

8.2 SUMMARY

Lifestyle has become one of important factors that determine human health and existence. Maintaining an adequate level of health depends to a large extent on rational nutrition, physical activity and ability to cope with stress.

Rapid urbanization and continual technological progress contribute to changes in lifestyle and physical activity. Comforts, increasing number of duties, assuming new social roles, decreasing amount of free time, and fatigue discourage individuals from undertaking physical activities, and consequently, deteriorate their health, what in turn may impair the functioning of internal organs and systems, including the digestive system. Such a situation can promote disease development, which can affect the functioning of the entire body and, as a result, deteriorate one's well-being, trigger negative emotions, anxiety disorders, and even lead to depression.

Then, digestive system dysfunctions involve some embarrassing symptoms such as bloating as well as problems with intestinal gas and defecation, what worsens the mental state and limits one's ability to enjoy social life. Unfortunately, these symptoms often foreshadow diseases of the digestive system that affect an increasing number of people. This is especially true for functional diseases of the gastrointestinal (GI) track whose connection with the mental state is incontrovertible.

The paper attempts to demonstrate the effects of an exercise set based on classic aerobic exercises combined with hatha yoga as well as Schultz and Jacobson relaxation training on the symptoms of irritable bowel syndrome (IBS).

Aims of the paper included:

1. assessing long-term effects of increasing the physical activity level in patients diagnosed with IBS; and
2. attempting to show the relationship between physical activity and the severity of IBS symptoms.

Detailed aims involved:

1. assessing the impact of physical effort on the quality of life (QOL) of IBS patients;
2. assessing the impact of physical effort on reducing or worsening the disease symptoms; and
3. showing the relationship between IBS symptoms and the QOL of the respondents.

Forty-one women with diagnosed IBS were qualified for the study. The average age was 44.6 years. The study group composition was determined on the basis of a questionnaire containing the inclusion criteria that was completed during the recruitment appointment. The questionnaire asked about the age, current body weight, education, professional activity, GI complaints and their duration, chronic diseases, past pregnancies, and surgical procedures among others. Individuals with significant chronic diseases, especially cardiovascular disease, were not qualified for the study.

To evaluate the efficacy of the applied method, the following questionnaires were used: validated IBS-SSS (irritable bowel syndrome – severity scoring system) [Attachment 2] and IBS-QOL (irritable bowel syndrome – quality of life) [Attachment 3]. The participants completed the questionnaires at the beginning of the first and at the end of the last training session.

The study involved an original training program based on basic steps used in fitness lessons, yoga poses improving intestinal motility, and relaxation training: Schultz's autogenic technique and Jacobson's training. The basic warm-up steps included: step touch, heel back, step out (side to side),

march, knee up, etc., combined with upper limb movements in all major planes (transverse, frontal and sagittal). The main part incorporated body bends in all of the aforementioned planes in conjunction with breathing patterns involving the upper and lower respiratory tract. The study paid special attention to diaphragmatic breathing that facilitates relaxation of abdominal muscles and internal organs. The training used hatha yoga poses such as the upward-facing dog, downward-facing dog, saddle, cat, hyperextension techniques according to McKenzie's method in standing and lying positions, body bends in standing and sitting positions as well as during an all fours pose, child's pose, lying back, etc. All poses (asanas) were showed and discussed by a trainer; special attention was paid to breathing (pranayama) while performing each pose. The third part of the training included relaxation with the use of common techniques by Jacobson and Schultz. Twenty-nine women completed the training cycle that was in line with the study's assumptions.

The obtained study results were analysed with the use of Statistica, a program. Depending on the question form, the following methods were used: the dependent samples t-test (the assumption of normality is met), the Wilcoxon signed-rank test (ordinal scale; lack of normal distribution), McNemar's test (for comparing responses on a qualitative scale), and Spearman's rank correlation coefficient (Spearman's rho), which is used to measure the strength of association between two variables when the variables are qualitative, what allows for ordering the variables according to their strength, or when the variables are quantitative and their number is small.

Having analysed the results concerning the effects of physical activity on the IBS symptoms, it was demonstrated that almost 80% of the examined individuals experienced pain in the abdominal cavity prior to their participation in the study. Due to the training cycle, only 52% of the examined women felt pain. Moreover, pain intensity was reduced by 20% in the examined, and this difference was statistically significant. Next, a 1.4-day decrease in the number of days when the women felt pain during the previous 10 days was observed.

The study also examined how the incidence of bloating and its severity changed when physical activity increased. It was showed that 97% of the examined women suffered from troublesome bloating upon being admitted to the study. After participation in the study, the incidence of bloating decreased by 38%, and the difference was statistically significant. Furthermore, the severity of bloating improved as well. After the study, it decreased by 30%, what was statistically significant.

Based on the conducted study and performed analyses, the following conclusions were drawn:

1. The relationship between physical activity and severity of IBS symptoms was confirmed.
2. A reduction in IBS-related complaints after 8 weeks of training was demonstrated in the examined group of women.
3. Physical activity has a positive effect on improvements in the QOL of the women in all 9 examined QOL dimensions.
4. A statistically significant correlation between the severity of IBS symptoms and the quality of life was demonstrated. Along with the reduction in the severity of IBS symptoms, the quality of life of the examined women improved.