



Center for Food, Nutrition, and Agriculture Policy  
University of Maryland-College Park

## **EXECUTIVE SUMMARY**

*Ceres<sup>®</sup> Forum on*

*Beer: To Your Health!*

*Organized and Convened by:*

**The Center for Food, Nutrition, and Agriculture Policy  
University of Maryland—College Park**

October 10, 2006  
Washington, DC

## **Welcome and Opening Remarks**

**Speaker: Dr. Maureen Storey**  
**Director, Center for Food, Nutrition, and Agriculture Policy**  
**University of Maryland—College Park**

Dr. Storey began by noting that the conference is the first U.S. forum to address the issue of health and moderate beer consumption. This is in keeping with the mission of the Center for Food, Nutrition, and Agriculture Policy (CFNAP), which is to advance rational, science-based food, nutrition, and agriculture policy. Dr. Storey stated that the objectives of the conference were to review the science on the health benefits of moderate beer/alcohol consumption and the risks of excessive beer/alcohol consumption. In addition, the participants were to discuss the challenges of communicating the health benefits of moderate beer/alcohol consumption and the risks of excessive beer/alcohol consumption to consumers.

## **Keynote Address** ***Alcohol Consumption and Health: An Overview***

**Speaker: Dr. R. Curtis Ellison**  
**Chief, Section of Preventative Medicine and Epidemiology**  
**Director, Institute on Lifestyle and Health**  
**Boston University School of Medicine**

Dr. Ellison reviewed epidemiological studies from many countries, including the Framingham Heart Study in the U.S., showing that moderate amounts of alcohol consumption seem to be protective against coronary heart disease (CHD). Government resistance prevented this information from being shared with the American public when initially disclosed in 1974. But other scientists reported such an association, which became widely known in 1991 when “60 Minutes” aired a report on the “French Paradox.” That report highlighted the fact that CHD rates are lower in France than in the U.S. despite the high-fat diets that are eaten by the French. The protective effect of alcohol is due to its effects on blood lipids—especially an increase in HDL cholesterol—and also from favorable effects on blood coagulation, fibrinolysis, endothelial function, and many other factors. Dr. Ellison also summarized data depicting the typical “U-shaped curve,” depicting a 20% lower risk in total mortality among moderate drinkers. Beer, wine, and spirits all exhibit similar health effects, with greater frequency of consumption being an important factor. For people without contraindications to alcohol use, daily consumption of 0.5-2 drinks per day with food may be the most preferable drinking pattern, while binge drinking (5-6 drinks per day or more than 3 drinks in 1-2 hours) is unhealthy. Dr. Ellison concluded that current data clearly indicate that regular, light-to-moderate drinking can be considered a component of a healthy lifestyle for most Americans.

## Session 1 Beer and Health Issues

**Moderator: Dr. Maureen Storey**  
**Director, Center for Food, Nutrition, and Agriculture Policy**  
**University of Maryland—College Park**

***Beer Overview: History/Manufacture/Composition/Bases for Health Effects***

**Speaker: Dr. Charlie Bamforth**  
**Department Chair, Food Science and Technology**  
**University of California—Davis**

Dr. Bamforth traced the history of beer, noting that it has been consumed for over 6,000 years and remains a staple part of the diet in many cultures. He described the four phases of beer production—malting, brewing, fermenting, and finishing. Many of the ingredients in beer—including hops, barley, and yeast—have the potential to provide beneficial nutrients, such as soluble fiber ( $\beta$ -glucans and arabinoxylans), antioxidants (phenolics and ferulic acid), and dextrans (slow-release carbohydrates). Beer contains few additives and no pathogens. Beer has a nutrient profile similar to that of white bread. It is a significant source of B vitamins (except B<sub>1</sub>); provides calcium, magnesium, and phosphorus; and has a favorable potassium to sodium ratio. Dr. Bamforth stated that beer is wrongly perceived as unhealthy in comparison to wine, an issue that could be corrected by responsibly promoting beer as a healthful, sophisticated beverage that should be consumed in moderation.

***Diabetes and Moderate Alcohol Consumption***

**Speaker: Dr. Andrea Howard**  
**Assistant Professor, Epidemiology & Population Health and Medicine**  
**Montefiore Medical Center, The University Hospital for the Albert Einstein College of Medicine**

Dr. Howard described the impact of the current epidemic of diabetes around the world and in the United States, where it is the sixth leading cause of death. She presented the results of a systematic review of 18 cohort studies assessing the association of alcohol use with the incidence of diabetes in adults. The data indicate that, compared with nondrinkers, moderate drinkers (those who consume 1-3 drinks/day) have a lower risk of diabetes mellitus. Compared with moderate drinkers, heavy drinkers (>3 drinks/day) may have a greater risk of developing the disease. The potential biological mechanisms for the impact of light/moderate alcohol consumption on diabetes risk include enhanced insulin sensitivity and lower levels of inflammatory markers. Light/moderate alcohol consumption may also be a marker for a healthy lifestyle. Dr. Howard recommended counseling patients with individualized advice based on a risk/benefit analysis. While patients who already drink alcohol can be advised that moderate consumption may reduce their diabetes risk, the data do not support advising nondrinkers to start consuming alcohol.

### ***Bone Health and Moderate Alcohol Consumption***

**Speaker: Dr. Jonathan Powell**  
**Head, Micronutrient Status Research Section**  
**Medical Research Council-Human Nutrition Research (MRC-HNR)**

Dr. Powell highlighted recent epidemiological data indicating that moderate consumption of alcoholic beverages is positively associated with bone mineral density, which is a proxy for bone health in population-based studies. Two components of beer have the potential to favorably affect bone health—ethanol and silicon. Dr. Powell's recent findings suggest that ethanol ingestion acutely inhibits bone loss (resorption). He believes this is partly attributable to a previously reported energy effect, but is also partly due to a novel ethanol-specific effect. In addition, a series of experiments strongly suggest that silicon plays a vital role in bone health by promoting bone formation. Beer contains a significant amount of silicon in a highly absorbable form. However, while moderate alcohol intake promotes bone health, excessive consumption is associated with abnormal bone loss.

### ***Nutrient Intakes, Overall Diet Quality, and Weight in Moderate Drinkers***

**Speaker: Dr. Theresa Nicklas**  
**Member, 2005 Dietary Guidelines Advisory Committee**  
**Professor of Pediatrics, Children's Nutrition Research Center**  
**Baylor College of Medicine**

Dr. Nicklas reviewed some of the evidence considered by the Ethanol Subcommittee of the 2005 Dietary Guidelines Advisory Committee (DGAC). After a systematic review of the evidence the 2005 DGAC concluded that a daily intake of one to two alcoholic beverages was not associated with inadequate intake of macronutrients or micronutrients or with overall dietary quality. Dr. Nicklas also presented data from the Bogalusa Heart Study showing an inverse association between alcohol consumption and body mass index in women, but not in men. For future research, Dr. Nicklas recommended investigating the relationship between moderate drinking and food group consumption and looking into the question of whether moderate drinkers have healthier lifestyles. She suggested that a healthful way to include alcohol in a daily diet is to view alcoholic beverages as providing "discretionary calories." The 2005 Dietary Guidelines for Americans (DGA) conclude that if you choose to drink, one drink a day for women and two drinks a day for men is appropriate.

### ***Cardiovascular Health and Moderate Alcohol Consumption***

**Speaker: Dr. Francois M. Booyse**  
**Professor of Medicine, Division of Cardiovascular Disease**  
**Director, Molecular Cardiology Program**  
**University of Alabama at Birmingham**

Moderate alcohol consumption is associated with reduced risk for CHD. Dr. Booyse discussed how alcohol affects components of the body's blood clotting system. A major impact of alcohol on the cardiovascular system is its effect on fibrinolysis, or "clot

busting.” The presence of alcohol in the blood increases and sustains fibrinolytic activity, promotes clot lysis, and reduces the risk of formation of blood clots that could block an artery or a vein. Since the effects of alcohol intake on fibrinolysis persist for 12-18 hours following consumption, daily moderate alcohol consumption is necessary to maintain this benefit.

## **Luncheon Address Results of a Consumer Survey on Beer and Health**

**Speaker: Dr. Maureen Storey**  
**Director, Center for Food, Nutrition, and Agriculture Policy**  
**University of Maryland—College Park**

Dr. Storey presented preliminary results of a consumer survey designed to elicit information about alcohol consumption, such as consumer perceptions of beer and beverage alcohol and consumer understanding of moderate and excessive consumption of alcohol. Consumers have disparate views on the healthfulness of different types of beverage alcohol (wine v. beer v. distilled spirits). Many, but not all, consumers view moderation as 1-2 drinks a day, which is consistent with the 2005 DGA. The survey pointed to opportunities to help consumers understand appropriate serving sizes of alcoholic beverages (12 oz. beer, 5 oz. wine, and 1.5 oz. 80-proof distilled spirits).

## **Session 2 Balancing the Benefits and Risks of Alcohol Consumption**

**Moderator: Dr. Sanford Miller**  
**Senior Fellow, Center for Food, Nutrition, and Agriculture Policy**  
**University of Maryland—College Park**

### ***What is Moderation?***

**Speaker: Dr. Arthur Klatsky**  
**Senior Consultant, Cardiology**  
**Kaiser Permanente Medical Center**

The concept of “moderate” implies a level above which alcohol consumption is likely to be “unhealthy” and below which it is likely to be “safe.” It also includes the concept of a daily or weekly limit and allows for individual variation. Definitions may or may not be evidence-based, but all have problems. Quantitative definitions of moderation are always arbitrary. Dr. Klatsky noted that recommendations regarding “moderate” drinking vary from country to country. Some U.S. authorities suggest a definition of up to one standard drink per day for women or older persons and up to two drinks per day for younger men. Thresholds for harm are obscured by residual confounding and

systematic under-reporting. Upon review of aggregate mortality data, Dr. Klatsky presented his preferred definition, which is based on the mean reported level of consumption without apparent net harmful effects. Using this criterion, he concludes that less than three drinks per day can be called “light/moderate,” while 3 or more standard drinks per day qualifies as “heavy.”

### ***Dietary Guidelines***

**Speaker: Dr. David Baer**

**Research Physiologist, Diet and Human Performance Laboratory  
USDA Agricultural Research Service**

A primary reason that alcohol is included in the 2005 DGA is that alcoholic beverages provide calories, but few nutrients. The 2005 DGAC concluded that in middle-aged and older adults, a daily intake of one to two alcoholic beverages is associated with the lowest all-cause mortality. Compared with nondrinkers, women who consume one alcoholic beverage per day have a slightly higher risk of breast cancer. This is one reason for the differing recommendations for men and women in the 2005 DGA. Among younger people, alcohol consumption appears to provide little health benefit; among young adults, it is associated with a higher risk of injury and death. Dr. Baer reported that there are few specific studies on the health benefits of beer, although there is a potential benefit from dietary flavanoids—the antioxidant and anti-inflammatory phytonutrients that are present in beer. However, flavanoids have a negative effect on beer quality.

## **Session 3 Communications Issues**

**Moderator: Dr. Gary Weaver**

**Director, Program for Agriculture and Animal Health Policy  
Center for Food, Nutrition, and Agriculture Policy  
University of Maryland—College Park**

### ***Models to Balance Benefits and Risks***

**Speaker: Dr. Richard Forshee**

**Deputy Director and Director of Research, Center for Food, Nutrition, and  
Agriculture Policy  
University of Maryland—College Park**

Alcohol is an example of a food whose consumption may reduce some risks and increase others. Dr. Forshee presented a model for an integrated approach to risk/benefit analysis that has the potential to improve dietary guidance and public health. Using fish consumption as an example, he demonstrated various scenarios under which different risk groups (women of childbearing age, women not of childbearing age, all women, all men) could assess the effect of increasing or decreasing consumption on Quality Adjusted Life Years (QUALY). The models analyzing multiple risks also

demonstrate that in order to achieve the lowest total risk, it may be necessary to accept some risk. Dr. Forshee's model can be applied to many decision-making applications including alcohol consumption, seafood consumption, sun exposure, and fortification levels.

***Risk Perception and Communication: The Challenges of Communicating the Risks of Excessive Drinking—and Some Suggestions***

**Speaker: Dr. Monique Mitchell Turner**  
**Assistant Professor, Department of Communication**  
**University of Maryland—College Park**

Dr. Turner stressed the importance of understanding the audience so that messages concerning risk will lead to behavior and attitude change. A big challenge in communicating the concept of risk to the public is that people tend to underestimate their own risk. To communicate that “this *could* happen to me,” messages should contain audience-specific information. Messages that play upon emotions such as fear are not always effective in achieving a behavior change. “Inoculation” strategies including “future messages,” educate the audience before the risky behavior becomes an issue. This strategy provides ammunition to counter competitive messages from the media and other sources.

***Communications Roundtable***

**Panelists: Dr. R. Curtis Ellison; Dr. Andrea Howard; Dr. Francois M. Booyse; Dr. David Baer; Dr. Monique Mitchell Turner**

With regard to the need for further research, Dr. Booyse mentioned that there is resistance to the high-quality data that already exist concerning alcohol's protective effect on the cardiovascular system. Dr. Bamforth noted the need for independent research since industry-sponsored research is often considered self-serving. Dr. Nicklas responded that industry research would not be questioned if the science was right. She also advocated for more research, including randomized controlled trials, for maximum credibility. Dr. Ellison responded that it is not feasible to collect these types of data; therefore, it is necessary to use indirect evidence. Dr. Baer brought up the challenge of communicating nutrition messages, noting that only 3% of Americans follow the 2005 DGA. According to Dr. Klatsky, the strong streak of Puritanism in U.S. culture and within the scientific community contributes to the resistance to communicating positive messages about alcohol consumption.

## Wrap-Up

**Speaker: Dr. Maureen Storey**  
**Director, Center for Food, Nutrition, and Agriculture Policy**  
**University of Maryland—College Park**

Dr. Storey said it had been a productive day for reviewing the science concerning moderate alcohol consumption and identifying where further research is needed. Due to possible misinterpretation and distortion of the message, scientists, consumer groups, and even government officials are concerned about communicating the benefits of moderate alcohol consumption to the public. Conferences like the Ceres® Forum can help to alleviate this problem by emphasizing the scientific evidence and discussing methods by which to effectively communicate this information to the public.