

## **Final Plenary**

### **Research: The Next Years**

**James O. Hill, PhD**  
**University of Colorado, CO USA**

#### **Abstract**

Rates of obesity are increasing globally despite increased awareness of obesity as a threat to public health and despite increased efforts to prevent and treat obesity. In this presentation, I will first consider the different kinds of strategies that can be used to address obesity and then to consider where there are gaps in our understanding of obesity that limit the effectiveness of each of these strategies. Then I will consider new tools and strategies that might help increase our ability to treat or prevent obesity. Finally I will speculate on where research breakthroughs might occur in the near future.

The general strategies for addressing obesity include producing weight loss, maintaining weight loss and preventing weight gain. We are much more successful in producing weight loss than in either maintaining weight loss or preventing weight gain. Despite this, the majority of research still seems to be focused on ways to produce more weight loss. With the exception of those who undergo GI surgery, most people who lose weight regain most of it over time. There is an urgent need to better identify the behavioral changes associated with successful weight loss maintenance and to understand how to achieve and sustain these changes. Additional research is needed in how drugs or devices (eg. modification of GI function) can enhance successful weight loss maintenance. Successful weight loss maintenance requires an understanding of biology, behavior and the environment. However, weight loss maintenance research rarely considers these components together.

While research suggests that large changes in behavior must be achieved and sustained for successful obesity treatment, prevention of weight gain should be achievable with much smaller behaviour changes. Prevention of weight gain is a strategy that could be applied to all weight categories, since weight gain seems to increase disease risk in any weight category. Prevention of weight gain could be a particularly useful strategy for those who are already overweight, since this group represents those at high risk to become obese. However, even small behavioral changes are difficult to sustain and will likely require addressing the physical and social environment as well.

If sustainability of behavior change is a major barrier to successful prevention of weight gain or regain, are there new tools that might help? It is now possible to interact with people by internet, email, mobile phones and other devices. This new means of interactive communication could be useful in helping sustain behaviour changes. Additionally, it is clear that weight is influenced by social networks and social networks provide an interesting target for interventions to help achieve and sustain behaviour changes.

It is unlikely that genetics alone will provide the tools for addressing obesity, but genetic information in the context of "personalized medicine" holds promise for obesity. On the basis of genetic, metabolic or behavioral information, it may be possible to classify individuals according to susceptibility to weight gain or by likelihood of response to different intervention strategies.

Finally it is important to consider where obesity will be addressed and by whom? Research is needed to evaluate the success of each strategy in different behavior settings such as the clinic, the community, schools, worksites, etc.