



PERSONALIZED NUTRITION USA

Briefing Document

January 2021

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Kline & Company

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▶ KLINE & COMPANY OVERVIEW

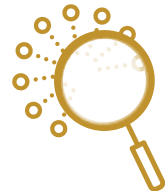


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▶ KLINE FOOD & NUTRITION PRACTICE: FROM “FARM-TO-FORK”



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CHANNELS AND CUSTOMERS

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- [Active Ingredients in Nutraceuticals: Market Analysis & Opportunities](#)
- [Beauty Nutrition: U.S. Market Brief](#)
- [Cannabis in Food & Beverages: U.S. Market Assessment and Opportunities](#)
- [Clean Label in Food & Beverages: Perception vs. Reality](#)
- [Food Indies: Analysis of Booming Independent Food and Beverage Companies](#)
- [Nutritional Supplements Market in the United States](#)
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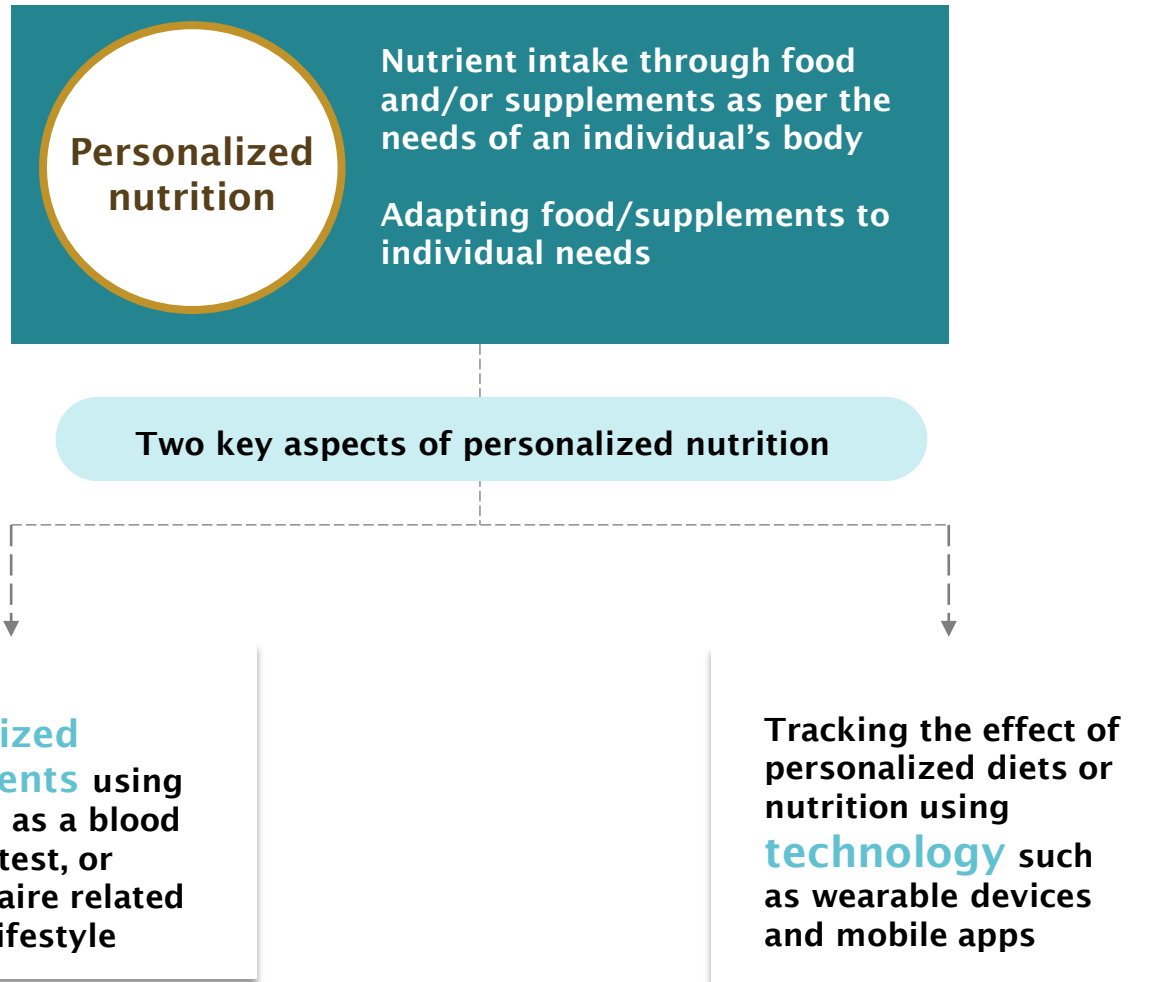


Introduction

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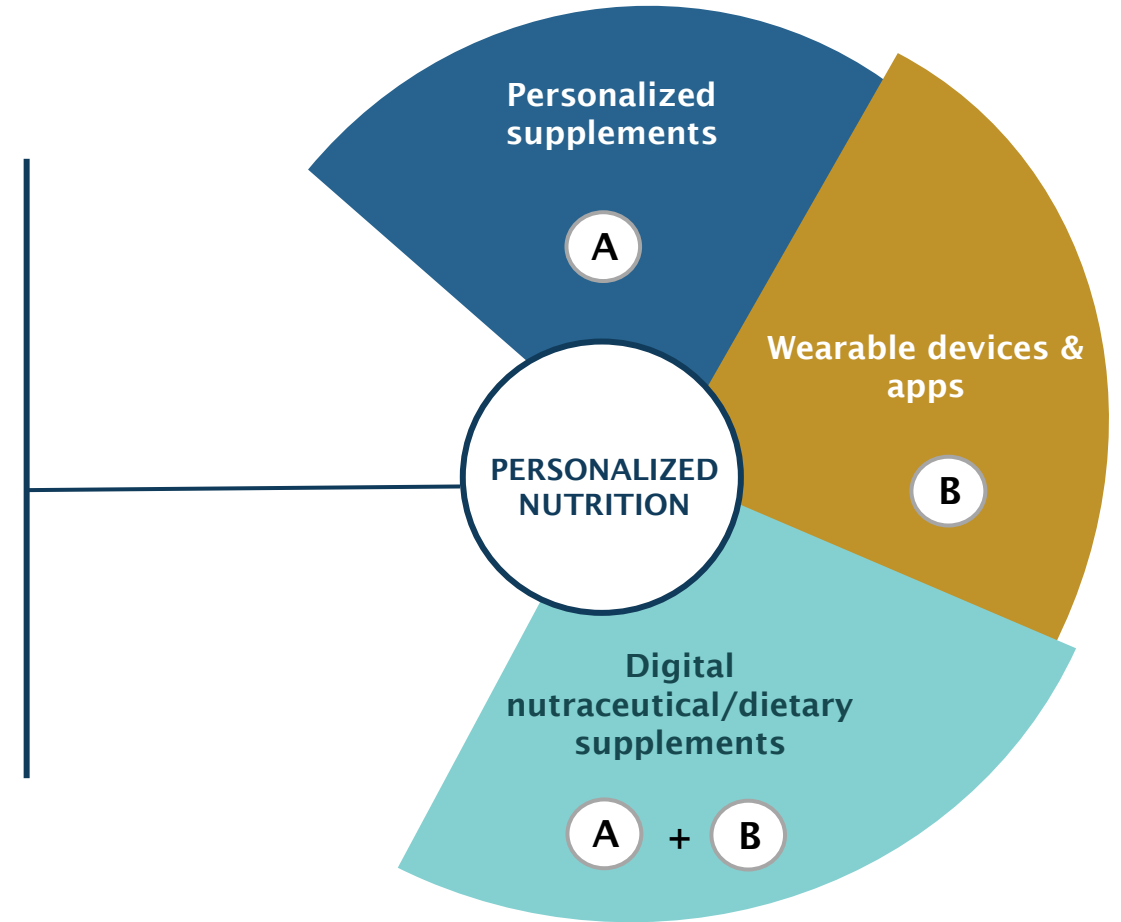
INTRODUCTION



- Traditionally, nutrigenomics was only used to assess specific medical conditions; today, it is a rapidly developing field with specialists who can judge how people react to different foods, resulting in the ability to offer personalized nutrition to consumers.
 - Personalized nutrition utilizes easily accessible and affordable tests such as DNA tests, blood tests or questionnaires related to a user's lifestyle.

➤ INTRODUCTION (continued)

Food Navigator* states that 67% of U.S. consumers say they are willing to customize their supplements based on DNA tests. Consumers are not only adopting personalized nutrition but also the technology that would aid or enable them to track the effects of nutrition (e.g. specific supplements) on their body. This gives rise to three new opportunities (three new markets) in the personalized nutrition space.



*Food Navigator is an online news source for the food industry, owned by publisher William Reed.

➤ INTRODUCTION (continued)

- The current market for personalized nutrition is relatively small; however, it presents a promising scope for future development and exponential growth given the aging population and growing consumer interest in personal ownership of one's health and wellness
- To date, the personalized nutrition market has been dominated by startups and fast-moving consumer goods (FMCG) companies that are experimenting with various technologies and products.
 - The vibrant startup scene and active venture capital investors have led to widespread innovation in food technology, and U.S. consumers are generally eager to use the industry's new offerings.
- As per the Council for Responsible Nutrition survey in 2019, a significant number of consumers in the United States are leaning toward personalization in terms of adopting personalized nutrition/supplements.
 - The survey pointed out that millennials are the demographic most interested in this trend.



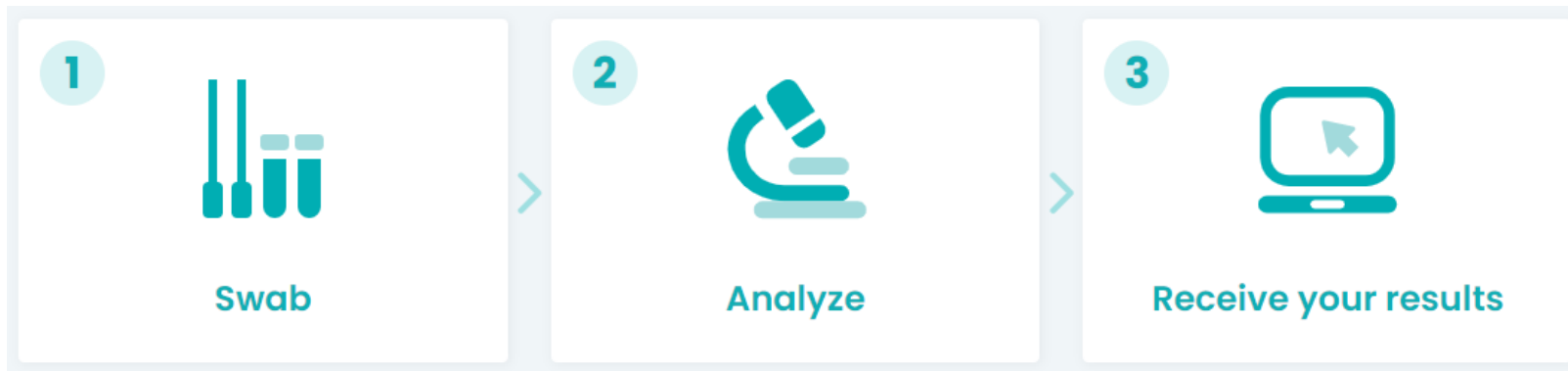
Source: Council for Responsible Nutrition Survey 2019

INTRODUCTION (continued)

- Personalized supplement companies first collect consumers' data through blood tests, DNA tests, or questionnaires based on consumer lifestyles.
 - This data is utilized by a team of nutritionists in the company to create/recommend personalized nutrition for consumers.
 - Some companies offer their own blood tests, DNA test kits, or questionnaires, while others use third-party companies. There are a variety of companies offering these DNA test and blood test kits to consumers.
 - Blood tests require the consumer to give a sample of their blood; DNA tests require the consumer to perform a saliva cheek swab.




Blood test kit by Baze, a personalized supplements company



DNA test kit by AncestryDNA, a DNA kit manufacturer

Tools

- › **Blood Tests**
 - › **DNA Tests**
 - › **Questionnaires**
 - › **Wearable Devices and Mobile Apps**
 - › **Digital Nutraceuticals/Dietary Supplements**
 - › **Other Potential Advanced Technologies**
- 

TOOLS: BLOOD TESTS

Market Players



rootine

ancestry



Baze

- Blood tests are one of the most basic and standard measures of tracking overall physical well-being.
 - They are often a standard part of routine and preventive healthcare, often prescribed by doctors.
 - Blood tests are used to broadly measure various biomarkers including cardiac, tumor, coagulation, infectious disease, immunology diseases, and neurology.
- Companies are expanding their capabilities to offer a more complex variety of testing to consumers with the goal of providing more accurate and personalized recommendations.
 - InsideTracker expanded its product portfolio in 2020 via a DNA Test Kit that analyzes DNA and blood together. The new InsideTracker DNA Kit provides an at-home test kit, personalized DNA report, and depth of genetic testing that includes 29 wellness traits based on 261 genetic biomarkers in five areas: weight, sleep, food sensitivities, aging, and performance.
 - In August 2020, Baze innovated by leveraging its team’s mathematical, pharmaceutical, and medical backgrounds. In August 2020, Baze received the patent for its “feedback loop-approach,” allowing the company to continuously assess the consumers’ biological and lifestyle input that can re-analyzed after it is put back in the recommendation engine.

TOOLS: DNA TESTS

Market Players



- DNA tests for personalized nutrition have exploded in popularity. With a simple saliva cheek swab, users can optimize their nutrition based on their genetic profile.
 - Competitors are offering comprehensive reports and expanded insights for doctors and nutritionists to make evidence-based recommendations to meet their client’s individual nutritional needs.
 - Some of the key indicators that companies have been offering include genetic markers known to have an impact on nutrient metabolism, food intolerances, weight management, eating behaviors, and cardiometabolic health and wellness, along with genetic insights with a focus on inflammation and antioxidant capacity, sleep, and alcohol sensitivity.
 - In addition to the above DNA testing markers, some companies, such as AncestryDNA, 23andMe, and Vitagene, are also providing ancestry reports.
 - Competitors vary in their offerings, which can include any combination of nutrient reports, supplement plans, and meal plans, as well as reports covering fitness, beauty, hair, and aging.
- In August 2020, Nutrigenomix launched a comprehensive new report which increased its panel of validated markers to 70 genes. This was significant progress for the company from its seven-gene test, which it has been offering since its launch in June 2012.

TOOLS: QUESTIONNAIRES

Market Players



- Questionnaires are a long-standing and easy-to-use tool adopted by many vitamin subscription companies.
 - Based on information obtained via the questionnaire, the vitamin subscription companies give a personalized recommendation of vitamin packs and dietary supplements, which are delivered monthly.
 - Vitamin subscriptions are ideal for personalization, as they give consumers confidence in starting a new regimen that is designed especially for them.
 - Many vitamin subscription companies, such as Persona, Ritual, Care/of, Routine, and Vitafive, offer vitamin subscription services that take into account demographics, allergies, and health goals.
 - Most of these companies do not offer access to healthcare professionals, but some are beginning to do so. They include Personal Nutrition and HUM Nutrition.
- In May 2020, Pharmavite, the manufacturer of Nature Made Vitamins, launched monthly vitamin subscription service Nurish. It features data based on individual assessment inputs such as age, diet, lifestyle, fitness, wellness goals, general health, and environmental factors.

TOOLS: WEARABLE DEVICES AND APPS

Market Players



- Although the industry for wearable devices began with fitness trackers in the form of fitness bands, offering basic functionality such as the wearer's movement, sleep patterns, and calorie expenditure, it is now associated with smartwatches. They offer new initiatives in the form of smart glasses, hearables, and smart clothing.
- The differentiation between **fitness trackers** and **smartwatches** is blurring.
 - The market for fitness trackers has almost transformed into the smartwatch market, with marketers introducing watches enabled with fitness trackers, offering dual functionality in a single device. The shrinking popularity of fitness trackers can be attributed to the rapid replication of their unique selling propositions (USPs) in smartwatches.
 - Smartwatches is the larger category, with devices offering various functionalities such as apps and the ability to remotely control smartphones to, for example, receive and make calls and listen to music.
 - The new generation of smartwatches, introduced in 2019 and 2020, feature increased functionalities; some include the ability to monitor blood oxygen level (similar to an oximeter), cardiac performance, skin temperature, and stress levels.
 - Fitness trackers offer lesser functions than a smartwatch, with a focus on tracking fitness levels with perhaps a few smartwatch features as a bonus.
- These wearable devices, considered by some to be a fad, have played an instrumental role in making consumers conscious of their health with the ability to track their vitals and their health and wellness practices.

TOOLS: WEARABLE DEVICES AND APPS (continued)

- **Smart glasses**, equipped with augmented reality (AR) and virtual reality (VR), are being touted as the next big breakthrough for wearables devices.
 - The concept was brought to light with the Google Glass, which failed miserably in the commercial market but successful in the healthcare industry, becoming a common feature in teaching hospitals.
 - While established marketers are still waiting it out to build on this market, startups have emerged with their own devices, offering the ability to track fitness, listen to audio without headphones, and activate smart assistants.
 - Solos is being a cyclist's best friend with its ability to offer a variety of data in real time, including speed, cadence, heart rate, and power zones.
- **Smart clothing** is still a niche market, but the growing popularity of these products reflects an interest in fitness-focused, sensor-embedded, and Internet-connected clothing from the mass market.
 - The market for smart clothing is not only restricted to sports and fitness; there is demand in the healthcare and defense sectors, where monitoring of body activities is continuously required.
 - Due to the growing demand generated by startups, established tech giants such as Google and Samsung are racing to establish their dominance of the emerging market.
 - Hexoskin's smart shirts, equipped with built-in sensors that capture physiological details such as respiratory and cardiac activity, blood pressure and skin temperature, have been instrumental in monitoring consumers' vitals as they quarantined at home during the COVID-19 pandemic.
- With the evolution digital capabilities, **skin patches**, once a simple device, have evolved to facilitate more complex functions while being thin and flexible.
 - iRhythm, based in San Francisco, is considered one of the market leaders in the space. It offers the Zio single-use patch that monitors the heart rhythms for up to 14 days remotely.



Solos Smart Glasses, launched in 2020



iRhythm Zio

TOOLS: WEARABLE DEVICES AND APPS (continued)

MERGERS AND ACQUISITIONS

| COMPANY | DEVELOPMENT | MONTH-YEAR | DESCRIPTION |
|-------------------|-------------|---------------|---|
| Alphabet (Google) | Acquisition | November 2019 | Alphabet's Google acquired smartwatch maker Fitbit for USD 2.1 billion in all-cash deal. |
| DSM | Acquisition | November 2019 | DSM acquired AVA, a Boston-based company that offers a digital, personalized nutrition platform. |
| Alphabet (Google) | Acquisition | January 2019 | Alphabet's Google acquired some of Fossil's smartwatch technology and members of the Research & Development team responsible for creating it. The deal cost the company USD 40 million. |



TOOLS: WEARABLE DEVICES AND APPS (continued)

NEW PRODUCTS

- At its annual launch event, **Apple** unveiled the **Apple Watch Series 6**, equipped with features including a blood oxygen saturation sensor to calculate SpO2 levels; an ECG similar to a single-lead electrocardiogram, capturing periodic background measurements during sleeping and inactive stages; sleep tracking capabilities; an altimeter; and a 20-second handwashing timer.
- At the Galaxy Unpacked event on August 2020, **Samsung** launched the **Samsung Galaxy Watch 3**, which includes a variety of fitness tracking features and can monitor blood pressure, blood oxygen saturation, and heart rate condition; it also includes an ECG.
- The new **Fitbit Sense**, launched in August 2020, boasts all-day activity tracking, monitors heart rate, tracks ECG and stress, and measures skin temperature. Another launch by Fitbit was the **Versa 3**, equipped to measure all-day activity tracking, sleep tracking, and sleep score; it also features guided breathing sessions, and monitors the heart rate.
- In July 2020, **Garmin** refreshed its **Fenix 6**, **Instinct**, and **Tactix Delta** ranges to offer solar charging as an additional feature. The new solar edition of Fenix 6 and 6S feature additional modes including Surf, Mountain Biking, and Climbing, providing specific metrics and measurements for these activities. Also included in these models are detailed sleep tracking, Pulse Ox measurements, and TopoActive Maps.



In September 2020, Apple launched the Apple Watch Series 6.



In March 2020, Oppo launched the Oppo Smartwatch.



In July 2020, Garmin launched the Fenix 6X Pro Solar.

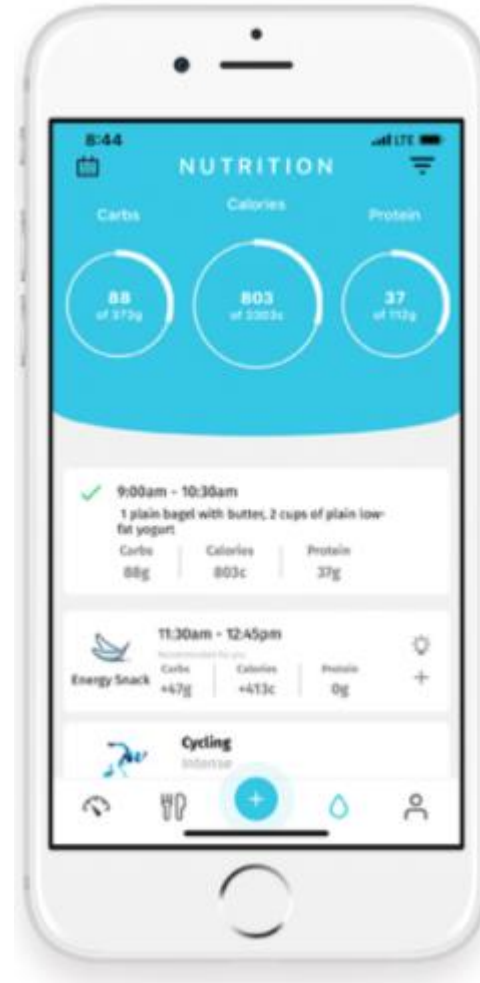


In August 2020, Fitbit launched the Fitbit Sense.

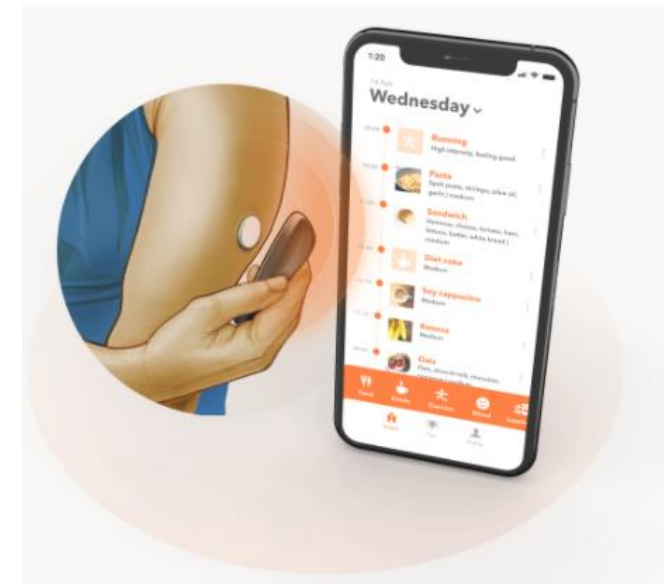
TOOLS: WEARABLE DEVICES AND APPS (continued)

NEW PRODUCTS

- In April 2020, **Zoneln**, a sports nutrition app, expanded its consumer base by making itself available to consumers. The platform uses biometric and training goal data to calculate and make recommendations for meals and drinks that meet micronutrient needs of the consumer throughout the day.
- Launched in March 2020, **the Clear Health Program** continuously tracks the health of a user through a patch and app. The company provides various services such as data analysis, a personalized diet, coaching, recipes, reminders, and suggestions; it also introduces them to a community of other like-minded users.
- In March 2020, smartphone manufacturer **Oppo** entered the smartwatch category with the **Oppo Smartwatch**. The watch focuses on fitness and health with various exercise sensors to measure pace, steps, and heart rate. It also tracks sleep and women's menstrual cycles.



Zoneln App



The Clear Health Program

TOOLS: DIGITAL NUTRACEUTICALS/DIETARY SUPPLEMENTS

- Digital nutraceutical and dietary supplements are the next advanced stage in personalized nutrition; the effect of any specific supplement can be tracked using wearable devices or mobile apps.
 - Monteloeder is the first mover to successfully commercialize this combination, focusing on the popular weight loss market.
 - Via its mobile app, the firm is able to detect and track the effect of its Metabolaid ingredient on the consumer.
 - Consumers can track product benefits with the app, which sends notifications to the consumer if the desired weight loss is not achieved; the messages suggest possible reasons such as low physical activity or lack of sleep.

Market Player



Monteloeder

Digital Nutraceuticals for you



Monteloeder's Metabolaid product and Mobile App

TOOLS: OTHER POTENTIAL ADVANCED TECHNOLOGIES

- Other emerging concepts that may be used in personalized nutrition in the future are ingestibles and embeddables.
 - Currently, such concepts are utilized in medical processes such as endoscopies.
 - Considering the rate at which the health and fitness industry and related technologies are growing, it is possible that the future may bring these artificial intelligence (AI)-based concepts to the personalized nutrition industry.

Ingestibles: Small objects that can be swallowed and then transmit digital signals to outside computers

Embeddables: Miniature devices that are inserted under the skin or deeper into the body



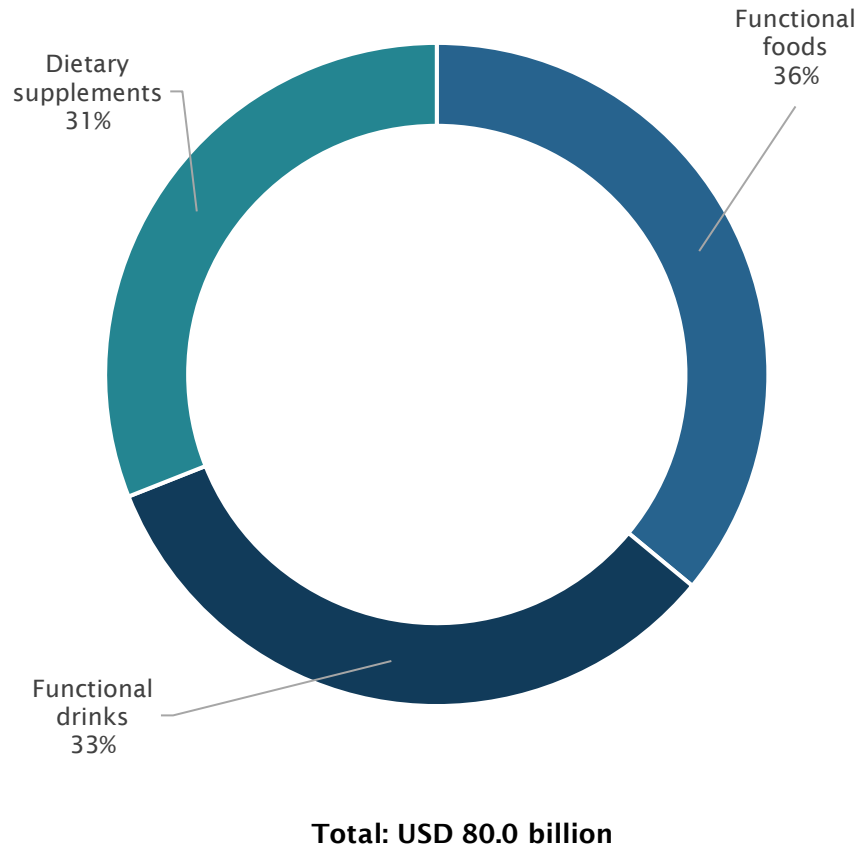
Nutraceuticals

- › Introduction
- › Dietary Supplements
- › Ingredient Trends



INTRODUCTION

UNITED STATES NUTRACEUTICALS MARKET BY SEGMENT, 2019



- In 2019, the United States was the world's largest nutraceutical market, estimated at around USD 80 billion.
 - The market is comprised of three classes of products: functional foods, functional beverages, and dietary supplements.
- Along with the promise of a health-promoting diet, functional foods also offer taste, convenience, and other benefits to consumers.
 - In this category of nutraceuticals, prebiotic and probiotic are the fastest-growing functional foods, driven by growing digestive health concerns in the country.
 - Some examples of functional foods include fortified flour, oil, malted powder, and breakfast cereals.
- Functional beverages are mainly comprised of sports and energy drinks, fortified juices, glucose powders, vitamin waters, yogurt and dairy drink, and more.
 - Sports and energy drinks are the largest-consumed products in this category in the region and the fastest-growing class of functional drinks, driven by a growing awareness of health and active lifestyles among the younger demographics.
- Dietary supplements are products based on nutrients derived from food products and are often concentrated in tablet, capsule, powder, or liquid form.
 - In this category, vitamins, proteins, and minerals are the largest consumed products in the United States.
 - Within this category of nutraceuticals, prebiotics, probiotics, and enzymes are the fastest-growing class of supplements, driven by rising digestive health concerns and additional health benefits recently discovered. Polyphenols, which are herbal extracts/botanicals, follow closely due to their natural profile.

Source: Kline's Nutraceuticals Actives 2020 Report

DIETARY SUPPLEMENTS

Market Players



Source: Kline's Nutraceuticals Actives 2020 report

- Heightened focus on health and wellness and consumer belief in the benefits of nutritional supplements continue to drive growth of the supplements market.
 - Changes in eating habits have resulted in growing demand for healthier products at convenience stores, as consumers slowly move away from three sit-down meals at fixed times and go toward multiple small meals throughout the day. This trend is especially well-pronounced in young adults, who prefer easy-to-prepare meals for their busy lifestyle.
 - The modernization of lifestyle in the last two decades has resulted in poor diets and led to malnutrition, a high obesity level, and increasing occurrence of chronic and infectious diseases. It is relatively common that people do not reach their nutritional needs from food, hence the need to consume dietary supplements.
 - According to Kline's Nutraceuticals Actives 2020 report, the monthly premiums for individual health insurance coverage without subsidy have increased from USD 271.0 in 2014 to USD 440.0 in 2018, growing at 13.0% CAGR. With the uncertain healthcare insurance and the payer system undergoing major changes, the use of supplements to support a healthier lifestyle or aid in the prevention of diseases has increased. Nearly two-thirds of consumers use nutraceuticals now more than they did five years ago.

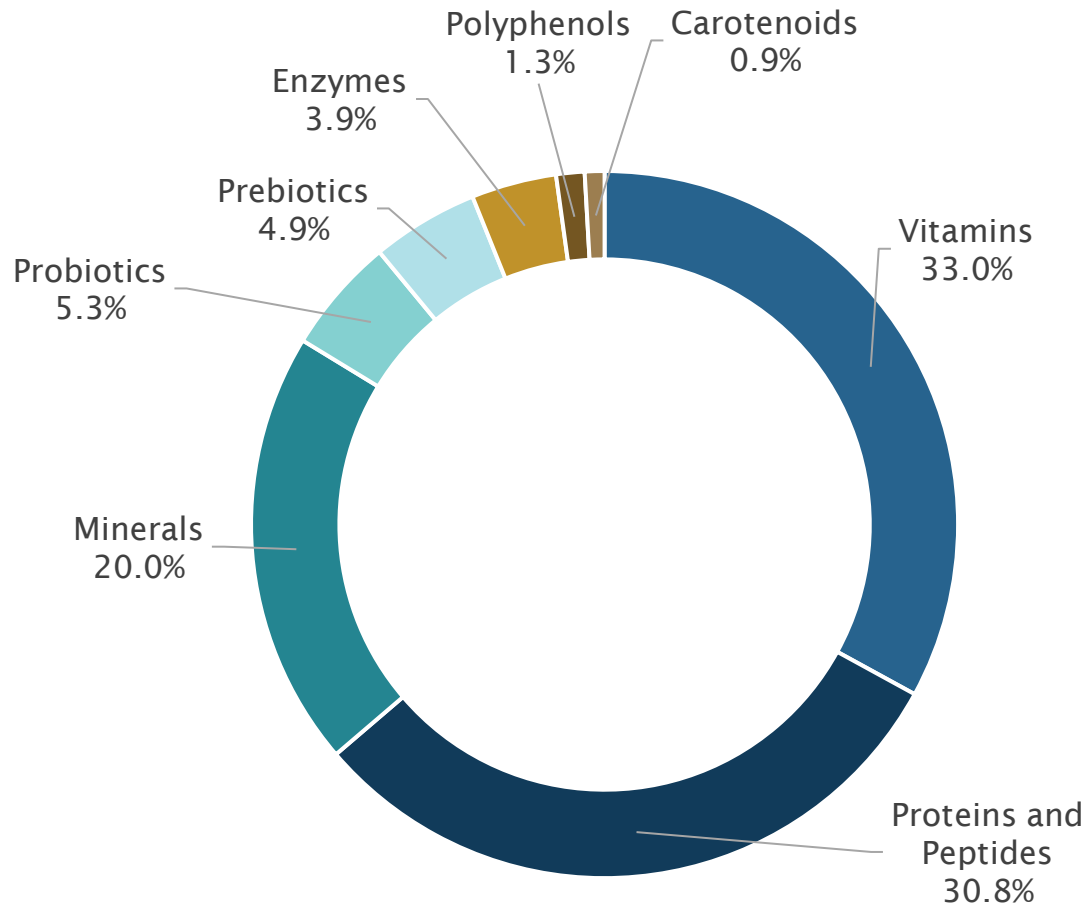
▶ DIETARY SUPPLEMENTS (continued)

- Dietary supplements have become increasingly popular among consumers seeking natural solutions to various health ailments. These natural supplements, as opposed to pharmacological solutions, are a natural way of treating or preventing a variety of illnesses related to gut health, gastrointestinal, and cardiovascular conditions, along with immunity deficiency and more.
- The major health benefit addressed by nutraceuticals' active ingredients in the United States is metabolic system support.
 - Proteins are the key to metabolic system support since they promote muscle recovery and growth. Also, some enzymes are used to address metabolic issues and are used as weight loss promoters. Minerals such as potassium, magnesium, and iron play an important role in the metabolism and the proper functioning of cells and blood.
- Immunity-booster ingredients are the second main health benefit of nutraceuticals' active ingredients in the United States.
 - The key actives focusing on this health benefit are vitamin D, vitamin C, some vitamin Bs, zinc, selenium, iron, magnesium, polyphenols, and others.
- Gastrointestinal or digestive system health is the third main benefit of nutraceutical active ingredients in the United States.
 - Enzymes, probiotics, and prebiotics are the key active ingredient categories favoring digestive health.



DIETARY SUPPLEMENTS (continued)

U.S. NUTRACEUTICAL ACTIVES MARKET BY CATEGORY BY VALUE, 2019



Source: Kline's Nutraceuticals Actives 2020 Report



NEW INITIATIVES

- In late 2019, Vitamin Shoppe introduced a new store concept that engages consumers with technology-driven personalization.
 - The new Innovation store, launched in New Jersey and covering an area of 3,000 sq. feet, offers interactive elements, such as on-demand digital product guides, mobile POS checkout, a designated area for consumers to take the “Only Me” health assessment, a free body composition analysis station, and a supplement sampling machine.
 - The store also offers CND Central and Keto HQ sections along with service programs such as a free nutritionist consultation.



DIETARY SUPPLEMENTS (continued)

MARKET DEVELOPMENTS

| COMPANY | DEVELOPMENT | MONTH/YEAR | DESCRIPTION |
|---|----------------|----------------|---|
| Viome | New Initiative | September 2020 | Viome launched Viome Precision Supplements, an individualized supplements formula based on the consumer's cellular, mitochondrial, and gut microbiome health data. The company is considered to be the first to include at-home retesting two-three times a year, allowing consumers to track their improvement in their health markers and get new formulas based on the body's reaction. |
| Thorne Research and Onegevy Health | Partnership | September 2020 | Supplement manufacturer Thorne Research and its testing affiliate Onegevy Health have partnered with Trifecta to offer a meal delivery service for seamless nutritional support to its consumers. |
| Pharmavite | New Initiative | May 2020 | Pharmavite, the manufacturer of Nature Made Vitamins, launched Nurish, a monthly vitamin subscription service, with data based on individual input. |
| Baze | New Initiative | January 2020 | In order to differentiate itself from others, Baze launched the Baze Marketplace, offering consumers recommendations and manufacturers merchandizing experiences. This is being done through biometric analysis with samples collected through blood tests. |
| DSM and Panaceutics | Partnership | October 2019 | The two companies have partnered to develop personalized nutritional gels and purees by offering the benefits of multiple pills in a packet of puree. |
| GNC Holding | New Initiative | October 2019 | GNC launched its new personalized wellness program GNC4U, a monthly subscription service that offers vitamins and supplements specifically developed for the consumer's needs. The company allows consumers to share genetic information via a GNC4U DNA test kit or provide previously sourced DNA information, which is utilized to create personalized products. |
| The Vitamin Shoppe | New Initiative | September 2019 | The Vitamin Shoppe, retailer of nutritional products, launched ONLY ME, a personalized online assessment to create wellness regimens customized to an individual's health and lifestyle needs. It utilizes a detailed questionnaire about current health status and daily routines to curate a wellness plan for everyone. Along with it, high-quality products from The Vitamin Shoppe are also suggested. |

DIETARY SUPPLEMENTS (continued)

MERGERS AND ACQUISITIONS

| COMPANY | ACQUISITION | MONTH/YEAR | DESCRIPTION |
|-----------------------|--|----------------|---|
| Bayer | Bayer acquired a majority stake in Care/of | September 2020 | German pharmaceutical company Bayer acquired a majority stake in Care/of, a New York-based vitamin and supplement startup. The acquisition would include Bayer holding 70% of the business share, which is projected to be worth \$225 million. |
| Nestlé Health Science | Nestlé Health Science's Atrium acquired LivingMatrix | January 2020 | Nestlé Health Science's Atrium Innovations acquired LivingMatrix, a personalized functional medical platform that utilizes technology-based data and algorithms to leverage healthcare providers. |
| Royal DSM | Royal DSM acquired AVA | November 2019 | Royal DSM, a global science-based company in nutrition, health and sustainable living acquired AVA, a Boston (U.S.)-based personalized nutrition platform that provides nutrition and coaching recommendations across a wide range of health and wellness segments. |
| Nestlé Health Science | Nestlé Health Science acquired Persona | August 2019 | Nestlé Health Science, a global leader in nutritional science, expanded into personalized nutrition with the acquisition of Persona, a leading personalized vitamin business. |
| Viome | Viome acquired Habit | February 2019 | Viome, a Seattle-based wellness startup, acquired Campbell Soup Company's personalized nutrition company, Habit. Habit develops nutritional recommendations based on an individual's biology, metabolism, and personal goals. |

INGREDIENT TRENDS

MELATONIN

- Consumers are increasingly interested in sleeping products, resulting in greater demand for melatonin, a key ingredient used in sleeping aids.
- Surveys suggest that insomnia ranks among the top five issues for many Americans.

TURMERIC/CURCUMIN

- Turmeric/curcumin is being largely promoted as a dietary supplement for a variety of conditions, including arthritis, digestive disorders, respiratory infections, allergies, liver disease, and depression.

PROBIOTICS

- Up to 2017, the demand for probiotics in the nutraceutical ingredients market was rapidly increasing, mostly due to their gut health benefits. However, growth slowed in 2018 and even more in 2019. Now, the COVID-19 pandemic is seemingly boosting demand as people attempt to enhance their gut immunity.

ADAPTOGENS

- The demand for adaptogens, including ashwagandha, rhodiola, maca, and holy basil, is on the rise, not only among dietary supplement manufacturers but also among food and beverage formulators.
- Adaptogens have the unique ability to resist the damaging effects of stress and promote or restore normal physiological functioning.

PREBIOTICS

- Prebiotics are non-living, non-digestible fibers that work in the gut, feeding good bacteria and encouraging them to grow.
- Prebiotic active ingredients reduce digestive problems and help ensure high immunity by promoting the growth of beneficial bacteria in the gut. They may also lower cholesterol.

POLYPHENOLS

- Exotic sources of polyphenols and flavonoids, like berries, pomegranate, olives and olive oil, potatoes, beans, soy, nuts and seeds, oats, wheat, herbs and spices, are gaining momentum.

INGREDIENT TRENDS (continued)



- CBD is known to provide a variety of benefits including anxiety relief and pain relief, plus anti-seizure, neuroprotective, anti-inflammatory, and anti-acne benefits.
- The Hemp and Hemp-Derived CBD Consumer Protection and Market Stabilization Act of 2020 has been introduced to the FDA to clearly regulate framework for hemp and hemp-derived CBD and assure consumer protection. The legislation would also allow for hemp and hemp-derived CBD to be legally marketed in dietary supplements.



- The demand for collagen is being driven by the never-ending desire among consumers to look and feel younger, boosted by the growing demand for anti-aging products in the beauty industry.
- Collagen is the most abundant protein in the body and one of the major building blocks of bones, skin, muscles, tendons, and ligaments. It is also found in blood vessels, corneas, and teeth. There are at least 16 types of collagen.



- Nootropics, or brain-boosting ingredients, have been gaining attention among college-goers and beyond.
- Prebiotic active ingredients reduce digestive problems and help to ensure high immunity by promoting the growth of beneficial bacteria in the gut. They may also lower cholesterol.

Outlook & Opportunities

› Outlook

› Opportunities



OUTLOOK

- Although personalized nutrition offers noteworthy potential, the field has yet to be clearly delineated, with the term “Personalized Nutrition” lacking an agreed-upon definition.
 - The recently formed American Nutrition Association has proposed a new definition for “Personalized Nutrition”: “Personalized Nutrition is a field that leverages human individuality to drive nutrition strategies that prevent, manage, and treat disease and optimize health.”
- Consumer education will be a key step to aid market development.
- Although consumers are warming up to the idea of DNA-based nutrition, there are challenges that the industry will need to address.
 - There is a lack of awareness of DNA testing, coupled with lack of knowledge of the benefits to both consumers and health practitioners.
 - Due to privacy concerns, consumers are wary of sharing their health information
 - Although the pricing for DNA tests continues to decline, these tests are still not affordable or viewed as essential by consumers.
- To date, the personalized nutrition market has been dominated by startups and FMCG companies that are experimenting with science, technology, and products.
 - Startups have been at the forefront, benefitting from robust VC investment.
 - Among major players, Nestlé Health Science’s Persona brand expanded its e-commerce presence in China by opening flagship stores on Tmall and JD in 2020, thereby making essential supplementary packs available to consumers without a health assessment.



▶ OPPORTUNITIES

GUT HEALTH AT THE FOREFRONT; WEARABLE DEVICES AND APPS

- The personalized nutrition industry is quickly gaining traction, especially around gut health, where the advanced understanding of the microbiome boosts innovation.
 - The well-developed science behind gut health is expected to be the key backbone behind the evolution of the personalized nutrition industry.
 - This will result in companies continually exploring the space with more technological advancements.
- A considerable percentage of the U.S. population has adopted fitness tracking wearable devices; the number is projected to grow rapidly in coming years, owing to the fast-growing trend of healthy living and personalized nutrition.
 - Established wearable smartwatch companies, such as Apple, Samsung, and Alphabet, are continually developing, introducing, and investing in advanced health fitness tracking devices, which will include nutrition-based reports and metrics.





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