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Evidence Based Study of Effect of *Swarnaprashan* In Children: A Systematic Review

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ABSTRACT:

Introduction –The ability to resist or have immunity to sickness is known as *vyadhikshamatva*. The quality of human health status has significantly declined from generation to generation, which has led to a drop in immunity. *Suvarnaprashan* has been used for a very long time to promote healthy physical and mental growth and development in children as well as to strengthen *Vyadhikshamatva*. **Objective** – To review the effect of *suvarnaprashan* as a Ayurvedic Immune booster. **Materials and methods** –An attempt have been made to collect *suvarnaprashana* related data in which article were searched for Google Scholar, PubMed, J-Gate with words like *suvarnaprashana samskara*, immunity and *suvarnaprashana*, toxic effect of *Suvarna prashana*. Till date 2/1/2025, 15 articles were found, of those 2 are about Immunosupression study of *suvarnaprashana* and rest of 13 are showing intervention of gold as *suvarnaprashana* in kids where immunity, intelligence, growth factor were primarily observed as parameter, all this study showed positive impact of *suvarnaprashan* as various parameters and none of those found ADR of the same. **Result –** Out of 15 study, 1 in vitro study(year2018) and 1 in vivo study(year2000) showed negative impact in form of immunosuppression effect and hamper activity of T-Lymphocyte and macrophage where as another study showed positive impact of *suvarnaprashan* on immunity and stimulate activity of macrophage and T-Lymphocyte. **Conclusion**- Until establishment of immunosuppression effect, *suvarnaprashan* may be considered as safer to give children.

KEY WORDS: *suvarnaprashana samskara*, immunity and *suvarnaprashana*, toxic effect of *Suvarna prashana*

INTRODUCTION:

In the present era, immunomodulation is a strong need, especially in children who are more vulnerable for infections because of the underdeveloped immune system. There are many research studies available that show evidence of the safety and efficacy of gold preparations, but there are so many variations in methodology, formulations, etc. Hence, this type of systematic review may help us to answer the questions where the result is uncertain. Further, it will also confirm the relevance of current practice and whether there is a need to change our approach.[i] Gold is very important in Ayurveda, and its formulations have been utilized for numerous things since ancient times all around the world. In our classics, there are specific gold formulas that are said to strengthen children's immune systems. According to popular belief, gold is utilized

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in Ayurvedic herbo-mineral formulations to treat chronic and degenerative diseases without causing any negative side effects. Because certain investigations exposed Ayurvedic herbo-mineral formulations as poisonous and tainted with lead, mercury, arsenic and other toxic chemicals, the usage of *bhasma* from metals like gold, silver and others, as well as the majority of herbo-mineral Ayurvedic formulations suffered. Some of the gold preparations used in Ayurveda, such as *Swarna Prashan, Suvarnabindu, Kumarabharana* and *Swarnamritaprashana*, are explained in the current review. The goal of the current investigation was to determine whether the gold compounds listed in Ayurveda had any immunomodulatory effects. Ayurvedic literature mention a large variety of formulas. Here, an attempt was made to search the articles and compile them in a systematic format.

MATERIALS AND METHODS:

An attempt has been made to collect *suvarnaprashana* related data in which article were searched for Google Scholar, PubMed, J-Gate with words like *suvarnaprashana samskara*, immunity and *suvarnaprashana*, toxic effect of *Suvarna prashana*. Till date 2/1/2025, 15 articles were found, of those 2 are about Immunosupression study of *suvarnaprashana* and rest of 13 are showing intervention of gold as *suvarnaprashana* in kids where immunity, intelligence, growth factor were primarily observed as parameter, all this study showed positive impact of *suvarnaprashan* as various parameters and none of those found ADR of the same.

TYPES OF PARTICIPANTS:

The review comprised patients or healthy volunteers who were at least 16 years old. According to the disorders, the inclusion criteria for choosing patients differed from research to study.

RESULTS:

This systematic review comprised 15 research on the effectiveness of gold formulations, the results of which are listed in **Table 1** below in PICOS style.

TABLE 1: STUDIES CONTAINING GOLD PREPARATION

Sr. No	**Basic Information**	**Participants**	**Intervention**	**Comparison**	**Outcome**	**Study design**
1	Rao N. Prasanna *et al.*, [ii] (2012)	N=30 **Age**-3-8 year with URTI (Upper Respiratory Tract Infections)	*Swarnmrita Prashana* (Guduchi Kashaya,,Go ghrita,Bramhi,Vacha, Jatamansi,Ashwagandha,Yastimadhu,Pippali,Maricha,swarna bhasma,honey) **Dose-** 1 ml daily empty stomach **Duration-For 21 months (Once in month)**	Not included	Statistically significant relief in signs and symptoms of URTI	Not mentioned
2	Ramteke *et al.*,[iii] (2014)	N=120 Physical growth parameters **Age:**	*Swarnaprashana* (Svarna,Madhu,Ghrita) **Dose**-1 mg/kg body weight on every 27th day	Control (n=30) Control (n=30) *Madhu jala*	Significant (P<0.05) result in weight gain of male and	Randomised Control Trial

		Children up to 12 years	(*Pushya nakshatra*) for total 14 days (n=30male and 30female) **Duration:** 1 year and 15 days		female children in relation with control group	
3	Dr.Jaybhay Vikas *et al*., [iv] (2016)	N= 27 **Age**-0-5 years	*Suvarna Prashan* *(Svarna, go ghrita, madhu)* **Dose-** Pure Gold – 03 circles (0.07235% w/w) Madhu -0.3 ml Go ghrita – 0.2 ml **Duration**-Every pushyanakshatra 20dose	Not included	Statistically significant increase in height, weight and head Circumferen ce	Open study design
4	PallaviDind ore *et al*., [v](2017)	N=40 **Age**-3-4-year Healthy children	4 drops of *Suvarnabhasma suspended ghee* 4mg/dose followed by 4 drops of *madhu* **Duration-** 6 month Every month on pusyanaksatra	Group B-No treatment	Statistically significant decrease in frequency, severity and duration of illness Also found significant reduction in mood and temperament, behaviour complaints	Open label, parallel, prospective and observation al
5	Jyotsna Ahir *et al*., [vi] (2018)	N=100 **Age**-0-16 year with URTI	**Group A**-*Suvarna Prashana* *(Svarna, go ghrita, madhu)* **Dose**-5 drops upto 5 years and 5 drop+1 drop for each additional1 year **Duration**-For 8 months	Group B-No treatment	Statistically significant relief in signs and symptoms	Not mentioned
6	Patil Aniket, *et al*., [vii] (2017)	N=40 **Age**-3-4year **20 in each group** **(Healthy)**	**Group A**- *Suvarna Prashana* *(Svarna, go ghrita, madhu)* **Dose**-Four drops of Suvarna Bhasma suspended Ghee (4mg gold/dose) followed by four drops of Honey **Duration**-for 6	Group B-No treatment	showed significant reduction in the scores of eating habits, behavior, mood, temperament and scores of events of illness. There was significant increase in IQ	Open label, Parallel, Prospective and Observation al

			months		percentage.	
7	Nitu Sinha *et al*.,[viii] **2022**	N=60 **30 in each group** **Age-** 5 months to 6 years	*Shuddha Swarnabhasma* was emulsified with Brahmi Ghrita and Madhu and administered in drop form **Dose-**per kg weight (0.1–0.2 mg/kg/day or 1drop/kg/day) **Duration-**for 4 weeks (28 days)	Group B-No treatment	*Swarnaprashan* works as an immunomodulator which decreased the morbidity rate in both frequency and severity	Open label Randomized controlled trial
8	Satyawati Rathia et al,[ix](2018)	**N=119** **Age-1-12 months**	Group A: (n = 39) , Ghrita and Madhu). **Dose**-1-12 drops respectively in 1–12-month age, once a day **Duration-1 month**	B: (n = 42), Swarna Bhasma, Ghrita and Madhu) **Dose**-1-12 drops respectively in 1–12-month age, once a day	Group C: (n = 38), Swarna Bhasma, Ghrita, Madhu and Vacha Churna) **Dose**-1-12 drops respectively in 1–12-month age, once a day	suggestive of safe to be administered in infants. Immunological parameters also did not show significant difference of comparison in all groups except in Group C where immunoglobulin G (IgG), IgM, albumin, globulin levels were increased. Group C significantly improved all the ITQOL parameters while on comparison significant difference was observed in improving the physical abilities only	randomized, controlled, single-blind clinical study
9	Shailaja Uppinakudu	**N=221**	**Group A-** *Swarnamrithaprasha*	**Group B-**sugar syrup		*Swarnamrithaprashana* helps	randomized double-blin

	ru[x] *et al*. (2021),	**Age-6-12 year**	*na* *(Madhu,grita,swarna bhasma)* **Dose**-0.4 ml **Duration**-For 30 days	**Dose**-0.4 ml **Duration**-For 30 dayss	in improving immunity at the level of immunoglobulins. *Swarnamrithaprashana* was found to be effective in the promotion of immunity in children	d placebo-controlled interventional prospective clinical trial
10	Sharma et al. [xi] (2018)	**N=40** **GroupA-20** **Group B-20** **Age-** gestational age 37-42 weeks	Group A: *Madhu-Ghrita* (Adjuvant Group) **Dose**-3 drops/day (0.01mg/kg/day) **Duration**-For 118 days	Group B: *Suvarna-Madhu- Ghrita* (*Suvarna Prashana*Trial Group) **Dose** -3 drops/day (0.01mg/kg/day) **Duration** -For 118 days	*Suvarna Prashana* is having significant effect on enhancing growth and development and is having immunostimulant action	Not mentioned
11	Renu Rathi*et al*.,[xii](2017)	**N=40** **GroupA-20** **Group B-20** **Age-** Preterm Infant between 0–3-year age	**Group-A** ***Suvarnaprashana*** *Suvarna Prashana* *(Svarna, go ghrita, madhu)* ***Dose***-4 drops of *suvarnaprashan* monthly once on pushyanakshatra **Duration**-For 6 months	**GroupB**-No medicine Only observation for 6 months	The Immunity, growth and development parameters have shown good results in trial group than control group	randomized parallel group, comparative, pilot and observational study
12	A.R.V.Murthy et al,[xiii](2013)	**N=131** **Age-0-10 year**	**Suvarna prasha** Madhu (Honey), Ghrita (Ghee), Suvarna Patra (Pure gold) and Medhya Churna **Dose**-1 to 10 gm for 1-10year age respectively **Duration**-1 year (1 dose every month**)**	-	effective to promote health (Immunity), growth (height & weight) and development (maturation of CNS) of children and at the same time it does not cause any ADR if it is given in appropriate dose.	Survey Research
13	Lara Dias*et al*. [xiv],(2022)	**N=30(Rat)** divided into 5 groups of six each	Gr I - on normal diet and water Gr II - was administered with plain honey and ghee;	Gr IV - Suvarnaprashana with Vacha Churna; Gr V - Suvarnaprashana	Animals that were administered daily with *Suvarna*	**Experimental** **(In vivo)**

		Healthy Wistar albino rats of either sex weighing about 80-150g	Gr III - ***Suvarnaprashana;*** **Duration-28 days**	with Amalaki Churna, **Rat dose** = Human dose x Surface area factor 0.018 x 5, it gives per kg body weight dose	*Prashana* for longer duration did not show any mortality. Hence, it indicates safer use of drugs in terms acute and subacute level of administration.	
14	P. D. W. KIELY*et al.*[xv],(2000)	**N=167** **Age**-60-70 years	**Group A-85** standard disease-modifying drugs with sulphasalazine or methotrexate	**Group B-82** intramuscular sodium aurothiomalate (myocrisin) at doses varying between 50 mg weekly and 20 mg monthly	Global reduction of IgG subclasses and a high prevalence of subclass deficiency. The effect on the Th2- dependent IgG4 and IgE antibodies is less marked than that on IgG1, 2 or 3,	**Not mentioned**
15	Abdulrahman M Elbagory et al,[xvi](2018)		The immunomodulatory effects of the aqueous extract of H. hemerocallidea, hypoxoside, as well as the AuNPs produced from the extract and hypoxoside, were investigated by measuring the cytokine levels in macrophages (IL-1β, IL-6 and TNF-α) and NK cells (IFN-γ) using solid phase sandwich ELISA technique.		The four treatments (H. hemerocallidea extract, hypoxoside and their respective AuNPs can lower the pro-inflammatory cytokine levels in the macrophages cells, while only AuNPs produced from hypoxoside can reduce cytokine responses in NK cell	**In Vitro**

DISCUSSION:

Some herbo-metallic compositions have also been used often on children, as mentioned in classics. since ages many times, Ayurvedic doctors highly recommend these compositions. Previous studies have also demonstrated that gold has antioxidant, anti-inflammatory, antibacterial, and immunomodulatory properties.[xvii] ,[xviii],[xix] Recent studies have demonstrated that gold particles' anti-oxidant capabilities and T lymphocyte activation have a role in the modulation of the immunological response to an antigen.[xx] Some of these formulations also contain vacha (Acorus calamus), which may be useful for treating chronic stress-induced immunodeficiency.[xxi] Some other study also suggests its immunomodulatory and anti-inflammatory properties.[xxii] *Acharya Charaka* claims that the immature period lasts until the age of 16. *Dhatus* are in undeveloped, various immature organs during this time. Furthermore, because *Bala* and *Varna* are

underdeveloped and the body is fragile, it cannot withstand any hardship.[xxiii] Therefore, the safety and toxicity of using herbo metallic compositions on youngsters may be questioned. However, in a recent study, the group of wistar male albino rats received *Swarnabhasna* orally for 90 days at a dose of 5.625 mg/kg body weight combined with 0.4 ml of ghee and honey, and no discernible behavioural change or mortality was observed.[xxiv] The most promising particles are made of gold since they have no negative impact on live cells.[xxv] The majority of the gold formulations in the aforementioned research, which were included in this systematic analysis, used ghee and honey as a vehicle that aids in lowering the gold ash's harmful content. [xxvi] Honey is known to improve the effects of several medications and may have immunomodulatory properties. [xxvii]According to one study on ghee, ghee with a high CLA content has antioxidant qualities.[xxviii]As a result, it has been discovered that adding honey and ghee to gold formulations might increase their efficacy and lessen their hazardous effects.

Strength of the Study:

The publications were selected for this study after a thorough search of the most widely used databases. They were written in a suitable scientific style and included any relevant scientific debate or rationale. Data were collected using the PICO format, a standardised technique.

Study limitations:

Other databases may have some of the articles. There are still many older Ayurvedic writings that cannot be found online, and some of the research has not yet been published. Consequently, the study was unable to include studies from them. Only a few numbers of research were published with appropriate methodology and study design.

CONCLUSION:

Based on this analysis of the clinical trials done on the gold formulations, it appears that these medications are both safe and effective for use as a multifaceted immunomodulator in children. It is least probable that formulations made using the right methodology, dose, and vehicle will exhibit any signs of toxicity in kids. However, well-designed research using sound methods are required to strengthen the case for using *Swarnaprashana* as an Ayurvedic vaccination strategy.

CONFLICTS OF INTEREST:

Nil

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