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Opinion

Personalized Nutrition - An Opportunity for All Food Categories

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The nutrition industry is primarily a trend-driven category. One of the current trends is "personalized nutrition" or "condition-specific nutrition". The concept acknowledges what may be described as "nutritional types".

Scientists have accepted that diet and genetic disposition and expression interact. A person's genetic disposition influences diet choices as well as dietary needs - this is described bynutrigenetics. But dietary choices, in turn, also influence the expression of a person's genome. A famous example is the SIRT family of genes being more strongly expressed when resveratrol is taken up with the food, or when a person is in a negative energy status. Nutrigenomics addresses and investigates this phenomenon.

Both phenomena, nutrigenetics and nutrigenomics, are subsumed in the idea of personalized nutrition. A person's genome influences a disposition towards being e.g. sportive, or a diabetic; dietetic choices may, to put it simply, turn a sportive person into a diabetic - and vice versa. Nevertheless, the sportive person requires a different diet than the diabetic.

In some persons, this transition from sportive to diabetic may happen faster than in others, due to genetic predisposition. Thus, a sportive person who is genetically at a higher risk of developing diabetes might benefit from a diet that is different from that for a sportive person not at risk.

In some cases, for instance when diabetes runs in the family, a person may be aware of his of her predisposition. In other cases, there may be no accompanying family history to give advance warning. This is where personalized nutrition comes in.

One of the tasks of nutrigenetics is identifying biomarkers for certain predispositions and susceptibilities to diseases. The goal of nutrigenomicsis the design of a personalized diet geared towards keeping those predispositions at bay and the person in question healthy, or, to keep using the example, the goal is to keep the sportive consumers sportive even though they are at risk of developing diabetes due to their genetic disposition.

Personalized nutrition also includes the concept of "condition-specific nutrition". From a regulatory perspective, in Europe, foods are not and cannot be medicines. Therefore, "condition" in this context is not disease-related. Instead, the term describes conditions such as "tired", "stressed", "menopausal", or even "vegan".

One category that, by definition, caters to condition-specific nutritional needs is dietetic foods. This category is currently regulated in Europe via Directive EU 609/2013, Food for Specific Groups. This umbrella regulation regulates products in intended for infants, but also for patients who, due to their respective diseases, experience difficulty with the uptake of normal foods one way or another. This includes classical sip feed nutrition, but also foods enriched with specific nutrients to supply deficiencies caused by the impaired food uptake.

"Specific groups", for the purposes of this category, are also young children, overweight and obese people. Dosage forms can vary from supplement-like capsules and tablets to pulverized meal replacement products and even protein/energy bars.

As of July 2016, metabolic disorders such as gluten or lactose intolerance and claims relating to those conditions are no longer subject to the Food for Specific Group regulation and are regulated solely by the labeling directives. "Gluten-free", thus, is strictly a nutrition claim now, and no longer subject to the regulations governing dietetic foods.

From a labeling standpoint, one clear advantage that dietetic foods have over regular foods is that they can state the special condition of the persons they are intended for clearly on their labels, even if the condition in question is a disease. Foods, however, cannot make references to diseases at all.

As their name states, food supplements are intended to supplement the normal diet by offering specific nutrients in a concentrated form that may be missing from the diet for whatever reason. Ingredients arevitamins and minerals and also other substances such as herbal extracts.

A new trend, in the context of supplements, is giving consumers the opportunity to build tailor-made supplement packages based on their individual needs. These "building block supplements" are packages of various supplements that are either offered as is, or can be assembled individually with online help on the company website.

Nutritional needs due to certain conditions almost in variably involve increased nutrient requirements. Osteoporosisduring to advancing age is often due to a lack of vitamin D, which negatively impacts the uptake of calcium. Therefore, supplements targeting the elderly or menopausal women usually include vitamin D and calcium.

Another typical condition-specific type of dietary supplement targets women. Science has acknowledged that men and women differ with regards to their nutritional needs. Pregnant and lactating women, by the same token, have different needs than young or menopausal women. All these "conditions" are being targeted by specific dietary supplements.

Functional foods are fortified with vitamins/minerals or other substances, giving them functionality. They lend themselves very well to condition-specific nutrition, and they conform to the requirement for "natural" products many consumers are adopting, at least more than dietary supplements do.

Popular examples are milk products fortified with calcium and vitamin D, and fruit juices fortified with vitamins.

As opposed to fortified products, a big role in condition-specific nutrition is played by minus products. Gluten-free, lactose-free, sugar-free are all claims that are very much in demand by consumers. They cater to persons with food intolerances, or to overweight and obese people.

Even foods that are not functional - i.e. foods that are not fortified or minus products - can be targeted towards condition-specific nutrition. Many foods are naturally functional due to constituents such as secondary plant compounds. Naturally present vitamins or minerals can even be used for a health claim if analysis shows that they are contained in levels that meet that health claim's condition of use.

In conclusion, when developing a new product concept, be it a food supplement, a dietetic food, or a functional food, manufacturers may want to evaluate the opportunities afforded by personalized nutrition, and specifically by condition-specific nutrition.

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