

# A Comparative Study of Swarnaprashan Prepared from Brahmi Ghrita and Panchgavya Ghrita on Immunomodulation & Physical Growth in Children



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## Abstract

**Introduction:** Ayurveda, the comprehensive Indian system of medicine, has devised a novel approach for boosting overall immunity and thereby assisting the child in resisting and fighting sickness. Administration of processed gold to children is unique practice described as Swarnaprashan in the Kashyap Samhita for improving intellect, digestion, metabolism, physical strength, and immunity. The study was aimed to compare the effect of Swarnaprashan prepared from Brahmi Ghrita and Panchgavya Ghrita on immunomodulation and physical growth in children.

**Materials and Methods:** In total 46 children seeking prevention from recurrent seasonal disorders of 0 to 8 years age of both sexes was randomly selected from OPD & IPD of Hospital of University Postgraduate Institute of Ayurveda Studies & Research, Dr. S.R. Rajasthan Ayurved University, Jodhpur, Rajasthan, India. Out of them, six children dropped out during study. Therefore, study was completed on 40 children. They were divided into two groups of 20 each. Group A: Swarnaprashan prepared from Brahmi Ghrita was given to 20 patients. Group B: Swarnaprashan prepared from Panchgavya Ghrita was given to 20 patients. Dose of Swarna Bhasma and Swarnaprashan in children were calculated according to young formula and administered in drops form for a duration of 45 days.

**Results:** The percentage relief for study group A subjects were 66.65% and the relief for group B was 55.67%. The statistical analysis of the same showed that the improvements in both groups were highly significant. Discussion Swarnaprashan used in the above study was in a modified form that contained Swarna Bhasma, ghrita, and honey, along with some herbs showing nootropic, immunomodulatory, adaptogenic and rejuvenator activity.

**Conclusion:** Swarnaprashan prepared from Brahmi ghrita showed a significant result over Swarnaprashan prepared from Panchgavya ghrita on various assessment parameters. However, Swarnaprashan did not elicit any remarkable changes on anthropometry parameters.

**Keywords:** Brahmi Ghrita; Immunity; Panchgavya Ghrita; Physical growth; Swarnaprashan

## Introduction

Immunity refers to possessing adequate biological defences against infection, sickness, or other biological invasions. Children's immune systems must be strong since they are constantly exposed to germs. Immunity is reaction of body against organism. Nothing to do with entry of organism. Immunity comes into action after exposure to antigens. There are both particular and non-specific

components to immunity [1]. Regardless of antigenic specificity, non-specific components operate as barriers or eliminators for a wide range of pathogens. Other immune system components adapt to each new sickness they encounter and are able to develop pathogen-specific immunity. The natural resistances that a person is born with; are known as innate immunity or

nonspecific immunity. It offers resistance through a variety of physical, chemical, and biological methods [2]. Childhood is an exciting time in one's life. Adult health depends on the well-being of children. High rates of physical and mental growth and development characterize this time period. According to Ayurveda, the body's bala must be appropriate in order to prevent infections and encourage a child's growth and development [3].

Such situations during rapid growth periods and critical periods of development have a temporary or permanent delaying effect on the achievement of normal growth and development. Administration of processed gold to children is a one kind of practice described as Swarnaprashan in the Kashyap Samhita, in which Acharya Kashyapa clearly explained the administration of Swarna for improving intellect, digestion, metabolism, physical strength, and immunity. Ayurveda, the comprehensive Indian system of medicine, has devised a novel approach for boosting overall immunity and thereby assisting the child in resisting and fighting sickness. In different Ayurvedic classics, we find many different descriptions of formulations that help to achieve good immunity, longevity, memory, intelligence, complexion, and so on, which need to be explored through appropriate research and then practically implemented in the current context with authenticity. Swarnaprashan is an Ayurvedic formulation that incorporates Swarna blended with Madhu and Ghrita in the form of likable, according to Ayurvedic literature (Prashana) [4].

## Need of Study

Modern medical science has limitations to prevent the emergence and recurrence of infections and allergic disorders in children and to enhance the immune system. However, in ancient Ayurvedic literature, Acharyas described Balya (immunomodulatory) recipes such as Swarnaprashan to protect children from such infections and to promote their physical and mental growth. In Kashyap Samhita, Swarnaprashan [4] has been mentioned as an important prescription for mental and physical growth and development for children.

## Objectives

- Swarnaprashan made from Brahmi Ghrita and Panchgavya Ghrita was tested for its immunomodulatory properties.
- The purpose of this study was to see how Swarnaprashan affected the physical growth of children who were given Brahmi Ghrita and Panchgavya Ghrita.
- To compare the effect of Swarnaprashan along with Brahmi Ghrita and Panchgavya Ghrita.

## IEC Registration No

The institutional ethics committee approved this study, via order no. DSRRAU/UCA/IEC/19-20/202, dated January 13, 2020, and registered under the Clinical Trials Registry of India (CTRI)

with a registration no. CTRI/2020/08/027457.

## Study design

- Study Type: Interventional
- Blinding double blind.
- Interventional Groups: Two groups
- Randomization: Simple Random Sampling
- Masking: opaque envelop
- Purpose: Treatment
- Timing: 45 days
- End Point: Efficacy

## Materials and Methods

Swarnaprashan, made from Brahmi Ghrita [5] and Panchgavya Ghrita [6], was tested for immunomodulation and physical growth in children in a randomised comparative double blind clinical study.

## Source of Data

In total 46 children of both sexes in the age group 0–8 years were selected from the OPD and IPD of the Hospital of the University Postgraduate Institute of Ayurveda Studies & Research, Karwar, Jodhpur, and Kaniram Salagram Tank University Satellite Ayurved Hospital, Magra Punjala, Jodhpur. Out of them, six children dropped out during study. Therefore, study completed on 40 children.

## 5.2. Diagnostic Criteria

### Inclusion criteria-

- Age 0-8-year-old child of both sexes
- Recurrent two and more episodes of respiratory tract infection in a month.
- Recurrent two and more episodes of fever and other infections in a month
- Recurrent two and more episodes of gastro-intestinal infections in a month.

### Exclusion criteria-

- Age above 8 years.
- Children with congenital anomalies.
- Known case of pulmonary or abdominal tuberculosis.
- Any known case of hypersensitivity.
- Children who suffered from any disease of the head and neck such as rhinitis, pharyngitis, tonsillitis etc.

- Child suffering from Aamroga, Shotha, and Adhmana were excluded from study.

**Discontinuation Criteria**

- If a child develops an acute or life-threatening disease that necessitates immediate treatment during the course of the research trial.

- Parents of the patient are unwilling to continue treatment.

The patients randomly selected and divided into two groups, namely, groups A and B, and examined clinically along with laboratory investigations (Table 1).

**Table 1:** Showing Grouping and Posology.

Group	A	B
Name of Drug	Brahmi Ghrita Prepared Swarnaprashan (Compound-A)	Panchgavya Ghrita prepared Swarnaprashan (Compound-B)
number of children	20	20
Type of Study	Double Blind	Double Blind
Duration of Drug Trial	45days	45days
Dose*	According to age (Young Formula)	According to age (Young Formula)
Duration	Once daily	Once daily
Route	Oral	Oral
Randomization	Simple random sampling	Simple random sampling

\*Dose of Swarna Bhasma by Ras Tarngini = 1/8 Ratti =15 mg [7].

Ghrita and honey in equal quantity may become fatal that's why 66% of Ghrita and 34% of honey were added and prepare a mixture that were containing 0.6mg Swarna Bhasma in each drop of Swarnaprashan vial. Hence, 1 vial contained 5.6 ml Swarnaprashan in liquid form and 1 ml of Swarnaprashan contained 16 drops.

Therefore, total amount of Swarna Bhasma was 5.4 mg in each vial. Dose of Swarna Bhasma and Swarnaprashan among children were calculated according to young formula shown in below Table 2.

**Table 2:** Showing dose of Swarna Bhasma and Swarnaprashan in children.

Age group (years)	Swarna Bhasma (mg)	Swarnaprashan in drops
Year	0.6	1
01-Feb	1.66	3
02-Mar	2.58	4
03-Apr	3.38	6
04-May	4.09	7
05-Jun	4.71	8
06-Jul	5.27	9
07-Aug	5.76	10

**Ingredients of Swarnaprashan:**

1. Swarna Bhasma
2. Madhu
3. Brahmi Ghrita or Panchgavya Ghrita

**Selection of drugs**

Both Brahmi Ghrita [5] and Panchgavya Ghrita [6] were used in the preparation of Swarnaprashan for their effect on immunity and physical growth in children, as described in the management

of Apasmara Chikitsa under Chikitsa Sthana of Charaka Samhita Uttarardha, respectively (Table 3).

**Preparation of Brahmi Ghrita:**

Yavakuta of Brahmi was taken, and its decoction was made. After that, Goghrita was taken and Murchan was done. After the Murchana Kalka of Shankhpushpi, Vacha, Kushtha, and the decoction of Brahmi were added to start the procedure of Ghritpaka. The Ghrita was filtered out after observing Sidhilakshna (Table 4).

**Table 3:** Showing Ingredients of Brahmi Ghrita [5].

S.No.	Ingredient	Latin Name	Part used	Ratio
1	Brahmi	Becopa monnieri Linn.	Panchanga (whole plant)	1part
2	Vacha	Acorus calamus Linn.	Mula (roots)	1part
3	Kushtha	Saussurea lappa C.B.Clarke	Mula (roots)	1part
4	Shankhpushpi	Convolvulus pluricaulis Chois.	Panchanga (whole plant)	1part
5	Goghrit	-	-	QNS

**Table 4:** Showing Ingredients of Panchgavya Ghrita [6].

S.No.	Ingredient	Ratio
1	Gomaya	1part
2	Godadhi	1part
3	Godugdha	1part
4	Gomutra	1part
5	Goghrit	1part

### Preparation of Panchgavya Ghrita

After the Murchan procedure of Goghrita, the same quantities of Gomutra, Gomaya, Godugdha, and Godadhi started the Ghritpaka process. The Ghrita was filtered out after observing Sidhilakshna. Both drugs were prepared in the pharmacy of the University Postgraduate Institute of Ayurveda Studies and Research, Karwar, Jodhpur, Dr. Sarvepalli Radhakrishnan Rajasthan Ayurved University, Jodhpur. Both drugs were similar physical character & repacked in same packing. Coded document was kept under safety and the envelope was opened after the completion of study to decode compounds under trial.

### Assessment Criteria

During the trial, children were assessed based on subjective and objective parameters.

### Subjective parameter

The improvement in the children was assessed mainly based on relief in the signs and symptoms of the disease and an increment in physical growth (weight, height, and mid-arm circumference).

To assess the effect of therapy appetite abdominal distension, abdominal pain, anemia, asthma, cold, conjunctivitis, constipation, cough, diarrhea, ear infection, fever, food allergies, jaundice, anemia, pneumonia, running nose, sore throat, tonsillitis and vomiting were asses on four-point scale depending upon their severity.

### Objective parameters

Anthropometry Measurements- Effect of therapy were assessed on various anthropometric tool as weight, height, head circumference, chest circumference, mid arm circumference

before and after of treatment.

### Lab investigation

CBC (complete blood count), ESR (erythrocyte sedimentation rate), Immunoglobulin G and Urine (routine and microscopic) were carried out to assess the efficacy of therapy on children before and after completion of treatment.

### Observations

Total 46 children registered in the present clinical study. Out of them 40 completed the treatment and six discontinued. In this study, 22 cases registered in -group A, out of which 20 completed the treatment and two discontinued. In Group B, total number of cases registered was 24. Out of these 20 completed the treatment and four discontinued (Table 5).

### Result

In Stat Graph Pad 3 was used to calculate all of the results.

- The Wilcoxon matched pairs signed ranks test was used for nonparametric data, and the Paired 't' Test was used for parametric data, with results calculated separately for each group.

- For calculating the Inter group comparison, Mann-Whitney Test & Unpaired 't' Test were used.

### Intragroup Study (Tables 6 - 9)

The analysis of the relief percentage of the Lakshana Sammuchaya (overall symptoms) from Table 13 shows that the percentage relief for study group A was 66.65% and the relief was maximum for group B was 55.67%. The statistical analysis of the same showed that the improvements in both groups were found to be highly significant.

**Table 5:** Showing Demographic Data.

S.No.	Observation	Predominance	Percentages
1.	Age group	7-8 year	47.50%
2.	Sex	Female	52.50%
3.	Religion	Hindu	75%
4.	Mother education	Higher secondary	32.50%
5.	Father education	Graduates	40%
6.	Socio-economic status	Lower class	30%
7.	Father's occupation	Skilled workers	27.50%
8.	Mother's occupation	Houseworkers	40%
10.	Region	Urban	52.50%
11.	Addictions	No addiction	65%
12.	Kostha	Madhyam Kostha	57.50%
13.	Agni	Vishmagani	35%
14.	Nidra	Alpa nidra	35%
15.	Dietary habit	Vishamasana	45%
16.	Sharirika Prakrati	Vata Pittaja Prakriti	52.50%
17.	Manasika Prakriti	Rajasika Tamasika	52.50%
18.	Samghnana	Madhyama	65%
19.	Pramana	Madhyama	77.50%
20.	Statava	Madhyama	52.50%
21.	Satmaya	Vyamishra Rasa	77.5%
22.	Ahara Shakti	Madhyama	57.5%)
23.	Gross Motor Milestones	Normal	67.50%
24.	Fine motor milestones	Normal	52.50%
25.	Social milestones	Normal	62.50%
26.	Language milestones	Normal	75%

**1.Intragroup Study**

**Table 6:** Showing the effect of therapy on subjective parameters.

Chief Complaints	Gr.	Mean		Mean diff.	Relief %	S.D.	S.E.	P
		BT	AT					
Appetite	A	2.34	1.05	1.29	54.50%	0.9612	0.2482	0.0001
	B	2.38	0.51	2.89	76.90%	1.1462	0.296	0.0001
Abdominal distension	A	1.5	0.3	1.2	75.10%	0.9904	0.2557	0.001
	B	1.6	0.5	1.1	66.60%	0.9155	0.2364	0.0005
Abdominal pain	A	1.83	1.15	0.68	41.40%	0.8619	0.2225	0.002
	B	2.04	1.22	0.82	38.80%	0.5606	0.1447	0.0005
Anaemia	A	1.2	0.63	0.57	39.10%	0.6399	0.1652	0.0156
	B	1.45	0.6	0.85	58.20%	0.8165	0.2108	0.0039
Asthma	A	1.5	0.6	0.9	61.60%	0.5071	0.1309	0.002
	B	1.11	0.7	0.41	29.20%	0.48	0.126	0.0313
Cold	A	1.14	0.76	0.38	23.80%	0.7988	0.2063	0.1464
	B	0.56	0.36	0.2	69.70%	0.8281	0.2138	0.0156
Conjunctivitis	A	1.4	0.7	0.7	50%	0.6325	0.1633	0.0068

	B	1.1	0.44	0.66	73.80%	0.7037	0.1817	0.0005
Constipation	A	2.1	1.35	0.75	39.50%	0.3519	0.0908	0.0001
	B	0.54	0.07	0.47	90%	0.7559	0.202	0.0156
Cough	A	1.53	1.5	0.03	38.70%	0.488	0.1268	0.001
	B	1.3	0.83	0.47	22.50%	0.9612	0.2482	0.1563
Diarrhoea	A	2.15	1.7	0.45	15.40%	0.6172	0.1594	0.054
	B	0.87	0.1	0.77	72.60%	0.7432	0.1919	0.0015
Ear infections	A	2.13	1.4	0.73	34.27%	0.88	0.22	0.0085
	B	2.06	1.2	0.86	41.74%	0.51	0.133	0.0002
Fever	A	2.06	1	1.06	51.45%	0.59	0.153	0.0006
	B	1.46	0.26	1.2	82.19%	0.94	0.24	0.0005
Jaundice	A	2.13	1.4	0.73	34.27%	0.88	0.22	0.0085
	B	2.06	1.2	0.86	41.74%	0.51	0.133	0.0002
Pneumonia	A	1.06	0.6	0.46	43.39%	0.51	0.133	0.0078
	B	1.33	0.53	0.8	60.15%	0.41	0.1	0.0002
Sore throat	A	2.06	1.76	0.3	40%	0.56	0.144	0.0005
	B	2	1.13	0.87	43%	0.51	0.13	0.0002
Tonsillitis	A	0.93	0.33	0.6	64.51%	0.73	0.19	0.0078
	B	1.6	0.93	0.66	41.25%	0.72	0.18	0.0039
Vomiting	A	0.93	0.6	0.33	35.40%	0.488	0.126	0.013
	B	1	0.86	0.14	14%	1.125	0.2906	0.3672

Gr. = Group, BT = Before treatment, AT = After treatment, SD = Standard deviation, SE = Standard Error, 't' = students' test, p = power of significance and s = significance.

**Table 7:** Effect of therapy on Anthropometrical measurement in Group A & B.

Anthropometrical measurement	Gr.	Mean score		SD	SE	't'	P	S
		BT	AT					
Weight	A	15.14	15.29	0.63	0.24	1	>0.05	NS
	B	12.56	12.94	0.58	0.21	1.82	>0.05	NS
Height	A	94.75	95.25	0.93	0.33	1.53	>0.05	NS
	B	84.86	85	0.38	0.14	1	>0.05	NS
Mid arm circumference	A	13.93	14.14	0.39	0.15	1.44	>0.05	NS
	B	14.81	14.75	0.41	0.15	0.42	>0.05	NS
Head circumference	A	45.25	45.38	0.35	0.13	1	>0.05	NS
	B	37.86	37.86	0	0	0	>0.05	NS
Chest circumference	A	44.29	44.29	0	0	0	>0.05	NS
	B	50.5	51	0.76	0.27	1.87	>0.05	NS

Gr. = Group, BT = Before treatment, AT = After treatment, SD = Standard deviation, SE = Standard Error, 't' = students' test, p = power of significance and s = significance.

**Table 8:** Showing effect of therapy on objective parameters (Blood investigations).

Investigations	GR	BT	AT	% Relief	S.D.	S.E.	t	P	S
Hb(g/dl)	A	10.42	11.2	6.7	1.37	0.32	-2.16	<0.05	S
	B	10.5	11.45	8.9	1.45	0.37	-2.51	<0.05	S
RBCs	A	4.68	4.72	0.7	0.35	0.09	-0.39	>0.05	NS
	B	4.52	4.79	5.8	1.37	0.35	-0.75	>0.05	NS

PCV%	A	31.92	34.25	7.2	3.15	0.74	-3.16	<0.01	S
	B	31.9	35.7	7.8	3.97	1.02	-2.44	<0.05	S
MCH (pg)	A	23.3	24.8	6.4	3.7	0.87	-1.72	>0.05	NS
	B	22.8	24.5	7.7	3.09	0.79	-2.18	>0.05	NS
MCV (fl)	A	73.9	76.6	3.5	10.5	2.49	-1.05	>0.05	NS
	B	71.7	75.7	5.5	6.68	1.73	-2.32	<0.05	S
ESR	A	6.78	3.56	4.5	5.78	2.89	-1.45	>0.05	NS
	B	5.89	4.38	3.5	6.78	3.67	-2.91	>0.05	NS
WBC	A	8.9	9.89	5.84	0.37	0.35	-0.75	>0.05	NS
	B	6.78	8.7	6.21	2.14	0.64	-4.17	<0.01	S
IgG	A	989	1100	6.2	2.15	0.64	-5.26	<0.01	S
	B	878	1291	7.8	3.97	1.02	-2.44	<0.05	S

Gr. = Group, BT = Before treatment, AT = After treatment, SD = Standard deviation, SE = Standard Error, 't' = students' test, p = power of significance and s = significance.

**Table 9:** Therapy effects on urine investigations.

Investigations	GR	BT	AT	% Relief	S.D.	S.E.	T	P	S
Pus cells	A	1.3	1.4	4.82	2.36	0.31	-0.73	>0.05	NS
	B	0.9	0.3	7.4	3.35	0.54	-4.16	<0.01	S
Epithelial cells	A	1.1	0.8	6.8	2.97	1.06	-1.44	<0.05	S
	B	1.3	0.7	4.81	2.37	1.35	-0.55	>0.05	NS

Gr. = Group, BT = Before treatment, AT = After treatment, SD = Standard deviation, SE = Standard Error, 't' = students' test, p = power of significance and s = significance.

## 2. Intergroup comparison:

**Table 10:** Effect of therapy on intergroup comparison on subjective parameters.

Chief Complaints	GR	Mean diff.	S.D.	S.E.	P	S
Appetite	A	0.86	0.743	0.191	0.4279	NS
	B	1.26	0.961	0.248		
Abdominal distension	A	1.133	0.99	0.255	0.1865	NS
	B	0.666	0.488	0.126		
Abdominal pain	A	0.8	0.8619	0.2215	0.3625	NS
	B	0.8	0.5606	0.1447		
Anaemia	A	0.06	0.703	0.181	0.161	NS
	B	0.46	0.639	0.165		
Asthma	A	0.6	0.5071	0.1309	0.0785	NS
	B	0.33	0.488	0.126		
Cold	A	0.266	0.7988	0.2063	0.1714	NS
	B	0.6	0.8281	0.2138		
Conjunctivitis	A	0.6	0.6325	0.1633	0.1275	NS
	B	0.933	0.7037	0.1817		
Constipation	A	0.86	0.3519	0.0908	0.0326	S
	B	0.533	0.7432	0.1919		
Cough	A	0.66	0.488	0.126	0.0608	NS
	B	0.266	0.9612	0.2482		
Diarrhoea	A	0.33	0.6172	0.1594	0.3195	NS



	B	0.53	0.7432	0.1919		
Ear infections	A	0.3	0.488	0.126	0.4179	NS
	B	0.133	1.125	0.2906		
Fever	A	0.93	0.451	0.118	0.1959	NS
	B	1.2	0.941	0.243		
Jaundice	A	0.733	0.88	0.22	0.2115	NS
	B	0.6	0.63	0.16		
Pneumonia	A	0.46	0.51	0.13	0.331	S
	B	0.8	0.41	0.1		
Sore throat	A	1.13	0.99	0.25	0.0331	S
	B	0.2	0.94	0.24		
Tonsillitis	A	0.66	0.723	0.186	0.2535	NS
	B	0.933	0.798	0.206		
Vomiting	A	0.6	0.73	0.19	0.3920	S
	B	0.66	0.72	0.18		

Gr. = Group, BT = Before treatment, AT = After treatment, SD = Standard deviation, SE = Standard Error, 't' = students' test, p = power of significance and s = significance.

**Table 11:** Effect of therapy on intergroup comparison of anthropometric measurement.

	Gr.	SD	SE	't'	P	S
Weight	A	0.649	0.987	2.75	0.054	NS
	B	0.293	0.345			
Height	A	Components	0.167	0.765	0.43	NS
	B	1.897	1.98			
Mid-arm circumference	A	5.087	4.76	0.245	1.23	NS
	B	5.765	2.75			
Head circumference	A	5.78	2.54	0.89	0.21	NS
	B	4.76	1.45			
Chest circumference	A	5.98	1.98	0.798	0.87	NS
	B	0.87	1.965			

Gr. = Group, BT = Before treatment, AT = After treatment, SD = Standard deviation, SE = Standard Error, 't' = students' test, p = power of significance and s = significance

**Table 12:** Showing intergroup comparisons of objective parameters.

Investigations	GR	Mean diff.	S.D.	S.E.	t	P	S
Hb(g/DL)	A	-0.32	0.5599	0.1446	1.868	0.036	S
	B	0.033	0.4938	0.127			
RBCs	A	966.67	748.01	193.14	0.4329	0.2367	NS
	B	849.33	736.63	190.2			
PCV%	A	2.2	6.073	1.56	0.1623	1.003	NS
	B	0.133	5.181	1.33			
MCH	A	3.73	7.186	1.855	0.8853	0.191	NS
	B	1.46	6.833	1.764			
MCV	A	1.06	1.1644	0.31	0.785	0.2195	NS
	B	0.733	1.163	0.3			
ESR	A	0.344	3.146	0.8122	0.2601	0.3983	NS
	B	0.07	2.583	0.669			



WBC	A	0.04	0.522	0.134	0.9811	0.1673	NS
	B	0.2	0.354	0.091			
IgG	B	1.25	3.725	0.8871			
	A	2.468	0.4571	0.422	0.0325	0.4871	NS
Pus cells	B	1.741	0.826	0.543			
	A	1.718	0.716	0.511	0.0413	0.671	NS
Epithelial cells	B	1.341	0.671	0.752			
	A	6.06	2.23	0.5757	0.4637	0.3232	NS
	B	0.266	1.668	0.43			

Gr. = Group, BT = Before treatment, AT = After treatment, SD = Standard deviation, SE = Standard Error, 't' = students' test, p = power of significance and s = significance.

**Table 13:** Total effect of therapy on Lakshana Sammuchya (overall symptoms).

Groups	N	Mean B.T.	Mean A.T.	Mean Dif.	% Relief	S.D.	S.E.	t	P
Group A	20	1.87	0.65	1.22	66.65	0.336	0.1	6.72	< 0.0001
Group B	20	1.95	0.54	1.41	55.67	0.474	0.14	5.06	< 0.0005

Gr. = Group, BT = Before treatment, AT = After treatment, SD = Standard deviation, SE = Standard Error, 't' = students' test, p = power of significance and s = significance

### Intergroup comparison

(Tables 11-13)

The analysis of the relief percentage of the Lakshana Sammuchya (overall symptoms) from Table 13 shows that the percentage relief for study group A was 66.65% and the relief was maximum for group B was 55.67%. The statistical analysis of the same showed that the improvements in both groups were found highly significant.

### Discussion

Swarnaprashan used in present study was in modified form that contain Swarna Bhasma, Ghrita and honey along with some herbs showing nootropic, immunomodulatory adaptogenic and rejuvenator activity. Swarnaprashan prepared from Brahmi Ghrita (Group A) showed significant reduction in the repeated episodes of recurrent vomiting, tonsillitis, sore throat, recurrent asthma, recurrent abdominal pain, recurrent abdominal distension. Swarnaprashan prepared from Panchgavya Ghrita (Group B) showed better results in improving appetite, recurrent abdominal pain, recurrent anemia, recurrent cold, recurrent conjunctivitis, constipation, diarrhea, ear infections, recurrent fever, recurrent jaundice, pneumonia, runny nose.

### Discussion on the probable mode of action of drugs are given below

#### Brahmi Ghrita

Majority of the constituents of Brahmi Ghrita are Madhura, Tikta, Kashaya rasa, Sheeta Veerya, Madhura Vipaka in Rasapanchaka, Deepaniya, Brumhana, Balya, Rasayana, and

Medhya in Karma. Enhancing cognitive function is a primary therapeutic use of Bacopa monnieri [8]. Balya, rasayan, and brimhna effects are known as immunomodulatory effects. Tikta-rasa and Usna-veerya are present in Kushtha and Vacha. Tikta Rasa aids in the removal of Agnimandya, enhances taste, reduces thirst, and equating Kleda (unwanted metabolic waste) with free radicals scavenging and antioxidant activity. Madhura Vipaka is present in Brahmi and Shankhpushpi. Madhura rasa and Vipaka affect Shadindriya Prasadana (nourishing and amplifying all sensory perceptions), improving strength and complexion at the cytosolic and gene expression levels [9]. Sthairyakara (stabilizing): Neuroprotection by directly or indirectly modifying the activities of ATPases and establishing linkage can be correlated and. Jeevana (motivating) with —increasing circulation into the CNS system and balances blood sugar levels. It demonstrates interaction with GABAergic modulators (Sandhanakara) via immune stimuli and increased acetylcholine production [10]. While the specific action of Medhya medicines on the CNS is through improving Satva Guna (sensory perception and neuronal arborization mediated by neurotransmitters), they also have immunomodulatory properties. DHA and omega-3 fatty acids are essential, and the drug's other benefits help promote general health and development. These observations are also supported by evidence-based investigations [11].

#### Swarna Bhasma

Swarna Bhasma is Sheet (cold) in Virya, Madhura (sweet) in Vipaka, and Madhura (sweet), Tikta (bitter), Kashaya (astringent) in Rasa. It also gives Bala (strength) to the body and brain. It demonstrates Brimhana Karma (bulk-promoting action), which

is expected here; with the help of Madhura Rasa and Madhura Vipaka, an increase in the Rasadi Dhatu occurs gradually; thus, an increase in rasa leads to an increase in Rakta, which may lead to an increase in the weight of male and female children. According to recent study, gold particles have anti-oxidant properties as well as T-lymphocyte activation, and so play a role in the control of antigen-specific immune responses [12]. Various studies establish antioxidant, antidepressant, anti-cancer, antibacterial, and anti-rheumatoid properties of Swarna Bhasma. Gold particles are the most promising because they are non-toxic and do not harm alive cells [13].

### Probable mode of action of Panchgavya Ghrita

It contains Gomaya, Gomootra, Godugdha, Godadhi and Goghrita [6] which compensate the deficiency of nutrients in our body, which are required for a healthy life. Thus, it prevents or delays ageing process and hence called as a Rasayan. The mineral contained in it include copper and gold salts, which protect against diseases [14]. It is extremely apparent about the impact on three Doshas by assessing the Rasapanchaka of the five substances. The medicine has a calming effect on all three Doshas in nature, with Kaphavata Shamana dominating. It is also known as Agnideepaka and Srotosodhaka [15]. Some of its constituents have Anulomana properties, which help to relieve Vata. The drug's Srotosodhana action aids in acting deeply on the mind, destroying the Tamas Aavarana and providing clarity [16]. Panchgavya Ghrita is effective against the carbon tetra chloride induced hepatotoxicity in rats [17]. It is clear that this particular drug is effective in improving the cognition of children, as it is even effective in those with autism where there is irreversible damage for cognitive functions due to other causes.

Probable mode of action of Madhu: - Madhu (Honey) is a sweet meal produced from nectar collected from flowers by honeybees. It has Madhura, Kashaya rasa, Ruksha, Sheeta, Laghu in guna [18], Picchila, Suksha marganusari, Yogavahi properties along with Sheet Virya, Madhura Vipaka, and Tridoshashamak, Deepana, Varnya, Swarya, Lekhana, Sandhana, Shodhana, Ropana, Chedana, Sangrahi, Chakshushya, Prasadana properties [19]. According to studies, most bacteria and other organisms cannot grow or reproduce in honey, thus they are dormant which shows honey's antimicrobial action [20]. Mast cell degranulation peptide (MCDP) is a 22-amino-acid peptide found in honey that has remarkable immunological properties. MCDP is a significant anti-inflammatory drug, but at low concentrations, it is an effective mediator of mast cell degranulation and histamine release [21]. Antigens in the environment come in a wide variety of shapes and sizes, providing a plethora of opportunities to elicit an immune response. Pollen is the most well-known non-microbial antigen found in honey [22]. Honey has a high caloric value and is an excellent source of vitamin B complex, vitamin C, and micronutrients such as calcium, iron, magnesium, phosphorus, potassium, sodium, and zinc. As a result, honey appears to be the ideal top feed for the infant

[23]. According to Ayurvedic scriptures, honey's 'Yogavahi' Guna absorbs the characteristics of other medications without losing its own properties like Vacha and Swarna Bhasma while retaining its own properties, enhancing the overall efficiency of Yoga.

### Conclusion

It concluded from the above study that Swarnaprashan prepared from Brahmi ghrita showed a significant result over Swarnaprashan prepared from Panchgavya ghrita on various assessment parameters. However, Swarnaprashan did not elicit any remarkable changes on anthropometry parameters.

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