# R & D Tax Credit Aspects of Human Body Weight

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Charles R. Goulding, Charles G. Goulding and Raymond Kumar discuss how innovation to address an increase in the average weight of Americans can generate tax savings for the research and development undertaken to make existing products safer.

The average American male is now 194 pounds and the average female is now 165 pounds. Compared to weight levels from 1960, men are 28 pounds heavier on average, and women 24 pounds, while at the same time neither gender is more than an inch and a half taller.[1] The disproportionate increase in U.S. human body weight creates issues that are driving wide spread innovation, ranging from major food processing changes to new human-accommodating design requirements to patented and social network software solutions. Many of these innovations are potentially eligible for federal and state Research and Development (R & D) tax credits.

## The Research and Development Tax Credit

Federally enacted in 1981, the R & D tax credit allows a credit of up to 13 percent of eligible spending for new and improved products and processes. Qualified research must meet the following four criteria:

1. new or improved products, processes or software
2. technological in nature
3. elimination of uncertainty
4. process of experimentation

Eligible costs include employee wages, cost of supplies, cost of testing, contract research expenses and costs associated with obtaining a patent.

## Food Processing: Reducing the Big Three Specified Ingredients

The big three food ingredients under the microscope and targeted for reduction are sugar, fat and salt. Food product choices are typically shaped by longstanding habit and ingrained preference that one's favorite food consistently tastes the same. One only has to remember the major product blunder that occurred when Coke changed its historical formula familiar to all Coke drinkers. Meaningful changes in core ingredients for food products are a laboratory activity. The large food manufacturers have huge contingents of chemists and other scientists, nutritionists and technicians developing new and improved products. To insure quality consistency, accurate labeling and safety, the new and improved products require enormous amounts of testing and quality control.

On May 8, 2012, the Institute of Medicine, a well-respected, independent organization that

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advises the federal government on health policy urged food companies to improve nutritional standards for foods marketed to people under 18 years old, further recommending that mandatory standards be considered at all levels of government if the companies do not adopt their own.

## Transportation Equipment

The new, higher average American body weight requires major changes to transportation equipment that are primarily safety-driven.

Not only must airplane seats accommodate a larger human frame, they must protect against the increased likeliness that a larger frame can become a projectile upon impact, imperiling both the passenger himself and those around him. "If a heavier person completely fills a seat, the seat is not likely to behave as intended during a crash" said Robert Salzar, the principal scientist at the Center for Applied Biomechanics at the University of Virginia. Salzar goes on to say that if a seat collapses or belt fails, those seated nearby could be endangered from "the unrestrained motion of the passenger."[2]

For commercial passenger and charter vessels, particularly smaller boats, total weight and seat capacity have always been a key safety issue. For some passenger boat services, the adverse economic impact of reduced passenger volumes may put the viability of the entire business into question. The U.S. Coast Guard has adjusted the average weight computation to 185 pounds, which is 25 to 45 pounds heavier than the previous Coast Guard regulation. This adjustment can result in a 30-percent to 40-percent passenger reduction.

## Software

IBM has recently patented a new software system that tracks eating habits and rewards corporate employees for improved dietary well being.[3] Health insurers, which already provide discounts for employee health club attendance, are contemplating recommending implementation of such a system to lower employee medical costs and control network costs. A variety of weight and dietary monitoring social media applications have emerged. It is not hard to envision enhancements to the IBM system diet/eating habits system occurring from the new social network applications. The current stock of roughly 13,000 apps accounted for $230 million in revenue in 2010 and is expected to increase 73 percent by 2015.[4] A social network app might measure calorie intake by vision or sensors or restaurant menu bar code and automatically provide the data feeds.

## Architectural Design

Architecture, particularly for schools, universities and urban design, is changing to encourage occupants to walk more and substitute stairs for elevator rides. As an example, the new building for Cooper Union, the New York City School of Science and Art, uses an eccentric, snaking staircase in lieu of a central elevator. This "vertical campus" not only promotes better fitness, it also fosters greater interdisciplinary collaboration, another major goal in contemporary education. Rather than shoot directly to an office, classroom or lab on one's intended floor, modern design intends to cultivate greater opportunities, formal and informal, for encounters across disciplines and work departments.

Even in rural locales such as Washington State University in Pullman, Washington, similar principals are at work. The new Lighty Student Services building showcases its two main staircases from the outside of the building, displaying them to visitors as they approach, in contrast to the elevators, which are occluded from view and thus de-emphasized. The stairs process 88 percent of traffic through this four-story building.[5]

## Conclusion

American men and women are larger and heavier than ever. Both the private and public sectors recognize this trend and its economic ramifications. All of the infrastructure that supports us must continue to change and innovate if we are to become safer at these new weight levels, to say nothing of what must be done to reduce the trend and return us to better health. Properly documented R & D credits should and can be part of the new business diet.

### Endnotes

1. Christine Negroni, *Questioning Safety of Heavy Passengers on Planes,* N.Y. Times, May 7, 2012.
2. *Id.*
3. Nicole Laporte, *Dieting for Dollars,* N.Y. Times, May 12, 2012.
4. Frost and Sullivan, *Unlocking the Door to Mobile Health App Opportunities,* Jan. 5, 2012.
5. Phillip Mead, *Stair and Elevator Design and Their Influence on Daily Exercise and Social Equality,* Environmental Design Research Assoc., Jun. 1, 2008.