

LIPTON INSTITUTE OF TEA

# Healthy beverage guidelines

A summary of the proposed guidance system for beverages, American Journal of Clinical Nutrition, March 2006<sup>1</sup>



New beverage guidelines highlight that tea is second only to water as an ideal beverage choice for hydration. It's time to put the kettle on and get brewing!

Based on the current global obesity epidemic with a concurrent increase in energy contribution from calorie rich beverages (up to 21% of the total daily energy intake of US individuals), an independent panel of nutrition scientists have formulated the first Healthy Beverage Guidelines (HBG). The aim of the guidelines is to provide consumers with a clear and easy guide to selecting healthier beverages and highlighting the need to reduce intake of higher caloric beverages.



## Defining fluid requirements

To date, there are no recognised daily intake recommendations for fluid. Derived from the US general population consumption habits of total fluids, an Adequate Intake (AI) of fluid was defined instead; approximately 3 l for men and 2.2 l for women.

## Defining beverage energy contribution

The HBG base recommendations on a 2,200 kcal (9,240kJ) total daily energy intake. The HBG panel agreed that a healthy diet should not rely on fluids to provide energy or nutrient needs (with possible exceptions such as dairy/fortified soy). However, variety and individual preferences should be considered. Based on the Institute of Medicine (IOM) recommendations of a healthy menu for a healthy man, beverages should ideally contribute to 10% of total energy intake and should not exceed 14%. Ideally, around two thirds of these calories should come from low-fat milk and the remainder (approximately 110 kcal/462 kJ) from other calorie containing beverages.

## Portion size also under scrutiny

8 fl oz/250 ml was classified as a single portion size - based on the FDA official portion size recommendations, whereas a typical US portion size is larger (21 fl oz/621 ml).

## Most to least ideal beverage

Energy density was the main driver for the HBG but other factors were taken into consideration:

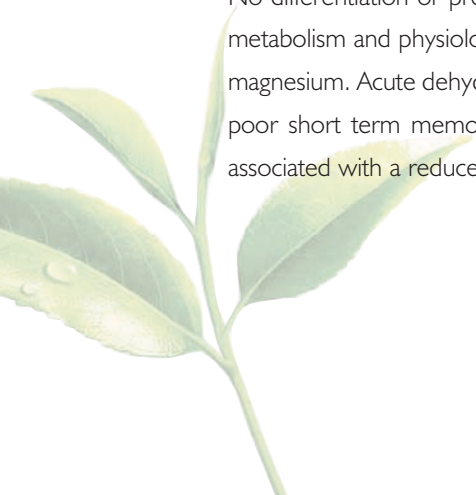
- Nutrient density and contribution to daily intake of essential nutrients e.g. dairy and pure juices
- Evidence of beneficial health effects
- Evidence of adverse health effects

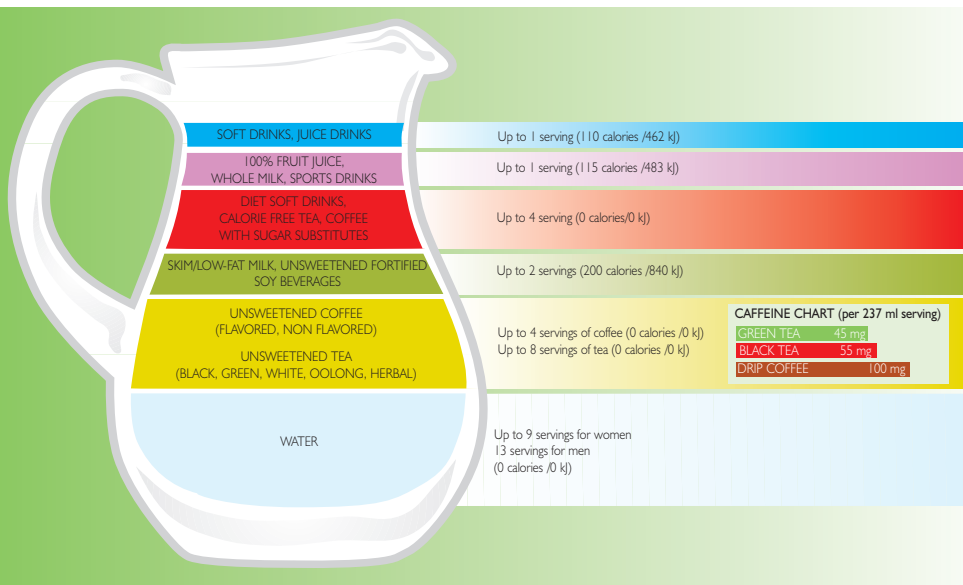
The HBG panel ranked beverages into 6 levels. Level 1, not surprisingly, is occupied by water as the most ideal beverage and level 6 comprises beverages providing energy and no other nutrient or health benefits.

## The panel's rationale for the recommendations

### Level 1 - Water - 13 servings for men and 9 servings for women

No differentiation or preference is made between potable and bottled water. Water is known to be essential for normal metabolism and physiologic functions and can be a significant contributor of essential minerals such as fluoride, calcium and magnesium. Acute dehydration can lead to impaired cognition, moodiness, poor thermoregulation, reduced concentration, poor short term memory, increased tiredness, headaches and increased reaction times. Improved hydration has been associated with a reduced risk of kidney stone formation.





**Level 2 - Unsweetened tea and coffee (zero calories)**

**TEA - 8 servings**

Includes all tea from the *Camellia sinensis* plant - green, white, oolong, black. The majority of evidence demonstrates a modest but significant reduced risk (11%) of myocardial infarction associated with a regular consumption of 3 servings (3 x 237 ml) of tea per day. Tea is a rich source of flavonoids which, as well as

acting as antioxidants, have been associated with other health benefits such as improved endothelium-dependent vasodilation. Tea has also been associated with better dental health, which can be attributed to the significant fluoride levels in tea as well as *in vitro* evidence indicating tea flavonoids possessing antibacterial properties. Tea is a source of a relatively unique amino acid L-theanine, which has been linked to improved innate immunity. No negative side effects were highlighted by the panel.

Herbal teas/ Infusions - were not specifically addressed, but based on the criteria used to rank beverages, they can easily fit into level II.

**COFFEE - 4 servings**

Numerous prospective cohort studies have demonstrated a significant inverse association between coffee consumption and incidence of Type II Diabetes. Studies investigating other health benefits of coffee are inconsistent. A number of studies show no link between coffee and coronary heart disease (CHD) incidence whilst other studies indicate a strong correlation between coffee consumption and increased CHD risk factors such as elevated serum lipids (with unfiltered coffee only), systolic and diastolic blood pressure (and yet, no correlation with long-term hypertension) and plasma homocysteine.

**The caffeine myth**  
 Coffee contains more caffeine than tea. The majority of evidence points to caffeine having a mild diuretic effect, which is far outweighed by the fluid contribution of caffeinated beverages. Current evidence suggests that a daily intake of 400 mg caffeine is not associated with any side effects in healthy individuals. This challenges a common misconception that caffeinated beverages are dehydrating and the lower daily recommendations set by other countries. The HBG make specific recommendations for pregnant women who are advised to limit caffeine to 300 mg a day and children should consume no more than 2.5 mg caffeine/kg body weight.

**Level 3 - Low fat / skimmed milk (or unsweetened fortified soy products) - 2 servings**

Milk is an essential source of calcium and vitamin D for children and young adults. The majority of evidence points to a strong association between better bone mineral density (BMD) and milk intake and that if calcium intakes are not maintained, BMD deteriorates. The evidence for an association between dairy intake and weight loss was reviewed in 2005 by the US Dietary Guideline Committee which concluded that the evidence was inconclusive.



#### Level 4 - Non-calorically sweetened beverages - 4 servings

Although diet drinks are preferable to calorically sweetened drinks, the panel felt there was a lack of long term safety studies for artificial sweeteners. In addition, there is some evidence that the increased sweetness is conditioning individuals for sweetened products and reducing the likelihood to select less sweet products.

#### Level 5 - Calorically sweetened beverages with some nutritive benefits - 1 serving

- 100% Fruit juices: one serving of juice can be used to contribute to a serving of fruit. Yet it is not essential and it would be more beneficial to consume the whole fruit.
- 100% Vegetable juices: like fruit juice, it is more desirable to consume the whole vegetable. In addition, vegetable juices contain significant levels of salt.
- Alcohol - obviously for adults - alcohol was placed within the guidelines due to the health associations of polyphenols and moderate consumption.

#### Level 6 - Calorically sweetened beverages - no more than 1 serving

This level is made up of beverages which provide energy and no other nutrients. Sweeteners such as fructose corn syrup and sucrose have been associated with increased dental carries, overall energy intake and weight gain, as well as Type II Diabetes. In addition, the panel felt that significant evidence exists that caloric beverages (unlike calories obtained from solids) do not offer an individual a sense of satiety and beverage calories are not compensated for in subsequent meals/snacks. Thus making the association between obesity and caloric beverages stronger and emphasising the need for a consumer beverage guidance system as much as a food pyramid guide.

#### Conclusions and recommendations

The panel concluded that the need for a beverage guidance system is as essential as a food pyramid guide to help consumers reduce their total daily energy intake. Other recommendations from the panel:

- The beverage guidelines are guidelines and no specific quantities can be given due to individual difference.
- More than 60% of daily beverage intake should be of the non-caloric variety.
- Nutrient dense fluids like milk should not be replaced by nutrient poor calorie containing beverages.
- Availability of sweetened beverages needs to be reduced with a concurrent increase in low calorie/calorie free varieties.
- Portion size and daily servings need to be tackled. In the US, the increase in energy contribution from beverages has been associated with an increase in portion sizes from 13.6 fl oz (402 ml) to 21 fl oz (621 ml) and a simultaneous increase in daily servings from less than 2 to 2.4 per day.
- Concerning the fortification of non-caloric beverages, the panel only recommends such practice if there is a population risk of deficiency. The food naturally containing the nutrient should always be encouraged.
- Fortification of calorie containing beverages is discouraged.

#### Reference

I. Barry M. Popkin, Lawrence E. Armstrong, George M. Bray, Benjamin Caballero, Balz Frei, Walter C Willett. A New Proposed Guidance System for Beverage Consumption in the United States. *Am J Clin Nutr*, 2006;83.

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