

Athenaeum Paper

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“He ain’t heavy, he’s my brother” or “What’s the big deal anyway?”

Presenting a paper between the major holidays can be daunting, especially if the topic of the paper is our national epidemic. The national epidemic that I am referring to is not H1N1 influenza, though I was very tempted to write on that topic. No, the national epidemic that I will be addressing is one of the words that we hate to mention in polite company, obesity. Contrary to what we might believe, a National Institutes of Health study reveals that the average American gains just about a pound during Thanksgiving and Christmas (NIH 3/22/2000). The bad news is that we don’t tend to lose that pound over the following year. Actually, the average person in the study gained one and a half pounds over the course of a year. Weight is of course a cumulative experience and over time putting on a pound and a half each year can lead to obesity. The truth is as Americans we have gained a great deal over the past several decades.

While this is a problem that is national in scope, we in the Athenaeum Society can be proud. Despite the grand descriptions sometimes entered into the minutes of our meetings by creative secretaries of the Athenaeum Society, I believe we are doing our part by holding our meetings at Holiday Inn. While our meals may not be particularly healthy, they certainly don’t tempt a person to overindulge. So for that we can be thankful.

The Centers for Disease Control and Prevention (CDC) collects population health data by state. One factor that they have tracked for decades is weight. A review of the state by state annual data maintained by CDC shows the magnitude of the problem. They use a common measure of weight for height known as the Body Mass Index or BMI for short. Simply by plotting an individual’s height and weight on the BMI chart we can arrive at a BMI number. I will pass around the BMI chart in two different formats to allow you to see what your BMI is. (pass around) The BMI chart takes into account the long and the short of it as well as the heavy and light so to speak. BMI charts show areas of desirable weight with values in the range from 18.5 to 24.9. They show underweight ranges less than 18.5. Being underweight is not desirable and carries its own risks, but then the risks of being underweight are not the subject of this paper. Rather this paper will deal with the significance and ramifications of persons who are in the orange and red areas of the BMI table.

Persons who fall into the category of being overweight have a BMI of between 25 and 29.9. Those who have a BMI of 30 or above are characterized as obese. While hypertension, smoking, and high cholesterol are decreasing, overweight (BMI over 25) is the one cardiovascular disease (CVD) risk factor in the population that from 1961 to 2004 is increasing (from NHANES data). If there is any good news in the national data about weight it is that for

the last several years finally weight has not increased. It may be that the trend has begun to plateau, which would be highly desirable.

The state by state data accumulated by CDC from 1990 through 2008 shows a dramatic increase in weight trends across all our states. I will pass around a chart that shows the increase that has occurred in persons who have a BMI of 30 or greater. In 1990, ten states had a prevalence of obesity less than 10% and no states had a prevalence equal to or greater than 15%. But with time as you will see the prevalence has been increasing rather dramatically. By 1999, no state had prevalence less than 10%, eighteen states had a prevalence of obesity between 20-24%, and no state had a prevalence greater than 25%. But by 2008, only one state (Colorado) had a prevalence of obesity less than 20%. Thirty-two states had a prevalence equal to or greater than 25%, six of these states (Alabama, Mississippi, Oklahoma, South Carolina, Tennessee, and West Virginia) had a prevalence of obesity equal to or greater than 30%. My how we have changed in just 18 years. Adding a pound and a half a year really does add up. (pass out handouts).

Since weight is easily measured and studied, we have reams of data and studies on the impact of weight on life expectancy as well as its effect on many medical conditions. First, let's look at the effect of weight on life expectancy. Being normal weight (a BMI between 18.5 and 24.9) adds 11 years to life expectancy (Aldana, p. 6). Normal weight for a man who is 5'10" is 160-170 pounds. Unfortunately, the majority of Americans are not of normal weight. "In 2002, 60% of all adults in the United States were overweight or obese" (Aldana, p. 12). Being obese with a BMI rating of 30-35 shortens one's lifespan by 3 years. Being obese with a BMI rating of 40 or higher cuts life expectancy by 10 years. Ten years is the same diminishment of life expectancy that occurs with lifelong smoking. (Lancet 3/18/09). Perhaps the bags at fast food restaurants should carry warning labels from the surgeon general, just like cigarette packages.

If that were the case there would be lots of material to draw from in composing the warnings on the bags. Consider these impacts of being overweight on specific disease conditions. Let's look at diabetes, the disease that comes to mind when one thinks of weight. The most common form of diabetes was formerly called Adult Onset Diabetes. We now refer to it as Type II Diabetes since so many children are developing this form of diabetes. A recent study published in JAMA (Journal of the American Medical Association) predicts that a child born in 2000 has a one-in-three chance of developing diabetes. From the perspective of the United Nations a greater portion of the world's population suffers from over-nutrition than malnutrition (a billion vs. 800K). The overfed are predominantly in this country.

But excess body weight impacts many other medical conditions in addition to diabetes. Excess weight raises blood pressure and makes hypertension more difficult to control. Obesity is associated with high levels of the bad cholesterol component, LDL. It is also associated with higher triglyceride levels and at the same time reduces the good cholesterol component, HDL.

Cardiovascular disease is the leading cause of death in our culture. Both heart disease and stroke are also increased by obesity. Thus the full realm of cardiovascular diseases is impacted negatively by obesity.

While diabetes and cardiovascular disease come quickly to mind, obesity also contributes to liver and gall bladder disease as well as degenerative arthritis, sleep apnea and respiratory problems. Obesity is also a risk factor for cancer in adults. Obesity is specifically linked to cancer of the breast, uterus, colon, kidney and esophagus (source NCI Fact Sheet, 3/16/04). When obesity is coupled with decreased physical activity the increase in cancer is even more significant.

The impact of excess weight plus decreased physical activity leads to the development of what researchers call the burden of disease. The accumulation of medical conditions associated with obesity significantly impairs the quality of life. This is a cumulative effect so it progresses as age increases. The impact of the burden of disease as we age is that it yields a poor quality of later life. Steven Aldana points out, "One of the most important benefits of living well is the improvement of the quality of life that occurs in later years" (Aldana, p. 8).

What might be some of the factors that are contributing to the present weight gain trends among persons in our great nation? Many researchers point to changes in lifestyle, whereby we have become more sedentary. Other investigators point to affluence, whereby we can afford to eat a high fat Western diet. Others however, point to poverty as an influence since healthier whole foods cost more. Technology may also be playing a part as well. Fewer of us have much physical activity in our work today and at home we use the remote control rather than move about the room. Or perhaps obesity is the result of clever marketing with super-sized portions and marketing to children. Or perhaps it is due to our diet composed of more fats, more carbohydrates, and more processed foods than countries without our incidence of obesity (Pollan, p. 102). Actually all of these possible explanations probably play a part.

The author Michael Pollan has suggested that there may be a cause behind all of these causes. He believes that when food is cheap and abundant people eat more of it and get fat. As evidence he details the fact that since 1977 an American's average daily intake of calories has jumped by more than ten percent or 200 calories per day. Those calories go somewhere absent increased activity that would consume them. But where did those extra calories come from? The answer is the farm.

Since the Nixon administration, farmers in the United States have managed to produce 500 additional calories per person every day. This is up from 3,300 calories per person produced before America embraced a cheap-food farm policy (Pollan, p. 103). Corn it turns out accounts for most of the surplus calories that we are growing and eating.

Over one third of the products sold in the grocery store contain components derived from corn. Yet, the most significant impact is from a development of food engineering in the 1970's, the development of high-fructose corn syrup (HFCS). A bushel of corn can be refined into 33 pounds of HFCS. Our natural preference for sweetness in what we consume has transformed the food industry. Since 1980, HFCS has become the leading source of sweetness in our diet. Since 1985 our per capita consumption has gone from 45 to 66 pounds of HFCS per American. Each of us is eating two bushels of corn just from the HFCS alone.

Now we might think that our per capita consumption of refined sugar would have declined during this time. That is if we increase the use of HFCS as a sweetener, it stands to reason that our intake of refined sugar would decrease. But we would be wrong if we thought this. Our refined sugar intake has actually increased by 5 pounds during this period. "Actually since 1985 our consumption of all sugars-cane, beet, HFCS, glucose, honey, maple syrup, whatever- has climbed from 128 pounds to 158 pounds per person" (Pollan, p. 104). You guessed it, that is a lot of extra calories.

It turns out that much of the excess corn that we are producing in our country is being converted to HFCS and is used to sweeten most of the things that we eat. Just read the labels and you will discover that HFCS has been added to almost all processed foods. Think catsup, mustard, bread, relishes, cereal, crackers, hams and hot dogs, almost everything we buy contains HFCS. But the largest amount of our 66 pounds of annual HFCS consumption comes in the form of soft drinks. For it was in 1980 that corn first became an ingredient in Coca-Cola. By 1984, Coke and Pepsi had switched entirely from refined sugar to HFCS. HFCS was a few cents cheaper due in part to tariffs on imported sugar cane.

The soft drink industry then set out on a journey to increase our consumption of soft drinks. Now they knew that if sodas became cheaper people would not be inclined to buy a second soda. So instead they gradually increased the size of sodas from the quaint old fashioned 8 oz. bottle to the 12 oz. can and now they are moving up further. The 20 oz. plastic bottle is almost standard in machines today. A soda today is now frequently four times the size of yesteryear. The large drink at a fast food restaurant today is a full 32 oz., a quart. But there is more, for those with a really big thirst the industry has created the 64 oz. "Big Gulp" among other monstrosities.

But it was not the soda industry that came up with super-sizing, that is the legacy of David Wallerstein a member of the board of directors of McDonald's. Prior to serving on the McDonald's board, Wallerstein you see was a product of the movie theater industry. There he learned that people would not go back for a second drink or bag of popcorn because they did not want to appear piggish. But for a little bit more money they would buy a bigger bag of popcorn or a larger soda. It took him years on the board of McDonald's to convince Ray Kroc to increase the size of McDonald's offerings. But eventually after a series of trial menus, Kroc was

convinced of the truth of Wallerstein's conviction. That led to the revolution in fast food that is known as super-sizing. For very small cents more, you could simply receive a much larger portion. The employees were trained to ask with every order, "would you like to supersize that?" We love a good deal, like one dollar for any size drink at McDonald's. The offer turned out to be irresistible. We super-sized our meals and we in turn have become super-sized.

This takes our journey further into the fast food industry. Today one in three children eats fast food every day. What would fast food be without the ubiquitous drive-in window? This allows us to eat in our cars. These days 20% of meals are eaten in the car (Pollan p. 110). Fast food is designed to be eaten with one hand without utensils. Our cars contain cup holders to hold the drinks so they don't spill. They can also hold the single servings of "soup in a cup" that are sold in grocery stores today. Fast food restaurants allow us to eat different meals together. While they are not particularly satisfying, they are fast. Large amounts of calories eaten rapidly are a recipe for obesity.

Research has shown that when presented with huge portions, people and animals will consume 30% more food than usual (Pollan, p. 106). We seem to love the ubiquitous buffet restaurants with their "all you can eat format." If given the opportunity we can consume nearly a third more calories than our usual excess daily intake. The food industry has managed to increase profitability in a society with slow population growth by convincing us to eat more. The proof of their success we carry with us every day.

If we agree that this is a national problem how might we address it? Well, there are a variety of approaches. But as we know too well the dialogue around our nation's health concerns has become politicized and suggestions of national solutions might cause this paper to veer into the realm of politics and thus an unmentionable Athenaeum topic. Suffice it to say that as Kentuckians we have nothing to fear from our senators on this front.

Family Systems Theory, of which I am a fan, says that the only person that we can change is ourselves. All the insight that we seem to have about our spouse, or family members, or our co-workers and friends is of little value. It is of little value because they are not interested in our brilliant insights and thus the only person that we can change is ourselves. So what might we do about this? Well, it turns out that there has been a great deal of study and research on healthy lifestyles and their impact on disease states and longevity. Weight loss at any point is beneficial. But the younger we start the greater the benefit.

A healthy lifestyle combines good nutrition with modest amounts of exercise. Most of us should be eating between 1800 and 2400 calories per day. We should exercise of moderate intensity for thirty minutes most days of the week. Exercise can help us burn off some of the calories we take in but not as many as we might hope. Walking at a brisk pace will burn off 75 calories for each mile we walk. Many health groups recommend trying to walk 10,000 steps per

day which is approximately 5 miles. An easy way to measure our daily steps is with an inexpensive pedometer. (Have several pedometers to pass around) Walking 10,000 steps would burn off approximately 375 calories. That is a lot of walking and as you can see doesn't burn a great deal of calories. In fact a marathon runner expends approximately 3500 calories running a marathon. Let's see 3500 calories, that is just one pound of weight. So exercise alone is difficult to burn adequate calories without calorie control in a healthy diet as well.

But there are other benefits to exercise beyond calorie consumption. Exercise affects all parts of our body and all its intricate systems. In the brain, exercise releases endorphins which improve our mood and outlook. Exercise also lowers our blood pressure. Exercise raises the protective cholesterol component, HDL and this prevents cardiovascular diseases. In terms of diabetes, exercise is particularly helpful. Adults who develop diabetes do not have a deficit of insulin, they have lots of insulin. But their insulin does not work and thus they end up taking medications to increase further their already excessive insulin production. But exercise has the important ability to turn on the body's own insulin once again, making diabetes easier to control. Exercise even has positive impacts on cancer survival. Taking all persons with cancer, those who exercise have a 20% improved survival.

Exercise at any point is beneficial. I learned this important lesson early in my career as a physician. When persons develop peripheral vascular disease (PVD), they have pain in their legs when they walk or exercise. Early in my career we gave them the advice to limit their walking so as to not bring on the pain or discomfort. As it turns out research showed that instead of limiting exercise, walking past the pain actually improved circulation. With time exercise actually had the potential to reverse PVD particularly if risk factors like high cholesterol and smoking could be controlled. So I learned that rather than allowing leg pain to limit a person, we could use such pain as a stimulus to increase activity and improve their disease condition.

Steven Aldana has written a very accessible book called, *The Culprit and The Cure*. It addresses our topic tonight with good science behind all of his recommendations. He summarizes the best recommendations on nutrition as follows: "1. Eat a minimum of five servings of fruits and/or vegetables every day. 2. Eat whole grain breads, cereals, and other high fiber foods. 3. Limit the consumption of red meat to no more than once a week (fish, poultry, and eggs are excellent alternatives). 4. Consume nuts and beans regularly. 5. Limit consumption of saturated fat. 6. Avoid all trans fats." (Aldana, p. 30). Think good nutrition, not dieting. Diets are short term activities with only short term impact. We need to adopt a healthy approach to nutrition that we follow day in and day. With time exercise and good nutrition becomes our healthy lifestyle.

I want to share a story of whole grain foods and how deceptive the food industry can be. I suspect that everyone in this room knows that we should be eating wheat bread instead of white bread. My family has been doing this for at least 20 years. But it was not until I read Aldana's

book that I learned the truth of wheat bread. It turns out that wheat bread is simply white bread that has caramel coloring added to the dough. Wheat bread is white bread. What we really need to be eating is whole wheat bread. So we have to look at the label and the label must read 100% whole wheat bread to contain the fiber and other benefits that we want to gain from whole grain bread.

So now that I have outlined the problem what are we to do? If you have tried to change some aspect of your behavior you know that you are in for a battle. We are creatures of habit and we don't change our lifestyle easily. I cannot say that help is on the way, because it is not. Nothing and no one can save us from ourselves in this case. Only we can make the changes in our nutrition and activity that characterize a healthy lifestyle. We must begin where we are. We begin by reading and learning all that we can about the need for change. But information alone doesn't change behavior. We must get to a point where we desire and actually commit to making a change. A plan for change is important and support as we undertake change in our lifestyle is critically important.

Studies show that support is very important. This support can come from a spouse or partner, a friend or colleague, preferably one who is embarked on a similar program of change. This allows you to support one another as you encounter the inevitable resistance that always accompanies any change we try to make in our lifestyle. For some persons the use of a personal trainer, nutritionist, or physical therapist may provide just the support that is needed to embark on a healthier lifestyle. It does not matter how clear we are about our need to change, resistance will attempt to sabotage us. We will need all the support that we can get if we are to incorporate healthier behaviors into our daily lives.

Begin with small changes that you can implement and then gradually build upon your success. Over time the impact on your sense of well being and health can be dramatic. Any change for the better that you make is beneficial but you have to start. All the planning, preparation, and knowledge are of no value without action. You must begin. Start today. Healthy changes that you make will have an impact. We can paraphrase the poet Mary Oliver who writes, "what will you do with your one wild life?" Each of us is given just one life to live. We will not pass this way again. The choices we make are important. Excellent resources are available. Good luck. I wish you every success. "What will you do with your one wild life?"

Endnotes

1. Pollan, Michael, *The Omnivore's Dilemma*, Penguin Books, New York, NY, 2006.
2. T. Colin Campbell and Thomas M. Campbell II, *The China Study*, BenBella Books, Dallas, TX, 2006.
3. Aldana, Steven G., *The Culprit & The Cure*, Maple Mountain Press, Mapleton, UT., 2005.