



Vrana Pathya: An Ayurvedic Approach to Wound Healing by Appropriate Dietary Regimen

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ABSTRACT: Pathya is the right way, Pathya aahara is the proper dietary regime to be followed for a healthy life style. Pathya plays an important role in Upachaya (metabolism) of the body. The need for a well- balanced diet is very important to maintain homeostasis. proper nutrition by suitable dietary regimen accelerates the wound healing process and thus helps in wound healing. wound healing requires active cellular repair mechanism, chemotactic factors and a local environment that supports cell division, movement, and differentiation. Vrana pathya-apathya has been elaborately mentioned by Susruta in Susruta Samhita Sutrasthanam. These food acts as a booster for the proper and fast healing of any type of wound. The purpose of this article is to chart a suitable diet chart for wound healing and to discuss the importance of food and selection of the nutrient rich food which enhances the wound healing process.

KEY WORDS: Pathyaahara, vranam, wound healing, Vrana pathyam

INTRODUCTION

Importance of health and life style has been emphasized by Ayurveda for the maintenance of the health. Dinacharya and Ritucharya has been mentioned by scholars regarding this aspect. Ayurveda is a science which has given importance to diet and regimen as a part of Chikitsa. Pathya - Apathya has a major supportive role in the management of diseases.

The term pathya is derived from the word 'patha' - means the path¹

Pathya is defined as a factor which is conducive to body and mind.

"If patient intakes wholesome food, then there is no need of medicine and if a patient continuously consumes unwholesome food, then also there is no need of medicine"-Vaidhya Lolimbharaja mentioned in Vaidhya Jeevanam².

Proper nutritional status is much important in wound healing, malnutrition can delay wound healing or may lead to wound infections and can accelerate the formation of pressure ulcers or Decubitus ulcers. There are three stages/phases of wound healing³.1. Inflammatory phase,2. Collagen phase or proliferative phase 3. Maturation phase or regeneration phase/remodeling phase. The healing process begins immediately an injury. The redness, swelling and heat and pain are clinical signs of inflammation occur during the healing process.

Pathogenesis of mal-nutrition in wound healing⁴

Disease/surgery/injury



Neuro-endocrine stress response/pro inflammatory cytokine response



Metabolic change or reduced food intake



Protein or energy loss



Slow recovery/poor wound healing/increased infection

Some factors are responsible for effective wound healing,⁵

1. Wound healing requires competency in cellular repair mechanisms, chemotactic factors (cytokines and growth factors) and a local environment that promotes cell division, movement, and differentiation.
2. Adequate amounts of nutrients are needed for synthesis of nucleic acids (DNA and RNA), proteins, and other factors involved in functional tissue maturation and differentiation.
3. Depletion of protein and minerals, through diet or associated with mal-absorption syndromes, or due to substances that limit nutrient bioavailability, can impair wound healing and increase the risk of developing chronic ulcers, rough or thin skin, alopecia's, and nail dystrophies.

Some factors that negatively Influence wound healing⁶

Local Factors	Systemic Factors
Microbial Infection	Traumatic conditions
Local pressure	Diabetes Mellitus
Dehydration	Malnutrition and nutritional Deficiencies
Edema	Advanced age
	Corticosteroids and immune suppressive drugs
Foreign body	Psychosocial stress
	Gender
Hypoxia	Hormones
Ischemia	Immunocompromised conditions

Wound healing is an anabolic process that requires both energy and nutritive substrates. In addition to a proper antibiotic therapy immune health is also very crucial which is provided by a good nutrition only which is most suitable for wound healing.

Nutrients affecting wound healing:

Macronutrients

- Proteins and amino acids
- Carbohydrates
- Lipids and essential fatty acids

Micronutrients

- Vitamins: A, B complex, C, E, and K
- Minerals: copper, iron, zinc, Selenium

Water

Dietary Recommendations for some conditions

- Compared with other elderly persons, those with chronic ulcers have significantly lower levels of vitamins A, E, zinc, and carotenes.
- Malnourished patients had a concomitant inflammatory syndrome (as measured by C-reactive protein), suggesting increased catabolism contributes to protein deficiency. Protein deficiency was strongly associated with a poor healing prognosis.
- Diabetic patients with low protein levels have a higher incidence of non-healing wounds, infection, and necrosis leading to possible amputation.
- Burns involving more than 20% of the body's surface area result in extensive metabolic, inflammatory, endocrine, and immune responses that can predispose patients to malnutrition, poor wound healing, and frequent infections. Burns wounds also have significant exudative losses of proteins and micronutrients. studies also suggest that supplementation with copper, selenium, and zinc results in earlier normalization of antioxidant enzymes and glutathione in the skin, a reduction in surgical grafting requirements, and a significantly better index of skin graft acceptance.
- Oral nutritional supplementation for pressure ulcers that contained containing 250 kcal, 20 g of total protein, 3 g of arginine, 250 mg of vitamin C, 38 mg of vitamin E, 9 g of zinc, and other micronutrients showed positive effects on pressure ulcer healing and possible preventative effects in patients at risk for pressure ulcers.

Source of micro and macro nutrients.

Source	Nutrients
Pulses, Nuts and Oil seeds	B-complex vitamins, Invisible Fat, fiber
Green leafy vegetables	Anti-oxidants, Fiber, and other carotenoids
Other vegetables and fruits	Fiber, sugar, and anti-oxidants
Whole grain cereals and millets	Protein, fiber, minerals, calcium, iron, and B-complex vitamins
Vegetable oils ghee and butter	Fat soluble vitamins, essential fatty acids

Pathya aahara for Vrana (wound healing) from classical texts of Ayurveda (Brihatrayees).

*Charaka in Charaka Samhita Chikitsa sthanam*⁷

Na Ati Sheetam (not too cold), *Na Ati Guru* (not too hard), *Na atisnigdha* (Not too much Unctous), *Avidahi aahara* (that which doesn't cause burning sensation)

*Susrutha in Susrutha samhitha Sutra sthana*⁸

Tanduleeyaka, Jeevanthi, Suneeshannaka, Vastuka, Balamulaka, Varthaka, Patola, Karavellaka, Dadima, Amalaka, Saindhava, Mudga rasa, saktu, vilepi, kulmasha, srita jala.

*Vagbatta in Sutra sthana*⁹

Yava, Godhuma, swastika, Masura, Mudga, tuvari, Jeevanti, Sunnishannaka, Balamulaka, varthaki, Tanduleeyaka, vastuka, karavellaka, karkotaka, patola, katukaphala, saidhava, Dadima, Dhatri, Sritajala, Jangalamamsa rasa.

Properties and nutrient information of Pathya Aahara by Susrutha

Tanduleeyaka¹⁰ (*Amaranthus spinosus*)

Thorny Amaranthus is a highly nutritious very well known for its medicinal properties. This plant is a very rich source of Calcium, iron, vitamin B and C. The leaves can be used with rice kanji and fried with onion and with turmeric and seasoned with mustard and consumed. It prevents bleeding and used in streeroga.

Jeevanti¹¹ (*Leptadentia reticulata*)

Jeevanti is a climber which is an important medicinal herb which is used for treatment of fever, urinary infection, improving eye vision and for nourishing the body tissues. The paste of Jeevanti plant is applied over fresh wounds to treat it. also increases breast milk so can be given to lactating women. It cures mouth ulcers.

Karavellaka¹² (*Momordica charantia*)

Bittergourd or bitter melon is a well-known Indian vegetable useful for the treatment of Diabetes, intestinal worms, wounds and acts as a blood purifier. Paste is used to treat wounds.

Patola¹³ (*Tricosanthes dioica*)

Almost every part of *Tricosanthes dioica* is being used in indigenous system of medicine. The fruit contains minerals like magnesium, sodium, potassium, copper, and sulphur. Vitamins, tannins, saponins, alkaloids, glycosides, Flavonoids. steroids. Penta cyclic triterpenes and other bioactive compounds. Patolas antiulcer effects may be related to its ability to inhibit inflammation, it can promote regeneration and regulate the synthesis of prostaglandin.

Vasuka¹⁴ (*Chenopodium album*)

Extensively cultivated in northern India as a food crop. It is also called Lamb's quarters, Goose foot, Wild spinach and fat hen. The leaves and young shoots can be eaten raw or cooked as leaf vegetable. It is an abundant source of vitamins like vitamin A, C and B complex vitamins. It contains minerals like Calcium, Potassium in abundance and other minerals like magnesium, phosphorus etc.

Sunnishannak¹⁵ (*Marsilia quadrifolia*)

It is a pteridophytic herb which has many medicinal values. Its leaves are recommended for the treatment of insomnia, hypertension, diarrhea, respiratory diseases and skin disorders. This herb has a good antimicrobial potential.

Balamulaka (*Raphanus sativus*) (tender radish)¹⁶

It is hot in potency, atylo kshara (has less scaping effect), has tridosha effect, improves taste, useful in anorexia, indicated in skin diseases, ulcers, abdominal colic, bloating, tuberculosis, chronic respiratory diseases, wasting of muscles. Researches have proven effect in boosting anti-ulcer activity.

Varthaki¹⁷ (*Solanum indicum*)

Commonly known as Brihati, is African eggplant. It resembles the small variety of Brinjal. The fruits look like brinjal but smaller in size. Brihati has anti-allergic and anti-inflammatory actions. The various chemical constituents present in this plant shows anti-inflammatory activity. Bruhati is very useful in skin diseases also. Its flavonoids are considered as much beneficial in mitigating peptic ulcers.

Dadima¹⁸ (*Punica granatum*)

It is commonly known as pomegranate. It has great nutritional value and numerous health benefits. It is used for the treatment of cancer, osteoarthritis and other diseases like sore throats, cough, urinary infection, digestive disorders, skin disorders and to expel tape worm. Anti-ulcerogenic activity can be attributed to anti-oxidant property of dadima. Researches prove the benefits in gastric ulcers induced in experimental rats.

Amalaka¹⁹ (*Emblica officianalis*)

The Amla fruit is eaten raw or cooked into various dishes. In Ayurveda both dried and fresh fruits of the plant are used as common constituent in various formulations. It is considered as a popular superfood with immunoprotective activity and anti-ulcerogenic properties. It is a rich source of Vitamin C which plays an

important role in wound healing. It is an essential source of amino acids, carbohydrates, vitamins, and citric acid. Its anti-ulcer effects are increases cyto-protection, increases gastric ph., it has antioxidant enzymes, angiogenesis, anti-inflammatory cytokines, free radicles, pepsin release, proinflammatory cytokines etc.

Mudga Yusha²⁰

Mudga is moong dal (green gram). It is best used in most of the diseases in form of soup (mudga yusha. Specialty of mudga is based on its physiological effect in the human body is that despite being sweet in taste it is Laghu (light to digest) and Rooksha (dry in nature) and it nourishes, promotes physical strength, and builds in tissues.

Saktu²¹

The choorna of roasted Dhanya vishesa is called Saktu. Wheat barley, rice ragi, maize etc are roasted nicely and powdered finely, this is then mixed with water and consumed. It is very light to digest, cooling, quenches the taste, best to cure nausea and vomiting and balances pitta dosha.

Vilepi²²

Vilepi is thick liquid diet or semisolid diet with adequate solid portion of cooked rice with less watery ingredient in it. the ratio of rice is to water is 1:4. Its benefits are Laghu (light), Madhura (sweet), Deepana (appetizer), Pachana (Increases digestion), rochaka, (enhances Taste) grahi (binding of stools) and Vrishya (Aphrodisiac)

Kulmasha

Kulmasha is heavy, unctuous, aggravates vata and is laxative. edibles are also prepared with pulses, wheat, barley by steam.

Srita jala

Boiled water is very good for Drinking purposes. It is easily digested.

Model Diet chart using Pathya drugs for wound Healing for a week

Days	Morning	Afternoon	Evening
First day	Amalaka (gooseberry) juice before break fast	Rice with mudga rasa, tanduleeyaka and srita jala	Vilepi with varthaka
Second day	Dadima juice with breakfast	Rice with sunnishsannak chutney and lentils	Vilepi with jeevanthi
Third day	Saktu after breakfast	Rice with patola fry and lentils	Vilepi with mudga rasa
Fourth day	Kichadi with balamulaka included	Vilepi with tanduleeyaka and patola	kulmasha
Fifth day	Amalaka juice before breakfast	Rice with jeevanthi, mugda rasa	saktu
Sixth day	Dadima juice or as a whole with breakfast	Vilepi with Karavellaka	kulmasha
Seventh day	Saktu after breakfast	Vilepi with suneeshannaka coconut chutney	Mudga yusha

Srita jala (boiled water) should be added after each meal.

DISCUSSION

Pathya aahara plays a vital role in wound healing. It promotes tissue regeneration and promotes fast healing. Pathya aahara mentioned in Ayurveda includes all nutrient requirements for tissue remodeling. It decreases

the inflammation and helps the body to fight bacteria which causes further infection. It is necessary to follow a diet chart for pathya aahara. The above-mentioned diet chart is a model for pathya seva in wound healing.

CONCLUSION

Pathya aahara mentioned by Susrutha is easily available and highly nutritious food items. Ayurveda recommends pathya aahara in general and in special diseases also.

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