



Energy Drinks:
Where the Science Meets Main Street

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Energy Defined

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Defining the word, “energy” may seem quite simple by looking at a dictionary. However, it’s the context in which the word might be used that helps to differentiate its meaning. So where do you start?

Let’s try to get a grasp of the term, **energy**, by looking at the [Merriam-Webster dictionary](#) (1). This resource seems to have a significant backing particularly since it’s been around for quite some time. This source says:

“A fundamental entity of nature that is transferred between parts of a system in the production of physical change within the system and usually regarded as the capacity to do work.”

or

“A dynamic quality”

or

“The capacity of acting or being active”

or

“A positive spiritual force”

The popular “people-monitored” resource known as [Wikipedia.com](#) (2) defines energy as:

A scalar physical quantity that describes the amount of work that can be performed by a force such as: 1) Kinetic, 2) Potential, 3) Thermal, 4) Gravitational, 5) Sound, 6) Light,

7) Elastic, or 8) Electromagnetic

According to another internet source, [www.yourdictionary.com](#) (3), energy could reflect:

- **Force of expression or utterance**
- **Capacity for vigorous action**
- **Strength or power efficiently exerted**
- **That which can be generated from Earth’ resources to generate electricity, heat, etc.**
- **The capacity for doing work**

The “capacity to do work” seems to be a consistent theme in these and other sources. Now, how to we apply this theme to Energy Drinks. Since the body must find a way to incorporate energy from drinks to allow it to do work, let’s use the term “bioenergy.”

Now let’s define “bioenergy.” Bioenergy is an actual entity that is derived from food sources. These food sources include: carbohydrates (such as sugar, bread, pastas, fruits, vegetables, etc.) fats (such as butter, cheese, whole milk products, etc.), and proteins (such as meats, fish, eggs, etc.). We can actually quantify this energy derived from these food sources. Carbohydrates, when broken down by the body, actually generate 4 calories per gram; fats generate 9 calories per gram; and proteins (amino acids) generate 4 calories per gram.

Let’s now apply this energy quantity, known as Calories, to what we might expect to get from Energy Drinks. In other words, “Is there REAL bioenergy in Energy Drinks? You might be surprised!!!!

Let's begin with typical Energy Drinks:

1) How much bioenergy is in:

5-Hour
Energy



Answer = 4
Calories

4) How much bioenergy is in:

Red Bull



Answer =
110 Calories

2) How much bioenergy is in:

7-Hour
Energy



Answer =

5) How much bioenergy is in:

AMP



Answer =
120 Calories

3) How much bioenergy is in:

Monster



Answer =
90 Calories

Now here's the **TEST**: If you were to depend upon any of these energy drinks to run a one mile distance, which of the drinks would supply enough bioenergy to do this?

Answer is: **Red Bull** and **AMP**, because it costs approximately 100 calories of energy to do.

So, can we depend upon **All** energy drinks to supply enough energy to provide us with the capacity to do work or exercise?????? Maybe it's just PERCEPTION!

Wikipedia.com (4) actually gives a reasonable definition of what energy drinks really are:

“Energy drinks are [soft drinks](#) advertised as providing [energy](#) to improve physical activity of the drinker, as compared to a typical drink. Rather than providing food energy (as measured in [calories](#)), these drinks are designed to increase a user's mental alertness and physical performance by the addition of caffeine, vitamins, and herbal supplements which may interact to provide a stimulant effect over and above that obtained from caffeine alone.”

In other word, **Energy Drinks stimulate the body to use energy that's already inside the body.**

Here's the **Final Exam**: Which of the following statements, from www.energyfiend.com (5) is best?

- Any drink with the word energy on the can/bottle.
- Any drink with multi-energy enhancing ingredients such as vitamins, caffeine, and taurine.
- Any drink with more than 100mg of Caffeine.
- Any drink that has at least one energy enhancing ingredient.
- An energy drink must have caffeine in it.
- Other

I'll leave it to you to decide, but think about which answer you would have chosen before this tutorial about Energy Defined; would both answers be the same???????

References:

1. Energy. (n.d.). In *Merriam-Webster's online dictionary* (11th ed.). Retrieved from <http://www.m-w.com/dictionary/energy>.
2. Energy definition. Retrieved from <http://en.wikipedia.org/wiki/Energy>.
3. Energy definition. Retrieved from <http://www.yourdictionary.com/energy>.
4. Energy drink definition. Retrieved from http://en.wikipedia.org/wiki/Energy_drink.
5. Energy definition. Retrieved from <http://www.energyfiend.com>.