



Caffeine in Energy Drinks & Dietary Supplements in the US

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Office of Dietary Supplements



Disclaimer: The views and ideas presented here are my own and do not represent those of the NIH or any other federal entity.



I have no conflicts of interest to disclose; but, I love coffee!

What is the prevalence of use of energy products in the U.S.?



- ▶ Available Data Sources (others exist)
 - ▶ 1.) Sales Data
 - ▶ 2.) National Monitoring Data
 - Health and Nutrition Examination Survey (NHANES)
 - ▶ 3.) Emergency Room Visits
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Background



- ▶ Energy and caffeine are not synonymous
 - ▶ Confusion about energy drinks vs energy supplements
 - ▶ Products are consumed differently
 - ▶ Dietary Supplements– 1 capsule
 - ▶ *Stacker 2 Yellow Hornet– 300mg caffeine*
-



Background



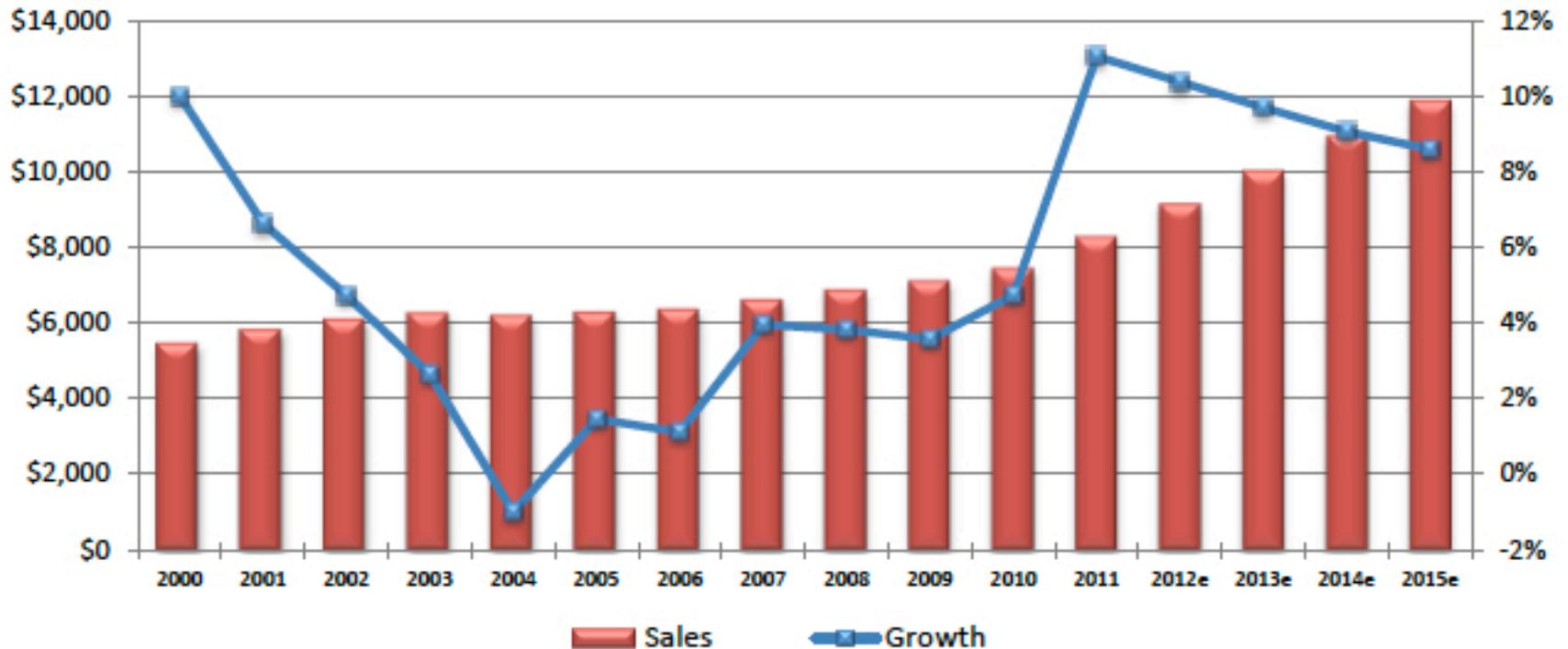
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1.) Sales and Growth Data



Figure 10-18 U.S. Sports/Energy/Weight-Loss Condition Specific Supplement Sales & Growth, 2000-2015e



Source: Nutrition Business Journal estimates. (\$mil., consumer sales)

Sales Data = Strengths and Limitations

- ▶ Doesn't represent consumption
- ▶ Doesn't control for product pricing (expensive products with little use, or cheap products with high use)
- ▶ Does allow to compare trends over time
- ▶ Does provide a signal of product type relative to other product types
 - ▶ 1, Multi-vitamins = ~5 billion
 - ▶ 2, Sports Nutrition = ~ 3 billion
 - ▶ Nutrition Business Journal-2011 Report



2.) Emergency Room Visits



Substance Abuse and Mental Health Services Administration
SAMHSA
www.samhsa.gov • 1-877-SAMHSA-7 (1-877-726-4727)

Drug Abuse Warning Network

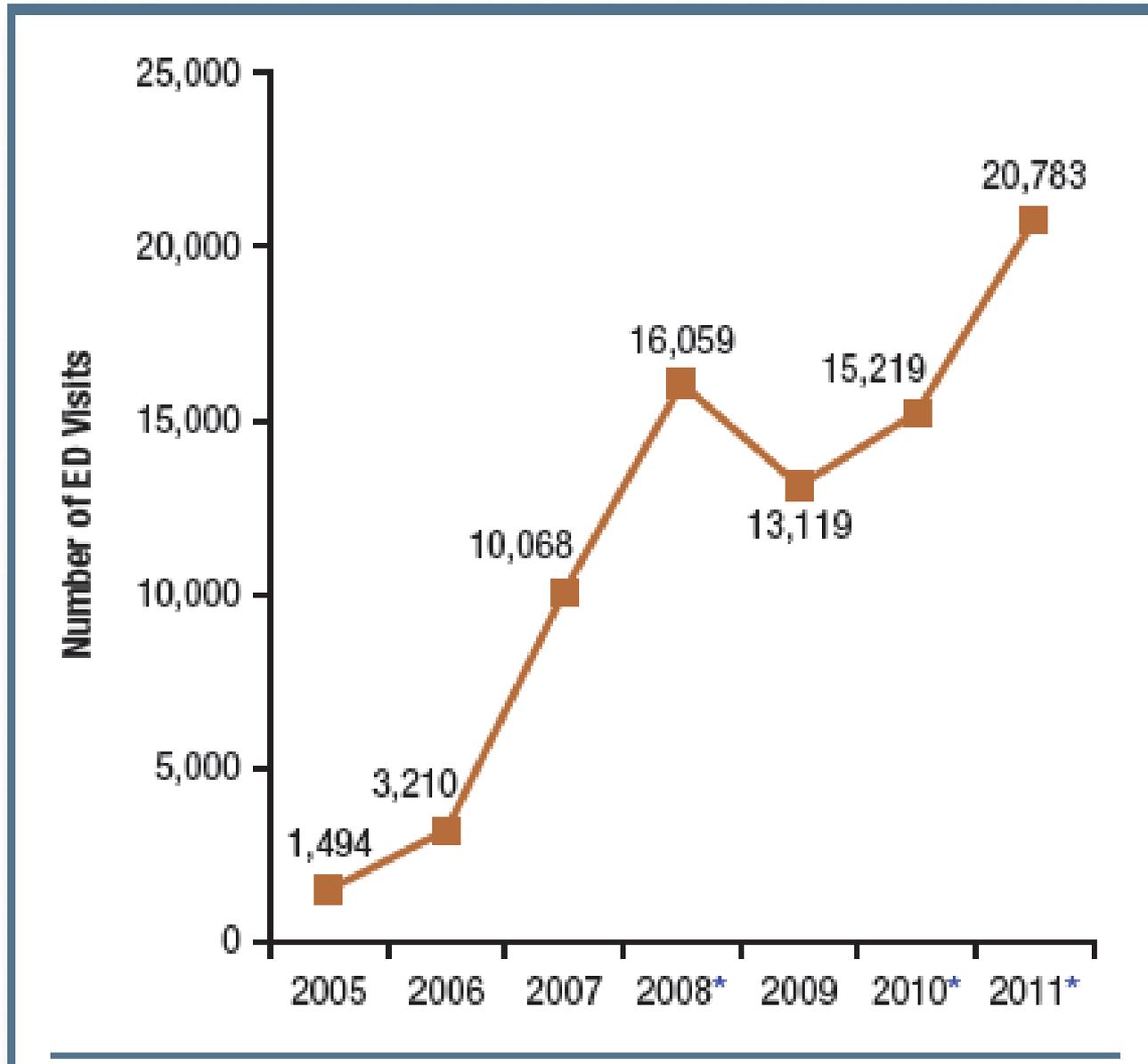
The DAWN Report

January 10, 2013

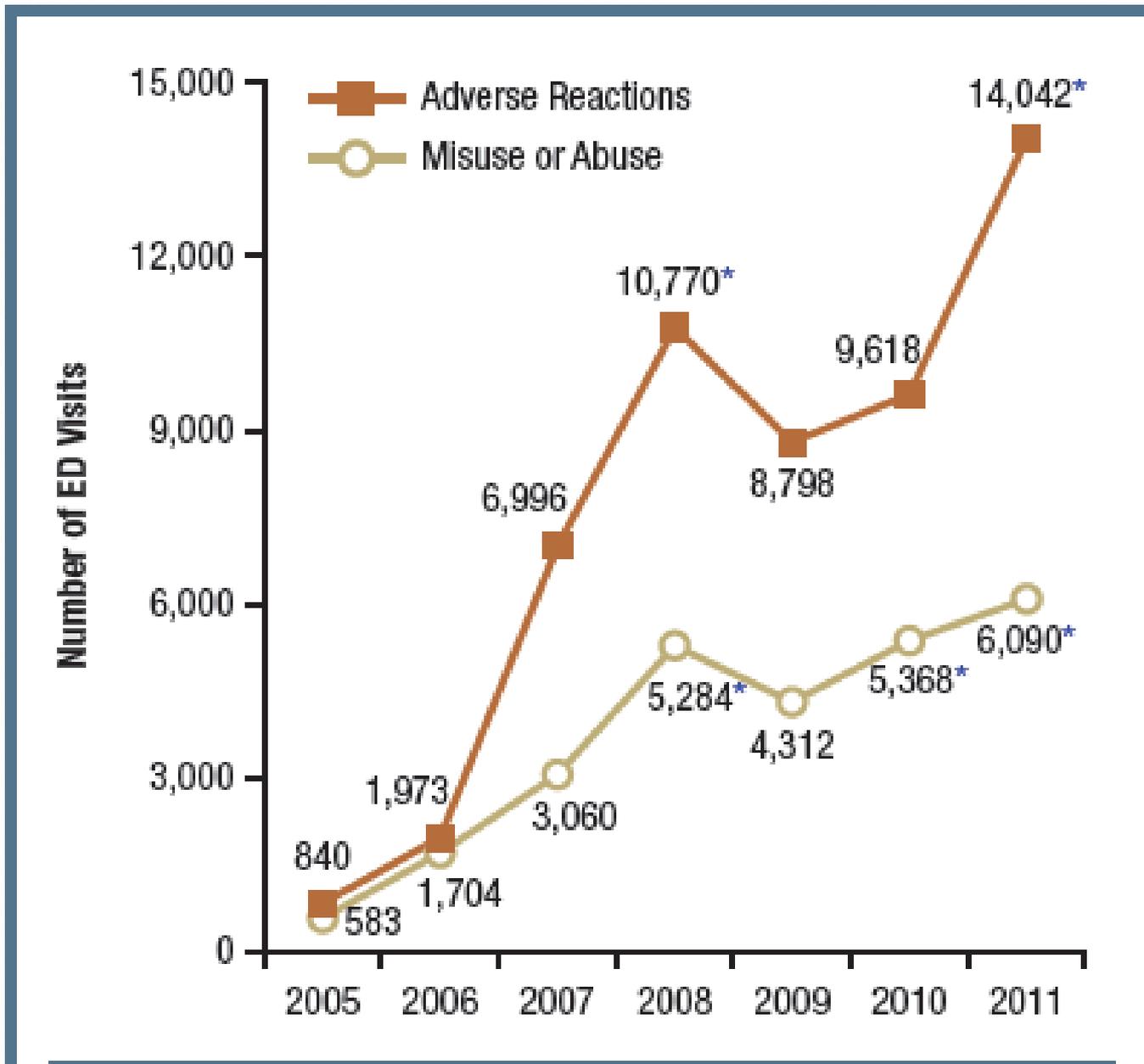
Update on Emergency Department Visits Involving Energy Drinks: A Continuing Public Health Concern



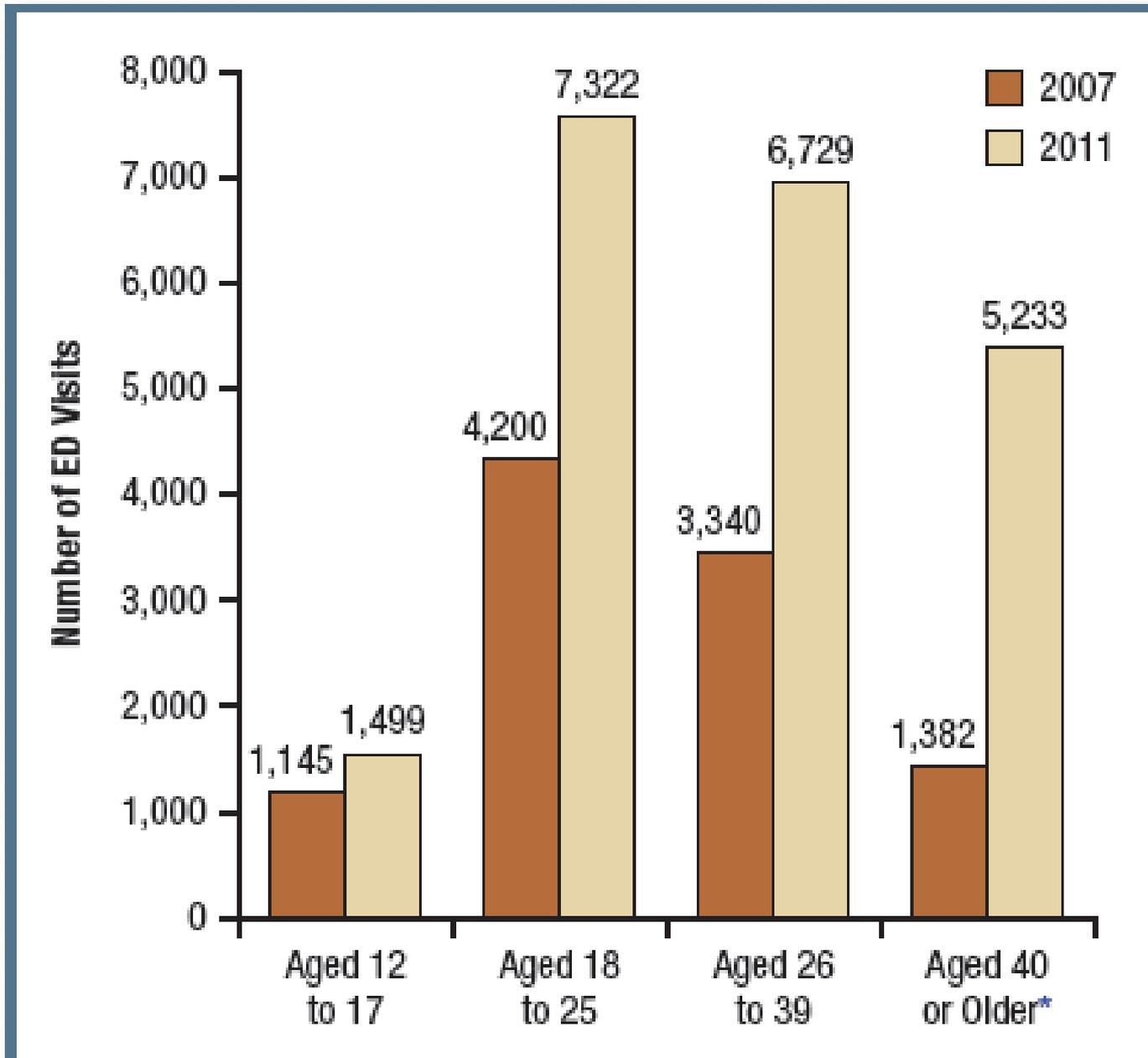
Number of Emergency Room Visits Associated with energy Drinks by Time



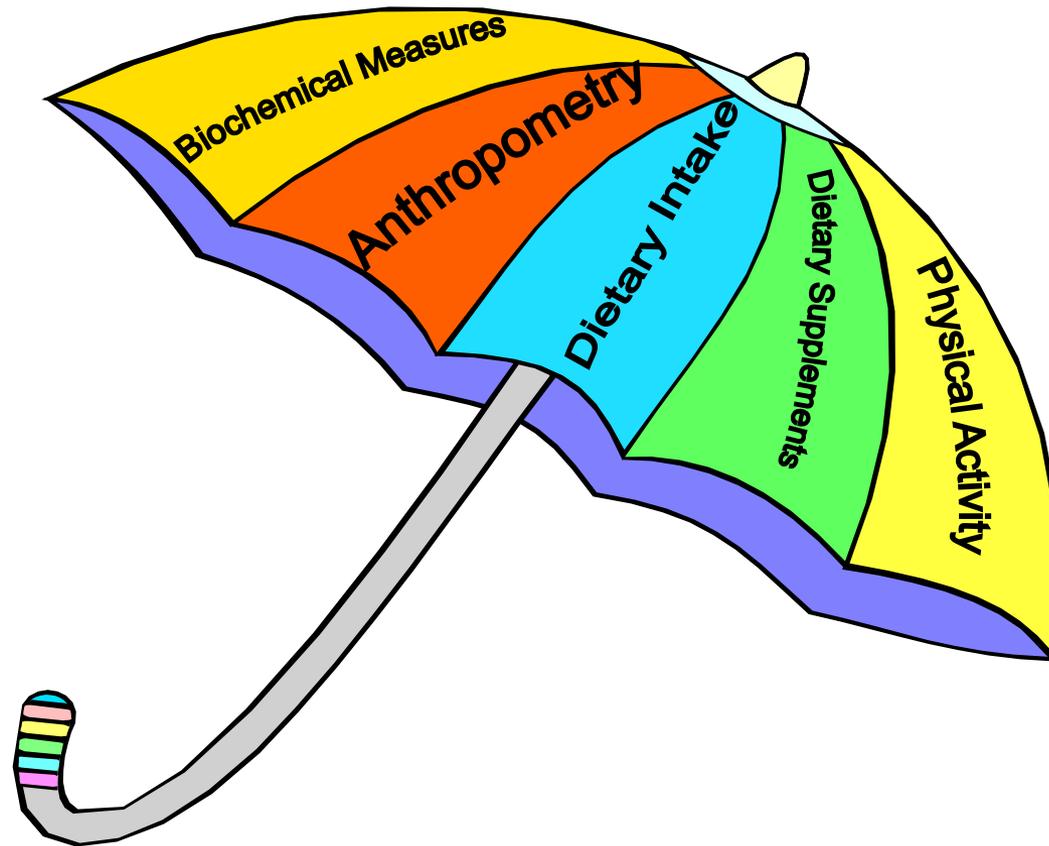
Number of ER Visits by Category



Number of Emergency Room Visits by Age, Time



3.) National Health and Nutrition Examination Survey (NHANES)



To assess the health and nutritional status of adults and children in the United States.

NHANES Measurement

- ▶ Dietary Supplements

- ▶ Home Interview

- ▶ Frequency of use in the previous 30 days
 - ▶ Show containers to the NCHS staff

- ▶ Diet and Dietary Supplements

- ▶ Mobile Exam Center (in person) and by telephone

- ▶ 2, 24-hour dietary recall
 - ▶ Reminded of reported usage in the home



Summary NHANES 2007-2010

- ▶ Very little usage of dietary supplements with caffeine in the US
- ▶ Energy drink usage is more common, with highest usage in males 14-50 years
- ▶ Energy “products” add ~150/200 mg/day of caffeine*

*From products with a label declaration of amount



Estimating Caffeine Exposure is Difficult

- ▶ Reporting the amount of caffeine is not consistent for both foods and supplements
- ▶ The **amount** of caffeine as part of a “blend” does not need to be declared for foods or dietary supplements
- ▶ Very little is known about the accuracy of reporting of energy products or the usual consumption patterns
 - ▶ Makes it difficult to estimate who is using, how often, and how much



Supplement Facts / Faits de supplément

1

Serving Size 1/4 teaspoon
Servings per Container 45

Ingredient - Amount per Serving - % Daily Value

Caffeine - 450 mg - +

2

SUPPLEMENT FACTS

SERVING SIZE 2 FL. OZ.

AMOUNT PER SERVING	% DAILY VALUE
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CALORIES 0	CALORIES FROM FAT 0
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TOTAL CARBOHYDRATES 0g	0%
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NIACIN (AS NIACINAMIDE) 20mg	100%
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VITAMIN B6 (AS PYRIDOXINE HYDROCHLORIDE) 40mg	2000%
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FOLIC ACID 400mcg	100%
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VITAMIN B12 (AS CYANOCOBALAMIN) 500mcg	8333%
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SODIUM 10mg	<1%
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ENERGY BLEND 2125mg	* †
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TAURINE, MALIC ACID, CAFFEINE, GLUCURONOLACTONE,
N-ACETYL L-TYROSINE, L-PHENYLALANINE

ENZYME BLEND 1111g	†
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AMYLASE, PROTEASE, LIPASE, CELLULASE, LACTASE

* DAILY VALUE NOT ESTABLISHED

OTHER INGREDIENTS: FILTERED WATER, NATURAL FLAVORS, POTASSIUM SORBATE & SODIUM BENZOATE (TO PROTECT FRESHNESS), SUCRALOSE.

3

Ingredients:

Sparkling water, organic evaporated cane juice, organic guarana seed extract (contains 125mg of naturally occurring caffeine per serving), malic acid, natural flavors, citric acid, organic ginkgo biloba leaf extract, organic echinacea flower extract, organic panax ginseng root extract.

Dietary Supplement Label Database (DSLSD)

- Existing database to capture labels of dietary supplements of more than 20,000 products



The screenshot shows the top navigation bar of the DSLSD website. On the left is the NIH logo and the text "National Institutes of Health". In the center is the title "Dietary Supplement Label Database". On the right, it says "A Joint Effort of the Office of Dietary Supplements and the U.S. National Library of Medicine". Below the navigation bar are links for "Home", "About", "Contact", and "Help". On the right side of the page, there are "Print" and "Report Error" icons. The main content area features a sidebar with navigation buttons: "Quick Search", "Browse Dietary Ingredients", "Browse Products", "Browse Contacts", and "Advanced Search". Below these is a "Reference Links" section with a list of links: "Unit Converter", "Daily Value", "Dietary Reference Intakes", "Definitions", "FAQ", "Reference Sources", and "Help". The main text area contains a paragraph starting with "The Dietary Supplement Label Database (DSLSD) is a joint project of the National Institutes of Health (NIH) Office of Dietary Supplements (ODS) and National Library of Medicine (NLM). The DSLSD contains the full label contents from a sample of dietary supplement products marketed in the U.S." followed by a list of search options: "DSLSD On Market" and "DSLSD Off Market".

NIH National Institutes of Health | Dietary Supplement Label Database

A Joint Effort of the
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The Dietary Supplement Label Database (DSLSD) is a joint project of the National Institutes of Health (NIH) Office of Dietary Supplements (ODS) and National Library of Medicine (NLM). The DSLSD contains the full label contents from a sample of dietary supplement products marketed in the U.S.

Within the DSLSD you may select one or more of the following to conduct searches of the database:

- DSLSD On Market = Label information from dietary supplement products that are currently on the U.S. market
- DSLSD Off Market = Label information from dietary supplement products that have been discontinued or are no longer on the U.S. market

For the DSLSD, all information is obtained from the manufacturers' labels.

The DSLSD is being developed initially for researchers and scientists.

Distinct products with “Energy” in the product name (N=157)

Form	Contain caffeine		Provide caffeine content on the label
	yes	no	
Liquid (Serving size =>1 fl oz) 20%, n= 32	29	3	10
All other 80%, n=125	52	73	40

Conclusions



- ▶ **Sales of sports and energy supplements increasing over time**
 - ▶ **Emergency room visits increased from 2007 to 2011**
 - ▶ **Use of “energy” products from NHANES remains low overall**
 - ▶ **Many energy products on the market, data from the DLSD**
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Data Gaps

- ▶ **Need a clear definition of what is an energy product**
 - ▶ Need for consistency – more than 300 synonyms for the word caffeine
- ▶ **Understanding of the role of other ingredients in these products with caffeine (and alone)**
- ▶ **Understanding of the best way to assess intakes of these products**



Data Gaps

- ▶ **Understand what are the high risk groups and what are the high user groups**
 - ▶ National monitoring surveys are not likely to pick up the high-usage groups
 - ▶ Time lag, most recent is 2010
- ▶ **To get more precise estimates of caffeine exposure it will be necessary to have databases that are complete and current**

Thank you!



- ▶ Jaime Gahche – NCHS/CDC
 - ▶ Johanna Dwyer – ODS/Tufts
 - ▶ Barbara Sorkin, Joseph Betz & Leila Saldanha-ODS
 - ▶ Pamela Pehrsson & David Hatowitz-USDA
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- ▶



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ODS Web site: <http://ods.od.nih.gov>



Office of
Dietary Supplements
National Institutes of Health

Product-type break down of Sales

