ORIGINAL RESEARCH PAPER

OUTDOOR RECREATION AND WELL-BEING OF 45-55 YEARS OLD PEOPLE

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Abstract

Physical activity plays a fundamental role not only in improving the physical health, but also in increasing the well-being (Biddle, Mutrie, 2002, 2007). The aim of the study was to discover how the natural means for outdoor recreation (biking, Nordic walking, cross-country skiing) influence the positive and negative emotions of the 45-55 year-old people. Methods of research: "FaceReader 3.0" (testing positive and negative emotions), pulsometry, case study, analysis of qualitative data and mathematical - statistical methods of data processing. The obtained results after carrying out recreational activities indicate a tendency to increase. The most significant increase in the percentage of positive emotions was observed in those participants who performed a ride on a bike – increase in emotion of joy +266.4%, increase in emotion of surprise +140.6% and decrease in negative emotions – sadness -41.0%; anger -56.3%; disgust -71.2% (p> 0.05). Nordic walking, increases the level of joy by +121.0%, surprise level by +13.4% (p>0.05). An increase in positive emotions was observed in cross-country skiers – in joy emotions + 19.3% and in surprise emotions + 2.9% (p> 0.05). Analyzing the FR negative emotions data, a decrease was observed – in sadness -24.7% and in anger – 21.7% (p> 0.05). Physical Recreation – cycling, Nordic walking and cross-country skiing outdoors, with applied load of 50 minutes with intensity of 65 – 70% of maximum heart rate, improves the positive emotions.

Key words: *well-being, physical recreation, positive and negative emotions.*

Introduction

The Western societies are becoming more and more urbanized, the work that people are doing is becoming less and less related to farming, agriculture or cattle-breeding. The need of a human being to move is rapidly

decreasing, and in fact, it can be argued that a person's physical activity in everyday life disappears. The human body is not just the bones, joints and muscles; it's not just the blood or the transportation system of other body fluids. Human beings have always been curious on the question of what is the good life. Often a good life is directly related to the well-being and happiness. Quality of life, physical activity and health are inter-related factors (Morgan, 1997; Lee, Russell, 2003; Biddle, Mutrie, 2002, 2007; Crone, Smith, Gough, 2006; Landers, 2010). Well-being is a dynamic and multi-faceted concept. There are several types of well-being: physical, social and psychological, as well as sometimes the "spiritual" well-being is also being added (Cummins, 1999; Maxwell, Henderson, McCloy, Harper, 2011; Šķestere, 2012). Maxwell and other resarchers (Maxwell, Henderson, McCloy, Harper, 2011) provides five key recommendations for improving the well-being and all of these five factors listed here can be implemented by doing a physical recreation activities, thus enhancing the level of well-being.

Material and methods

Research was done in Madona – at the Sport Centre "Smeceres sils". In this study a total of 16 participants were tested − four participants who performed Nordic walking recreational activity, six participants who took a ride on a bike and six participants who did cross-country skiing.. As the first method applied on the participants was testing of emotions using "Face Reader 3.0" (FR): the facial expressions were analyzed with the help of this method – 6 basic emotions – joy, anger, sadness, surprise/astonishment, fear, disgust and neutral emotional state. Emotional state dynamics were determined: testing separately six basic emotions diagnosed by the FR − joy, surprise, sadness, anger, disgust and fear; combining emotions in the groups: positive emotions – joy and surprise, and negative emotions – sadness, anger, disgust and fear. The statistical reliability of the increase of indicators was calculated using Student's criterion-related groups. The short interview was used, which consisted of two questions: "How do you feel now?" and "What is the cause of your sensations at the moment"? Interview with FR lasted an average of 60 sec and its length was dependent on each individual's response length. After FR test each study participant was equipped with a pulsometer/heart rate monitor ("Polar RS100x"), which had a personalized heart rate frequency 65 – 70% of $HR_{max.}$ The study participant was issued the necessary equipment (skis, poles, bicycle), which was previously adapted to individual needs of each participant. Then each study participant went on doing a physical exercise, which lasted for 50min

(10min warm-up and 40min of the exercise itself in the given range of the pulse). The exercise was followed by a re-interviewing, using FR (questions and the test conditions were the same as previously). Data processing mathematical – statistical methods: MS. Excel attachment program "Statistics 3.1" was used. The software function "Descriptive statistics" was used for normal data distribution. The descriptive statistical methods were used to describe the values and representativeness of the problem to be investigated.

Results

The aim of the study was to discover how the natural means for outdoor recreation (biking, Nordic walking, cross-country skiing) influence the positive and negative emotions of the 45 – 55 year-old people. Testing of the emotional state was performed before and after physical recreation activities. The obtained results after carrying out recreational activities indicate a tendency to increase. The average results of the group for the emotion of joy has increased by almost half – before the recreational activities the emotion of joy was estimated at 5.6 ± 1.8% level, while after recreational exercise the test results have increased to 10.1 ± 3.2%. A total increase in the percentage of the emotion of joy in the group is 135.56% ($p > 0.05$). A similar situation was observed while analyzing such positive emotion as surprise, a universal emotion of which is joy. Before carrying out recreational activities the average percentage of the surprise emotion in study participants is 16.5 ± 3.4%, while after performance of recreational activities, it has already reached 23.1 ± 3.1% margins (Fig. 1).

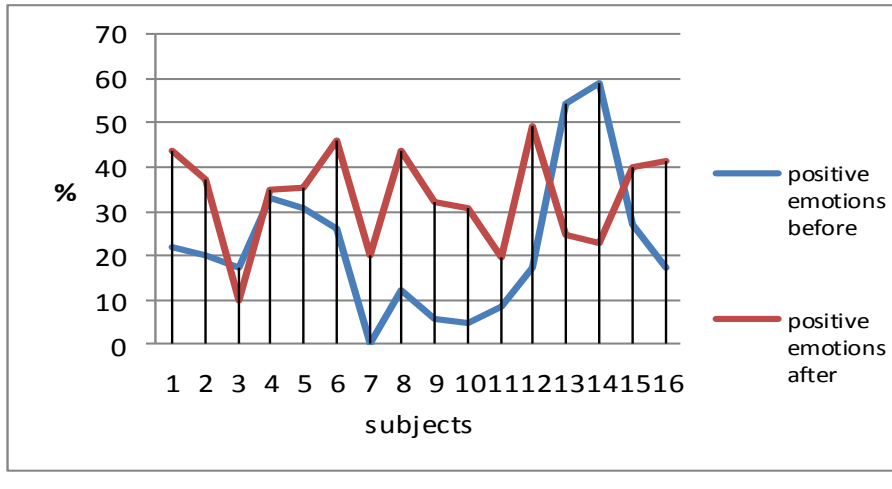

Figure 1. Positive emotions before and after outdoor recreation activities

The average increase in percentage is 52.30% ($p > 0.05$). By grouping together the positive emotions – joy and surprise, the results indicate statistically significant increase. This means that the recreational activities have had a statistically significant impact on positive emotions – they have increased as a result of such activities.

In order to clarify the trends of changes in the negative emotions – fear, disgust, anger and grief as a result of recreational activities, a detailed evaluation of these emotions was carried out. Adding up the sum of indicators of such emotions, the average indicator of the negative emotions of participants before and after recreational activities was obtained. Before the physical exercise the average negative emotion ratio is 29.5% ± 6.1, but after it - 28.2% ± 5.4 ($p > 0.05$). The average decrease in the percentage points of negative emotions - 1.3% (Fig. 2).

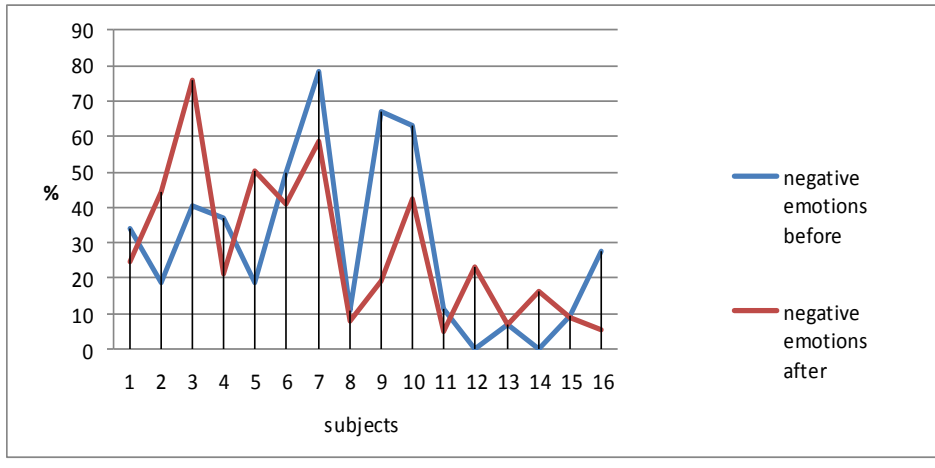

Figure 2. Negative emotions before and after outdoor recreation activities

By analyzing separately the average changes of negative emotion in the group, FR results demonstrate the reduction of average indicators of sorrow, anger, disgust (sorrow -1.3%; anger -3.3% and disgust -2.8%, $p > 0.05$). The most significant increase in the percentage of positive emotions was observed in those participants who performed a ride on a bike – increase in emotion of joy +266.4%, increase in emotion of surprise +140.6% and decrease in negative emotions – sadness -41.0%; anger -56.3%; disgust -71.2%. The only negative emotion that increased in cyclists according to the data diagnosed by FR, was fear (+11 percentage points), but the results are not statistically significant ($p > 0.05$). A form of a physical recreation − Nordic walking, increases the level of joy by

+121.0%, surprise level by +13.4% ($p > 0.05$). In the members of this group, after employing the objective diagnostic methods of emotions, using FR, a slight increase in negative emotions was observed ($p > 0.05$). An increase in positive emotions was observed in cross-country skiers – in joy emotions +19.3% and in surprise emotions +2.9% ($p > 0.05$). Analyzing the FR negative emotions data, a decrease was observed – in sadness -24.7% and in anger -21.7%. The only negative emotion that increased according to FR diagnosed data, was fear (+3.7 percentage points) ($p > 0.05$).

Discussion

There is substantial evidence identifying the mechanisms that lead to improvement of mood and emotions, and increase the level of human being's well-being. The mechanisms, according to which a physical activity affects the well-being, are not yet fully understood. Currently the assumptions on the relation of a physical activity to well-being can be divided into three main groups, namely: biochemical, physiological and psychological (Morgan, 1997; Lee, Russell, 2003; Biddle, Mutrie, 2002, 2007; Crone, Smith, Gough, 2006; Landers, 2010). Despite this link, there is still a lack of consensus as to which mechanism causes the relation, mentioned above.

Well-being is a dynamic and multi-faceted concept. As society itself, also the concepts of well-being and happiness are changing and evolving. Human satisfaction (one of the criteria for well-being) and thus the well-being results from the degree of the objective situations of the individual being in accordance with his or her wishes or needs. Various theories about link mechanicsms of physical activity and well-being can be found in the literature sources (Biddle, Mutrie, 2002, 2007). In the study done by Maxwell (Maxwell, Henderson, McCloy, Harper, 2011) the physical activity is ranked as one of the five key factors that improve well-being.

Recreational activities – walking, cycling and skiing – during the study in the framework were carried out at a load intensity of 65 – 70% of maximum heart rate. This heart rate range was chosen based on data available in the literature, since at a higher intensity of the physical activity negative mood changes are detected more often than after less intensive activities. Steptoe and Bolton (1988) proved that mood improves by performing a moderate, but not a high-intensity physical activity. Hardy and Rajeski (1989) found out that after a higher intensity workouts the adverse changes in mood frequently observed in comparison with those changes after less intense activities.

Results obtained the effect of recreational physical activity on the positive and negative emotions. As mentioned above, the most explicit increase of the emotions of joy was in group who did cycling recreation activity (+266.4%).

The study results suggest that additional studies during physical activity and their relationship to well-being are required, increasing the number of participants involved in the study. Proving accurately and reasonably the evidence of an association between physical recreation activities with specific intesity, the public could be motivated to perform a physical activity, thereby enhancing the overall human health and contributing to the economy.

Conclusions

Employing the means for outdoor recreation (Nordic walking, cycling and cross-country skiing) positive and negative emotions changed as follows:

The most significant increase in the percentage of positive emotions was observed in those participants who performed a ride on a bike – increase in emotion of joy +266.4%, increase in emotion of surprise +140.6% and decrease in negative emotions − sadness -41.0%; anger -56.3%; disgust -71.2%. The only negative emotion that increased in cyclists according to the data diagnosed by FR, was fear (+11 percentage points), but the results are not statistically significant ($p > 0.05$).

A form of a physical recreation − Nordic walking, increases the level of joy by +121.0%, surprise level by +13.4% ($p > 0.05$). In the members of this group, after employing the objective diagnostic methods of emotions, using FR, a slight increase in negative emotions was observed ($p > 0.05$).

An increase in positive emotions was observed in cross-country skiers – in joy emotions + 19.3% and in surprise emotions + 2.9% ($p > 0.05$). Analyzing the FR negative emotions data, a decrease was observed – in sadness -24.7% and in anger -21.7%. The only negative emotion that increased according to FR diagnosed data, was fear (+3.7 percentage points) ($p > 0.05$).

References

1. Biddle S.J.H., Mutrie N. (2007). *Psychology of Physical Activity*. Determinants, well-being and interventions. 2nd edition. Taylor & Francis e-Library
2. Biddle S.J.H., Mutrie N. (2002). *Psychology of Physical Activity*. Determinants, well-being and interventions. 2nd edition. Taylor & Francis e-Library

3. Crone D., Smith A., Gough B. The physical activity and mental health relationship - a contemporary perspective from qualitative research [online]. *Acta Univ. Palacki. Olomuc., Gymn. Vol. 36, No.3,* 2006. P 29-33. [cited 12 November 2011]. Available: http://gymnica.upol.cz/index.php/gymnica/article/viewFile/64/58
4. Cummins R.A. Beyond Rural Health to Well-Being: An Appraisal of the Comprehensive Quality of Life Scale. Fifth Edition, 1999. P 1-7.
5. Hardy C.J., Rajeski W.J. (1989). Not what, but how one feels: The measurement of affect during exercise. *Journal of Sport and Exercise Psychology* (11), 304-317.
6. Landers D.N. (2010). The Influence of Exercise on Mental Health [online]. *Department of Health and Human Services.* Retrieved November 12, 2011 from, https://www.presidentschallenge.org/informed/digest/docs/199712digest.pdf
7. Lee C., Russell A. (2003). Effects of physical activity on emotional well-being among older Australian women. Cross-sectional and longitudinal analyses [online]. *Journal of Psychosomatic Research* (54), 155– 160. Retrieved November 19, 2011 from, http://vicsport.asn.au/Assets/Files/Effects%20of%20physical%20activity%20on%20emotional%20well-being%20among%20older%20Women.pdf
8. Maxwell S., Henderson D., McCloy R., Harper G. Social Impacts and Wellbeing: multi-criteria analysis techniques for integrating non-monetary evidence in valuation and appraisal. Paper 5. Department for environment, food and rural affairs, 2011. P 1-13.
9. Morgan W.P. *Methodological considerations. In: Morgan WP, editor. Physical activity and mental health.* Washington, DC: Taylor & Francis. 1997. P 286.
10. Steptoe A., Bolton J. (1988). The short-term influence of high and low intensity physical exercise on mood. *Psychology and Health* (2), 91–106.
11. Šķestere I. (2012). *Pētījums par dzīves kvalitātes izvērtējuma metodēm un instrumentiem* (1.daļa). Retrieved February 15, 2014, from, http://www.sif.lv/nodevumi/nodevumi/4881/petijums_dz_kvalit_1.pdf

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