

COMMERCIAL BULLETIN

# ALOE NUTRITIONAL SUPPORT FOR HEALTHY AGEING



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## Cashing in on the booming market for dietary supplements in seniors market

Spurred by aging populations and heightened interest in preventative health, sales of vitamins, minerals, and nutritional and herbal supplements have surged. Here's how manufacturers can capture this dynamic opportunity.

The ageing population remains under-served in terms of functional foods and drink products, despite “elderlies” living longer and healthier than ever before.

Even in tough economic condition, today's elderly will continue to spend on products that reduce the signs of ageing, addressing such concerns as heart, brain health and increase healthy life expectancy.

There will be significant opportunities to provide innovative supplement/natural solutions to Boomers with newly available remedies for:

- Sarcopenia prevention (loss of lean muscle)
- Joint or bone health
- Eye support
- Digestive heath
- Energy / vitality
- Immune system
- Improve Heart health
- Diabetes/ glucose metabolism
- Sleep aids
- Prostate Health
- Hormonal Balance
- Mental Health
- Cognitive
- Glucose metabolism
- Healthy ageing / ageing well



### Wellness lives on

The fact that consumers are looking for better-for-you products is nothing new. However, the way in which nutraceutical manufacturers are adapting to their needs is something to talk about.

Today, there are many natural products available to consumers to help them live better, fuller, healthier, and happier lives. Aloe Vera is one of these. At a time when products come and go quickly on the market, aloe retains a strong league of dedicated supporters. That group will only grow as new products with Aloe Vera are created and launched.



The herbs and botanicals market, as it applies to the dietary supplement, self-medication and functional food segments, is driven by consumer demographics and health concerns. Broadly speaking, these trends include anti-aging, weight control, joint and bone health, digestion/immunity, cardiovascular health/ diabetes, cognition/memory, female/ male health and the growing wellness and beauty trends. Another trend benefiting the herbs and botanicals market is the natural and exotic ingredients trend, which is taking off in functional foods, as well as medicinal products.

With the continued sedentary and hectic lifestyles of industrialized regions of the world and the relative increase of the senior segment of the world population, these trends are expected to grow. Despite numerous issues facing the market, herbs and botanicals are set to experience the fastest growth of any of the nutraceutical categories

Herb and botanical sales continue to increase worldwide. In fact, naturally derived herbal and botanical extracts will experience some of the fastest growth among the major nutraceutical ingredient groups



### Give a boost of your sales launching new line natural and healthy beverages

At the same time, consumer education about the functional benefits of herbs and botanicals is increasing. Together with increased confidence due to solid science behind the products, market entry for new ingredients is becoming easier.

### Future Outlook

The herbs and botanicals markets around the world are still far from realizing their full potential. And market expansion, particularly in the functional food and self-medication sectors, is dependent on consumer education. In herbals, as in everything else, if consumers do not understand the benefit of a product, they will not buy it.

New ingredients and new benefits for known ingredients are still being discovered, a sign that the full potential of the market has not yet been realized. Looking at the individual market segments

## Aloe Vera Blooming in ageing care

Given its exponentially growing demand and uses for various applications, aloe vera presents a fine opportunity among medicinal plants.

Now prized for its soothing, moisturizing and healing properties, today's market is strong and the future is bright. More people are learning about the benefits of aloe as a nutraceutical and you can see in your own market, more new supplements and drinks containing aloe hitting the market. Be part of this growing market. Market your products as premium formulating with aloe vera as carrier. Take the advantage of physiological rewards has aloe vera worldwide. Aloe Vera is the primary ingredient In food items with health benefits or combined with other ingredients as vitamins, supplements, herbs and homeopathic as carrier



## The growing consumer demand and product development advancements.

Consumer are more aware to buy functional foods, drinks and supplements to give benefit to their appearance, as well as to provide energy and added nutrition to handle health issues such as cholesterol and diabetes and also of natural short- and long-term health enhancing benefits of using Aloe in such popular products as fruit juices, health bars, meal replacement drinks, soy and dairy milk, yogurt and yogurt drinks, sparkling beverages, enhanced waters, children's formulas and sports and energy drinks.

Functional food , beverages, nutraceuticals pills, and several delivery system provides outstanding nutritional health benefits in an everyday food/drink format that consumers find convenient and easy to add to their daily health regimen.



## What's behind this growth?

There are five important factors driving an increased interest in healthy living and the various products associated with it. Although the phenomenon is global, this article focuses primarily on the characteristics of the U.S. market.

### 1. An aging population

Much has been made of the way that the aging of baby boomers will transform the U.S. economy. Their sheer numbers will shift spending in healthcare and realign markets, creating considerable new opportunities. The phenomenon is already visible in the vitamin and dietary supplement business, where purchases have grown by 6 percent annually from 2007-2012, much of this coming from eye, bone and joint supplements. As of 2012, consumers 65 and older accounted for 36 percent of U.S. VMHS sales, a trend that is expected to continue for the foreseeable future.

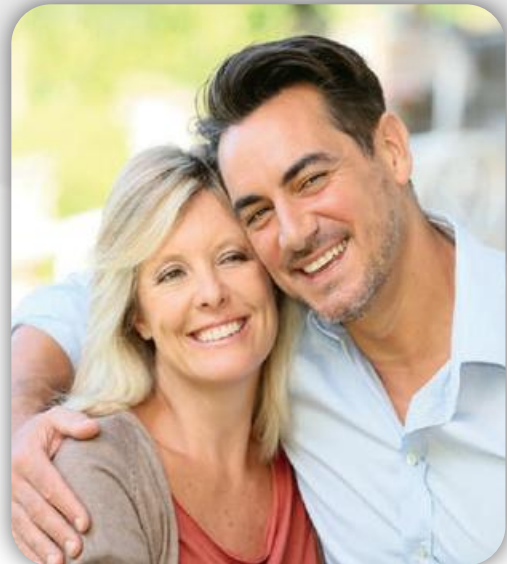
The human population is ageing at a truly stunning pace. Within 35 years, there will be more people alive older than 60 than there are people younger than 15. By the 2050s, well over one-third of the adult populations of Spain, Germany, Japan, Italy, and Russia will be older than 60. For the rest of the 21st century, the fastest-growing consumer group in the world will be people over the age of 60.

Consumer goods industries have a huge and rapidly increasing opportunity to provide ageing consumers with the appropriate goods and services that serve their needs and expectations.

Human longevity is increasing across the globe, in industrialized and also developing nations, bringing the population of people older than 60 to nearly 1 billion. Consumer goods industries have a huge and rapidly increasing opportunity to provide these people with the appropriate goods and services that serve their needs and expectations.

This demographic tendency is identified by five major trends:

- Birth rates are falling.
- People are living longer.
- People are staying healthy longer.
- People are wealthier
- People are working longer.



According to their research, life spans have been increasing 1.4 years every decade. For instance, in 1997, the average lifespan was 76.5 years; in 2007 it increased to 77.9 years. In order to sustain this growth though, it is imperative that supplement manufacturers and retailers educate seniors on how nutrition can help those lead productive, independent and comfortable lives for many more years to come.

## Need for Nutritional Awareness among the Elderly

The baby boomer generation is retiring, developing health ailments and becoming empty nesters, all of which is changing how they (should) eat and drink. While a slower metabolism and lower energy requirements might mean eating less, lower absorption and utilization of nutrients might actually mean nutrient requirements (particularly as a function of body mass) may increase.

As a group, the boomer generation is still large and outsized compared with other generations. They're a lively segment, and their life expectancy is higher today than it was for earlier generations. Many pay a lot of attention to foods high in nutrients and low in saturated fat, cholesterol and sodium.

While some boomers admit they're unhealthy, many try to fend off aging and understand that a healthy diet extends the active years. They are more accepting of fortification and functional foods and look for products providing them to help stay healthier and active.

Eating a balanced diet is important at any age, but seniors may have a more difficult time due to physical difficulties or health concerns. For instance, arthritis can make it difficult to cook or go out. There are all kinds of reasons ranging from dental problems, financial burdens to side effects from medication which inhibit the elderly from getting the nutritional intake they need.

Seniors represent the single-biggest opportunity for functional and nutraceutical companies. Younger seniors between the ages of 50 and 60 are more likely to turn to joint health ingredients to keep their joints healthy. Those in the 70+ age group are more likely to turn to nutraceuticals that help maintain lean muscle.

Seniors may well live into their 80s. This new age group is creating greater demand for cognitive and bone health products, but most resist nutritional interventions because they lack knowledge about nutraceuticals and their positive impact on health. Innovations in formulations are necessary, but a major priority for supplement business owners is to create nutritional awareness among the elderly.



## Aloe Vera

Factors such as increasing trend of consumers towards healthy lifestyle, coupled with increased usage of Aloe Vera extracts as an ingredient on food, pharmaceutical and cosmetics industries are showing a global market growth.

### Aloe Vera is wellbeing and vitality

Aloe Vera is packed with vitamins, minerals, polysaccharides, phytosterols, antioxidants and amino acids, this one plant is as effective for internal concerns as external ones, as relevant to the athlete as to the aging adult, and as popular for looking better as for feeling better. Aloe Vera, it is extremely nutritious and safe to eat and eventual consumption as a beverage or juice or externally in hair or body. Due to the large amounts, minerals, antioxidants to help fight and vitamins is the

perfect dietary supplement, and because of the antibacterial and antifungal properties can also be used to restore the microflora in the digestive tract, liver and spleen cleaning and restoring the immune system. Currently, the new trend on Aloe Vera Global Market is using the Aloe for Nutraceuticals as a vehicle for other functional ingredients enhancing their bioavailability instead of using other carriers that will not contribute



### Healthier by nature: Reformulate your products with aloe as carrier

Make Aloe Vera vehicle in your nutraceutical formula and offer additional health benefits. Whether you're interested in formulating therapeutic nutraceutical, capsules or tablet preparations, or innovative refreshing Aloe drink with Aloe bits, or cosmetics that turn back the clock, Aloe is your ingredient of choice and AMB Wellness is your supplier.

Regarding wellbeing, however, the new great opportunity is an offer micro and macro nutrients which is the utilization of natural food complexes (no single chemicals) to maintain human health. Aloe contains macro and micro-nutrients such as water, carbohydrates, proteins, lipids/fats, vitamins, minerals, trace minerals and electrolytes, enzymes, and accessory nutrients such phenolics and antioxidants, support a healthy life in humans and in animals. Studies show that adequate dietary macro- and micro-nutrient intake promotes health and wellbeing and slows the onset and progression of disease. However, most diets are deficient in these important nutrients due to their general lack of convenient availability in preferable forms.

## Improve the nutritional quality of your target customers

Aloe nutrient delivery system- The nutritional health and well-being of humans are entirely dependent on plant foods either directly or indirectly when plants are consumed by animals. Plant foods provide almost all essential vitamins and minerals and a number of other health-promoting phytochemicals. Humans require a diverse, well-balanced diet containing a complex mixture of both macronutrients and micronutrients in order appearance. Macronutrients—carbohydrates, lipids, and proteins (amino acids) — make up the bulk of foodstuff and are used primarily as an energy supply. Micronutrients are organic or inorganic compounds present in small amounts and are not used for energy, but are nonetheless needed for good health.

Essential micronutrients in the human diet include 17 minerals and 13 vitamins and are required at minimum levels to alleviate nutritional disorders, Aloe Vera has it!. Nonessential micronutrients encompass a vast group of unique organic phytochemicals that are not strictly required in the diet, but when present at sufficient levels are linked to the promotion of good health. Most everyone understands the concept of a catalyst, which is that the presence of one element facilitates a good chemical reaction but remains unchanged. Within Nature, numerous complexes of chemicals such as phytonutrients exist that assist numerous chemical reactions to take place in the body that do not take place when the individual molecules are isolated from each other.



Aloe is nutrient dense, meaning they contain a broad-spectrum of synergistic concentrated beneficial macro and micro nutrients that help or enhance the body's abilities to generate healthy cells and maintain optimum operational performance. Aloe is the solution to Regain and Retain Good Health for your customers- Whether you're interested in formulating therapeutic nutraceutical formulations, innovative functional beverages, or cosmetics.



## Aloe Vera acts as a physiological and bio-enhancer carrier for many active biological agents

When you get Aloe Vera shots you are drinking small doses of bioactive ingredients , such as vitamins, minerals, aminoacids, enzymes, proteins, organic acids, essential fatty acids, polysaccharides, lignins, saponins , chromones, all of them GOOD for your client's health. This helps their body day by day, to get nutrition for your cell and body systems, acts synergistic way.

Nutrition is key, and a diet rich in nutrients, micronutrients, and antioxidants maintains the body's ability to fight disease and repair itself. Aloe Vera makes a great addition to a healthy diet/defense regimen and has the added bonus of easing cold and flu symptoms and speeding recovery. Nutrients are a chemical substance that comes from the foods you eat. The energy you need for the metabolic processes in your body and for maintaining a constant internal environment comes from these nutrients. So if you think about all the basic reactions going on in your body to keep you breathing, your heart beating, your brain working and allowing you to move about, they all derive their energy from nutrients.



The nutraceutical and functional food industries endeavors to develop novel delivery systems which require excipients that fulfil specific functions. Excipients from renewable sources are attractive due to their sustainable mass production. Aloe Vera has the best relatively good powder flow and it improved the powder flow properties of hydroxypropyl methylcellulose and carbopol when mixed with these polymers. You can add functional ingredients and improve and boost the effectiveness of your formula, you can even use liquid forms to add to your ingredients or additives.

## Aloe Vera improves the availability of nutrients in combination with other products

As the dietary supplement industry is registering steady and rapid growth, consumers are demanding quality supplements. Consumer perception of the quality of oral solid dosage forms is changing. Good quality is associated with the ability to disintegrate and dissolve. Performance characteristics of oral solid dosage forms in public standards will address the in vitro dissolution requirements, which will be presented as they relate to multivitamin-mineral combination products.

The commonly accepted definition of bioavailability is the proportion of the nutrient that is digested, absorbed and metabolized through normal pathways. Consequently, it is not enough to know how much of a nutrient is present in a dietary supplement; the more important issue is how much of that present is bioavailable. A common belief regarding bioavailability of dietary supplements is that they have to be in solution to be absorbed in the body.

## Aloe as a bioavailability enhancer

Aloe Vera is a very promising future nutritional Bio-enhancer. Aloe Vera Powder has shown to increase the solubility of water-insoluble drugs. The concentration of Aloe Vera is directly proportional to the drug release; Aloe Vera can be used as a bioavailability enhancer.

Bioavailability enhancers are drug facilitators, they are the molecules which by themselves do not show typical drug activity but when used in combination they enhance the activity of drug molecule in several ways including increasing bioavailability of the drug across the membrane, potentiating the drug molecule by conformational interaction, acting as receptors for drug molecule and making target cells more receptive to drugs. A 'bioenhancer' is an agent capable of enhancing bioavailability and bioefficacy of a particular drug with which it is combined, without any typical pharmacological activity of its own at the dose used.

These are also termed as 'absorption enhancers' which are functional excipients included in formulations to improve the absorption of a pharmacologically active drug. Nutritional bio-enhancers enhance absorption by acting on gastrointestinal tract. Antimicrobial bio-enhancers mostly act on drug metabolism processes. Bioenhancers One possible way to reduce this drug dosage and toxicity is to increase the drug bioavailability; the rate at which a therapeutically active substance enters the systemic circulation and becomes available at the required site of action.



## Aloe Vera Consumption Increases Vitamin Bioavailability

Recent research, sponsored by the International Aloe Science Council (IASC), concluded Aloe Vera increases levels of vitamins C and E in the bloodstream by more than 200 percent when consumed. The study also concluded Aloe Vera can enhance the bioavailability of both water- and fat-soluble vitamins, and has a natural time-release effect (vitamin levels were found to remain elevated for 24 hours, according to the study). Like Aloe, vitamins C and E are known to be powerful antioxidants that boost immune system function, promote skin health, and protect cardiovascular health. The bioavailability research has created a landmark event and major turning point for the functional food and nutraceutical industry as these companies realize the benefits of incorporating Aloe into their products containing vitamins C and E. By adding Aloe Vera to these and other supplement products, we are delivering to discerning consumers highly synergistic and superior products that allow them to gain maximum benefits from their supplements.

## Aloe Vera and TEER

The nutraceutical and functional nutraceutical industries endeavours to develop novel delivery systems which require excipients that fulfil specific functions. Excipients from renewable sources are attractive due to their sustainable mass production. Aloe Vera Gel in matrix systems showed good swelling properties due to Aloe Vera Gel Polysaccharide component has an excellent potential to be use as an excipient in the formulation of direct compressible sustained-release matrix type tablets. You can add bioactives ingredients to improve and boost the effectiveness of your formula, you can even use liquid forms to add into your products.



## Aloe Vera Mucilage as Solubility Enhancer in Tablet Formulation (as an excipient in sustained release (SR) pharmaceutical dosage forms)(5-8) and (9-12)



Many of the health benefits associated with Aloe Vera have been attributed to the polysaccharide contained in the gel of the leaves. On the other hand, the important pharmaceutical applications such as the use of the dried Aloe Vera gel powder as an excipient in sustained release (SR) pharmaceutical dosage forms. The present study is development of water insoluble compound into a sustained release matrix tablets and the influence of Aloe Vera gel powder in the dissolution and other physical properties of the SR matrix tablets were assessed. The HPMC and ethyl cellulose were used as polymer and different concentration of Aloe Vera gel powder used as dissolution enhancer. Sustained release matrix tablets were formulated by direct compression method and subjected to various quality control studies as per the official pharmacopeial standards.

The developed tablet formulation complies with the monograph. The results suggest that Aloe Vera is improved the dissolution of curcumin. Dissolution kinetics suggests that all the formulation followed Korsemayer Peppas model via anomalous diffusion mechanism. To conclude the Aloe Vera gel powder can be used as dissolution enhancer for improving the drug absorption of water insoluble drugs. The prepared SR matrix tablets with Aloe Vera showed an initial burst release followed by a sustained release pattern.

The developed formulation is compared with the formulations prepared with piperine and the results are indicating that the Aloe Vera powder improves the solubility without effecting the sustain release pattern of the curcumin formulation. The study implies that Aloe Vera with high contents of polysaccharides powder can be used in the formulation of SR matrix tablets for water insoluble compounds. Further, IVIVC can be established using in vivo animal models to claim the potential use of Aloe Vera powder as excipient in improving solubility of class II/IV drugs.



In the line, the polysaccharide fraction present in the Aloe Vera extract is finding new insights in the drug delivery technology.

Many scientific reports established the health beneficial effects of inner leaf gel and the high molecular weight polysaccharides attributes to the effects. Recent clinical studies have shown that use of Aloe Vera improves the bioavailability of certain nutrients such as vitamin C and vitamin E by as much as 200%. Aloe Vera is a biological vehicle in that it acts as a physical or physiological carrier for active biological agents but, also adds biological activity to the test agent. In effect Aloe Vera is a physical carrier as well as adds to activity.

### **Skin permeation enhancement potential of Aloe Vera and a proposed mechanism of action based upon size exclusion and pull effect.**

Aloe Vera, provides further evidence for the presence of an enhancing factor within Aloe Vera. Certain, although unidentified, components of Aloe Vera readily permeated skin and the relative amount by which they permeated skin was inversely related to the molecular weight of the drug in solution, thus enhancement ratio. A new mechanistic rationale is proposed whereby larger drug solutes inhibit the permeation of Aloe Vera components, but also are then able to interact more effectively with the enhancing factor and be subject to the pull effect.

## Formulate your Active ingredient or herbal ingredients with aloe vera



Today, there are many natural products available to consumers to help them live better, fuller, healthier, and happier lives and Aloe Vera is one of these. At a time when products come and go quickly on the market, Aloe retains a strong league of dedicated supporters. That group will grow as new products with Aloe Vera are created and launched.

### Maximized polysaccharide Aloe Vera extracts

Consumers understand the need nutrients, and are looking to get them in different more accesible ways. Consumers have a significant interest for new healthy and natural solutions

### Boost your sales of product adding -value functional ingredients

Boost your sales of product adding -value functional ingredients. Add value to your products, create your own niche high value category, there are big opportunities for functional and nutritional value products. Alone or combined with other natural ingredients. Consumers are more focused on higher value, in the products they do consume. They're also much more demanding in terms of a higher sustainability footprint, they're also much more demanding on the product's nutritional, functional and health benefits. Be part of this trend in your market, adding aloe vera to your existing product line.

### Create a new segments and categories to succeed.

The most known functional benefit of aloe Vera is for digestive health, heart health, lowering cholesterol, joint health, beauty, skin and immune-boosting products. With aloe vera as a natural ingredient in your formula or carrier of other nutraceutical actives, provides the right combination of nutrition and taste. You can drive your consumer platforms for your product in the following attitudes and behavior of the functionality, accessible and easy for the consumer.



Consumers buy products with belief they are buying the best quality of life. Today food and beverage companies are looking for health ingredients, for this reason AMB Wellness offer a large range of options of aloe vera ingredients, natural aloe vera to improve your sales and benefits of the consumers. Health and wellness goals will continue to drive demand botanical and natural products. Aloe Vera is a natural functional ingredient that enhances and supports well-being.

## Consumers are aspiring to live a healthier lifestyle

Innovate and formulate with aloe vera, be the one in your market and offer beneficial and drive a strategy in nutrition, health and wellness and make a competitive advantage, add your portfolio aloe Vera ingredients. Consumers are more aware of the nutritional dimensions in their lives and the need for quality of life.

Naturally functional foods and ingredients are the biggest and most important trend, is based primarily on health benefits of a food ingredient in a way that is easy for consumers to understand and media to communicate without having to make specific health claims, Aloe Vera is the most known plant in consumer's mind, take advantage of this perception.

## Roll out your product line with health and wellness

Functional foods will continue to influence mainstream products in the near term, as consumers seek better options to meet their needs. While naturally functional may be getting attention, fortified foods remain the backbone of consumers' nutritional strategy and interest has remained strong and stable over time. Consumers say vitamin fortified foods are a convenient way of getting their nutrients.

Interestingly, those who are making a strong effort to consume nutrients (including probiotics, fiber, calcium, organic foods), and to limit additives are also making an effort to eat more fresh foods, suggesting that these emerging fresh advocates could be receptive to fortification of fresh foods.

Consumers buy products with belief they are buying the best quality of life. Today the nutraceutical companies are looking for health ingredients, for this reason AMB Wellness offer natural aloe vera to improve your sales and benefits of the consumers.

An aging population and growing demand for naturally functional products continue to drive a healthy industry. With a rising aging population, increasing concerns about meeting nutritional requirements and a growing desire for naturally functional products.



With the advent of new segments such as functional foods and cosmeceuticals, the market for herbs and botanicals has changed significantly over the past decade. This has opened up new opportunities for manufacturers, allowing them to position botanicals and other natural ingredients in products that no longer have to compete with only synthetic medicinal ingredients as aloe vera does.

The growth and development of these new segments add to the diversity of the herbs and botanicals market. There are multiple reasons for this continued gain in popularity. Fundamentally, in many countries throughout the globe, botanicals are the first choice in preventative health, and the costs are not just monetary. Conventional healthcare is costly both monetarily and in many, depressed quality of life results due to side effects

### Propelling aloe products with new designs with functional health twist

The future for Aloe Vera is bright, and the reason Aloe Vera will grow is simple: Aloe Vera works. As the baby boomer generation starts collecting Social Security, many boomers are looking for ways to turn back the clock and make up for too many years of indulgence, sun worshipping, and overall neglect. Also, having witnessed skyrocketing healthcare costs and the healthcare struggles of their parents and grandparents, today a huge number of people—young and old—are looking for new ways to stay healthy and look younger. All this, of course, has been welcome news and a great opportunity for the vitamin and dietary supplements industry.



Aloe Vera has been around since the dawn of time, but only recently has this simple plant and its juice been the topic of health discussions and emerging research. Many people know the benefits and excellent results of applying Aloe Vera to the skin. More and more, however, many are realizing that topical application is just the tip of the Aloe Vera iceberg in terms of health potential. As such, more studies are being investigating Aloe Vera's benefits as an ingestible supplement. Nutraceuticals and functional manufacturers have the challenge to compete with private labels products and imported ones, and they need to make a differentiation before of competition. Go into the booming functional market , adding aloe vera in your formula.

## Natural is good

The discovery, development and marketing of dietary supplements, nutraceuticals and related products are currently the fastest growing segments of the food industry. Herbal ingredients can be considered part or borderline to these products and may be defined as nutraceutical and functional ingredients that have additional health or physiological benefits over and above the normal nutritional value they provide. This trend is driven by several factors, mainly due to the current consumer perceptions: the first and dominant being 'Natural is good', and other secondary, such as the increasing cost of many pharmaceuticals and their negative secondary effects, the insistent marketing campaign, the increasing perception of the need of a healthy diet and its importance in the health and homeostasis organism conditions.

However, the central point is that nutraceuticals, botanicals and other herbal remedies, including the entry of new functional foods, are important because of their acceptance as the novel and modern forms to benefit of natural substances.



In terms of the industry or industries involved, trends are also emerging that will impact the growth of nutraceuticals companies, always on the lookout for ways to diversify their product line and still turn a profit, have set up functional food or nutraceutical divisions. Pharmaceutical companies, a sworn enemy of dietary supplements for years. At any given meeting or trade show, you'll see a number of traditional pharmaceutical types checking out the action. These companies are already set up to implement the extensive research necessary for drug discovery; the move into the less expensive and time-consuming nutraceuticals research process is a logical progression.



## Nutritional Intake in early life impacts your health in later years

On the earlier side of the age spectrum, adequate nutritional intake during childhood and throughout adulthood is known to positively impact health in the longer term. However, most young people don't realize that making an investment in nutrition today could pay off in a big way in the senior years of life. Getting consumers in younger age groups to become serious about nutrition is a challenging task for dietary supplements manufacturers. While this age group may understand the benefits of taking supplements for heart health and digestive health, taking supplements for cognitive and bone health may not seem so appealing because the results are not as obvious or quick since they mainly provide protective benefits.

Most people at this age cannot meet their Recommended Dietary Allowances (RDA) because of insufficient dietary intake. Studies show that low-dosage of vitamins and minerals can significantly improve micronutrient intake. In fact, because the elderly may not be able to achieve their RDAs through diet alone, a study published in the Journal of Nutrition for the Elderly supported the daily use of low dose multi-vitamins and minerals to improve nutritional intake.



Seniors are attractive for many reasons, including their disposable income, their interest in science-based benefits they can feel, their brand loyalty, and their swelling numbers.

They are a target key group for a range of 'healthy aging' products and their numbers are growing everywhere—from the U.S. to Europe to China—which means they are the single-biggest opportunity for functional and nutraceutical companies, both in the supermarket and in medical foods. But seniors are not one group. They need to be carefully segmented since needs and attitudes are different at each stage of their life.

The younger seniors, those aged 50 to 60, are usually still quite active and may be interested in joint health ingredients to help keep them that way. But those at the other end of the scale, in the 70+ age group, will be more concerned about common age-related conditions such as sarcopenia (muscle wastage).

Apart from vitamins and minerals, other nutraceuticals for seniors include omega-3 fatty acids, antioxidants specifically ones that are known to improve cognitive health and vision. Areas of health concerns include digestive health, prostate health, heart health, joint and bone health, sexual health, and weight management.

A key trend is one that is very clearly a growth opportunity—a trend that a company can connect to in order to earn additional volumes, additional sales and extra profits. We focus only on those trends that are the underlying key drivers for our industry—not fads or short-term developments with no long-term meaning.

Geriatrics is a medical practice that addresses the complex needs of older patients and emphasizes maintaining functional independence even in the presence of chronic disease. Treatment of geriatric patients requires a different strategy and is very complex. Development of effective dietary interventions for promoting healthy aging is an active but challenging area of research because aging is associated with an increased risk of chronic disease, disability, and death. Aging populations are a global phenomenon. Elderly people are at increased risk for micronutrient deficiencies due to a variety of factors including social, physical, economic, and emotional obstacles to eating. Thus there is an urgent need to shift priorities to increase our attention on ways to prevent chronic illnesses associated with aging. Individually, people must put increased efforts into establishing healthy lifestyle practices, including consuming a more healthful diet.



### Changing perception of health

Later people are becoming more aware of the importance of healthy lifestyles. They take more responsibility for their personal health, integrating mental and physical wellbeing. The understanding of what it means to be healthy is changing amongst this consumers. Instead of focusing on the absence of illness, consumers perceive health increasingly in terms of preventing illness, feeling good and looking radiant. This drives demand for food supplements

The healthy living trend also reinforces the popular view that natural health products are safer than synthetic alternatives. This generated a renewed interest in natural remedies for healthier lives, such as herbal medicinal product as ALOE VERA.

Demographically, aging is the growth of the aged population (60 + years) in proportion to the total population over a period of time. A country is said to be aging if the proportion of people over 65 years of age reaches 7%. The elderly population is the fastest growing segment throughout the world. In the next 30 years, there will be a rise in elderly population of up to 300% in Asia and Latin America.

From the health perspective, the goal is to keep people alive and healthy as long as possible. Health education and health promotion play very important roles in maintaining good health, good mobility, and independent functional status in the elderly.



### Age-related changes relevant to nutrition

Nutritional needs change throughout life. Especially for the elderly, these changes may be related to the normal aging process, medical conditions, or life style. Nutrition is an important determinant of health in elderly patients. Nutritional status assessment is essential for preventing or maintaining various chronic and acute diseases, and even for healing. As people age, various changes occur in the body, which may or may not affect the nutritional status of an individual. A common problem related to aging is loss of bone density, which can increase the risk for osteoporosis. Sarcopenia is the other age-related change. The loss of lean muscle mass can lead to a gain in body fat. Muscle loss is seen even in healthy people, which implies that metabolic changes occur during aging, making it a universal phenomenon. It may be more noticeable by loss of strength, functional decline, and poor endurance. This loss also leads to reduced total body water content.

Various other changes occur throughout the digestive system. There is a decrease in gastric acid secretion, which can limit the absorption of iron and vitamin B12. Saliva production decreases, leading to slower peristalsis and constipation. Appetite and thirst dysregulation also occurs. Sensory changes affect the appetite in many ways. Vision loss makes cooking, and even eating, more difficult. Diminished senses of taste and smell make the food less appealing. These changes typically alter eating habits and reduce nutrient availability and absorption, which can lead to nutritional deficiencies and various health problems

Malnutrition is both a cause and a consequence of ill health. It can be of various types: undernutrition, over nutrition, or specific nutrient-related deficiencies. Malnutrition in older patients is regularly underdiagnosed, and hence more education regarding nutritional status is needed among older patients. Malnutrition in older adults can lead to various health problems, including a weak immune system that increases the risk of infections; poor wound healing; and muscle weakness, which can lead to falls and fractures. In addition, malnutrition can lead to further disinterest in eating or lack of appetite, making the problem worse. Many elderly patients have an increased risk for malnutrition compared with other adult populations. It has been estimated that between 2% and 16% of community-dwelling elderly people are nutritionally deficient in protein and calories. If mineral and vitamin deficiencies are included in this estimate, malnutrition in persons over the age of 65 years may be as high as 35%. Malnutrition in older adults is associated with various health concerns. Malnutrition leads to a weak immune system, increasing the risk of infections, poor wound healing, and muscle weakness, which further leads to falls and fractures.

The problem gets worse as malnutrition can lead to further disinterest in eating or a lack of appetite. Older adults who are seriously ill and those who have dementia or have lost weight are especially vulnerable to the effects of poor nutrition. Although there is no uniformly accepted definition of malnutrition in the elderly, some common indicators include too little food or a diet lacking in nutrients. A careful nutritional assessment and nutritional education are necessary for successful diagnosis of malnutrition in the elderly, and for the development of appropriate and comprehensive treatment plans.



### People aged 55-64

Although the 55-64 age group does not have special nutritional needs as such, this age group would be well advised to start paying extra attention to healthy lifestyle including diet, in relation to the future risk of chronic diseases and to best prepare themselves for healthy older age. For example, once women are postmenopausal, as most are in this age group, there is an increased need to ensure appropriate vitamin D and calcium intake to maintain bone health and help to prevent osteoporosis and an increased risk for cardiovascular disease due to lower levels of estrogen. Age is the most powerful independent risk factor for cardiovascular disease and the risk of stroke doubles every decade after the age of 55 (WHO, 2004). In men, reaching 55 means that their risk of cardiovascular disease increases, so attention to risk factors including high LDL cholesterol, obesity and increasing blood pressure is highly desirable.

This age group will, over the next decade of its life, be subject to physiological changes associated with ageing that could negatively impact their nutritional status and immune functioning, so now is arguably the time to focus on maintaining good health to prevent or limit potential future health problems. Health promotion in older people both in relation to diet and keeping physically active can produce results. The main aim of healthy diet and lifestyle (including physical activity) in this age group would be to maintain good health, to reduce the risk of chronic disease and strengthen or maintain immune function to avoid health problems later

### People aged 65-74

The dietary recommendations for this age group are not hugely different to those for people aged 55-64, as long as people remain in good health. However, the risk of developing a chronic disease is higher for this age group than the previous one; studies in the USA show that 75% of the over 65s have one chronic disease and 50% have two or more. Those individuals already suffering health problems, particularly those that increase the risk of chronic disease or people who already have a chronic disease, may need to make further more changes to their diet, for example:



- A person with high cholesterol may need to further reduce their saturated fat intake to reduce the risk of coronary disease or to prevent existing coronary heart disease from progressing.
- A person identified as having reduced bone density may need to increase their calcium and vitamin D intake to reduce the risk of osteoporosis or to prevent its progression.

### People aged over 75

The physiological changes associated with the ageing process and the associated health problems that can arise, which are discussed earlier on, start to have an effect on most people aged 75 and over. This means that a more age specific approach is required for this age group which could include:

- In general, consuming a more nutrient rich diet in order to obtain the nutrients needed from a lower calorie intake which results from both physiological and socio-economic factors.
- A switch of focus from the risk of obesity to the risk of malnutrition, especially given that in this age group, a lower Body mass index BMI is more highly correlated with morbidity and mortality than a higher BMI.
- Additional nutritional support to ensure acceptable levels of key micronutrients due to lower intake and uptake, for example, vitamin D.

## Over 75 +

Current dietary recommendations for older people tend to consider the older population as a homogenous group of anyone over 60 or over 65. This does not take into account that nutritional needs can change with physiological ageing, so that there are some differences between the dietary needs and health concerns of the average 85 year old and those of the average 60 year old, although many healthy eating messages remain valid for older people of all ages. Therefore some form of age tranche-specific dietary recommendations would be welcome, for example the fact that malnutrition in the form of undernutrition presents greater health risks for the over 75s than obesity. Age tranche-specific recommendations should be accompanied by appropriately targeted healthy eating messages as and when appropriate.



## Aging as a Biological Process

The process of aging is well understood, but the specific mechanisms behind the process are under current investigation. Aging begins at the cellular level. At the end of each DNA strand is a telomere, a grouping of the amino acids, adenine (A), guanine (G) and thymine (T), in the following sequence: TTAGGG. This sequence is repeated thousands of times in a young cell. After each DNA replication cycle, a piece of the telomere is lost. As the DNA undergoes more and more replication cycles through cellular division, the telomeres become shorter and shorter.

Eventually, the number of DNA replications is limited by insufficient telomere length. This critical point is called the Hayflick limit. In this sense, a telomere can be thought of as a fuse at the end of a stick of dynamite. Once this fuse reaches its limit, the cell can no longer divide. As more and more cells reach their Hayflick limits, the tissue composed of these cells will begin to age. Over time, this will cause necessary organs to fail.

However, through properly maintaining a healthy balance of nutrients and physical activity coupled with a lifestyle free of environmental pollutants, the effects of aging can be ameliorated.

## Youthful Nutrients

As the baby boomer generation begins to move into their golden years, the demand for constituents that promote longevity and vitality will grow as well. Proper diet and exercise is important for natural and healthy aging. As cliché as that is, it's the truth. But bear in mind that the key word in that phrase is "proper." Just as there is a specific diet that should be followed for weight loss, recovery from surgery or muscle gain, there is a specific regimen to be followed for healthy aging as well. Aging affects nearly every system of the body, from sexual drive to immunity. A healthy aging regimen is, therefore, very comprehensive. It demands a level of consciousness to everything one consumes more so than any other type of diet.

In today's busy world, many people just don't have time to eat the way they should, so they require supplemental intake. Vitamin supplements do not replace the variety of vitamins and minerals that whole foods contain; but they can help to fill the gap in nutrient ingestion that most people experience. For example, naturally occurring vitamin E is a complex of alpha (a)-, beta (b)-, gamma (g)-, and delta (d)-tocopherols and a-, b-, g-, d-,tocotrienols, which all contribute to the antioxidative effects of vitamin E. However, some supplemental vitamin E contains only a-tocopherol, but at higher doses than in nature (about 400 IU), and is therefore considered to have a more significant impact on the body than natural intake of vitamin E. Yet, research has shown that g-tocopherols also have beneficial effects on the body. Therefore, to receive an optimal dosage and variety of vitamin E constituents, one can consume vitamin E-rich foods plus supplements.



## Natural Supplementation

Maintaining vivacity and strength while aging can be achieved through eating well and exercising, as well as minimizing stress . Dietary supplementation can also help support a variety of the body's physiological needs as it ages, from antioxidant support to sexual stimulation.

## Antioxidant support

Free radicals are ionized molecules that negatively interact with normal cellular function, leading to the development of diseases such as type-2 diabetes, heart disease and cancer. Antioxidants alleviate the damage caused by free radicals through preventing free radical oxidation .

## Anti-inflammatory support

Inflammation is a complex biological response to vascular tissue irritants, such as pathogens or damaged cells. It is the body's natural response to attempt to remove harmful stimuli and to begin the healing process. As aging progresses, cells or tissue become permanently damaged, leading to chronic inflammatory diseases, such as arthritis or even cancer. To prevent "over" inflammation, On a daily basis each human cell is subjected to 10,000 plus oxidative hits. Each hit represents damage (a chemical reaction) to the individual cells of the body. Such damage is caused by sunlight, x-rays, environmental toxins, exercise, etc. The body utilizes antioxidants to immediately repair or in many cases, to actually take the damage itself (like a bodyguard stands in front of a bullet).



## Cognitive and sexual stamina.

As time progresses, the amount of energy one has diminishes. Declines in the underlying brain skills needed to think, remember and learn are normal in aging. In fact, this cognitive decline is a fact of life for older adults.

Therapies to improve the cognitive health of older adults are critically important for lessening declines in mental performance as people age. While physical activity and cognitive training are among the efforts aimed at preventing or delaying cognitive decline, dietary modifications and supplements have recently generated considerable interest.



## Body mass and composition

Aging causes various changes in body composition, which have important consequences on health and physical functions. There is a progressive decrease in lean body mass and an increase in body fat. Decreased physical activity accounts for the increased body fat, and this may lead to decreased energy intake with aging. These changes in body composition, including those in fat distribution, may be associated with changes in various physiological functions that affect metabolism, nutrient intake, physical activity, and risk for chronic diseases. There is also an alteration in bone density that results from a decrease in mineral content, which occurs with aging. Severe osteoporosis may cause the bones in the legs to bow under the weight of the body. This bowing, together with changes of the spine, makes measurement of height unreliable in some elderly people, even in those who are able to stand unaided. Body weight is easily affected by short-term environmental aspects of life, in addition to the effects of acute and chronic diseases or undernutrition.

## Physical activity

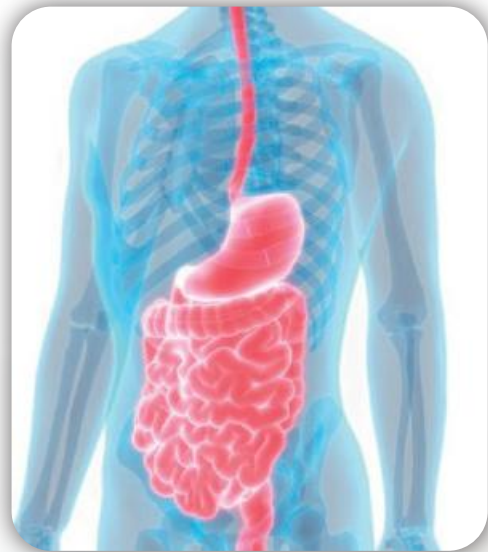
Total energy expenditure of an individual is reduced with the reduction in physical activity, and this is an important factor contributing to a reduced energy requirement in the elderly. However, the energy cost of normal activities has been reported to increase with age for men.

Studies conducted in elderly people showed that 70% of the elderly in the 60–69-year age group reported no outdoor activity in the previous 4 weeks, and this proportion was even higher in the over-70-year age group. Another feature of aging that may restrict physical activity is that elderly people are prone to developing a variety of degenerative and chronic diseases; chronic obstructive airway disease, angina, and arthritis are some examples. Physical activity contributes to good physical and psychological health at all ages, and inactivity associated with minor illness in the elderly often leads to loss of muscle tone and mass, and, thereafter, former physical activity levels may never be regained.



## Age-associated changes in the gastrointestinal system

Effects of aging on the perceptions of smell and taste have been observed, which may alter or decrease food intake. This is a common perceived problem among elderly individuals who complain of a loss of both taste and smell. There may be a progressive loss in the number of taste buds per papilla on the tongue. The remaining taste buds, which detect primarily bitter or sour tastes, show a relative increase with aging. Impaired appetite is often associated with a reduction in taste and smell, which occurs in up to 50% of elderly people. Improperly fitting dentures may unconsciously change eating patterns because of difficulty with chewing, leading to the intake of a soft, low-fiber diet without important fresh fruits and vegetables.



## Age-associated changes in the renal and genitourinary systems

The kidneys' job is to keep the body's fluids, electrolytes, and organic solutes in a healthy balance. The functional units of the kidney are a million or so nephrons present in the renal cortex, which filter most of the constituents of the blood other than red blood cells and protein, reabsorb needed substances, secrete hydrogen ions to maintain the acid–base balance, and secrete wastes.<sup>41</sup> In addition to gastrointestinal physiological changes, renal function declines with age. There is a decrease in kidney mass, blood flow, glomerular rate (10% decrement per decade after the age of 30 years), and the elasticity, muscle tone, and capacity of the bladder. Severity can vary, but most cases are mild or moderate in older people, do not cause symptoms, and do not progress to kidney failure. Renal impairment may also affect vitamin D metabolism and result in a reduction of vitamin D levels, which contributes to osteoporosis in the elderly.



## Age-associated changes in the nervous system and cognition

With advancing age, risks for cognitive decline increase, affecting the independence and quality of life. Insufficient intake of selected vitamins, or certain metabolic disorders, may affect cognitive processes by disrupting the nutrient-dependent processes within the body that are associated with the management of energy in neurons, which can subsequently affect synaptic plasticity or the ability to encode new memories. The earliest signs of mild cognitive impairment or pre-Alzheimer's disease are decreases in the ability to prepare food, forgetting to eat, and inability to access food, which can further impair oral intake.

Vitamin deficiencies, particularly vitamins B12, B6, and folate, are associated with cognitive impairment. Nutritional interventions have an impact on vascular disease prevention. It is well established that a diet low in fat and cholesterol is beneficial in modifying vascular risk factors. Emerging research suggests that supplementation with omega-3 fatty acids are associated with stroke prevention and may be beneficial if integrated into the diet of all elderly patients with vascular disease or vascular risk factors.



## Associated changes in the immune system

Immune response dysfunction with increased susceptibility to infection, reduced efficacy of vaccination, chronic inflammatory state. The immune defense system is adversely affected by the aging process, and there is strong evidence that a poorly functioning immune system can contribute to decreased disease resistance and reduced life expectancy in the elderly. Elderly people are more likely to die of infections than young adults,<sup>53</sup> and malnutrition is related to an increased risk of sepsis in the elderly. Infections of all kinds increase the metabolic rate, making it more difficult for older persons to eat enough to keep up with elevated energy demands.

## Elderly Customers: Food, Supplement Marketing Opportunities

As we get older, our muscles start to weaken, injuries take longer to heal, and we become more likely to develop conditions that affect our bones, joints, hearts, and brains. Diet can help postpone and mitigate some of these conditions; yet the market for older people wanting to stay healthy has been largely neglected by food companies. This is beginning to change.

Older people are at high risk of nutritional deficiencies. Even if the diet is reasonably healthy and sufficient in calories, the effectiveness of the digestive tract declines with age and [people] are no longer able to absorb optimum levels of nutrients. Older people often have more access to money and time, delivering discerning and demanding premium consumers who realize they will soon lose the strength and energy to do everything they want to, from exercise to sex. Healthy aging should be promoted as a positive thing.



## Condition – Specific Supplements

Among the numerous vitamins and supplements purchased by seniors, condition-specific products are highly regarded. Seniors embrace alternative forms of natural remedies that attend to common conditions that arise with age. Below are a few supplements that address conditions most common among seniors.

## Longer Lifespans and Better Health

It's quite simple! According to the predominance of the scientific evidence, the higher the levels of glutathione in cells, on average, the longer the lifespan and the better health. Not only is glutathione the master antioxidant that recharges other antioxidants, it is the master detoxifier. Many of the pollutants that we are exposed to are activated in the body to become

more reactive chemicals. The most important way that the body gets rid of these reactive toxic pollutants is by reacting them with glutathione. In addition to being the master antioxidant and master detoxifier, glutathione strengthens the immune system in several ways. Aloe has naturally glutathione.

High levels of glutathione in cells, allows longer lifespan and the better health. Glutathione is the master antioxidant that recharges other antioxidants, it is the master detoxifier. Many of the pollutants that we are exposed to are activated in the body to become more reactive chemicals. The most important way that the body gets rid of these reactive toxic pollutants is by reacting them with glutathione. In addition to being the master antioxidant and master detoxifier, glutathione strengthens the immune system in several ways. Combine aloe vera with selenium and glutathione and protection against oxidative damage.



Selenium is an essential trace element that integrates enzymes, which are crucial for the control of numerous chemical reactions involved in brain and body functions. Selenium has several functions. The principal is its role as an antioxidant in the enzyme glutathione peroxidase selenium. This enzyme neutralizes hydrogen peroxide, which is produced by some cellular processes and that, if not for this would cause damage to cell membranes. It also appears to stimulate the formation of antibodies in response to vaccines and may provide protection against the toxic effects of heavy metals and other substances. Glutathione (GSH) is needed to help neutralize toxins in the liver. GSH does more than just act to destroy free radicals and other toxins; it also serves as a critical signaling mechanism within cells by sensing the presence of oxidative stresses and, in turn, turning on other important protective systems in the cell. For these reasons, GSH can be considered the primary or "master" antioxidant that our bodies were designed to use for protection.

GSH is technically a peptide, which is like a very small protein, and it is made up of three amino acids (cysteine, glutamic acid and glycine) that are linked together. Over the long term, dietary supply of adequate amounts of GSH precursors or GSH itself is required to prevent deficiency. If not corrected, GSH depletion leaves our cells and tissues at enhanced risk for damage due to toxins and toxicants in the environment. Long-term GSH depletion has been associated with increased susceptibility to many diseases and disorders including cancer.

Dietary supplements help make up the shortage. Supplementation is an effective way to help maintain optimal levels of GSH in our cells and tissues. To some extent, both GSH precursors as well as GSH itself can be effective. GSH supplements would seem to be the most efficient way to increase cellular levels of GSH because if significant amounts of GSH are absorbed intact and are biologically active and also if the digestion process breaks down additional amounts of the supplemental GSH into its precursors—which would then be also absorbed and available for recombination into GSH—the inter- and intracellular GSH transport mechanisms would be shifted in favor of increased cellular GSH. For that reason, get longer lifespans and better health with glutathione.

### Prostate Health

Prostate health is a major concern of senior men. Proactively seeking preventive measures can greatly reduce the risk of prostate cancer. Natural products like Saw Palmetto and Nettle Root reduces the growth of benign cells and minimizes the obstruction of urinary flow. Overall studies have shown that these two supplements are effective as preventive measures in managing prostate health.



### Prostate Care

The prostate is a walnut-shaped gland that wraps around the urethra in men. The prostate's main job is adding semen to sperm and as men age, the gland can enlarge and cause benign prostatic hyperplasia (BPH). This condition can cause pain and the inability to empty the bladder completely. Other potential prostate issues include prostatitis, an inflammation of the prostate, and prostate cancer. As a treatment for prostate care, herbs such as saw palmetto, pygeum and grass pollen have all been clinically studied, some with mixed reviews, to help support prostate health. Saw palmetto, the most popular of the three herbs, was shown in a 2016 study published in Research and Reports in Urology to work in the same way and just as well as finasteride, a standard prescription drug used for treating enlarged prostate in men. In another small study, saw palmetto was effective for treating the urinary symptoms of BPH, however, another study found saw palmetto was no better than a placebo.

Pygeum (Pygeum africanum), an extract made from the bark of the Prunus Africana tree, is thought to help reduce swelling and relieve nighttime urination.

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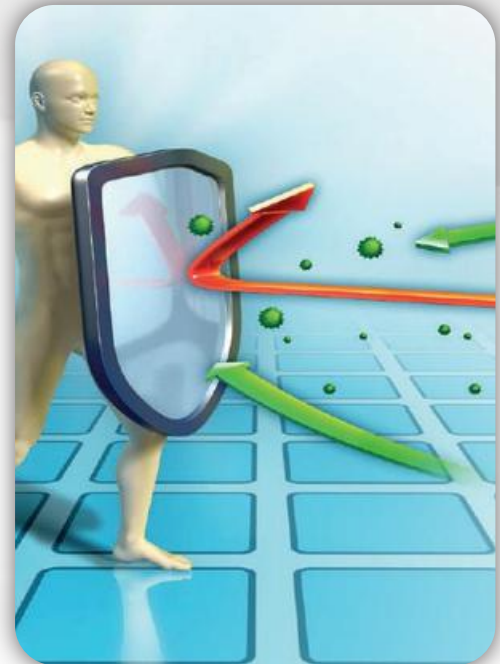
## Hormonal Balance

The challenge to maintain optimal female hormone health remains a crucial issue. As women suffer from hormonal imbalance due to menopause and the transition of age, preventive measures are taken to minimize despondent effects. One of the most popular supplements for hormonal balance is Black Cohosh. This supplement has been reported to be a productive manager of menopausal symptoms and has been acknowledged for its unique estrogen modulating properties. Its ability to support female hormonal changes from one end of the spectrum to the other has made this a highly recommended supplement among women.

## Immune system

Our immune system is a complicated network of cells, tissues, and organs to keep us healthy and fight off disease and infection. The immune system is composed of two major parts: the innate immune system and the adaptive immune system. Both change as people get older. Studies to better understand these changes may lead to ways of supporting the aging immune system.

Innate immunity is our first line of defense. It is made up of barriers and certain cells that keep harmful germs from entering the body. These include our skin, the cough reflex, mucous membranes, and stomach acid. If germs are able to pass these physical barriers, they encounter a second line of innate defense, composed of specialized cells that alert the body of the impending danger. Research has shown that, with age, innate immune cells lose some of their ability to communicate with each other. This makes it difficult for the cells to react adequately to potentially harmful germs called pathogens, including viruses and bacteria.



Understanding the underlying causes of chronic inflammation in older individuals—and why some older people do not have this problem—may help gerontologists find ways to temper its associated diseases.

Diseases are a concern for the aging population as the recovery is longer, and most of the time incomplete, often leading to hospitalization, complication, integration in specialized care centers and ultimately death.

Older adults are at risk for malnutrition, which may contribute to their increased risk of infection. Nutritional supplementation strategies can reduce this risk and reverse some of the immune dysfunction associated with advanced age. Formulate our premium ACETYPOL, who is rich in acemannan and polysaccharides with its proprietary process.



Immune senescence. Although growth hormone, thymic hormones, and cytokine strategies have achieved limited success in reversing the immune dysfunction of advanced age, nutritional interventions have proven to be effective (and inexpensive) strategies to ameliorate immune senescence. This review will examine the clinical data supporting specific nutritional approaches to reverse immune senescence, boost vaccine responses, and prevent infection in older adults.

There appears to be a connection between nutrition and immunity in the elderly. A form of malnutrition that is surprisingly common even in affluent countries is known as "micronutrient malnutrition." Micronutrient malnutrition, in which a person is deficient in some essential vitamins and trace minerals that are obtained from or supplemented by diet, can be common in the elderly. Older people tend to eat less and often have less variety in their diets. One important question is whether dietary supplements may help older people maintain a healthier immune system.

Older people should discuss this question with a physician who is well versed in geriatric nutrition, because while some dietary supplementation may be beneficial for older people, even small changes can have serious repercussions in this age group, with a daily multivitamin or trace-mineral supplement that includes zinc (elemental zinc, >20 mg/day) and selenium (100 µg/day), with additional vitamin E, to achieve a daily dosage of 200 mg /day.



Aloe contains macro and micro-nutrients such as water, carbohydrates, proteins, lipids/fats, vitamins, minerals, trace minerals and electrolytes, enzymes, and accessory nutrients such phenolics and antioxidants, support a healthy life in humans and in animals. Studies show that adequate dietary macro- and micro-nutrient intake promotes health and wellbeing and slows the onset and progression of disease. However, most diets are deficient in these important nutrients due to their general lack of convenient availability in preferable forms.

Aloe nutrient delivery system- The nutritional health and well-being of humans are entirely dependent on plant foods either directly or indirectly when plants are consumed by animals. Plant foods provide almost all essential vitamins and minerals and a number of other health-promoting phytochemicals. Humans require a diverse, well-balanced diet containing a complex mixture of both macronutrients and micronutrients in order to maintain optimal health and good appearance. Macronutrients — carbohydrates, lipids, and proteins (amino acids) — make up the bulk of foodstuff and are used primarily as an energy supply.



Micronutrients are organic or inorganic compounds present in small amounts and are not used for energy, but are nonetheless needed for good health. Essential micronutrients in the human diet include 17 minerals and 13 vitamins and are required at minimum levels to alleviate nutritional disorders, Aloe Vera has it!. Nonessential micronutrients encompass a vast group of unique organic phytochemicals that are not strictly required in the diet, but when present at sufficient levels are linked to the promotion of good health. Most everyone understands the concept of a catalyst, which is that the presence of one element facilitates a good chemical reaction but remains unchanged. Within nature, numerous complexes of chemicals such as phytonutrients exist that assist numerous chemical reactions to take place in the body that do not take place when the individual molecules are isolated from each other.

Botanicals can be the solution to some of these issues by offering immunity and other wellbeing worries, one such botanical that aids in both immunity and wellbeing. The biggest health benefit associated with Aloe is its ability to act as an immune booster. Aloe acts as a carrier when taken with vitamins, minerals, herbs, nutra- ingredients, etc. — it will get the bioactives to your bloodstream faster and keep your body in good performance.

Aloe Vera is also considered an adaptogen which basically means that it has the ability to help the body adapt and resist to practically any induced changes that normally would lead to illnesses. It automatically stimulates defense mechanisms that can cope much more effectively when faced with various forms of stress.

The body expends a great amount of energy keeping itself in a heightened state of readiness. When weakened by prolonged stress--be it caused by lack of sleep, poor diet, chemical toxins in the environment or mental assaults--the body's ability to maintain homeostasis can be compromised, and illness can result. Adaptogenic herbs have traditionally helped prevent the imbalances that can result from stress and have therefore prevented or minimized disease.

Aloe Vera can have an effect on the immune system by helping the body adapt to external and internal stresses that can trigger inflammatory responses. As an adaptogen, Aloe Vera can help the body adapt, reducing blood pressure, strengthening the immune system, calming inflammation and help balance blood sugar.

Aloe provides a unique form of low molecular weight polysaccharides, as we age, our bodies produce less and less energy and fill with stress, and allow have low defense in the body. The low molecular weight fraction is mainly composed of organic acids and their calcium salts, mainly calcium malate and malic acid. In fact, the malic acid content has been used in the past as a marker for quality in Aloe, not only because of its abundance in the Aloe, but also because if the Aloe has been subject to microbial attack during the processing.



### Carbohydrates and the Immune system

Most cells in the body have carbohydrate molecules on their surface. These carbohydrates are often attached to proteins or to fats and act as receptors for bacteria, viruses, or antibodies. The invaders actually use these sugars as fuel to grow, multiply, and attack the cell itself. A small group of very special carbohydrates called mucopolysaccharides, however, actually work to prevent bacteria and viruses from finding binding sites. In fact, they literally trap and destroy them. In addition, they also work to trap and destroy antibodies.

Therefore, it is necessary to prepare our physical to face the any season the right way, strengthening the immune defenses and stimulating the production of antibodies. So your client can prevent cold's winter seasons, and can calmly face the attacks of infectious agents. Aloe Vera is a complete nutritional supplement in which its components have been shown to promote the functions of the immune system and resist attacks from external agents.



### Prepare your ageing clients to prevent season colds

The cold season is the period in which our body is subject to the easiest attacks by bacteria and viruses of influenza. To be prepared to fight diseases cold is necessary to strengthen their own immune defenses, integrating our diet natural substances can stimulate the immune system without disturbing the balance of the body. The winter, cold, wind, temperature changes, coupled with fatigue and stress, can favor the increase in calls winter pathologies that manifest with symptoms like cold, cough and sore throat.

Offer your clients combine Aloe Vera with Echinacea, to create the body fight disease cold. A number of scientific studies have indicated that Echinacea can help support immune function.



Both plants are valuable for its double action, both preventive, because it strengthens the immune defenses, and curative, with regard to their effectiveness in reducing the duration of the disease. Those enhance and support the immune system, especially cold ailments.

Of course, there are many plant extract that you can deal and to offer the market, it depends country by country; other domestic plants can be used with aloe vera.

## Mental Health – Omega 3

For seniors, it is not uncommon to experience forgetfulness and mild memory loss. For normal cognitive function, the brain needs a proper dose of nutrients to absorb and retain new data. As seniors age, the ability to do so slows down. Several studies have shown that Omega-3 supplements can lower the risk of memory loss and age-related deterioration. If taken regularly, it can slow down the swift decline of memory loss associated with Alzheimer and Dementia.

As adults age, the search to live longer and healthier lives continues. The cost of prescriptions can be unbearable, forcing seniors to seek alternative ways to maintain a healthy lifestyle. As seniors become aware of the benefits of incorporating supplements into their everyday dietary routine, the demand for supplements that address age-related concerns increases. Product efficiency and credibility remain crucial in searching for natural alternatives to medications and treatments which poses a challenge to your supplement manufacturer. It is up to them to ensure your product is formulated and packaged correctly to ensure it meets consumer's expectations. As you increase your product inventory, discussing various formulations, testing, and considering multiple targeted packaging options is a great beginning towards establishing your seniors-based product line.

## Brain Food for Older Adults

Studies suggest a diet rich in antioxidants, phytochemicals, and the B vitamins may promote cognitive function in senior patients. Loss of cognitive function often is believed to be a natural consequence of aging, a time during which the brain no longer performs as sharply as it once did in an individual's younger years. Evidence directly linking good nutrition and lifestyle choices to cognitive health isn't as strong, but new research continues to suggest that these two components may prolong brain function. And the compounds showing the most promise in promoting brain health are antioxidants, phytochemicals, and the B vitamins. These free radical fighters are found in supplements such as vitamin C, carotenoids, vitamin E and selenium. Supplementing the diet with antioxidant-rich products, such as ubiquinone (coenzyme Q10), grape seed extract and alpha-lipoic acid can fill in any gaps missed by dietary intake. There have been several studies on ubiquinone and its beneficial effects on cellular function and aging, directly linking the ingestion of coenzyme Q10 to increased lifespan through the reduction of oxidation activities and DNA double-strand breaks in cells.



## Vision and eye health

Clear, central vision is essential for everyday life. However, with age, vision loss becomes a common issue. One concern is the development of age-related macular degeneration (AMD), a condition that causes vision loss over time and is linked to factors such as genetics, smoking and overall nutrition.

Nutrients and antioxidants like vitamin C, vitamin E, omega-3 fatty acids, lutein and zeaxanthin have the ability to prevent cataract development as well as dry eye symptoms. Also, they reduce eye inflammation and are “vital for healthy brain development and retinal function, formulate aloe vera lutein, zeaxanthin and Astaxanthin

Lutein and zeaxanthin are two key nutrients for eye health, both of them are found in high concentrations in your macula, the small central part of your retina responsible for detailed central vision. Lutein is also found in your macular pigment – known for helping to protect your central vision, and aid in blue light absorption — and zeaxanthin is found in your retina.

Though there's no recommended daily intake for lutein and zeaxanthin, studies have found protective benefits at a dosage of 10 mg of lutein per day, and 2 mg per day of zeaxanthin.



## Astaxanthin, a Powerful Promoter of Eye Health

Astaxanthin is a highly effective antioxidant produced by the microalgae *Haematococcus pluvialis*. When the water supply dries up, this microalgae produces astaxanthin to protect itself from ultraviolet radiation. There are only two main sources of astaxanthin: the microalgae that produce it, and the sea creatures that consume the algae, such as salmon, shellfish, and krill.

Compelling evidence suggests astaxanthin may be among the most important nutrients for the prevention of blindness. Astaxanthin easily crosses the eye barrier, and exerts its effects with more potency than any of the other carotenoids — including lutein and zeaxanthin — without any adverse reactions.

Astaxanthin also helps maintain appropriate eye pressure levels that are already within the normal range, and supports your eyes' energy levels and visual acuity. Depending on your individual situation, you may want to take an astaxanthin supplement. 4 mg per day.

## Cognitive Function

Much of the research on vitamin and mineral intake related to cognition is observational and has limited interpretation. Despite this fact, nutrition professionals shouldn't dismiss these studies. For example, a June 2014 study published in BMJ Open by the Alzheimer's Disease Core Center at New York University School of Medicine concluded that vitamin B12, vitamin D, folate, beta-carotene, and omega-3 fatty acids are considered Alzheimer's disease—protective nutrients.

Other nutritional components could be omega-3 fatty acids, antioxidant nutrients, and phytochemicals—especially resVeratrol. Antioxidants and L-theanine may help maintain brain function. Coenzyme Q10 is involved in the energy producing cells in the body—it is concentrated in organs that require a lot of energy for function, such as the heart, brain, liver, muscles.



## Role of B Vitamins in Energy

In addition to omega-3s, antioxidants, and phytochemicals, there's significant research interest in the role B vitamins play in maintaining cognitive health. The B-complex vitamins produce neurotransmitters such as serotonin and regulate energy use in the brain, so it's plausible that inadequate intake could reduce cognition.

## Folate

Folate is involved in energy production in the brain and elsewhere and aids in the production of DNA and RNA—the body's genetic material. Folate availability increases nitric oxide, which protects the arterial endothelium. Increased nitric oxide improves vasoconstriction and vasodilation, or the narrowing and widening of blood vessels that control blood flow. Protecting the endothelium from oxidative damage is a piece of the heart disease and stroke prevention puzzle, though it isn't entirely clear what role this may play in protecting cognitive function. There's some research that shows low folate consumption is associated with reduced cognition.



Folate also donates methyl groups for the production of methylcobalamin, which is involved in the methylation of homocysteine to methionine. When folate intake is adequate, this process moderates homocysteine levels. Low folate consumption leads to an increase in serum homocysteine, which researchers hypothesize is a risk factor for heart disease and is associated with decreased cognitive function in old age. This hypothesis is known as the homocysteine hypothesis.

Folate deficiency also inhibits DNA repair and increases neuron susceptibility to oxidative damage, which may potentially contribute to cognitive decline. The folate recommendation for adults is 400 mcg per day, though there's some evidence that levels above this may be beneficial.



## Vitamin B12 and the Homocysteine Hypothesis

Just as folate plays a role in helping to maintain cognition, so does vitamin B12. In fact, the methylation of homocysteine requires adequate serum B12; therefore, low levels of B12 also lead to an increase in homocysteine. One cohort study of 1,779 people, primarily Mexican-American women in Sacramento, California, found that the dementia rate was highest in the tertile with the lowest plasma vitamin B12, and that elevated homocysteine was associated with greater risk of dementia and cognitive impairment without dementia.

Low vitamin B12, and therefore high homocysteine, is a concern for those eating a vegan diet, since B12 is found only in animal products or fortified foods. However, absorption also influences plasma levels, which often is reduced in older adults. As a result, the National Institutes of Health recommends all adults older than age 50 take vitamin B12 supplements.



## Sarcopenia prevention (loss of lean muscle)

While some men are looking for a leg up on increasing physical strength and muscle bulk, others are looking for ways to help prevent sarcopenia, the age-related loss of muscle mass, strength and functionality that begins as early as one's 30s.

One option that may help muscle strength and size is creatine, a metabolite that is synthesized in the liver, kidneys and pancreas from three amino acids: arginine, glycine and methionine. Once inside the body, it is converted into creatine phosphate and stored in the muscles for energy. Although there is still much debate about how creatine helps enhance athletic performance, two theories are creatine's ability to increase the water content of muscle cells (i.e., intra-cellular water retention) and its ability to also enhance adenosine triphosphate (ATP) production. According to the University of Maryland Medical Center, "during high-intensity, short-duration exercise, such as lifting weights or sprinting, phosphocreatine is converted into ATP," which is then used by the muscles for rapid energy for muscle contraction.



Since the protein in our body is constantly recycled daily, adding a protein supplement to our diet may not only replace broken down protein in our muscles, but also maintain and build muscle mass. Typically, muscle mass is built when muscle protein synthesis exceeds muscle protein breakdown. "Research also shows muscle protein turnover is the greatest after working out and muscle mass increases over time when exercising is combined with nutrient intake". Protein sources such as egg, soy, casein and whey protein have all been shown to improve muscle building with regular exercise training, though whey protein "is beneficial in supporting muscle adaptations due to its rapid absorption rate in addition to casein that has a slower and more sustained rate of amino acid absorption over a few hours". In one randomized, placebo-controlled, double-blind study, involving a whey protein and a total of 161 men and women between 65 and 91 years old, participants gained lean body mass, strength and physical function increased.

Branched chain amino acids (BCAAs) have also been supported by research not only to help increase muscle function, but also to decrease muscle soreness and repair damaged muscles by increasing protein synthesis and decreasing protein breakdown in the muscles .

Many ingredients marketed for healthy-aging products are protein based, as our bodies' need for protein increases as we age. Consumers are becoming more aware of the role that protein plays in muscle maintenance and mobility, so consumer awareness is likely to drive future product development."

Protein is particularly important for maintaining muscle strength and preventing sarcopenia, or age-related loss of muscle mass. While the World Health Organization's recommended daily intake for protein is 0.8 g per kilo of bodyweight a day, many scientists working in the field suggest that 1.2 to 1.3 g/kg/day are needed to prevent sarcopenia.

Normal western diets deliver just 1 g/kg/day. Protein supplementation is really important in this age group, and many food manufacturers see this as an opportunity. Seniors are not so aware of the importance of protein, so this is something we need to educate them on.

Formulate Aloe Vera with protein and creatine and leucine. Aloe Vera expedite the body absorb fairly rapidly the whey protein, importantly for muscle protein synthesis. Protein supplementation, in combination with physical exercise, optimizes muscle protein synthesis and minimizes sarcopenia.

Is time to take the experience of sports nutrition sector with whey protein and formulate now for elder market, into beVerages, bars, meal replacements, and ready meals, as well as yogurts and processed cheese. Be creative to offer different vehicles for incorporating Aloe Vera and protein into the diet.



## Bones and Joints

Bones and joints also weaken as we age, and again there is huge potential for food products that target these body parts, the best joint-support nutrients are glucosamine, hyaluronic acid, and collagen. Several studies have shown a daily intake of 10 g of collagen peptides prevents bone loss and even increases bone mass density

## Calcium

Calcium is the most common mineral found in the body, accounting for about 2% of the body's total weight. The majority of calcium (99%) resides in your teeth and bones and the remainder is found in nerve cells, blood, body tissue and other body fluids. Long associated with the growth and maintenance of bones and teeth, calcium is also essential for the clotting of blood and transmission of nerve impulses. Calcium is also needed for our muscles to function and to release hormones, including insulin. According the USDA 75% of Americans are not meeting the daily calcium requirement.



Calcium is the major mineral that helps strengthen bones – children and teenagers especially need adequate calcium in their diets as the pre-teen and teen years are when they maximize the calcium storage in their bones helping to prevent problems later in life involving a reduction in the amount of bone mass. This is true because peak bone mass and calcium content of the skeleton is reduce during the teen years. Teens, specially girls, are at greater risk for developing weakened bones and having disabling injuries later in life. Bone calcium begins to decrease in young adulthood, and progressive loss of bone calcium occurs as we age, particularly in women. Adequate dietary calcium can help minimize this loss.

Calcium Citrate formula that suppyls your body with 100% of the daily recommended dietary intake (RDI) of calcium. Formulate Aloe Vera as carrier full of nutrients with vitamin D to help promote absorption of calcium and vitamin D.

## Vitamin D

These help in maintaining good bone health. If elderly people are confined indoors and are not exposed to sunshine, they should be given vitamin D supplements. Anemia is another common nutritional problem in old age, and efforts must be made to include iron. Vitamin helps the body absorb calcium, maintain bone density, and prevent osteoporosis.



## Glucosamine sulfate and chondroitin sulfate

Glucosamine sulfate and chondroitin sulfate are two naturally occurring elements that have been shown to help maintain healthy joint functions and mobility. Methyl Sulfonyl Methane (MSM) is a primary source of bio-available sulfur that the body needs to maintain healthy connective tissue and joint function. Glucosamine hydrochloride, chondroitin sulfate and quercetin glycosides and MSM. combined to provide the first line of defense for joint support and less require total joint replacement surgery. Glucosamine, also called chitosamine, is a natural substance that is found in the covering of shellfish. It is available in different forms, including glucosamine hydrochloride, N-acetyl-glucosamine, and glucosamine sulfate, which is a combination of glucosamine and mineral salt.

Glucosamine and chondroitin are part of normal cartilage. Cartilage acts as a cushion between the bones in a joint. During movement, the cartilage that surrounds the ends of bones in joints is subject to breaking down and must be repaired. Cartilage is composed of type II collagen, patients with knee osteoarthritis found that treatment with collagen hydrolysates resulted in a significant improvement in knee joint comfort, can relieve pain, improve joint mobility, and slow down the effects of osteoarthritis-related damage



### Benefit of Aloe Vera for Joint health

1. It has utility as an anti-inflammatory agent.
2. It works as a prophylactic against the gastrointestinal irritant effects of non-steroidal anti-inflammatory drugs .
3. Reduces arthritis pain. Aloe Vera can reduce pain associated with inflammation internally, making it a go-to option for those seeking relief from conditions such as arthritis.
4. Contains glutathione peroxidase (a major antioxidant enzyme, the integrity of the cellular membranes depend heavily on this enzyme. This enzyme is found in large amounts in the cytoplasm of healthy people who are not protein deficient.)
5. Used for joint pain and inflammation
6. Relieves sprained muscles
7. Eases inflammation and soothes arthritis pain.
8. Functions as nature's own "sports drink" for electrolyte balance, making common sports drinks obsolete.
9. Speeds up recovery from injury or physical exertion.
10. Soothe occasional muscle and joint discomfort
11. Aloe reduces inflammation throughout the body, especially in the joints and muscles, and restores tissue to its original state
12. Aloe Vera helps with their stiff, swollen or painful joints.
13. Aloe Vera has been shown to support healthy muscle and joint function in the body.
14. It eases joint pain. Filled with mucopolysaccharides, sugars essential to cell regeneration, aloe strengthens and lubricates cartilage and elastic tissue, reducing inflammation and increasing flexibility.
15. Last, but not the least, Aloe Vera has a powerful anti-inflammatory property and also works well as a pain reliever. It therefore brings comfort to the sore joints and muscles.



Joint health , formulate Aloe Vera with Glucosamine Sulfate , Chondroitin Sulfate and MSM and 250mg of Vitamin C, When combined, Calcium ,Glucosamine Sulfate, Chondroitin Sulfate, Vitamin D and MSM provide the first line of support for healthy joint function, in capsule or liquid are a practical and nutritious way to support joint health, Easier assimilation due to Aloe Vera carrier

## Improve Heart health

According to the World Health Organization, cardiovascular disease causes more than 17 million deaths worldwide each year and is responsible for half of all deaths in the United States. Additionally, after menopause, when women's mortality rate from heart disease increases, men have an even greater risk of heart attacks than women do. They also have attacks earlier in life.

While research is ongoing about why men tend to experience heart disease at younger ages than women, health professionals theorize that contributing factors include poorly treated high blood pressure, unfavorable cholesterol levels and developing atherosclerosis early. Another theory is that after ages 25–30, the average man's "maximum attainable heart rate declines by about one beat per minute, per year, and his heart's peak capacity to pump blood drifts down by 5–10% per decade". This, in turn, causes a 65-year-old man to pump only 1.5 quarts of oxygen per minute, while a 25 year old can pump 2.5 quarts.



Coenzyme Q10 (CoQ10), a natural antioxidant synthesized by the body, may be beneficial in supporting the health of vessel walls, circulatory health, heart muscle function and even normalize the oxidative state of LDL cholesterol. In a 10-year study published in the European Journal of Heart Failure, patients taking 100 mg of CoQ10 three times daily showed supplementation improved quality of life, extended one's lifespan and even restored deficient CoQ10 levels in patients with moderate-to-severe heart failure.

Researchers believe CoQ10 is able to help those with high cholesterol not only because CoQ10 levels tend to be lower in these patients, but also because its antioxidant activity helps fight free radicals, supports proper oxygen use by cells and increases exercise capacity in people with heart failure.

Omega-3 fatty acids are some of the most-researched natural supplements for supporting heart health. Omega-3s support healthy cholesterol and triglyceride levels and slow the development of artery-clogging plaque and blood clots. In a randomized controlled trial, published in the American Journal of Clinical Nutrition, EPA and DHA decreased plasma triacylglycerols (fats in the blood), lowered blood pressure, lessened platelet aggregation (which can cause clog arteries), lowered inflammation and improved vascular reactivity. Some of these heart health benefits may be the result of Resolvin E1 (produced from EPA), which is said to lessen inflammation in studies.

Research suggests garlic may constrict blood vessels, by reducing an enzyme called angiotensin much like an ACE inhibitor drug does to fight high blood pressure and soluble fiber supports healthy cholesterol levels by binding their particles and moving them out of the body before they are absorbed.

Also anthocyanins joined polyphenols as the most marketable mass market phytonutrients followed by flavonoids and resVeratrol. Hydroxytyrosol (especially for heart, reducing arterial plaque formation), French maritime pine bark (especially for circulation, anti-inflammatory, preventing oxidative stress); astaxanthan (especially for heart, lowering blood pressure, preventing oxidative stress) and pterostilbene (especially for heart, lowering blood pressure, preventing oxidative stress) are among the up-and-coming scientifically-supportable phytonutrients. CoQ10 is good aid supplement for cardio/heart health (after fish oil).



Plant sterols and stanols, an important terpene subclass, are naturally found in small amounts in many plant-based foods. Sitosterol, campesterol, and stigmasterol are most abundant in nature comprising 65%, 30%, and 3% of dietary phytosterol intake, respectively. The primary phytosterols in the diet are sitosterol, stigmasterol, and campesterol and typical consumption of plant sterols is approximately 160–400 mg/day. The enrichment of foods with phytosterols is one of the recent developments in functional foods to enhance the cholesterol-lowering ability of traditional food products.<sup>28</sup> Two sterol molecules that are synthesized by plants are  $\beta$ -sitosterol and its glycoside. These compounds have cholesterol-lowering properties resulting from the inhibition of cholesterol absorption. They are now widely used as food fortificants to help lower blood cholesterol and reduce the risk of heart disease. Since dyslipidemia is an important risk factor for heart disease and a common condition in older people, it would be prudent for this population to consider using plant stanol/sterol-enriched food products as part of a healthy diet.

Quercetin, a potent antioxidant. Quercetin, a flavonoid present in the human diet has been shown to inhibit platelet aggregation and signaling in vitro. Consequently, it has been proposed that quercetin may contribute to the protective effects against cardiovascular disease. The study showed relatively high systemic availability of quercetin in the form of quercetin-4'-O-b-D-glucoside by supplementation, and implicates quercetin as a dietary inhibitor of platelet cell signaling and thrombus formation.



## Aloe Vera: Cardiovascular Benefits

Cardiovascular disease is the number-one killer in the United States. Lowering cholesterol is a key prevention in mitigating the risk of heart disease. A number of studies done in the United States and abroad have shown Aloe Vera taken as a supplement can help maintain healthy cholesterol levels. One human clinical study showed that the group taking aloe experienced a 10% drop in total cholesterol. This same study showed a drop in LDL and triglyceride levels to near optimum levels.

Cardiovascular health, as well as metabolic syndrome and related issues like diabetes, is also linked to oxidative stress. A recent placebo-controlled human clinical trial showed that the group taking Aloe Vera had a significant reduction in risk factors associated with oxidative stress, including C-reactive protein, a marker of oxidative stress and inflammation. In the Aloe Vera group, C-reactive protein dropped by 38%, and isoprostanes, compounds formed by the peroxidation of essential fatty acids, dropped by 32%.



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### Benefits of aloe:

- Supports cardiovascular function and heart health
- Helps maintain healthy blood flow
- Improves cognitive function and brain health
- Helps to promote healthy mood balance
- Protects heart and brain from oxidative stress

Formulate with Aloe Vera as carrier with Omega , phitosterols or plant stanol extract, EPA (1,080 mg)/DHA (720mg) , Tocopherol (Vitamin E) supports cardiovascular and brain health by providing a unique and innovative trio of ingredients that work synergistically for maximum support, promote cardiovascular circulation, cholesterol health, brain protection and absorption.



### Improve Blood Circulation

Aloe Vera juice enhances the body's circulatory system by expanding blood vessels and increasing the production of blood vessels that fight disease. The American Chronicle website reports that compounds found in Aloe Vera juice work as natural antibacterial and antifungal agents in the body which help fight disease. Aloe Vera juice also contains amino acids that help the body metabolize fats and carbohydrates, preventing the build-up of fats in the arteries.

- Heart diseases Researchers have found that Aloe Vera easily stimulates the fibroblasts for making new tissues. When fibroblasts are stimulated, proteoglycans, collagens are formed and thus risk of cardio vascular disorders decreases. However, studies suggest that the ingestion of Aloe Vera gel may have a beneficial effect to the accumulation of blood lipids associated with the disease. Test groups given Aloe Vera showed a decrease in total cholesterol, triglyceride, phospholipids and nonesterified fatty acid levels, each of which, when elevated, seem to accelerate the accumulation of fatty material in large and medium sized arteries, including the coronary arteries of the heart

- Support healthy cholesterol
- Animal studies have found that Aloe Vera gel extract provides a natural way to help manage cholesterol and triglycerides.\*<sup>67</sup> Aloe's cholesterol-controlling action is most likely due to its polysaccharide content. However, the plant also contains phytosterols, which compete with cholesterol for absorption, lowering the amount that gets absorbed by the body.

## Glucose metabolism

Glucose management. Attempting to tame the three-headed monster of blood sugar level, insulin sensitivity and carbohydrate intake is the name of the game for all diabetes sufferers. The problem with the natural supplement field for these clients is not a lack of options, but where to start, and on these questions they should always consult their physicians. Because natural remedies for diabetes have such a long history, there is the feeling that there is nothing new under the sun in this area. The arsenal of diabetes/blood sugar regulating nutrients has been pretty well picked over, one fairly new alternative in the blood sugar regulation arena that is worth recognizing is bitter melon.

Earlier this decade, animal studies began to draw a connection between the mechanisms of action of bitter melon and metformin, a leading anti-diabetic drug. The established effects include reducing excessive glucose output from the liver and reducing serum insulin. He emphasizes that freshly produced extracts of bitter melon have performed the best in these trials, and that extracts of commercially cultivated bitter melon have fared less well. On the blood sugar front, a new study presents wild bitter melon as a rival to metformin in regulating blood glucose in diabetic animals.



There are many other options that may directly impact blood sugar levels for the better.

- Combination of L-Arabinose with chromium compound. It may slow the digestion of sugar for effective weight and blood sugar control. As has been noted already, chromium picolinate (the form used in supplements) is a major player in this category with proven benefits. Vast research on chromium in general has demonstrated its benefits for increasing lean body mass and modulating lipid levels.
- The leaves of *Lagerstroemia speciosa* L., commonly known as Banabá or Crepe myrtle, contain significant amounts of corosolic acid, which has a demonstrated ability to lower blood glucose levels. He adds that corosolic acid also possesses tannins that serve to stimulate glucose transport into fat cells.

- Olive leaf extract, in combination with cinnamon, has a proven ability to assist with blood sugar management in type 2 diabetes.
- A component of the Maitake mushroom has been well-studied for its potential benefits to insulin regulation. "The SX-Fraction is a glyco-protein that is unique to the Maitake mushroom.
- Compounds derived from Aloe Vera, promote to help with glucose management. Aloe Vera can reduce the levels of these toxic metabolites. This approach will need a boost in consumer awareness, but that it may represent a new avenue toward reducing some symptoms of diabetes.

### Older and Wiser

People are looking to defy age and stay healthy as long as possible. Processing speed is most often affected early on in the course of cognitive aging. Successful performance in processing tasks often underlies more complex cognitive outcomes, such as memory and verbal ability. As supplement manufacturers search for ways to increase their bottom line, continue to develop products that reflect the latest trends. Should you decide to focus on seniors as a segment market, below are some of the products reported to generate the most attention among this group.

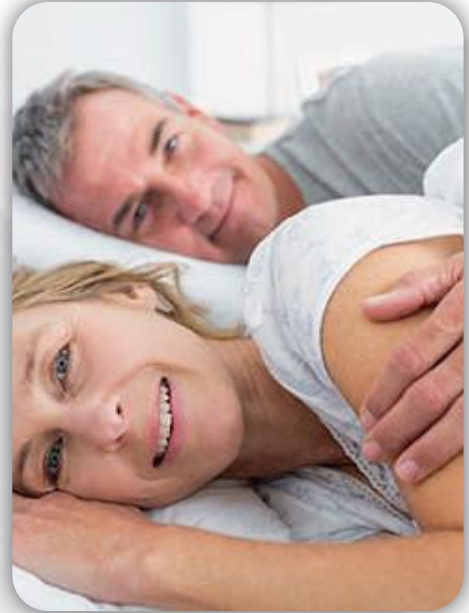
Formulate Aloe Vera with antioxidants, vitamin D3 and amino acids, including carnosine. The use of polyphenol-rich nutritional supplements as a moderator of age-related cognitive decline is the age-related increase in oxidative stress and inflammation



**Sleep issues:** The typical sleep supplement user is a woman over 50. Melatonin levels decline with age. Serotonin production declines with age, and at any age its abundance can be compromised further by stress. Low levels of serotonin are most commonly manifested by depressed mood, anxiety, and insomnia. They can also lead to various other complaints and disorders, diminishing one's quality of life. It is well known that insomnia is age-related. Sleep disorders can be associated with significant medical, psychological, and social disturbances. In addition to fatigue, sleep deprivation can lead to impairment of memory, mood, and immune function, as well as to anxiety, depression, and stress. Nutritional supplements containing 5-HTP, melatonin, valerian root, and choline alleviate these problems by assisting you in getting a good night's sleep. Formulate with aloe as carrier with these functional ingredients and boost the results of your consumers..

The precursor to 5-HTP tryptophan has long been used as a sleep aid. Not surprisingly, evidence suggests that 5-HTP may be effective as well. Recent studies have shown that increased levels of serotonin - obtained by supplementing with 5-HTP - can help reestablish healthy sleep patterns in people with chronic sleep disturbances. Serotonin has even been shown to help ease withdrawal from hypnotic drugs.

One of serotonin's metabolic pathways leads directly to melatonin, widely acknowledged today as the hormone responsible for our wake-sleep cycle. By increasing your levels of serotonin with 5-HTP, you're thus also increasing your levels of melatonin - but probably not sufficiently for an advanced sleep formulation, which is why additional melatonin is recommended. Melatonin has also been found to improve immune function, to help improve stress-induced immune-depression, and to be beneficial for a long list of degenerative diseases.



Valerian root, a Eurasian herb, has long been popular as a natural aid for enhancing sleep. Recently, the extract of valerian root was tested against a benzodiazepine (Valium®-type) drug for sleep and found to compare quite favorably. Valerian can help you fall asleep and improve your quality of sleep, allowing you to wake up refreshed. One study showed that valerian users were more alert, more active, and felt better than before.

Finally, choline is the nutrient precursor to the neurotransmitter acetylcholine, which helps to protect our sound sleep so we don't wake up from every little creak or murmur, or from our spouse turning in bed. Supplementing your diet with these natural substances can help diminish or eradicate sleep disturbances and help restore healthy sleep patterns. Doing that can, in turn, restore many other aspects of good health.

## Digestive health

Getting older has pluses and minuses. On the plus side, you get more time to relax and enjoy life. On the minus side lie many health challenges -- including an increase in digestive health disorders. Of course, problems with digestion can occur at any age. Yet nearly 40% of older adults have one or more age-related digestive symptom each year.

It's that old, familiar feeling: For too many people, digestion woes are a part of their routine. Whether it's heartburn, irritable bowel syndrome (IBS) or one of the many other common digestive tract discomforts, their condition is something planned around and accounted for ahead of time. It can limit what one eats, as well as where and when. Gastrointestinal (GI) difficulty can even be debilitating, and can thus be a limiting factor in one's quality of life.

Those for whom these issues have become too acute to ignore, as well as those who are just sick and tired of dealing with minor bowel and stomach issues here and there, have taken to the natural digestive health market in force.

Supplements for digestive health as enzyme levels decline with age and the diversity of microbiota decreases—so probiotics and digestive enzymes will take on a larger role.



Having noted the uniqueness of each individual's GI tract, it is important to discuss how commonly encountered enzyme deficiencies line up with common digestive symptoms. The four basic digestive enzymes are protease, amylase, lipase and cellulase, and they are responsible for breaking down the molecular bonds of proteins, carbohydrates, lipids and cellulose respectively. When these enzymes are lacking, whether as a result of genetic predisposition or insufficient dietary intake, digestive symptoms like bloating, gas, cramping and diarrhea can occur. Dairy fat and protein can also be a challenge for some individuals, so it is important to consider a complete dairy digestive supplement that includes lactase with proteases and lipases for the most effective result.

Enzymes naturally present in food play an important role by helping to predigest food in the upper stomach. Cooking and processing destroys these natural enzymes. As a result, vital nutrients may not be available to the body, and gastrointestinal problems may result. Formulate Aloe Vera with enzymes to supports the digestive process. Lactase to support the digestion of lactose in dairy products, Bromelain, a powerful protein digesting enzyme, Lipase RO to support the digestion of fat, Protease to support the breakdown of peptide bonds in protein foods and Alpha-amylase to support the digestion of starchy carbohydrates.

Benefits:

- Helps relieve symptoms normally associated with poor digestion\*
- Supports the overall digestive process\*
- Helps the body absorb nutrients\*

## Aloe + probiotics

Enzymes are necessary for digestive health, but probiotics are equally so, and are especially interesting because they're alive. They're already inside us by the billions, so supplementation is merely the addition of more friendly bacteria, with the goal of creating a better balance of flora in the GI tract. Those experiencing symptoms like acid reflux and indigestion, especially those who've just made a major change in diet, may benefit most from extra enzymes. Those with bowel symptoms and irregularity, on the other hand, would do well to try probiotics. Formulate aloe with probiotics, helps with proliferation of beneficial bacteria and suppression of harmful bacteria, zinc, selenium and niacin to help provide intestinal health

Your gastrointestinal (GI) tract is an important system that digests food, absorbs nutrients and eliminates waste. Naturally occurring bacteria help to carry out many of these functions. Poor diet, age, stress, and antibiotic use tend to deplete our natural intestinal flora, leaving us vulnerable to 'unfriendly' bacteria and other toxins. Formulate aloe with probiotics to help replenish 'friendly' bacterial cultures.

Benefits:

- Fortifies the natural digestive system.
- Assists with nutrient absorption and digestion.
- Supports immune system.
- Helps maintain a healthy acid/alkaline balance.
- Helps cleanse and energize the mind and body.
- Aloe to further enhance gastrointestinal health.

One of the major causes is that excessive hydrochloric acid secretion will manifest into various disease conditions. Acid reflux, heartburn, peptic ulcers, functional dyspepsia, and irritable bowel syndrome are all gastrointestinal issues caused or accelerated in part by excessive hydrochloric acid in the stomach. Antacids neutralize the stomach acid but cannot change excessive secretion due to the protective nature of the stomach. Pharmaceutical drugs have been designed to inhibit the signal from the brain to the cells of the stomach that release hydrochloric acid. The best way to solve excessive secretion of hydrochloric acid is to orally consume a good quality Aloe Vera that raises the pH of the stomach within the safe limits.



AMB'S Aloe Vera inner leaf gel powder will raise pH to eliminate discomfort, facilitate healing of the gastrointestinal tract and act as a probiotic for gut health. Antacids come in a variety of over the counter and prescription pharmaceutical forms. Over the counter antacids typically contain calcium carbonate and other alkali to neutralize the acid. By neutralizing stomach acid, antacids actually have a damaging effect by raising the stomach pH beyond the safe threshold of the body. When this occurs the brain receives a signal that the pH is too high and the body responds to release more hydrochloric acid to compensate. This cycle of too high a pH and more hydrochloric acid by the body persists as the sufferer consumes more antacid pills which then reinitiates the process.

Aloe Vera contains a natural buffer system that can restore a healthy level of stomach acid by raising the pH enough to relieve the discomfort of indigestion, but not enough to trigger the release of more acid. Orally administered high quality Aloe Vera powder eliminates the up and down cycle common to antacids. Aloe Vera also functions as a probiotic to promote the growth of good flora in order to optimize digestive function. Millions of bacteria thrive in our intestine and play a vital role in our health, both in our immune system balance as well as in the digestion of many of our dietary components. It has been shown that human intestinal flora metabolizes polysaccharides after ingestion of Aloe Vera.



The daily ingestion of Aloe Vera by healthy individuals aids in the health of the bacterial flora which in turn results in improved health of the digestive system as a whole. This was evidenced by better protein digestion when tested from urine samples. Stomach acid balancing, soothing of the gastrointestinal tract, promoting growth of good bacteria and delivery of Acemannan are some of the properties that have made Aloe Vera the plant of choice for ages. Daily oral consumption of Aloe Vera can eliminate dependence upon both types of drugs commonly used to control excessive hydrochloric acid without any of the negative side effects. To reduce potential contamination of the digestive tract from pathogens it is important to consume properly processed organic Aloe Vera inner leaf gel powder from AMB , is a reputable source. Aloe will raise pH to eliminate discomfort, facilitate healing of the gastrointestinal tract and act as a probiotic for gut health.



Aloe Vera also functions as a probiotic to promote the growth of good flora in order to optimize digestive function. Millions of bacteria thrive in our intestine and play a vital role in our health, both in our immune system balance as well as in the digestion of many of our dietary components. It has been shown that human intestinal flora metabolize polysaccharides after ingestion of Aloe Vera. The ingestion of Aloe Vera by healthy individuals aids in the health of the bacterial flora which in turn results in improved health of the digestive system as a whole. This was evidenced by better protein digestion when tested from urine samples, stomach acid balancing, soothing of the gastrointestinal tract, promoting growth of good bacteria and delivery of the wound hormone Acemannan are some of the properties that have made Aloe Vera the plant of choice for ages.



Daily oral consumption of Aloe Vera can eliminate dependence upon both types of drugs commonly used to control excessive hydrochloric acid without any of the negative side effects. To reduce potential contamination of the digestive tract from pathogens it is important to consume properly processed organic Aloe Vera inner leaf gel powder from a reputable source.

Aloe Vera can be a powerful healing agent when taken internally. It can soothe and repair intestinal tissue that is damaged. Stomach ulcers can also be soothed and repaired with aloe. An aloe remedy should also be considered if there are inflammation issues in the digestive and/or intestinal system.

Digestive health and immune support are two further positioning platforms harbouring much promise for Aloe Vera ingredients.

- Heals stomach ulcers.
  - Treatment for sickle cell anemia.
  - Used for stomachache.
  - Treatment for interstitial cystitis.
  - Contains sodium alginate which is effective in treating acid reflux
  - Sodium alginate also radium,thus neutralizing the effects of radiation poisoning
  - Lowers cholesterol
  - Keeps insulin levels from rising too high after eating
  - Contains iodine that can prevent and treat goiter
  - Lowers high cholesterol.
  - Protects the body from oxidative stress.
  - Alkalizes the body, helping to balance overly acidic dietary habits.
  - Cures ulcers, IBS, Crohn's disease and other digestive disorders.
  - Nourishes the body with minerals, vitamins, enzymes and glyconutrients.
  - Halts colitis, heals the intestines and lubricates the digestive tract.
- 
- Support healthy digestion
  - Balance stomach acidity naturally
  - improve nutrient absorption
  - reduce toxic nitrate levels
  - Soothes the stomach
  - Supports healthy digestion
  - Relieves occasional indigestion
  - Supports nutrient absorption and intestinal health
  - Alkalizes the body, helping to balance overly acidic dietary habits.
  - Nourishes the body with minerals, vitamins, enzymes and glyconutrients.



## Formulation challenges

There are several formulation challenges while attempting to design fortified functional foods for geriatric individuals. Some of the issues include possible chemical interactions between nutrient ingredients, issues related to final product acceptance, product stability, taste and texture concerns, and product shelf-life.

In the development of nutraceuticals for geriatrics, manufacturers should take into consideration that aging is associated with some notable physiological changes, including the loss of taste. Therefore, the incorporation of flavor enhancers and textual considerations should be carefully addressed in premix development for these products. As the taste of the product is of paramount importance for a product to be successful, it is important to pay close attention to flavor intensity, masking any off notes, and addition of colorants. Products can be flavored with herbs and spices, and a number of other ingredients can be included in a premix or finished product to intensify product color or enhance texture to increase product appeal. Additionally, as consumers age healthfully, many are more likely to be taking medications to address certain health conditions, so formulators need to consider potential interactions with common medicines. For example, within the juice category, the interaction between grapefruit juice and some immunosuppressant drugs (statins) used to lower blood cholesterol, and calcium-channel blockers used to treat high blood pressure would suggest that more attention should be placed on fortifying other types of juice applications for this population.



## Make Aloe Vera part of succeed formula

There is no doubt that the commercialization of Aloe Vera (*Aloe barbadensis*) is a success story. Products containing aloe gel is found almost everywhere. Consequently, many different kinds of natural-based industries have a share in the aloe market, most notably the cosmetic, food and beverage and dietary supplement industries. Until recently, the topical use of aloe gel in cosmetics and skin care products emphasized due to the demonstrated moisturizing and wound-healing effects of aloe gel. However, it is the oral use of Aloe Vera in the form of health juices and liquid supplements or tablets or pills, alone or mixed with other rich ingredients made the market boom in recent years.

Interestingly, in contrast to the demonstrated efficacy in the case of dermal application, there is little solid evidence available on the benefits of aloe taken orally. Rather, the success of Aloe Vera in the food and supplement industry is primarily a success of a clever marketing strategy (which the natural cosmetic sector also benefited from).

Introduce our Innovaloe premium line from AMB Wellness to your clients, is ideal for nutraceutical applications, functional beverage and cosmeceutical.

We have big range of Aloe Vera raw materials in bulk, from spray dried powder form until superior instant aloe flakes, from aloe single juice 1X to Aloe Vera concentrate 30X, from 8% to 45% of polysaccharides, or Acemannan of 10% to 25 %. We adjust to your packaging needs.



### Ask for any range of polysaccharides or acemannan

AMB wellness improves your functional marketing value, imparts, and gives a benefit in nutraceutical products.

AMB's exclusive Aloe premium ingredients demonstrates superior quality as well as having the quality of retaining the highest percentage of the beneficial compounds of Aloe compared with freeze dried so you can benefit from all its bioactive ingredients that makes Innovaloe premium, one of the favorites around the world. AMB Wellness has developed the most potent soluble Aloe Vera powder in the industry.

Our powder extracts are 100% water soluble and do not contain any carrier, our Aloe Vera products makes the ideal base for functional beverages, nutraceutical formulations as well as for inner beauty cosmeceuticals applications.

### Boost your sales adding aloe premium ingredients

Add value to your products, create your own niche high value category, there are big opportunities for functional and nutritional value products. Alone or combined with other natural ingredients. Consumers are more focused on higher value, in the products they do consume. They're also much more demanding in terms of a higher sustainability footprint, they're also much more demanding on the product's nutritional, functional and health benefits. Be part of this trend in your market, adding Aloe Vera to your existing product line.



## Aloe Vera is a natural functional ingredient that enhances and supports well-being.

Innovate and formulate with Aloe Vera, be the one in your market and offer beneficial and drive a strategy in nutrition, health and wellness and make a competitive advantage, add your portfolio Aloe Vera ingredients. Consumers are more aware of the nutritional dimensions in their lives and the need for quality of life.

Interestingly, those who are making a strong effort to consume nutrients (including probiotics, vitamins, minerals, herbal extracts. fiber, calcium, organic foods), and to limit additives are also making an effort to eat more fresh foods, suggesting that these emerging fresh advocates could be receptive to fortification of fresh foods.

Consumers buy products with belief they are buying the best quality of life. Today the nutraceutical companies are looking for health ingredients, this is the reason AMB Wellness invite you to trust us as your Aloe Vera Raw Materials Supplier to improve your sales and benefit your consumers.

The growth and development of these new segments add to the diversity of the herbs and botanicals market. There are multiple reasons for this continued gain in popularity. Fundamentally, in many countries throughout the globe, botanicals are the first choice in preventative health, and the costs are not just monetary. Conventional healthcare is costly both monetarily and in many, depressed quality of life results due to side effects.

