

ROLE OF DIETARY AND NUTRACEUTICAL SUPPLEMENTS USED FOR HEALING AILMENTS

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ABSTRACT

Nutraceuticals are products, which other than nutrition are also used as medicine. A nutraceutical product may be defined as a substance, which has physiological benefit or provides protection against chronic disease. Nutraceuticals may be used to improve health, delay the aging process, prevent chronic diseases, increase life expectancy, or support the structure or function of the body. Nowadays, nutraceuticals have received considerable interest due to potential nutritional, safety and therapeutic effects. Recent studies have shown promising results for these compounds in various complications. In the present review much effort has been devoted to present concepts about drugs based on their diseases and types of treatment and modifying indications i.e. aspirin, ibuprofen, acetaminophen, lisinopril, atorvastatin, metformin, omeprazole, amoxicillin, cinchona bark, belladonna, ephedra,

colchicine, ipecac, turpentine oil. Emphasis has been made to present herbal nutraceuticals effective on hard curative disorders related to oxidative stress including allergy, Alzheimer, cardiovascular, cancer, diabetes, eye, immune, inflammatory and Parkinson's diseases as well as obesity. Wound healing implicates several biological and molecular events, such as coagulation, inflammation, migration-proliferation, and remodeling. Here, we provide an overview of the effects of malnutrition and specific nutrients on this process, focusing on the beneficial effects of curcumin. These factors are particularly important in older adults which take longer to heal and recover physically. In addition to clinical investigations, perspectives from both experts in the field and the living experiences of the general public could play significant roles in enhancing the body's healing mechanisms in older adults. Content analysis with an inductive approach was employed about participants' experiences and perspectives.

KEYWORDS: Antioxidants, disease modifiers, herbal nutraceuticals, nutraceutical products, nutraceuticals, oxidative stress, macronutrients, curcumin, amino-acids, vitamins, minerals, Clinical investigations.



Understanding the Role of Nutraceuticals in Healing Ailments

Nutraceuticals, a portmanteau of "nutrition" and "pharmaceuticals", are food or food products that pack both nutritional and medicinal benefits, playing a pivotal role in disease prevention and treatment.^[1] Their categorization spans from potential to established nutraceuticals, reflecting a spectrum of benefits from immune boosting to chronic disease mitigation.^[1] Recognized for their nutritional prowess, therapeutic effects, and safety profile, nutraceuticals have become integral in health care promotion, disease reduction, and even as adjunct therapies in serious conditions like cancer.^[2]

As we delve deeper into the multifold advantages of nutraceuticals, we observe their classification into dietary supplements, functional food, medical food, and pharmaceuticals, each serving unique roles in safeguarding health and preventing chronic illnesses.^[3] The exploration of nutraceuticals encompasses a breadth of areas including antioxidant defenses, cell proliferation, and support in managing a myriad of diseases, from allergies to cardiovascular, and neurodegenerative disorders.^[3] This article embarks on a comprehensive guide to understanding the role of nutraceuticals in healing, highlighting their historical evolution, scientific backing, and the promising future this field holds in healthcare innovation.

Defining Nutraceuticals and Dietary Supplements

Nutraceuticals, a blend of 'nutrition' and 'pharmaceutical', are products derived from food sources that offer additional health benefits beyond basic nutrition. These products play a crucial role in improving health, preventing chronic diseases, delaying aging, and potentially increasing life expectancy. Nutraceuticals encompass a wide range of categories, including:

- **Functional Foods:** These are whole foods that are fortified, enriched, or enhanced to provide health benefits beyond the nutrients they naturally contain. Examples include omega-3 enriched eggs or vitamin D fortified milk.^[3]
- **Dietary Supplements:** This category includes vitamins, minerals, amino acids, fatty acids, and other substances that supplement the diet by providing nutrients not consumed in sufficient quantities. Dietary supplements are available in various forms such as tablets, capsules, softgels, and powders.^[9]
- **Herbal Products:** These are nutraceuticals derived from plants and are used for their therapeutic properties. They can be found in forms such as teas, extracts, and capsules.^[8]
- **Medicinal Foods:** Formulated to be consumed or administered under the supervision of a qualified physician, these foods are designed for the dietary management of specific diseases or conditions.^[3]
- **Farmaceuticals:** These are medically valuable components produced from modified agricultural crops or animals. They represent a cutting-edge area of nutraceutical development.^[3]

The term 'nutraceutical' was first introduced in 1989, highlighting the intersection between nutrition and pharmaceuticals. Despite its widespread use, the term has been critiqued for its vagueness and lack of regulatory clarity. In the United States, nutraceuticals fall under the same regulatory category as dietary supplements and food additives, which are overseen by the Food and Drug Administration (FDA) but are not subject to the same rigorous approval process as pharmaceuticals.^[6] This has led to discussions about the need for more precise terminology and regulatory frameworks to ensure consumer safety and product efficacy.

Nutraceuticals can be further broken down into two forms of dietary fiber: insoluble dietary fiber (IDF) and soluble dietary fiber (SDF), with foods rich in soluble fiber including fruits, oats, barley, and beans.^[1] This classification highlights the diverse nature of nutraceuticals and their potential benefits. Despite the regulatory challenges, the global nutraceuticals market has experienced significant growth, indicating a strong consumer interest in health products

that bridge the gap between food and pharmaceuticals.^[9]

Historical Perspective and Evolution of Nutraceuticals

The journey of nutraceuticals from ancient wisdom to modern marketplaces unveils a fascinating evolution of how societies across the globe have harnessed the power of food and herbal extracts for healing and health enhancement. This progression can be segmented into three pivotal phases.

1. Ancient Foundations

- The concept of using food as medicine is not novel. Ancient civilizations were adept at recognizing the healing and strength-restoring effects of conventional food and herbal extracts. This intrinsic understanding laid the groundwork for the development of nutraceuticals as we know them today.^[5]

2. Modern Market Growth

- The 1980s marked a turning point for nutraceuticals, with Japan pioneering the modern nutraceutical market. This era witnessed the transition of nutraceuticals from traditional remedies to scientifically backed health supplements. The sector's growth has been exponential, with projections indicating that the market could reach approximately 614 billion euros (around US\$675 billion) by 2027. This staggering expansion underscores the increasing consumer demand for products that blend nutrition with medicinal benefits.^[6]

These phases highlight the historical perspective and evolution of nutraceuticals, illustrating their journey from ancient practices to a booming global industry. This evolution not only reflects changing societal attitudes towards health and wellness but also underscores the increasing reliance on scientific research to validate the therapeutic claims of nutraceutical products.

Scientific Evidence Supporting the Use of Supplements for Healing

Nutraceuticals, although marketed as alternatives to prescription medicine for various ailments, face scrutiny due to a lack of consistent scientific evidence. This calls for an evidence-based approach to truly understand their potential in managing and preventing chronic diseases.^{[11][12]} Key challenges in nutraceutical research include.

- **Heterogeneity of Products:** The vast diversity in types of nutraceuticals complicates comparative studies.

- **Dose Variability:** Finding the optimal dosage for efficacy without adverse effects remains a challenge.
- **Lack of Standardization:** Variations in product quality and purity can significantly impact study outcomes.^[12]

Despite these challenges, several nutraceuticals have shown promise in clinical settings.

1. **Immunonutrition:** Nutrients like omega-3 fatty acids and arginine have been linked to decreased infectious complications and improved wound healing.^[16]
2. **Curcumin:** Demonstrates beneficial effects on endometriosis progression and wound healing.^[17]
3. **Vitamin D:** Essential for bone health, with recommendations ranging from 600 to 1,000 IU daily depending on age and health status.^[18]
4. **Vitamin B12 and Folate:** Critical for red blood cell production and DNA repair, with specific daily recommended amounts.^[18]
5. **Fish Oil Supplements:** May benefit individuals with cardiovascular disease who lack regular fish consumption, though not as beneficial for frequent fish eaters.^[18]
6. **High Fiber Intake:** Recommended daily fiber intake varies by age and gender, underscoring its role in managing various health conditions.^[18]

It's imperative to consult healthcare providers before supplementing, as interactions with medications or pre-existing conditions can pose risks. Moreover, federal regulations for dietary supplements are less stringent than for prescription drugs, raising concerns about ingredient transparency.^{[18][19]} Ultimately, while supplements can offer benefits, they should not replace a balanced diet, emphasizing the irreplaceable nutrient power of whole foods.^[20]

In the realm of specific health benefits, nutraceuticals have been associated with.

- **Cardiovascular Health:** Reduction in the risk of cardiovascular diseases and mortality in patients with a history of myocardial infarction.^{[2][21]}
- **Cancer:** Certain nutraceuticals like soy isoflavones and silibinin show anti-cancer properties, particularly in the treatment of prostate cancer.^{[2][21]}
- **Skin Health:** Bio-active peptides and polysaccharides have shown to improve skin elasticity, thickness, and reduce wrinkles.^[21]

These findings highlight the therapeutic actions of nutraceuticals' bioactive molecules on various diseases, underscoring the need for further research to fully harness their potential.^[2]

The Role of Nutraceuticals in Preventing Chronic Diseases

Nutraceuticals have emerged as a significant ally in the prevention and management of chronic diseases, leveraging their nutritional and bioactive properties to fortify health and mitigate disease risk. The following highlights the pivotal role of nutraceuticals in combating chronic diseases.

- **Cardiovascular Disease (CVD) Prevention**

- **Protective Role:** Nutraceuticals are recognized for their protective effects against cardiovascular diseases, offering a natural defense mechanism against CVD's progression.^[9]
- **Recommended Supplements:** Key dietary supplements for CVD prevention include vitamins, minerals, antioxidants, dietary fibers, and particularly omega-3 polyunsaturated fatty acids (PUFAs), which are advocated for both prevention and treatment.^[9]
- **Dual Benefits:** Beyond cardiovascular protection, nutraceuticals also safeguard against the toxicity of synthetic drugs, presenting a holistic approach to cardiovascular health.^[9]

- **Broad Spectrum Chronic Disease Management**

- **Disease Coverage:** The efficacy of nutraceuticals extends to a wide array of chronic conditions, including obesity, diabetes, hypertension, hypercholesterolemia, and inflammation-based diseases, showcasing their versatile therapeutic potential.^[22]
- **Nutritional and Bioactive Support:** By supplying essential nutrients and bioactive compounds, nutraceuticals play a crucial role in promoting optimal health and reducing the risk of chronic disease development.^[23]
- **Key Nutraceuticals:** Among the nutraceuticals pivotal for chronic disease prevention are omega-3 fatty acids, vitamin D, and probiotics, each contributing unique health benefits and supporting the body's functions and integrity.^[23]

- **Global Impact and Nutritional Considerations**

- **Chronic Disease Prevalence:** Chronic diseases are responsible for 71% of all deaths worldwide, with poor nutrition identified as a major contributing factor. This underscores the critical need for improved dietary strategies and the integration of nutraceuticals.^[23]
- **Health Benefits:** Nutraceuticals are lauded for their capacity to improve general health, reduce chronic disease risks, extend life expectancy, and enhance the body's overall functions and integrity, marking them as essential components of a health-conscious lifestyle.^[14]

Incorporating nutraceuticals into daily health regimens offers a proactive approach to disease prevention and health maintenance. By focusing on the consumption of essential nutrients and bioactive compounds through nutraceuticals, individuals can significantly bolster their defenses against the onset and progression of chronic diseases.

Dietary Supplements and Their Impact on Health

The impact of dietary supplements on health is multifaceted, with benefits and risks that necessitate a balanced and informed approach. Understanding these aspects is crucial for optimizing health outcomes while minimizing potential adverse effects.

- **Prevalence and Demographics**

- A study found that 17.9% of respondents use nutraceuticals, with a higher prevalence among female patients and those with multiple morbidities.^[11]
- This indicates a targeted use of nutraceuticals among populations with specific health needs or conditions.

- **Role of Healthcare Professionals**

- Community pharmacists and healthcare providers play a crucial role in guiding consumers towards safe and effective nutraceutical use.^[22]
- Medical supervision is recommended before starting any supplement regimen to avoid adverse interactions with conventional therapies and to ensure optimal dosing.^[12]

- **Benefits of Nutraceuticals**

- Nutraceuticals can improve overall health and reduce the risk of certain health conditions by providing essential nutrients lacking in the average American diet, such as calcium, potassium, magnesium, and vitamins A, C, and D.^{[24][25]}
- They are particularly beneficial for individuals with specific health conditions, dietary deficiencies, or those undergoing physical strain due to injury, illness, or aging.^[14]

- **Potential Risks and Side Effects**

- While nutraceuticals offer substantial health benefits, they can also lead to side effects like nausea, vomiting, headache, and constipation, especially when taken in large doses or alongside multiple supplements.^[13]
- Long-term complications can include liver damage, reduced bone strength, fetal development abnormalities, and reduced effectiveness of chemotherapy among others.^[13]

- It's crucial to be aware of these risks and consult healthcare providers to tailor nutraceutical use to individual health needs and conditions.^[24]
- **Regulatory Considerations**
 - The FDA has established Good Manufacturing Practices (GMPs) for dietary supplements, aiming to ensure their identity, purity, strength, and composition.^[24]
 - Several independent organizations offer quality testing, providing an additional layer of safety and quality assurance for consumers.^[24]
 - The Dietary Supplement Label includes vital information such as active ingredients and suggested serving size, aiding consumers in making informed decisions.^[24]

In summary, the impact of dietary supplements on health encompasses a broad spectrum of benefits and potential risks. The involvement of healthcare professionals in the selection and management of nutraceutical use is essential for maximizing health benefits while minimizing risks. Consumers are encouraged to approach nutraceuticals with an informed perspective, considering both their nutritional needs and any existing health conditions.

Understanding Nutraceuticals and Dietary Supplements

Nutraceuticals, with their dual role of providing nutritional benefits and therapeutic effects, are increasingly recognized for their potential in preventive health care and as adjunct therapies in disease management.

Their safety profile further supports their use, making them a significant component of contemporary healthcare strategies.^[2] Here, we delve into the multifaceted aspects of nutraceuticals and dietary supplements, highlighting their roles, regulatory oversight, and the innovative approaches shaping their development.

- **Roles and Benefits**
 - **Preventive Health Care:** Nutraceuticals are designed to fulfill specific dietary requirements, offering preventive health benefits against various diseases, including the mitigation of side effects associated with cancer chemotherapy and radiotherapy.^[2]
 - **Support Therapy:** Beyond nutrition, nutraceuticals serve as support therapy for the prevention and treatment of a range of diseases, thus playing a fundamental role in health care promotion and disease reduction.^[2]
 - **Safety and Efficacy:** Derived from high-quality, non-GMO, and organic food sources,

nutraceuticals are deemed safe and effective, provided they are used under medical supervision to avoid potential interactions with medications.^[15]

- **Regulatory Oversight and Consumer Education**

- **Regulatory Authorities:** The Food Safety and Standards Authority of India (FSSAI) exemplifies regulatory efforts by overseeing approvals, promotions, and labeling standards for health supplements and nutraceuticals in India.^[26] Similar regulatory considerations are crucial globally to ensure product quality and safety.^[27]
- **Consumer Awareness:** Educating consumers on the benefits, limitations, and potential interactions of nutraceuticals is vital for informed decision-making and responsible use. This includes understanding the proposed FDA guidelines that may influence the availability and research of safe supplements.^{[27][28]}

- **Innovative Development Approaches**

- **Technological Advancements:** Emerging techniques such as nutrigenomics, metabolomics, and nanotechnology are at the forefront of developing more effective and bioavailable nutraceutical products. These advancements, alongside genetic testing and personalized medicine, are revolutionizing healthcare with the potential for tailored nutritional interventions.^[27]
- **Market Trends:** The nutraceutical industry, with a market size of over \$16.7 billion, is witnessing rapid growth. Companies like General Nutrition Corp. (GNC) are leading nutraceutical development by targeting mainstream users with products that blend ingredients to address common health concerns and potentially combining nutraceuticals with pharmaceuticals for novel health solutions.^[29]

Through their comprehensive roles in preventive health care, therapeutic support, and the promise of personalized medicine, nutraceuticals and dietary supplements are poised to play a transformative role in future healthcare paradigms. Regulatory oversight, consumer education, and innovative development approaches will be key to harnessing their full potential, ensuring their safe and effective integration into health management strategies.

Common Ailments Addressed by Nutraceuticals

Nutraceuticals have shown significant promise in addressing a range of common ailments, benefiting both human and animal health. Here, we explore some of the key areas where nutraceuticals have been particularly effective.

- **Joint and Spine Problems**

- Chondroitin Sulfate: Often used in combination with glucosamine, chondroitin sulfate helps in maintaining healthy cartilage, potentially easing the symptoms of osteoarthritis.^[14]
- Fish Oils: Rich in omega-3 fatty acids, fish oils are known for their anti-inflammatory properties, making them beneficial for individuals suffering from conditions like rheumatoid arthritis.^[14]
- Glucosamine Sulfate: This supplement is widely recognized for its role in building cartilage, offering support for joint health and potentially reducing joint pain.^[14]
- Boswellia: Also known as Indian frankincense, Boswellia has been used traditionally for its anti-inflammatory effects, particularly in the treatment of osteoarthritis and rheumatoid arthritis.^[14]

- **Preventive Care and Disease Treatment**

Nutraceuticals are not limited to treating existing conditions but also play a crucial role in disease prevention for both people and pets. By incorporating specific nutraceuticals into daily health regimens, individuals can proactively manage their health, potentially preventing the onset of various diseases.^[14]

The versatility of nutraceuticals in addressing both specific ailments such as joint and spine problems and offering broader preventive health benefits underscores their growing significance in contemporary healthcare strategies. As research continues to evolve, the scope of ailments and conditions that can be effectively managed or prevented with nutraceuticals is likely to expand, further solidifying their role in promoting health and wellness across diverse populations.^[14]

Allopathic Drugs

| S. No. | Drug/Molecule | Dose | Manufacturing by | Uses | Precaution |
|--------|---------------|--|--|---|--|
| 1 | Aspirin | Aspirin Tablet Adults: 81 mg - 500 mg | Aspirin is registered as a trademark. BAYER is the manufacturer of aspirin | Aspirin is a salicylate used to treat <ul style="list-style-type: none"> • Pain, • Fever, • Inflammation, • Migraines, • Reducing the risk of major adverse cardiovascular events. | <ul style="list-style-type: none"> o People who are pregnant or breastfeeding may take low-dose aspirin. o Anyone with a known allergy to aspirin or any other NSAID, such as ibuprofen, should avoid these drugs. o Not administered aspirin during a stroke because not all strokes are caused by blood clots. |
| 2 | Ibuprofen | Tablet Children - 10 to 40 mg Adults—400 milligrams | Wellona Pharma is top manufacturer and supplier of 400mg ibuprofen tablets. Saphnix Life Sciences, Bishop | Ibuprofen is used to reduce <ul style="list-style-type: none"> • Fever • Relieve minor aches and pain • Headaches, • Muscle aches, • Arthritis, • Menstrual periods, • Common cold, • Toothaches, • Backaches. | <ul style="list-style-type: none"> o This medicine may raise your risk of having a heart attack or stroke. This is more likely in people who already have heart disease. o People who use this medicine for a long time might also have a higher risk. o This medicine may cause bleeding in your stomach or intestines. |
| 3 | Acetaminophen | Tablet Adults and teenagers at least 12 years old: not take more than 1000 milligrams | 1. Sri Krishna Pharmaceuticals Ltd (SKPL) 2. Mallinckrodt Pharmaceuticals 3. Taj Life Sciences | Acetaminophen is most commonly used to treat <ul style="list-style-type: none"> • Minor aches and pains, • Headache, • Backache, • Minor pain of arthritis, • Toothache, • Muscular aches, • Premenstrual and menstrual cramps. | IMPORTANT WARNING: <ul style="list-style-type: none"> o Not take more than one product that contains acetaminophen at a time. o Take acetaminophen exactly as directed on the prescription or package label. o Be aware that you should not take more than 4000 mg of acetaminophen per day. o Might cause liver disease. |

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| 4 | Lisinopril | Tablet adult - 10 to 80 mg | <ol style="list-style-type: none"> 1. Metrochem API Private Limited, 2. Evonik, 3. LGM Pharma, 4. Farmhispania, 5. Unimark Remedies | <p>Lisinopril is an ACE inhibitor used to treat</p> <ul style="list-style-type: none"> • Hypertension, • Heart failure, • Acute myocardial infarction. | <ul style="list-style-type: none"> o If allergic to lisinopril or any other ACE inhibitors try to avoid. o This medication may cause dizziness. o Do not drive, operate machinery, or do anything else that requires alertness. |
| 5 | Atorvastatin | Tablets Adults— 10 or 20 milligrams Children 10 years of age - 10mg | <ol style="list-style-type: none"> 1. Accord HLTHCARE, 2. ACI, 3. Agnitio, Alkem Labs Ltd, 4. Anbison Lab, 5. Apotex Inc, 6. Biocon Pharma, 7. Cadilla Pharms Ltd | <p>Atorvastatin is an HMG-CoA reductase inhibitor used to</p> <ul style="list-style-type: none"> • lower lipid levels • Reduce the risk of cardiovascular disease including myocardial infarction and stroke. | <ul style="list-style-type: none"> o Using this medicine while you are pregnant can harm your unborn baby. o May cause unexplained muscle pain, tenderness, or weakness, especially unusual tiredness or a fever. |
| 6 | Metformin | Adult : 1000 milligrams (mg) with insulin: At first, 500 mg | <ol style="list-style-type: none"> 1. ALKEM, 2. AMNEAL PHARMS NY, 3. APOTEX, 4. ATLAS PHARMS LLC, 5. AUROBINDO, 6. CHARTWELL, 7. CSPC OUYI | <p>Metformin is a biguanide antihyperglycemic used in</p> <ul style="list-style-type: none"> • Conjunction with diet • Exercise for glycemic control in type 2 diabetes mellitus. • Also used off-label for insulin resistance in polycystic ovary syndrome (PCOS). | <ul style="list-style-type: none"> o You must take Metformin with meals to avoid any stomach side effects. o Do not chew, crush, or break it. o Try to avoid if you have impaired liver or kidney function, as this medicine may cause lactic acidosis. o Use the medication precisely as prescribed. o Children under 10 years are not recommended to take Metformin. |

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| 7 | Omeprazole | Adults—20 milligrams(mg) | <ol style="list-style-type: none"> 1. Duchefa Farma B.V., 2. Laxmidas Dahyabhai & Co, 3. Lee Pharma, 4. Lek Pharmaceuticals, 5. Lupin Ltd, 6. Meenaxy Pharma Pvt. Ltd, 7. Micro Orgo Chem, 8. Murli Krishna Pharma, 9. Natco Pharma Limited | <p>Omeprazole is a proton pump inhibitor used to treat</p> <ul style="list-style-type: none"> • GERD associated conditions such as • Heartburn • Gastric acid hypersecretion, • To promote healing of tissue damage • Ulcers caused by gastric acid • H. pylori infection. | <ul style="list-style-type: none"> o If you have heartburn and light-headedness/sweating/dizziness, chest/jaw/arm/shoulder pain, get medical attention right away o If you have any of these symptoms of a serious condition before you self-treat with this drug, get medical attention right away: trouble/pain swallowing food, bleeding vomit, vomit that looks like coffee grounds, bloody/black stools, nausea/vomiting, pain in the stomach. |
| 8 | Amoxicillin | Adults, teenagers, and children weighing 40 kilograms (kg) or more—250 to 500 milligrams (mg) Children and infants older than 3 months of age weighing less than 40 kg— 20 to 40 mg | <ol style="list-style-type: none"> 1. DFE Pharma 2. Centrient Pharmaceuticals 3. Ideal Cures Pvt Ltd 4. Actiza Pharmaceutical Private Limited 5. Sandoz 6. Actylis 7. ADL Biopharma | <p>Amoxicillin is a penicillin derivative used for the treatment of infections caused by</p> <ul style="list-style-type: none"> • Gram-positive bacteria, • In particular streptococcal bacteria causing upper respiratory tract infections. | <ul style="list-style-type: none"> o Try avoiding it if You are allergic to penicillin antibiotics or cephalosporin antibiotics. o You may suffer from the following medical conditions: Allergies, Asthma, Hay fever, Hives, Kidney disease, Mononucleosis, Phenylketonuria (PKU). o About any medications that you may currently take including vitamin and herbal supplements might show side effects. |

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| 9 | Fluoxetine | For bulimia nervosa: Adults—60 milligrams For depression: Adults—20 milligrams | <ol style="list-style-type: none"> 1. Jai Radhe Sales, 2. Metrochem API Private Limited, 3. Zeon Pharma Industries India Pvt Lt, 4. LGM Pharma, 5. HRV Global Life Sciences, 6. Xi'an Tian Guangyuan Biotech Co.,Ltd, 7. Sinoway industrial Co.,Ltd, 8. Fermion Oy, 9. Dr. Reddy's Laboratories | <p>Fluoxetine is a selective serotonin reuptake inhibitor used to treat • Major depressive disorder, • Bulimia,</p> <ul style="list-style-type: none"> • OCD, • Premenstrual dysphoric disorder, • Panic disorder, • Bipolar I. | <ul style="list-style-type: none"> o Do not take thioridazine (Mellaril®) with fluoxetine and wait 5 weeks after stopping fluoxetine before you start taking thioridazine. o Do not use pimozide (Orap®) with fluoxetine. Using these medicines together can cause very serious heart problems. o Hyponatremia (low sodium in the blood) may occur with this medicine. o The use of alcohol is not recommended in patients who are taking fluoxetine. |
| 10 | Lorazepam | Adults and children 12 years of age and older—2 to 6 milligrams Older adults—At first, 1 to 2 mg | <ol style="list-style-type: none"> 1. Aurolife Pharma LLC, 2. Leading, 3. Oxford Pharma, 4. Sandoz, 5. Sun Pharma Indus Ltd, 6. Watson Labs, 7. Global Calcium, 8. Pfizer | <p>Lorazepam is a short-acting benzodiazepine commonly used to treat</p> <ul style="list-style-type: none"> • Panic disorders, • Severe anxiety, • Seizures. | <ul style="list-style-type: none"> o This medicine may be habit-forming. If you feel that the medicine is not working as well, do not use more than your prescribed dose. o This medicine may cause drowsiness, trouble with thinking, trouble with controlling movements, or trouble with seeing clearly. o This medicine may cause respiratory depression, especially when used with narcotic pain medicine. o This medicine will add to the effects of alcohol and other central nervous system (CNS) depressants |

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| 11 | Hydrochlorothiazide | For Edema: Adults—The usual dose is 25 to 100 milligrams For blood pressure: Adults—At first, 12.5 milligrams | <ol style="list-style-type: none"> 1. Polpharma, 2. Tiefenbacher API +, 3. Arshine Pharmaceutical Co, 4. Octavius Pharma Pvt. Ltd, 5. LGM Pharma, 6. Cambrex Corporation, 7. Changzhou Pharmaceutical Factory, 8. DEAFARMA, 9. Harman Finochem, 10. Integrin Life | <p>Hydrochlorothiazide is a thiazide diuretic used to treat</p> <ul style="list-style-type: none"> • Edema associated with a number of conditions, • Hypertension. | <ul style="list-style-type: none"> o If we are taking cholestyramine or colestipol, take them 1 hour before or 4 hours after taking hydrochlorothiazide. o Try to avoid if you have kidney disease. o May effect diabetes, asthma, gout, systemic lupus erythematosus (SLE, a chronic inflammatory condition), high cholesterol, or kidney or liver disease. o Do not use if you are pregnant, plan to become pregnant, or are breastfeeding. |
| 12 | Levothyroxine | Adults and children older than 12 years of age: dose is 1.7 microgram per kilogram Children 6 to 12 years of age—dose is 4 to 5 mcg per kg | <ol style="list-style-type: none"> 1. Abbott Ltd, 2. Alara Pharm (Sandoz), 3. Forest (Actavis), 4. Merck Serono, 5. Piramal Healthcare, 6. Mylan, 7. KING PHARMS R ANDD, 8. Jerome Stevens, 9. Merck, 10. Novartis, 11. Pfizer, 12. Teva, 13. Mylan, 14. Fresenius Kabi | <p>Levothyroxine is a synthetic T4 hormone used to treat</p> <ul style="list-style-type: none"> • Hypothyroidism • Used along with surgery • Radioiodine therapy to manage thyrotropin-dependent well-differentiated thyroid cancer. | <ul style="list-style-type: none"> o Might effect sugar levels. o Might need a larger dose of levothyroxine while pregnancy. o Use of this medicine for a long time may have some bone loss, which could lead to osteoporosis. o May also cause weakness, confusion or non-responsiveness, feeling cold, low body temperature, swelling of the body, especially the face, tongue, and lower legs, or difficulty breathing. |

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| 13 | Warfarin | For prevention or treatment of blood clots: Adult—At first, 2 to 5 milligrams | <ol style="list-style-type: none"> 1. FARMAK, 2. LGM Pharma, 3. Ipca Laboratories, 4. Alembic Pharmaceuticals Limited, 5. Raks Pharma, 6. Alchymars ICM, 7. Aspen Pharmaceuticals, 8. Otto Brandes GmbH | <p>Warfarin is a vitamin K antagonist used to treat</p> <ul style="list-style-type: none"> • Venous thromboembolism, • Pulmonary embolism, • Thromboembolism with atrial fibrillation, • Thromboembolism with cardiac valve replacement, • Thromboembolic events post myocardial infarction. | <ul style="list-style-type: none"> o Might effect the blood disorders (such as anemia, hemophilia), bleeding problems, blood vessel disorders, recent major injury/surgery, kidney disease, liver disease, alcohol use, frequent falls/injuries. o Daily use of alcohol while using this medicine will increase your risk for stomach bleeding and may also affect how this medication works. o Limit alcoholic beverages. |
| 14 | Metoprolol | For acute heart attack: Adults—At first, 50 milligrams | <ol style="list-style-type: none"> 1. Reddy's Laboratories, 2. Mylan Pharmaceuticals, 3. Sandoz, 4. Teva Pharmaceuticals. | <p>Metoprolol is a beta-blocker used in the treatment of</p> <ul style="list-style-type: none"> • Hypertension • Angina, • Used to reduce mortality due to myocardial infarction. | <ul style="list-style-type: none"> o Metoprolol may worsen the symptoms of heart failure in some cases. o This medicine may cause some people to become less alert than they are normally. o Dizziness, lightheadedness, or even fainting may occur when you get up suddenly from a lying or sitting position. |

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| 15 | Ciprofloxacin | For acute uncomplicated pyelonephritis: Adults—1000 milligrams (mg) For complicated urinary tract infections: Adults—1000 milligrams | <ol style="list-style-type: none"> 1. Arihant Pharma, 2. Akhil Healthcare Private Limited, 3. SPI Pharma, 4. BRS Pharmaceuticals, 5. Fourway Pharma LLP, 6. Iscon Life Sciences, 7. Orbiton Pharma | <p>Ciprofloxacin is a second generation fluoroquinolone used to treat various susceptible bacterial infections.</p> <ul style="list-style-type: none"> o Do not use this medicine if you are also taking tizanidine (Zanaflex®). o May cause feeling of anxious, confused, or depressed, seeing, hearing, or feeling things that are not there, seizures, severe headache, trouble sleeping, or unusual thoughts or behaviors. o If child's symptoms do not improve within a few days, or if they become worse, check with the physicians and medicines. o This medicine may cause serious allergic reactions, including anaphylaxis, which can be life-threatening and require immediate medical attention. o Ciprofloxacin may lower the number of some types of blood cells in your body. |
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Crude Drugs

| S. No. | Crude Drug | Biological Source | Active Medicament | Uses |
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| 1 | <i>Opium</i> | Opium is the dried milky exudate derived from the unripe seed capsules of the poppy plant, <i>Papaver somniferum</i> . | Chemically, opium is a complex mixture; notably, it contains several alkaloids, including 1. Morphine, 2. Codeine, 3. Noscapine, 4. Thebaine, 5. Papaverine. | <ul style="list-style-type: none"> • Opium preparation (sometimes called "opium tincture") is an opioid medication that is used to treat diarrhea. • Opium preparation is not for use as an opioid pain medicine. • Opium preparation may also be used for purposes not listed in this medication guide. |
| 2 | <i>Cinchona officinalis bark</i> | Cinchona bark is the dried bark of the stem or root of the cinchona plant. Cinchona bark belongs to the <i>Rubiaceae</i> family, also known as the <i>madder</i> family. | <ol style="list-style-type: none"> 1. Cinchona bark contains quinine, which is a medicine used to treat malaria. 2. It also contains quinidine which is a medicine used to treat heart palpitations. | <p>used in the treatment of:</p> <ul style="list-style-type: none"> • Hemorrhoids., • Varicose veins., • Colds., • Leg cramps, • Influenza., • Malaria., • Fever., • Cancer., • Mouth and throat diseases., • Enlarged spleen., Muscle cramps., Loss of appetite. • Stomach discomforts, such as bloating and fullness., <p>Other conditions.</p> |

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| 3 | <i>Belladonna</i> | Belladonna, also known as <i>Atropa belladonna</i> or deadly nightshade, is a perennial herbaceous plant in the nightshade family <i>Solanaceae</i> . | The active ingredients of belladonna alkaloids are 1. Hyoscyamine (L-Atropine), 2. Atropine, 3. Scopolamine (Hyoscine) | Insufficient Evidence to Rate Effectiveness for: • Arthritis-like pain., • Asthma., • Colds., • Hay fever., • Hemorrhoids., • Motion sickness., • Nerve problems., • Parkinson's disease., • Spasms and colic-like pain in the stomach and bile ducts., Whooping cough., Other conditions. |
| 4 | <i>Ephedra</i> | Ephedra consists of the dried aerial parts of <i>Ephedra gerardiana</i> Wall, <i>Ephedra sinica</i> Stapf, <i>Ephedra equisetina</i> Bunge, <i>Ephedra nebrodensis</i> Tineo and other <i>Ephedra</i> species, belonging to family <i>Ephedraceae</i> . | The plant contains many bioactive components such as alkaloids, 1. Ephedrine, 2. Pseudoephedrine, 3. Nor-pseudoephedrine, 4. Nor-ephedrine, 5. Methyl ephedrine, 6. Methyl pseudoephedrine, 7. Tannins | The <i>Ephedra sinica</i> plant has traditionally been used to treat symptoms of • Bronchial asthma, • Colds, • Influenza, • Allergies, • Hives in teas or tinctures. |
| 5 | <i>Colchicine</i> | Colchicine is derived from the bulb-like corms of the <i>Colchicum autumnale</i> plant, also known as autumn crocus. Colchicine belongs to family <i>Liliaceae</i> . | Colchicine is an alkaloid isolated and purified | • Colchicine is used to prevent or treat attacks of gout. • Colchicine has been used off-label to treat several other conditions, including Hepatic cirrhosis, • Primary biliary cirrhosis, • Pseudogout. |

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| 6 | <i>Ipecac</i> | Ipecac is commonly made from alcohol extraction of the plants <i>Cephaelis acuminata</i> and <i>Cephaelis ipecacuanha</i> . Ipecac is a medicinal plant that belongs to the <i>madder family</i> . | The active ingredients are 1. Plant alkaloids, 2. Cephaeline, 3. Methyl-cephaeline (emetine) | <ul style="list-style-type: none"> • Ipecac syrup has been used to cause vomiting after suspected overdose or poisoning. • Ipecac syrup is also used to treat bronchitis associated with croup in children, a severe kind of diarrhea (amoebic dysentery), • Cancer, • And as an expectorant to thin mucous and make coughing easier. |
| 7 | <i>Senna</i> | Senna consists of the dried leaflets or fruits of <i>Cassia senna</i> known in commerce as Alexandrian senna and of <i>Cassia angustifolia</i> commonly known as Tinnevely senna. It belongs to <i>Legumes family</i> | The active components in senna extracts are Anthraquinone derivatives and their glucosides, referred to as senna glycosides or sennosides. | <ul style="list-style-type: none"> • It is sometimes used together with another laxative or stool softener such as lactulose, psyllium, docusate, or mineral oil. • Other uses not proven with research include weight loss, irritable bowel syndrome, hemorrhoids, anal fissures (tears in the lining of the anus), or after anal or rectal surgery. |
| 8 | <i>Podophyllum</i> | <i>Podophyllum</i> consists of the dried rhizomes and roots of <i>Podophyllum peltatum</i> Linn., belonging to family <i>Berberidaceae</i> . | The rhizomes and roots of the plant contain anti-tumor lignans such as 1. Podophyllotoxin 2. Podophyllotoxin 4-O-glucoside | <ul style="list-style-type: none"> • <i>Podophyllum</i> is used to remove benign (not cancer) growths, such as certain kinds of warts. • It works by destroying the tissue of the growth. • A few hours after <i>podophyllum</i> is applied to a wart, the wart becomes blanched (loses all color). |
| 9 | <i>Rauwolfia</i> | It consists of the dried rhizome and roots of <i>Rauwolfia serpentina</i> . It belongs to <i>apocynaceae</i> family. | <i>Rauwolfia serpentina</i> is a major source of biologically active indole alkaloids like 1. Ajmalicine, 2. Ajmaline, 3. Reserpine, 4. Rescinnamine, 5. Yohimbine, 6. Serpentine | <ul style="list-style-type: none"> • They are used to treat high blood pressure (hypertension). • <i>Rauwolfia</i> alkaloids work by controlling nerve impulses along certain nerve pathways. |

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| 10 | <i>Digitalis</i> | The biological source of <i>Digitalis lanata</i> Linn is its dried leaves. It belongs to the <i>scrophulariaceae</i> plant family. It is also known as foxglove leaves, digitalis leaves. | <i>Digitalis purpurea</i> only 4–6 are medicinally active components comprising of 1. Digoxin, 2. Digitoxigenin, 3. Digoxigenin, 4. Saponins. | <ul style="list-style-type: none"> • Digitalis is used to treat heart failure, usually along with other medications. • It is also used to treat certain types of irregular heartbeat (such as chronic atrial fibrillation). |
| 11 | <i>Cannabis</i> | <i>Cannabis</i> consists of dried flowering and fruiting tops of the pistillate plants of <i>cannabis sativa</i> Linn. The cannabis plant is part of the <i>Cannabaceae</i> family. | Two main active constituents that are being used for medicinal purposes; 1. Delta-9-tetrahydrocannabinol (THC) 2. Cannabidiol (CBD). | <p>used in</p> <ul style="list-style-type: none"> • Lowering blood pressure, • Reducing inflammation, • Preventing relapse in drug • Alcohol addiction, • Treating anxiety disorders, • Treating gastrointestinal (GI) disorders, • Preventing seizures, • Fighting cancer. |
| 12 | <i>Aconite</i> | <i>Aconite</i> is a crude extract of dried leaves and roots from various species of <i>Aconitum</i> plants (or monkshood). It belongs to the family <i>Ranunculaceae</i> . | 1. Aconitine, 2. Mesaconitine, 3. Hypaconitine, 4. Jesaconitine | <ul style="list-style-type: none"> • Given orally in traditional medicine to reduce fever associated with • Colds, • Pneumonia, • Laryngitis, • Croup, and asthma; • For pain, • Inflammation, and high blood pressure; • As a diuretic; • To cause sweating; • To slow heart rate; • For sedation. |
| 13 | <i>Coca leaves</i> | coca, (<i>Erythroxylum coca</i>), tropical shrub, of the family <i>Erythroxylaceae</i> , the leaves of which are the source of the drug cocaine. | Coca leaf is the raw material for the manufacture of the drug cocaine | <p>Coca might be useful</p> <ul style="list-style-type: none"> • As a treatment for gastrointestinal ailments and motion sickness, • As a fast-acting antidepressant medication, • As a substitute stimulant for coffee in certain cases, • As an adjunct in programs of weight reduction and physical fitness. |

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| 14 | <i>Turpentine oil</i> | Turpentine oil is derived from the oleoresin (balsam) collected from the tree. Distillation of this material produces turpentine oil and the solid rosin. It belongs to family <i>Pinaceae</i> . | Turpentine oil is composed of 1. Terpene hydrocarbons (including α -pinene, β -pinene, limonene, 3-carene, and camphene), 2. Together with other oxygenated terpenes such as anethole. | <ul style="list-style-type: none"> • Turpentine oil used for infections of the stomach and intestines, autism, and different types of pain. • In foods and beverages, distilled turpentine oil is used as a flavoring ingredient. • In manufacturing, turpentine oil is used in soap and cosmetics and also as a paint solvent. • It is also added to perfumes, foods, and cleaning agents as a fragrance. |
| 15 | <i>Frankincense</i> | Frankincense oil is prepared from aromatic hardened gum resins obtained by tapping <i>Boswellia</i> trees. It belongs to <i>Burseraceae</i> family. | 1. Boswellic acids are the active compounds of frankincense 2. AKBA (3-O-acetyl-11-keto- β -boswellic acid) is the most important and effective acid among them. | <p>used to</p> <ul style="list-style-type: none"> • May reduce arthritis, • May improve gut function • May improve asthma • May help improve oral health • May have anticancer properties |

Ayurvedic Drugs

| S. No. | Formulation name | Composition | Uses | Dosage | Precaution | Refrence |
|--------|--|---|--|---|--|---|
| 1 | Abhayarishta | 1.Arsha, 2.Agnimandya, 3.Udararoga, 4.Vibandha | <ul style="list-style-type: none"> • It helps to expel waste products from the large intestine • Abhayarishta helps to manage the loss of appetite, thirst, bloating, and flatulence. • It helps manage constipation and reduce the symptoms of anal fistula. • Abhayarishta helps to manage piles | The minimum effective dosage may vary between 12-24 ml once or twice a day, preferably after having a meal. | oMay affect blood sugar levels..oMight effect hypertension. oTry to avoid during pregnancy. | https://ayush.jharkhand.gov.in/edl-list-ayurveda.php https://www.1mg.com/ayurveda/abhayarishta-266?wpsrc=Google+Organic+Search |
| 2 | Arjunarishta/ Parthadyarishta | 1.Hridroga, 2.Hridrava, 3.Hrid- daurbalya, 4.Moha, Murchha | <ul style="list-style-type: none"> • Arjunarishta is beneficial in reducing blood sugar levels and improving insulin sensitivity. • Arjunarishta may be beneficial for hyperglycemia. Thereby, arjunarishta may be useful in persons with diabetes. • Arjunarishta nourishes and strengthens the muscles of the heart. • ? It promotes heart functioning by regulating blood cholesterol and blood pressure. • Arjunarishta might be helpful in cancer. | 12 - 24 ml twice a day. | <ul style="list-style-type: none"> oDiabetes patients should avoid. oIt contains Jaggery as an ingredient which may affect blood sugar levels. oAvoid during breastfeeding. | https://pharmeasy.in/blog/ayurveda-uses-benefits-side-effects-of-arjunarishta/#Therapeutic_uses_of_Arjunarishta https://ayush.jharkhand.gov.in/edl-list-ayurveda.php https://www.1mg.com/ayurveda/arjunarishta-270?wpsrc=Google+Organic+Search |
| 3 | Lavanabhaskara Churna/ Bhaskarlava | 1.Agnimandya 2.Gulma 3.Ajima | <ul style="list-style-type: none"> • This digestive powder is effective in reducing flatulence, intestinal gas, bloating, and abdominal heaviness | 2 to 3 grams once or twice a day, before or after meals, with | oExcessive consumption of this churna may lead to increased thirst and a | https://ayush.jharkhand.gov.in/edl-list-ayurveda.php |

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| | nchuma | 4.Grahaniroga 5.Vatakaphajara ga | <ul style="list-style-type: none"> • Helps to cure suffering from anorexianervosa, bulimia, pre-existing chronic debilitating diseases. • Highly advises using this herbal mixture to cure constipation. • It actively enhances bile secretion by the liver | warm water or buttermilk or as directed by an Ayurvedic physician. | <p>feeling of dryness in the mouth.</p> <ul style="list-style-type: none"> oIndividuals with hypertension should use this churna cautiously due to its salt content. oPregnant or nursing women and individuals with specific medical conditions should avoid. | https://www.netmeds.com/health-library/post/lavan-bhaskar-churna-benefits-ingredients-method-dosage-side-effects-and-precautions#:~:text=Lavan%20Bhaskar%20Churna%20is%20a%20traditional%20treatment%20for%20gastrointestinal%20illnesses,%2C%20flatulence%2C%20and%20stomach%20discomfort. |
| 4 | Talishadya Chuma | 1.Kasa 2.Shvasa 3.Pratishyaya 4.Jvara | <ul style="list-style-type: none"> • Strengthens the respiratory system. • Maintain the good health of the digestive system and improve digestion. • Used in the treatment of respiratory and digestive ailments like cough, cold, asthma, bronchitis and vomiting, diarrhoea, bloating etc. • Also treat fever, anaemia and spleen disease. | Consume half to 1 teaspoonful (3-6 gms) twice a day or as directed by the physician. | <ul style="list-style-type: none"> oPregnant and lactating women must try to avoid. oTake precautions while giving it to small children and the elderly as it might produce harmful effects. | https://ayush.jharkhand.gov.in/edl-list-ayurveda.php https://www.1mg.com/otc/dabur-talisadi-churna-otc497940?wpsrc=Google+Organic+Search |
| 5 | Triphala Chuma | 1.Anaha, 2.Prameha, 3.Netraroga | <ul style="list-style-type: none"> • Triphala supplementation has been shown to alleviate stress. • Triphala treatment can prevent cold stress-induced behavioural and biochemical abnormalities | In general, taken a dose of 2 to 4 grams of powder, twice daily. For acute conditions, take a | <ul style="list-style-type: none"> oDon't take Triphala supplements during pregnancy or nursing or using blood thinners. oTriphala may not be | https://ayush.jharkhand.gov.in/edl-list-ayurveda.php https://www.medicinenet.com/what_does_triphala_do_for_the_body/ar |

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| | | | <ul style="list-style-type: none"> • Triphala lowered the levels of proinflammatory cytokines and lipid peroxides. • In cancer studies, triphala has shown killing activity on cancer cells. • Its main component gallic acid may be responsible for stopping cancer cell growth. | dose of 4 to 5 grams of the powder, three times daily, with honey or ghee. | safe for children or people with bleeding disorders. oMight get a rash after consuming Triphala. | ticle.htm https://pharomeasy.in/blog/ayurveda-uses-benefits-side-effects-of-triphala/#Precautions_to_Take_with_Triphala |
| 6 | Ashvagandharishta | 1.Murchha, 2.Apasmara, 3.Shosha, 4.Unmada, 5.Karshya` | <ul style="list-style-type: none"> • In Ayurvedic therapy, Ashvagandharishta is used in psychiatric disorders like epilepsy, depression, anxiety, dullness, and other memory-related disorders. • The roots of ashwagandha are very efficient in promoting memory, attention and concentration. • It can also improve the haemoglobin levels by increasing the red blood count in adults. • In children, it is used to promote growth. • It can also significantly reduce the levels of stress hormone and improve the quality of sleep. | Syrup - 15-20ml twice a day | oDiabetes patients should avoid. oIt contains Jaggery as an ingredient which may affect blood sugar levels. oAvoid during breastfeeding. | https://ayush.jharkhand.gov.in/edl-list-ayurveda.php https://www.1mg.com/ayurveda/ashwagandharishta-273?wpsrc=Google+Organic+Search https://pharomeasy.in/blog/ayurveda-uses-benefits-side-effects-of-ashwagandharishta/#:~:text=In%20Ayurvedic%20therapy%2C%20Ashwagandharishta%20is,and%20other%20memory%2Drelated%20disorders.&text=The%20roots%20of%20ashwagandha%20are%20very,promoting%20memory%2C%20attention%20and%20concentr |

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| | | | | | | ation. |
| 7 | Draksharishta | 1.Agnimandya, 2.Kasa, 3.Shvasa, 4.Urahkshata, 5.Kshaya, 6.Malavarodha, 7.Daurbalya | used in the treatment of <ul style="list-style-type: none"> • Weakness • Cough • Common Cold • Fatigue • Indigestion • Constipation • Acidity • Loss of appetite | 2 - 12 years – 10 ml Adult – 20 ml Geriatric – 20 ml | <ul style="list-style-type: none"> oDo not consume with NSAIDs may cause gastric mucosal damage or gastric bleeding. oIt may also cause mouth ulcers. oNot be advised for people with diabetes as it contains large amounts of jaggery. | https://ayush.jharkhand.gov.in/edl-list-ayurveda.php https://www.myupchar.com/en/medicine/draksharishta-p37122450#use_dose https://pharmeasy.in/blog/ayurveda-uses-benefits-and-side-effects-of-draksharishta/#Precautions_to_Take_with_Draksharishta |
| 8 | Lohasava | 1.Pandu, 2.Kamala, 3.Shotha, 4.Hridroga, 5.Daurbalya | <ul style="list-style-type: none"> • Lohasava helps in reducing the symptoms of Anemia. • It helps improve digestion, thereby modulating the desire to eat. • It helps manage indigestion by digesting the Ama. • It helps to reduce the symptoms of fatigue. • It helps fulfill the deficiency of blood haemoglobin. | Syrup - 15-20ml twice a day | <ul style="list-style-type: none"> oDiabetes patients should avoid. oLohasava can also cause constipation. oIt might effect hypertension. | https://ayush.jharkhand.gov.in/edl-list-ayurveda.php https://www.myupchar.com/en/medicine/baidyanath-lohasava-p37119817#benefits |
| 11 | Dashanga Lepa | 1.Visarpa, 2.Sthanika 3.Shotha, 4.Kushtha | <ul style="list-style-type: none"> • This mixture purify the blood, pacify Vata and pitta and initiate healing. • They can be used to relieve pain caused by | Consume half to 1 teaspoonful (3-6 gms) twice a day or as directed by the physician. | <ul style="list-style-type: none"> oAvoid oral intake. oRinse the affected area with normal or lukewarm water. oApply the lepa from medial to lateral direction. | |

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| | | | wounds and herpes infection. | | oApply a light cotton gauze to protect clothes after using thelepa. oApply the medicine for only 5–10 minutes and then wash it off with cold water. | |
| 10 | Hingvashtaka Chuma | 1.Agnimandya, 2.Shula, 3.Gulma, 4.Vataroga | <ul style="list-style-type: none"> • Relieves Indigestion. • Removes harmful toxins from body. • Prevents accumulation of toxins. • Relieves abdominal distension, flatulence and gas. • Helps in absorption of food. • Treats anorexia and all vata disorders. | 1.5-2gm twice a day | oPregnant and lactating women must try to avoid. oTake precautions while giving it to small children and the elderly as it might produce harmful effects. | https://ayush.jharkhand.gov.in/edl-list-ayurveda.php https://www.srisritattva.com/products/shop-hingvastaka-churna-digestive-gas-reliever |
| 11 | Arnica | 1.Sesquiterpene lactones, 2.Flavonoids, 3.Volatile oils, 4.Carotenoids | <ul style="list-style-type: none"> • sore muscles, • Bruises, • Conditions caused by overexertion or injury | Adults or children over 2 years: Take 3 tablets 4-6 times a day. | oUsing it for a long time may irritate the skin, oCause eczema, oPeeling, oBlisters, oSkin conditions. | https://ayush.jharkhand.gov.in/edl-list-ayurveda.php https://www.1mg.com/otc/dabur-talisadi-churna-otc497940?wpsrc=Google+Organic+Search |
| 12 | China officinalis | 1.Quinine, 2.Quinidine, 3.Cinchonine, 4.Cinchonidine, 5.Quinic acid, 6.Keno-tannic acid, 7.Qinovin, 8.Kinova-tannic acid | <ul style="list-style-type: none"> • For weakness. • This medicine acts well on ears and treats many ear related problems. • It is very helpful to ease the complaint of gas (flatulence) in the abdomen. • Its action on the nose it manages complaints of cold, sneezing and nose bleeding. | Adults and children 5 to 10 drops orally, 1 time daily | oCinchona may also be UNSAFE and can be deadly. oDon't use cinchona if you are pregnant or breast-feeding. | https://ayush.jharkhand.gov.in/edl-list-ayurveda.php https://www.1mg.com/ayurveda/abhayarishta-266?wpsrc=Google+Organic+Search |
| 13 | Nux vomica | 1.Strychnine | • Digestive problems such as | nux vomica depends | oSpasms of jaw and neck | |

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|----|----------------------|--|--|--|--|---|
| | | 2.Brucine | constipation, bloating, heartburn, and nausea • Male infertility and impotence • Colds and flus, particularly in the early stages of the virus • Allergies • Back pain • Menstrual problems • Insomnia | on several factors such as the user's age, health, and several other conditions. | muscles, oConvulsions, oSeizures, oBreathing problems, oLiver failure, | https://ayush.jharkhand.gov.in/edl-list-ayurveda.php https://www.1mg.com/otc/dabur-talisadi-churna-otc497940?wpsrc=Google+Organic+Search |
| 14 | Rhus toxicodendron | 1 Urushiol | • Used for skin irritations, • Used for rheumatic pains, • Used for mucous membrane afflictions, • Used for typhoid type fever | 5 pellets under the tongue 3 times a day | oCan cause allergic reactions with widespread symptoms, including severe irritation of the mouth and throat, vomiting, fever, and coma. oSkin contact with poison ivy can cause redness, swelling, and other reactions. oLikely unsafe to take by mouth or apply to the skin while pregnant or breast-feeding. | https://ayush.jharkhand.gov.in/edl-list-ayurveda.php https://www.myupchar.com/en/medicine/drak-sharishta-p37122450#use_dose https://pharमेasy.in/blog/ayurveda-uses-benefits-and-side-effects-of-draksharishta/#Precautions_to_Take_with_Draksharishta |
| 15 | Calcarea phosphorica | 1.Calcarea Phosphorica HPI, 2.Ferrum Phosphoricum HPI, 3.Kali Phosphoricum | • Facilitates aid in case of bone-related problems and dentition • Helps in the growth of teeth and bones • Useful in case of psychological | Adults & Children ages 6 - 12: 4 tablets. Children ages 2 - 6: 2 tablets. Dissolve under tongue 3 times a day. | oPregnant and lactating women must try to avoid. oTake precautions while giving it to small children and the elderly as it | https://ayush.jharkhand.gov.in/edl-list-ayurveda.php https://www.1mg.com/ayurveda/abhayarishta-266?wpsrc=Google+Organic |

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| | | HPI, 4.Magnesia Phosphoricum HPI, 5.Natrum Phosphoricum HPI, | issues such as depression • Helps to increase Calcium and Phosphate content in the body | | might produce harmful effects. | c+Search |
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The Future of Nutraceuticals in Healthcare

The future of nutraceuticals in healthcare is marked by innovative advancements and significant market growth, reflecting their increasing role in promoting health and managing diseases. Key developments and projections include:

- **Technological Advancements in Nutraceuticals**

- **Nanotechnology:** The integration of nanotechnology in the development of nutraceuticals is set to revolutionize the industry by creating micronized dietary products. These advanced supplements offer enhanced health benefits due to their increased bioavailability and absorption rates, potentially making preventive healthcare more effective and personalized.^[2]

- **Market Growth and Economic Impact**

- **Global Market Valuation:** The nutraceuticals industry has shown remarkable growth, with its market valued at \$400 billion in 2021. This significant valuation underscores the industry's robustness and its pivotal role in the global healthcare market.^[30]
- **Future Projections:** By 2025, the global nutraceutical market is expected to soar to \$578.23 billion, highlighting the escalating demand for dietary supplements and functional foods worldwide. This growth is indicative of the shifting consumer preferences towards more natural health products and the increasing awareness of preventive healthcare.^[23]
- **Indian Market Outlook:** Specifically, the Indian nutraceutical market is anticipated to reach USD 18 billion by the end of 2025. This growth is driven by the rising health consciousness among Indian consumers and the country's burgeoning middle class, which is increasingly adopting nutraceuticals for health maintenance and disease prevention.^[26]

- **Potential Health and Economic Benefits**

- Nutraceuticals present a promising avenue for reducing the financial burden of disease treatment on healthcare systems. By focusing on prevention and the management of chronic conditions, nutraceuticals can contribute to better physical health outcomes for individuals. This, in turn, has the potential to increase life expectancy and delay the aging process, offering both health and economic benefits on a global scale.^[31]

These insights into the future of nutraceuticals in healthcare not only highlight the sector's rapid growth and technological innovations but also underscore the broadening acceptance of nutraceuticals as essential components of a holistic health strategy. With ongoing research

and development, the integration of advanced technologies, and expanding market opportunities, nutraceuticals are poised to play an increasingly significant role in healthcare, offering promising solutions for preventive health and disease management.

Future Trends in Nutraceutical Research

The future trends in nutraceutical research are poised to reshape the landscape of dietary supplements and functional foods, driven by technological advancements, changing consumer preferences, and an expanding global market. Below are key areas of focus that highlight the direction of future research and market development:

- **Market Expansion and Consumer Demand:**

- The global nutraceuticals market is expected to reach a staggering US\$ 703,122.075 million by 2033, with a compound annual growth rate (CAGR) of 5.3% from 2023 to 2033, underscoring the sector's robust growth and the increasing consumer demand for dietary supplements and functional foods.^[32]
- This market growth is segmented across various categories including Business & Money, Science & Tech, Lifestyle & Health, Policy & Public Interest, and People & Culture, indicating a broad and diverse interest in nutraceuticals across different sectors of society.^[32]
- Innovations in product forms such as gummies, jellies, and soft gels are gaining popularity, catering to consumer demand for variety, novelty, and ease of consumption.^[32]

- **Technological Advancements in Nutraceuticals:**

- AI technology is anticipated to play a significant role in the growth of the nutraceuticals market, potentially revolutionizing product development, personalization, and consumer interaction.^[32]
- The rapid expansion of the plant-based food market, driven by environmental, ethical, and health concerns, presents a challenge and opportunity for nutraceutical research to achieve nutrition and functionality in plant-based foods using healthy and sustainable ingredients.^[33]

- **Emerging Trends and Consumer Preferences**

- Vitamins, dietary supplements, and functional foods and beverages are increasingly recognized as essential components of consumer health and wellness regimens, reflecting a shift towards more proactive health management strategies.^[34]

- Consumer trends highlight a demand for variety and novelty, putting pressure on brands to diversify their product portfolios. Brands can leverage these trends through unique packaging formats and personal touches, facilitated by digital printing technologies.^[34]
- The growing popularity of specific nutraceutical categories such as Beauty-From-Within Nutraceuticals, Cognitive Health Nutraceuticals, Immune Health, Microbiome-Focused Products, and Bioactive Peptides and Proteins Supplements, indicates a move towards more targeted health and wellness solutions.^[35]

These future trends in nutraceutical research not only point towards a continued expansion of the market but also suggest a shift towards more personalized, technologically advanced, and environmentally sustainable nutraceutical products. The integration of AI and the focus on plant-based solutions underscore the industry's commitment to innovation, catering to the evolving needs and preferences of consumers worldwide.

CONCLUSION

Through the exploration of nutraceuticals, it becomes evident that their multifaceted roles in preventive health care, therapeutic support, and as a component of modern healthcare strategies, have considerable implications. From offering nutritional benefits and enhancing therapeutic effects to promising innovations in nanotechnology and personalized medicine, nutraceuticals stand as a cornerstone of a health-conscious society. The regulatory oversight, coupled with consumer education and innovative development, underscores the potential of nutraceuticals to integrate safely and effectively into health management practices, fostering a holistic approach to health and wellness.

Looking ahead, the anticipated market growth, technological advancements, and evolving consumer preferences signal a promising future for nutraceutical research and their application in healthcare. As the field continues to expand, the focus on creating more bioavailable, personalized, and sustainable nutraceutical products will likely reshape the landscape of dietary supplements and functional foods. This evolution reflects not only the broadening acceptance of nutraceuticals as essential components of health strategies but also the ongoing commitment to leveraging scientific research for the advancement of health and prevention of disease, marking a significant step forward in our quest for improved well-being and longevity.

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