ROLE OF RIYAZATH(EXERCISE) IN THE PREVENTION OF OBESITY (SIMAN-MUFRATH) A NARRATIVE REVIEW

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ABSTRACT:

BACKGROUND AND OBJECTIVE: Siman-e-Mufrat (Obesity) is a chronic and increasingly common disease characterized by excess body fat. The change in fitness and body composition which accompany physical training in people of normal weight would be very valuable in the treatment of Obesity. It has been suggested that exercise benefits on the obese persons. Generally, obesity occurs due to decrease in hararat-e-ghareezia (innate heat) and usually it is by birth and is because of barid mizaj and there is dominance of balgham. Because of high prevalence of obesity, large magnitude of it risks and high health cost, it is strategy to prevent and control the obesity. A loss of 5% to 10% of body weight of obese has been shown to reduce health risk such as hyperlipidemia, hypertension and insulin resistance. Obesity is common in sedentary life style person. Mostly all obese want to lose weight, but they cannot.So I realized that there should be alternate, easy, cost effective method to control the progress of siman-e- mufrat (overweight/obesity). Unani physicians have described several methods for this, one of them is Riyazat.

Material And Method:

STUDY DESIGN: This study is a narrative review of the available literature on obesity and its management in the Unani system of medicine.

SOURCES OF DATA: Relevant literature was collected from classical Unani texts, modern textbooks, peer-reviewed journals, dissertations, and electronic databases. Sources included classical Unani books such as:The canon of medicine, Firdousul-hikmat, Kamil-us-Sana

Modern literature was identified through databases such as PubMed, Google Scholar, and ResearchGate

CONCLUSION: Exercise (Riyazat) is effective tool to reduce the body weight, Exercise can play important role in preventing long term morbidity and mortality. From this study it can said that Riyazat is the best tool as complement to other weight reduction regime. Exercise can help the obese people a lot in reducing and maintain their body weight.

Keywords: Obesity; Siman-e-mufrath; Riyazat; Exercise, Barid Ratab

INTRODUCTION:

OBESITY(SIMAN-E-MUFRATH):

Unwanted weight gain leading to overweight and Obesity (Siman-e-mufrath) has become a main driver of the global rise in non-communicable diseases and is itself now considered a non-communicable disease. Because of the psychological and social stigmata that accompany being overweight and obese, those affected by these conditions are also vulnerable to discrimination in their personal and work lives, low self-esteem, and depression. These medical and psychological sequelae of Obesity (Siman-e-mufrath) contribute to a major share of current health-care expenditures and generate additional economic costs through loss of worker productivity, increased disability, and premature loss of life.[1]

- obesity (siman-e-mufrath) is the fifth leading risk of global mortality. Worldwide, obesity has more than doubled since 1980. In 2022, more than 25 billion adults aged 18 years and above were overweight. Of these over 650 million men and women were obese. In 2022 more than 37 million children under 5 years of age were overweight or obese.[2]
- Obesity (Siman-e-mufrath) is preventable.
- Overweight and Obesity (Siman-e-mufrath) are defined as abnormal or excessive fat accumulation that may impair health. Body mass index (BMI) is a simple index of weight-for-height that is commonly used to classify overweight and Obesity (Siman-e-mufrath) in adults. It is defined as a person's weight in kilograms divided by the square of his height in meters (kg/m2).
- For adults, WHO defines overweight and Obesity (Siman-e-mufrath) as follows:
- overweight is a BMI greater than or equal to 25 and Obesity (Siman-e-mufrath) is a BMI greater than or equal to 30.
- BMI provides the most useful population-level measure of overweight and Obesity (Siman-e-mufrath) as it is the same for both sexes and for all ages of adults. However, it should be considered a rough guide because it may not correspond to the same degree of fatness in different individual.[3]

Regular physical activity is important for good health, and especially important if you're trying to lose weight or to maintain a healthy weight. When it comes to weight management, people vary greatly in how much physical activity they need. In Unani medicine, exercise (Riyazat) is regarded as one of the six essential factors (Asbab-e-Sitta Zarooriya) for maintaining health. Exercise generates Hararat (heat) in the body, helping to reduce excess fat, improve muscle tone, and maintain overall physical fitness.[4]

REVIEW OF LITERATURE:

Obesity (Siman-e-mufrath) is body weight more than 20% above a desirable standard due to an excessive accumulation of adipose tissue, about one-third of the adult population in the United States is obese. Even moderate Obesity (Siman-e-mufrath) is hazardous to health.[5]

There are two types of adipose tissues:

1. **White adipose tissue**: The fat is mostly stored and is metabolically less active.

2. **Brown adipose tissue**: The stored fat is relatively less but the tissue is metabolically very active.

Brown adipose tissue possesses high proportion of mitochondria and cytochromes but low activity of ATP synthase. This is an active centre for the Oxidation of fatty acids and glucose and is responsible for the diet-induced thermogenesis.[6]

EPIDEMIOLOGY:

Obesity (Siman-e-mufrath) is perhaps the most prevalent form of malnutrition. As a chronic disease, prevalent in both developed and developing countries, and affecting children as well as adults, it is now so common that

it is replacing the more traditional public health concerns including undernutrition. It is one of the most significant contributors to ill health. For industrialized countries, it has been suggested that such increase in body weight have been caused primarily by reduced levels of physical activity, rather than by changes in food intake or by other factors.[2]

PREVALENCE:

In 2022 more than 37 million children under 5 years of age were overweight.overweight and obesity are now rising in low and middle-income countries, particularly in urban settings. Close to 30 million overweight children are living in developing and 10 million in developed countries [3] Childhood obesity is associated with a higher chance of obesity, premature death and disability in adulthood.At least 3.4 million adults die each year as a result of being overweight or obese. In addition, 44 per cent of the diabetes burden, 23 per cent of ischemic heart disease burden and between 7 to 41 per cent of certain cancer burdens are attributable to overweight and Obesity (Siman-e-mufrath).[2]

INDIA:

The National Family Health Survey-5 (2019-2021) calculated Body Mass Index (BMI) of men and women (aged 15-49 years) interviewed to know the trend of nutritional status of the population. 19 %of women with age 15-49 are thin, 24% are overweight or obese, and 57 %are in the normal range.

The proportion of thin women decreases with age, from 40 % for women age 15-19 to 9% for women age 40-49, whereas the proportion of overweight or obese women increases steadily, from 5% of women age 15-49 to 37% of women age 40-49.[2]

Increased prevalence over the previous years is because of several factors:

- **Lifestyle change**: Better social and economic environment has changed the lifestyle of people
- **overeating and overindulgence** in wrong foods has led to Obesity (Siman-e-mufrath) fatty food.
- **Lack of Exercise (Riyazath)** because of heavy and prolonged hours at work. physical disability and sedentary life causing less utilization of calories and accumulation of body fat
- **Genetic** Increased birth weight and maintenance of increasing weight through childhood and adolescence.[7]

ETIOLOGY:

Obesity result when caloric intake exceeds utilization.

1. Excessive food intake (overeating).
2. Physical inactivity and a sedentary lifestyle.
3. Genetic predisposition to obesity (Siman-e-Mufrath).
4. Consumption of a diet rich in carbohydrates and fats rather than proteins.
5. Secondary obesity (Siman-e-Mufrath) may occur as a result of underlying medical conditions such as hypothyroidism, Cushing's syndrome, insulinoma, and hypothalamic disorders.[8]

BODY MASS INDEX:

Body mass index (BMI) is the most widely used parameter to define Obesity (Siman-e-mufrath). It takes into account weight as well as the height. It is calculated by the formula:

BMI Weight (kg) + height (meters) Children with BMI more than 85th percentile for age are considered overweight while those with more than 95th percentile for age are obese. BMI is a good indicator of body fat but is unreliable in short muscular individuals BMI greater than 99th percentile (120% of 95th percentile) implicate severe Obesity (Siman-e-mufrath).

As the aim of assessing BMI is to identify individuals at risk for metabolic complications, lower BMI cutoffs have been recommended for Indian adults (23 kg/m> for overweight and 27 kg/m2 for Obesity (Siman-e-mufrath).

Adults age 20 and older can interpret their BMI based on the following standard weight status categories. These are the same for men and women of all ages and body types.[9]

WHO CLASSIFICATION OF WEIGHT STATUS	
WEIGHT STATUS	**BODY MASS INDEX (BMI), kg/m^2**
Underweight	<18.5
Normal range	18.5 – 24.9
Overweight	25.0 – 29.9
Obese	≥ 30
Obese class I	30.0 – 34.9
Obese class II	35.0 – 39.9
Obese class III	≥ 40

Waist circumference and waist hip ratio: Waist circumference is measured at the minimum circumference between the iliac crest and the rib cage. Hip circumference is measured at the maximum protuberance of the buttocks, and the waist hip ratio (WHR) may be calculated from these values. Waist circumference itself is a satisfactory marker of abdominal adiposity, a risk factor for metabolic and cardiovascular effects of Obesity (Siman-e-mufrath). Waist circumference greater than 75% is a risk factor for metabolic complications.[9]

Skinfold thickness: Skinfold thickness measured over the subscapular, triceps or biceps regions is an indicator for subcutaneous fat. Age specific percentile cut-offs should be used with values more than 85th percentile being abnormal.[9]

COMPLICATIONS:[10]

Obesity (Siman-e-mufrath) is associated with many medical complications that can reduce a person's life span:

- Cardiovascular problems such as high blood pressure, heart disease, accelerated atherosclerosis ("clogging" of the arteries), and stroke
- Chronic lower back pain
- Difficulty maintaining personal hygiene
- Fatty liver disease, which can progress to inflammation and scarring of liver tissue
- Gallbladder disease
- Gastroesophageal reflux disease (GERD), causing inflammation of the esophagus
- Osteoarthritis, particularly of the knees
- Psychological problems, including social stigmatization and depression
- Pulmonary hypertension (high blood pressure in the arteries carrying blood to the lungs)
- Reduced physical mobility
- Skin problems, including inflammation and infection in skin folds (such as the armpits and the underside of the breasts or belly)
- Stress urinary incontinence

According to the CDC, Obesity (Siman-e-mufrath) increases the risk of developing a number of potentially serious health problems, including:[11]

- Coronary heart disease
- High blood pressure
- Stroke
- Type 2 diabetes
- Some cancers (breast, colon, endometrial, gallbladder, kidney, and liver)
- Sleep apnea
- High LDL cholesterol, low HDL cholesterol, or high levels of triglycerides
- Gallstones
- Osteoarthritis
- Infertility or irregular periods
- Depression

PREVENTION AND CONTROL:

Weight control is widely defined as approaches to maintaining weight within the healthy' (i.e. 'normal' or 'acceptable') range of body mass index of 18.5 to 24. 9 kg/m2 throughout adulthood (WHO Expert Committee, 1995). It should also include prevention of weight gain of more than 5 kg in all people. In those who are already over-weight, a reduction of 5-10 per cent of body weight is recommended as an initial goal.

Prevention of Obesity (Siman-e-mufrath) should begin in early childhood. Obesity (Siman-e-mufrath) is harder to treat in adults than it is in children. The control of Obesity (Siman-e-mufrath) centers around weight reduction. This can be achieved by dietary changes, increased physical activity and a combination of both.

Dietary Changes:

The following dietary principles apply both to prevention and treatment:

- the proportion of energy-dense foods such as simple carbohydrates and fats should be reduced;
- the fibre content in the diet should be increased through the consumption of common un-refined foods;
- adequate levels of essential nutrients in the low energy diets (most conventional diets for weight reduction are based on 1000 kcal daily model for an adult) should be ensured, and reducing diets should be as close as possible to existing nutritional patterns.
- The most basic consideration is that the food energy intake should not be greater than what is necessary for energy expenditure.

Increased physical activity:

This is an important part of weight reducing programme. Regular physical Exercise (Riyazath) is the key to an increased energy expenditure.[2]

EXERCISE (RIYAZATH):

Definition: Though people often use physical activity and Exercise (Riyazath) interchangeably, the terms have different definitions. "Physical activity" refers to any body movement that burns calories, whether it's for work or play, daily chores, or the daily commute. "Exercise (Riyazath)," a subcategory of physical activity, refers to planned, structured, and repetitive- activities aimed at improving physical fitness and health.[12]

All degrees of Exercise (Riyazath) (strong, weak, little, or alternating with rest) agree in increasing the innate heat. It makes little difference whether the Exercise (Riyazath) be vigorous or weak and associated with much rest or not, for it makes the body very hot and even if Exercise (Riyazath) should entail a loss of the innate heat it does so only to a small amount.[13]

Classification of Exercise (Riyazath):

There are three basic kinds of Exercise (Riyazath), and each has its own unique effect on the body. A good fitness regimen should include components of all three.

1) **Aerobic Exercise (Riyazath):**

Aerobic exercise (Riyazat) involves continuous, rhythmic movements of large muscle groups using oxygen as the primary energy source. It improves cardiovascular fitness, enhances endurance, and promotes fat burning. Common examples include walking, jogging, cycling, swimming, skipping, dancing, and treadmill exercise. Regular aerobic exercise also helps in maintaining a healthy body weight and overall physical fitness.[13]

2) **Strength Conditioning:**

Strength conditioning, also known as resistance training, involves exercises performed against resistance to improve muscle strength, endurance, and bone density. It also enhances joint function, increases lean muscle mass, boosts metabolism, and supports overall physical fitness. Common examples include weightlifting, squats, lunges, push-ups, bench presses, bicep curls, and back extensions.[13]

3) **Flexibility Training**

Flexibility training (Riyazat) consists of stretching exercises that improve joint mobility, muscle flexibility, and posture. It helps prevent injuries, reduces muscle stiffness and soreness, and promotes relaxation. Activities such as stretching and yoga are effective in maintaining flexibility and complement both aerobic and strength training. In Unani medicine, regular exercise also promotes the elimination of waste products, stimulates innate body functions, and supports overall health.[14]

Types of Exercise (Riyazath):

A. Riyazat-e-Juziya/Incomplete Exercise (Riyazath).

B. Riyazat-e-Haqeeqi/Kulli/Complete Exercise (Riyazath).[15]

Other types of Exercise (Riyazath) are: [15]

- Riyazat-e- Aarziya (Gair Iridi)
- Riyazat-e- Zatiya (Khalisa)

a. **Riyazat-e-A'arziya**: It is a passive Exercise (Riyazath), means Exercise (Riyazath) process is unintentionally during occupational activities like Iron smith.

b. **Riyazat-e-Zatiya (Khalisa)**: It is an active Exercise (Riyazath) to gain its benefits which is further divided according to strength, duration and mode of Exercise (Riyazath)

Classification of Riyazat-e-Zatiya:[16][17]

1. **According to strength three types**: a. Riyazat-e-Qaviya shaded (strenuous Exercise (Riyazath).

b. Riyazat-e-Motadil (Moderate Exercise (Riyazath)

c. Riyazat-e-Zaeefa (Mild Exercise (Riyazath).

2. **According to duration**:

a. Riyazat-e-Kaseera (prolonged Exercise (Riyazath)
b. Riyazat-e-Motadil (moderate duration Exercise (Riyazath)
c. Riyazat-e-Qaleela (short duration Exercise (Riyazath)

3. **According to strength and Sura'at:**

a. Riyazat-e-Hashecha (fast and strenuous Exercise (Riyazath)

b. Riyazat-e-Motadil (Moderate and strenuous Exercise (Riyazath)
c. Riyazat-e-Mutarakhiya (slow and strenuous Exercise (Riyazath)

EFFECTS OF RIYAZAT:[18]

(a) Riyazat has important role in maintaining health and minimize the chance of ailment.
(b) It inhibits the accumulation of morbid material in body and help in tahleel of toxins.
(c) Riyazat protects the body from gair maadi and maadi disease.
(d) Removal of waste products from body through natural routes.
(e)Stimulation of hararate gharizia.
(f) Strengthening of Quwate Dafia (power of evacuation) and Quwate Hazima (power of digestion).

HIDAYAT E RIYAZAT (ADVICEE FOR EXERCISE) According to age, occupation, temperament, timing and body conditions riyazat is advised which are as follows:

1. Urinary bladder and intestines should be empty before riyazat.

2. In summer and winter seasons, there should be light diet (lateef ghiza) and heavy diet (thouse ghiza) during riyazat respectively.

3. In case of excess burudath, yubusat and hararat Exercise (Riyazath) is not advisable.

4. Morning hours are best time for Exercise (Riyazath).

5. Riyazat should be avoided in two states that is, during empty and full stomach.

6. Riyazat should be stopped gradually not at once.

7. Person should continue his or her Riyazat till body movements are performed easily and shiny skin is apparent

8. If skin color goes dull or pale, felling of fatigue or swelling of organs then riyazat should be stopped immediately.[18]

9. For weight reduction light nutritious diet exercise helps.

DURATION OF PHYSICAL ACTIVITY: [19]

In adults aged 18-64, physical activity includes leisure time physical activity (for example: walking, dancing, gardening, hiking, swimming) transportation (e.g walking or cycling), occupational (i.e. work), household chores, play, games, sports or planned Exercise (Riyazath), in the context of daily, family, and community activities) In order to improve cardiorespiratory and muscular fitness, bone health, reduce the risk of NCDs and depression:

1. Adults aged 18-64 should do at least 150 minutes of moderate-intensity aerobic physical activity throughout the week or do at least 75 minutes of vigorous-intensity aerobic physical activity throughout the week or an equivalent combination of moderate- and vigorous-intensity activity.

2. Aerobic activity should be performed in bouts of at least 10 minutes duration.

3. For additional health benefits, adults should increase their moderate-intensity aerobic physical activity to 300 minutes per week, or engage in 150 minutes of vigorous-intensity aerobic physical activity per week, or an equivalent combination of moderate- and vigorous-intensity activity.

4. Muscle-strengthening activities should be done involving major muscle groups on 2 or more days a week.

IMPORTANCE OF PHYSICAL ACTIVITY:

Regular physical activity is important for good health, and it's especially important if you're trying to lose weight or to maintain a healthy weight.

- When losing weight, more physical activity increases the number of calories your body uses for energy or "burns off." The burning of calories through physical activity, combined with reducing the number of calories you eat, creates a "calorie deficit" that results in weight loss.

- Most weight loss occurs because of decreased caloric intake. However, evidence shows the only way to maintain weight loss is to be engaged in regular physical activity.

- Most importantly, physical activity reduces risks of cardiovascular disease and diabetes beyond that produced by weight reduction alone.[20]

PHYSICAL ACTIVITY ALSO HELPS TO:[20]

- Maintain weight.

- Reduce high blood pressure. Reduce risk for type 2 diabetes, heart attack, stroke, and several forms of cancer.

- Reduce arthritis pain and associated disability.

- Reduce risk for osteoporosis and falls.

- Reduce symptoms of depression and anxiety.

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