

## EFFECT OF GODUGDHA (COW MILK) AS A RASAYANA – A RANDOMIZED CONTROLLED CLINICAL TRIAL.

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### ABSTRACT

*Rasayana* means the science of rejuvenation. *Rasayana* is mainly focused on the maintenance of health. *Rasayana chikitsa* consist of certain dietary & therapeutic measures. *Rasayana* is actually that which increases the essence of each *Dhatu*, starting from *Rasa*, taking *Rasayana* is helpful to increase the *Vyadhi-kshamatva* (immunity) of man which in turn avoids diseases. Varied classification of *Rasayana* is found in different classical texts. *Godugdha* (cow milk) is daily dietary component of everybody. *Godugdha* is said to have *Rasayana* effect. *Godugdha* is pertaining a lot of medicinal potential and hence it is advised to use for many therapeutic purposes. Here the *Rasayana* effect of *Godugdha* was tested with the help of randomized controlled trials using milk prepared from Patanjali Cow milk powder. *Kshudha*, *Tvak*, *Bala*, *Nidra*, *Ushma* were observed to assess of *Rasayana* effect of both of drugs. In Trial Group, 8 individuals achieved High improvement and 17 individuals achieved Moderate improvement. Mann-Whitney's U test has shown significant effects on all parameters ( $P < 0.05$ ). Hope this study will be done extensively by further researchers.

**Keywords:** *Rasayana*, *Godugdha*, *Rasayana* Effect, Cow milk powder.

### 1. INTRODUCTION

Ayurveda is the life science having two aim one is to maintenance of health of healthy person & the second is to cure disease of diseased person.<sup>1</sup> *Rasayana* means the science of rejuvenation. The branch of *Rasayana* (Rejuvenation) is one of the eight branches of Ayurveda. *Rasayana* is mainly focused on the maintenance of health. *Rasayana chikitsa* consist of certain dietary & therapeutic measures. *Rasayana* is actually that which increases the essence of each *Dhatu*, starting from *Rasa*, taking *Rasayana* is helpful to increase the *Vyadhi-kshamatva* (immunity) of man which in turn avoids diseases. The person becomes healthy and strong (*Swasthasya Urjaskar*).<sup>2</sup> Charkacharya has defined *Rasayana* along with its effects in human beings as – “the medicinal or dietary substance attains longevity of life, memory power, intellectual power, state without diseases, good of luster, complexion, voice excellence, healthy state of the body and sense organs, *vak-siddhi* (i.e. what he says comes true), respect, youth and brilliance is known as *Rasayana*.<sup>3</sup>

Varied classification of *Rasayana* is found in different classical texts. Acharya Charaka classified *Rasayana* on the basis of method of consumption as *Kutipraveshtik* (to be performed in specialized hut along with strict regimens) and *Vatatpik* (anyone can consume by following daily routine).<sup>4</sup> Acharya Sushruta classified *Rasayana* on the basis of the purpose as *Kamya Rasayana* (*Pranakamya*: promotes longevity & life span, *Medha kamya*: improves mental faculties, *Stree kamya*: Improves luster of the body), *Naimittika Rasayana* and *Ajastrika Rasayana*.<sup>5</sup> The possible mode of actions of *Rasayana* as per modern aspects can be narrated as – Antioxidant, Immune-modulatory, Hemopoietic, Adaptogenic, Anti-aging, Anabolic, Nutritive and Neuroprotective.

*Godugdha* (cow milk) is daily dietary component of everybody. *Godugdha* is said to have *Rasayana* effect such as – *jeevaniya* (improves quality of life), *medhya* (neuro tonic), *balya* (general tonic), *stanyakar* (lactogenic), *sar* (laxative), *trushna-kshudha shamak* (rehydrating), *shram har* (removes fatigue) and useful in *kshatkshheen* (lung injuries), *bhrama* (vertigo), *shwasa* (asthma), *kasa* (cough),

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*mutrakruchchha* (difficulty in micturition), *jirna jwara* (long duration fever), *raktapitta* (blood loss) etc.<sup>6,7</sup> *Godugdha* is pertaining a lot of medicinal potential and hence it is advised to use for many therapeutic purposes like *tikta-ksheer sarpi basti* (medicated decoction of milk is used in medicated enema), *ksheer-pak pan* (oral consumption of medicated decoction of milk), as an *Anupan* (to consume after specific medicine) etc. *Godugdha* is used as an ingredient in many *kalpas* (medicinal formulations). Here the *Rasayana* effect of *Godugdha* was tested with the help of randomized controlled trials. Hope this study will be done extensively by further researchers.

### Rationale of the study

Now a days due to low productivity of milk, milk men used to produce and sell Buffalo or Holstein or Jersey cow milk which is not as potent as Indian breed cow milk. In turn the number of Indian breed cow is also reducing. Increased use of Buffalo or Holstein or Jersey cow milk is again invitation to impairment of health. Recently improper dietary and lifestyle habits are responsible for vitiation of *Doshas* leading to various diseases and hampering the health status of society. In such scenario *Rasayana* (rejuvenation) therapy explained in Ayurveda can certainly play the major role. *Godugdha* (Cow milk) is the best among eight types of milk narrated in Ayurveda. Hence *Goudugdha* was considered for trials.

## 2. MATERIALS & METHODS

### 2.1. Study Design

The Randomized control study was carried out in two separate groups named Trial and Control Group containing 30 individuals (volunteers) each. Healthy individual volunteers were selected from campus and peripheral area of Sant Ekanath Ayurveda Hospital attached to PMT's Ayurveda College, Shevgaon, MS, India. A camp was arranged for collecting such individuals. Selection method applied was Simple Randomized Sampling technique. Ethical Clearance from Ethical Committee of Institute was taken. An informed written consent of all 60 individuals (volunteers) included in the study was taken in their own language. Their health status and structure of study was explained to them. All parameters were carefully recorded in CRF during each follow-up.

### 2.2. Criteria for selection of individuals

#### 2.2.1. Inclusion Criteria

- ◆ The individuals with lower body weight.
- ◆ Individuals with loss of appetite.
- ◆ Age between 18 to 40 years and both male and female.

#### 2.2.2. Exclusion Criteria

- ◆ Individuals below 18 years and above 40 years of age.
- ◆ Individuals who suffer any severe illness.
- ◆ Individuals who were addicted to Alcohol, Smoking, Tobacco etc.

#### 2.2.3. Drop out Criteria

- ◆ Individuals not attending regular follow-ups.
- ◆ Individuals who refused to participate in the trial during the course.
- ◆ Individuals who suffered from other disease during the trial.

### 2.3. Collection, Authentication and Standardization

#### 2.3.1. *Godugdha* (Cow milk)

Cow milk of Indian Cow was collected from a farm nearby it was authenticated and standardization done at Jeevanrekha Analytical Services, Aurangabad, Maharashtra (Website: <https://www.jeevanrekhaayurved.com>). Standardization details of *Godugdha* (cow milk) are mentioned in Table No. 1.

#### 2.3.2. Cow milk powder

Cow milk powder<sup>8</sup> of '*Patanjali Ayurved*' company was purchased from market. Details about ingredients are mentioned in Table No. 2.

### 2.4. Method of preparation of drugs

#### 2.4.1. *Godugdha* (Cow milk)

All 30 individuals of Trial Group were told to collect fresh milk daily from above mentioned farm. They were advised to boil it properly at home and were advised to consume Luke warm *Godugdha* after morning meal.

#### 2.4.2. Cow milk powder

All 30 individuals were provided *Patanjali Ayurved* Cow milk powder packets. They were directed to mix 1 TSF of Cow milk powder in 250 ml boiled warm

water properly. They were advised to consume Luke warm mixture after morning meal.

## 2.5. Drug administration

Details regarding administration of drugs are explained in Table No. 3.

## 2.6. Criteria for Assessment

### 2.6.1. Subjective Parameters

*Kshudha*, *Tvak*, *Bala*, *Nidra*, *Ushma* were observed to assess of *Rasayana* effect of both of drugs. Subjective parameters were graded as follows for ease of assessment.

#### *Kshudha*

- ◆ 0 – Normal hunger
- ◆ 1 – Hunger delayed by 2 hrs.
- ◆ 2 – Hunger delayed by 2 hrs.
- ◆ 3 – Hunger delayed by 2 hrs.

#### *Twak*

- ◆ 0 – *Snigdha*, *Sateja*
- ◆ 1 – *Ruksha*, *Nisteja*
- ◆ 2 – *Ruksha*, *Nisteja*, Black (tanned)
- ◆ 3 – *Ruksha*, *Nisteja*, Black (tanned), *Tvakspatan*, *Kandu*

#### *Bala*

- ◆ 0 – Can exercise continuously for 1 hr.
- ◆ 1 – Becomes tired after 30 min.
- ◆ 2 – Becomes tired after 15 min.
- ◆ 3 – Can't do exercise

#### *Nidra*

- ◆ 0 – Continuous for more than 8 hrs.
- ◆ 1 – More than 8 hrs. but interrupted once or twice
- ◆ 2 – Interrupted many times during whole night
- ◆ 3 – *Anidra*

#### *Ushma*

- ◆ 0 – No *Jwara*
- ◆ 1 – *Alpa Jwara* (up to 99.5<sup>0</sup>F)
- ◆ 2 – *Madhyam Jwara* (99.5<sup>0</sup>F to 101<sup>0</sup>F)
- ◆ 3 – *Teevra Jwara* (More than 101<sup>0</sup>F)

### 2.6.2. Objective Parameter

- ◆ Hemoglobin (Hb gm %)

## 2.7. Overall effect of therapy

It was defined in four categories to assess *Rasayana* effect viz. Highly Improved (75% to 100%), Moderately Improved 50% to 75%), Mildly Improved (25% to 50%) and Poorly Improved (below 25%).

## 3. RESULTS AND DISCUSSION

### 3.1. General Observations

Out of total 60 individuals, in Trial Group 2 individuals were of 18 to 25 years, 14 individuals were of 26 to 32 years and 14 individuals were of 33 to 40 years age group while, in Control Group 5 individuals were of 18 to 25 years, 12 individuals were of 26 to 32 years and 13 individuals were of 33 to 40 years age group (Table No. 1). In Trial Group 19 individuals were male and 11 individuals were female while, in Control Group 23 individuals were male and 7 individuals were female (Table No. 2). In Trial Group 12 individuals were of *Vata-pitta*, 10 individuals were of *Pitta-kapha* and 8 individuals were of *Kapha-vata prakruti* while, in Control Group 11 individuals were of *Vata-pitta*, 9 individuals were of *Pitta-kapha* and 10 individuals were of *Kapha-vata prakruti* (Figure No. 1).

### 3.2. Statistical Analysis

Mann-Whitney's U test was applied to compare the efficacy of *Godugdha* and Cow-milk powder on subjective parameters. Results of statistical analysis are shown in Table No. 6. As value of P is less than 0.05 in all case of parameters, it was found that *Godugdha* is significantly effective than Cow milk powder to improve parameters *Kshudha*, *Tvak*, *Bala*, *Nidra* and to reduce *Ushma* in healthy individuals. Student's unpaired t test was applied to compare the efficacy of *Godugdha* and Cow-milk powder on Hemoglobin gm%. Value of t is 0.428 and P is 0.669 (> 0.05) which suggests that, there is no significant difference between efficacy of *Godugdha* and Cow milk powder on Hemoglobin gm%.

### 3.3. Overall effect of therapy

In Trial Group, 8 individuals achieved High improvement, 17 individuals achieved Moderate improvement and 5 individuals achieved Mild improvement while In Control Group, 14 individuals achieved Moderate improvement and 16 individuals

achieved Mild improvement. Relief % in subjective parameters is shown in Figure No. 2. Effect of both drugs on Haemoglobin is shown in Figure No. 3.

### 3.4. Mode of action of Godugdha

When *Rasayana* drug are consumed, they are digested by *Jatharagni* followed by *Dhatwagni* / *Bhutu-angi*. During this phase normal *Vata*, *Pitta* and *Kapha* are produced along with pure *sara bahga* (essence) i.e. *Ahaara rasa*. This qualitative *sara bha-ga* produces pure *Rasa dhatu*, which then continues the chain of production of other *Raktadi dhatu* with the help of respective *dhatwagni* upto *Shukra* and *Ojas* formation. Like this well- formed *dhatu* keep on nourishing the body. i.e. *Rasa dhatu* provides contentment, saturation and nourishment to *Rakta dhatu*. Likewise, healthy and pure *Rakta*, *Mansa*, *Meda*, *As-thi*, *Majja* and *Shukra dhatu*s are formed due to consumption of *Rasayana* drug.<sup>9</sup> Thus, *Rasayana* therapy works at the level of *Rasa* (nutrition), *Agni* (digestion and metabolism) and *Strotasa* (micro-circulation) enabling the individual to procure the best qualities of different *dhatu*s (body organs and body tissues). *Prabhava* of *Rasayana* drug results in advisement of certain divine effects.

### 3.5. Further recommendations

Though the results of study are very encouraging, the study was carried out in limited individuals from limited area and hence there is a need of more extensive work. Only *Godugdha* without prior *Shodhan* was used to observe *Rasayana* effect. There is scope to attempt further research in large sample size along with *Shodhan purvak Rasayana* or to compare other *Rasayana dravya* with *Godugdha*.

## 4. CONCLUSION

Based upon the results obtained in the clinical study following conclusion were drawn:

- ◆ *Godugdha* significantly improved *Kshudha*, *Tvak*, *Bala* and *Nidra*.
- ◆ *Godugdha* significantly reduced *Ushma*.
- ◆ Natural and fresh cow milk is always better than use of milk prepared from powder.
- ◆ Consumption of *Godugdha* acts like *Rasayana* in human beings.
- ◆ No adverse effects were observed in either group.

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## 6. TABLES AND FIGURES

Sr. No.	Test	Result
1	Color	White colored liquid
2	Odour	No Odour
3	Taste	Milky
4	Moisture contents	83 ± 0.10 %
5	Lactose	4.20 ± 0.26 %

6	Protein	5.90 ± 0.40 %
7	Lipids	6.17 ± 0.91 %
8	pH	6.17
9	Control No.	21042016/010

Table 1: Standardization report (*Godugdha*)

Sr. No.	Contents	Proportion per 100 gm
1	Energy	482 kcal
2	Moisture	4 gm
3	Milk Fat	26 gm
4	Protein	26 gm
5	Lactose	36 gm
6	Minerals	7 gm

Table 2: Ingredients of *Patanjali* Cow milk powder<sup>8</sup>

Sr. No.	Head	Group	
		Trial group	Control Group
1	Drug	<i>Godugdha</i>	Cow Milk Powder
2	Dose	250 ml + <i>Khand Sharkara</i>	1 TSF in 250 ml warm water + <i>Khand Sharkara</i>
3	Route	Oral	Oral
4	<i>Kala (Time)</i>	<i>Adhobhakta (Pratah)</i>	<i>Adhobhakta (Pratah)</i>
5	Duration	30 days	30 days
6	Follow up	Day 1, 8, 15, 30	Day 1, 8, 15, 30

Table 3: Method of Administration

Sr. No.	Age (yrs.)	Trial Group	Control Group
1	18 to 25	2 (6.67%)	5 (16.67%)
2	26 to 32	14 (46.67%)	12 (40.00%)
3	33 to 40	14 (46.67%)	13 (43.33%)

Table 4: Age

Sr. No.	Gender	Trial Group	Control Group
1	Male	19 (63.33%)	23 (76.67%)
2	Female	11 (36.67%)	7 (23.33%)

Table 5: Gender

Parameter	U	U'	P	Result	Efficacy
<i>Kshudha</i>	253.5	646.5	0.0034	Significant	Trial > Control
<i>Tvak</i>	314	586	0.042	Significant	Trial > Control
<i>Bala</i>	298.5	601.5	0.024	Significant	Trial > Control

<i>Nidra</i>	298.5	601.5	0.023	<b>Significant</b>	Trial > Control
<i>Ushma</i>	309	591	0.034	<b>Significant</b>	Trial > Control

Table 6: Statistical analysis by Mann-Whitney’s U test

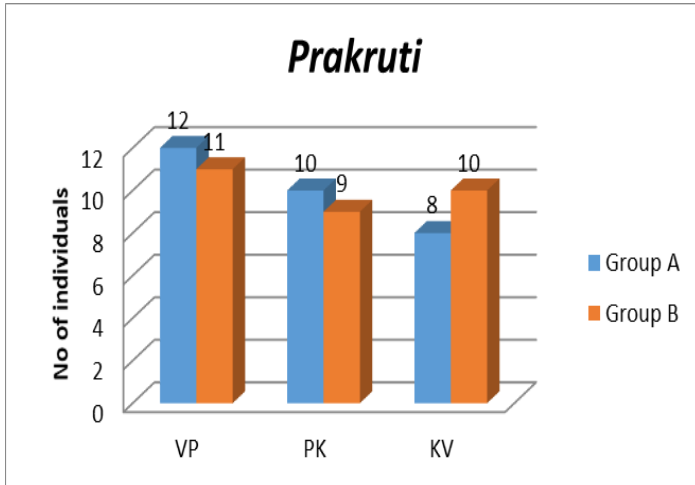


Figure No 1: Prakruti wise distribution

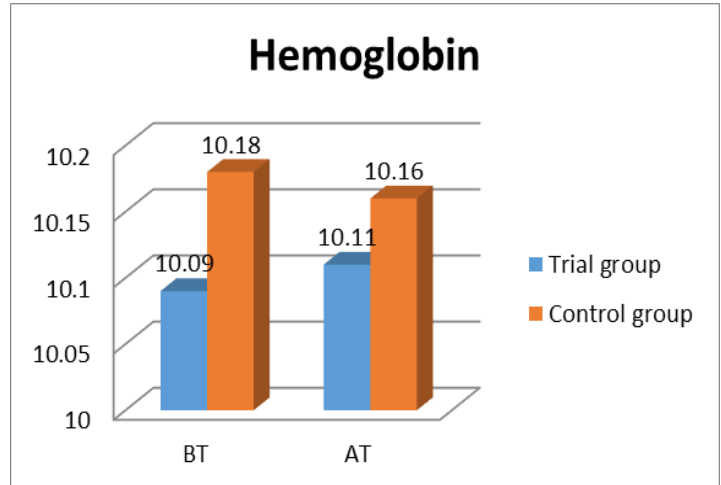


Figure No 3: Prakruti wise distribution

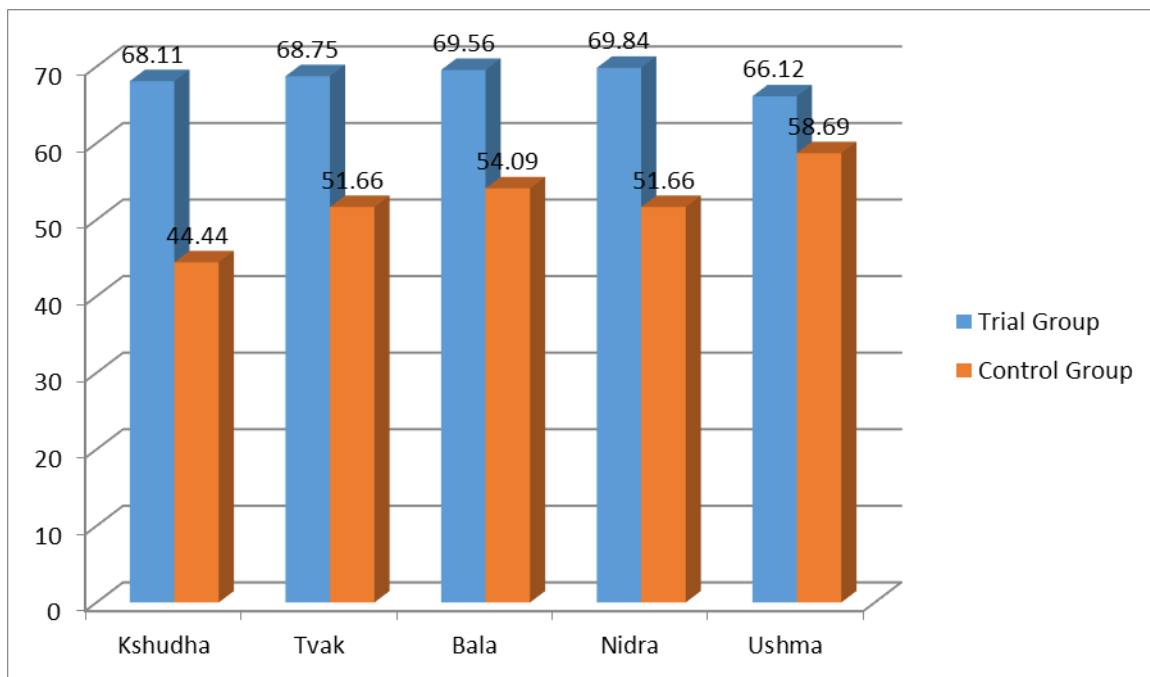


Figure No 2: Effect on Subjective parameters

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