

Formulating Prescription for Bodybuilding and Slimming Exercise with Combination of Chinese Medicinal Materials and Grains

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Abstract: With the improvement of people's material living standards and changes in dietary structure, mental life and behavior, the incidence of obesity has increased year by year, and it has become a killer of serious harm to human health. In China, with the development of the economy and the improvement of nutrition, changes in lifestyle and dietary patterns have led to obesity of many people. The purpose of this article is to solve the obesity problem of human beings. In accordance with people's requirements for quality of life and weight loss shaping, through the use of experimental comparison method, study the fitness weight loss shaping exercise prescription using Chinese medicinal materials and whole grains, and strive to find obese people. A more scientific and reasonable way to lose weight, improve its health and enhance physical fitness. The research results show that the weight loss effect of exercise prescription 1 proposed in this article is significantly better than that of exercise prescription 2, and its weight loss effect can reach up to 4.5%, while the maximum weight loss effect of exercise prescription 2 is not more than 4%. During the four-week experiment, the average weight of male subjects dropped by 13kg; the average weight of female subjects dropped by 8.4kg. The percentage of men who lost weight reached 12.1%, and the percentage of women who lost weight reached 9.7%. The fitness weight-loss shaping exercise prescription using Chinese medicinal materials and whole grains is highly targeted to the treatment of obesity, and the applicable population is also a multiple population of obesity. The treatment range is precise, so it has strong practicality.

1. Introduction

With the improvement of people's living standards, more and more people with obesity, especially middle-aged and adolescents. As a disease, obesity not only affects people's physical

beauty, but also potentially induces other diseases, so it needs early prevention and treatment [1]. At present, all kinds of weight loss drugs are mainly chemically synthesized or semi-synthetic drugs, and the mechanism of action is mostly to achieve weight loss by controlling diet and increasing excretory function [2]. For example, amphetamines and biguanides have high energy consumption, strong side effects, and a high rebound rate after drug withdrawal. Traditional Chinese medicine for weight loss is favored by the majority of patients because of its definite curative effect, symptomatic treatment and small side effects [3]. Chinese medicine believes that obesity is closely related to the spleen and stomach. It is mainly due to innate endowment factors, acquired food, and prolonged sitting and restlessness. It is mainly due to spleen deficiency and excessive phlegm and dampness. The body weight exceeds 20% of the standard weight, and it is often accompanied by dizziness and fatigue, A class of symptoms such as shortness of breath. According to Chinese medicine theory, the pathogenesis of obesity is related to spleen deficiency, phlegm and dampness, blood fatigue, or dampness and heat in the spleen and stomach [4].

China is rich in grain raw material resources. China's total annual grain output is about 500 million tons, ranking first in the world. China is rich in oat, corn, sorghum, barley, millet, buckwheat and other grains of cereals. In terms of diversity and nutrition, China has more advantages than European and American countries. With the rapid development of the modern economy and the improvement of living standards, the topic of weight loss and shaping has attracted more and more attention [5]. Nowadays, the diet of daily life is not only to satisfy hunger or to satisfy the visual taste, but the higher pursuit of reason is health and longevity. The health nutrition powder food made with whole grains as raw materials has high nutritional value and health care function, and its weight-loss shaping is gradually recognized and accepted by people [6]. In China, rice and flour are traditionally used as fine grains, and the rest are collectively referred to as coarse grains and coarse grains. For example, brown rice and whole wheat flour are "coarse grains", and refined white rice and noodles are "fine grains". In fact, due to the different processing levels, rice and flour are also divided into "coarse" and "fine". Basically, our daily consumption is refined white rice and refined white noodles [7].

Carthy's research found that the burden of disease related to obesity falls disproportionately on men, because overweight men have more abdominal fat tissue than women, which increases their risk of cardiovascular disease [8]. Chanson summarized the evidence on commonly used prescription drugs and their relationship with weight changes, and found that for many other drugs (including antihypertensive drugs and antihistamines), weight changes were not statistically significant, or the quality of evidence was very high difference. Several drugs are related to the weight change. When there are multiple options, provide data to guide drug selection, and formulate a preemptive weight loss strategy when prescribing obese drugs [9]. Higgins believes that exercise combined with diet is essential for obese patients to lose weight and maintain health. Although it may be challenging for obese people to transition to a healthy lifestyle, the physical and emotional benefits of regular exercise programs make it worth the effort [10]. Peltzer assessed the incidence of non-super major students from 22 low- and middle-risk emerging economies trying to lose weight and the demographic and behavioral factors that caused him. Multiple logistic regression analysis found that women from low-income countries, who think they are overweight, weight loss is important, dieting to lose weight, want to eat dietary fiber and avoid eating foods containing fat and cholesterol are related to non-super major students trying to lose weight. This study found that weight management practices and a high incidence of several specific risk factors were identified. This result can be used to intervene in target unhealthy weight control measures [11]. Kim tested whether there was a relationship between suicidal ideation and attempts to lose weight among underweight adults. Research shows that there is no significant difference in depression and stress diagnosed by doctors between the two groups. Attempts to lose weight are related to suicidal

ideation of underweight adults in Korea [12].

The main research content of this article is roughly divided into five parts. The first part is the understanding of obesity in Chinese medicine and the introduction of grains of cereals, the purpose and significance of the research and the current status of the research. In the second part, the methods and principles mainly introduce the nutrient composition and function of grains and the classification and function of exercise prescriptions and the weight loss mechanism of traditional Chinese medicine. The third part is the experimental part of this article. It mainly introduces the experimental content and the exercise prescription used in the experiment. In the fourth part, the data is analyzed theoretically, and the exercise prescription for weight-loss and shape-building exercises using Chinese medicinal materials and whole grains is analyzed. The fifth part is the conclusion, a brief summary of the content of this article, and a final discussion and explanation of the experimental results.

2. Proposed Method

2.1. Nutritious Ingredients and Functions of Whole Grains

There are many varieties of cereals, but they are roughly similar in structure. They are composed of the four main parts of the bark, endosperm, germ, and aleurone layer, but the distribution of nutrients in different structures is quite different. The bark is the outermost layer of the grain, mainly composed of cellulose, hemicellulose, etc., and also contains protein, fat, vitamins and inorganic salts, and the inorganic salt content is relatively rich. The aleurone layer is located between the bark and the endosperm. It contains more phosphorus, rich B vitamins and inorganic salts, and can be lost into the bran with processing. The endosperm is the main part of the cereal and is composed of about 74% starch, 10% protein, and very little fat, inorganic salts, cellulose and vitamins. The germ is at the end of the grain alone, rich in protein, fat, inorganic salts, vitamin E and B vitamins, and its texture is soft but tough.

The content of nutrients in cereals generally varies greatly depending on the origin, type, growth conditions and processing methods. The nutrients contained in cereals are mainly proteins, fats, carbohydrates, minerals, vitamins and so on. The following describes these nutrients separately.

(1) Protein

The protein content of cereals is generally between 8% and 18%, mainly gluten, globulin and prolamin. Generally, the essential amino acid composition of cereal protein is unbalanced. For example, the content of lysine is low, and the content of threonine, tryptophan, phenylalanine and methionine is also low, so the nutritional value of protein is lower than animal food.

(2) Carbohydrate

The carbohydrate content of cereals is generally about 70%, mainly starch, which is concentrated in the starch cells of the endosperm and is the most ideal and economical energy source for human beings. About 50% to 70% of the energy in the dietary structure of our people comes from cereal carbohydrates. The metabolic characteristic of starch is that it can be digested, absorbed and decomposed by the human body at a slow and stable rate, and finally converted into glucose that can be used by the human body, and its energy release is slow, which will not cause the blood sugar to rise suddenly, which is beneficial to human health of.

(3) Fat

Cereals have a low-fat content, such as rice and wheat, only about 1% to 2%, and corn and millet are about 4%, and are mainly concentrated in the germ and aleurone layer, so they are easily lost or transferred into by-products during cereal processing. The food processing industry often extracts fats and oils related to human health from its by-products, such as rice bran oil, oryzanol and

sitosterol from rice bran, and germ oil from wheat germ and corn.

(4) Minerals

The mineral content in cereals is about 1.5% to 3%, mainly calcium and phosphorus, and most of them are concentrated in the bark and aleurone layer in the form of phytate. The digestion and absorption rate in the human body is low.

(5) Vitamins

Cereal B vitamins are the main source of vitamin B in the diet, such as thiamine VB1, riboflavin VB2, nicotinic acid VPP, pantothenic acid VB3, pyridoxine VB6, etc. These vitamins are mainly distributed in the aleurone layer and the embryo, can be lost with processing, and the finer the processing, the greater the loss. The B vitamins in refined white rice and refined white noodles may be only 10% to 30% of the original.

Edible beans are rich in nutrients, mainly containing protein, fat, various trace mineral elements and various vitamins. At the same time, there are different levels of anti-nutritional factors in the seeds of certain edible beans, which to some extent affect the absorption and utilization of certain nutrients.

2.2. Classification and Function of Exercise Prescription

Sports prescription is reflected in sports medicine, medical rehabilitation and health, competitive training, sports fitness and other fields. It is an individualized and targeted sports program with scientific, targeted, effective and safe. As shown in Figure 1, the basic process for general exercise prescription. Exercise prescription is to specify the appropriate type of exercise in the form of a prescription for a person or patient engaged in physical training based on medical examination data (including exercise tests and physical tests) according to their physical fitness and cardiovascular function status, combined with living environment and exercise and individual characteristics, Time and frequency, and point out the precautions in sports, so as to plan regular exercise, in order to achieve the purpose of fitness and treatment.

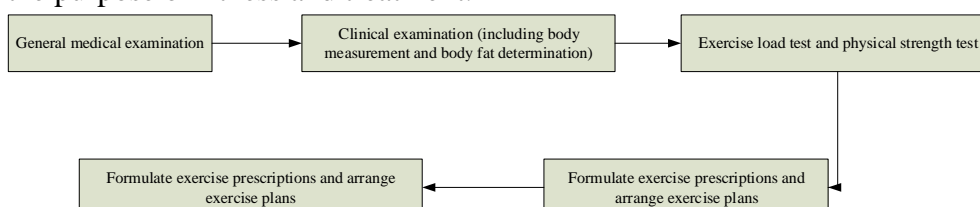


Figure 1. Basic process for general exercise prescription

From the biological point of view of the principle of weight loss exercise prescription, the human body will have a non-specific adaptive response to the stimulus of exercise, which is a comprehensive process of physiological and psychological reactions. The principle of exercise prescription can be interpreted from three aspects. The first is stimulus, response and adaptation. Human beings survive in the natural environment and continue to receive changes in the natural environment and the internal environment of the body. The human body functions to produce a series of reactions. A series of adaptive changes in function and biochemistry are produced to adapt to the stimulus of environmental changes. The process of exercise to enhance physical fitness and promote health is essentially that the human body follows the basic principle of stimulation-response-adaptation. The second is exercise fatigue and over-recovery. To a certain extent, the human body's functional response increases positively with exercise load, and energy consumption also increases. At the same time, the over-recovery caused gradually becomes more pronounced, and the effect of exercise or training becomes increasingly optimistic. The overall

process of human physiology in physical exercise is: exercise-fatigue-rest-excessive recovery. Finally, energy consumption and nutritional supplements. Exercise will definitely consume more energy substances in the body. Therefore, timely supplementation of nutrients is an important matter that must be taken after exercise. Only by ensuring sufficient and abundant energy materials can the physique be rapidly improved in a short time, and then the body's functional metabolism will gradually rise to a new and higher platform.

With the continuous improvement of science and technology, scientific research is only gradually popularized and promoted, and the public's attention to health and fitness is increasing. More and more people in fitness and rehabilitation are discovering the unique characteristics and functions of exercise prescriptions, and constantly discovering and adopting exercise prescriptions suitable for their needs in accordance with their own physical health. First, exercise prescriptions have plans, goals, and pertinence. Intentional fitness groups will arrange a series of professional physical function tests by relevant professionals before fitness, and formulate exercise prescriptions to solve different problems or meet different needs in accordance with the different physical conditions of the subjects, their own physical health and exercise ability. Secondly, sports prescriptions have a wide range of applications, quick results and good results. According to different genders, age stages and different fitness goals, sports prescriptions with different effects can be formulated, and compared with other treatment methods, sports prescriptions can achieve satisfactory results in a short time [13]. Finally, exercise prescription has the unique advantages of being systematic, scientific and safe. Exercise prescription is based on the scientific evaluation of the human body after research and development, targeted exercise prescription can control the amount of exercise, so as to better promote body health.

2.3. Chinese Medicine Weight Loss Mechanism

The main pathogenesis of obesity: phlegm and dampness: modern blood rheology and nail wrinkle microcirculation observation, corroborating the views of obese people with phlegm addiction and phlegm addiction, pointing out that obese people have "phlegm and dampness, blood Chi Wei's dual pathological tendency. (Qi and phlegm, yang and bad luck: flooding around the body and up and down, which in turn affects the function of the viscera, the waterway is imbalanced and produces phlegm, makes the kidney not main water, gasification and dereliction of duty, closing the door is unfavorable, and water metabolism is impaired Wet; slows the continuous movement of the large and small intestines, the pond is difficult to discharge and stay accumulated, and gradually accumulates into phlegm, and there is an increase in obesity, water and phlegm, and it stays between the skin around the body and the peritoneum. Within the viscera, the yin and evil are more prosperous, the yang is weaker, and the yin and yang are out of balance, resulting in obesity. Dysfunction of the viscera: the metabolism of human body energy is related to the function of the viscera, so dysfunction of the viscera is also very likely to cause obesity. Formation is closely related to liver, spleen and kidney dysfunction.

Current research shows that there are a lot of Chinese medicines with lipid-lowering and weight-loss effects, and the classification of Chinese herbal medicines for weight loss is also different, that is, diarrhea-conducting drugs: such as rhubarb, bay leaf, morning glory, cereal buds, malt, radish seeds, etc. ; Phlegm and turbid medicine: such as panela, white mustard, orange peel, magnolia, etc. ; blood circulation and blood stasis medicine: such as mountain plants, Chan Kao, salvia, motherwort, hydranths, etc. ; water-wetting medicine: such as lotus leaf, Zeman, Dong, Barley, Plant ago, Fangio, Yuncheng, etc. ; spleen-invigorating and Qi-invigorating drugs: such as Huang Miao, Conenoses, Adactylies, Licorice, etc. ; nourishing blood and nourishing Yin drugs: such as Angelica, Rahmanian glutinous, Gou medicine, Polygonum multiflora, wolfberry and so on.

At present, there are basically eight principles for the treatment of obesity by traditional Chinese medicine. Dehumidification method: the representative side is Zehavi soup, Fangio Hangman soup; phlegm method: the lighter one uses Erhan soup, the third son Yangqin soup, and the more important one uses the salivation control soup; Take a small drink and use Zoucha Wan and Shirin Decoction for water; abdomen method: take Xiao Changi Decoction, Tawie Changi Decoction or single rhubarb for long-term use; elimination method: use Sanxian Yin and Bathe Pills; (Shu Gan Li Dan Method: Use Wen Dan Decoction, Shu Gan Decoction, Xiao Zhuang San; Jian Qi Method: Use Wu Wei Yongsan, Ji Zhu Pills, Ginseng, etc. (We yang Method: Use Ji Sheng Shen qi Pills, Licorice Fu Zi Soup, Dong Guy Shu Gan soup.

Modern pharmacological research shows that weight loss of traditional Chinese medicine mainly plays a role in weight loss by reducing food intake, inhibiting gastrointestinal absorption, promoting material metabolism, lowering blood fat, antioxidant, lowering blood sugar and other mechanisms. Obesity is often accompanied by hyperlipidemia, and lipid-lowering is an important aspect of the role of weight-loss drugs. The mechanism of lipid-lowering in traditional Chinese medicine is mainly to inhibit pancreatic lipase activity, up-regulate low-density lipoprotein receptors, improve liver enzymes and lipoprotein enzymes Activity, anti-lipid peroxidation, etc. It has recently been found that obesity is related to oxidative stress between cells. Obesity causes an increase in serum free fatty acids, and unsaturated fatty acids are prone to peroxidation.

3. Experiments

3.1. The Prescription and Method of Chinese Medicinal Materials Used in the Experiment

In this study, a total of two prescriptions for Chinese medicine were selected. One cause of the disease was due to poor spleen function, resulting in nutrients that cannot be distributed to the body according to normal metabolic processes, resulting in fat accumulation in the body, especially the abdomen, waist and legs; that is, Chinese medicine It is believed that the spleen loses health and phlegm cohesion. Chinese medicine believes that the spleen is "the body of Tailing damp soil". It is mainly used to treat water and dampness, spleen deficiency and dampness, and dampness to hurt the spleen.

The second cause of the disease is due to the evil liver burning into the stomach, the function of the rotted water valley is hyperactive, so eliminating the hunger and hunger, losing the fire, and the constipation, that is, the gastrointestinal function is hyperactive, the digestion and absorption function is too metabolic, which causes excess nutrition and formation. Fat accumulation. Therefore, this prescription adopts the treatment of clearing stomach and clearing the stomach and moisturizing the intestines, and selects some Chinese medicines with the effect of clearing heat and dampness, so as to eliminate the gastrointestinal hyperfunction and achieve the therapeutic effect. Humidity still exists in the body, which cannot achieve the purpose of removing diseases. Aconite nourishes yin and heats up, sublimates moisture, helps to benefit water and dehumidifies moisture. Adactylies macrocephaly and Chinese yam supplement the spleen and qi, so as to eliminate dampness without hurting qi and blood, and increase the efficacy of dryness and dampness. These several flavors are compatible with each other, with complementary effects and enhanced efficacy. The specific ingredients of the two prescriptions are shown in Table 1.

The prescription Chinese medicinal material pulverize is crushed into 120 small particles. Increase the specific surface area to increase its dissolution rate. The crushed medicinal materials except for aconite and yam, the aconite is usually cooked for 30 to 60 minutes to eliminate toxicity, and the yam is used as a filler. All were soaked with twice the weight of water for 2 hours; the aconite was decoction alone for 1 hour to remove the toxicity. Put the soaked medicinal materials

together with the aconite in the steam sterilization pot, decoction at 100 °C for 2h, water extraction, repeat the operation twice.

Table 1. Specific herbal formulas for prescriptions 1 and 2

| Prescription | Ingredient | | | | | | |
|----------------|------------|-------------------|----------|---------|-------------------------|-------------|----------------|
| Prescription 1 | Changzhou | Peoria | Alisma | Aconite | Adactylios macrocephaly | Chinese yam | White cardamom |
| Prescription 2 | Gardenia | Fried Scutellarin | Yin Chen | Rhubarb | Alisma | Habitat | --- |

After the medicine residue is pressed to remove water, add 1 time the weight of ethanol and soak for 2 hours. After the water extract was cooled, the upper volatile oil was collected, and then the water extract was evaporated in a water bath to obtain a thicker paste, which was then placed in an oven and dried at 70 °C. The soaked drug residue was extracted with an ultrasonic instrument for 2h, and then extracted again with alcohol, and the alcohol extract was distilled to obtain a paste, which was placed in an oven and dried at 70 °C. Medicine powder can be obtained by pulverizing the dried products of water extract and alcohol extract with a ball mill.

3.2. Testing of Physical Indicators

80 obese youths were tested for various physical indicators on the day before the summer camp's entry and exit, and the detection indicators were mainly divided into 3 main categories: morphological indicators, functional indicators, biochemical indicators. Morphological indicators include height, weight, shoulder circumference, chest circumference, waist circumference, hip circumference, upper arm circumference, thigh circumference, BMI, body fat rate, and the body composition test is measured by X-SCAN PLUSIR body composition analyzer (JAWON, Korea), and calculate the relevant derived indicators according to the morphological indicators. The morphological derived indicators include: BMI, bust-height ratio, hip-height ratio and waist-hip ratio. Before the test, the test personnel will be professionally trained. When measuring body composition, the test subject is required to carry no metal objects on the subject and stand barefoot in the metal sensing area of the analyzer. Keep the heel, sacrum, and scapula perpendicular to the ground, hold the analyzer handle with both arms, look straight ahead, and read the test results automatically after stabilization. The circumference measurement adopts the tape measure method, and the measurement of the front and rear indicators is completed by the same person.

The main functional indicators are: grip strength (right hand), back strength, vital capacity, quiet heart rate, blood pressure. Use electronic grip force meter, electronic back force meter, spirometry system and electronic blood pressure device for testing. During the grip test, the subjects naturally stand with their feet apart, shoulder-width apart, their bodies upright, their hands droop naturally, and they grip the handles firmly. During the back-force test, the subjects naturally stand with their feet apart on the chassis of the back-force meter, and their arms naturally hang down in front of the thighs. The tester adjusts the length of the zipper of the back-force meter for the subject, and the best distance is when the fingertip of the subject touches the handle of the back-force meter. During the test, the upper body remained straight and did its best to do the back extension. Both tests are performed twice, and the tester takes one digit after the decimal point to record the maximum value. During the spirometry test, the person standing facing the instrument, holding the mouth blower, took one or two breaths deeper than usual, took a deeper breath, and slowly exhaled to the mouth. The number on the LCD screen was not increasing. Up to this point, this number is the spirometry value in milliliters. Each subject was tested twice, and the maximum value was selected as the test result. There are special requirements for measuring blood pressure. In the morning, on an empty

stomach, take a sitting position, with the palms extended flat, the elbows are at the heart level, the arms of the upper limbs are at a 45 ° angle to the body, the hands are relaxed, and the cuff is wrapped smoothly around the middle of the upper arms. The lower edge of the cuff is about 1-2cm away from the elbow fossa. The standard of inserting one finger is used as the requirement for cuff wrapping. The rubber tube of the cuff is placed on the pulsating point of the brachial artery. When measuring blood pressure, keep quiet and breathe naturally. Each subject was tested twice, and the maximum value was selected as the test result. In millimeters per mercury column, the unit is accurate to single digits.

Biochemical indicators mainly measure the total cholesterol (TC), triglyceride (TG), high-density lipoprotein (HDL-C), low-density lipoprotein (LDL-C), fasting blood glucose (FBG), fasting insulin (FINS), calculate the ratio of LDL-C / HDL-C and TC / HDL-C. In the early morning of the day before entering the camp and leaving the camp, a professional physician took a fasting to collect 10ml of venous blood on the ipsilateral side of the subject. The blood was collected using a disposable negative pressure venous blood sample collector, and the blood sample was sent to the relevant hospital for blood biochemical testing Section test.

3.3. Selection of Raw Materials for Whole Grains

According to the nutritional content of cereals provided by the Institute of Nutrition and Food Hygiene, Chinese Academy of Preventive Medicine, this study intends to select millet, oat, corn, Tartary buckwheat, red beans, rice, flour, etc. as raw materials for nutritional breakfast cereal formulations, making full use of their high quality Protein, dietary fiber, excellent unsaturated fatty acids, and rich vitamins and minerals, while making full use of ingredients such as defatted soybean powder, oat fiber, whole milk powder, sucrose, palm oil, wheat starch, soybean lecithin, honey, calcium carbonate and other ingredients To improve product quality.

Applying linear regulation theory, programming, and seeking the target's extreme value under various constraints. In the design of the basic formula of breakfast cereals (without vitamins and minerals), the A and B products are the main raw materials of breakfast cereals with grains of cereals, and a small amount of late rice flour and special powder are used together. At 40%, the ratio of late rice flour to wheat flour is not more than 20%; Class C products use flour as the main raw material of the formula. The energy, protein, and fat content of the resulting product reaches the level of breakfast cereals produced abroad with flour as the main raw material [14]. In order to ensure that the energy, protein and fat content of the resulting product is not lower than the level of breakfast cereals produced with flour as the main raw material abroad, and the amount of ingredients used should be subject to the constraints of compliance, seek the target value of the lowest price of the product.

4. Discussion

4.1. Changes in Body Shape Indexes of Experimental Subjects

As shown in Table 2, after 4 weeks of fully closed weight loss camp training, the weight and body fat of 80 participants participated in the training under the combination of low-intensity combined Chinese herbal medicines and grain cereals in the fitness and weight-loss shaping exercise place with dietary regulation Rate%, chest circumference, hip circumference and other indicators have significantly decreased before intervention ($P < 0.01$). Between different genders, the indicators are both rising or falling at the same time; but different genders, the change rate of the same indicator is different, the most obvious indicators of male subjects change are: body weight and body fat rate, but female subjects are weight And waist circumference, that is, there are

differences between men and women.

Table 2. Changes of body shape indexes of obese youth before and after the experiment

| Index | Male (n = 40) | | Female (n = 40) | |
|---------------|-----------------------|----------------------|-----------------------|----------------------|
| | Before the experiment | After the experiment | Before the experiment | After the experiment |
| Weight / kg | 108±21.3 | 93±18.5 | 85.9±15.2 | 76.5±12.6 |
| Body fat rate | 34.4±3.6 | 29.4±4.9 | 38.6±3.6 | 35.4±3.4 |
| Bust (cm) | 114.2±11.9 | 108.4±10 | 104.7±7.7 | 103±6.3 |
| Hips (cm) | 17.1±13.8 | 107±10.5 | 116±11.1 | 111.2±11.2 |

As shown in Figure 2, it is the average weight loss of the subjects during the experiment. It can be seen from this that after a four-week experiment using a combination of Chinese herbal medicines and grains for weight loss and shaping exercises, the average weight of male subjects dropped by 13kg; the average weight of female subjects dropped by 8.4kg. The percentage of men who lost weight reached 12.1%, and the percentage of women who lost weight reached 9.7%. Regardless of whether it is obese male youth or obese female youth, all four morphological derivatives have declined. BMI, WHt R, and WHR have a very significant decrease compared with before the experiment, with statistical significance.

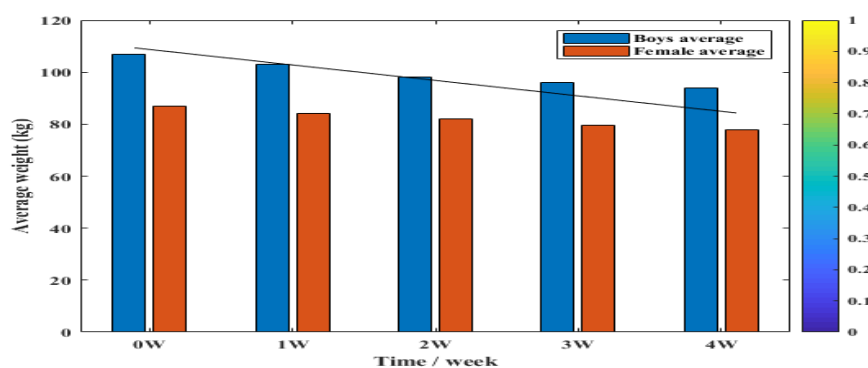


Figure 2. Changes in average weight loss of subjects during the experiment

As shown in FIG. 2, it can be seen from the figure that male subjects surpassed female subjects in both weight loss and percentage weight loss during 4 weeks. The average male weight loss percentage reached 4.5%, and the male average weight loss percentage reached 3.6%. Among them, the weight loss of the subjects in the first week and the third week was very fast, and the rate of decrease in the fourth week was faster than that in the second week. From the perspective of the downward trend, the results of this study are similar to the results of previous studies, that is, the weight and the average weight loss percentage are in a downward trend overall; The rate of decline is the fastest and slow in the next two weeks, but the results of this study are that the odd-numbered weeks fall fast and the even-numbered weeks fall slowly.

At present, the main indicator for judging obesity in China is BMI. BMI is mainly used to predict the body's obesity. Some studies believe that BMI has a significant correlation with obesity. After understanding the gender and age of the tester, the body fat rate can be predicted. However, BMI has a certain degree of limitation, because it cannot judge the distribution of fat and the type of obesity in the test subject, nor can it accurately display the body fat content of the test subject. Although waist-height ratio, hip-height ratio and waist-hip ratio are simple indicators for evaluating obesity, they can more accurately reflect the accumulation of waist and abdomen (subcutaneous fat)

and body fat. The Chinese Academy of Preventive Medicine recommends that the cut-off point for central obesity locates male $WHR \geq 0.9$, female ≥ 0.8 or waist-to-height ratio index for male $WHR \geq 0.51$, female $WHR \geq 0.52$. In this study, the waist-height ratio, hip-height ratio, and waist-hip ratio of male and female subjects were reduced to varying degrees after 4 weeks of combined exercise combined with dietary regulation. Overall, waist-height ratio and waist-hip ratio have very significant statistical significance ($P < 0.01$), BMI and hip-height ratio have statistical significance ($P < 0.05$). In foreign studies, it has been found that waist-to-height ratio and waist-to-hip ratio can better reflect the degree and type of obesity of abdominal subcutaneous fat and visceral fat, and can predict the risk index of metabolic syndrome. Other studies have confirmed that excessive accumulation of fat at the core of the body is the best predictor of cardiovascular disease. Waist circumference and hip circumference are important horizontal morphological indicators of the human torso. The thickness of the subcutaneous fat is an important indicator to reflect the health of the body. The increase of subcutaneous fat is proportional to the future risk of cardiovascular disease. Waist-to-height ratio and hip-to-height ratio are both comprehensive indicators combining longitudinal body shape indicators with horizontal body shape indicators, and it is more scientific and reasonable to determine whether obese patients are central obesity.

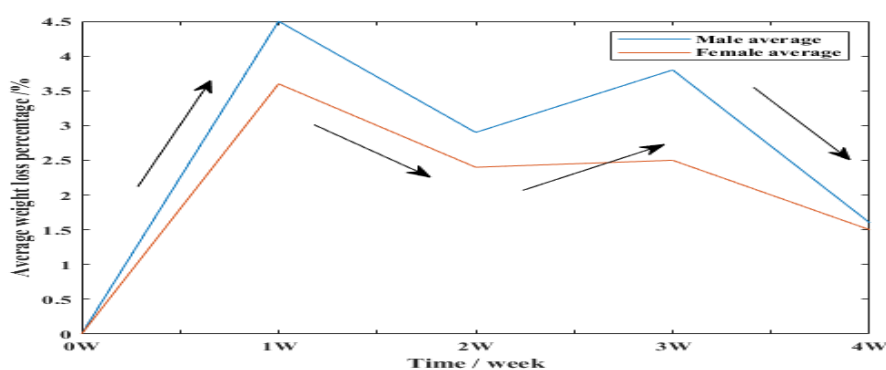


Figure 3. The graph of the change of the average weight loss percentage of the subjects during the experiment

4.2. Analysis of the Effect of Two Body-Building and Weight-Loss Shaping Prescriptions

Two kinds of fitness weight-loss shaping exercise prescriptions combining Chinese medicinal materials and whole grains are highly targeted to the treatment of obesity, and the applicable population is also a multiple population of obesity, and the treatment scope is accurate. Due to the great attention paid to the toxic and side effects of medicinal materials when choosing medicinal materials, the drugs are relatively small in terms of toxicity and side effects, and will not cause adverse toxic and side effects on people.

As shown in Figure 4, it is the satisfaction degree of the subjects with different exercise prescriptions. As can be seen from the figure, the majority of the subjects are satisfied with the actual weight loss effect of exercise prescription 1, which accounts for 68% , The remaining 32% of people prefer sports prescription II. The various weight-loss drugs in the past are mainly chemical or semi-synthetic drugs, and their mechanism of action is mostly to control diet and increase excretory functions to achieve weight loss, such as amphetamines, biguanides, large physical energy consumption, strong side effects, and withdrawal After the rebound rate is high, the traditional Chinese medicine for weight loss is favored by the majority of patients for its curative effect, the same treatment of the specimen, and the small side effects.

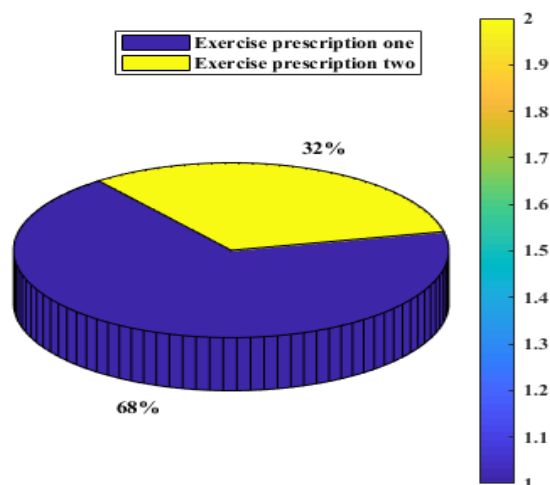


Figure 4. Subject's satisfaction with different exercise prescriptions

As shown in Figure 5, the actual weight loss results for the two exercise prescriptions are compared. It can be clearly seen from the figure that the weight loss effect of exercise prescription 1 is significantly better than that of exercise prescription 2, and the weight loss effect can reach up to 4.5%. The maximum weight loss effect of exercise prescription 2 does not exceed 4%. The prescription design and preparation of Chinese medicine for weight loss is mainly aimed at middle-aged and elderly. Obesity is a systemic metabolic disease, which is caused by excessive accumulation of fat in the body. Adipose tissue is no longer just regarded as the body's energy storage tissue, but also the body's endocrine organs. Fat cells are the most basic substance that constitutes adipose tissue. Therefore, taking fat cells as the research object is important to explore the mechanism of obesity. way. The composition of traditional Chinese medicine compound is complex, and the mechanism of action is diverse. It is still difficult to study the compound medicine of traditional Chinese medicine in terms of its weight loss effect from modern medical molecular level. The treatment of TCM syndrome differentiation requires specific analysis of specific problems, and different treatments are required for people with different constitutions. Chinese medicine is as vast as the sea, and there are more Chinese herbal compound preparations with weight-loss effect that need to be found and explore the mechanism of weight loss in order to help more people.

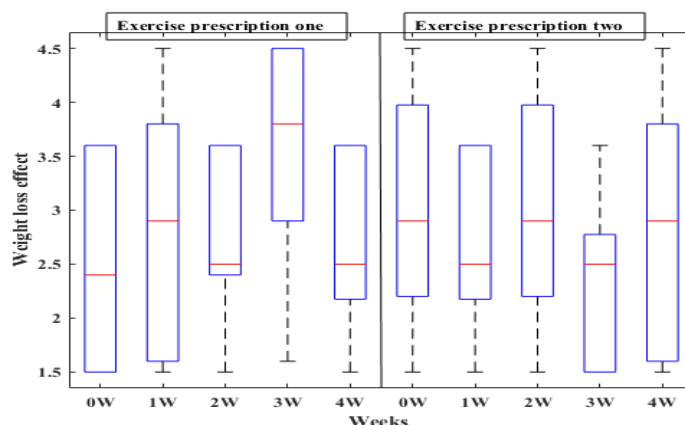


Figure 5. Comparison of actual weight loss effects of two sports prescriptions

5. Conclusion

(1) This article mainly studies the formulation of fitness weight-loss shaping exercises using Chinese herbal medicines and whole grains, and analyzes and compares the two sports prescriptions proposed in this article by using experimental methods, in order to look forward to the fitness weight-loss shaping exercises. Best effect. Two kinds of fitness weight-loss shaping exercise prescriptions combining Chinese medicinal materials and whole grains are highly targeted to the treatment of obesity, and the applicable population is also a multiple population of obesity, and the treatment scope is accurate. Due to the great attention paid to the toxic and side effects of medicinal materials when choosing medicinal materials, the drugs are relatively small in terms of toxicity and side effects, and will not cause adverse toxic and side effects on people.

(2) Judging from the experimental results, most of the logarithmic subjects were satisfied with the actual weight-loss effect of exercise prescription one, which accounted for 68%, and the remaining 32% preferred exercise prescription two. The weight loss effect of exercise prescription 1 is significantly better than that of exercise prescription 2, and the weight loss effect can reach up to 4.5%. The maximum weight loss effect of exercise prescription 2 does not exceed 4%. Regardless of whether it is obese male youth or obese female youth, all four morphological derivatives have declined, and BMI, WHt R, and WHR have a very significant decrease compared with before the experiment, with statistical significance.

(3) Male subjects surpassed female subjects in both weight loss and percentage weight loss during 4 weeks. The average male weight loss percentage reached 4.5%, and the male average weight loss percentage reached 3.6%. Among them, the weight loss of the subjects in the first week and the third week was very fast, and the rate of decrease in the fourth week was faster than that in the second week. After a four-week experiment using a combination of Chinese herbal medicines and grains for weight loss and shaping exercises, the average weight of male subjects dropped by 13kg; the average weight of female subjects dropped by 8.4kg. The percentage of men who lost weight reached 12.1%, and the percentage of women who lost weight reached 9.7%.

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Data Availability

Data sharing is not applicable to this article as no new data were created or analysed in this study.

Conflict of Interest

The author states that this article has no conflict of interest.

References

- [1] Peterson L R. (2015). "To Lose Weight or Not to Lose Weight, That Is the Big Question--in Obesity-Related Heart Failure", *Diabetes*, 64(5), pp.1509-1510. <https://doi.org/10.2337/db15-0003>
- [2] Burgess B, Raynor HA, Tepper BJ. (2017). "PROP Nontaster Women Lose More Weight Following a Low-Carbohydrate Versus a Low-Fat Diet in a Randomized Controlled Trial", *Obesity*, 25(10), pp.1682. <https://doi.org/10.1002/oby.21951>
- [3] Nerli, S. M. (2015). "Teens Helping Teens Lose Weight: The Long-term Effect of an Active

- Peer Group Behavioral Weight Loss Intervention”, *Phys Rev*, 72(8), pp.729-729. DOI:10.1103/PhysRev.72.729
- [4] Mortensson, B, & Charlotte. (2015). “Fulfil Your Desire and Lose Weight; Enjoying Chips and Chocolate is a Treat That can Actually Help You Shed Those Extra Pounds. *Social Identities*, 21(6), pp.1-17.
- [5] Merlo, C, Brener, N, Kann, L, Mcmanus, T, Harris, D, & Mugavero, K. (2015). “School-level Practices to Increase Availability of Fruits, Vegetables, and Whole Grains, and Reduce Sodium in School Meals -- United States, 2000, 2006, and 2014”, *Mmwr Morb Mortal Wkly Rep*, 64(33), pp.905-908. <https://doi.org/10.15585/mmwr.mm6433a3>
- [6] Ho, E, Marquart, L. F, & Camire, M. E. (2016). “Whole Grains and Health: Empowering Dietary Change”, *Food Technology*, 70(4), pp.46-51. <https://experts.umn.edu/en/publications/whole-grains-and-health-empowering-dietary-change>
- [7] Steen, C, & Noyes, T. (2015). “The Great Vegan Grains Book: Celebrate Whole Grains with More than 100 Delicious Plant-based Recipes * Includes Soy-free and Gluten-free Recipes!”, *Advances in Space Research the Official Journal of the Committee on Space Research*, 24(6), pp.687-96. DOI:10.1016/S0273-1177(99)00400-7
- [8] Carthy, M. M, Richardson, N, Osborne, A, & Clarke, N. (2016). “The Role of Primary Care Men’s Perspectives on Attempting to lose Weight Through a Community-based Dietician Service”, *Aging Male*, 5(1), pp.48-67.
- [9] Chanson, P, & Pariente, A. (2015). “Drugs That Make Gain Weight or Make Lose Weight”, *La Revue Du Praticien*, 65(4), pp.474. <http://europepmc.org/article/MED/26058187>
- [10] Higgins, J. P, & Higgins, C. L. (2016). “Prescribing Exercise to Help Your Patients Lose Weight”, *Cleveland Clinic Journal of Medicine*, 83(2), pp.141-150. <https://doi.org/10.3949/ccjm.83a.14139>
- [11] Peltzer, K, & Pengpid, S. (2015). “Trying to Lose Weight Among Non-Overweight University Students from 22 Low, Middle and Emerging Economy Countries”, *Asia Pacific Journal of Clinical Nutrition*, 24(1), pp.177-183. DOI:10.6133/apjcn.2015.24.1.16
- [12] Kim, J, Shin, J, Kim, Y. A, & Lee, J. (2015). “Suicidal Ideation in Underweight Adults Who Attempt to Lose Weight: Korea National Health and Nutrition Examination Survey, 2007-2012”, *Korean Journal of Family Medicine*, 36(2), pp.82-91. <https://doi.org/10.4082/kjfm.2015.36.2.82>
- [13] Choi, G. H. , Ko, H. , Pedrycz, W. , Singh, A. K. , & Pan, S. B. . (2020). Recognition system using fusion normalization based on morphological features of post-exercise ecg for intelligent biometrics. *Sensors*, 20(24), 7130. <https://doi.org/10.3390/s20247130>
- [14] Victor Christianto , Florentin Smarandache, A short remark on Bong Han duct system (PVS) as a Neutrosophic bridge between Eastern and Western Medicine paradigms, *International Journal of Neutrosophic Science*, 2020, Vol. 8, No. 2, pp: 80-86. <https://doi.org/10.54216/IJNS.080202>