

Interview with Sylvia Escott-Stump

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Prof. Sylvia Escott-Stump visited South Africa this year to present at the Nutritional Solutions CNE event in April 2014. A special interview was arranged to share her knowledge regarding various topics associated with obesity, the very complex condition.

The cause of obesity is multifactorial and it is truly impossible to pinpoint a single cause. The contributing factors must be taken into account when

managing obesity and the management thereof should focus on the person as an individual and address the person's medical history and nutritional status. According to Sylvia Escott-Stump, key contributing factors for the development of obesity include lifestyle (poor diet, skipping meals, a lack of sleep, drinking sugar-sweetened drinks in excess, drinking too much alcohol, snacking, a lack of exercise, and poor choices at social events); psychosocial (depression, stress, anxiety, binge eating or overeating; inadequate income which may lead to an imbalanced intake of nutrients); biomedical (genetics, metabolism and perinatal factors); and other factors such as medication use (e.g. prednisone or cortisone); a reduced mobility for some reason (an injury or amputation); and inflammatory processes.

What is the ideal macronutrient intake?

The body requires a combination of carbohydrates, protein and fat daily to function optimally. To eliminate a macronutrient completely may be detrimental to overall health. Ideally, it is recommended to consume a typical daily intake based on the general food based dietary guidelines which includes 45-60% of total energy per day from carbohydrates; approximately 30% of total energy per day from fat depending on the person's history and the remaining energy per day from protein. A person generally consumes more protein than the body requires. A slight increase in protein intake is acceptable but double the recommended intake, however, is not desirable. Popular weight loss diets do tend to include more protein, which is beneficial to maintain muscle mass whilst reducing total energy intake, but exceeding 15-20% of total energy per day from protein is not safe for everyone.

What are your thoughts regarding the high protein, high fat, low carbohydrate diet?

The high protein, low carbohydrate diet does not make physiological sense according to Sylvia. The brain and red blood cells require a constant supply of glucose. Glucose is the simplest form of carbohydrate that the body uses. Thus, if the body does not consume sufficient carbohydrate, the body will do all that it can to make glucose by breaking down muscle and liver stores. Only later does

the body alter fatty acid stores to provide the necessary glucose or glycogen. The liver storage supplies glycogen for approximately 24 hours whereas the muscle supply of glycogen is even smaller. As the stores are depleted, weight loss will likely occur. However, important body fluid is lost as a result of the metabolic effects when protein and fat are broken down. Thus, the high protein-low carbohydrate diet is a complex issue. While weight loss may occur, it is often misleading because it is fluid and not always fat. In summary, eliminating a key macronutrient such as carbohydrate is quite detrimental as the body needs a steady supply for various purposes.

What are the effects of a high protein intake?

As mentioned above, the brain requires glucose for functioning. The high protein diet that results in a low carbohydrate intake may lead to a state of diuresis. Each gram of glycogen is mobilised with 2 g of water. The body, however, only stores approximately 100 g of glycogen in the liver and approximately 400 g in the muscle per day. Once these stores are depleted fat will be metabolised over time, producing "ketones" as a result. Ketones will, in turn, increase renal sodium and water loss, which places extra stress on the kidneys and the liver. A high protein dietary intake can be detrimental to individuals with a history of kidney stones, osteoporosis, increased uric acid levels (gout), or chronic renal insufficiency in particular.

What are the problems associated with rapid weight loss?

Lean body mass is lost throughout the body. One must bear in mind that the heart is also a muscle made of lean body tissue. Therefore, rapid weight loss is associated with a loss of lean body mass from the heart as well. Unfortunately, when weight is regained, the weight gained is mostly fat and not additional healthy muscle. The yo-yo diets are thus also detrimental to the heart and can lead to early cardiac injury or even death. Ideally, weight should be lost gradually, in a more sustainable way, by altering the consumption of specific foods in the diet. In the US, a non-diet approach is promoted, which does not count kilojoules but focuses more on improving food choices and teaching people to select better food choices and limit empty food choices that are nutrient poor, but energy dense. The approach typically avoids counting kilojoules and is avoids extreme energy restrictions. A safe amount of weight loss per week is approximately 500g-1 kg per week. Amounts more than this represent losses from lean body mass and fluid and are detrimental to the body's organs.

What are the key concerns related to diets that eliminate carbohydrates?

My greatest concern when eliminating carbohydrates would be the individual's level of fibre intake. Constipation is common with a diet restricting whole grain or high fibre carbohydrates. Constipation over an extended period of time can result in complications such as diverticular disease and may increase the risk for developing colon cancer. In addition, high fibre whole grains are food sources of

B vitamins and iron; therefore individuals may also become deficient in certain nutrients over time.

What are the risks associated with the consumption of a particular food group in excess?

An excessive consumption of a particular food group may lead to a lack of nutrients found in the other food groups. The food guide pyramids, food-based dietary guidelines and food plates have been developed in order to demonstrate to the community how to consume a variety or combination of the food groups and prevent the risk of deficient nutrient intake. For example, eliminating dairy from milk, cheese and yoghurt will lead to a deficient intake of calcium, riboflavin, potassium and magnesium. Another example is that an excess of carbohydrate may lower total protein intake; thus, wound healing or tissue turnover may be impaired.

How is sleep related to the increased incidence of obesity?

Let us consider the role of sleep. Research demonstrates that people are constantly exposed to night-time light. Environmental factors such as electricity; lights (from the TV, computers, tablets, cell phones); and streetlights may inhibit our natural circadian rhythm. People are meant to sleep in the dark and wake-up naturally with the light of day. Interestingly, one study showed that children with sleep deprivation and a higher overall carbohydrate intake are susceptible to becoming obese. In addition, night shift workers present with higher cholesterol and blood pressure levels; they are more susceptible to obesity despite a similar overall energy intake to those individuals who sleep at night and work during the day. The long-term changes that relate to our circadian rhythms need to be monitored.

Ideally, we can turn off the bright lights at night, which may stimulate the brain and not allow the melatonin to function at its best. People should focus on the basics of sleep hygiene such as sleeping at the same time every night, sleeping 7-8 hours every night as an adult, and sleeping even longer as children.

Today people are over-stimulated and thus not sleeping as well as they should. Sleep deprivation leads to altered functioning of hormones such as cortisol, glucagon and insulin. Sleep plays a big role in the management of obesity through associations between the levels of melatonin and obesity. Sufficient amounts of melatonin are required for weight management; as people age, their melatonin levels are often lower.

How is prenatal nutrition related to obesity?

Prenatal nutrition plays a vital role in programming or setting up the environment for the baby and therefore the genetic "blue print". Low birth weight is known to be a factor for later obesity. Gaining either an insufficient or an excessive amount of weight during pregnancy may result in a mother giving birth to a baby that is prone to obesity later. The overall diet and nutritional status of the mother during pregnancy can impact the child's epigenetics, which can have long term consequences. Therefore, optimum nutrition and ideal weight gain is essential during pregnancy.

What is the relationship between gut health and obesity?

The gut supports 70% of the body's immune system. The intestinal microbiota are developed by our diet and therefore every meal eaten influences the immune system. A poor diet thus will be detrimental to health over time. Ideally, whole grains should be consumed as they produce short chain fatty acids (SCFA) during metabolism and fermentation. SCFA have both pre- and probiotic properties which promote a beneficial gut environment, thus, promoting optimum health and weight control.

A healthy gut commences at birth. As one ages, hydrochloric acid levels drop, therefore vitamin B12 production is reduced and vitamin D metabolism. A balanced dietary intake is, thus, essential to optimise body functioning and in some cases supplementation of vitamins or minerals may be necessary.

A relationship between antibiotic use and weight gain in children and adults is also under study. Antibiotic use is known to be detrimental to healthy gut microbiota. Clearly, what we eat and environmental exposures each influences the gut contents, which in turn influences overall health throughout life.

What foods can an individual consume in order to support gut health?

As grains are metabolised, SCFA are produced which have prebiotic and probiotic properties. In addition yoghurt or fermented foods have direct bacterial effects. Fruits, vegetables, grains, and yoghurt would be the key foods for overall gut health.

In your opinion, what are the top 5 factors to consider when managing obesity from a professional's point of view?

I would focus on including more of specific food groups instead of what to avoid. Examples include: coffee and green tea; foods rich in vitamin C and E, selenium and omega 3 fatty acids, resveratrol; berries; honey; and fatty acids from nuts, nut oils and coconut oil.

Tell us more about the "Night eating syndrome"

Night eating syndrome is a syndrome now included on the latest version of the DSM (DiagnosticSymptoms Manual). Very often morbidly obese individuals with a BMI of 40 and above are not hungry in the morning, and tend to eat something light over lunch and in the evening. They consume the majority of their energy intake during the night. Often it is not even remembered and, therefore, has to be addressed in combination with psychiatric management. Anti-depressants may be prescribed by a doctor. Their circadian rhythm also appears to be imbalanced as their cortisol levels are high in the morning, reducing the appetite. Cortisol then decreases throughout the day. If an individual is morbidly obese, the attending professional should evaluate for night eating syndrome. In many cases, bariatric surgery would benefit the individual.

And lastly, please discuss the link between inflammation and obesity...

Recent research has been focusing on the relationship between inflammation and obesity. Our body consists of a hormonal network

that triggers responses to constant stress, environmental factors, and insufficient “good” fatty acid dietary intake. Altered hormones may lead to a chronic low-grade inflammation, which is a contributing factor related to obesity. The inflammatory triggers must therefore be addressed. This network is characterised by a high ratio of pro-inflammatory (bad) cytokines to anti-inflammatory (good) cytokines. Arteries and tissues may be damaged over time, which may also increase the person’s susceptibility to other chronic diseases; including heart conditions or cancer.

In order to combat the inflammation, the production of pro-inflammatory cytokines must be reduced. Therefore, individuals should eat a diet that is rich in anti-oxidants and phytochemicals. In addition, individuals should endeavour to reduce the inflammatory process by not overeating and, therefore, maintaining an ideal body weight.

What changes will hopefully be seen in the future regarding obesity occurrence?

Better birth weights have been observed for the first time in 4 years in America. Thus women are taking the recommendations of moderate weight gain during pregnancy into account. Additional education however is required regarding healthy food choices such as curcumin with anti-inflammatory properties (found in Indian foods), resveratrol an anti-oxidant (found in red wine, red grapes and juice), green tea (known to increase the metabolic rate slightly and thus assist in weight management), quercetin (found in apples and

onions), isoflavones (found in soy products), and fatty acids (EPA and DHA from salmon, tuna, anchovies or sardines) are essential for good health.

Sylvia Escott-Stump is an internationally-known speaker and consultant to physicians, groups, long-term care facilities, businesses and educational organizations. She is the author of eight editions of Nutrition and Diagnosis-Related Care (Lippincott Williams & Wilkins, forthcoming 2015) and five editions of Krause’s Food and Nutrition Therapy (Elsevier 2011.) She also earned a master’s degree at the University of Pennsylvania in adult/community education where she received the Distinguished Alumni Award. She is currently directs the dietetic internship at East Carolina University and has been the recipient of many prestigious awards including the Academy of Nutrition and Dietetics’ Medallion award and the first Margene Wagstaff Fellowship for Innovation in Dietetics Education.

Conflict of interest

This interview was independently commissioned by Medpharm Publications (Pty) Ltd. The photograph was supplied by kind permission of Kellogg’s.

Commercial interests

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