

TECHNICAL BULLETIN

DRIED PLUMS CREATE THE PERFECTLY BALANCED ENERGY BAR: PERFECT NUTRITION. . .PERFECT TASTE AND TEXTURE

Summary

The energy bar category wasn't even a category in the late 1980's. Today, however, energy bars are estimated to be \$300 million in sales and growing at 40% annually. *Money Magazine* forecasts that it will top \$500 million by the end of the decade if not sooner.

High-energy foods aren't new, even in bar form. In the past, energy bars were a stepchild to candy bars. Energy (or performance bars) were heavy textured and expensive, with a woody flavor only an athlete could love. They represented quick, easy, portable nutrition—an energy boost for athletes who really needed it.

But times have changed. Portable nutrition is a priority for a fast-paced, mobile society. A healthy image for a food product is an important lifestyle consideration, albeit with a hard-to-define set of priorities, particularly among fitness oriented consumers.

Energy bars have cross-generational appeal: generation Xers like the nutrition, baby boomers appreciate the energy boost and the youthful appeal, athletes (including recreational) value the performance edge. Even seniors gravitate to the category as a meal replacement.

Energy bars can be divided into two categories:

- **High in carbohydrates** (up to 90%), low in proteins and as little as 2% fat.
- **A more balanced** mix of these same three components.

Critics contend that many of these energy bars are not as healthful due to high fat and calorie content and questionable digestibility.

However, the more balanced approach (higher protein and fat content and lower proportion of carbohydrates (40-60%) promotes greater fat burning during exercise, thus saving carbohydrate stores for the final push at the end of a long workout or race.

What has been lacking in both types of energy bars has been the flavor and texture characteristics that both athletes and general consumers would find acceptable. Can nutrition and energy be delivered in a convenient bar form without sacrificing sensory value?

Recently, The California Dried Plum Board, working with David Michael Company, Philadelphia, PA, developed a new energy bar concept that combines a balanced approach to the nutritional content with a significant improvement in flavor and texture. In fact, the flavor and texture of Dried Plum Energy Bars approximate that of a granola/cereal/snack bar.

Concept

PLUM GOOD ENERGY BARS

Plum Good Energy Bars are all natural, balanced energy bars made from plum juice and plum powder, soy protein, corn syrup, puffed rice, rolled oats, puffed wheat, sunflower seeds, canola oil, wheat germ, oat bran, dried coconut and natural flavors.

Plum Good Energy Bars are available un-coated and yogurt or chocolate coated. Each 40 gram coated bar contains 150 calories, 3 grams of fat and 5 grams of protein. These energy bars also contain 3 grams of fiber, 65% carbohydrates, only 30 mg of sodium and 330 mg of potassium.

Unlike other energy bars that are dry and tough to eat, Plum Good Energy Bars are lighter in texture--more like a granola bar and tasty to eat.

Balanced Nutrition

When comparing the nutritional content of various examples of balanced energy bars, the **Dried Plum Energy Bars have the same or less fat, less sodium, more fiber, substantially more potassium and is generally comparable in protein and carbohydrates.**

SELECTED ENERGY BARS
NUTRITIONAL COMPARATIVE ANALYSIS
(40 gram equivalent basis)

	Balance Bar Yogurt Coated/ Honey Peanut	Power Bar Oatmeal Raisin	Power Bar Chocolate	Cliff Bar Real Berry	Plum Good Energy Bar Uncoated	Plum Good Energy Bar Yogurt Coated
Calories	160.0	142.0	142.0	147.0	140.0	150.0
Total Fat (g)	4.8	1.5	1.2	1.2	1.5	3.0
% Fat	12.0	3.8	3.1	2.9	3.7	7.5
Sodium (mg)	176.0	74.0	55.0	59.0	35.0	30.0
Potassium (mg)	72.0	110.0	89.0	159.0	380.0	330.0
Protein (g)	11.2	6.2	6.2	2.4	6.0	5.0
% Protein	28.0	15.4	15.4	5.9	15.0	12.5
Fiber (g)	0.8	1.8	1.8	2.9	3.0	3.0
Carbohydrates (g)	17.6	27.7	27.7	30.6	26.0	26.0
% Carbohydrates	44.0	69.2	69.2	76.5	65.0	65.0

FORMULA

Plum Good Energy Bars
(40 grams)

	%
Dried Plum Powder (Dried Plums and Apples)	23.96
Fresh Plum Juice Concentrate	19.61
Soyrich B	17.65
Hi Fructose Corn Syrup	16.66
Puffed Rice	8.82
Rolled Oats	2.59
Puffed Wheat	1.96
Sunflower Seeds	1.92
Honey	1.81
Sesame Seeds	1.47
Canola Oil	1.16
Rolled Wheat Germ	0.91
Toasted Wheat Germ	0.60
Oat Bran-Dry	0.50
Dried Coconut	0.32
Michaelthermics N & A Blueberry Flavor #15296	0.06
TOTAL	100.00

Source: David Michael Company

Sensory Evaluation

Working with Five Star Brands, a manufacturer of energy bars, the California Dried Plum Board took the David Michael protocept energy bars to the laboratory sample stage for consumer evaluation. Samples of the bar were yogurt coated.

One hundred-one respondents who had purchased and personally consumed energy bars in the past 90 days were selected for the test. The product was code named Plum Good Energy Bars.

Using a five-point rating scale, the energy bar samples received ratings in the 3.8-4.4 range for all characteristics. A related attribute rating on the all important texture characteristic resulted in 62.4% indicating the texture was “just right”.

What respondents liked most about Plum Good Energy Bars was “flavor” (38.6%), “texture/crunchy” (32.7%), “appearance/color” (22.8%).

Fifty-nine percent (59.6%) indicated they would definitely/probably purchase Plum Good Energy Bars, with good taste/flavor being the primary reason for positive purchase interest in the product.

CONSUMER SENSORY*
EVALUATION OF
PLUM GOOD ENERGY BARS

(N=101)

Sensory Rating	
Appearance	4.3
Color	4.1
Aroma	4.1
Texture	3.8
Flavor	3.8
Overall	4.0
Like versus other energy bars	3.9
Texture Attribute Rating	
Much too dry	1.0%
Slightly too dry	22.8%
Just right	62.4%
Slightly too moist	12.9%
Much too moist	1.0%
Purchase Interest	
Definitely would purchase	22.4%
Probably would purchase	37.2%
May/may not purchase	20.2%
Probably would not purchase	17.0%
Definitely would not purchase	3.2%
* 1= Unsatisfactory, 5 = Excellent	

Conclusions

The addition of dried plum powder and fresh plum juice concentrate in energy bars provides added moisture and a more desirable texture that is often lacking in these products. This product improvement is due to the naturally occurring fiber and sorbitol in dried plums.

The nutritional profile of energy bars containing dried plums is also improved-- particularly fat and sodium content as well as fiber. Potassium levels are significantly increased. Evaluation of the sensory characteristics of the sample Plum Good Energy Bars along with positive purchase interest by consumers of energy bars indicates that food designers should consider the addition of dried plum powder and fresh plum juice.