IJPSR (2022), Volume 13, Issue 10 (Review Article)

INTERNATIONAL JOURNAL OF PHARMACEUTICAL SCIENCES AND RESEARCH

Received on 15 February 2022; received in revised form, 24 March 2022; accepted, 24 April 2022; published 01 October 2022

ROLE OF BALPUSHTIKARA YOG IN THE MANAGEMENT OF UNDERNUTRITION IN CHILDREN: EVIDENCE FROM AYURVEDA

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Keywords:

Brimhana, Deepana, Undernutrition, *Pachana, Rasayana, Balpushti karayog*

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ABSTRACT: Introduction: Long life, good health, and healthy development are all dependent on proper nutrition. Well-fed children do better in school, develop into healthy adults, and offer their children a better start in life. Undernutrition, on the other hand, remains a major issue, particularly among children who are deprived of adequate food in developing countries. Childhood undernutrition is an underlying cause of an estimated 35% of all deaths among children under five and 21% of total global disability-adjusted life years lost among less than 5 children. Pathological alterations in the body arise as a result of various diseases or excessive indulgence in factors leading to emaciation, resulting in the emergence of undernutrition. In such cases, *Deepana-Pachana* (appetizer and digestive) *Brimhana (*Increasing muscle bulk*)*, and *Rasayana* (Rejuvenizing**)** therapy is needed. **Methods:** This review is conducted using a complete and organized search of the available literatures in Ayurveda texts and published articles. The searches were performed using various databases, including PubMed, Scopus, MedLine, Google Scholar, and others. The keywords used for the search included *Undernutrition*, *Deepana*, *Pachana*, *Brimhana*, *Balpushtikara yog*. **Result:** *Ayurveda* drugs described for management of *Karshya* and *Balshosha* are completely formulated to meet all the deficiencies and cure the same. *Balpushti karayog* is an *Ayurveda* drug indicated as *karshyaroghara* for the management of emaciation (undernutrion). The purpose of this study is to evaluate the effect of the drug *Balpushtikara yog* in children. **Conclusion:** *Balpushti karayog* is a complete formulation to meet all the deficiencies of undernutrition.

INTRODUCTION: The childhood stage is more prompt to growth and development than the other stage. Well-fed children do better in school, develop into healthy adults and offer their children a better start in life. Undernutrition, on the other hand, remains a major issue, particularly among children who are deprived of adequate food in developing countries.

QUICK RESPONSE CODE

DOI: 10.13040/IJPSR.0975-8232.13(10).3907-15

This article can be accessed online on www.ijpsr.com

DOI link: http://dx.doi.org/10.13040/IJPSR.0975-8232.13(10).3907-15

Childhood undernutrition is an underlying cause in an estimated 35% of all deaths among children under five and 21% of total global disability-adjusted life years lost among less than 5 children. In India, the government has taken steps to combat undernutrition among school children by providing them one nutritious meal at school called "mid-day-meal.

And some other programs also running successfully include the National Health Mission (NHM), Rajiv Gandhi Schemes for Empowerment of Adolescent Girl (RGSEAG), also known as SABLA, RBSK, Poshana Abhiyan *etc*. Despite many efforts by government to mitigate this curse, no satisfactory

results are gained. This needs to address many other issues apart from the availability of food. This includes safe drinking water, proper sanitation and waste disposal, regular deworming in children along with nutrition. Further, if food is made available, other factors like proper digestion, absorption and assimilation of food are equally important. Undernutrition is the result of the inadequacy of food in quality as well as quantity. Further, where nutritional rehabilitation is required at the same time, its digestion and proper assimilation is also equally important. Pathological alterations in the body arise as a result of various diseases or excessive indulgence in factors leading to emaciation, resulting in the emergence of undernutrition. Undernutrition in Ayurveda is similar to nutritional disorders like *Balashosha*, *Phakka*, *Karshya*, *Parigarbhika*, and *Sushka Revati*. In Ayurveda, the virtue of *Deepana – Pachana* (appetizer-digestive*), Balya* (strength promoting), *Brimhana (*increasing muscle bulk*)* and *Rasayana* (rejuvenizing) properties of drugs can be effective in undernutrition. *Balpushti karayog* is an *Ayurveda* drug mentioned in *Sahasra Yogam* in the reference to the management of *Kshaya* as *Kshayarogahara Kashaya,* mainly as*pushtikaraka* (nourishing) and *kshayanashaka* (correcting emaciation) [1]. Ayurveda drugs described for the management of *Karshya* and *Balshosha* are completely formulated to meet all the deficiencies and cure the same. *Balpushti karayog* is an *Ayurveda* drug indicated as *karshyaroghara* for the management of emaciation (undernutrion). This study aims to evaluate the effect of the drug *Balpushti karayog* in children.

MATERIAL AND METHODS: This review is conducted using a complete and organized search of the available literature in Ayurveda texts and published articles.

The searches were performed using various databases, including PubMed, Scopus, MedLine, Google Scholar, and others. The keywords used for the search included *Undernutrition*, *Deepana*, *Pachana*, *Brimhana*, *Balpushtikara yog.*

RESULTS:

TABLE 1: COMPOSITION OF *BALPUSHTI KARAYOG*

S. no.	Name of drug	Latin name	Family	Part used	Quantity
1	*Punarnava*	*Boerhavia diffusa*	Nyctaginaceae	Root	01 Part
2	*Bala*	*Sida cordifolia*	Malvaceae	Root	01 Part
3	*Chavya*	*Piper retrofractrum*	Piperaceae	Root	01 Part
4	*Shalparni*	*Desmodium gangeticum*	Fabaceae	Whole Part	01 Part
5	*Pippali*	*Piper longum*	Piperaceae	Fruit	01 Part
6	*Gokshura*	*Tribulus terrestris*	Zygophyllaceae	Whole Part	01 Part
7	*Jeevanti*	*Leptadenia reticulate*	Asclepiadaceae	Fruit	01 Part

TABLE 2: NUTRITIONAL VALUE OF *BALPUSHTIKARA YOG*

S. no.	Calories	*Punarnava* [2] (mg/gm)	*Bala* [3] (%)	*Chavya*[4] (%)	*Shalparni* [5]	*Pippli* [6] mg/100g	*Gokshura*[7] (g/100g)	*Jeevanti* [8]	Total
1	Carbohydrate	10.56	-	63.4	74.44	-	15.9	2 gm/100g	166.3
2	Protein	05.76	-	11.4(cru)	8.63	-	1.3	4.2gm /100g	31.29
3	Fat	01.61	-	2.97	0.73	-	0.52	0.62 (%)	6.45
4	Thiamine	0.24	-	-	-	-	-	-	0.24
5	Tocopherol	0.16	-	-	-	-	-	-	0.16
6	Dietary Fiber	2.4 %	-	28.8	49.83	-	-	18.3 (%)	99.33
7	Total Ash	23.09 %	6.69	4.29	4.80	-	-	1.77 (%)	40.64
8	Total Flavonoids	-	-	-	-	-	19.92 (ug/ml)	-	19.92
9	Moisture	78.9 %	-	-	11.34	-	-	83.4 (%)	173.64
10	Vitamin C (Ascorbic acid)	0.20	-	-	-	-	14.2 (mg/100g)	29.27mg/100g	43.67
11	Calcium	-	-	-	-	12.30	59 (mg/100g)	98 mg/100g	169.3
12	Phosphorus	-	-	-	-	1.90	-	-	1.90
13	Iron	-	-	-	-	62.1	-	6.07mg /100g	68.17
14	Total Sugar	-	-	-	-	-	-	0.67 (%)	0.67
15	Total Energy	-	-	-	-	-	73.48 (Kcal)	-	73.48

TABLE 3: THERAPEUTIC PROPERTIES AND PHARMACOLOGICAL ACTIONS OF *BALPUSHTIKARAYOG*

S. no.	Drug name	Therapeutic properties	Pharmacological action
1	*Punarnava*	*Deepana (appetizer), Vayahsthapana (age stabalizer), Panduroga (anemia), Udararoga* [9]*(GIT disorders).*	Immunomodulatory effect, Anthelmintic activity
2	*Bala*	*Balya (strength promoting), Kantikaraka (glowing skin), Rasayana (rejuvenizing), Vrishya* [10]*(aphrodisiac)*	Anti-oxidant effect, Anthelmintic activity, Hepatoprotective effect
3	*Chavya*	*Pachana* [11]*(digestive).*	Antibacterial activity, bioavailability enhancing effect
4	*Shalparni*	*Vrimhana(increasing muscles), Rasayana (rejuvenizing), Balya (strength promoting), Tridoshanashaka* [12]*(balancing vata-pitta-kapha)*	Anti-inflammatory effect, Anthelmintic activity
5	*Pippali*	*Agnideepaka(appetizer), Vrishya(aphrodisiac), Rasayana (rejuvenizing), Medhya (increasing memory power), Aruchihar (anorexia), Panduroga* [13]*(anemia).*	Immunomodulatory effect, Antimicrobial activity, Anti oxidant property, bioavailability enhancing effect
6	*Gokshura*	*Balya(strength promoting), Agnideepaka(apetizer), Vrishya (aphrodisiac), Pushtikaraka* [14]*(growth and development)*	Immunomodulatory effect, Anthelmintic activity
7	*Jeevanti*	*Tridoshnashaka(balancing vata, pitta, kapha), Rasayana (rejuvenizing), Balya (strength promoting), Vrishya* [15]*(aphrodisiac)*	Immunomodulatory effect Hepatoprotective activity Antipyretic and Analgesic effect

TABLE 4: THERAPEUTIC PROPERTIES AND PHARMACOLOGICAL ACTION OF *BALPUSHTIKARAYOG*

Drug Name	*Rasa*	*Guna*	*Veerya*	*Vipaka*	*Karma*
Punarnava	*Tikta*	*Ruksha*	*Ushna*	-	*Kaphashamaka, Shoth, Panduroga, Urahakshata* [16]
	Madhura, Tikta, Kashaya, Katu	*Ruksha*	*Ushna*	-	*Agnideepaka, Shoth, Vatakaphanashaka, Ruchikaraka, Panduroga, Udararoga* [17]
Bala	*Madhura*	*Snigdha*	*Sheeta*	-	*Balya, Tridoshanasaka, Kshayakara* [18]
	Kashaya, madhura	*Guru*	*Sheeta*	*Madhura*	*Bala-Ojovardhaka* [19]
Chavya	*Katu*	-	*Ushna*	-	*Kriminashaka, Agnideepaka* [20]
	Katu	*Laghu, Ruksha*	*Ushna*	*Katu*	*Vatakaphashamaka, Deepana, Pachana, Krimihara* [21]
Shalparni	*Tikta*	*Guru*	*Ushna*	-	*Shothanashaka* [22]
	Madhura, Tikta	*Guru*	*Ushna*	-	*Brimhana, Rasayana* [23]
Pippali	*Katu*	*Snigdha*	*Sheeta*	*Madhura*	*Tridoshahara* [24]
	Madhura	*Guru, Snigdha*	-	-	*Kaphakaraka* [25]
Gokshura	-	-	*Sheeta*	-	*Brimhana, Tridoshahara, Agnivardhaka* [26]
	Madhura	-	*Sheeta*	-	*Balya, Pushtikaraka, Tridoshahara* [27]
Jeevanti	*Madhura*	*Snigdha*	*Sheeta*	-	*Tridoshaghna, Rasayana, Balya, Ayuvardhaka* [28]
	Madhura	*Guru*	*Sheeta*	-	*Brimhana* [29]

Punarnava (*Boerhavia diffusa*):

Pharmacological Actions:

Immunomodulatory Activity:

***In-vivo* Studies:** Mungantiwar and coworkers analyzed the immunomodulation by BD (aqueous extract, 50–200 mg/Kg/day orally) and showed remarkable leucocytosis and lowered mortality (50%) in pretreated mice using *E. coli*-induced abdominal sepsis stress model. The extract also reversed the elevation in the levels of glucose, cholesterol, SGPT, and BUN and reduction in triglycerides induced by cold and forced swimming stress in rats [30]. The alkaloidal fraction has shown a significant effect in leveling the increase in plasma cortisol and preventing the decrease in immune system performance in rats [31]. The alkaloidal fraction (25–100 mg/Kg p.o.) considerably decreased and delayed hypersensitivity reactions in animals and it is due to metabolic alteration of the alkaloid to its active form [32].

TABLE 5: MINERAL ANALYSIS OF *B. DIFFUSA* [33]

S. no.	Minerals	Mg/100gm	S. no.	Minerals	Mg/100gm
1	Magnesium	142.9	5.	Copper	3.9
2	Sodium	75.9	6.	Lead	1.25
3	Calcium	69.4	7.	Cadmium	0.28
4	Potassium	52.7			

Bala (*Sida cordifolia*):

Pharmacological Actions:

Anthelmintic and Antioxidant Activity: *In-vitro* studies were conducted on ethanolic and aqueous extract of whole plant *S. cordifolia* Linn. for anthelmintic and antioxidant properties. The antioxidant activities were evaluated by various antioxidant assays like α, α-Diphenyl-β-picrylhydrazyl free radical scavenging, total reducing power, nitric oxide scavenging, and hydrogen peroxide scavenging. The antioxidant activity of the ethanolic extract was almost quantitatively equivalent to that of the standards used, ascorbic acid. The anthelmintic activity of the whole plant, investigated using the Indian earthworm (*Pheretima posthuma*) showed that it is one of the most important local medicinal plants both for ritual and ethnomedical practices. Findings showed that *S. cordifolia* Linn. possesses potent antioxidant and anthelmintic activity [34].

Hepatoprotective Activity: The powdered aerial and root parts of *S. cordifolia* showed a remarkable hepatoprotective activity against carbon tetrachloride followed by methanolic and aqueous extracts [35]. Malondialdehyde, hydroperoxides and conjugated dienes were significantly reduced in liver and protein carbonyls in the serum which was observed in the rats that were administered with ethanolic extracts of *S. cordifolia*. The mRNA level of cytochrome P450 2E1, nuclear factor-κB, tumor necrosis factor alpha and transforming growth factor-β were found to be increased in the alcohol treated rats and their expressions were found to be decreased in the *S. cordifolia* extracts treated rats [36].

Chavya (*Piper retrofractrum / P. chaba*):

Pharmacological Actions:

Antibacterial Activity: The antibacterial assay was evaluated by the method of agar disc diffusion method. The media Mueller Hinton Agar No. 2 and the test microbial cultures were poured into Petri dishes. The test strain (200 ILL) was Inoculated into the media (inoculums size I O ^{E} cells mL ¯l) when the temperature reached 40-42 °C. I C) C) yg/20 ICIL of the test compound was impregnated in to sterile discs (7 mm, HiMedia). The disc was then introduced into medium with the bacteria. The plates were incubated ovemight at 37°C for bacteria. Antimicrobial activity was determined by measuring the diameter of the zone of inhibition. The experiment was performed in triplicates, and the mean values of the result are expressed as Mean ± SEM. Cefotaxime sodium (100 pg clisk¯l) was used as positive control, and Dimethylsulphoxide was taken as negative control [37].

Bioavailability Enhancing Activity: Atal studied *Piper chaba* and suggested that piperine promotes the rapid absorption of co-drugs by increased absorption from the gastrointestinal tract or by protecting the drug from being metabolized/ oxidized in its first passage through the liver after being absorbed or by a combination of these two mechanisms [38]. Subsequently, Atal *et al*. studied the interaction of piperine with the biotransformation reaction of drugs in hepatic tissue both *in-vivo* and *in-vitro*. It was shown that piperine inhibits aryl hydrocarbon hydroxylation, ethyl morphine-N-demethylation, 7-ethoxy coumarin-o-de-ethylation, and 3-hydroxy benzo pyrene glucorodination in rats. The use of *Piper longum* as a powder or piperine crystals with drugs like vasicine and sparteine was found to increase their bioavailability 2.5 to 3.5 times, respectively [39].

Shalparni (*Desmodium Gangeticum*)

Pharmacological Actions:

Anthelmintic Activity and Immunopotentiatory Activity: Crude ethanolic extract of Indian medicinal plant, *Desmodium gangeticum* (A001), and its three fractions-hexane (F002), n-butanol (F003), and aqueous (F004) were evaluated chemoprophylactically and chemotherapeutically against experimental visceral leishmaniasis in hamsters. Ethanolic extract showed 41.2+/-5.3% inhibition of parasite multiplication when administered at a dose of 250 mg/kgx^{2} on days -7 and +7 of Leishmania donovani challenge.

Its n-butanol fraction exhibited better efficacy than the ethanolic extract to the tune of 66.7+/-6.1% inhibition when administered at a similar dose schedule. But the other two fractions failed to exert any action prophylactically. F003 also imparted significant ($P<0.001$) non-specific resistance to peritoneal macrophages against Leishmania infection. F003 also showed moderate antileishmanial activity when tested against established infection of Leishmania donovani in

hamsters but the rest three fractions failed to show any significant inhibition of parasite multiplication activity [40].

Antidiarrheal Property: Water decocted with Shalparni, Prishniparni, and Puga bark and mixed with honey pacifies three doshas and checks all types of diarrhea [41].

Pippali (*Piper longum*):

Pharmacological Actions:

Immunomodulatory Activity: The alcoholic extract of the fruits of the *Piper longum* and its constituent piperine was studied for their immunomodulatory activity. Administration of the alcoholic extract of *Piper longum* (10 mg/dose/animal) as well as piperine (1.14 mg/dose/animal) could prevent the solid tumor development in mice induced with DLA cells and increase the life span of rat bearing Ehrlich ascites carcinoma tumor to 37.3 and 58.8%, respectively. Also, administration of *Piper longum* extract and piperine increased the total WBC count to 142.8 and 138.9%, respectively, in Balb/c rat [42].

Bio-Availability Enhancing Effect: *Piper longum* constituents*piperine* has been shown to enhance the bio-availability of structurally and therapeutically diverse drugs be modulating membrane dynamics due to its easy partitioning and increasing permeability. The effect of an ayurvedic compound *Trikatu* containing *Piper longum*, one of the major ingredients was tested in combination with another drug. The study reported that *Trikatu* had increased their bio-availability either by promoting rapid absorption from the gastrointestinal tract or by protecting the drug from being metabolized during its first passage through the liver after being absorbed or a combination of both mechanisms [43]. Possible mechanisms by which piperine caused bioenhancing effects to include alteration of membrane dynamics, inhibition of P-gp efflux and inhibition of gastrointestinal and hepatic metabolism 11, 83, 210 [44, 45, 46].

Antimicrobial Activity: *In-vitro* antibacterial and antifungal screening were performed with petroleum ether, ethyl acetate, chloroform, and methanol extracts of root, stem and leaves of *Piper longum* against 13 pathogenic bacteria (5 gram-positive and 8 gram-negative) and 6 fungi by the standard disc diffusion method. Ethyl acetate extracts of *Piper longum* root, stem and leaves showed a relatively better anti-microbial effect against most tested organisms. Ethyl acetate, chloroform, and methanol extracts obtained from *Piper longum* root showed mild to moderate activity against most of the tested bacteria. But the inhibitory effect of petroleum ether was observed against only the bacteria. Of the four extracts, only ethyl acetate extract showed activity against gram-negative *Klebsiella species*. Ethyl acetate extract also displayed excellent activity against gram-positive *Sarcina lutea* (22 mm) and gram-negative *Shigella sonnei* (21 mm), whereas methanol extract showed strong activity against gram-negative *Shigella flexneriae* (17 mm). The organism *Shigella boydii* was resistant to all the extracts [47].

Anti-oxidant Activity: The extract of the root of *Piper longum* Linn. and its major compound, Piperine exerts anti-oxidant activity and is protective in the myocardial ischemic condition. Piperine was isolated from the roots of the plant and by extracting with petroleum ether as solvent. Studies show that the petroleum ether extract and piperine show significant DPPH scavenging activity. The extract and piperine were also found to exert protective effect in the myocardial necrotic rats. They have protected myocardium from the harmful effects of lipid peroxidation and even maintained the glutathione levels to normal. Hence it can be concluded that the pet. ether extract as well as piperine are useful in exerting protective activity in case of myocardial ischemia in treated animals [48].

Gokshura (*Tribulus terrestris):*

Pharmacological Actions:

Anthelmintic Activity: Successive extracts of *Tribulus terrestris* prepared using petroleum ether, chloroform, 50% methanol and water were tested for anthelmintic activity *in-vitro* using the nematode Caenorhabditis elegans. The activity could be detected only in 50% methanol extract, which on further bioactivity guided fractionation and chromatographic separation yielded a spirostanol type saponin, tribulosin, and β-sitosterol-D-glucoside. Both the compounds exhibited anthelmintic activity with ED50 of 76.25 and 82.50 μg/ml, respectively [49].

In another study, the methanolic extract of *T. terrestris* was found to be more effective than the petroleum ether, chloroform and water extracts for *in-vitro* anthelmintic activity on the nematode *Caenorhabditis elegans* [50].

Immunomodulatory Effect: Saponins isolated from the fruits of *Tribulus terrestris* (TT) demonstrated a dose-dependent increase in phagocytosis, indicating stimulation of non-specific immune response. An alcoholic extract of the whole plant of TT exhibited a significant dose-dependent increase in humoral antibody titer and delayed-type hypersensitivity response, indicating increased specific immune response [51].

Bioavailability Enhancing Effect: Gokhru extract, a popular plant extract used in Ayurvedic medicines, is derived from *Tribulus terrestris* Linn (Zygophyllaceae). One study investigated the effect of Gokhru extract on the absorption of metformin hydrochloride (HCl) in an everted sac model [52]. Metformin is an anti-diabetic drug that is known to be highly soluble, but poorly membrane-permeable (BCS class III). The results showed increased absorption of metformin in the presence of the Gokhru extract, and the authors suggested the major saponin component in the extract may have contributed largely to this increase in drug transport. It can solubilize cholesterol while maintaining most of the structure of the cell membranes, thereby permeabilizing it to increase membrane permeability. The drug absorption enhancement properties of Gokhru extract were confirmed with increased metformin permeation across the chicken intestinal membranes from 29% to 54% [53].

Jeevanti (*Leptadenia reticulata*):

Pharmacological Actions:

Immunomodulatory Effect: In a study, the whole plant aqueous extract of L. reticulata had proved to offer superior protection against immuno-suppression, which was induced by chromate (VI) thereby confirming the possibilities of therapeutic using *L. reticulata* for modulating and alleviating the chromate (VI)-induced immunosuppression [54]. Similarly, the immunomodulatory and antioxidant activity of the ethanolic leaf extract of *L. reticulata* was studied and proved that *L. reticulata* extract (100 and 200 mg/kg) significantly induced a delayed type of hypersensitivity reaction, increased Neutrophil adhesion (%) to nylon fibers, increased antibody titer values- dose-dependent manner and the rate of phagocytosis. Also, it showed to be a notable increase in the hematological profile [55].

Antipyretic and Analgesic Effect: The antipyretic and anti-inflammatory effects of the aqueous whole plant Extract of *Leptadenia reticulata* (AELR) experimented in different animal models. In all the animal models Aqueous Extract of *Leptadenia Reticulata* (AELR) at the dose of 200 mg/kg b.w and 400 mg/kg b.w showed significant ($P<0.01$) antipyretic and anti-inflammatory activity [56].

Hepatoprotective Activity: The stem's extracts of *L. reticulata* on paracetamol-induced hepatic damage in albino rats. The hepatoprotective action of ethanolic extract of *L. reticulata* was evidenced by a remarkable reduction in the elevated serum glutamic oxaloacetic transaminase, serum glutamic pyruvic transaminase and alkaline phosphatase level. The ethanolic extract of *L. reticulata* found significant hepatoprotective activity [57].

Hematinic Property: The average content of Fe from three different parts of *L. reticulata* is 0.1173 ± 0.0046 ppm/100 gm. The highest amount of Fe is recorded in the root (0247 ± 0.007 ppm/100 gm) followed by leaf (0.213 ± 0.003) and stem (0.139 ± 0.004 ppm/100 gm) [58]. The normal tolerable range of iron is 15-20 mg/day; the amount of iron present in *L. reticulata* falls within the permissible range clearly indicate the use of the plant as medicine or food is safe to the criteria of WHO [59].

DISCUSSION: Present review of the drug reveals that the drug *Balpushtikarayog* possesses a high value of nutrition **Table 2**, immunomodulatory, antioxidant, antipyretic, anti-bacterial, antifungal, hepatoprotective properties along with bioavailability enhancing properties **Table 3**. The bioavailability enhancing properties of the drug helps in proper absorption and assimilation of the drug to get the maximal effect. As there is undernutrition, the immune system also weakens, which further leads to frequent infections, which in turn worsens the health of the undernourished child. The immune-enhancing and antibacterial and antifungal effect may help in fighting the infections as well as combating the infections, if any by virtue

of these actions. Intestinal worm infestation is one of the contributing factors of undernutrition. The drug also possesses anthelminthic properties.

Despite nutritional rehabilitation, if worm infestation is not treated, no promising result can be obtained. Chronic undernutrition leads to various pathological states in the body of a child, which includes the generation of free radicals and fever and also disruption in hepatic functions.

The antioxidant, anti-inflammatory, antipyretic and hepatoprotective properties of the drug may help in correcting these pathological conditions. The drug possesses *Deepana*, *Pachana*, *Krimihara*, *Brimhana*, *Balya* and *Rasayana* properties **Table 4** which are key to correcting the undernutrition and promote proper growth and development in children. Therefore, it can be revealed that the drug *Balpushtikarayog* is a complete formulation to meet all the deficiencies of undernutrition and cure the same.

CONCLUSION: Undernourished children are more prone to infectious diseases like pneumonia and tuberculosis, which causes to higher mortality rate. Ayurveda has precisely explained the etiology, clinical features and treatment of undernutrition in terms of *Kshaya* and *Karshya*. *Brimhana* is the line of treatment in undernutrition but the concept of *Agni* in undernutrition and assimilation of the drug play significant role.

So, *Brimhana* and *Rasayana* drugs with *Deepana-Pachana* drugs can give a fruitful result in the correction of undernutrition in children. The present review indicates that *Balpushtikarayog* is a complete formulation to meet all the deficiencies of undernutrition.

ACKNOWLEDGEMENT: The authors are very much thankful to the National Institute of Ayurveda, Jaipur, for providing necessary support and facilities.

CONFLICTS OF INTEREST: The authors declare no conflicts of interest.

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How to cite this article:
Sinha E, Choudhary KG and Ojha NK: Role of Balpushtikara yog in the management of under nutrition in children: evidences from Ayurveda. Int J Pharm Sci & Res 2022; 13(10): 3907-15. doi: 10.13040/IJPSR.0975-8232.13(10).3907-15.