

**EFFECT OF VYAYAMA (EXERCISE) ON BICEPS MUSCLE**Ajitkumar S. Wahane<sup>1\*</sup>, Dhawal Makwana<sup>2</sup>, Jyothi T.<sup>3</sup> and Niranjan Y.<sup>4</sup><sup>1</sup>Assistant Professor, Department of Rachana Sharira, Parul Institute of Ayurveda, Vadodara-391760, Gujarat, India.<sup>2</sup>Post- Graduate Scholar, Department of Rachana Sharira, Parul Institute of Ayurveda, Vadodara -391760, Gujarat, India.<sup>3</sup>Post- Graduate Scholar, Department of Kriya Shareera, Parul Institute of Ayurveda, Vadodara-391760, Gujarat, India.<sup>4</sup>Associate Professor and HOD, Department of Kayachikitsa, Parul Institute of Ayurveda, Vadodara-391760, Gujarat, India.**\*Corresponding Author: Ajitkumar S. Wahane**

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**ABSTRACT**

Ayurveda explains importance and benefits of Vyayamaa (exercise) that should be performed daily to be healthy as a Part of Dincharya. The Biceps are usually attributed as representative of masculinity within cultures. The present study had been based upon the effect of exercise on biceps muscle. There were 3 biceps exercise adopted for the present study which is 1) Alternate hammer curl using dumbbell, 2) Dumbbell alternate biceps curl, 3) Alternate Concentration curls.

**KEYWORDS:** Biceps brachii, Exercise, vyayama, MUAC, Strength.**INTRODUCTION**

Ayurveda explains importance and benefits of Vyayamaa (exercise) that should be performed daily to be healthy as a Part of Dincharya.<sup>[1]</sup> It says that the existence of the Doshas in the Prakriti is the nature of Shariraa is to be maintained healthy, it is necessary to have Ahara, Vihar which is just opposite to these Doshas. The goal of achieving proper public health can be attained if these thoughts are propagated by social education, medical education to social organization and the media.<sup>[2]</sup>

Every individual has its own identity by his biophysical and biochemical constitution (deha Prakriti) and psychic constitution (manas Prakriti). According to Ayurveda body (Sharira) is basically composed by panchamahabhuta Vikara, 'Sarvamdravyampancha bhautikam' by this concept Tridoshas are also panchbhautika, that is Vata, Pitta and Kapha are the physiological elements, which are present in every unit of the body, in proportion as the deha Prakriti of individual<sup>3</sup>. Determination of deha Prakriti of individual is at the time of conception and it is as per utkatatwa (dominance) of shukra and Shonit of father and mother respectively. And this Prakriti is influenced by various factors as aahara, Vihara, Desh, Kala etc.<sup>[4]</sup>

The Biceps are usually attributed as representative of masculinity within cultures. It comes from the Latin word- musculus, "little mouse", because the appearance of the flexed Biceps resembles the back of a mouse. The

Biceps can be strengthened using weight and resistance training. The Biceps is tri-articulate, meaning that it works across three joints. The most important function of this muscle is to supinate the forearm and flex the elbow. The biceps is a two-headed muscle and is one of the chief flexors of the forearm.<sup>[5]</sup>

The present study had been based upon the effect of exercise on biceps muscle. There were 3 biceps exercise adopted for the present study which is 1) Alternate hammer curl using dumbbell, 2) Dumbbell alternate biceps curl, 3) Alternate Concentration curls.

**MATERIALS AND METHODS****Null Hypothesis**

There is no interrelation between muscle exercise and different Daihik Prakriti.

**Alternate Hypothesis:** There is interrelation between muscle exercise and different Daihik Prakriti.

**Study Design:** Clinical observational study.

**Method:** After grouping all 90 individuals were advised to do same kind of exercise and same weight for the same time period which was 20 minutes daily once for 3 months. Every month follow ups were taken. Total 3 parameters of biceps muscles had been compared for these 3 ek dosha pradhanaj daihik prakriti. Those were, MUAC - (Mid Upper Arm Circumference), Strength - (in

the term of 1 RM), Endurance - (ability of muscles to do repetitive movements for an extended period of time).

## RESULT

**Observations on Age:** Total 90 individuals were observed during the study. Out of them, total 22 individuals (24.44%) were of 18 years of age. total 29 individuals (32.22%) were of 19 years of age. total 24 individuals (26.66%) were of 20 years of age. total 9 individuals (10 %) were of 21 years of age. total 5 individuals (5.55 %) were of 22 years of age. And only 1 individual (1.11%) was of 23 years of age.

**Observations on Religion:** Subject who were recruited for the study were 84 were Hindu and 6 were Muslim.

**Religion Wise Individuals and Diet:** Among Hindu out of 84 51(60.71%) having Vegetarian Diet and 33(39.28%) having mix diet. Were as in Muslim all having mix diet.

### Effect of Exercise on Biceps Muscle

#### 1) MUAC - (Mid Upper Arm Circumference)

**Table 1: MUAC Difference in Centimeter.**

Sr. No.	VATA	PITA	KAPHA
1	0.5	0.9	0.5
2	0.6	1	0.5
3	0.5	1.1	0.5
4	0.6	0.8	0.7
5	0.5	0.8	0.6
6	0.5	0.8	0.5
7	0.6	1	0.7
8	0.9	1.2	0.8
9	0.6	1	0.7
10	0.7	1.2	0.6
11	0.4	0.8	0.5
12	0.4	1.1	0.7
13	0.6	1	0.8
14	0.5	0.5	0.6
15	0.8	0.9	0.6
16	0.6	1	0.7
17	0.5	0.6	0.8
18	0.7	0.8	0.7
19	0.7	0.9	0.8
20	0.7	1	0.7
21	0.6	0.7	0.5
22	0.5	1.1	0.4
23	0.4	0.9	0.6
24	0.5	1	0.4
25	0.6	0.9	0.5
26	0.4	1	0.7
27	0.6	0.8	0.4
28	0.5	0.9	0.5
29	0.6	0.9	0.4
30	0.5	0.7	0.3

#### MUAC Difference in Centimeter.

	VATA	PITA	KAPHA
$\bar{d}$	0.57	0.91	0.59
Tc	21.68	30.96	8.88
Tt 5%	2.04	2.04	2.04
Tt 1%	2.76	2.76	2.76

In observation, MUAC is highest in PITA Prakriti in comparison of VATA Prakriti and KAPHA Prakriti.

#### 2) Strength Difference In Kilogram

Sr. no.	VATA	PITA	KAPHA
1	10	15	10
2	5	15	15
3	10	20	10
4	10	15	20
5	10	20	15
6	5	20	20
7	10	20	20
8	10	15	20
9	10	15	25
10	15	20	30
11	15	25	15
12	5	10	20
13	10	15	25
14	15	15	20
15	10	20	20
16	15	15	25
17	15	10	25
18	15	15	25
19	20	20	20
20	10	20	30
21	20	15	15
22	10	15	20
23	10	15	20
24	15	20	20
25	10	10	25
26	5	10	20
27	10	10	10
28	15	15	25
29	10	15	15
30	15	15	30

#### Strength Difference in Kilogram

	VATA	PITA	KAPHA
$\bar{d}$	11.5	16	20.33
Tc	15.86	23.01	19.99
Tt 5%	2.04	2.04	2.04
Tt 1%	2.76	2.76	2.76

In observation, strength is highest in KAPHA Prakriti in comparison of VATA Prakriti and PITA Prakriti.

## Endurance Difference In Numbers

Sr. No.	VATA	PITA	KAPHA
1	5	6	7
2	4	7	7
3	5	6	5
4	4	8	5
5	4	7	8
6	4	5	9
7	5	6	8
8	2	4	8
9	5	7	10
10	2	6	12
11	4	8	10
12	5	3	5
13	6	4	13
14	7	2	9
15	6	6	7
16	3	7	10
17	6	5	14
18	5	4	10
19	4	7	9
20	5	6	9
21	2	7	11
22	5	6	13
23	6	4	11
24	3	4	9
25	3	3	8
26	3	4	9
27	5	4	5
28	4	5	8
29	4	4	9
30	3	4	9

## Endurance Difference in Numbers

	VATA	PITA	KAPHA
$\bar{d}$	4.3	5.3	8.9
Tc	18.36	18.37	20.81
Tt 5%	2.04	2.04	2.04
Tt 1%	2.76	2.76	2.76

In observation, Endurance is highest in KAPHA Prakriti in comparison of VATA Prakriti and PITA Prakriti.

## DISCUSSION

## Discussion on Output of Exercise in Different Deha-Prakriti Individuals

In present study *Kapha pradhana prakriti* group most of the individuals shown *maximum strength and endurance capacity*. That might be due to *Kapha Prakriti* characteristics mentioned by *Acharya Charaka* as below.<sup>[6]</sup>

- ✓ *MadhuryatPrabhut shukra vyavayaapatya...*
- ✓ *SaratvaisarasamhatShariraa...*
- ✓ *Sandratvatupachitaparipurnasarvanga...*
- ✓ *Gurutvatsaraadhishthataavasthitgatayah...*
- ✓ *Vijjalatvatsushlishtha sara sandhibandhana...*
- ✓ *Shaityatalkpakshutrushnasantapasweda dosha...*
- ✓ *Shleshmalabalvanto..*

In present study *Vata pradhana prakriti* group most of the individuals shown *minimum strength and endurance capacity as compared to Kapha Pradhana Prakriti*. That might be due to *Vata prakriti laxana* mentioned in texts as below.<sup>[7]</sup>

- ✓ *LaghutvatlaghuChapala gaticeshhta...*
- ✓ *Shaityatshitaasahisnhav*

In present study *Pitta pradhana prakriti* group most of the individuals shown *minimum strength and endurance capacity as compared to Kapha Pradhana Prakriti*. That might be due to *Pitta prakriti laxana* mentioned in texts as below<sup>[8]</sup>:

- ✓ *Aushnyatpittalabhavantiushnaasaha...*
- ✓ *Sukumaraavdatagatra...*
- ✓ *Taikshnyatkleshaasahishnavo..*
- ✓ *Dravatvatshitalamrudusandhi mamsa...*
- ✓ *Prabhutashrushtasweda...*
- ✓ *Katuamlatvatalpa shukra vyavaya...*

## CONCLUSION

Acharyas described that the *Kapha Prakriti* individual have maximum *Bala* irrespective of *Vata Prakriti* and *Pitta Prakriti*. But as per the observation and the results of the present study shows that *Bala* is similar to strength and Endurance which is greater in *Kapha Prakriti* but for the MUAC which only means size of muscles is found greater after exercise in *Pitta Prakriti*.

So for the present study data reveals that Muscles size and muscle strength are two different things. In present era there is a myth that size of the muscle and strength of the muscle is in proportional relation but the present study shows that both parameters are increasing but not in same proportional in all samples.

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