

Synergistic Effects of Healthy Fat Loss: Interaction Between Diet and Exercise Interventions Among Female University Students and Optimisation Pathways

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Abstract: In the modern era, the health problems of university students have attracted widespread attention, and the timely interaction with exercise intervention and its synergistic effect, as an important part of healthy fat loss, should also attract widespread attention. On this basis, targeted optimization is proposed to help female university students achieve scientific and healthy fat loss goals, promote the physical and mental health of female university students, and lay a solid foundation for their all-round development. This is also an effective measure to achieve the healthy growth of university students in the future.

Keywords: Female university students; Diet; Exercise intervention; Interaction; Optimisation pathways

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1. Introduction

In contemporary society, the pursuit of health and beauty is becoming increasingly prominent. Female university students pay much attention to fat reduction. Healthy fat reduction is not simply the pursuit of weight loss, but also the premise and foundation for the good functioning of body functions. Dieting and exercise are the main means of fat reduction. Each of them has its own effect when used alone, but recognizing the interactive relationship between the two and deeply exploring the synergistic effect are of key significance for providing accurate and effective fat reduction guidance for female university students.

2. Mechanisms of Diet and Exercise Interventions in Fat Loss

2.1. Role of Diet in Fat Loss

Dieting is essentially the regulation of calorie intake, and its purpose is to create an energy imbalance environment, forcing the body to store fat. Reasonable dieting requires careful selection of food types and control of intake under the premise of meeting the basic nutritional needs of the body, giving priority to fruits and vegetables that do not contain dietary fiber and minerals. Whole grains and high-quality protein come from lean meat, beans, etc., while reducing the intake of high-oil, high-sugar, and high-fat foods. However, excessive dieting can easily lead to many negative effects, such as reduced metabolic rate, muscle loss, hormone imbalance, etc., which will not only damage physical health, but may also damage the fat loss process and affect the physical health of female university students.

2.2. Role of Exercise in Fat Loss

Exercise is an effective way to increase energy consumption and enhance the body's metabolic activity. Aerobic exercise such as running, swimming, and aerobics can increase heart rate for a long time and prompt the body to enter an aerobic metabolic state. Strength training, such as weightlifting, push-ups, and pull-ups, which continuously burn fat and sugar, focuses on increasing muscle mass. An increase in muscle mass means an overall improvement in basal metabolic capacity. Even when resting, the body can consume more energy, which helps to maintain a diet for a long time. In addition, exercise can effectively improve cardiovascular function, enhance immunity, and relieve mental stress, which has a positive impact on the physical health of female university students^[1].

3. Interaction Between Diet and Exercise Interventions

3.1. Interaction from an Energy Balance Perspective

From the perspective of energy balance, we deeply analyse the cooperation between dieting and exercise in the process of fat loss. In dieting, the main thing is to reduce calorie intake, and through reasonable control of dietary structure, the body can reasonably absorb energy every day. Exercise is the key means to increase energy consumption. Whether it is aerobic exercise or strength training, the body will consume extra energy during exercise and for a period after exercise. When dieting and exercise are combined, the synergistic effect of the two can be concentrated. The energy interface created by stones is further expanded through exercise. For example, during dieting, the body is originally in a low intake state. Currently, when doing moderate exercise, such as jogging or strength training, it is necessary to consume more energy to support exercise and mood. This kind of foreign pesticide demand is difficult to obtain through limited food during dieting to meet the needs of the body. The body will be forced to use more stored fat to supply energy, which accelerates the decomposition and consumption of the knowledge network. This is a dynamic adjustment of energy balance. Providing a relative energy node for exercise is the energy consumption required for exercise, which can act more directly on fat reserves, and exercise is like a catalyst to amplify the energy interface effect brought by stones, so that the body can burn fat more efficiently and achieve the expected goal of fat loss.

3.2. Interaction at the Metabolic Regulation Level

At the metabolic regulation level, there is an interaction between dieting and exercise, which jointly maintain the balance of body metabolism. The effect of stable dieting on body metabolism has two sides. If the dieting method is improper, such as excessive dieting or long-term use of extremely low calories, it may cause the body to have an adaptive response, which has already consumed the insufficient energy supply. The most obvious one is the decline in basal metabolic rate. The body will reduce the energy consumption of various organs and tissues to ensure the basic needs of life activities. This reduction in metabolic rate will greatly reduce the energy consumed by the body when it is at rest. Even if the food intake is reduced during dieting, the fat reduction effect will be greatly reduced. However, exercise, especially strength training, can effectively fight against stones and the problem of decreased metabolic rate that may be caused. Strength training stimulates muscle growth and increases muscle mass to increase the basal metabolic rate. Muscle tissue has a high metabolic activity. For every increase in a certain amount of muscle, the energy consumed by the body at rest will increase accordingly. Therefore, strength training based on dieting can effectively offset the effect of dieting on metabolic rate, thereby maintaining a higher metabolic level of the body. In addition, exercise can also activate a series of physiological mechanisms related to fat metabolism. During exercise, the body secretes a variety of hormone signals. These molecules can promote the release of insulin in cells into the blood and transport it to muscle tissue for oxidative decomposition, providing energy for exercise. At the same time, exercise can also increase insulin sensitivity, allowing the body to more effectively utilize glucose and fatty acids in the blood, further promoting fat metabolism^[2].

3.3. Psychological Reinforcement Through Interaction

In the process of fat loss, psychological factors play a very important role, and dieting and exercise influence each other in

the dimension of psychological motivation, which has a positive significance for jointly shaping the motivation and firm determination of female university students. Simple dieting is often accompanied by hunger and a strong desire for food. This physical discomfort can easily cause psychological anxiety and irritability in female university students. In this state for a long time, they may have a serious resistance to stones and even give up the fat loss plan. Moreover, since the weight loss is relatively fast in the early stage of dieting, it may lead to the weight not dropping significantly in the later stage of entering the plateau period, which will also make university students feel frustrated and disappointed, and the information about fat loss will also be hit to a certain extent. Similarly, simple motivation may also face severe psychological challenges. For some female university students who lack a sports foundation, they may feel tired and sore when they start exercising, and it is difficult to persist effectively. Moreover, the physical changes brought about by exercise usually take a certain amount of time to show up. It is difficult to see obvious weight loss or ecological changes in the short term, which can easily make them slack off and reduce their enthusiasm for exercise. However, when dieting is combined with exercise, the situation will change to a certain extent. The physical vitality and mental concentration brought by exercise can effectively alleviate the negative emotions during the dieting process. Female university students will feel light and happy after exercise. This positive experience may enhance the confidence of female university students in paper cutting. At the same time, the weight loss and continued weight loss brought by dieting can intuitively reflect the effect of exercise and give them positive feedback. For example, after a period of dieting and exercise, female university students find that their clothes become looser or the numbers on the scale decrease. This change will greatly stimulate their motivation to persist. This mutually motivating psychological mechanism forms a positive psychological state, which will prompt female university students to more consciously abide by the diet plan and persist in exercise. Continuous dieting and exercise will further bring about physical changes, constantly strengthen their confidence and motivation in fat loss, and enable them to persevere on the road of healthy fat loss ^[3].

4. Optimisation Pathways for Healthy Fat Loss Among Female University Students

4.1. Personalised Comprehensive Strategies

Each female university student has relatively unique physical conditions, physical characteristics, fat loss goals and living habits, so developing a personalized diet and exercise comprehensive strategy is the key to achieving healthy fat loss. Professional nutritionists and health coaches should work closely together to pay full attention to the physical condition of female university students, including but not limited to measuring basic physical indicators such as height, weight, body fat percentage, waist circumference, hip circumference, etc., understanding the distribution of body composition, and conducting physical fitness tests, such as cardiopulmonary function tests, muscle strength tests, etc., to evaluate the body's athletic ability and endurance, and at the same time deeply understand the fat loss goals of female university students. Whether it is weight loss or body fat percentage, or shaping a specific physical phenomenon, clear goals can be used to formulate targeted strategies. In terms of diet, if the fat loss goal is to lose 2 to 3 pounds per month, the nutritionist may recommend that they consume 1200-1500 kcal of calories per day, of which protein accounts for 30% to 40% of the total calories, carbohydrates account for 40% to 50%, and fat accounts for 20% to 30%. At the same time, the three meals should be reasonably distributed. Breakfast should be rich in protein and dietary fiber, such as eggs, milk, whole wheat bread and vegetables. Lunch should be appropriately ingested with staple foods of high-quality protein and vegetables. Dinner should be mainly light and easily digestible food, and the amount of food should be controlled. In terms of exercise strategy, fitness coaches should design personalized exercise plans based on the weight status and exercise goals of female university students. For female university students with poor basic exercise, low-intensity aerobic exercise should be the main focus in the early stage. Such as walking, yoga, etc., each exercise lasts about 30 minutes, 3 to 4 times a week. As the body's adaptability is further improved, the intensity and time of exercise are gradually increased, and jogging is introduced. Aerobic exercises such as swimming should also include simple strength training movements, such as bodyweight squats, plank support, etc., to increase muscle strength. For some female university students who have a sports

foundation and want to shape their bodies, more challenging exercise plans can be formulated, including high-intensity interval training, mechanical strength training, etc. Exercise 4 to 5 times a week, and each exercise should be controlled within 60 to 90 minutes. In addition, personalized strategies should also consider the time arrangements of female university students' living habits. For example, for a female university student who is busy with her studies and does not have much time for concentrated exercise, a fitness coach can design some fragmented exercise plans for her, using the break time between classes to do simple stretching exercises, climbing stairs, etc. A nutritionist can also strictly follow some healthy diet suggestions that are easy to carry and prepare, such as homemade vegetable salads, nut bars, etc.^[4]

4.2. Cultivating Scientific Eating Habits

Cultivating scientific eating habits is the key to healthy fat loss. For female university students, it is necessary to start from multiple aspects and basically develop good eating behaviours. During this period, female university students should develop the awareness of regular meals. Eat three meals a day at regular times to avoid bad habits such as skipping breakfast or eating too late or too many dinner. Breakfast, as the most important meal of the day, can provide the body with sufficient energy and start metabolism. Skipping breakfast may cause the body to be in a state of energy deficiency in the morning and slow metabolism, and it is easy to overeat at lunch. Dinner should be eaten 2 to 3 hours before going to bed to avoid food accumulation in the body and then converted into fat. Secondly, optimizing the food structure is the most critical measure, increasing the intake of nutritious and low-calorie foods such as vegetables, fruits, whole grains, and high-quality protein. Vegetables are rich in nutrients such as dietary fiber. Low in calories and strong in satiety, many vegetables and fruits should be ensured at each meal, which are rich in vitamins and natural sugars, but the intake needs to be strictly controlled to avoid excessive calories due to excessive intake of fruits. Whole grain foods such as oats and whole wheat bread retain more dietary fiber and nutrients than refined grains, are digested and absorbed more slowly, and can provide a more lasting feeling of fullness. High-quality protein sources such as lean meat, beans, fish, eggs, and dairy products are important nutrients for body repair and growth and help to improve the basal metabolic rate overall. In addition, it is also very important to reduce the intake of processed foods, high-sugar beverages and other high-calorie, low-nutrition foods as much as possible. Processed foods usually contain a lot of additives, preservatives, and high salt, high oil and high sugar. Low nutritional value and high-calorie high-sugar beverages, such as cola and fruit juice drinks, contain a lot of added sugars, which will quickly increase blood sugar after use, and the excess sugar will be converted into fat and stored. Female university students can also choose natural and pollution-free foods as much as possible, and replace high-sugar foods with water, tea or low-sugar drinks. In addition, cultivating a habit of eating slowly and chewing slowly can also help to reduce fat healthily, and chewing slowly can make the body absorb better. The nutrients in food release satiety signals, avoid eating too fast and causing excessive food intake, and eat as slowly as possible. In the process of eating fully, pay attention to the diversity of diet, and do not limit yourself to a few foods for a long time to ensure that the body can take in a variety of nutrients.

4.3. Diversifying Exercise Modalities

In order to increase the enthusiasm and persistence of female university students, enriching the forms and contents of sports plays a vital role. Diversified use can not only comprehensively exercise different parts and functions of the body, but also effectively increase the fun of sports, making it easier for female university students to enjoy the process of sports. In addition to common traditional sports such as running and skipping, female university students can also try to participate in various dances, such as Latin dance, jazz dance, belly dance, etc. Dance sports can not only effectively exercise the body's flexibility, coordination and sense of rhythm, but also have high fun and viewing value. In the relatively cheerful music rhythm, female university students can hold the middle tone. Enjoy the happiness brought by sports, and at the same time, it can effectively burn fat and shape the body in a timely manner. In addition, yoga is also a form of exercise suitable for female university students, which includes various postures and breathing exercises, which can effectively enhance the body's flexibility, strength and sense of balance. Different types of yoga, such as Hatha yoga, flow yoga, Yin yoga, etc.,

have different characteristics and effects. It is necessary to choose the appropriate way to exercise according to the physical condition of female university students themselves ^[5].

5. Conclusion

In general, it is very important for female university students to achieve the goal of healthy fat loss through diet and exercise intervention. However, some problems that currently exist in paper cutting among female university students also need to be paid attention to by female university students. By proposing an optimization path, we can guide female university students to establish the concept of healthy fat loss and adopt a reasonable combination of diet and exercise to achieve the goal of healthy fat loss. Further research in the future can analyze the effects of various diet and exercise combinations on long-term fat loss and physical health, and then provide more accurate and comprehensive guidance, which will bring positive significance to further achieving the goal of healthy growth of female university students.

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