

A TYPICAL REVIEW ON DIETARY SUPPLEMENT IN INDIAN MARKET

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Abstract-

In day today life where the quality of organic foods is being deteriorated on that particular point people started taking the extra protein or vitamin or minerals as dietary supplement. It is a product taken orally that contains some dietary ingredient intended to supply the body need. There are more than 29000 dietary supplement products available in Indian market. People affected with some chronic disease like Diabetes Mellitus, Hypertension, Chronic kidney disease are being Prescribed to use Dietary Supplement along with their medication. Patients are unable to fulfil their nutritional requirements through their regular diets, they are now recognizing the importance of nutritional supplements to fulfil their nutritional gaps. Although these supplements are being good for patient's health but sometimes it shows the adverse effect as well. So, on this general review we will get to know about the effectiveness and common usage of widely used dietary supplement.

Key words-Dietary supplement, Diabetes mellitus, Hypertension, Chronic kidney disease,

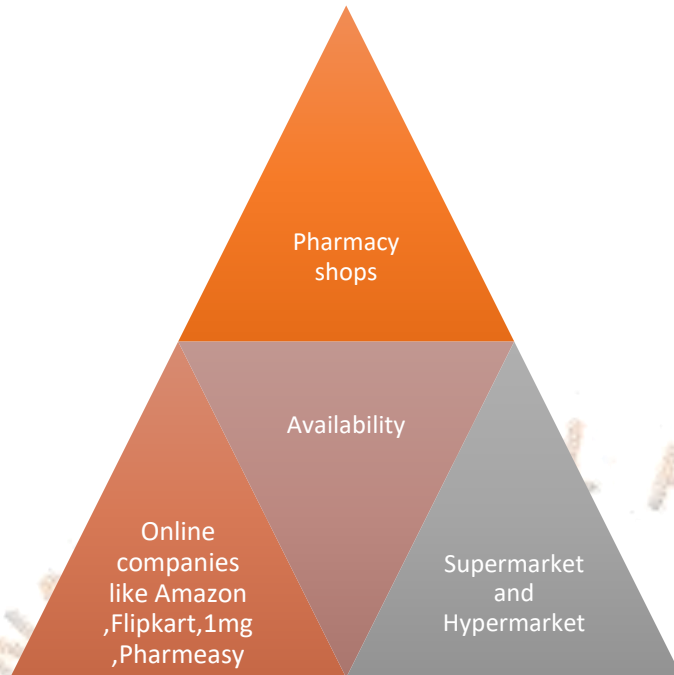
INTRODUCTION-

Dietary supplement is now being in high demand as it is very popular among young generation. Dietary supplements are nothing but it is the type of food which helps to get adequate amount of essential nutrients. This can improve overall health and helps in management of some health conditions. Patients are buying various supplements as meal replacement which finally helps a person to get rid of weakness and makes energetic following physicians and dieticians in India. Calcium and vitamin D help keep bones strong and reduce bone loss. Folic acid decreases the risk of certain birth defects. Omega-3 fatty acids from fish oils might help some people with heart disease. A combination of vitamins C and E, zinc, copper, lutein, and zeaxanthin (known as AREDS) may slow down further vision loss in people with age-related macular degeneration (AMD). It is the therapeutic need for diabetes, Chronic kidney disease, Anaemia and others. It is also being used for Muscle building, proper toning of the body and in competitive sports as well. In addition to vitamins, dietary supplements can contain minerals, herbs or other botanicals, amino acids, enzymes, and many other ingredients. Dietary supplements come in a variety of forms, including tablets, capsules, gummies, and powders, as well as drinks and energy bars. Popular supplements include vitamins D and B12; minerals like calcium and iron; herbs such as echinacea and ginkgo; and products like glucosamine, probiotics, and fish oils. In Indian market there are certain types of dietary supplements like vitamin, Minerals, probiotics, proteins and amino acids etc. According to statistical analysis of Indian market Dietary and nutraceutical market are expected to reach sixty thousand crores by 2023.

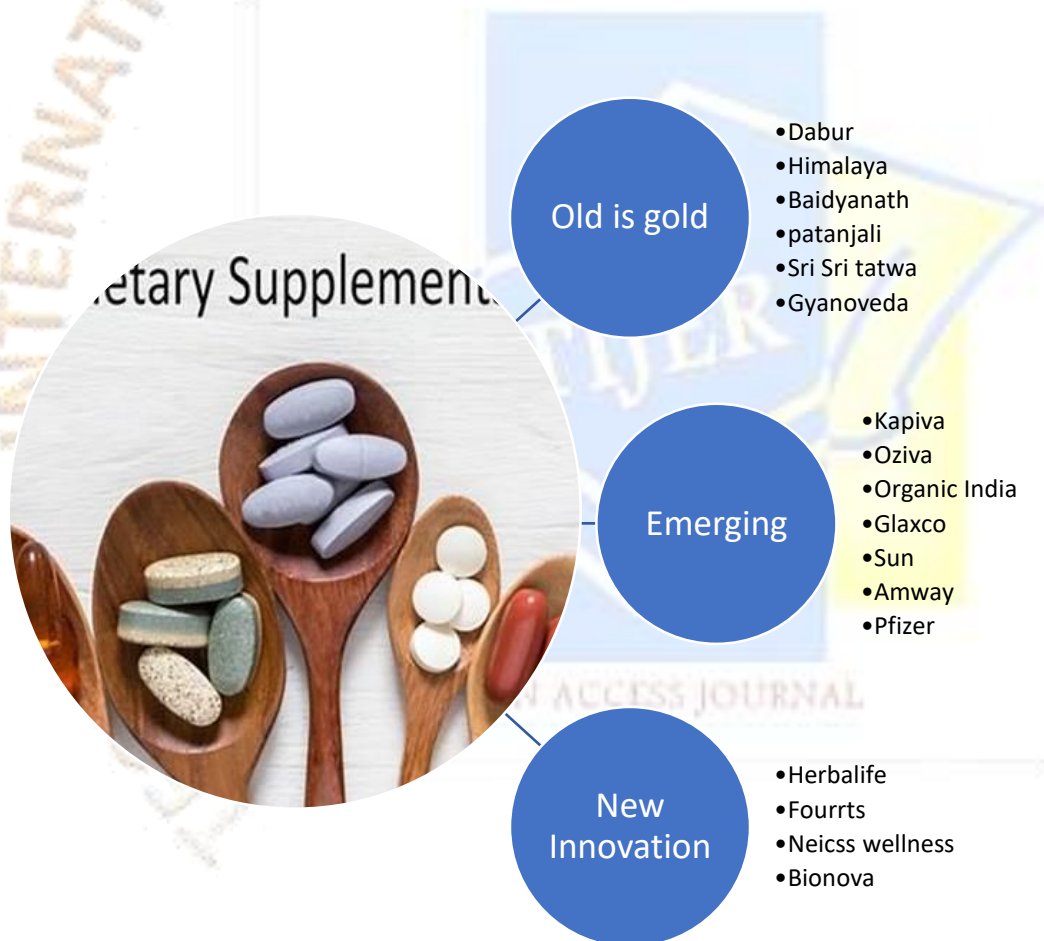
CONSUMER GROUP THAT ARE TAKING DIETARY SUPPLEMENTS-

- Childrens, preschoolers, entire students age group for better academic and extracurricular activities under the age of 8 to 18
- Teen agers and Adults for bodybuilding and healthy living under the age of 19 to 35
- Senior citizens suffering from long term chronic disorders like osteoarthritis, Rheumatoid Arthritis, Diabetes mellitus, Hypertension, Chronic kidney disease.

AVAILABILITY OF DIETARY SUPPLEMENTS-



TOP RATED BRANDS AVAILABLE IN INDIAN MARKET



MECHANISM OF ACTION-

Although dietary supplements are being widely used as self-medication but it still has some potential toxicities and adverse reaction. Metabolic activation of specific natural products from herbal and dietary supplement is mediated by hepatic cytochrome P450 or intestinal bacteria and generates chemical reactive/toxic metabolite that binds to cellular reduced glutathione or macromolecules and form reactive metabolites -glutathione /protein/DNA adducts. The key inductive role of metabolic activation in currently herbal and dietary supplement have been widely applied to prevent and treat various disease condition. According to the different catalysis of metabolic activation, they are divided into CYP450s mediated metabolic activation and intestinal bacteria mediated metabolic activation. Moreover, CYP450s mediated metabolic activation are categorized into three categories, pyrrolizidine alkaloids, furan derivatives, epoxy diterpenoids, anthraquinones aristolochic acids, bisbenzylisoquinoline, alkenyl benzenes, based on the types of potentially toxic natural products.

PRODUCT TYPE AVAILABLE IN INDIAN MARKET-

- Vitamin and Mineral Dietary Supplements
- Herbal Dietary Supplements
- Protein Dietary Supplements
- Others

FORMULATION AVAILABLE IN INDIAN MARKET-

- Tablets
- Capsules
- Powders
- Liquids
- Soft Gels
- Gel caps

DISTRIBUTION CHANNEL

- Pharmacies and Drug Stores
- Supermarkets and Hypermarkets
- Online Channels

APPLICATION OF DIETARY SUPPLEMENT

- Additional Supplements
- Medicinal Supplement
- Sports Nutrition

CONTRAINDICATION-

A 2013 study on herbal supplements found that many products were of low quality, one third did not contain the active ingredient(s) claimed, and one third contained unlisted substances. In a genetic analysis of herbal supplements, 78% of samples contained animal DNA that was not identified as an ingredient on the product labels. In some botanical products, undeclared ingredients were used to increase the bulk of the product and reduce its cost of manufacturing, while potentially violating certain religious and/or cultural limitations on consuming animal ingredients, such as cow, buffalo or deer. A study of dietary supplements sold between 2007 and 2016 identified 776 that contained unlisted pharmaceutical drugs many of which could interact with other medications and lead to hospitalization. 86% of the adulterated supplements were marketed for weight loss and sexual performance, with many containing prescriptions erectile dysfunction medication. Muscle building supplements were contaminated with anabolic steroids that can lead to health complications affecting

the kidney, the heart, and cause gynecomastia Multiple bodybuilding products also contained antidepressant and antihistamines. Despite these findings, fewer than half of the adulterated supplements were recalled. As there are some more contraindication of usage of dietary supplement at higher dosage or instead of prescribed medicine that might cause big problem. Examples includes -if a patient is using antioxidant supplements like vitamin C or E can reduce the effectiveness of some type of cancer chemotherapy. Usage of vitamin K can reduce the ability of blood thinner warfarin to prevent blood from clotting. Too much vitamin A can cause headache and liver damage and reduce bone strength as well.

BUSINESS TURNOVER IN INDIAN MARKET: -

Amway	1800cr	Nutrilife
Pfizer	1200cr	Bcosule
Merck	1000cr	Evion400/600mg
Abott	67.79cr	Ensure
GlaxoSmithKline	2075cr	Horlicks, Maltose
Dabur	5064371cr	Chawanprash, Glucose d
Himalaya	743cr	Hiowna powder
Patanjali	2000cr	Aloe vera juice, Amla juice

REGULATION –

The regulation are being observed by the industry and FSSAI mandatory to follow food safety and standards authority of India while using these products as self-medication patient should focus on the reliable, proper and scientific information on food safety and hygiene.

CONCLUSION-

Patient should take the right audited products as dietary supplements considering the multiple type of side effect. The country like India where various products markets is very important to sustain as well as improve the economy for the sake of patient health. From this general review we can conclude there is a high range of profit is there in supplement market. But the only thing which have to give a proper look is efficacy and choosing the correct product under the supervision of professionals.

REFERENCE

1. American College of Sports Medicine. Position statement on the prevention of heat injuries during distance running. *Medicine and Science in Sports* 7: viii–ix, 1975
2. American College of Sports Medicine. Position stand on weight loss in wrestlers. *Medicine and Science in Sports and Exercise* 8: xi–xiii, 1976
3. Belko AZ, Obarzanek E, Kalkwarf HJ, Rotter MA, Bogusz S, et al. Effects of exercise on riboflavin requirements on young women. *American Journal of Clinical Nutrition* 37: 509–517, 1983
4. Berning J, Sanborn CF, Brooks SM, Wagner WW. Caloric deficit in distance runners. Abstract. *Medicine and Science in Sports and Exercise* 17: 242, 1985
5. Burke L, Read RSD. Use of dietary supplements by football players. Abstract. *Proceedings of the Nutrition Society of Australia* 8: 214, 1983
6. Clement DB, Asmundson RC. Nutritional intake and haemato-logical parameters in endurance runners. *Physician and Sportsmedicine* 10 (3): 37–43, 1982
7. Dietitians Association of Australia. Position paper on megavi-tamin supplementation. DAA, Canberra, 1988
8. Khoo CS, Rawson NE, Robinson ML, Stevenson RJ. Nutrient intake and eating habits of triathletes.3: 144–150, 1987
9. Dietary supplement Definition & Meaning - Merriam-Webster
10. Dietary supplement | Definition, Types, Regulation, & Safety | Britannica
11. Dietary Supplements: What You Need to Know - Consumer (nih.gov)