

Observational Study the Effect of 'Yava' (Hordeum Vulgare) on Meda-Dhatu with Special Reference to Sthaulya.

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ABSTRACT

Ayurveda is an ancient science which deals with the physiological and pathological status of human being. In Ayurveda, Sthaulya is the disorder of Meda-dhatu metabolism. The equilibrium state of Meda-dhatu depends upon 'Jatharagni,' 'Bhutagni,' 'Dhatwagni'. Sthaulya is the vyadhi caused by 'Mithya Ahar-Vihar.' Sthaulya is the 'Santarpanottha Vyadhi' in which there is excess accumulation of Meda-dhatu. Relatively, in modern science Obesity can be placed under the spectrum of vrudhhi (excess accumulation) of Meda-dhatu (Adipose tissue). Obesity is the medical condition in which there is excess body fat accumulation to the extent that it may have an adverse effect on health. The current trend in Indians is to follow diet and practices (Ahar-Vihar) put forth by western culture. The climate in the western countries is suitable for such diet and practices but Indian climate which is mostly hot and tropical poses an issue. Considering these varying factors, it is unwise to blindly follow such culture, because it is causing a rise in overweight and obesity issues. So as a lifestyle disorder, it is important to make some basic changes in diet itself, which will work on Meda-dhatu and maintain it in its normal level by decreasing it. The diet (Ahar) is known as 'Mahabhashaj' (supreme medicine). No medicine can be good for the patient who does not follow the 'pathya'. 'Yava' dhanyam mentioned in samhitas with its Medahar properties given as 'Pathya-Ahar.' 'Yava' i.e., Barley have latin name "Hordeum vulgare" member of Grass Family (Shuka Dhanya Varga). Yava (Barley) is selected for its Lekhana and Medahar property. So, the 'Yava' dhanyam introducing into the diet which will show changes in the Meda-dhatu by its medahar properties.

Keywords: - Meda dhatu, Sthaulya, Yava, Obesity, Barley

I. INTRODUCTION

The term Ayurveda consists of two words i.e., 'Ayu' and 'Veda.' The word Ayu means life and Veda means knowledge. Ayurveda physiology is the study of three major biological gears of the living body. These are Dosha, Dhatu, and Mala. They together constitute the living body.^[1] The homeostasis is the equilibrium of Dosha-Dhatu-Mala in the body while the unhealthy state is disturbance of this equilibrium which is manifested in the body either as Kshaya (diminution) or Vrudhhi (increase).^[2] The human body is made up of seven dhatus, in which Meda dhatu is considered as Sneha dominant Dhatu. Sneha is common feature of fat or lipids and Meda Dhatu. Excessive intake of Shleshma Vardhak Ahar (Kapha aggravating diet) and Vihar (sedentary lifestyle) and reduced exercise causes Agnidushti resulting in the excessive formation of Saam Meda Dhatu. Impaired Meda Dhatwagni (fat metabolism) produces excessive homologous nutrients in the circulation in Poshak Meda dhatu. The condition is referred as Meda Vrudhhi. Hyperlipidaemia is a condition in which levels of the lipoproteins (cholesterol, triglycerides etc.) are raised in plasma and that can be co-related to raised 'Meda' in the body. Meda Dhatu is the dominant Dushya in Sthaulya (Meda Vrudhhi) while Obesity is often associated with abnormal lipid levels. Obesity increases the risk of developing several chronic diseases. If we observe Nidana (etiology) of Meda Vrudhhi, this is caused by over eating specially Madhura and Snigdha Ahara, by the restricted movement, work, and excessive sleep.

In Ayurveda, Sthaulya is the disorder of Meda-dhatu metabolism. The equilibrium state of Meda-dhatu depends upon 'Jatharagni,' 'Bhutagni,' 'Dhatwagni'. Sthaulya is the disease of various endocrine-hormonal disorders and 'Mithya Ahar-Vihar.'^[3] Sthaulya is the 'Santarpanottha Vyadhi' in

which there is excess accumulation of Meda-dhatu.^[4] Relatively, in modern science Obesity can be placed under the spectrum of vrudhhi(excess accumulation) of Meda-dhatu (Adipose tissue). Obesity is the medical condition in which there is excess body fat accumulation to the extent that it may have an adverse effect on health. The fundamental cause of overweight and obesity is an energy imbalance between calories consumed and calories expended. It is classified by BMI i.e., body mass index.^[5] According to SamanyaVisheshSiddhanta “apatarpana” is one of the best treatments for santarpanothavyadhi.

‘Yava’ dhanyamentioned in samhitas with its Medaharproperties given as ‘Pathya-Ahar.’ ‘Yava’ i.e., Barley have latin name “Hordeum vulgare” member of Grass Family (Shuka DhanyaVarga).^[6] Yava (Barley) is selected for its Lekhana and Medahar property. So, in this study the ‘Yava’ dhanyainroducing into the diet which will show changes in the Meda-dhatu by its medaharproperties.

AIM:

To observe the effect of Yava on meda dhatu.

PRIMARY OBJECTIVE:

To study the effect of Medaharproperty of ‘Yava’ on meda-dhatu.

II. MATERIALS AND METHODS

MATERIALS: Literary source: Classical text books, Articles from internet, journals, and other published works & related source of data from internet.

LOCATION OF STUDY: Patients reported in the OPD of our Hospital were carefully selected according to the diagnostic, inclusive criteria.

CONSENT: A well-informed written consent of all patients included in my study was taken before starting the study.

DURATION: 2 times a day for two months.

METHOD OF SELECTION OF STUDY SUBJECT:

For the present study, 60 overweight & obese patients have been taken from the Outdoor Patient Department of the hospital. Patients have been selected as per inclusion and exclusion criteria and patients were observed with the respect Meda dhatu vrudhhi as per Ayurvedic classics and modern science. The special research proforma or case record form incorporating all required examinations and the investigations conducted with the use of Ayurvedic and modern techniques has been made.

SAMPLE SIZE: Total 60 Patients

1. INCLUSION CRITERIA:

- Overweight (male and female) BMI 18-29 having age group between 16-60 years.
- Obese (male and female) BMI 30 and above of age group 16-60 years.
- Individuals irrespective of gender, socio-economic status.
- Subject ready to give informed consent.

2. EXCLUSION CRITERIA:

- History of any physical or mental illness.
- Those with age less than 16 yrs. and more than 60 years will be excluded.
- Patients having any other major illness like major cardiac disorder, malignancy, HIV, HBsAg.

INTERVENTION OF YAVA

Yava is intervened in the form of Vilepi for two months. [Replaced Rice in the diet.]
 Quantity of Yava: 15 gm per serving.

Table No. 3: PREPARATION:

Formulation name	Proportion of yava	Proportion of water	Desired characteristics of prepared formulation	Final constitution of prepared formulation
Vilepi	1 part	4 parts	Till the yava is completely cooked.	Maximum solid portion with little liquid.

Parameters: - Objective Parameter of Meda Dhatu Vrudhhi

1. BMI - Weight in kg. / (Height in metre)²
2. Lipid profile test^[124]

Subjective Parameter: - Medadhatu Vrudhhi Parikshana -

1. Shramam (Fatigue)
2. AlpepiCheshtiteShwasam (Shortness of Breath)
3. Swedabadh (Sweating)

4. Sphikstanodarlanbanam (Sagging of butts, breasts, abdomen - Waist Girth)
5. Daurgandhya (Foul smelling of body)
6. Kasa (Cough)

Special grading and scoring scale made by me will be validated and standardized by the college committee or ethical committee.

GRADING AND SCORING:

SHRAMAM (FATIGUE)

- 1) No fatigue:0
- 2) Fatigue occasionally in doing heavy work:1
- 3) Fatigue doing little work also:2
- 4) Fatigue even without work:3

ALPEPI CHESHTITE SHWASHAM (SHORTNESS OF BREATH)

- 1) No shortness of breath:0
- 2) Shortness of breath by heavy movements:1
- 3) Shortness of breath by mild movements:2
- 4) Shortness of even without movements:3

SWEDABADH (SWEATING)

- 1) No sweating:0
- 2) Mild sweating irrespective of summer season:1

3) Moderate sweating irrespective of summer season:2

4) Severe sweating irrespective of work and season:3

SPHIKSTANODAR LAMBANAM (WAIST GIRTH)

- 1) Waist circumference < 80:0
- 2) Waist circumference – 80-88:1
- 3) Waist circumference > 88:2
- 4) Waist circumference – 94-102:3

DURGANDHATA (FOUL SMELL OF THE BODY)

- 1) No Foul Smell: 0
- 2) Occasional foul Smell: 1
- 3) Intermittent foul Smell: 2
- 4) Always foul Smell: 3

KAAS (COUGH)

- 1) No Cough: 0
- 2) Transient Cough Occasionally: 1
- 3) Frequent Cough Mildly affecting daily life: 2
- 4) Frequent Cough Severely affecting daily life: 3

Table No. 2: MedaVruddhiLakshana Score Range

GRADE	MEDA VRUDDHI	SCORE RANGE
1	AVARA	1-6
2	MADHYAMA	7-12
3	PRAVARA	13-18

Some images of the instruments are being attached here, which are used while examined the patients regarding the thesis work. These are as below –



Plate No. 1: Yava Plant Form



Plate No. 2: Yava Grain packings



Plate No. 3: Yava granules



Plate No. 4: Cooked Yava



Plate No. 5: Weight Measurement



Plate No. 6: Measuring Tape

III. OBSERVATIONS AND RESULTS

Agni

Table 9: Shows Agni wise distribution –

Sr. No.	Agni	No. of Patients	Percentage
1	Manda	3	5
2	Tikshna	8	13.33
3	Visham	49	81.67
4	Total	60	100

Koshta Wise

Table 10: Shows Koshta wise distribution –

Sr. No.	Koshta	No. of Patients	Percentage
1	Krura	9	15
2	Madhyam	46	76.67
3	Mrudu	5	8.33
4	Total	60	100

Kshudha

Table 11: Shows Kshudha wise distribution -

Sr. No.	Kshudha	No. of Patients	% of patients
1	Atikshudha	10	16.67
2	Madhyam	44	73.33
3	Manda	6	10
4	Total	60	100

Diet/ Ahara

Table 12: Shows Diet wise distribution -

Sr. No.	Diet	No. of Patients	% of patients
1	Mix	42	70
2	Veg	18	30
3	Total	60	100

3.1 Statistical Analysis of Subjective & Objective Parameters: In BT and AT

3.1.1. Subjective Parameters (By Wilcoxon Singed Ranks Test)

A) Fatigue

Table 19: Wilcoxon Signed Ranks Test

BT / AT	N	Mean	SD	W	P
BT	60	1.983	0.596	0	< .00001
AT	60	0.333	0.572		

As value of p is less than 0.05, significant difference was observed between BT and AT mean. Hence it is concluded that Fatigue is decreased significantly.

B) Shortness of Breath

Table 20: Wilcoxon Signed Ranks Test: in Group A and in Group B

BT / AT	N	Mean	SD	W	P
BT	60	1.217	0.667	0	< .00001
AT	60	0.25	0.541		

As value of p is less than 0.05, significant difference was observed between BT and AT mean. Hence it is concluded that Shortness of Breath is decreased significantly.

C) Foul Smell of the body

Table 21: Wilcoxon Signed Ranks Test: in Group A and in Group B

BT / AT	N	Mean	SD	W	P
BT	60	1.183	0.676	0	< .00001
AT	60	0.25	0.541		

As value of p is less than 0.05, significant difference was observed between BT and AT mean. Hence it is concluded that Foul Smell of the body is decreased significantly.

D) Waist girth

Table 22: Wilcoxon Signed Ranks Test: in Group A and in Group B

BT / AT	N	Mean	SD	W	P
BT	60	1.667	1.1149	NA	1
AT	60	1.667	1.1149		

As value of p is greater than 0.05, insignificant difference was observed between BT and AT mean. Hence it is concluded that Waist girth is not significantly changed.

E) Cough

Table 23: Wilcoxon Signed Ranks Test: in Group A and in Group B

BT / AT	N	Mean	SD	W	P
BT	60	1.283	0.613	0	< .00001
AT	60	0.2667	0.548		

As value of p is less than 0.05, significant difference was observed between BT and AT mean. Hence it is concluded that Cough is decreased significantly.

F) Sweating

Table 24: Wilcoxon Signed Ranks Test: in Group A and in Group B

BT / AT	N	Mean	SD	W	P
BT	60	1.5	0.504	0	< .00001
AT	60	0.367	0.485		

As value of p is less than 0.05, significant difference was observed between BT and AT mean. Hence it is concluded that Sweating is decreased significantly.

3.2 Statistical Analysis of Lipid Profile: In BT and AT

Table 25: Students paired t Test: in BT and AT

Parameter	BT/AT	N	Mean	SD	T	P
Sr. Total Cholesterol	BT	60	144.53	29.85	-13.792	< .00001
	AT	60	140.18	29.99		
Sr. Triglycerides	BT	60	116.12	35.59	-11.633	< .00001
	AT	60	111.98	34.79		
Sr. HDL	BT	60	34.237	5.0199	5.1001	< .00001
	AT	60	34.396	5.0176		
Sr. LDL	BT	60	76.08	27.553	-12.088	< .00001
	AT	60	71.84	27.26		
Sr.VLDL	BT	60	20.95	8.13	-12.518	< .00001
	AT	60	19.25	7.80		

A) Sr. Total Cholesterol

As value of p is less than 0.05, significant difference was observed between mean of BT and AT score. Hence it is concluded that Yava is significantly effective to reduce **Sr. Total Cholesterol** in Sthaulya.

B) Sr. Triglycerides

As value of p is less than 0.05, significant difference was observed between mean of BT and AT score. Hence it is concluded that Yava is significantly effective to reduce **Sr. Triglycerides** in Sthaulya.

C) Sr. HDL

As value of p is less than 0.05, significant difference was observed between mean of BT and AT score. Hence it is concluded that Yava is significantly effective to increase **Sr. HDL** in Sthaulya.

D) Sr. LDL

As value of p is less than 0.05, significant difference was observed between mean of BT and AT score. Hence it is concluded that Yava is significantly effective to reduce **Sr. LDL** in Sthaulya.

E) Sr. VLDL

As value of p is less than 0.05, significant difference was observed between mean of BT and AT score. Hence it is concluded that Yava is significantly effective to reduce **Sr. VLDL** in Sthaulya.

3.3 Statistical Analysis of BMI and Weight: In BT and AT

Table 26: Students paired t Test: in BT and AT

Parameter	BT/AT	N	Mean	SD	T	P
BMI	BT	60	28.896	2.8020	-11.911	< .00001
	AT	60	28.71	2.795		
Weight	BT	60	71.86	8.405	-12.171	< .00001
	AT	60	71.421	8.446		

A) BMI

As value of p is less than 0.05, significant difference was observed between mean of BT and AT score. Hence it is concluded that Yava is significantly effective to reduce **BMI** in Sthaulya.

B) Weight

As value of p is less than 0.05, significant difference was observed between mean of BT and AT score. Hence it is concluded that Yava is significantly effective to reduce **Weight** in Sthaulya.

3.4. Effect of therapy

3.4.1. According to % Relief in Symptoms

Table 27: % Relief in Symptoms

Sr. No.	Symptoms	% Relief
1	Fatigue	83.19
2	Shortness of Breath	79.45
3	Foul Smell of the body	78.87
4	Waist girth	0
5	Cough	79.22
6	Sweating	75.56

3.4.2. Change in Lipid profile

Table 28: Change in Lipid profile (BT and AT)

Sr. No.	Parameters	Avg. change*	% Change
1	Sr. Total Cholesterol	4.348	3.008
2	Sr. Triglyceride	4.133	3.559
3	Sr. HDL	-0.16	-0.467
4	Sr. LDL	4.2466	5.581
5	Sr. VLDL	1.7011	8.118

*(SR. HDL: Avg. increase, Other: Avg. decrease)

3.5.1. According to statistical analysis in Subjective Parameters

Table 30: Overall Effect of Therapy per Statistical analysis

Sr. No.	Parameters	Within Groups (Wilcoxon test)
1	Fatigue	Significant
2	Shortness of Breath	Significant
3	Foul Smell of the body	Significant
4	Waist girth	Insignificant

5	Cough	Significant
6	Sweating	Significant

3.5.2. According to statistical analysis in Objective Parameters

Table 31: Overall Effect of Therapy per Statistical analysis

Sr. No.	Objective Parameter	Within Groups (Paired t test)
1	Sr Total Cholesterol	Significant
2	Sr. HDL	Significant
3	Sr. LDL	Significant
4	Sr. VLDL	Significant
5	Sr. Triglycerides	Significant
6	BMI	Significant
7	Weight	Significant

IV. DISCUSSION

In this study, our aim was to evaluate the Medahar property of Yava in the group of individuals who are overweight and obese. The included 60 overweight or obese individuals receiving the Yava in the form of vilepi tended to have significant reduction in lipid profile, weight and medavruddhilakshanas.

Probable mode of action of Yava

Barley is having Madhura Kashaya rasa Katuvipaka. It is having Guru, Ruksha, Pichila and Sara guna, Sheetavirya, and; mainly lekhana and Medahar property. Katuvipakadravya are generally said to be Lekhaniya because of having Vayu, agni and Akashamahabhuta dominance. After the Dhatvagni and Bhutagnipaka they reduce the Kapha and homologues Dhatu. Having these properties Yava helps to stabilise the Agni in Kostha, clears the channels obstructed by Meda. Pichhalaguna is providing some sliminess in tract. Yava is guru, means it will take much time for digestion and remain for long time in intestinal tract because of which person feel fullness for a long duration. Modern literature reveals that beta glucan is responsible for the anti-hypercholesterolenic activity and helpful in reducing total lipid profile. The physiological effects are probably related to the gel forming properties of beta glucan which increases the viscosity of intestinal chyme and increased viscosity disturbs micelle formation, which may inhibit cholesterol absorption, slow cholesterol transfer across the unstirred layer and increase bile acid excretion by inhibiting bile acid re-absorption.

Discussion on Observations and Statistical analysis of Subjective Criteria

For subjective parameters Wilcoxon Singed Ranks Test is applied. In present series all the patients were observed with the symptoms of Meda Dhatu Vruddhi.

Etiology of MedaVruddhi, it is caused by over eating specially Madhura and SnigdhaAhara, (Kapha aggravating diet) and Vihar as by restricted movement, work, and excessive sleep. The same are true for sthaulya. Meda vitiation is common and dominant Dushya in the pathogenesis of sthaulya. Both quantitatively and qualitatively Meda is vitiated. According to Ayurvedic texts vitiation and excessive accumulation of Meda Dhatu or Meda Dhatu Vruddhi is the major pathology of sthaulya.

Acharya Charaka has also stated that the digestive power of the patients of MedaVruddhi is of a very high order requiring the frequent and heavy food. If the same is not available Kayagni tends to burn body itself. i.e., it is capable to break down of the tissue by catabolism. This is an important observation referring the nature of the body metabolism in the patients of MedaVruddhi. There is Increasing existence of the high metabolic rate involving the lipolysis, Increasing the liberation fatty acid for its utilization as the fuel.

Gradation changes in subjective parameter: -

Fatigue: - In subjective criteria of fatigue symptom; before treatment number of patient in grade 0 was 1, after treatment number of patients were 43. Maximum number of patients that is 43 were in grade 2 before treatment and after treatment only 3 patients were in grade 2.

Shortness of breath: - Gradation 1 & 2 of this symptom before treatment number was 40 & 12,

which after treatment shows maximum 48 number of patients in grade 0.

Foul smell of body: - 43 patients was in grade 1 before treatment, after treatment 48 number of patients in grade 0.

Waist girth gradation did not show significant changes.

Cough: - Number of patients in grade 1-2 were 42 & 13 before treatment, which significantly after treatment more number of patients observed in grade 0.

Sweating: - Gradation of this symptom before treatment grade 1 & 2 got 30 number of patients, after treatment 38 number of patients were in grade 0.

Durgandya is found in patients of sthaulya i.e. 71.67% since Sweda is a Mala of Medadhatu and because of excess of Meda DhatuVruddhi, overproduction of Sweda occurs and if it is not cleaned properly, it gets putrefied and produces foul smell. We have seen the changes after intervention of Yava, as value of p is less than 0.05, significant difference was observed between BT and AT mean. Hence it is concluded that Foul Smell of the body is decreased significantly.

UdarparshvaVruddhi and Sphikstanalambanam were found in 33.33% patients. Meda accumulation in the abdominal cavity and pelvic cavity is taken as under Vruddhi. The site of distribution of this Meda Dhatu, the abdominal wall where Meda is accumulated more, then this is accumulated at the buttocks, breast, and the neck region because these areas contain dense number of the adipose tissue. So Udarparshvavruddhi and Sphikstanalambanam are seen in Meda dhatu Vruddhi. Typically, with the lekha karma of Yava in these patients of medaVruddhi, we observed that; as value of p is greater than 0.05, insignificant difference was observed between BT and AT mean. Hence it is concluded that Waist girth is not significantly changed.

Shramam, Shwasa and Kasa were found in 70%, 76.67% and 70% of patients respectively. The vitiated VataDosha in the Koshtha, due to exertion and the unctuousness of body, increased KaphaDosha leads to the manifestation of ShramaShwasa. In Meda dhatu Vruddhi, there is obstruction in Srotasa due to increased Kapha and Meda. Srotorodha causes VataDosha vitiation in the respiratory tract. So, the patients feel cough breathlessness on exertion. After the intervention of Yava, fatigue, shortness of breath and coughing these symptoms we seen, as value of p is less than 0.05, significant difference was observed between BT and AT mean. Hence it is concluded that

Fatigue, shortness of breath and coughing are decreased significantly.

The effect of therapy, that is after the intervention of Yava % relief in symptoms are as fatigue- 83.19%, Shortness of breath- 79.45%, Foul smell of body- 78.87%, Waist girth- 0%, Cough- 79.22%, Sweating- 75.56%. Overall effect of intervention of Yava on subjective parameter are significant.

Discussion on statistical analysis of objective parameter lipid profile

According to these investigations of patients; Sr. Total Cholesterol, Sr. Triglycerides, Sr. LDL, Sr. VLDL values, as value of p is less than 0.05, significant difference was observed between mean of BT and AT score.

Sr. Cholesterol: - Before treatment the mean sr. cholesterol was 144.53 ± 29.85 . After treatment it is 140.18 ± 29.99 . As mentioned above mode of action of Yava acts on cholesterol. Yava significantly decreased the sr. cholesterol by average change of 3.008%.

Sr. Triglyceride: - The mean sr. triglyceride before treatment was 116.12 ± 35.59 , after treatment it is 111.98 ± 34.79 .

Sr. LDL: - Before treatment the mean sr. LDL was 76.08 ± 27.553 , after treatment it showed significant change of 71.84 ± 27.26 .

Sr. HDL: - In case of sr. HDL, as high-density lipoprotein a good cholesterol, Yava worked significantly by slight increasing, which average increase is by 0.16 that is by 0.467%.

Sr. VLDL: - The average decrease in sr. VLDL is by 1.7011 that is by 8.118% decrease in before and after treatment values.

Hence it is concluded that Yava is significantly effective to reduce Sr.Total Cholesterol, Triglycerides, Sr. LDL, Sr. VLDL in Sthaulya. Investigating the value of Sr. HDL, as value of p is less than 0.05, significant difference was observed between mean of BT and AT score. Hence it is concluded that Yava is significantly effective to increase Sr. HDL in Sthaulya. Change in lipid profile after the intervention of Yava, average decrease in Sr. Cholesterol, Triglycerides, Sr. LDL, Sr. VLDL is 3.008%, 3.559%, 5.581%, 8.118% respectively.

Weight and BMI

The analysis of weight and BMI before and after treatment is done by applying the student paired T test.

Weight: - The mean weight before the intervention of Yava was 71.86 ± 8.405 , which after treatment came 71.421 ± 8.446 . As we discussed

above the lekhana karma of Yava showed significant results in weight and respectively BMI values.

BMI: - In weekly follow ups of BMI values there are changes in mean values. Before treatment that is on 0th day mean BMI was 28.896 ± 2.8020 , which after weekly changes after treatment in 8th week mean BMI became 28.71 ± 2.795 .

The value of BMI and Weight, as value of p is less than 0.05, significant difference was observed between mean of BT and AT score. Hence it is concluded that Yava is significantly effective to reduce BMI and Weight in Sthaulya. Change in BMI and Weight after intervention of Yava are significant. Overall effect of intervention of Yava on objective parameter are significant.

V. CONCLUSION

Research work was aimed to explore the effect of Yava on medadhatu with special reference to Sthaulya.

- AhariyaDravyaYava showed percentage relief in the meda dhatu Vruddhilakshanas fatigue 83.19%, shortness of breath 79.45%, foul smell of body 78.87%, cough 79.22%, sweating 75.56%.
- Gradation in waist girth showed insignificant changes.
- Yava have shown effect on weight and BMI.
- Yava significantly decreased the sr. cholestetrol & sr. LDL values.
- Yava showed significant increase in sr. HDL parameter.
- There was no adverse effect of Yava observed in the study.
- Yava can easily be part of diet, easy to take, cost effective in the individuals of medavruddhi.

Hence it can be concluded that,

There is effect of Yava [Hordeum vulgare] on meda dhatu with special reference to Sthaulya.

Further scope of study:

We can incorporate diet in daily meal, as mentioned in the classics of ayurveda to prevent the various lifestyle disorders. There is need to study another dietary compliment as Yava. AhariyaDravyaYava [Barley] will be useful in decreasing medavruddhi symptoms and preventing furthermore conditions like sthaulya.

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