



April 15, 2010

To: The Office of Science and Technology Policy  
From: The Endocrine Society  
Re: Grand Challenges RFI

To Whom It May Concern:

The Endocrine Society appreciates this opportunity to provide input into the Grand Challenges of the 21<sup>st</sup> Century. Founded in 1916, The Endocrine Society is the world's oldest, largest and most active organization devoted to research on hormones and the clinical practice of endocrinology. Today, The Endocrine Society's membership consists of more than 14,000 scientists, physicians, educators, nurses and students in more than 100 countries. Society members represent all basic, applied and clinical interests in endocrinology.

**Challenge: Provide the ability for every American to achieve optimal weight control.**

*Proposed Action - The Obama Administration supports policies and scientific innovation in government and academia, in conjunction with partners in the food and pharmaceutical industries, to elucidate the means by which every American can achieve optimal weight control within the next 10 years.*

Obesity has been linked to a number of ailments (i.e., diabetes and heart disease) and to the progression of diseases (i.e., cancer). Obesity complicates many health conditions and makes them more difficult to treat. It is considered an epidemic in the United States and is a primary focus of First Lady Michelle Obama. Food consumption in excess of energy expenditure is the direct cause of obesity, ***but many underlying factors affect the energy intake/output ratio***. There are complex interactions between the individual and his or her environment that drive eating behaviors, create sluggish metabolism, and favor physical inactivity. In addition, access to reasonably priced healthy foods is not universally available within this country. Addressing any single element in this equation does not and will not result in an enduring optimization of body weight and energy balance. Moreover, numerous economic and social barriers must be overcome to make this an achievable reality. Without a public/private partnership and full engagement of the biomedical community, the obesity epidemic may well continue to spiral out of control and continue to threaten the health of even more Americans. The proposed Grand Challenge addresses this vitally important health issue.

To quell the obesity epidemic and in response to this challenge, physicians and scientists within The Endocrine Society offer the following recommendations:

**1. Mobilize the research community, the food industry and the legislature and policy arms of government to help Americans control excessive appetite and make better food choices.**

Recent research has made tremendous inroads into the understanding of the neurobiology of eating behavior. Whereas a perfect solution has yet to be developed, there are several known methods to promote satiety (such as increased consumption of fiber-rich foods and prescription pharmaceuticals) and assist Americans in meeting optimal nutritional needs. The Endocrine Society and other organizations have recommended that calorie and nutritional composition information be provided to consumers for restaurant and store-bought foods. Provisions in the Health Care and Education Reconciliation Act requiring certain chain restaurants to provide nutritional information are a good start. The Obama Administration is urged to continue to facilitate these labeling processes and to use additional research on the context and framing of nutritional information to support the movement from knowledge of calories and food composition to action (making better food choices and losing weight) among consumers.

Research has also elucidated the linkages between stress, depression and eating behavior. Additional support to organizations that promote mental health resources for individuals who are most susceptible to these risk factors will reduce inappropriate eating behavior by Americans. A better understanding of the reward circuitry that leads to sustained overeating should be a target of research. Middle age is linked to a substantial drop in caloric needs (up to 25% for women) and the potential to gain weight in middle age is compounded by a decrease in physical activity. Further research and public policy guidelines must be developed to meet the metabolic challenges faced by our growing population of aging Americans.

Finally, improved availability of and education about healthy food choices for all Americans, including the urban poor, needs to be implemented along with behavioral research that will help people select foods of higher nutritional value and reduced calorie content. These goals can only be met if healthier foods are made available at costs comparable to calorically dense food choices. This will best be achieved by partnerships between the public and scientific communities, as well as the food supply industries. The Endocrine Society has published a [guideline on Pediatric Obesity](#) that addresses many of these points.

**2. Support biomedical research focused on identifying factors involved in the control of metabolism.**

Recent findings by clinical and basic researchers have shown that fat acts as an endocrine organ, producing several hormones and hormone-like factors that affect metabolism, including leptin, ghrelin, adiponectin, and cytokines. These factors are able to affect both nervous and endocrine system functions; therefore, it will be critical for this Administration to support research that determines the mechanisms by which these and other fat-associated factors modify metabolism and contribute to obesity in individuals, and to support translational research that leads to novel therapeutic approaches.

**3. Establish public/private partnerships to address the role of endocrine disrupting chemicals in our environment.** Certain elements of food products cause inappropriate accumulation of fat in the body or reduce metabolism. Endocrine disrupting chemicals (EDCs)--chemicals that modify hormone activity--have been identified in natural food products and have been shown to interfere with metabolism. They may also accumulate as foods are processed or during food storage. *The effects of EDCs in promoting obesity have not been fully determined but appear to be significant.* It is critical for this Administration to support essential research that will determine exactly how EDCs contribute to obesity in individuals and to encourage the incorporation of cutting-edge research into public policy. It is equally critical for industry to partner with science to develop effective, low-cost methods to limit exposure to endocrine disrupting chemicals that have such untoward metabolic effects. The Endocrine Society has published a [Scientific Statement](#) on EDCs, which presents a comprehensive review of the scientific literature. The Society has also published a [Position Statement](#) on Endocrine Disruptors, describing the Society's regulatory and policy goals.

**4. Promote achievable levels of physical fitness for all Americans.** The absence of adequate public transportation in many cities and most urban areas has led to a universal reliance on the automobile as the preferred means of transportation and has led to a decline in the simplest form of physical activity—walking. Many suburban neighborhoods lack sidewalks, and many inner-city neighborhoods are unsafe for walking and recreational physical activity. *This lack of acceptable venues for physical activity is a known contributing factor to childhood obesity.* Epidemiological research has indicated a strong relationship between the physical structure of a community and the fitness of its inhabitants. It is imperative that these deficiencies in our communities be addressed by the Obama Administration to allow all Americans to achieve optimal metabolic health. The public must partner with scientists, urban designers, community leaders and members of the construction industry to redesign communities with adequate parks and recreation areas and available public transportation to enhance opportunities for exercise and to find solutions that are critical for the health and well-being of Americans.



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