



eISSN - 2348-0173

Vol-2, Issue-1 - Jan-Feb -2014

www.ijaam.org



INTERNATIONAL JOURNAL OF AYURVEDA & ALTERNATIVE MEDICINE

CASE STUDY

eISSN 2348- 0173

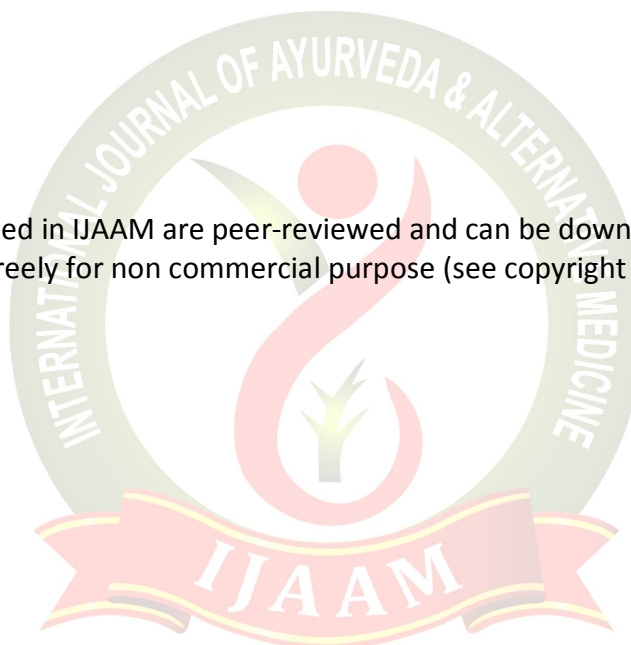
**EFFECT OF FREESTYLE DANCE AS A VYAYAMA (EXERCISE) ON
CENTRAL OBESITY– A CASE STUDY**

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Article Received on	-	6 th February 2014
Article Revised on	-	10 th March 2014
Article Accepted on	-	14 th March 2014

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CASE STUDY

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**EFFECT OF FREESTYLE DANCE AS A VYAYAMA (EXERCISE) ON
CENTRAL OBESITY- A CASE STUDY****ABSTRACT**

Obesity is one of the causative factors for diseases like diabetes mellitus, hypertension, cardiovascular disease, atherosclerosis, cancer etc. Hence prevention and cure of obesity is the need of an hour. Central (Abdominal) obesity is serious form of obesity. Dance is very popular and desirable exercise which can be done without spending a penny. Depending upon the form of the dance one can actually burn a large amount of calories doing it. Freestyle dance is one of the dance forms which people do in festivals of India and is done free of cost with joyfully. In the present study, subject was taken having signs of central obesity. Freestyle dance was advised to the subject for 30 minutes for 15 days regularly without diet restriction. Five bollywood songs with fast music were selected for free style dance. Due to Freestyle dance as an exercise weight of the subject decreased from 60 Kg to 55 Kg. Abdominal girth has been reduced from 95 cm to 85 cm at the level of umbilicus, from 90cm to 80 cm, at the level 6 cm above the umbilicus and from 92 cm to 82 cm at the level 6 cm below the umbilicus. Abdominal girth has been reduced at the level of superior iliac crest from 105 to 95cm. B.M.I. (Body Mass Index) Chart has been decreased from 24.34 kg/m² to 23.12 kg/m². Body Fat Percentage has been decreased from 24 to 23. Present study showed that freestyle dance as a Vyayama (exercise) can be included as important daily regimen, curative and preventive measure for central obesity.

KEY-WORDS- Freestyle dance, Vyayama (Exercise), Central obesity, Daily regimen

INTRODUCTION:

Due to changing and fast lifestyle people are suffering from various health problems. Sedentary lifestyle causes many diseases like diabetes mellitus, hypertension, cardiovascular disease, atherosclerosis, cancer etc. Abdominal obesity, also known as belly fat or clinically as central obesity is excessive abdominal fat accumulation around the stomach and abdomen. There is a strong correlation between central obesity and cardiovascular disease.^[1]

Ayurveda is meant for the maintenance of the health and for prevention and cure of diseases.^[2] Practice of *Vyayama* (exercise) renders body light and efficient in activities, improves digestive power, decreases *Meda* (lipid), and renders finely chiseled contours and consistent body structure.^[3] Regular exercise has modest effects on reducing body weight with substantially greater effects on improving body composition.^[4] Nowadays dance is good not only for body but also for mind. No other exercise can make your body and mind healthy as dance does. It helps to lose weight, gives strength and tone to the body, increases stamina, flexibility and gives confidence.^[5]

All over the world, Aerobic dance exercise is one of most common exercise in practice.^[6] Music with slow or fast rhythm helps to control and pace the movement of selected segments.^[7] In India, freestyle dance is more popular than aerobic dance.

This study is proposed to explain that freestyle dance can be considered as *Vyayama* (exercise) as a preventive measure and one of the important daily regimen and treatment of the central obesity.

AIMS AND OBJECTIVES:

1. To study the concept of *Vyayama* (exercise) in detail
2. To study the details of dance
3. To explain the freestyle dance as a *Vyayama* (exercise).
4. To explain the freestyle dance is a curative and preventive measure on central obesity
5. To spread awareness in society to consider freestyle dance as an important exercise as well as daily regimen.

MATERIALS AND METHODS:**MATERIALS:**

Ayurved text like *Brihat trayee* (combination of three texts i.e. *Charaka Samhita*, *Sushruta Samhita* & *Ashtanga Sangraha/ Hridaya*) and *Laghu Trayee* (combination of three text i.e. *Madhava Nidana*, *Bhavaprakasha Nighantu* & *Sharangadhara Samhita*) has been used to evaluate the concept of *Vyayama* (Exercise). Different websites have been searched for the concept of dance and exercise.

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METHOD:**Inclusion Criteria:****Criteria of Central Obesity:**

- Subject with increased abdomen size.
- Body fat percentage should indicate latent obesity.
- Subject's weight and height should be monitored.
- Subject should be without any acute or chronic illnesses other than central obesity.

Exclusion Criteria:

- Subject having major illnesses like cardiovascular disease, Diabetes mellitus and renal disorders.
- Non-co-operative
- Subject with any acute or chronic illnesses other than central obesity

Criteria of Assessment:**Criteria of Central Obesity:**

- Measurements of abdominal girth at umbilicus level, and 6 c.m. above and below the umbilicus have been taken before and after 15 days of Freestyle dance as a *Vyayama* (exercise).
- Measurements of hips at the level of superior iliac crest have been taken before and after 15 days of Freestyle dance as a *Vyayama* (exercise).
- A body fat percentage was monitored before and after 15 days of Freestyle dances as a *Vyayama* (exercise).
- Body Mass Index chart has been observed before and after 15 days of Freestyle dance as a *Vyayama* (exercise).

Criteria of freestyle dance as exercise:

- 5 bollywood songs (Bollywood songs, more formally known as Hindi film songs or film songs or songs featured in Hindi films. Derided in Western film circles for the song-and-dance routine, Hindi songs along with dance, are a characteristic of Hindi cinema which gives it enduring popular appeal, cultural value and context)^[8] with fast music were selected for free style dance.
- Dance was done for 30 minutes preceded by warm up exercises daily for consecutive 15 days at morning before breakfast.
- Dance was done till the onset of perspiration, increase in respiration rate, increase in heart rate and feeling lightness of the body.
- Initially on first day freestyle dance was done on two bollywood songs, 2nd day on three bollywood songs and then 3rd day it was done on four bollywood songs and from 4th day to

15th day it was done on 5 bollywood songs regularly.

- No diet restriction was advised.

OBSERVATIONS:

Patient's name: XYZ

Age- 43 yrs

Sex- F

Weight – 60 kg,

Height- 157 cm

Diet – Mixed

Profession: Teacher

Present Complaints –

- Increase in abdominal size since 4 months
- Mild dyspnoea on exertion since 6 days
- Mild heaviness in chest while walking staircase since 6 days
- Not feeling active since 10 days

Special unusual complaint – Patient was unable to wear jeans because of increased abdomen size (waist size of 36)

On Examination - It was observed that patient was very conscious about her look.

- Pulse rate- 72/min
- B.P(Blood Pressure)- 120/80 mm of Hg
- R.R(Respiration Rate)- 24/min

Family History:

- Father is having Hypertension and Diabetes mellitus since 21 years and taking treatment regularly.
- Mother expired due to 3rd Myocardial Infarction 7 yrs back.

Personal History:

No h/o any major illness/Diabetes Mellitus/Ischemic Heart Disease /Renal disorders

Obstetrics and Gynecological History:

- F.T.N.D.(Full Term normal delivery), Female child- 14 years
- M.C.(Menstrual Cycle)-3-4 days/28 days, Regular

Table No: 1 Pathological Investigations:

Test	Patients value mg/dl	Normal Range mg/dl
F. Blood sugar	79.9	60-110
Sr. Cholesterol	187.6	140-250
Sr. Triglycerides	51.4	25-160
LDL Cholesterol	29.9	30-80
HDL Cholesterol	147.5	90-130
VLDL Cholesterol	10.2	Upto 40
Total Cholesterol /HDL Ratio	6.2	<5

- Body fat percentage- 24 (suggests latent obese)
- Body Mass Index -24.34Kg/m²
- E.C.G.(Electrocardiogram)- within normal limits

RESULTS:**Table No: 2 Findings of the Study**

Criteria	Site	Before	After
Weight		60 Kg	55 Kg.
Abdominal girth	at the level of umbilicus	95 cm	85 cm
	at the level of 6 cm above the umbilicus	90cm	80 cm
	at the level 6 cm below the umbilicus	92 cm	82 cm
	at the level superior iliac crest	105 cm	95 cm
Body Mass Index Chart		24.34 kg/m ²	23.12 kg/m ²
Body Fat Percentage		24	23

In the above taken subject Body Mass Index is decreased after the freestyle dance. In the above taken subject Body fat percentage i.e. 24 suggests the latent obese which decreased after the freestyle dance to 23. No change was found in Blood Pressure reading, Pulse rate, Respiration rate and E.C.G. (Electrocardiogram) reading.

After 15 days of freestyle dance clinically patient was feeling active, decreased dyspnea on exertion and decreased mild heaviness in chest while walking staircase.

This suggests that due to freestyle dance as an *Apatarpana* (reduction) therapy weight of the subject and abdomen & hips size of the subject has been reduced.

DISCUSSIONS:**About Central Obesity:**

The obesity related problems start when fat accumulates around waist. Fat gets deposited in and around belly in all living beings. Hence when a person becomes obese his stomach bulges out.

The characters of an obese person are described that owing to an excessive increase of fat and muscle tissue, the hips, abdomen and breast become pendulous and his strength is rendered disproportionate with his physical growth. [9] So obese person will not be active. Abdominal obesity (also known as central obesity, central adiposity) means that most of the excess fat is located around stomach and abdomen. [10] For generations it has been known that carrying too much weight around the middle is not healthy.

According to *Ayurveda*, increased *Mamsa Dhātu* (muscle tissue) causes *Ganda* (diseases affecting neck region like *Galaganda* (goitre), *Gandamala* (cervical lymphadenitis) etc., *Arbuda* (large tumors including malignant ones), *Granthi* (benign lumps), increased fat deposition upon chicks, thighs, abdomen and *Adhimamsa* (extra muscular bulk) at and around neck. Increased *Meda Dhātu* (lipid

tissue) manifests symptoms similar to that of *Mamsa Dhātu* (muscle tissue) besides increased fatigue on exertion and increase in size and sagging of buttocks, breasts and abdomen. [11] It means that central obesity can correlate with symptoms of increased *Mamsa Dhātu* (muscle tissue) and *Meda Dhātu* (lipid tissue).

Avoidance of regimens like physical exercise, indulgence in day sleeping, bed rest and sedentary habits produce more *Kapha*, fat and urine. [12] Daily exercise is recommended for central obesity. [13]

About Vyayama (Exercise):

In *Ayurveda*, *Vyayama* (exercise) is included as a daily regimen for the maintenance of good health. [14] Practice of physical exercise renders *Laghava* (body light), *Karma Samarthya* (efficient in activities), *Deeptagni* (improves digestion power), *Meda Kshaya* (decreases lipid), renders *Vibhakta Gatra* (finely chiseled contours), *Ghana Gatra* (consistent body). [15]

Simultaneously *Acharyas* have explained the two types of therapies i.e. *Samtarpana* (nutrition) and *Apatarpana* (reduction) which is to make thin person stout and stout person thin respectively. [16] And in the *Apatarpana* (reduction) therapy, *shaman* (palliative) therapy is recommended which also includes *Vyayama* (exercise). [17] In short, action of *Meda Kshaya* (decreases lipid) is done by *Vyayama* (exercise) and *Apatarpana* (reduction) therapy. *Vyayama* (exercise) should be done of persons half of the capacity. [18] Excessive *Vyayama* (exercise) is not good for health. [19] Excessive indulgence in activities whatever prohibited may cause instantaneous death. Even a lion meets with death due to the vitiation of *vata* caused by over exertion, if he tears open a disproportionately huge. [20] One should do exercise slowly and gradually increasing manner. [21] Specific exercise can be employed for selective muscle groups only. For e.g. Quadriceps

muscle strengthening, exercise for rehabilitation after fracture of tibia, for weight/ stress upon a joint (e.g. neck exercises for tissue fluid in cervical spondylosis), mobilization of tissue fluid in oedema after inflammatory lesions etc. [22]

Vyayama (exercise) should be performed after considering age, physique, place, time and diet otherwise one is afflicted with severe disorder. [23] When *prana vayu* situated in heart comes out to mouth while performing exercise it is the sign of *balardha* (half of the strength). [24] *Vyayama* (exercise) should be done until the perspiration occurs, increase in respiration rate occurs, feeling lightness of the body & increase in heart rate (tachycardia) occurs. [25]

A new light can be thrown on points such as whether freestyle dance can included as a *Vyayama* (exercise) as a daily regimen or not, whether freestyle dance can act as a remedy on central obesity or not and also whether freestyle dance can act as preventive measure on central obesity or not.

About dance:

Nowadays freestyle dance is the dance form which every person does in festivals of India without spending money. Research shows that a 150 pound adult can actually burn approximately 150 calories doing 30 minutes at social dancing. The best part is that you are not thinking about losing the weight while doing it. [26] There are many types of dances. Social dance is a classy social and recreational activity. Modern dance includes Jazz dance, Folk dance, Ballet dance, Cha-Cha dance, Rumba dance which developed rapidly. [27] Aerobic dance is very popular in Malaysia to reduce Obesity. [28]

Depending upon the form of the dance one can actually burn a large amount of calories doing it. [29] Researchers believed that dancing can keep your mind and body healthy. Ballroom dancing works the back of the thighs and buttock muscles differently from many other types of exercise. [30] Belly dancing helps to prevent lower back problems, Salsa dancing helps lower blood pressure and cholesterol. Ballroom dancing works the back of the thighs and buttock muscles differently from many other types of exercise. [31] Overall dancing has become a well known form of exercise. So freestyle dance is also a form of dance. To dance for 30 minutes continuously or in sessions (not less than 10 minutes per session) every day will bring you a lot of physical benefits, such as:

1. Increase bone density and reduce the risk of osteoporosis; 2. Improve cardiopulmonary functions and blood circulation; 3. Lower the risks of coronary heart disease, high blood pressure, diabetes and some types of cancer (e.g. colon cancer); 4. Improve the flexibility and suppleness of

joints, thereby reducing the risk of injury; 5. Burn excessive calories to maintain a healthy body weight; 6. Relieve stress and enhance physical and mental health; and 7. Broaden social circle and enhance relationship with friends and family members. [32]

Examples of the calories expended during exercise will help weight management as follow: 1. For an adult aged 45 years and weighing 70kg, 30 minutes of social dancing will burn about 130kcal. 2. For an adult aged 25 years and weighing 50kg, 30 minutes of Jazz dancing will burn about 120kcal. [33] The actual amount of energy expended may vary with individuals' age, gender, physical fitness, skill level and the intensity of exercise, etc. [34] Research shows that faster the music's tempo, the higher the power output and these findings further support the idea of Kapings on the effect of music components on exercise. [35] Music can encourage people exercise harder and can reduce the perception of effort significantly and increase endurance by as much as 15%. [36] Music may have a considerable effect on enjoyment levels during exercise among the intervention group, resulting in good attendance and selecting the right music may be the key factor in maintaining adherence to exercise among them. [37] So the fast rhythm music songs of bollywood were selected for this study.

Correlation of *Vyayama* (Exercise) and Freestyle dance:

Similar rules, effects and Proper signs are explained to perform exercise and any dance form.

CONCLUSION:

- The practice of *Vyayama* (Exercise) helps in *Meda Kshaya* (decreased of lipid tissue) which is seen by doing freestyle dance.
- Freestyle dance is a form of dance & among the various dance forms Freestyle dance can be included as *Vyayama* (exercise) in daily regimen. It can be included as remedy and one of the preventive measures in central obesity.
- In *Ayurved* text the abundant material is found on *Vyayama* (Exercise) but which kind of exercise should be done is not explained in any text of *Brihat trayee* and *Laghutrayee*
- Person having central obesity can do freestyle dance as *Vyayama* (exercise).

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CITE THIS ARTICLE AS –

Manisha Dunghav- Effect of Freestyle Dance as a *Vyayama* (Exercise) on Central Obesity– A Case Study Int. J. Ayu. Alt. Med., 2014; 2(1):53-58

Source of Support – Nil

Conflict of Interest – None Declared



INTERNATIONAL JOURNAL OF AYURVEDA & ALTERNATIVE MEDICINE

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