

by Donald E. Pszczola

'Stealth Health' for Kids

First Lady Michelle Obama recently called on the food industry to step up efforts on reformulating food products to make them healthier. Her "Let's Move" campaign has underscored the need to address such issues as sodium reduction, childhood obesity, and rising concerns over diabetes. As was discussed at the *IFT Wellness 10 Conference*, statistics are quite alarming—for example, one in three children are overweight, one in five are obese, and 20% of teens have high cholesterol.

Obama's initiative complements the President's newly created task force directed to come up with a comprehensive action plan that will counter the growing epidemic of childhood obesity within a generation. Different strategies are being considered, including passing bills that will limit "junk food" at schools; proposals that would raise taxes on sugared beverages; reauthorization of the Child Nutrition Act to reduce hunger and improve the health and

salt 25% by 2015, saturated fat 15% by 2020, and added sugar 25% by 2020 in the formulating of its products. General Mills Inc., manufacturer of such foods as *Cheerios* cereal and *Progresso* soup, reported that it will cut the amount of sodium by 20% in more than 600 items (or about 40% of its products); according to the company, about 30% of its portfolio is already low in sodium, and over the past five years it has made salt reductions in such products as *Cheerios*, *Honey Nut Cheerios*, and *Chex Snack Mixes*. ConAgra Foods pledged to reduce salt 20% across its product portfolio by 2015, as well as find ways to incorporate whole grains and other important nutrients into its formulations. Kraft Foods is planning to reduce sodium by an average of 10% across its North American portfolio over the next two years. And in 2009, Campbell Soup Company lowered sodium in many of its soup products by 25-50% with other major changes expected in 2010.

Ideally, if the product is reformulated successfully, the kid will not notice any difference between the better-for-you version and the original that has been traditionally consumed.

nutrition of the nation's children; concerted efforts by parents, teachers, and legislators; and, of particular interest here, the playing of a greater role by the food industry.

Much work needs to be done if solutions are to be arrived at quickly and effectively, and some food manufacturers are already responding to the challenge. PepsiCo—owner of the Pepsi, Frito-Lay, and Quaker brands—reported that it plans to cut

Formulating better-for-you foods for kids can be a challenge because products, after all, must satisfy the parent (who is doing the purchasing) and the kid (who the product is being purchased for). While parents want to purchase products for their families that they recognize as healthier or more convenient, kids, on the other hand, may be more interested in other considerations, such as flavors, novelty, shapes, colors,

This peanut butter and jelly sandwich—a gourmet favorite of many kids—can serve as a good vehicle for the stealth health approach. Although the bread is made with whole-grain ingredients, it has the taste, texture, and appearance of regular white bread.

Photo courtesy of ConAgra Food Ingredients



interactive qualities, packaging, and marketing tie-ins with popular characters.

Of course, the dilemma of trying to get their kids to eat healthier is not

a new one for parents, especially those parents who try to be responsible role models for their children in the area of health. Strategies that parents employ regarding eating habits vary with family, but I think it's safe to say that on occasion, when other things fail, parents have been known to resort to the use of some sneaky methods (I know my mom was sure a master at this) and kids—being kids—do their best to try to

'Stealth Health' for Kids continued...

Resistant starch can provide children with a source of fiber in a range of foods that they like to eat. Because the ingredient can help curb hunger and maintain healthy blood sugar levels, it can play an important role in addressing certain health challenges.

Photo courtesy of National Starch Food Innovation



figure out the subterfuge and thwart it if at all possible.

In the development of products that are better for children, some food manufacturers are also taking advantage of a more subtle strategy, one that has been referred to as "stealth health." The purpose of this approach is to make available a better-for-you product that has the taste, texture, appearance, and functionality properties of the original version. The parent recognizes the health benefits of the product and purchases it for that reason. Ideally, if the product is reformulated successfully, the kid will not notice any difference between the better-for-you version and the original that has been traditionally consumed. The parent's job has been made a little easier, the child is satisfied with the product, and the product runs less risk of being rejected in the marketplace.

I should point out that the concept of "stealth health" seems at times somewhat ambiguous and can mean different things depending on how it is used. For the purpose of this article, I'm referring to it as a possible approach that can be used in the formulating of children's foods and one that has the potential to satisfy the needs of both the parent and the kid. (In the future, we can look at other ways that stealth health has been applied and measure its effectiveness.)

Within the context that stealth health is being used for this article, it is also important to mention that there has been some criticism that this approach may promote bad nutritional messages or practices in the long run. I guess the thought behind this is that instead of serving that fruit out in the open where the benefits can be appreciated and learned, you're resorting to trickery and deception. This argument might have some validity if the stealth health approach was used exclusively, which seems highly unlikely. There seems to be no reason why a parent cannot extol the health benefits of fruits and vegetables, serving them on as many occasions as possible, while at the time purchasing a spaghetti sauce made with a fruit or veggie puree. Or why a parent cannot educate the child about the benefits of whole grains while serving a rice pudding that incorporates whole grains without the child necessarily knowing about it—at least until after it has been tried. Furthermore, if the "stealth ingredient" does not detract from the taste of the traditional product and may even enhance the flavor, then that would definitely make the product more desirable in the marketplace and certainly would enhance the eating experience for the child, as well as the adult.

This month's article will look at how formulators, using the stealth health approach, can incorporate such ingredients as whole grains, fruits and vegetables, salt

alternatives, healthy fats, and others, in the formulation of a better-for-you product. Since the word "stealth" has certain connotations, I thought it might be fun to express the value of these ingredients using references to popular spy movies, television, or literature.

So without further delay, "I Spy"... some interesting developments on the horizon. Let's sneak up on a few and see if we can't build a dossier on them.

Viva, la Resistance!

"Getting kids to eat healthier foods can be an exercise in futility," said Rhonda Witwer, Senior Business Development Manager for National Starch Food Innovation, Bridgewater, N.J. (phone 908-685-5000, www.foodinnovation.com), a supplier of resistant starches and other starch-based ingredients. "If they don't like it, they won't eat it. But developing nutritionally enhanced foods for kids is easier with resistant starch."

According to Witwer, resistant starch easily replaces flour in foods such as breads, cookies, pancakes, and snacks. It even replaces semolina in pasta. With its fine, white texture and bland taste, it can deliver "invisible dietary fiber" in a wide range of foods kids like to eat. In addition, isolated resistant starch from high-amylose corn is all natural and not treated with chemicals or enzymes to maintain its natural characteristics. It is not substantially modified from the starch naturally produced by the plant.

Resistant starch has strong published evidence of its health benefits, noted Witwer. "It helps people eat less and not feel hungry—not only a few hours after a meal but the next day as well," she said. "Isolated resistant starch does not cause a high spike in blood sugar levels, but also actively helps to maintain healthy blood sugar levels by increasing insulin sensitivity. And like other types of dietary fibers, it promotes digestive health and regularity." »»

'Stealth Health' for Kids continued...

Whole-grain lions and tigers and bears, oh my. Fun shapes, flavors, colors, textures, and marketing tie-ins with popular characters can catch a child's interest. Now imagine combining that approach with the use of a better-for-you ingredient.

Photo courtesy of ConAgra Food Ingredients



More and more companies are introducing new products or brand extensions with added nutritional content, including resistant starch, fiber, and whole grains. One example is *Racconto Essentials Glycemic Health 8 Whole Grain Pasta* enhanced with National Starch's *Hi-maize* resistant starch. The product contains high levels of dietary fiber from both whole grains and isolated resistant starch from high-amylose corn, but it reportedly tastes much more like white semolina pasta than other whole-grain pastas on the market. "When compared with the leading brands in the whole-grain pasta market, the *Racconto* product exhibited a much better flavor profile without the 'woody,' earthy notes typically found in these types of pasta," said Janet Carver, Senior Leader for National Starch's culinary team. Agnes Jones, principle team member, added, "We found that texture, cook times, and cooking tolerance were the closest we've seen to regular, commercially made semolina pasta." The new pasta product makes several health claims, including "assists

in weight management" and "helps balance energy." And because of its taste, it should appeal to kids. Pasta is a popular category with kids, and there are increasing opportunities to create better-for-you pasta products marketed specifically to this segment.

Another example of a product that can be marketed to children is *Aunt Millie's Bakery Healthy Goodness Whole Grain* white bread formulated with *Hi-maize* resistant starch for "an excellent source of fiber" claim. The product is also made with *Hi-maize* whole grain corn flour to increase its whole grain and fiber content.

The Grain Who Came in From the Cold

A recently launched bread, *Wonder® Smartwhite™*, reportedly has the taste and soft texture of white bread but with the fiber of 100% whole-wheat bread. This latest addition provides five grams of fiber per serving and calcium equal to an eight-ounce glass of milk per two slices. It also delivers a good source of nine vitamins and minerals such as iron, vitamin D, and folic acid; has 33% less sodium than regular white bread; and contains 50 calories per slice. The new product extends Wonder's existing line of breads for families who prefer the taste of white bread but who are looking to fit more nutrition into their overall diet. In 2009, *Wonder Classic* and *Wonder Classic Sandwich* were reformulated so that two slices provided the same amount of calcium as eight ounces of milk, as well as being good sources of vitamin D. Previously, Wonder introduced a white bread made with whole grain (*Wonder Made With Whole Grain White*).

"Kids should consume whole grains at an early age because whole grains provide the healthy vitamins and fiber that support development and weight management," said Mike Veal, Vice President of Marketing for ConAgra Mills, Omaha, Neb. (phone 800-851-9618, www.conagramills.com). "The 2005 Dietary Guidelines

for Americans recommend that at least half the grains people eat, including children, be whole grain. Most children—in fact, most Americans—are eating enough total grains but not enough whole grains. Recent statistics tell us children are reaching a mere 32% of the recommended whole-grain intake."

Whole grains are a natural source of fiber, noted Veal, as well as other naturally occurring nutrients, including B-vitamins, minerals, and phytonutrients with antioxidant activity. Research has shown that eating three servings of whole grains per day as part of an overall healthy diet may help both adults and children maintain a healthy weight, as well as reduce the risk of coronary heart disease, diabetes, and certain cancers.

However, incorporating whole grains is not always an easy task. According to Veal, "Food manufacturers face the dual challenge of formulating foods that provide nutritionally significant levels of whole grain, yet also appeal to children. Gradually increasing the level of whole grains in popular grain-based foods has proven effective at warming children up to whole grains. Tailoring the level to the particular food is another important factor in achieving acceptability. Incorporating whole grain levels that are 'too much, too soon' for a particular food may result in increased plate waste and a reduced willingness among kids to try the whole grain offerings in the future."

Ultragrain® flour is a whole-grain flour developed by ConAgra Mills that has proven successful in helping product developers meet both nutrition goals as well as kids' preferences for color, flavor, and texture. "Studies with 350 first- to sixth-grade students in Hopkins, Minnesota, showed that elementary students consumed pizza, rolls, and other foods made with *Ultragrain* at the same level as products made with white flour," said Veal. "Because products made with

'Stealth Health' for Kids continued...

Ultragrains have flavors and textures similar to products made with refined flour, kids are not deterred by a change in appearance or 'odd' flavors and they benefit from the nutritional boost."

Imagine rice bowls, a popular dish with kids, someday made with oats. It may be possible, as a new oat variety that reportedly looks, cooks, and tastes like rice has been developed by Canadian researchers. The naturally hull-free product, *Cavena Nuda* (or "Canadian Naked Oats"), is becoming known as "the rice of the prairies" and may be cooked alone as a rice replacement or as an ingredient in a variety of dishes associated with dinner rather than solely breakfast. Potential

applications include soups, side dishes, stir fry, salads, stuffing, bread-ing, rice mixtures, batter, snack foods, pilaf, pasta, and baked goods such as muffins. The ingredient is said to retain its special texture and mild nutty flavor.

All of the oat brain is maintained on the kernel for better health and nutrition, providing such benefits as high beta-glucan levels, low glycemic index, low gluten levels, and high protein. Also, the new variety is said to be free of the tiny hairs associated with other hullless oats. The product is grown with seed supplied exclusively by Manitoba-based Wedge Farms Ltd. (phone 877-738-2144, www.wedge-farms.com) and will be distributed for

industrial uses in North America by Ontario-based The Ingredient Company (phone 905-567-2555, www.theingredientcompany.com).

For kids on the go, a high-fiber breakfast cookie may be a healthier option. In one whole-grain cookie formulation, *Caramel Apple Oatmeal*, additional fiber was added to it by Grain Processing Corp., Muscatine, Iowa (phone 563-264-4265, www.grainprocessing.com), using *TruBran® F80T Oat Fiber*. In addition to making the cookie an excellent source of fiber per serving, the ingredient provides a clean flavor profile and has a neutral color that can be easily incorporated into baked formulations. The cookie also contains a modified

The Bean Supremacy

A whole-bean snack chip was recently launched by Bean Brand Foods, Austin, Tex. The high-fiber product, *Beanitos* (www.beanitos.com), is made with whole beans—either black or pinto—and combined with whole grain rice or whole brown flax seed. According to the company, the whole beans are sorted, washed, and cooked in small batches; the resulting "dough" is shaped and cut into round chips; and the chips are baked, and then flash fried in vegetable oil and dusted with sea salt. The gluten-free product is said to provide a satiated, "full" feeling faster than ordinary chips, has a low glycemic index, and contains such nutrients as omega 3s, protein, and fiber. Its crunchy texture, taste, and potential health value make this snack a good candidate to serve "stealthily" or otherwise to kids.

As demonstrated by the above example, beans represent a significant opportunity for food manufacturers to boost nutrient content and create better-for-you products that can address health-related issues such as obesity, diabetes, digestive health, and cardiovascular

disease. *VegeFull™*, a line of cooked ground bean products from Archer Daniels Midland Co., Decatur, Ill. (phone 217-451-5200, www.admworld.com), can be incorporated into a wide variety of products, such as snack foods, soups, sauces, dressings, cereals, dips, cookies and cakes, yogurt and other dairy products, breads and tortillas, pizza crust, and

pasta and noodle applications.

Many of these applications are not traditionally associated with the use of beans as an ingredient and the beans can help children get a full serving of vegetables without them even knowing about it. Several bean varieties and forms are available to help manufacturers achieve varying flavors, textures, and colors. Although the bean powders have a mild flavor, they will not compete with other flavors in the products, making reformulation quick and efficient.

In addition to beans, there are other legumes that can play a part in creating better-for-you foods that could have potential for the kids market. A pea-based, pancake-like breakfast item, *Crepe Ups*, was one of the winning

entries at the ninth annual AACC International Student Product Development competition. Created by the University of Manitoba team,

the pancake-like, filled frozen breakfast rolls are ready to serve after microwaving. High in fiber and protein, the low-fat, gluten-free product is designed for on-the-go individuals. Two crepe fillings were developed, "Hearty Ham, Cheese, and Spinach" and "Homestyle Apple Delight."

Pea protein (*Nutralys®*) from Roquette America Inc., Keokuk, Iowa, can be extruded to create allergen-free pea crisps. The ingredient offers formulators a healthier alternative for use in cereals, breakfast bars, and snack options. The composition of pea crisps can be altered depending on the nutritional requirements. In general, pea crisps contain 32-65% protein. High protein (65%) pea crisps with less than 1% sugar and about 14% carbohydrates are well suited for breakfast and granola bars to provide increased protein contents. Flavored or unflavored pea crisps may be used in trail mixes and inclusions, and can be coated with chocolate, yogurt, spicy, and savory flavors depending on preference.

According to the USA Dry Pea & Lentil Council, Moscow, Idaho (phone 208-882-3023, www.pea-lentil.com), pea flour can be used to create a healthier hamburger bun. It may also be used to enhance fiber and protein in quick breads, rolls, and buns. A variety of recipes are available from the organization, including *Pea-Carrot Muffins*, *Pea Buttermilk Pancakes*, *Pea Tortillas*, *Pea Hamburger Buns*, and *Pea Whole Wheat Hearth Bread*.



Beans can create new opportunities for formulators as they can help boost nutrient content and create better-for-you products that can address major health challenges. Photo shows a whole-bean snack chip recently introduced into the marketplace.

Photo courtesy of Bean Brand Foods

food starch (*Inscosity*[®] B656) to help increase moisture and overall shelf life, and an organic rice maltodextrin (*Maltrin OR*[™] R120) for controlling sweetness, rounding out the flavor profile, and enhancing overall texture.

A 90% soy protein nugget from Solae LLC, St. Louis, Mo. (phone 314-659-3000, www.solae.com), is suitable for bars, snacks, cereals, and a variety of other products. The ingredient, *Supro*[®] Nugget 570, reportedly is the highest protein nugget currently in the marketplace, providing 90% protein on a dry weight basis. While helping to achieve higher protein levels, it can optimize taste, texture, and nutrition. This nugget may be something for kids to chew on. Research has shown that high-quality soy protein can improve satiety and sustain energy levels, important for active children. It can be used to improve the nutrient composition and nutrient density of foods, especially products such as cereals, snacks, and nutrition bars that target children.

Undercover Salt

Over the past decade, Campbell Soup Co. has gradually reduced sodium levels in its products. This approach takes advantage of the fact that salt is a learned taste and that over time, people can become accustomed to the lower levels of sodium. Furthermore, by not marketing these differences as they occur, this approach has become that much more effective. Studies have shown that if you present a subject with two identical products, but tell the individual that one has been reformulated—for example, with less salt—it is more likely that the subject will admit to detecting an undesirable taste difference even though the product is the same.

This approach seems to have worked very well for Campbell Soup, which was one of the companies that Michelle Obama praised for its efforts in creating better-for-you products. In 2010, the company announced that it plans to expand its “industry-leading sodium-reduction program,” reducing the sodium content in 23 of its condensed soups by up to 45%. Following this effort, almost half of the company’s condensed soup portfolio will have sodium levels at 480 mg or less per serving, which is considered healthy by the U.S. government. Every major condensed variety will either be reduced in sodium or be available in a lower-sodium option. Additionally, the company will improve the flavor in all 26 varieties of its chicken soups and use a specially roasted chicken meat.

Certain products in Campbell’s portfolio are being marketed to children, in particular, and from that perspective may present of good model for what future products should look like. For example, *Campbell’s Kids* soups were reformulated in 2009 to

contain 480 mg of sodium per serving. These 12 soups, which contain a variety of fun shapes, deliver 110 calories or less, 3 g of fat or less, and 0 g of *trans* fat, as well as being good sources of vitamin A. Campbell Soup Co. has also reformulated its line of *SpaghettiOs* canned pastas, reducing sodium by up to 35% depending on the variety. According to

'Stealth Health' for Kids continued...

the company, this marks the second major sodium reduction for the line in two years and now brings all varieties in line with government criteria for healthy dishes. Among the products in this line are licensed shaped varieties such as *Disney Princesses* and *Franks and Cars*™.

New technologies are being developed that can increase salt perception while using less salt. This can be done in various ways. Campbell Soup, for example, uses what it describes as a "low-sodium natural sea salt" in combination with expertise in flavor design. Some food manufacturers are using technologies that reportedly change the salt crystal size or shape so that it hydrates much faster. One reported technology grinds salt into particles that are much smaller, as much as 60%, and more numerous, producing the sensation of saltiness with less salt. In 2006, ConAgra Foods launched *Orville Redenbacher's SmartPop!® Lower Sodium Popcorn*, using a patented technology that reduced sodium by 30%.

The blending of sodium chloride with potassium chloride is another common approach that food companies are taking. Others are using yeast extracts, amino acids, taste modifiers, and flavor systems, to name a few, in their attempts to reduce sodium. The January 2010 *Ingredients* section described a variety of salt alternatives being offered by suppliers, and these should prove particularly useful in reformulating foods for kids.

One new development, for example, is *NutraSalt 66*, available from Bon Vivant International, Edgewater, N.J. (www.nutrasalt.com). This product, harvested from the Dead and Red Seas, features 66% less sodium than table salt. It is said to provide a balance of sodium and potassium in ratios recommended by the Institute of Medicine.

Another product, *KClean Salt* from Wixon Inc., St. Francis, Wis. (phone 414-769-3000, www.wixon.com), can achieve a 50% reduction in salt in snack foods such as potato chips while offering a clean taste and a desirable saltiness.

Salt Taste Improvers, developed by Ogawa & Co., Ltd., Richmond, Calif. (phone 510-233-0633, www.ogawa.net), can reduce salt by up to 50% when used in combination with potassium chloride. The natural flavor systems, made from botanical extracts, can enhance the salty taste and cut the unpleasant aftertaste of potassium chloride.

The gradual reduction of sodium in foods is especially helpful to adults who have long been accustomed to the taste of high-sodium foods. But what is particularly encouraging about formulating for kids is the fact that they don't have a long history of taste that has to be overcome. For kids, as well as first-time users of low-sodium products ranging from soups to snacks, the taste that they experience today or tomorrow will become their benchmarks for later in life. Of course, that doesn't mean that a low-sodium product

should taste bad—otherwise it will be rejected. But if a desirable taste or a comparable taste is created, kids will readily accept it ... with all its health advantages ... and it will become part of their lifestyle.

The Sum of All Sweeteners

Children have grown accustomed to indulging in lots of refined sugars—from sodas to desserts—commented a *Culinary Nutrition News* article (April issue), presented by the American Culinary Federation Chef & Child Foundation and Clemson University, Clemson, S.C. According to the article, entitled "Sweeteners Exposed," the average child consumes about twice as much sugar as recommended and sugary foods and beverages tend to be high in calories and low in nutrients. It also cited *The Journal of Pediatrics* which reported that "children with the highest level of added sugar intake had the lowest consumption of most nutrients and servings of grains, vegetables, fruits, and dairy."

Regarding children's overconsumption of sugar, the article went on to say that "It is imperative now more than ever that we attempt to stir their cravings away from foods loaded with sugar, fat, and calories, toward wholesome foods with natural sweet notes, such as fruits and vegetables." The article evaluated several sweeteners, including high fructose corn syrup, and noted, "Studies suggest our bodies break down and use HFCS and sucrose the same way. It is safe to

presume that consuming excessive amounts or products sweetened with it, as with any sugar, will undoubtedly cause weight gain.”

It is extremely doubtful that children will lose their sweet tooth any time in the near future. Consequently, as in the case of sodium discussed earlier, formulators need to develop strategies that will gradually decrease the levels of sugar without kids recognizing differences in the taste and texture of the product.

Tate & Lyle, Decatur, Ill. (phone 800-526-5728, www.tateandlyle.com), a manufacturer of such ingredients as *Splenda*® sucralose and *Promitor*™ dietary fiber, utilizes the *Sweetener Optimization* process which allows manufacturers to reduce calories by up to 30% with no detectable differences in taste. This process can be achieved by custom blending ingredients to reduce calories, without altering the familiar, comforting taste children and their parents desire. As an example, school districts seeking to reduce calories in a popular item such as chocolate milk can achieve numerous benefits by implementing the process as a solution while staying within their shrinking budgets. The process also can be used to reduce calories in flavored waters and fruit juice drinks made for children.

Stevia extracts, because they are promoted as natural, may find particular application in the development of foods and beverages for kids. Tropicana Products, a division of PepsiCo Inc., recently launched *Trop50*, a line of stevia-based juice beverages that provide 50% less sugar and calories. Because stevia-based products have had certain flavor challenges to overcome, companies such as Wild Flavors Inc., Erlanger, Ky. (phone 859-342-3744, www.wildflavor.com), are developing a portfolio of taste modification systems that can reduce the lingering sweetness and bitterness associated with stevia while providing a taste profile closer to that of sugar.

According to David Michael, sweetness enhancers may provide a solution, allowing less sugar to be used, without sacrificing taste and sweetness profiles. These ingredients are designed to intensify the perception and potency of traditional sweeteners such as sugar, fructose, and honey; smooth out sweetness profiles and complement characterizing flavor notes; increase flavor impact; minimize unwanted aftertastes of an alternative sweetener; and mask certain off-notes. In formulating a beverage for a kid, high fructose corn syrup could be replaced with a sweetener such as brown rice syrup and a sweetness enhancer at 0.4%.

Years ago, it might have been argued that sugar

and sugar alternatives would have made for strange bedfellows when used in the same formulation. But the potential opportunities in the development of better-for-you foods for kids might be suggesting that these blends or marriages of sugar and other sweeteners might be the way to go. As in the case of applications where sodium levels were partially

'Stealth Health' for Kids continued...



A fruit puree can be incorporated into a spaghetti sauce, helping kids to get some important nutrients without impacting the taste of the product and perhaps even enhancing some of the functionality properties of the sauce. But be careful of that meatball—it may contain some hidden microfilm. Photo courtesy of David Michael & Co.

reduced by potassium chloride, for example, the same kind of strategy can be more actively applied in the area of sugar reduction. Replacing a portion of sugar with an alternative and a flavor system can create a better-for-product without compromising the functionality and taste properties of sugar. And over time, the levels of sugar could be gradually reduced without any noticeable difference.

Mission Impossible

"Good morning, mom and dad," begins the hidden tape recorder (or, to be more current,

hidden CD player. "Your son and daughter are not eating enough servings from the fruits and vegetables group. This could prove detrimental to their health. Your mission, should you decide to accept it, is to find ways to incorporate more of these foods into their diet. This tape will self-destruct in five seconds ..."

"Mission Impossible"—that title from the popular spy TV series and movie pretty well sums up how parents must feel sometimes when trying to get their children to eat enough servings from the fruit and vegetable group. Of course, as discussed in previous articles, they themselves may not set the best example for their kids on that score. And in many cases, it is perhaps their dietary practices that should also self destruct instead of setting an example for their kids.

The December 2009 *Ingredients* section discussed a variety of opportunities for the formulator to incorporate, especially in a subtle manner, fruit and vegetable ingredients into a product. For example, Vegetable Juices Inc., Chicago, Ill. (phone 708-924-9500, www.vegetablejuices.com), described how both purees and concentrates can be utilized to increase vegetable portions within formulations, enhancing flavor and improving the sweetness profile. In a muffin, non-thermally concentrated vegetables or fruit can be used to help cut down on the glycemic index, adding a sweetening property to the formulation. Butternut squash puree, for instance, can

work well in baked goods—in cookies it can retain water, keeping them moist while providing a neutral flavor. Even when used in low concentrations in baking applications, the puree can increase the vegetable portion to a third of a serving. And, of course, let's not forget about the beverage possibilities. Non-thermal processing makes possible the controlling of flavor notes while retaining the essence of carrots, butternut squash, or beets, in the beverage application. Furthermore, imagine the flavor possibilities as a range of vegetables and fruits flavors can be combined for nutritional benefit in a fun drink.

Another interesting example covered in the December 2009 *Ingredients* section was the development by USDA scientists of paper-thin wraps made with fruit and vegetable purees. Their colorful appearance and flavors (mango, strawberry, carrot-ginger, red bell pepper, and others) might appeal to kids while their nutritional benefits (they contain 75-90% fruits and vegetables and are low in calories and fat) will certainly appeal to parents. These fruits and vegetable wraps may be used in the creation of appetizers, entrees, desserts, and other products designed for kids, especially in school lunch programs.

At the 2009 Innovation Roadshow, David Michael & Co., Philadelphia, Pa. (phone 215-632-3100, www.dmflavors.com), demonstrated a number of ways that fruits

and vegetables can be used to create products that both satisfy parents and kids. In particular, fruits and vegetables can be added to products that are already popular with kids—applications ranging from pizza to dipping sauces to hamburgers. In the confectionery area, some fruit gummy manufacturers have added real fruit juice to their products.

David Michael highlighted a tomato-based spaghetti sauce that combined fruit flavors such as mandarin-peach and pineapple-cranberry. Each serving provides a third of the daily intake of vitamins A and C as well as 8% of the daily value of dietary fiber. The sauce is also low in calories and contains no added sugar. The company also featured flavor-infused fruit snacks such as *Bar-B-Que-Flavored Peach Chips* and *Bacon-Flavored Apple Shoestrings*. The fruit is infused with flavor and dried, but unlike traditional dried fruit snacks, there is no topical coating.

Using a stealthy healthy approach, new products can help introduce children to the many benefits of fruits and vegetables, including the flavors and colors derived from these products. Hopefully, down the line this may encourage children to eat more daily servings of fruits and vegetables.

The Secret Wheys

Formulators, when developing foods for kids, can use dairy ingredients to make products more healthful, while maintaining desirable textures and flavors that kids crave. Dairy ingredients, with their protein and nutrient density, can offer an alternative to traditionally indulgent foods that have been made with high levels of carbohydrates, sugar, and fat.

Let's take a look at some of these formulations that can "sneak in" healthful components without kids detecting a difference.

A media event held by Fonterra Ingredients, Rosemont, Ill. (phone 847-928-1600, www.fonterra.com), showcased a number of prototypes that demonstrated the functionality and nutrition benefits of dairy proteins. Several of the prototypes seem suitable for children. For example, an indulgent cookie is fortified with a milk protein concentrate (*PowerProtein™ 4857*). The indulgent chocolate chip cookie, said to provide three times the amount of protein compared to a regular cookie, is an easy way to deliver protein to picky eaters. A process cheese spread prototype offers 60% reduced sodium. It is made with *NZMP Cheddar Cheese—Low Salt*, a semi-hard, cured rindless cheese designed for use in processed cheese applications. The cheese offers a uniform cheese color; a firm smooth body; a mild to

distinctive Cheddar flavor; and a lower salt level. And a chocolate bar offers an added crunch from dairy protein crisps (*PowerProtein 600*). The pleasantly textured bar is also formulated with a combination of whey protein concentrate and milk protein concentrate.

A 100-calorie snack bar for kids—*Birthday*

'Stealth Health' for Kids continued...



Today's children are inheriting many of the health challenges that their parents are facing. Because health habits begin early in life, it is essential that food manufacturers adapt their strategies to make products better for future generations. Photo courtesy of National Starch Food Innovation

Cake Crispy Protein Bar—was formulated by Hilmar Ingredients, Hilmar, Calif. (phone 209-667-6076, www.hilmaringredients.com). The formulation highlighted the functionality and nutritional benefits of a blend of whey protein ingredients (isolate, concentrate, and hydrolysate), as well as whey protein crisps. It is flavored with *Yellow Cake Batter*, giving the product a more fun, festive quality and adding a new dimension to the traditional format of a snack bar.

A variety of dairy prototypes for children have been developed by Dairy Management, Inc., Rosemont, Ill. (phone 847-627-3252, www.innovatewithdairy.com). Many of these have been discussed in past *Ingredients* sections and combine indulgence with fun, making them particularly appealing for children. For example, macaronia and cheese—a kid's favorite—can be reformulated, using a reduced-fat pepper jack cheese. Yogurt powders may be used in the creation of new confections or snack bars. Or how about a mini-cheesecake served in a dark-chocolate cup?

The Fat Who Loved Me

Efforts to reduce or eliminate *trans* fats by food formulators have been so successful in recent years that one can probably consider that particular issue to be a war of the past. Although there has been some debate regarding the health benefits of saturated fats, formulators will probably next look for ways to reduce the levels of saturated fat without compromising the quality of the product. To accomplish this, they will probably use strategies similar to the ones being used to reduce sodium or sugar. Over time saturated fats will be gradually reduced and those levels replaced by healthier fat solutions. And to follow the central theme of our article, parents will recognize these health benefits and purchase products for their children made with these fats.

One possible development that may be beneficial in the creation of better-for-you foods is an increased omega-3 soybean oil now being developed in a partnership between Monsanto Co., St. Louis, Mo. (phone 314-694-2478, www.monsanto.com) and Solae. The stearidonic acid (SDA) omega-3 soybean oil was recently issued a Generally Recognized as Safe notice by FDA and is expected to be in the marketplace in 2-3 years. The GRAS notice allows the ingredient to be used at levels that provide 375 mg of SDA soybean oil per serving in products such as baked goods and baking mixes, breakfast cereals and grains, fats and oils, milk products, nuts and nut products, snack foods, confections, and soups and soup mixes. SDA soybean oil contains 15-30% SDA and 5-8% gamma-linolenic acid compared with 0% in conventional soybean oil. The SDA oil is expected to be either added to foods or used as a replacement for non-hydrogenated vegetable oils and provides a convenient, non-fish source of omega-3s, which are known to supply cardio-protective effects and other health benefits.

According to Richard S. Wilkes,

Monsanto's Director of Food Applications, the new oil will offer a clean, neutral taste; provide improved oil stability vs other omega-3 oils; and maintain traditional flavor and shelf life. He added that a granola bar shelf life study demonstrated that that the product formulated with the SDA oil and the control were lower than those made with other omega-3 oils for off-flavor and off-aftertaste throughout a 12-month period. The SDA-enriched granola bar exhibited the least quality change at 12 months compared with all other prototypes. Similar results have been found across a range of applications including spreads, yogurts, dairy drinks, and baked cereal bars. Many of the potential applications for the oil can be especially marketed for children, including peanut butter, cookies, breads, fruit juices, smoothies, ice creams, snacks, and confections.

Monsanto has also completed regulatory submissions to USDA and FDA in support of the *Vistive III* soybean trait. This second-generation product builds on Monsanto's existing *Vistive* product and would provide food companies with a healthier, more stable soybean oil for frying and baking. The oil produced from these beans would contain significantly lower levels of saturated fat and would eliminate *trans* fats. The new soybean oil is more stable at high temperatures and is shown to have significantly extended fry life when compared to commodity soybean oil, or existing low-linolenic soybean products. "Application studies show that products fried in the new oil maintain optimum flavor quality," said Wilkes.

According to an Agricultural Research article, "children's birthday celebrations might soon be even happier, thanks to research that's trimming the fat and calories from a traditional favorite—cake and frosting. Any subtracting of fat, and its calories, from foods that kids crave is a plus, in light of the nation's epidemic of childhood obesity."

USDA Agricultural Research Service scientists in Peoria, Ill. are formulating low-fat cake mixes and frostings with *Fantesk*—microdroplets of *trans*-fat-free cooking oil, encapsulated in cornstarch or wheat flour. (*Fantesk* was developed in the 1990s by National Center for Agricultural Utilization Research Chemists George Fanta and the late Kenneth Eskins.) The experiments have shown that, when making a cake with a mix that contains *Fantesk*, cooking oil doesn't have to be added. And, the mixes containing the ingredient produce low-fat cakes that have better texture and a higher volume. The lower-fat frostings that are being created are said to have the smooth texture and spreadability of buttercream favorites, yet contain up to 50% less fat. And that is a definite reason to celebrate.

Clear and Present Danger

This article will close with a title from a Tom Clancy spy thriller. "Clear and Present Danger" seems to appropriately describe the situation we're now facing. The health problems that are becoming an epidemic throughout the world are being inherited by our children—giving a new, and perhaps unforeseen, meaning to the biblical phrase "sins of the father." And to put it simply, there is just no excuse or rationale for that kind of behavior.

In the past, food manufacturers have spent considerable effort to make foods for children more fun and appealing, using a number of concepts—colors, shapes, flavors, interactive toppings, packaging, and marketing tie-ins with popular characters. Food manufacturers can still take this approach, but they must adapt it, combining it with strategies for making the product healthier for the child. Some of these ingredient strategies have been discussed in this article.

Interestingly, studies have shown that children are becoming more sophisticated, sharing an interest in some adult trends as well. For example, kids are becoming familiar with a wider range of cuisines, such as Thai or Indian, and these can have inherent health benefits which product developers can capitalize on.

Like their parents, kids also show an interest in convenience foods or on-the-go eating, and these present many opportunities for the incorporation of better-for-you ingredients.

Healthy habits begin early, of course, and if products can be successfully reformulated with whole grains, fruits and vegetables, salt or sugar alternatives, legumes, healthier fats, and others covered in this article, then that is the product that children will remember—and in some cases, continue to use—throughout their lives. That seems to me even more of a reason for children to consume reformulated products, even if they don't know about the health benefits of the product. Accept the product, and you accept the ingredients, and as you get older, you may base your lifestyles on those products that you consumed earlier in your life. For that reason, the stealth health approach probably does not promote bad nutritional messages or practices in the long run, but may, in fact, begin establishing and reinforcing good health practices. But then some of those sneaky parents of years ago may have already known this.

Which brings us back to "the clear and present danger." Much of the responsibility of establishing good practices, and perhaps overcoming at least part of the growing health challenges, has to lie with the parent. And the parent, when it comes to good dietary practices, needs to set a good example. Unfortunately, statistics show parents frequently do not present a good model when it comes to eating. For parents—and their kids—the food industry needs to continue to come up with solutions. Or as Michelle Obama said rather bluntly, "step it up."

Otherwise, I'm afraid the mission will end in failure and the consequences will be very tragic ones. **FT**

Next month, it's that time again for our annual Ingredients Pre-Show. Think Michigan Avenue, a big lake, hot dogs, deep dish pizza, and losing ball clubs, as the 2010 IFT Annual Meeting & Food Expo will be held in The Windy City, also known as Chicago.



Donald E. Pszczola,
Senior Associate Editor
• depszczola@ift.org

www.ift.org

Members Only: Read more about kid's health online at www.ift.org. Type the keyword in our search box at the upper left side of our home page.