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Suvarnaprashana - Concept or Factual Practice of Ayurveda

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ABSTRACT:

In antiquity, gold was perceived as an important medication with various favorable health effects. In an important book of Tao entitled Bauputz, the author, Hung Kir (283–363 ad) stated: “ingest gold to live a gold-like longevity”. These days, gold leaf, flake, or dust can be found adorning or being added to a variety of dishes and drinks. However, its sole function is that of a decorative accent. Gold, in all of its various medicinal forms, is considered to be the most potent component of many distinct herbo-mineral combinations in Ayurveda medicine. In pediatric populations, the usage of gold is recommended right from birth, in conjunction with honey and ghee; this process is known as *Jatakarma* in Ayurveda, while in the neonate and above age group, to promote health, strength, longevity, etc., *Lehana* is advised. *Suvarnaprashan* is the name given to the practice of ingesting *Suvarn Bhasma* together with a mixture of *Rasyana* and *Balya* medicines on a regular basis for an extended period of time. Regular use of *Suvarnaprashan* fosters the child's overall growth. In addition to preventing infections, illnesses, and allergic reactions, it has a good influence on the child's immune system. *Suvarnaprashan* may accelerate the development of the brain, the central nervous system, and the generation of high-quality neurons, so that the future cognitive abilities of the child will be exceptional.

Key words: *Suvarnaprashan*, *Suvarn Bhasma*, *Jatakarma*, *Lehana*, *Rasayana*, immunological status, cognitive level.

INTRODUCTION

Since its discovery, gold as a precious metal has been a symbol of beauty, power, purity, and accomplishment. In addition to its economic value, this precious metal is an excellent conductor of electricity and does not tarnish or oxidize. Gold is resistant to the majority of acids, despite the fact that it can be dissolved in aqua regia, which is a

mixture of nitric acid and hydrochloric acid. In traditional medical systems all across the world, the precious metal gold has long been used as a medication because of its unique characteristics and capabilities.

Gold is a group 11 element and a transition metal in the periodic table. The atomic number of this metal is 79, and



its atomic mass is 196.96655. The melting and boiling temperatures of gold are respectively 1104.43°C and 2807.0°C. Its name is inspired from the old English word for yellow, 'geolo'. In chemistry, gold is symbolized by the symbol Au, which derives from the Latin word aurum. After noble gases, this metal is the least reactive chemical element known.¹

The earliest mention of gold is found in the Rig-Veda, where the names Hiranya, Suvarna, Swarna, and Sone are listed as synonyms for gold. Also listed are gold-made items such as water vessels, necklaces, and visors. Gold-adorned chariots have also been reported. Gold is seen as a sign of life and the human spirit, as well as of purity and incorruptibility.² Gold is regarded as a superior metal in Ayurvedic literature, particularly in the *Sapta Loha* class of metals, which includes (seven metal)³. It is distinguished by *Shuddha Loha* (pure metal), which is said to have both preventative and curative therapeutic properties.⁴ There are several references in every ancient Ayurvedic classic to different types of gold being used in the preparation of many Rejuvenating medicinal formulations (medicine to delay the aging process).

Swarna dharana (the wearing of gold jewellery) is mostly employed in *grahabadha* and is regarded as spiritual. Whereas internal usage of gold is recommended as rubbed gold, incinerated gold/Swarna *Bhasma*, *Swarna Lavana* (as mentioned in *Rasatarangini*), *Swarna Parpati*, *Swarna Patra*, or a colloidal red solution.^{5,6}

The *Rasayana* (rejuvenator) and *Vajikarana* (aphrodisiac) characteristics of gold are identified as causes for using it internally even before conception in the hopes of having a healthy baby. It is also advised in the contents and formulations of *Pumsavana Karma* to promote intra-uterine growth & development of the fetus and for healthy progeny in the early stages of pregnancy.⁷ Later in life, to promote the growth and development of the child, *Jatakarma Samskar* and *Lehana* are also advocated by different Acharyas.

Jatakarma Samsakara is performed to the baby right after it is born. In this ceremony, the newborn is introduced to a mixture of *Madhu* (Honey) and *Ghrita*, with or without *Suvarn*. In the context of *Jatakarma*, a singular term, *Ananta*, is utilized, and this term is translated as *Swarna*, *Sariva*, *Shweta Doorva*. Acharya Charaka explains *Jatakarma* as a distinct technique in and of itself, in which a mixture of ghee and honey should be introduced to a baby while reciting spiritual hymns, followed by breast feeding.⁸ While both Acharya Sushruta⁹ and Vagbhata,¹⁰ recognize the use of gold in conjunction with other herbal

medicines in this context.

Whereas, in the context of *Swarnaprashana*, however, all Acharya makes it clear that *Suvarn* should be employed in the *Lehana*. Acharya Kashyapa coined the phrase "*Suvarnprashana*" in the context of *Lehana*. Acharya Kashyapa explains the step-wise details of *Suvarnprashan* as a very important special spiritual procedure: the gold should be rubbed with a small amount of water on a cleansed stone, then churned with honey and *Ghrita*, and handed to the child for licking. Acharya Kashyapa also discussed the advantages of *Suvarnprashan* in this section. *Suvarnprashan* promotes intelligence, digestion and metabolic ability, and strength; it encourages longevity; it is prosperous, virtuous, and aphrodisiac; it enhances complexion; and it counteracts the negative consequences of *Graha Roga*. Giving the infant gold for one month may result in him becoming incredibly intelligent and immune to sickness, and feeding him gold at six months may result in him being able to retain & remember whatever he hears.¹¹ Most of the Ayurveda Acharyas have advocated the usage of gold in the infantile age group for *Lehana* & *Suvarnprashan*. Acharya Sushruta¹² and Acharya Vagbhata¹³ have discussed the use of gold in conjunction with other *Rasayan*, *Balya* and *Medhya* herbs.

In the continuation of *Lehana*, Acharya Vagbhata explained four combinations of some *Medhya* medications with gold. He advised using any of these preparations daily for a year with honey and *Ghrita* to achieve positive results for the body, cognition, strength, and skin.¹⁴

- *Suvarna, Shweta Vacha, Kustha*
- *Suvarna and Arka Pushpi*
- *Suvarna, Shankhapushpi and Masthyakshaka*
- *Suvarna, Kaidarya, and Vacha*

Acharya Vagbhata mentions the use of gold utensils, such as a gold spoon, to administer required medicine to the child in the context of *Lehana* and *Suvarnprashan*.¹⁵

In the same context, Acharya Sushruta recommended four nearly identical combinations of *Medhya* medicines and gold to be used in conjunction with honey and *ghrita*, almost identical formulations also described by Acharya Bhavprakash,¹⁶ these are as follow;¹⁷

-
- *Suvarna, Kustha, and Vacha*
- *Suvarna, Shankhapushpi and Masthyakshaka*
- *Suvarna, Vacha and Arka Pushpi*
- *Suvarna Churna, Kaidarya and Shweta Durva*

MATERIALS AND METHODS

Data Collection Method

Ayurvedic texts, as well as the data bases Google scholar, PubMed, Medline, AYUSH Research Portal, and Digital Helpline for Ayurveda Research Articles (DHARA), dissertation works from Ayurveda colleges, and studies available on Research Gate, are being used to search for relevant literature and research papers. *Suvarna prashana/Suvarnaprashana, Swarna prashana/Swarnaprashana, Swarna bindu prashana/Swarnamrita prashana, and Swarna bhasma*, among others, were used in electronic data searches. The review included in-vitro and in-vivo analysis, experimental trials, and clinical studies to investigate *Swarna Bhasma's* claimed therapeutic potential. Only English-language research articles were considered.

RESULTS

Posology –

The importance of a precise dose of *Suvarnprashan* was not mentioned by Acharya Kashyapa. He has, however, provided general guidelines for the quantity of medicine that children should take based on their age since birth.¹⁸

Acharya Charak, Acharya Sushrut, and Acharya Vagbhatta did not mention the dose of *Suvarn/gold* in the context of *Suvarnprashan*, but there are some references in various manuscripts for the per day dose of *Suvarn Bhasma* for child & adult patients, some of which are listed here;

- 1/32 *Ratti*¹⁹
- 1/8 to 1/8 *Ratti Suvarn Bhasma* as per condition²⁰
- One *Harenu*²¹
- One *Gunja*²²
- 15.5mg to 62.5 mg of *Suvarn Bhasma*²³

Recommended Forms of Gold advised for enteral use –

Because there are several forms of *Swarna* mentioned, selecting the appropriate form is a major task. In the context of *Lehana*, Acharya Kashyapa mentions giving triturated gold to the newborn along with water, honey, and ghee. The idea behind this could be that gold could be administered directly based on its availability at the time, and micro particles of gold might be obtained easily by rubbing on a stone.

The Ayurvedic literature mentions *Patala* (leaf-like shape), *Mandala* (foil-like shape), *Churna* (powder), as well as *Bhasma* (ash form), when looking for a form of *Suvarn/gold* that can be administered internally alone or in conjunction with other medications.²⁴ Any form of gold with the highest bioavailability should be used for internal

administration. When using gold or any other metallic preparation per enteral, the metal should be in the form of nanoparticles. This nanoparticle is similar to *Bhasma* and has been shown in some studies to be non-cytotoxic.²⁵ *Swarna Bhasma* is said to have gold nanoparticles, which are globular gold-containing particles with an average size of 56–57 nm.²⁶ *Swarna Bhasma* contained gold nanoparticles with crystallite sizes of 28–35 nm and was % pure gold, according to a blood compatibility study.²⁷ Another study discovered that colloidal gold uptake in the gastrointestinal tract is particle size dependent, that really is, microparticles cross the gastrointestinal tract more easily.²⁸ Therefore, the *Bhasma* form of the metal gold can be used safely if it is taken in the prescribed amounts.

Safety measure for *Suvarnprashan*

Internal use of any metal is indicated after its purification and transformation into an acceptable form. In the purification process, the impurities of metal are removed, whether they are metallic, non-metallic, organic, inorganic, chemical, or physical. The transformation of any metal into an acceptable form, most likely the *Bhasma* form of such a metal, is required to convert the metal into an active and charged nanoparticle form. The nanoparticle form ensures easy absorption and assimilation and is ready to be used in physiological processes in the body.

If gold is ingested without undergoing purification and transformation, or if these processes are incomplete, impurities may be left behind. Large gold particles in *Bhasma*, i.e., an inappropriate form of *Bhasma*, may result in a variety of disorders in the recipient. The justification for the *Shodhana* (purification) of *Swarna* in particular demonstrates that Acharya was aware of the severe adverse consequences of using impure gold. It is stated that if *Swarna* is administered without proper processing, it will destroy the children's happiness, potency, and strength and cause the emergence of a number of diseases.²⁹ Using impure *Swarna* may also result in mental disturbances and death.³⁰

DISCUSSION

Suvarnprashan refers to the administration of gold alone or in combination with some other herbs in a *Lehan or Prasan*, which means in lickable form. Acharya *Suvarnprashan* was explained by Kashyap in the context of *Lehana*. He stated that *Lehana* is responsible for a child's health and sickness. These remarks were made by Acharya Kashyapa to emphasize the importance of *Lehana* for a

child's health and development.³¹ Acharya Kashyapa clearly stated that, *Lehana* is recommended if there is inadequate nutrition during the infantile period, such as insufficient quantity or quality of breast milk or breast milk tainting/*Stanya Dushti*.

Lehana further indicated in children whose mothers are unable to give optimal care due to complicated labour or an acute ailment. Child-related indications also include numerous physiological and pathological problems, but the most essential element to consider is that the child's digestive capacity should be at its maximum level when receiving *Lehana*³². Therefore in current context, *Swarnaprashana* can be administered in all infants as it provides the optimal level of nourishment, metabolism, assist in achieving optimal growth, development, physical strength, and immunity.

Suvarnprashan can be used continuously for 1 or 6 months to obtain its specific benefits in children, according to Acharya. If the infant is fed gold for one month, s(he) may become extraordinarily intelligent and disease-resistant, and if s(he) is constantly fed gold at six months, s(he) may be able to retain and remember everything s(he) hears. Acharya Sushruta also mentions the benefits of consuming gold with specific herbs on a daily basis for one year.³³

Fundamentally, childhood is the period of growth & development spurts, which lasts until the age of 16, according to Ayurvedic classics and current science equally. During this vital stage of development, children require nutritional supplementation. To sustain the rate of growth and development, they must receive all important macro and micronutrients as well as trace elements on a regular basis in their feeding or diet. Aside from dietary supplements, a child must be disease- and infection-free in order to accomplish proper growth and development. Furthermore, to stay away from the upcoming infections child's immunity or resistance power of the body to counter the occurring infection, should be on optimal level. Here, *Suvarnprashan*, the Ayurveda concept and principal, interact effectively to achieve the above two goals: keeping the infant healthy by enhancing the body's resistance capacity, ie. immunity, and offering critical trace elements required for growth and development.

Numerous studies, projects, and treatment protocols in vitro and in vivo have been conducted, and more are being implemented, to establish the role of *Suvarnprashan* in enhancing the immunological response and promoting infant growth and development.

Important significant evidences are discussed here;

- In a pharmaco-clinical study on neonates, the *Madhu-Ghrita-Swarna-Vacha* combination had a considerable influence on the production of humoral anti-bodies and acted on the immune system, as evidenced by an increase in the total proteins and serum IgG levels.³⁴
- In an animal model pharmacological experimental study, Mice treated with *Swarna Bhasma* had their specific and nonspecific immune responses modified in a decent manner. In addition, it also shows a stimulatory effect on peritoneal macrophages, which is helpful in fighting against infections.³⁵
- According to in vitro experiments, gold ions decrease T lymphocyte activation and antigen presentation,³⁶ as well as inhibiting macrophages' excessive production of proinflammatory cytokines, cyclooxygenase expression, & prostaglandin E2 production.³⁷
- A study on Charle's Foster Albino Rats found that *Swarna Prashana* had an immunomodulatory effect on WBC and lymphocytes, which play a key role in immunological function. Apart from significant immunological effects, a rise in platelet count and a modest rise in RBC count and hemoglobin levels were also detected as amicable effects of the experimental medicine, indicating the role of *Swarna prashana* in the production of red blood cells.³⁸
- A control clinical study of *Suvarna Prashana* in recurrent upper respiratory tract infections in children from birth to 16 years old was conducted to evaluate the efficacy of *Suvarnaprashana* in preventing recurrent episodes of upper respiratory tract infections. Repeated doses of *Suvaranaprashan on every Pushya Nakshtra* for eight months were given to the registered subjects. The study's findings suggest that *Suvarnaprashana* is effective with long-term supplementation in recurrent URTI; however, no invasive objective parameters were accessed to support the result.³⁹
- The outcome of the experimental study 'Preparation and screening of *Swarnaprashana* for nootropic activity' on swiss albino mice demonstrates that the formulation *Swaranaprashana* has a significant nootropic influence and anti-AChE activity in swiss albino rats.⁴⁰
- In a randomised, controlled, single-blind clinical study of 102 healthy infants to evaluate the immunomodulatory activity of *Swarna Prashana* (oral administration of a mixture of *Swarna Bhasma, honey, and Ghrita* as an additional supplement), findings suggest that *Swarna Prashana* did not interfere with normal infant growth as evidenced by NNT, *Suvarna Prashana* showed immunomodulatory activity, and was tolerated by the infants.⁴¹

- Bajaj et al (2001), *Swarna Bhasma's* efficacy on non-specific immunity in mice was observed in an animal model experimental study. *Swarna Bhasma* was given to male mice at progressive doses orally for ten days. The number of peritoneal macrophages increased dramatically when the phagocytic index of macrophages was stimulated. This demonstrates *Swarna Bhasma's* immunostimulant activity on Macrophage functioning.⁴²
- *Kustha tila kalan*, a gold formulation used in Unani-tibb, was tested for immunomodulatory action in male mice, looking at both cell-mediated and humoral immunity. *Kustha Tila Kalan* was given to mice orally for 10 days at doses of 6.25, 12.5, 25, and 50 mg/kg body weight. The delayed type of hypersensitive reaction was used to test cell-mediated immunity, whereas the plaque-forming cell assay was used to examine humoral immunity. At doses of 6.25, 12.5, and 25 mg/kg, *Kustha Tila Kalan* improved both immune responses. The best results were obtained at a dose of 25 mg/kg.⁴³
- Gaikwad et al (2011), In a clinical trial titled 'A pharmacoclinical study of the effect of madhu-ghrita and swarna-vacha-madhu-ghrita on neonates,' 5 drops of *Suvarnprashan* were administered orally to full-term neonates every day for 4 weeks. The observation of a considerable increase in blood IgG levels in the gold compound group demonstrates an immune response to the antigenic substance. The majority of antibody-based protection against invading pathogens is provided by IgG. During the trial, substantial differences in anthropometric parameters and morbidity incidence were also reported in the same study.⁴⁴
- Separate simultaneous injection of organic gold compounds and antigen into mice resulted in immunoenhancement that could be assessed by direct and indirect plaque-forming cells, rosette-forming cells, & serum antibody assays in one study to explore the influence of gold on immune response. Through day 9 of the trial, the kinetics of the immune response showed varying impacts. Studies with British antilewisite, a gold antagonist, revealed that gold must remain in the system for one day in order to boost immunity.⁴⁵

All of the subjects who took part in the relevant studies showed positive outcomes in terms of growth and development, as evidenced by the references cited above. In related analyses, the frequency and severity of sickness episodes decreased significantly in all age groups. Additionally, the results of one study indicated a significant impact on IgG and other immunological marker.

Toxicological studies –

Although Ayurveda literature claims that the use of gold and other metals is safe as other medications. however appropriate *Bhasmikaran* (*Shodan, Bhavna, Maran, Putpak* etc.) should follow to reduce the particle size and make these nanoparticles actively charged and reactive. Fairly formulated *Bhasma* is considered as biologically active nanoparticles and is enabled to perform pharmacological actions in the body. Besides the Ayurvedic belief, the safety of any medication depends on the findings of toxicological studies. Toxicological studies of *Swarna Bhasma* do not show any adverse drug reaction with acute or chronic dosing and even any toxic event found in blood and histological parameters. The following is a relevant study: –

- A 'Toxicity study of *Swarna bindu prashan* in albino rats' with acute oral administration of *Swarnabhasma* exhibited no mortality in mice (up to 1 ml /20 g body weight of *Swarnabhasma* solution containing 1mg of drug). Chronic administration of *Suvarnabhasma* further revealed no toxicity in terms of SGPT, SGOT, serum creatinine, serum urea level, and histological studies.⁴⁶

Probable mode of action to support immune response

Recent studies have shown that Ayurvedic pharmaceutical procedures are capable of converting metallic raw materials into nano particles. Nanoparticle research shows that they can bypass digestion and enter the circulatory system directly through the sublingual route.⁴⁷ Another study found that after oral administration of metallic colloidal gold particles to mice, particle uptake occurred in the small intestine via persorption through holes created by extruding enterocytes. *Swarna Bhasma* primarily consisted of 56-57 nm globular gold particles, suggesting that these particles could reach the target site of action via blood after gastrointestinal uptake.⁴⁸

For all gold salts, the plasma concentration of gold peaks 2 hours after administration.⁴⁹ Gold ions are primarily bound to albumin Cys-64 amino acid in the blood (80 percent of gold in blood in the case of auranofin and 95 percent of gold in injectable gold salts), with the remaining bound to globulins or red blood cells.⁵⁰ The half-life of gold in blood is 5 to 7 days for injectable gold and 11 to 33 days for auranofin.⁵¹ This half-life time appears to increase with repeated doses up to 250 days, and it takes 40 to 80 days after exposure for the gold concentration in blood to return to normal.⁵² Gold has been shown to continue to stay in the body for years after treatment has ended, despite being eliminated over time. To be more specific, gold

accumulates inside cells, primarily phagocytic cells like neutrophils and macrophages, to boost the immune response.⁵³ Takahashi et al. proposed mechanisms to demonstrate the action of gold salt at the molecule & protein levels in another study. Gold binds to proteins that contain thiols. Such a process could interfere with the recognition of enzyme–substrate or receptor–ligand and affect numerous proteins. It would reduce oxidative stress and inhibit the activity of lysosomal protease.⁵⁴ Thus, we can conclude that the internal use of gold in the *Suvarnbhasma* form, i.e., biologically active nanoparticles of gold, is significantly safer and more advantageous than the use of other gold forms.

CONCLUSION

The National Immunization Schedule was implemented with the goal of lowering paediatric mortality rates and decreasing the prevalence of recurring illnesses among children. Although many efforts and resources are being deployed to attain these goals, vaccinations and immunisation regimens remain insufficient to manage infections, as seen by India's high infant death rate of 27.695 in 2022.⁵⁵ From the first day of life, children receive vaccines, but these vaccines can't even protect them from all diseases. For example, vaccines can't protect against major bacterial infections, viral infections, or primary-secondary immunodeficiency syndromes. Activation of the immune system and the production of particular immunoglobulins against the targeted antigen are two processes that take about a month to complete after receiving the vaccination. Because of these voids in immunization schedule and unavailability of vaccine to every disease, a stronger immunomodulatory medication is needed to enhance the immune system of the body and protect the newborn from recurring illnesses.

Since long it is believed in Indian culture that gold may improve one's health and protect one from the onset of grief or disease and it also supported by the ancient Ayurveda knowledge. The use of gold-containing Ayurvedic medications in the treatment of chronic or incurable diseases is extensively documented, almost in every reputable Ayurvedic text book. Gold is recommended for usage in children, beginning at birth, to enhance strength (*Ojas*, *Bala*, resistive power), intellect, and digestive and metabolic ability. *Gold as Suvarnprashan (Suvarn Bhasma* with a mixture of other nootropic medications, ghee, honey) increases lifespan, enhances the complexion, and

neutralises the harmful effects of *Graha Roga*, i.e., the severe infectious form of a group of disorders.⁵⁶ Above said concept also supported by the extensive review of various experimental studies, that *Suvarnprashan (Lehana)* possess immuno-modulatory, intellect promoting and nutritional properties and improving overall health of the child.⁵⁷

Suvarnprashan theory of Ayurveda is supported by documented current research into gold and gold compounds, as discussed above. Therefore, *Suvarnprashan* can be given to children of all ages because it significantly impacts nutrition, metabolism, growth, development, physical strength, and, most importantly, the immune response.⁵⁸ According to all references on *Suvarnprashan*, gold, in combination with other drugs such as *Rasayan* (which has rejuvenating properties), *Balya* (which promotes strength) and *Medhya* (nootropic drugs), is unquestionably beneficial for the growth, development, physical health and mental well-being of children when used for an extended period of time. As a result, *Suvarnprashan* may advised to administered for a specified time period and administered repeatedly, preferably daily, to ensure optimal growth and development. This review study suggests that to support the immunomodulatory effect of *Suvarnprashan*, multicentric controlled clinical trial using biomarkers should be conducted. Such comprehensive controlled clinical trials using immunological profile determination may only serve as a stepping stone for widespread usage of *Suvarnprashan* for the benefit of children in the National Health Program.

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