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A SPECIAL ALL-DIGITAL ISSUE

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July 2013

Get Up and Go

Energizing supplements are keeping consumers active through their busy days

See Inside:

- Energy Drink Legal Timeline
- Energy Ingredients Sales Stats
- Demographics Interested in Energy Products

Fueling It

Like many of you, my job requires balancing multiple tasks, each requiring a great deal of brain power to complete. When it's time to clock out, my mind feels like it's done burpees all day. Maybe that's why after work and on the weekend, I like to exercise my body by running, swimming, biking and weight lifting. Throw in yoga and keeping up a social life, and yes, I need energy.

I used to drink soda for its caffeine (don't tell anyone, please), but now, it's all about green and black teas to wake me up in the morning. I also keep a few supplements in my routine that give me that extra oomph. Ribose and maca are my current favorites.

I'll also go with an occasional energy shot—if it contains no artificial, unpronounceable ingredients. If it has yerba mate or other energizing botanicals, I'll take it to get through that Tuesday afternoon slump.

You and your customers don't have to take my word for it. Many natural ingredients help people sustain their brain and physical energy throughout the work day or during exercise. Just scroll to the article in this Digital Pulse to see the research behind the natural product industry's energizing darlings.

The mounting research for natural energy solutions is even more appreciated as the conventional energy drinks are getting heat from regulators and lawyers. Check out a cool infographic on recent energy drink legal battles on page eight of this Digital Pulse.

As consumers are turning away from artificial forms of energy or those that add calories (such as sugar), they are looking for natural products that keep them moving, but not jittery, and are backed with science. Supplement and functional food manufacturers can offer these in a variety of delivery forms so consumers can stay on the go.



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Natural ingredients are keeping the buzz strong for consumers who want to stay energized without artificial additives. However, the market has seen its share of controversy with several energy drink companies in hot water.

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Get Up and Go

Energizing supplements are keeping consumers active through their busy days

By Pete Croatto

The quest for more energy and a better performance—whether it's at the gym or in the conference room—isn't slowing down anytime soon.

According to SPINS, a leading information provider for the natural and specialty products industry, sales of “vitamins and supplements marketed for energy support” tallied nearly USD \$700 million in natural and conventional outlets for the 52 weeks ending May 11, 2013. In an August 2011 survey of 2,355 U.S. adults, the Natural Marketing Institute (NMI) reported 57 percent treat a lack of energy/fatigue with “supplements for energy.”

INSIDER's Take

- Sales for energy products are not slowing, even with the recent controversy surrounding energy drinks.
- Physical and athletic energy can be realized with the help of ribose, CoQ10, L-carnitine, collagen and flavanols.
- Natural ingredients such as PS, French maritime pine bark extract, citicoline, tea and B vitamins can help increase mental stamina.

Sales of Energizing Products

	52 weeks ending 5/11/13	52 weeks ending 5/12/12	\$ % Chg
Sports Nutrition	\$76,312,292	\$52,560,204	45.2%
Creatine	\$29,259,515	\$23,293,278	25.6%
Other Sports Supplements	\$47,052,776	\$29,266,927	60.8%
Vitamins & Supplements Marketed For Energy Support	\$699,079,917	\$674,963,453	3.6%
<i>(By Category:)</i>			
Amino Acids	\$2,584,084	\$2,386,009	8.3%
Diet Formulas	\$39,276	\$27,640	42.1%
Digestive Aids and Enzymes	\$5,589	\$33,206	-83.2%
Food Supplements	\$8,122,344	\$9,279,720	-12.5%
Meal Replacements and Supplement Powders	\$37,939,285	\$30,101,669	26.0%
Miscellaneous Supplements	\$424,972,725	\$430,534,024	-1.3%
Sports Nutrition	\$8,281,048	\$5,455,804	51.8%
Vitamins and Minerals	\$217,135,564	\$197,145,381	10.1%

Source: SPINS, natural and conventional channels



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WE COULD ALL USE BETTER ENERGY.

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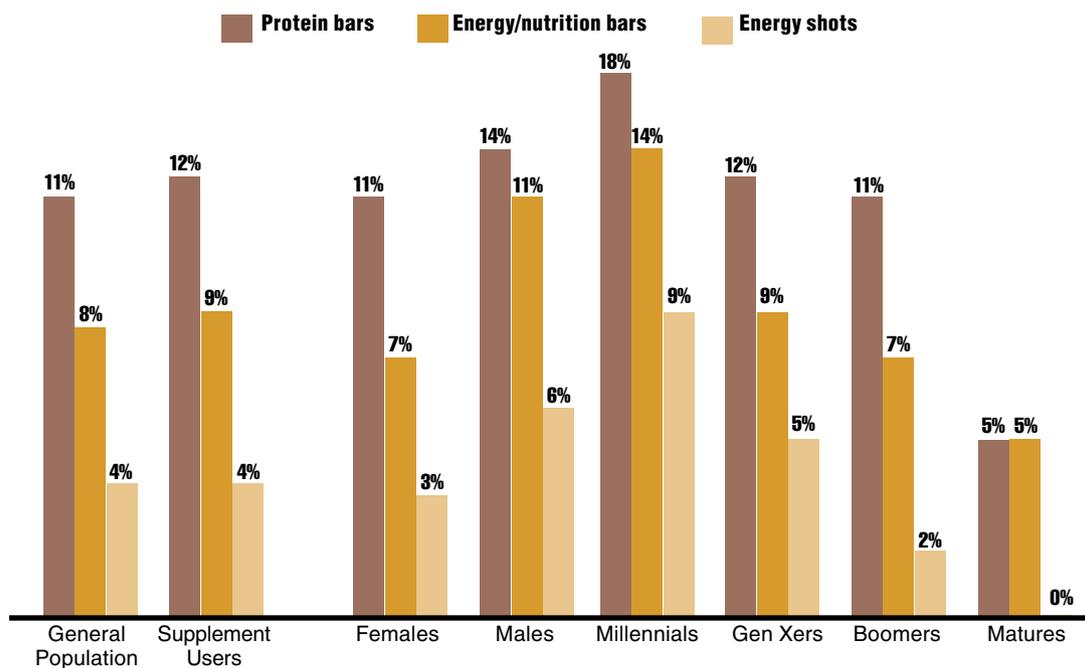
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Energy drinks are leading this quest. In “Energy Drinks and Shots: Market Trends in the U.S.,” Packaged Facts estimated the total U.S. sales of energy drinks and shots for 2012 exceeded \$12.5 billion. “The energy drink category experienced 42-percent growth from 2008 to 2012, the recession notwithstanding, while energy shots grew 168 percent and energy drink mixes stepped up to the plate,” the company said in a February press release.

Millennials are not the only ones looking to squeeze more from life, as the below chart from NMI indicates. Even energy drinks, long considered niche products for the clubbing sect, has matured or, as Packaged Facts suggested, transformed from “edgy to everyday.”

Demographic Variations Among Energy Product Users

(% consumers indicating they use the following products on a regular and consistent basis)



Source: The Natural Marketing Institute (NMI)

The proof isn't anecdotal. The International Labour Organization reported 18 percent of American workers put in more than 48 hours a week. That was in 2007, before the Great Recession. Two years later, the American Psychological Association reported that more than half of adults said family responsibilities are a significant source of stress, while 55 percent of employees said job demands had interfered with responsibilities at home in the past three months. With everyday demands increasing and time stubbornly remaining at 24 hours per day, the energy drink market will grow. Datamonitor Consumer's innovation insights director, Tom Vierhile, predicted a compound average growth rate (CAGR) in United States of 9.4 percent from 2012 to 2015. And that's with all the current controversy.



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Energy Drink Legal Timeline

Energy drinks have made recent headlines, and not always for good reasons. Starting in late 2012 with the death of a teen after she drank an energy drink to summer 2013 with lawmakers calling for more regulations, here's a break down of recent energy drink legal woes:

2012

Oct. 17



The parents of Anais Fournier, 14, file a wrongful death suit against the Monster energy drink brand. Fournier went into cardiac arrest after drinking two 24-ounce cans of the drinks in December 2011. She was pronounced brain dead six days later.

Oct. 23

FDA investigators report Monster Energy Drink has been cited in at least five deaths.



2013

Jan. 16

A class action lawsuit alleges that Red Bull's advertisements, sales and marketing practices are misleading and that the energy drink's benefits have no scientific substantiation.



Jan 17

Chicago Alderman Ed Burke proposes a citywide ban on all energy drinks.



April 10

Sens. Dick Durbin (D-IL) and Richard Blumenthal (D-MA) and then-Congressman Ed Markey (D-CT) release "What's All the Buzz About," a report claiming caffeine levels are not always made clear on energy drink labels and are typically above the FDA's safe levels for soda.



April 29

Monster sues San Francisco City Attorney Dennis Herrera, who is investigating the company under the state's unfair competition law.



May 6

Herrera sues Monster for marketing its energy drinks to children.



June 25

The mother of 19-year-old Alex Morris, who died from a cardiac arrhythmia in 2012, alleges in a lawsuit that his death was caused by his daily consumption of Monster Energy Drink.





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Anytime energy is pushed on the masses, the potential for chaos is wide-ranging—remember ephedra and DMAA?—but the good news is well-researched, efficacious ingredients are not hard to find.

Whether it's in coffee cups or aluminum cans, **caffeine** has been America's pick-me-up for years. Recent research has been mixed on the energy drink staple. When researchers at California State University, Chino, had male runners complete three trials of 5 km after taking an energy shot with either 0 mg, 80 mg or 140 mg of caffeine.¹ The energy shots did not improve their times. But a study from Camilo José Cela University in Spain claimed, “the use of an energy drink with a caffeine dose equivalent to 3 mg/kg⁻¹ considerably enhanced the movement patterns of rugby players during a simulated match.”²

When human participants took a supplement that included 100 mg/d of caffeine and 400 mg/d of the brain performance stalwart **phosphatidylserine** (PS) for 14 days, post-exercise mood improved as well as the perception of fatigue.³ Meanwhile, a research paper published in *The Journal of Human Nutrition and Dietetics* declared PS “significantly improved attention deficient hyperactivity disorder (ADHD) symptoms and short-term auditory memory” in children aged 4 to 14 who had previously not received any medication for ADHD.⁴ The double blind, randomized study lasted for two months. Studies also support the phospholipid's benefits on the physical side of energy, including a 2008 study in *The Journal of the International Society of Sports Nutrition* where researchers cited its role in combating “exercise-induced stress” and “preventing the physiological deterioration” that comes with too much exercise.⁵

Pycnogenol®, a **French maritime pine bark** extract from Horphag Research, has also shown benefits to mental and physical energy. A 2011 study at Pescara University examined 53 Italian university students, ranging in age from 18 to 27, who were assigned to either a control or test group.⁶ The test group was given 100 mg of Pycnogenol per day for eight weeks. The Pycnogenol group had higher test scores on university exams than the control group and displayed significant improvement in alertness and contentedness, Horphag reported. In 1999, a study from the University of California, Chino, demonstrated that recreational athletes who supplemented with Pycnogenol for 30 days increased their endurance on a treadmill.⁷

Coenzyme Q10 (CoQ10) showed positive results on another group of athletes. In a double blind, placebo-controlled study of 100 German athletes training for the 2012 Olympic Games, participants received either 300 mg of CoQ10 (Kaneka's ubiquinol) or placebo for six weeks.⁸ The athletes, who trained individually, performed

Anytime energy is pushed on the masses, the potential for chaos is wide-ranging, but the good news is well-researched, efficacious ingredients are not hard to find.



a maximum power output test, the results of which were measured in watt/kilogram body weight (W/kg bw). According to the study, recently published in *The Journal of the International Society of Sports Nutrition*, supplementing with 300 mg of CoQ10 enhanced physical performance measured as maximum power output by 0.08 W/kg bw; this was an increase of 2.5 percent.

A multi-ingredient weight-loss supplement containing **bitter orange** (as Advantra Z®, from Nutratch) increased energy levels in overweight men and women as well as enhanced body composition and reduced hip and waist girth.⁹ The randomized, placebo-controlled, parallel-group, double blind study, which appeared in *The Journal of the International Society of Sports Nutrition* in April 2013, featured 70 obese, but otherwise healthy subjects undergoing eight weeks of daily supplementation, calorie-restricted diet and exercise training.

A study in July 2013's *Journal of Physiology* found increasing **L-carnitine** in healthy male subjects “can modulate muscle metabolism, energy expenditure and body composition over a prolonged period of time.”¹⁰

Ribose's body of research keeps expanding. The a naturally occurring pentose sugar provides a key building block for producing the “energy molecule” adenosine triphosphate (ATP) in every cell. University of Minnesota researchers found, “supplemental D-ribose enhanced the recovery of high-energy phosphates following stress [including high-intensity exercise] and appears to potentially offer additional benefits by reducing radical formation.”¹¹ And in 2004, researchers from the University of Florida conducted a meta-analysis of human and animal studies, finding ribose enhanced the recovery of heart or skeletal muscle ATP and total adenine nucleotide (TAN) levels following high-intensity exercise.¹² ATP is the main source for energy in cells and regulates metabolism; TAN is essential for basic metabolic reactions, including protein, metabolism and energy transfers. Further, the researchers said ribose modulated the production of oxygen free radicals during and following exercise, which results in less inflammation.

Unpublished studies of Naturex's **flavanol**-rich ingredient, Powergrape®, claim 400 mg/d for four weeks protected red blood cells and increased hemoglobin concentrations, prevented muscular damage and increased antioxidant defenses. According to the company, those results contributed to improved physical performance and decreased fatigue.

And because people need to actually move to exercise, **collagen** is a consideration. Subjects who previously experienced joint discomfort upon strenuous exercise saw results when taking 40 mg of InterHealth Nutraceuticals' UC-II®, a patented dietary ingredient consisting of undenatured type-2 collagen, over 17 weeks.¹³ “The average knee extension at day 120 was significantly greater for the UC-II cohort as compared to placebo,” wrote Jay Udani, Ph.D., the study's researcher. “Furthermore, the UC-II group demonstrated a greater increase in average knee extension at day 90 and day 120, which was statistically significant compared to baseline.”



Ribose's body of
research keeps
expanding.

When it comes to sharpening a consumer's mental energy, most of the developments will interest senior citizens. Italy's open, multi-center IDEALE study featured 349 patients 65 years or older with "subjective memory complaints."¹⁴ The active group, a total of 265 patients, was administered 500 mg of oral citicoline twice a day throughout the nine-month study. The results? Citicoline activated "biosynthesis of phospholipids in neuronal membranes, increase[d] brain metabolism as well as norepinephrine and dopamine levels in the central nervous system, and ha[d] neuroprotective effects during hypoxia and ischemia."

In a cross-sectional, community-based study with 716 Chinese adults 55 years or older, "both **black/oolong tea** and green tea consumption were associated with better cognitive performance."¹⁵

June 2013's *Proceedings of the National Academy of Sciences* had potentially stunning news.¹⁶ "**B-vitamin** treatment reduces, by as much as sevenfold, the cerebral atrophy in those gray matter (GM) regions specifically vulnerable to the AD [Alzheimer's disease] process, including the medial temporal lobe," the researchers summarized. "In the placebo group, higher homocysteine levels at baseline are associated with faster GM atrophy, but this deleterious effect is largely prevented by B-vitamin treatment." For the study, 156 elderly subjects—whose neurological obstacles ranged from mild cognitive impairment to Alzheimer's disease—received a combination of B12 (500 mcg), B6 (20 mg) and folic acid or placebo for two years.

Dehydroepiandrosterone (DHEA) and **dehydroepiandrosterone sulfate (DHEA-S)** act against the effects of cortisol, the stress hormone. Swedish researchers discovered that the reaction of their subjects (36 healthy men and women with a mean age of 37) to perceived stress during the workweek may create a greater need for people to reach for that extra boost to get through the day.¹⁷ "Prolonged stress, measured as perceived stress at work during the past week, seems to negatively affect the capacity to produce DHEA-S during acute stress," the researchers observed. "Given the protective functions of DHEA-S, attenuated DHEA-S production during acute stress may lead to higher risk for adverse effects on psychological and physiological health, particularly if stress exposure continues."

For millions, exposure to stress isn't a matter of if, but when. And that's where manufacturers step in to fulfill a demand that shows no signs of fatigue. □

Both black/oolong tea and green tea consumption were associated with better cognitive performance.

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