rats. Methods: wistar female rats, two months old, had been divided in 4 groups in accordance with the physical training and food restriction: RT (trained with food restriction), FT (trained and ad libitum fed), RS. (sedentary with food restriction), FS (sedentary and ad libitum fed). The physical training was carried out through a treadmill, two times/day with one hour sessions, during 8 weeks. 50% food restriction was applied on the ingestion of the fed group. The diet of fed groups was in accordance with AIN-93. Parameters evaluated: body weight variation (BWV), weight of brown adipose tissue (BAT), weight of perirenal adipose tissue (PAT), chemical analysis of the body composition and blood leptin level. Data analysis: ANOVA and Tuckey pos-hoc test have been used. Results: food restriction seems to have exerted higher influence than training in the reduction of the body weight, on the subcutaneous and visceral fat, and on the leptin levels. The values for each variable are: leptin (ng/dL): RT= 0,44± 0,43; FT= 3,77± 1,02, RS = 0,64± 0,37; FS = 4,40± 1,31 (p<0,05); BWV (g): RT = -45,72± 18,44, FT= 47,57 ±12,96, RS = -43,73± 16,40, FS = 43,53± 9,72 (p<0,05); BAT (g): RT = 0,38± 0,12, FT= 0,67± 0,32, RS = 0,26± 0,08, FS = 0,35±0,11 (p<0,05); PAT (g): RT = 0,17± 0,24, FT= 11,13 ±3,58, RS = 0,42±0,31, FS = 12,17±1,40 (p<0,05); % subcutaneous fat (%): RT = 2,80±1,37, FT= 11,57±2,34, RS = 4,30±1,77, FS = 13,06±2,20 (p<0,05). Conclusion: the food restriction, and therefore negative energy balance, significantly modified the parameters of body weight variation in female rats. This can represent risks to bone integrity and reproductive system.

RESTING ENERGY EXPENDITURE AND EPOC (EXCESS POS-EXERCISE OXIGEN CONSUMPTION): COMPARISON BETWEEN RESISTANCE EXERCISE TRAINED AND NON-TRAINED INDIVIDUALS

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Background: the energetic expenditure, in resting or in exercise, depends on many factors, including degree of training, body composition and exercise type. Objectives: (1) to compare resting energy expenditure (REE) between subjects trained (T) or non-trained (NT) submitted to a resistance training session; (2) to compare the EPOC (excess pos-exercise oxygen consumption) derived from a resistance exercise session in these subjects; (3) to compare the REE from indirect calorimetry with predictive equations from WHO (World Health Organization). Casuistic and methods: 10 men, 20 to 30 years old, BMI between 20 and 29Kg/m2, divided in two groups: 5 resistance exercise trained (T) and 5 non- trained (NT). Body composition was analyzed from bioelectric impedance (Biodinamics 450e®). The experimental protocol had carried through a resistance training session per 40 minutes, involving large muscular groups. The oxygen consumption (indirect calorimetry) was measured by metabolic analyzer VO2000®. The gas collection had been carried through 15 minutes interval, in the following instants: resting (R), before the exercise session (BE), immediately after the exercise (IA), 2h after (2h) and 4h after (4h). The t-student test and Pearson correlation coefficient were applied to compare the groups. Results: resting oxygen consumption from NT and T were 2.27+-0.77 and 2.69+-0.24 mL.kg.min, respectively. Immediately after the exercise, 2h after and 4h after, the values of the consumption of oxygen from NT were 2.92+-0.70; 2.28+-0.41 and 2.05+-0.31 mL.kg.min-1, and from T were 2.92+-0.40; 2.20+-0.49 and 2.38+-0.23 mL.kg.min-1. The predicted energetic expenditure was significantly higher than measured (p<0,05) in both groups. The lean mass correlated positively with the predicted resting energy expenditure in both groups (p<0,05). Conclusions: it can be concluded that the intensity of the exercise considered in the present study, was not enough to cause to significant differences between oxygen consumption from trained and non-trained individuals, at rest or pos-exercise.

DETERMINATION OF METABOLIC TRANSITION BY LACTATE MINIMUM TEST IN PROTEIN MALNOURISHED RATS DURING SWIMMING EXERCISE

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Introduction: Protein malnutrition is a public health problem which affects grate part of world population, mainly in the developing countries. In Brazil, even in regions with high per capita income, there is a significative incidence of malnutrition (6%). In regions with low per capita income, the rates of malnutrition are even worse: 17% of population with under five years of age is malnourished. There is little information in the literature on the biochemical ability of malnourished organisms to perform physical exercise. Purpose: The present study aimed to determine the aerobic/anaerobic metabolic transition (MT) by lactate minimum test (LMT), adapted to rat condition in swimming exercise, in sedentary animals submitted to protein malnutrition. Methods: Male wistar rats were separated into two groups, according to the dietary protein level: Control (C),17% protein from 30 to 150 days old (n=10) and Malnourished (M), 6% protein from 30 to 150 days old (n=10). To demonstrate the efficiency of the low protein diet in inducing malnutrition we evaluated: a) blood albumin and total protein concentrations; b) liver lipids concentrations and c) body weight and length. For determination of the MT we used the LMT adapted to rat condition. Paired student t test was used to indicate statistical differences between groups (p<0.05). Results: The M rats showed hypoalbuminemia (3.8±0.4g/dL), hypoproteinemia (4.5±0.3g/dL); fatty liver (12.0±1.2mg/100mg); low body weight gain (222.9±53.3g) and low body length gain (7.3±0.9cm) when compared to C Group (albuminemia: 7.4±0.4g/dL; proteinemia: 7.5±0.2g/dL; liver lipids concentration: 4.4±0.5mg/100mg; body weight gain: 435.7±31.4g and body length gain: 11.8±0.8cm). M rats showed blood lactate concentration at MT (4.2±0.4mmol/L) lower in relation to C animals (6.2±0.1mmol/L), at the same exercise workload (C=4,9±0,3 e M=4,9±0,2% of body weight). Conclusions: The low protein diet used in the present study showed be efficient in inducing malnutrition. The lower values of blood lactate concentration presented by malnourished rats in relation to control animals, at the same exercise workload, suggest that protein restriction alters the kinetic of lactate during swimming exercise. Further studies are required in order to identify the factors involved in the blood lactate concentration decrease during swimming exercise performed by malnourished rats.

Poster presentation (PP)

PP3-09 Motor Learning 1/1 - "Exhibition Hall"

REDUCED STEREO VISION HAMPERS LEARNING IN ONE-HANDED CATCHING

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While the mechanisms of stereopsis are well known today (Collewijn & Erkelens, 1990), its functional significance has, quite surprisingly, been given much less attention. With regard to traffic behaviour, Bauer et al. (2000) found that, in situations of limited car velocities and/or liberal time constraints, a lack of stereo vision was not detrimental to drivers' performance. Several other studies did not find adverse effects of a diminished stereo vision on the quality of life in general (Kuang et al., 2005). However, Mazyn et al. (2004) established that people with a congenital or early-onset lack of stereopsis do suffer from their visual restriction in a one-handed ball catching task, especially when temporal constraints are involved. The aim of this study was to investigate to what extent a lack of stereo vision interferes with the learning of a natural interception task. If stereopsis entails essential information for accurate catching performance that cannot be substituted by other informational cues, it is expected that catchers with low stereo vision will only make a limited, if any, progress during the learning period.

Poor catchers with good (N = 8; Stereo+) and weak (N = 6; Stereo−) stereo vision participated in an intensive training program spread over two weeks, during which they caught over 1400 tennis balls in a pre-post-retention design. A significant group x time interaction (F4,40 = 9.112, p < .001) indicated that while the Stereo+ group improved from 13% to 70% successful catches, catchers in the Stereo− group did not significantly improve (from 10% to 30%), this progress being indifferent from a control group (N = 9) that did not receive any training.

These results show that the compensatory strategies that people without stereo vision might have developed during their lifetime may not be sufficient to successfully deal with interceptive tasks under temporal constraints, not even by task-specific or extensive training. This finding is of particular interest for people that participate in ball sports or traffic situations (truck, bus or taxi drivers), who should be aware of their limited depth perception in situations where only small time windows are available for reacting adequately to external events.

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SELF-CONTROLLED PRACTICE OF DECISION-MAKING SKILLS

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Self-controlled practice of decision-making skills
Introduction
For a considerable time now, psychological research has concerned itself with the effects of self-initiated and self-controlled practice conditions. Numerous studies exist in the field of sport which analyze the influence that self-controlled activities have on the acquisition of motor skills (cf. Chiviacowsky & Wulf, 2005). Findings consistently show that giving learners control over the practice situation has a beneficial effect on the learning of motor skills. However, this effect occurs with a delay. Self-controlled practice conditions have not yet been used for the study of decision-making processes and of the com-parision between experts and novice performers. The main aim of this study was to investigate a self-controlled learning process with regard to the acquisition and improvement of simple, cognitive decision-making skills within the scope of the expert-novice paradigm.
Method
56 participants were allocated randomly to one of four groups. All subjects were given a three-minute period to get familiar with the game of tic-tac-toe. (4x4 fields, 3 fields per column, row/diagonal wins). The game was computer-programmed and presented on a PC. They were allowed five seconds per move, which was shown on the monitor. 28 participants (=experts) practiced the game in an acquisition phase (8 blocks of 20 games). Afterwards, 14 participants of this experts (Exp-Self) and 14 novices (Nov-Self) practiced tic-tac-toe in the treatment phase (8 blocks of 20 games) in a self-paced schedule. This means that the subjects had the op-portunity to reflect on solution strategies after each game as long as they wanted. Participants in both joked groups (Exp-Jok, Nov-Jok) had no control over the practice schedule. Each was yoked to a participant in the self-control group with the identical temporal structure. The dependent variables assessed with the tic-tac-toe test was game success (win, draw, lose) and mean decision-making time in a pre- and posttest (1 block of 20 games) as well as in tests of retention and transfer (each with 2 blocks of 20 games) one week later.
Results and discussion
Both expert groups improved their performance in their acquisition phase significantly, F(7, 364) = 3.78; p < .001; ε = 0.46, and , F(7, 364) = 3.21; p < .001; ε = 0.44. Therefore, significant differences were found between experts and novices at the beginning of the treatment phase, F(1, 54) = 4.12; p < .001; ε = 0.78, and F(1, 54) = 4.82; p < .001; ε = 0.81. First preliminary results revealed significant improvements for game success and mean decision-making time from the pretest to the posttest. The final results of the retentions test and the transfer test could not presented untill the ECSS conference.
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