in the second study (n = 9), in attempt to reduce the influence of motivational variables. The test was scored in accordance with the manual, but in attempt to decrease small sources of error two alternative scoring procedures, involving data reduction, was tried out. The results showed no significant correlations between first and second test in any of the alternatives in study 1 or study 2. It was concluded that for five-year-olds the Shuttle run test is not a reliable measurement when the sample of subjects is small.

EFFECTS OF EXERCISE TRAINING ON THE ENDOTHELIUM FUNCTION IN PATIENTS WITH CHRONIC HEART FAILURE

Karatzanos, L., Chatzimichail, E., Karaseridis, A., Anagnostakou, V., Sakellariou, D., Tasoulis, A., Avdikou, M., Pappas, C., Vasiliadis, P., Roussos, C., Nanas, S.

University of Athens, Greece

Exercise training has been an important means of rehabilitation in patients with chronic heart failure (CHF). Furthermore, exercise training has been found to induce favourable effects on endothelium function. This study was designed to investigate the effects of exercise training on endothelial function in CHF patients.

Sixteen stable CHF patients [(Μ±S) 57.2±9.4 years, VO2peak: 15.7±6.4 ml/kg/min] participated in an exercise training program for 12 weeks, 3 times/week. Participants were randomly assigned to either aerobic (AG, n=7) or combined group (CG, n=9), which included aerobic and strength training. Aerobic exercise was performed in interval type on cycle ergometers. Strength training involved exercises for various muscle groups of the legs, the shoulder zone and the arms. Both regimes were of the same duration. The endothelial function was assessed at the beginning and the end of the program with 'flow-mediated dilation' at the right brachial artery (Welsch et al., 2002). The diameter of the artery was evaluated with ultrasound before and after 5-min occlusion. Variable was the difference of the artery diameter in absolute (DDabs) and relative (DDrel) values.

In concern to DDabs, the whole cohort was improved significantly from 4.1±1.7 to 5.7±5.7 mm ($p<0.05$). The CG (from 3.6±1.7 to 6.2±1.6 mm) tended to improve more the AG (from 4.9±1.6 to 5.0±1.2) ($p=0.06$). In relation to DDrel, the whole cohort tended to improve significantly (from 9.1±4.2 to 12.3±3.2 %, $p=0.8$). The CG (from 7.7±3.5 to 13.3±3.8 %) also tended to improve more than the AG (from 11.0±4.5 to 10.9±1,7 %) ($p=0.07$).

Exercise training seems to affect favourably endothelial function in CHF patients. A combined regime of strength and aerobic regime may be more effective than a regime mostly aerobic. These findings need to be further investigated in a larger cohort.

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AN ADAPTED EXERCISE PROGRAM IMPROVES PERFORMANCE OF ELDERLY PERSONS WITH MENTAL DISABILITIES

Peters, C., Schoenfelder, F., Ohanian, J., Zalfen, B., Wacker, E., Michna, H.

Technical University of Munich, Germany

Introduction

Rehabilitative and preventive effects of adapted physical activity are very important for elderly people to age healthy and to keep independency. Therefore, we developed an exercise program for elderly handicapped persons with mental disabilities. Furthermore, we wanted to ascertain if training may improve physical performance or quality of life.

Methods

In co-operation with the Federal Association of Lebenshilfe in Freising/Germany 7 male and 21 female persons (52 +/- 9,4 years old) with mental disabilities were engaged under the following conditions: minimum age of 40 years, capability to follow simple instructions and non-activity in other sports.

An exercise intervention was implemented over 11 month and split up in 5 emphases: balance and gait, internal and external perception and relaxation, force of the upper and lower extremities, coordination of eye and hand movement and endurance. Participants were divided into 4 groups and instructed once a week during 60 minutes with basic exercises and games. To evaluate training effects before and after the intervention endurance performance (2-minute-walk), keeping balance, traction and pressure-force of the arms, leg-force (3-chair-rise), reaction-time on a visual sign, tapping (number of footsteps during 30 seconds), peak expiratory flow and activities of daily living were examined.

Results

Participants improved significantly in most of the tested parameters: the distance accomplished during the 2-min-walk increased significantly (74,7 +/- 32,8 to 99,3 +/-49,8 m), balance-time enhanced (from 48 +/-22 to 60 +/-23 sec) ($p < 0.05$) and the amount of footsteps during 30 seconds raised (from 58,3 +/-30,2 to 72,1 +/-27,5) ($p < 0.05$). Furthermore, the time needed to rise 3 times from a chair decreased (from 17,0 +/-8,9 to 9,5 +/-6,0) ($p < 0.05$) and reaction-time shortened (from 1,91 +/-1,19 to 1,39+/-0,75 sec) as well as peak expiratory flow augmented from 298 +/-132 to 359 +/- 134 l/min ($p < 0.05$). Only a slight decrease was found in traction-force and pressure-force.

Discussion

Although other studies observed positive effects of controlled exercise with training three times a week for periods of several weeks in similar populations (1, 2), performance of our cohort improved significantly in most tested parameters by training only once a week. Feed back of the participants in regard to lesson contents was also positive. For elderly people with mental disabilities we can conclude from our findings that even with moderate exercise once a week general fitness may be improved.

Literature

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