

Effectiveness of modamrut herbal nutritional granules in growth and development of children

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How to cite this article: Jamadagni S, Kaware S, Ekande S, Kondekar A. Effectiveness of modamrut herbal nutritional granules in growth and development of children. *Innov Pharm Pharmacother* 2021;9(4):59-61.

Source of Support: Nil.
Conflicts of Interest: No conflicts of interest declared.

ABSTRACT

Aim: The current research was conducted to evaluate the effectiveness of modamrut herbal nutritional granules in growth and development of children. **Methods:** In the current clinical trial study, 73 children were involved, but only 46 of them completed it. The children who were chosen for the trial were between the ages of 1 and 5. The children were chosen based on their nutritional status: Moderate acute malnutrition, severe acute malnutrition, and severely underweight. The children were divided into four groups, with each group receiving a different dosage. Group A consists of youngsters aged 1–3 years to whom we administered 500 mg modamrut powder twice daily. Group B is made of youngsters aged 3–5 years old who were administered 800 mg modamrut powder twice a day. Group C is composed of children age 1–3 years old who were given 1.66 g modamrut powder twice a day. Group D is made up of youngsters aged 3–5 years old who were given 2.5 g modamrut powder twice a day. The height and weight of the children were assessed at the end of the study. Adverse events were also analyzed at the end of the study. **Results:** Modamrut herbal nutritional granules enhanced the children’s height and weight greatly. There was a higher percentage of children who improved in height and weight. Overall, when modamrut herbal nutritional granules are included in a treatment protocol for children’s growth and development, the children’s growth is observed. It was observed that after 1 year of using modamrut herbal nutritious granules, all 46 children’s weight and height had improved. The average weight gain in all 46 children was 1.41 kg. All 46 children improved by an average of 6.62 cm in height, and no adverse events were observed during the study. **Conclusion:** This study will definitely open the way for future research into incorporating herbal therapies into children’s growth and development.

Keywords: Children, clinical trial, herbal nutritional granules

Introduction

The first few years of life are critical for establishing growth patterns and ensuring optimal growth and development. In children under the age of 5, nutrition is an important aspect in a child’s and adolescent’s growth. Because children in the pediatric age group are still growing and developing, their nutritional needs fluctuate as they get older. Nutrition is clearly recognized as an essential factor in illness prevention, particularly for chronic diseases including obesity, diabetes, hypertension, and dyslipidemia. Nutrition-related

concerns must be addressed to ensure normal development in early childhood, which has long-term consequences.^{1,2} The development of crucial components of the brain’s architecture may be hampered by inadequate early childhood nutrition. This needs a diet rich in nutrients necessary for regular, healthy growth.

Nutritional deficiency is seen in children aged 1–5 years old for a range of factors, including socioeconomic status and nutritional deficiency due to poor food choices, and there should be a holistic approach to 1–5-year-old children with nutritional ingredients that aid in the child’s growth and development.

In the present study, modamrut herbal nutritional granules are used as an intervention to assess the growth and development in children.

Access this article online

Website: www.innpharmacotherapy.com	e-ISSN: 2321-323X p-ISSN: 2395-0781
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Interventional Details

Product name

Modamrut herbal nutritional granules.

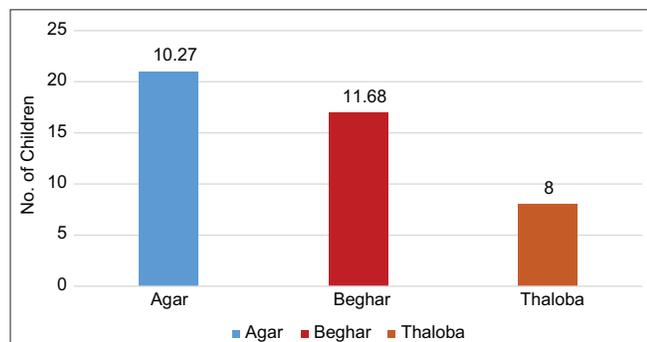
Ingredients

Energy – 355 Kcal, protein – 18 g, fat – 3 g, carbohydrate – 34.57 g, dietary fiber – 4.92 g, iron – 2.48 g, folic acid – 15 mcg, calcium – 200 mg, Vitamin A – 200 mg, Vitamin B1 – 0.3 g, Vitamin B2 – 0.35 g, Vitamin B3 – 4 g, Vitamin B12 – 6 mcg, Vitamin C – 15 g, and sugar+jaggery – 29.95 g [Tables 1 and 2].

Methodology

The current study is on modamrut herbal nutritional granules, which was carried out at three Anganwadi in the Shirol periphery: Agar, Thaloba, and Begharvasahat. We selected 73 children for this study, but only 46 of them finished it. The children who were chosen for the trial ranged in age from 1 to 5 years old. The children were chosen based on their nutrition status: Moderate acute malnutrition, severe acute malnutrition, and severely underweight. Fourteen of the 46 children were between the ages of 1 and 3 years and 32 were between the ages of 3 and 5 years.

The duration of study was 1 year. The children's were divided into four groups and different dosages were given to different groups. Group A consists of children of age between 1 and 3 years to which



Graph 1: Anganwadi wise distribution of children

Table 1: Interventional facts

S. No.	Parameters	Observed value	Unit
1	Carbohydrates	40.76	g/100 g
2	Energy in kilocalories	387	Kcal/100 g
3	Protein	7.92	g/100 g
4	Total fats	4.35	g/100 g
5	Copper	4.59	mg/100 g
6	Iron	16.10	mg/100 g
7	Vitamin A	<LOQ	mg/kg
8	Vitamin B12	<LOQ	mg/100 g
9	Vitamin C	<LOQ	mg/kg
10	Vitamin D	<LOQ	mg/kg

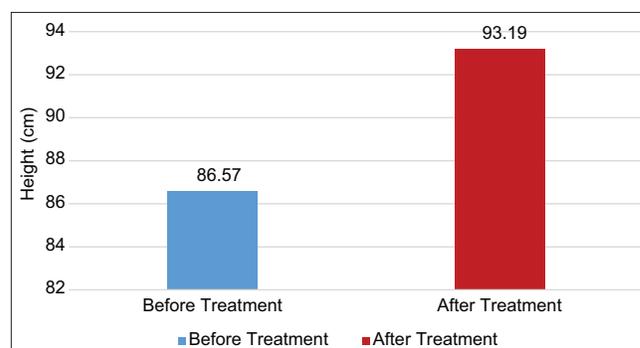
we have given 500 mg modamrut powder two/time a day. Group B consists of children of age between 3 and 5 years to which we have given 800 mg modamrut powder two/time a day. Group C consists of children of age between 1 and 3 years to which we have given 1.66 g modamrut powder two/time a day. Group D consists of children of age between 3 and 5 years to which we have given 2.5 g modamrut powder two/time a day [Graph 1].

Results and Discussion

Improvement in assessment parameter: Weight

All 46 children were seen with increase in weight over study period irrespective of Anganwadi as well as gender of the children [Graph 2].

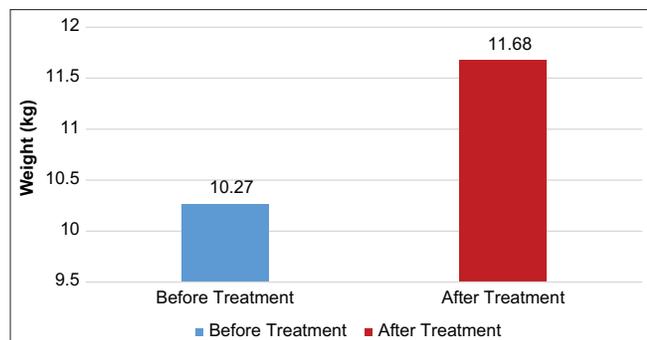
- For male, the mean increase in weight for the age group of 6–36 months was 1.21 kg while for the age group of 37–74 months, the mean increase in weight was 1.29 kg.
- For female, the mean increase in weight for the age group of 6–36 months was 1.68 kg while for the age group of 37–74 months, the mean increase in weight was 1.42 kg.



Graph 2: Changes in mean height over treatment period

Table 2: Interventional details

S. No.	Parameters	Value	Unit
1	Energy	355	Kcal
2	Protein	18	g
3	Fat	3	g
4	Carbohydrate	34.57	g
5	Dietary fiber	4.92	g
6	Iron	2.48	g
7	Folic acid	15	mcg
8	Calcium	200	mg
9	Vitamin A	200	mg
10	Vitamin B1	0.3	g
11	Vitamin B2	0.35	g
12	Vitamin B3	4	g
13	Vitamin B12	6	mcg
14	Vitamin C	15	g
15	Sugar + Jaggery	29.95	g



Graph 3: Changes in mean weight over treatment period

- Overall, the mean weight before treatment was 10.27 kg and after treatment, it was observed to be 11.68 kg. This increase of 1.41 kg was significant ($t = 3.726$, $P < 0.001$) at 5% level of significance.

Hence, there is a significant increase in weight of children receiving modamrut [Graph 3].

Improvement in assessment parameter: Height

For all Anganwadi and both genders, all the children were seen with increase in height.

- For male, the mean increase in height for the age group of 6–36 months was 7.24 cm while for the age group of 37–74 months, the mean increase in height was 5.56 cm.

- For female, the mean increase in height for the age group of 6–36 months was 7.87 cm while for the age group of 37–74 months, the mean increase in weight was 6.53 cm.
- Overall, the mean height before treatment was 86.57 cm and after treatment, it was observed to be 93.19 cm. This increase of 6.62 cm was significant ($t = 3.727$, $P < 0.001$) at 5% level of significance. Hence, there is a significant increase in height of children receiving modamrut.

Conclusion

The study concludes that treating children with modamrut herbal nutritious granules have various advantages over using merely standard treatment. The children showed signs of progress. The weight and height of all 46 children have improved after 1 year of taking modamrut herbal nutritious granules. All 46 children gained an average of 1.41 kg. During the trial, all 46 children gained an average of 6.62 cm in height, and no adverse effects were observed. Future research into combining Ayurvedic remedies into children's growth and development will undoubtedly be aided by this study.

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