The Pulmonary Cachexia Syndrome

By John R. Goodman BS RRT

The word Cachexia has its roots in ancient Greek and is a combination of Kakos (bad) and hexis (condition or appearance.) No one knows exactly who first used the term cachexia to describe the involuntary weight loss seen with many chronic illnesses, but “Cardiac Cachexia” was first described in 1860 by a french physician named Charles Mauriac. He coined the term cardiac cachexia while describing some patients affected by diseases of the heart.

But historically, we can go all the way back to the father of medicine himself, Hippocrates who wrote “The flesh is consumed and becomes water….the abdomen fills with water, the feet and legs swell, the shoulders, clavicles, chest and thighs melt away, and the illness is fatal.” Not bad for a guy who was born in 460 BC and died in 370 BC. Remember, Hippocrates was not allowed to do cadaver dissection. All of his “medicine” came from his powers of observation.

Over the ensuing centuries Cachexia has been found to be associated with Metastatic Cancer, Congestive Heart Failure, Cystic Fibrosis, Rheumatoid
Arthritis, Alzheimer’s disease, infectious diseases such as AIDS, and in the past 10-15 years even COPD. A number of other terms have been used as synonyms for cachexia with malnutrition probably the most common. While malnutrition is reversible in large part by giving adequate amounts of food, cachexia does not respond to this approach. By most accounts, Pulmonary Cachexia was first described in detail in 1999 by a physician named J. Congleton.

**Why is it important to understand Pulmonary Cachexia (PC)?**

Cachexia from any cause is a serious and commonly underestimated complication of chronic illness. First you need some parameters to know what we are talking about. Weight loss has been a recognized feature of patients with COPD for many, many years. Most common criteria for Pulmonary Cachexia shows a weight loss of 5-10% of initial body weight, weight less that 90% of ideal body weight (IBW), or weight loss exceeding 5% in past 3-12months. Using these reference numbers somewhere around 25% of patients with COPD will develop Pulmonary Cachexia. For comparison, Cachexia will develop in approximately 80% of patients with a metastatic cancer. Why should a patient be concerned if Pulmonary Cachexia develops? *Because Pulmonary Cachexia is associated with a 50% reduction in median survival rates.*

The association between weight loss and mortality was first recognized as far back as 1898, but it wasn’t until the 1960’s that it was studied in detail. By the mid 1980’s it was pretty well known that “malnutrition was a common problem in patients with COPD, and a complete nutritional assessment should be included in the full work-up of these patients.” In the past 20-30 years investigators have broadened their data collection to go beyond just body weight measurement, and look at more selective measurements such as Body Mass Index (BMI), fat-free mass (FFM), skin fold thickness, and other signs of nutritional depletion.

Too skinny

Too big

Just right

So armed with all this new metabolic information, it would seem reasonable to target weight gain to improve the prognosis of patients with Pulmonary Cachexia.
associated with COPD. Unfortunately, when all the evidence was in, the studies of supplemental feeding have been quite disappointing. Numerous studies have been done at considerable cost, many including the addition of appetite stimulants to see if either nutritional status or lung function could be improved. Sad to report that simple supplementary feeding in a routine clinical setting has had absolutely NO value in influencing either. This confused researchers because malnutrition associated with Cystic Fibrosis often responds very well to dietary supplementation.

The Internet can be a tremendous source of help to patients with all types of lung disease regarding their diet. A simple Google search will bring up hundreds of articles, lists of foods to eat, and many, many tips on HOW to eat your meals. Rather than simply re-list those tips for you here, I would refer you to a couple of references that I have already evaluated to get you started. This list is in no particular order so let’s start with the COPD Foundation’s Slim Skinny Reference Guide (SSRG). Open up www.copdfoundation.org, click on the Resources tab, and then scroll down to the SSRG section. There is some terrific information here regarding food groups and subgroups, what the USDA daily suggested amounts are, and special dietary concerns for people with COPD. There are also some very helpful hints on how to decrease your shortness of breath while eating. Maintaining good nutritional habits are so very important to managing your lung disease. These tips can help patients with both obstructive and restrictive disease.

Dr. Tom Petty published many articles about the relationship between lung disease and nutrition. As recently as July of 2009, Dr. Petty wrote the easy to understand “Guidelines for Nutritional Management of Pulmonary Disease. They can be found at the www.emphysemafoundation.org website.

Other excellent websites to visit are at National Jewish Health, so go to www.nationaljewish.org, open the health information tab, in the conditions box open COPD, click on lifestyle management, and finally nutrition. Another fabulous article written by a registered dietician is in the February 2009 issue of Today’s Dietician. Back issues are easy to open at www.todaysdietician.com. The article is titled, “Nutrition and COPD-Dietary considerations for better breathing.” It is written by Ilaria St. Florian MS, RD. And finally, The University of California San Francisco campus has published a nutrition manual specifically for patients with Interstitial Lung Disease or ILD. Open the www.UCSHealth.org website. Type ILD in the search box. The ILD nutritional manual will come up; highlight this when you see it and the full page will be available for you to read at your leisure. It is the only site specific for ILD that I have personally seen.
So now you are armed with a great deal of nutritional information. You will have learned that for nearly 100 years physicians have used the Body Mass Index or BMI as one of the key measurements to evaluate your nutritional status. The BMI is calculated by using the following formula: your body weight in pounds/ divided by your height in inches squared, times the constant 703. Let’s calculate my own BMI. I weigh exactly 150 pounds, and I am exactly 68 inches tall. The math therefore is 150/68x68. 68 x 68 = 4624 and 150 divided by 4624 is 0.035. 0.035 times 703 = 24.60. My BMI is therefore 24.60. So how do I stack up against known values? I just snuck in at the high end of normal.

A BMI is considered normal if the value is between 18.5 and 24.9.

A BMI of 25-29.9 is considered overweight.

A BMI greater than 30.0 is considered obese.

Pulmonologists are much more aware of the importance of maintaining normal predicted BMI’s as indicators of your general nutrition. When to change your diet to reduce your carbohydrate intake or perhaps increase your intake of fats all in an effort to reduce your work of breathing and improve your metabolism.

I don’t think there is any question that dietary habits and nutritional status have significant influence on your lung function and general health. The exact role of each of the nutrients involved, how large a part they play, and any practical implications of these factors remain a bit unclear in spite of all the recent research. There is no doubt that patients with end-stage disease especially emphysema will evidence significant weight loss and overall nutritional depletion. Unlike some other chronic conditions, routine nutritional supplementation has really not been shown to significantly alter the course or severity of the disease.

Although the Pulmonary Cachexia Syndrome has only been in the literature for a relatively short time (since 1999), common sense tells us that proper attention to diet, weight maintenance, and diligent use of oxygen therapy if indicated, can only help strengthen your muscles of breathing to work more efficiently, with the end result being less fatigue and more importantly less shortness of breath.