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CONTEMPORARY FITNESS APPROACHES TO IMPROVE BODY COMPOSITION IN ADULTS

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Abstract: *Fitness plays an essential role in improving body composition by reducing fat mass and increasing muscle mass. Regular training, which combines cardio and strength exercises, stimulates metabolism and optimizes calorie burning. Sustained physical activity, along with a balanced diet, contributes to regulating body fat percentage and developing a harmonious body structure. In addition, monitoring progress and adapting the training program allows for effective and sustainable results. Thus, fitness becomes a practical and accessible strategy for improving body composition and maintaining overall health.*

Key words: *fitness, body composition, personalized training, physical activity monitoring.*

1. Introduction

In an increasingly hectic and technologically advanced world, where sedentary activities have become a dominant part of the daily routine, the concern for a healthy lifestyle is gaining increasing importance.

Fitness is no longer just a popular trend, but a real necessity, having a major impact on physical and mental health, fitness and body composition. [11-14].

The term „fitness" comes from English and refers to the general state of well-being of the body and mind, achieved through a combination of regular physical exercise, balanced nutrition and adequate rest [1-7].

Essentially, fitness means the body's ability to cope with daily demands without feeling excessive fatigue, but also to recover quickly after exertion.

Regular exercise supports overall health, increases energy and reduces the risk of disease, but factors such as muscle strength, endurance, stamina and intellectual capacity vary over time, declining with age. [4]. Furthermore, fitness stimulates the release of endorphins, known as „happiness hormones", having a positive impact on mental and emotional state [2].

Fitness is not limited to intense exercises in the gym. It can take various forms, from outdoor running, cycling or swimming, to yoga, pilates or functional training. Every person can find a type of physical activity that suits their lifestyle and fitness level.

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Fitness also requires discipline, perseverance, and a set of clear goals. It's not about quick results or spectacular overnight transformations, but about constant and sustainable progress.

Constant and sustained effort, based on personal motivation, causes the body to adapt, gradually leading to increased resistance, performance and achieving real benefits over time [5].

Nowadays, fitness has evolved significantly, and modern training methods are increasingly effective in achieving body composition goals.

These methods combine current scientific knowledge with technology and personalized approaches to maximize results:

a) High Intensity Interval Training (HIIT), which consists of alternating short periods of intense effort with periods of active recovery. HIIT is effective in burning fat and maintaining muscle mass, and results can be achieved in a relatively short time [12].

b) Functional training, which is a modern method and involves exercises that mimic the body's natural movements, training multiple muscle groups simultaneously. This type of training increases metabolic efficiency and contributes to muscle definition [13].

c) Weight training, remains essential for increasing muscle mass and accelerating basal metabolism. When combined with a proper diet, it leads to a significant reduction in body fat percentage [8].

d) Modern technology - in a society dominated by technology, experts consider physical activity a necessity of modern times [3]. Thus, technology plays an important role: smartwatches, fitness trackers, and mobile apps provide accurate data on heart rate, calories burned, sleep quality, and overall progress [6]. This information helps users adjust their workouts and monitor their body composition in real time.

In addition, workouts using fitness-specific equipment, such as a treadmill, fig. 1, allow access to personalized programs with real-time feedback.

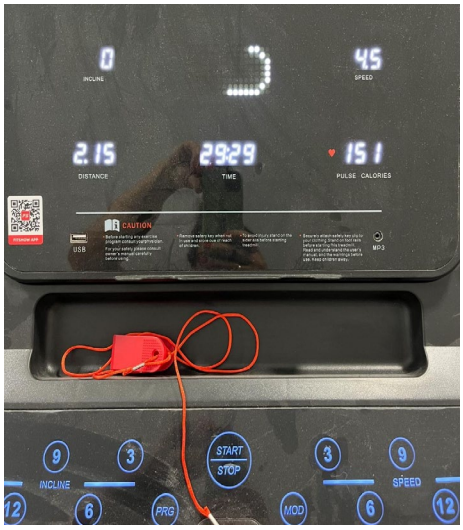

Fig. 1. *Treadmill _S1*

Monitoring physical activity plays an essential role in achieving and maintaining a healthy body composition. By tracking parameters such as the number of steps, calories burned, heart rate, or duration of workouts, the subject can have better control over their progress.

The use of smart watches, figure 2, fitness bracelets or mobile applications allows the collection of precise data, which can be analyzed to adapt training according to the desired goals: reducing body fat or increasing muscle mass [6].

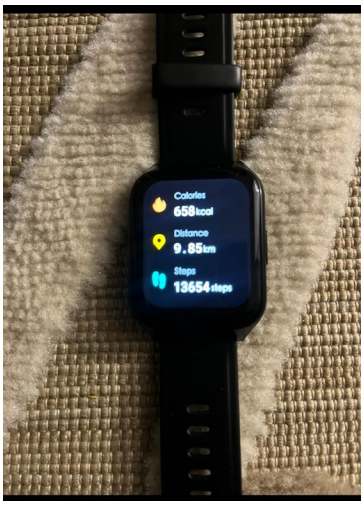

Fig. 2. *Smart watch _S1*

Monitoring also helps maintain motivation by providing constant feedback and encouragement when daily or weekly targets are reached. It is easier to correct mistakes or periods of stagnation early when you have access to concrete data.

In the long term, this process helps optimize physical effort and avoid overtraining or injuries.

These solutions are ideal for those who want flexibility and visible results without going to the gym.

Personalized training is one of the most effective ways to achieve rapid and lasting results in improving body composition [10].

It is designed according to each person's goals, level of training, age, possible conditions and lifestyle, which makes it much more effective than general or standardized plans.

A personalized program optimizes the ratio of cardio, strength and mobility exercises, depending on the goal pursued – whether it is weight loss, toning or increasing muscle mass. In addition, the gradual adaptation of the intensity and type of training prevents injuries and maintains motivation in the long term.

Through regular assessments and constant monitoring, the specialized application can adjust the plan in real time, depending on progress. This way, stagnation is avoided, and the body is always effectively challenged.

Holistic approaches to fitness have become increasingly popular, as they promote balance between body, mind, and emotions [15].

Improving body composition is no longer based solely on intense workouts and restrictive diets, but on a comprehensive understanding of the body's needs [9]. Thus, a combination of exercise, recovery techniques, and stress management methods becomes essential.

Regular training, whether strength, cardio or functional, contributes to burning fat and developing muscle mass. But without adequate recovery – through quality sleep, stretching and massage, the body cannot sustain healthy progress.

Overtraining without recovery can lead to stagnation, chronic fatigue and even injuries.

Stress management is also important, as chronic stress increases cortisol, a hormone that promotes fat storage, especially in the abdominal area. Practices such as yoga, meditation, mindful breathing, or walks in nature can reduce stress levels and support optimal hormonal balance.

The holistic approach does not mean perfection, but harmony: adapted training, sufficient rest, balanced nutrition, and mental health. This integrated vision ensures not only aesthetic results, but also a general state of well-being, sustainable in the long term.

2. Material and Methods

2.1. Date, place and subject of the research

The research was conducted between 01.02 – 31.08.2025.

The research subject is a female (S1), aged 48, with obesity grade I.

The following materials and technologies were used in the process of improving the body composition of the research subject: elastic bands of different resistances, bosu ball, light dumbbells, mechanical and classic stepper, treadmill, smart watch and smartphone calorie monitoring application.

2.2. Evaluation methods

a) Evaluation method of segmental perimeter measurement is one of the simplest, most accessible and frequently used methods to monitor body composition and physical progress, especially in fitness, weight loss or muscle mass programs.

It is a technique that involves measuring the circumference of certain body segments (arm, waist, hip, thigh) using a tailor's centimeter or a flexible measuring tape. The initial values are compared with those obtained periodically to evaluate changes in body composition.

Investigated segments and their measurement point:

- arm – in the middle of the biceps;
- waist – above the navel;
- hips – the widest point of the buttocks;
- thigh – in the middle of the distance between the hip and the knee;
- calf – the thickest point of the calf.

Method of realization: once every 2–4 weeks is recommended to see real changes.

Daily or weekly measurements are not helpful, as fluctuations can be caused by water retention or digestion.

Advantages of the method**:** easy to do at home, without expensive equipment.

Provides clear information about where your body is losing fat or gaining muscle mass.

Suitable for tracking progress over time, especially when body weight does not provide a complete picture.

Limitations and precautions: accuracy depends on the measurement technique: it must always be done in the same place and under the same conditions (time of day, body position, hydration status).

It does not provide information about internal composition (e.g. visceral fat or bone density).

It must be used in conjunction with other methods (e.g. scales, progress photos) for a complete picture.

b) **The scale method in monitoring body weight** The scale is one of the most widely used methods for tracking body weight. Although it provides a simple piece of information — total body weight — it can be useful when interpreted correctly and used in conjunction with other assessment methods.

Method of realization: It is recommended to weigh yourself in the morning, on an empty stomach.

It is done on the same day of the week, under the same conditions (without clothes, the same scale, on a flat surface).

Note the values and calculate the weekly average, not just a single value.

Advantages of the method: It is affordable and easy to use at home.

It provides a quick measurement, which can signal large changes in weight.

It can be useful for monitoring long-term trends, not short-term ones.

Limitations and precautions: Weight can fluctuate daily due to water retention, menstruation, digestion, or hydration.

Weight loss doesn't always mean fat loss — it can also be water loss or muscle loss.

Can be demotivating if used without other methods (e.g., body measurements or progress photos).

2.3. Research procedure

Period, methods and techniques used and specific objectives Table 1

Period	Methods and techniques used in improving body composition	Objection
Month 1 Initial Assessment and Adaptation	Body composition assessment (body mass index (BMI), segmental perimeters); Starting a basic training program (3-4 times/week): combination of light cardio (treadmill walking) and bodyweight exercises. Dietary adjustments: elimination of excess sugar, proper hydration, regular meals.	Setting SMART goals (Specific, Measurable, Attainable, Relevant, Timely); Setting realistic goals: weight loss, muscle gain, toning; Creating and initiating a basic workout routine and proper nutrition.
Month 2 Improving endurance and technique	Increasing the intensity of cardio training; Introducing strength exercises with light weights and moderate repetitions; Active stretching and mobility techniques to prevent injuries; Monitoring progress: first adjustments in nutrition (e.g.: macronutrient distribution – protein 25-30%, carbohydrates 40-50% and fat 20-30% of calories).	Increasing cardiovascular capacity (30 min of sustained effort, 3–4 days/week); Improving execution technique in basic exercises, Establishing a basic eating plan (with approximate calorie calculation), Adapting the body to effort without injuries.
Month 3 HIIT and nutritional control	Introducing HIIT (High Intensity Interval Training) workouts twice a week. Food tracking using mobile apps. Adjusting protein intake to support muscle mass. Foam rolling and stretching techniques after workouts.	Introducing HIIT workouts 1–2 times/week; Progress monitoring (photo, measurements, scale); First small calorie deficit to reduce body fat.
Month 4 Muscle mass gain	Integrate muscle group training (push/pull/legs); Continue to monitor body composition and physical progress.	Increasing the load on strength exercises. Increasing muscle mass + reducing fat percentage by 1–2%. Following a protein-rich diet. Integrating stretching and quality sleep into your routine.

Period	Methods and techniques used in improving body composition	Objection
Month 5 Active consolidation and recovery	Maintaining strength routine + 1-2 cardio/HIIT workouts per week; Introducing an active recovery day (yoga, pilates, swimming); Optimizing sleep: 7–8 hours/night, with an emphasis on sleep quality; Stress management through conscious breathing or meditation.	Maintain a training rhythm (4–5/week); Avoid overtraining and introduce active recovery; Optimize sleep and daily energy levels; Reduce stress by at least 30% through breathing/meditation techniques.
Month 6 Diversification and Personalization	Adapting the program according to the results obtained; Varying exercises to avoid plateauing; Focus on intuitive eating and maintaining caloric balance; Motivation techniques: training diary, weekly goals.	Increased joint mobility; Increased muscle strength; Increased balance; Relaxation of lower limb muscles.
Month 7 Definition, stabilization and maintenance	Slightly reducing caloric intake for muscle definition (if applicable); Interval training, functional training, circuits; Increasing active recovery time and therapeutic massage; Advanced monitoring with smartwatches or fitness apps. Maintaining a balanced schedule: 3–5 workouts/week; Integrating fitness into your daily lifestyle; Body reassessment and comparison with month 1; Establishing new habits as part of your long-term routine.	Additional 1–2% body fat loss (if needed); Visible improvement in muscle tone; Increased intensity of functional training; Optimization of muscle mass / fat ratio; Maintaining the results achieved without the yo-yo effect; Integrating fitness as a constant part of the lifestyle; Complete reassessment: comparison between month 1 and month 7; Creating a long-term plan for maintaining body composition.

3. Results and Discussions

Research parameter values_S1 Table 2

Parameters	Initial testing T1	Final testing T2	Value difference T1-T2
ARM	34cm	32, 5cm	1,5cm
WAIST	110cm	102 cm	8cm
HIPS	115cm	107 cm	8cm
TIGHT	70cm	64 cm	6cm
CALF	46cm	45,5 cm	0,5cm
BODY WEIGHT	95kg	81 kg	14kg
Calories/movement steps	325kcal/8000 steps	658kcal/13654 steps	333kcal/5654 steps
IMC	32.87kg/m Class I obesity	28.02kg/m Overweight	4.85kg/m

The results were obtained after careful examination of the subject throughout the training program. The subject was given the necessary assessments to generate the objectives of the training program but also to obtain feedback on the effectiveness of the applied program.

Over a period of 7 months, the subject executed a training program.

The initial assessment (T1) was carried out on the first day of the training program, and the final assessment (T2) at the end of the program.

Segmental perimeter measurements, figure 3, as well as body weight assessment, figure 4, were performed at the beginning and end of the training program.

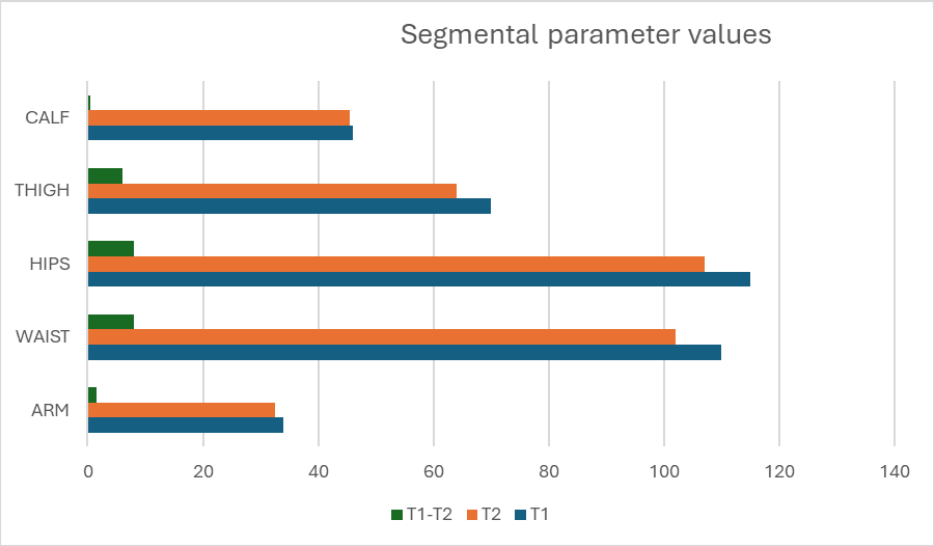

Fig. 3. *Interpretation of results for body segmental parameter values, S1*

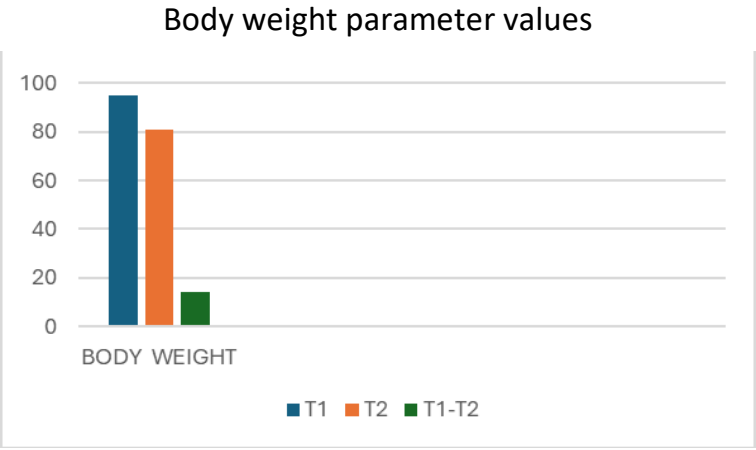

Fig. 4. *Interpretation of results for body weight values, S1*

The tests were actively conducted to provide the most accurate and efficient monitoring of the values obtained.

In order to track the progress of improving body composition through the use of a personalized training program as efficiently as possible, the results obtained from the assessments were compared, following ideal values specific to the imposed objectives, table 2.

After applying the training program for a period of 7 months, the subject achieved significant improvements in the values of the researched parameters. Thus, the subject's weight loss had a value of 14 kg, figure 4, for the subject with 0.5 kg/week in 7 months. This performance is due to the following factors: caloric deficit (balanced diet), level of physical activity (cardio and strength) and metabolism and individual factors (sex, age, health status).

Nutritional principles as a moderate calorie deficit are a reduction of 500-700kcal/day, which leads to a weight loss of 0.5 kg/week.

Another important parameter is the distribution as a percentage of the total daily calories – 2000kcal/day: proteins 30% - 600kcal – 150 g (1g of protein = 4kcal); carbohydrates 45% - 900kcal – 225g (1g carbohydrates = 4kcal) and fats 25% - 500kcal-55g (1g fats = 9kcal), fig. 5.

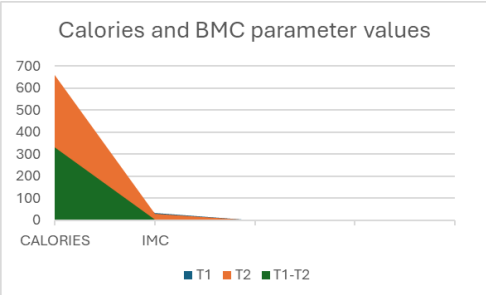

Fig. 5. *Interpretation of results for parameter values and BMI value, S1*

These aspects contribute to the progression from obesity class I to overweight, figure 5, which denotes that the personalized training program has maximum efficiency.

4. Conclusions

Fitness is much more than a physical activity – it is a way of life. By integrating it into your daily routine, each individual can significantly improve their quality of life, health and mood. In a society where challenges are numerous, fitness becomes a reliable ally on the path to balance, vitality and well-being.

Modern training methods offer a wide range of effective options for improving body composition. The key to success lies in adapting the method to individual needs, consistency and a balanced lifestyle.

Monitoring physical activity is not just an evaluation tool, but a real partner in the process of body transformation.

Personalized training not only accelerates body transformation, but also significantly increases the chances of maintaining results in the long term, in a safe, sustainable and adapted way to the needs of each individual.

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