

Report of the Food and Nutrition Guidelines Committee for University of North Carolina Asheville

December 8, 2008

“Let food be your medicine and your medicine be food.” ~Hippocrates

As students, consumers, and health and nutrition advocates, we present our recommendations for changes to improve the food environment at UNCA. The following guidelines address our concerns with the impact of campus food on our health and environment.

With steadily climbing obesity rates and the decline of our abundant planet’s resources and the health of North Carolinians, it is important to make changes in our food environment and put into place a set of nutrition goals. Our recommendations address such so that future generations may enjoy healthy, nutritious lives in a more self-sustaining world. The University of North Carolina at Asheville prides itself on becoming a “leading catalyst for the prevention of chronic health conditions through promotion of healthy living among North Carolinians of all ages,” with the new North Carolina Center for Health and Wellness.¹ The UNC Tomorrow Commission calls for the promotion of sustainability and taking “a leadership role in addressing the state’s energy and environmental challenges.”² And UNCA’s strategic plan states that we are working to promote social (“Build a campus community that is cohesive, respectful, vibrant, creative, and responsible.”) and environmental sustainability (“Enhance our state-wide leadership and recognition for our conservation, energy use, and green building practices.”)³ Therefore, it is necessary for UNCA to make critical changes campus-wide regarding food and nutrition as a means of embracing and meeting its goal of a health and environmentally conscious campus.

¹<http://www.unca.edu/newell/pages/mission.htm>

² University of North Carolina Tomorrow Commission; www.nctomorrow.org

³ <http://www.unca.edu/ir/plan/Strategic%20Plan.pdf>

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I. Overarching Food and Nutrition Recommendations for UNCA

Our overarching goals for campus sustainability and student health and wellness as it relates to food and nutrition are:

1. To define and strive towards creating, living in, and demonstrating a role model for a healthy food environment on our campus.
2. To provide genuinely healthy, high quality food to the UNCA campus for all members of the community. This means limiting the overall fat, sugar, and salt content by decreasing the use of highly processed foods while increasing whole or minimally processed foods and using less sugar, salt, and fat in food preparation among other strategies.
3. To increase the amount and quality of plant-based and whole foods consumed on-campus, and decrease the amount of animal products consumed (especially those sourced from companies with documented human rights violations or not meeting animal care and housing standards).
4. To strive to serve less conventionally grown, and more locally and/or organically grown fruits, vegetables, grains, dairy products and meats. To gradually increase the amount of food bought locally each semester, and increase the productivity of on campus gardens each semester.
5. To become environmentally sustainable throughout our daily practices that involve, food, health, and campus grounds.
6. To educate all members of the campus community about healthy habits relative to diet and exercise and overall wellness and to develop a learning and living environment that supports healthy lifestyle choices.

II. Our Process for Developing the Food and Nutrition Guidelines

Our food and nutrition guidelines are a result of our combined experiences participating in the Food For Thought cluster. *Food for Thought: Engaging the Citizen in the Science and Politics of Food Information, Food Consumerism, Nutrition and Health* is Cluster 9 of the UNCA Integrative Liberal Studies (ILS) Topical Clusters. In this cluster, UNCA faculty and students work together to better understand the interconnectedness of our lives with food and to develop as informed food consumers.

In fall of 2008, 97 students from five classes in four departments participated in the cluster and this project. In addition to the learning that took place in individual classes, several interclass activities informed the development of our Food and Nutrition Guidelines. Nearly every individual in the cluster took part in the Harvest Bounty Shared Meal, which gave members the opportunity to consider the hurdles, costs, and benefits, to buying on a budget, buying organic, buying local, and/or using all whole ingredients. Also, many of the cluster participants attended a farm tour that enabled them to have a better understanding of local and sustainable farming practices. And most attended a lunch and learn seminar on Nutrition Policy in which they learned some background on how policy is made and influenced.

All classes contributed ideas and information that helped guide the Food Politics and Nutrition Policy (HWP 373) class in writing the final guidelines.

- ECON 245: Throughout the course of the semester the Land Economics class learned about the costs and benefits of a local food system. Several four-member groups from the class provided specific recommendations on food transportation and local food issues and presented them to the Food Politics class.
- CHEM 174: The Food of Chemistry class tested several food items from the dining hall to see how much sodium, potassium, calcium and magnesium were in the foods and compared their findings to label amounts and mineral recommendations. They prepared presentations explaining their experiments and making recommendations to the Food Politics and Nutrition Policy class. Their reports can be seen in Appendix A.
- SOC 385: The Science and Technology class developed a food habits survey that will help policy makers understand what students want and how much they are willing to pay for specific changes in food offerings. The survey will be conducted next semester. It has received approval from UNCA's Institutional Review Board review and can be seen in Appendix B. The Science and Technology students also prepared recommendations on how to improve the food environment at UNCA for commuter students and presented these to the Food Politics and Nutrition Policy students.
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- HWP 225: Each member of the Nutrition and Lifestyle class wrote written recommendations for one of guideline topics, and a subset of them presented their ideas orally to the Food Politics and Nutrition Policy class.

The Food Politics and Nutrition Policy class has served as an “expert committee” similar to the expert committee that reviews the Dietary Guidelines for Americans every five years for the nation. As committee members we wrote self-nomination letters explaining why each of us was the right person for the job that included background research we each had done on our chosen topic and identified questions and additional research we needed to do in order to develop recommendations for UNCA. We met with students from all the other classes heard their recommendations and read their reports. In addition, we met with Danny Dawkins, Senior Director of Dining Services, during a class period to help us better understand our current contract with Chartwells and what role Chartwells has in implementing our suggestions. And two members of our expert committee, as well as a student in Senior Seminar in Health and Wellness Promotion, met with the Student Government Association (SGA) to invite SGA’s participation in the process.

With all this information and research in hand, we incorporated ideas and research findings from the various sources as we compiled a detailed list of guidelines for UNCA to implement in order to improve the health and wellness of the student population and/or have a positive impact on sustainability. Our guidelines take into consideration the current contract UNCA has with Chartwells, which may limit the immediate implementation of some of guidelines, but other recommendations can be implemented within the contract to create a better dining services experience and improve health and wellness immediately. Whenever possible our guidelines identify short and long term solutions and possibilities for implementation.

III. Summary Recommendations

Please refer to each specific guideline report for details and implementation.

A. Recommendations for Nutrition Guidelines

- *Recommendations for Ingredient and Nutrition Facts Labeling (see page 9)*

Labeling should be prioritized in the UNC-Asheville's Dietary Guidelines implementation. Labeling raises the awareness among consumers about what they are eating and how it may benefit them and either promote or hinder them from achieving a more healthful and balanced diet. Food and nutrition labeling is also crucial in protecting those with special dietary needs and or allergies. Standard nutrition facts, as well as information pertaining to origin of food, use of synthetic additives or modifications, and highlights of vitamins and minerals the food is abundant in, should be included on food labels.

- *Recommendations for Sugar Consumption (see page 13)*

Decrease the amount of food and beverages with any added sugars in the cafeteria, Highsmith Union, and the library café, to less than 10% of the total amount of food and drink offered in each dining location. Also, decrease the amount of artificial sweeteners used and provided on campus, and phase out the use of aspartame.

- *Recommendations for Fats and Trans Fats (see page 16)*

Work towards a target of no more 25% of total calories from fat in meals served in dining locations on UNC-Asheville campus. UNCA Dining Services should eliminate most of the hydrogenated oils from the menu, and shift toward healthier fats, such as those found in flax, vegetables, and nuts.

- *Recommendations for Sodium (see page 19)*

Decrease use and consumption of sodium on campus by: using salt substitutes such as potassium, herbs, and spices in the preparation of foods, reducing the number of salt shakers in campus dining locations, and displaying sodium content for condiments and for foods prepared on campus.

- *Recommendations for Calcium, Magnesium, and Vitamin D (see page 22)*

A variety fresh vegetables, beans and grains as part of a plant-based diet will provide student's supply of calcium and magnesium, along with outdoor exercise for the production of vitamin D.

- *Recommendations for Achieving and Maintaining a Healthy Weight (see page 25)*

A healthy and sustainable diet, paired with regular exercise, is the best solution for achieving and maintaining a healthy weight. UNCA needs to provide education, support, and a healthy food environment for students to be able to achieve this goal.

- *Recommendations for Vending (see page 28)*

UNC-Asheville should adopt new vending machine policies that allow all students to enjoy a healthful snack from the vending machines on campus. Nutritional information should be provided for the vending options prior to purchase.

B. Recommendations for Food and Environmental Impact Guidelines

- *Recommendations for Whole vs. Processed Foods (see page 31)*

Because whole foods (fruits, vegetables, grains, legumes, nuts, and some meats) are more nutrient-dense and tend to contain smaller amounts of fat sugar, salt and additives, diets rich in these foods promote health and should be emphasized on UNCA's campus.

Moving towards more whole foods has a positive impact on the environment as processing is energy costly and produces waste. A 'University-WNC Farms' liaison position should be created as a possible cabinet/delegate position within both SGA and the Office of Student Affairs to promote these and other food environmentally sustainable food sourcing guidelines.

- *Recommendations for Plant-based Foods (see page 34)*

Due to UNCA's varied population and interest in health and sustainability, the school's food provider should offer vegetarian and vegan options in a more prominent, balanced and diverse way. Foods should be labeled consistently and accurately, and should designate a portion of the cafeteria as consistently vegan/vegetarian. The needs of vegetarian, vegan and health-conscious students desiring plant-based foods should be more adequately considered.

- *Recommendations for Dairy Alternatives (see page 40)*

Dairy alternatives should become more available and abundant in campus dining locations for those health conscious consumers, as well as those who are lactose intolerant. Labeling of food ingredients is essential in the prepared foods on campus for people with special diet needs and concerns.

- *Recommendation for Making Local Food a Priority (see page 42)*

UNC-Asheville should strive to serve foods that were grown on campus or sourced from local farms. Implementations include: student involvement in growing food on campus, implementing a local farm work program, and increasing awareness in the benefits of local foods.

- *Recommendation for Sustainable Food Sourcing (see page 47)*

Support local and organic farmers by sourcing their food for the UNC-Asheville student body and community for innumerable health and environmental benefits. Source foods responsibly, and take an aggressive stance in rejecting GM foods. Also, cease using pesticides on campus immediately.

- *Recommendation for Limiting Exposure to recombinant Bovine Growth Hormone (see page 50)*

Within the next year, provide a counter dedicated to dairy alternatives, such as soy, rice or hemp milk, to reduce the campuses intake of rBGH and antibiotic ridden dairy products. Begin researching the cost-effective ways to slowly incorporate dairy products processed without the use of rBGH and antibiotics so that in the future we may be able to sustain on only organically produced dairy. Within the next five years, set an example for all other American campuses by providing dairy alternatives (soy, rice or hemp milk) readily for its students as well as banning any dairy processed with rBGH or antibiotics.

- *Recommendation for Water Safety and Sourcing (see page 53)*

Ultimately, UNCA's water should be independent of Asheville City's contaminated, fluoridated tap water. This could become possible by implementing recommendations outlined in the guideline report, which would eliminate UNCA's reliance on bottled water vendors, significantly reducing environmental impact, and providing a healthier water supply and a more sustainable campus environment.

- *Recommendation for Recycling and Waste Reduction (see page 56)*

Make positive changes in the measures taken to reduce waste and promote recycling on UNC-Asheville campus. A recycling and composting crew can head this effort by promoting practices that reduce waste, as well as making recycling widespread on campus.

- *Recommendations for Rocky's Convenient Store (see page 60)*

Consider carrying health and eco-friendly alternatives to all of their products which are currently abysmally high in sugar, high fructose corn syrup, fat, salt, and empty calories. Provide eco-friendly dorm essentials like laundry detergent and disposable cups. Bottled water should be banned from the store as a statement that UNCA does not favor destruction of our environment and draining our precious aquifers. Many beneficial changes however, can be enacted mostly by adding to Rocky's product line rather than taking specific items away. Giving the community the choice will allow them to vote with their money, and provide options for people who want to pop in for a quick snack, but don't want to walk away feeling empty and bloated.

Ingredient Labeling and Nutritional Facts Labeling

Compiled by Anna Bernhardt and Julie Burnette

I. Introduction to the Issue

Health, according to Hippocrates, is inextricably linked to the food a person eats. Therefore, choosing nutritional, wholesome food is essential for living a healthy life. In fact, nutrition-related diseases such as “cancers, obesity, diabetes, osteoporosis and cardiovascular diseases” have become the leading cause of death in the United States and in many other developed countries (Center for Food Safety). But, how do we know what foods are best for us? Where do we get the necessary information about the food quality, nutrition content, and origin? Ingredient labels and nutrition facts labels provide this information and help in aiding people make smart, healthful decisions in regards to their diet.

The University of North Carolina at Asheville prides itself on its “reputation of being a health and wellness campus,” but the lack of visible and clearly accessible ingredient and nutrition facts labeling in the campus dining facilities is inconsistent with this reputation (Welsh). With a diverse population of students with various dietary needs and preferences ranging from vegan to vegetarian to gluten-free to sugar-free to ethical considerations to environmental concerns, it is essential for the foods in our dining facilities to have labels pertaining to three specific items: (1) ingredients, (2) nutrition facts, and (3) any other important information such as the origin or chemical additives. These types of labels are becoming more and more in demand from a great number of consumers all over the world because they help identify food that is nutritionally healthy, environmentally friendly, with no additives, humanely raised, and/or found regionally or locally (Henneberry and Armbruster). And this labeling shouldn’t be limited to consumers outside of the college campus. UNCA’s students, much like the rest of the population, deserve the right to be able to see the ingredients and nutrition facts of the foods they purchase and consume so that they will be able to make healthy decisions now which will affect their health and wellness in the future.

Currently, UNCA’s two on-campus dining location, the Highsmith Union and the Lifestyles Dining Hall, have very minimal ingredient and nutrition facts labeling. Although there are some ingredient and nutrition fact lists near certain food stations, like the Salsaritas in Highsmith Union and the Made-For-You Sandwich station in the Dining Hall, as well as labels on all pre-packaged products, the majority of foods offered by Chartwells Dining Services lack clearly visible labels. There is binder of nutrition facts information and a small and inconspicuously placed computer in the Dining Hall that contain the nutrition facts and ingredients of the foods produced by Chartwells, but they are not at all convenient or easy for busy, hungry college students to take the time to look up every food item. This is one of the most common complaints concerning the food on the UNCA campus: the ingredient and nutrition facts labels aren’t convenient and this lack of convenient knowledge is disappointing and frustrating. However, this problem can be easily remedied.

II. Proposed Recommendations

On all types of food prepared by the Chartwells Dining Service in the Lifestyles Dining Hall and in the Highsmith Union there should be an index-sized card placed on the inside of the “sneeze” guards or on the front of any “dispensing” units (at the Dining Hall) or on the lower part of the glass dividers (at the Highsmith Union) above each food container containing the following information:

1. A USDA standardized Nutrition Facts Label

- Example (Standard USDA Label):

Amount Per Serving	
Calories 250	Calories from Fat 110
% Daily Value*	
Total Fat 12g	18%
Saturated Fat 3g	15%
Trans Fat 3g	
Cholesterol 30mg	10%
Sodium 470mg	20%
Total Carbohydrate 31g	10%
Dietary Fiber 0g	0%
Sugars 5g	
Protein 5g	
Vitamin A	4%
Vitamin C	2%
Calcium	20%
Iron	4%
* Percent Daily Values are based on a 2,000 calorie diet. Your Daily Values may be higher or lower depending on your calorie needs.	
	Calories: 2,000 2,500
Total Fat	Less than 65g 80g
Sat Fat	Less than 20g 25g
Cholesterol	Less than 300mg 300mg
Sodium	Less than 2,400mg 2,400mg
Total Carbohydrate	300g 375g
Dietary Fiber	25g 30g

Source:

[http://www.hennepin.us/files/HCInternet/HHandSS/Health/Metropolitan%20Health%20Plan%20\(MHP\)/static%20files/NutritionFactsLabel.gif](http://www.hennepin.us/files/HCInternet/HHandSS/Health/Metropolitan%20Health%20Plan%20(MHP)/static%20files/NutritionFactsLabel.gif)

This type of label provides all the necessary nutrition information, calories, grams, milligrams, and percent daily values, for both macronutrients and micronutrients and allows students to individually assess whether or not a food fits their particular dietary needs.

2. A comprehensive list of ingredients.

By providing a comprehensive list of ingredients, students would be able to identify the presence of any potential allergens, animal products, and/or personally harmful substances, like gluten for those living with celiac disease.

3. A statement pertaining to local or regional origin, organic in cultivation/raising, synthetic additives, and certain modifications (if applicable).

By adding these statements, students can choose whether or not to consume the food based on their own environmental and ethical concerns. Organic farming and local farming supports environment health by reducing fossil fuel use, and by advertising the foods offered by Chartwells that are either organic or local (or both), environmentally conscious students have the option to eat foods they believe are less harmful to the environment. Genetically modified and hormone containing foods have been show to have adverse affects on human health and by stating whether or not the food products in UNCA’s dining facilities contained these substances, students would be given the option to choose not to eat those foods.

4. A statement pertaining to any nutrition highlights (if applicable).

A statement of any nutrition highlights, such as “good source of calcium” or “good source of potassium,” would help students select foods that are good sources of necessary macro- and micro-nutrients. This would help students be able to put together a diet that is balanced and nutritionally complete.

By placing this information on a laminated 4x6 card stock, these labels would be easily rotated and changed by the Chartwells workers and would allow for students to easily read, understand, and locate this vital nutritional information. Also, the labeling would increase student awareness of the needs for nutritionally sound food options, which, in turn, would allow for changes in on-campus dining to become feasible and foreseeable.

III. Potential Obstacles and Solutions for Overcoming the Obstacles

There are likely to be several obstacles to the implementation of the aforementioned recommendation but they all culminate into two broad obstacles: complaints about the inconvenience for Chartwells and the negative impacts on students who don’t wish to have labels.

Chartwells employees will likely complain about the greater time, effort, and money this recommendation for universal labeling would require. According to Senior Director of Dining Services Danny Dawkins, the Lifestyles Dining Hall uses a 21-day menu rotation and the Highsmith Union has the same menu from day to day, week to week, month to month. This consistency would in turn make it easier for Chartwells to easily implement a labeling system by (1) organizing a file of each day’s food labels for the food in the Lifestyles Dining Hall and (2) placing the food labels in the Highsmith Union at the beginning of the year. The extra work required of Chartwells’ employees in implementing this system would be minimal. By having an organized file of each day’s food labels, employees can place the labels in the proper locations when they are putting the various foods out on the lines each day. Finally, financing for this project would also be minimal because it only requires a printer, a laminator, and plastic card holders. For Chartwells to invest the time, effort, and money into this project, they would in return gain much more from the students in terms of confidence, patronage, and satisfaction.

Students who don’t care about reading nutrition fact or ingredient labels might be aggravated by the presence of the labels because they may feel that labels are harmful to

those students who choose to eat unhealthy foods. But, if these students don't care about nutrition, then it would (and should be) just as easy for these students to simply overlook the labels since they wouldn't be imposing or distracting due to their simplistic design and modest size.

IV. Advising the UNCA Community

The UNCA Community should be advised about this recommendation by advertising and possibly having an optional seminar about basic dietary needs and how to interpret nutrition fact labels. Alternatively, information about nutrition and the campus food labeling system could be taught in the required ILS Health and Wellness classes. By educating the community about nutrition basics, the UNCA community can learn how to facilitate the new label system to their advantage, if they so choose. It is an easy and simple change that could have a tremendously beneficial side effect: a healthier UNCA community overall.

Resources

Centre for Food Safety. "Benefits of Nutrition Information on Food Labels." 30 December 2006 http://www.cfs.gov.hk/english/programme/programme_nifl/programme_nifl_02.html

Henneberry, Shida and Walter J. Armbruster. "Emerging Roles for Food Labels: Inform, Protect, Persuade." Journal of Food Distribution Research Nov 2003 17 Nov 2008

Welsh, Grace. Personal interview. 17 Nov 2008.

Sugar Consumption

Compiled by Ridley Zook and students in the Food for Thought Cluster

Objective

This guideline addresses added sugar consumption on UNC-Asheville campus. The objective of this guideline is to lower overall added sugar consumption on the university campus in order to help students support their individual minds and bodies to think, feel, and perform to their full potential.

Background

It is important to understand what added sugars are, and differentiate them from naturally occurring sugars, especially since the United States labeling laws allows the grouping of these two very different categories of sugar together under one category on food labels. Added sugars are the sugars and syrups (including high fructose corn syrup) that are added to a food for a purpose, such as to provide a sweet flavor, add bulk, or aid in browning. Naturally occurring sugars, on the other hand, are sugars that are not added in a food, but are present as its original constituents, such as the sugars in fruit or milk.¹ Foods with added sugars tend to be high in calories and fat as well, a recipe for over-consumption of daily energy needs, which is the direct cause for overweight and obesity.² Concentrated sugars provide absolutely no nutrients except for simple carbohydrate calories. Foods high in added sugars can be called “empty-calorie foods,” because they usually do not contribute anything to a person’s nutrient needs. Foods with naturally occurring sugars on the other hand, are usually nutrient dense (like fruit), providing essential vitamins, minerals, and fiber to one’s daily diet. Foods with naturally occurring sugars also tend to be lower on the Glycemic Index, causing less of a dramatic response in the blood sugar level, allowing a student to maintain energy and stay focused throughout the day.³

Recommendations

Decrease the amount of foods and beverages with any added sugars in the cafeteria, Highsmith Union, and the library café, to less than 10% of the total amount of food and drink offered in each location. People are consuming these foods high in added sugars in excess because they are surrounded by them everywhere on UNC-Asheville’s campus. The World Health Organization suggests that absolutely no more than 10% of a person’s total calories should come from added sugar.⁴ As a campus, we can mimic this healthy and life-sustaining food guideline so that it will be possible and even easy for students to adhere to it.

By decreasing the amount of foods on campus with added sugars, I by no means, am suggesting to increase the use of artificial sweeteners, such as aspartame and sucralose in the foods and beverages in UNC-Asheville dining locations. In fact, **I suggest that aspartame in particular, be phased out on campus.** Scientific research

has directly linked aspartame to over ninety different negative conditions and symptoms, including (but not limited to) nausea, dizziness, depression, fatigue, weight gain, heart palpitations, irritability, and insomnia. Aspartame has been approved by the FDA, but due to unethical politics and revolving doors.⁵ As a campus, we can reject the approval of this carcinogenic and toxic substance by not serving it to our students.

Implementation

It would not be difficult to calculate the percentage of foods and beverages with added sugars that should be permitted on campus dining locations. For every food or drink item with added sugars, there should be nine in the same location without. Efforts can be made to make healthful food convenient for busy students. For instance, in the library coffee shop, real oatmeal (that has been slow cooked in the soup station) could be sold in the morning for students to have a nutritious, hot, and convenient meal. Several “toppings” could also be provided for the students to choose from, such as walnuts, raisins, fresh fruit, or soymilk. Nothing I have listed above has any added sugars. The muffins, croissants, puddings, fancy coffee drinks, and sodas sold daily in the coffee shop have plenty though. Another suggestion would be to have a delicious fruit display in the dessert section in the cafeteria.

For the foods and drinks that UNC-Asheville does provide with added sugars (should strive to not exceed 10% of total foods and beverages), alternative sweeteners can be used that actually provide some beneficial nutrients. For instance, the recipes for the desserts in the cafeteria could be revised so that the food is not sweetened with table sugar or high fructose corn syrup, but with molasses, which is a great source of vitamin B6, magnesium, potassium, and manganese.⁶

Conclusions

North Carolina is ranked 36th in Overall Health out of the fifty United States. Our obesity (not overweight!) rate is over 25%.⁷ It is up to universities like UNC-Asheville to set the standard for the state and become a leader in making a difference in this health crisis we have gotten ourselves into. Imagine what kind of publicity, attention, and appreciation UNC-Asheville would receive if it really took an aggressive stance toward quality and sustainable nutrition based guidelines made by its own students! The UNC-Asheville community can become well-advised about nutrition and the new UNC-Asheville Dietary Guidelines by incorporating a major nutrition segment into the Integrative Liberal Studies Health and Wellness requirement.

¹Sizer, Frances and Ellie Whitney. *Nutrition*. Belmont: Thomson Wadsworth, 2006.

²“Sugar” *Nutrition Action Health Letter* 25, no. 9 (November 1998): 3. *Health Source: Nursing/Academic Edition*, EBSCOhost (accessed November 11, 2008).

³ Ibid, Sizer

⁴ Ibid, Sizer

- ⁵ The Aspartame Consumer Safety Network. “The Most Dangerous Food Additive?” <http://66.102.1.104/scholar?hl=en&lr=&q=cache:Mst2luI16IsJ:www.taxtyranny.ca?images/HTML/Aspartame/Articles/dangerousfoods.doc+aspartame+dangerous> (accessed November 20, 2008).
- ⁶ NutritionData.com. “Know What You Eat.” USDA National Nutrient Database for Standard Reference. <http://www.nutritiondata.com> (accessed November 23, 2008).
- ⁷ Eat Smart Move More North Carolina. “The Obesity Epidemic in North Carolina.” NC Department of Health and Human Services. <http://eatsmartmovemorenc.com> (accessed November 11, 2008).

Fats and Trans Fats

Compiled by Marshall Harrison and students in the Food for Thought Cluster

Background

“Fat” is the modern-day boogey-man for American students, and with good reason. As a nation in which over 60% of the adult population is overweight or obese, the mere mentioning of the word brings fear into the psyches of Americans everywhere. Certainly then, the actual consumption of fats is a primary issue in America. In general, we are consuming the wrong kinds of fats in excessive amounts and this is showing up on our waistlines. In addition, diets high in fat, especially in saturated and trans fats, contribute to our high rates of diabetes, coronary heart disease, and many types of cancer.

Technically, fats are called so because they remain solid at room temperature, while oils remain liquid. Animal fats are mostly saturated while plant fats are mostly unsaturated (besides palm and coconut oils). The term “saturation” refers to the molecules becoming saturated, or filled, with hydrogen atoms that are providing the remaining electrons needed for the fatty acid molecule in order to make it more stable. Unsaturated fats, meanwhile, have available places for hydrogen atoms. The more spaces that are open for hydrogen atoms, the more quickly they degrade (for example flax and borage seed oils).

When hydrogen atoms are artificially added using a process called hydrogenation, the result is shortening, margarine, and peanut butter (the magical kind that does not separate). Food manufacturers do all these things to increase shelf life, improve product texture, and resist rancidity.

Unfortunately for the consumer, hydrogenated oils are harder to digest. It takes more effort to break down their bonds. Also, some of the wonderfully helpful vitamins, minerals, and essential fatty acids in these foods, are destroyed in the hydrogenation process.

One class of fats, the Omega 3's, are essential nutrients, which means the human body cannot make them by itself and thus needs an outside source. The omega-3 fatty acids linoleic can be made into arachidonic and docahexanoic acid (DHA) fatty acids all of which are required for normal cell growth. One omega 6 fatty acid, linolenic, is also essential, but this type of fat is found abundantly in the foods we eat, so we do not need to focus on getting enough of it.

Current Situation

The UNC-A Dining Services are little help to the troubled American student. For example, anytime the cafeteria is open, there is always one thing guaranteed available: JUNK FOOD, filled with JUNK FAT: French fries, ice cream, desserts, nacho cheese sauce, pizza...too much and the wrong kind of fats. Excessive percentage of fats in the diet and eating the wrong kind of fats are the two big issues that I recommend UNCA take a look at. UNCA provides too many choices filled with trans fats such as partially hydrogenated soybean oil, and processed peanut butter. In addition, UNCA currently does not provide adequate sources of Omega-3 and omega-9 fatty acids.

Recommendations

1). *I recommend keeping one's overall percentage of fat intake around 15 to 25 percent of total caloric intake.*

One completely cheap way to help out the student's is to mainly serve dishes with a maximum of 25% of calories from fat. The majority of meal options UNCA dining services provide have fat content higher than 25% of calories. Chicken and pork have some saturated fat, while beef has the most. UNCA serves far too much of the last three items. Also, if there is a way to steam vegetables when cooking them, so as to maintain their fat-free nature that would be a big step in the right direction.

2). *Provide healthy whole foods sources of omega 3 and omega-9 fatty acids. The ideal fats to serve are those found in vegetables, grains, nuts, seeds, and fish.*

Here is a cheap, easy way to do this: Next to the juicer, provide a large coffee grinder (about \$20) and order 100 pounds of ORGANIC raw flax seeds (They sell in bulk for about \$1.50 per pound). Also, provide posters with information regarding why it is important to try consuming this awesome seed around the station. Thus, whenever students want they can have the freshest possible source of Omega 3 fatty acids, which degrade very quickly when exposed to heat, sunlight, and oxygen (and thus why they are hard to come by in processed foods).

As an added source of healthy fats, avocados and extra virgin olive oil can be added to the available foods for students.

3). *Commercial fats should be avoided as much as possible.*

Contained within these detestable products are dyes, caustic solvents, stabilizers, and preservatives, and lots of heat and oxidizers were used in their preparation. The oil portion of the plant also usually contains the largest portion of pesticides that are oil soluble. Cottonseed oil is the most common ingredient in low-end vegetable oils and cotton is normally treated with more pesticides than most vegetable crops.

4). *"Unrefined" and "cold-processed" oils are the most nutritious.*

The key with fats is to serve them as unrefined and raw as possible. The more unrefined and oil-rich food is, the more phospholipids, such as lecithin, and valuable fat soluble vitamins A and E they contain.

5). *Give student's easy access to information regarding the types of fats and oils and the quantity and percentage of calories from fat in every serving and dish on-campus.*

As a student, trying to evade the "freshman fifteen", I always found the daily routine of analyzing how oily the various choices were in the cafeteria and Highsmith rather tedious and stressful. Providing a nutrition label next to the various dishes is EXTREMELY helpful. Even if students do not care how much fat they are eating, they will still likely glance over the nutrition facts listed directly below the name of the dish. I think doing this for the dessert and ice cream section might discourage a lot of people from eating as much as they otherwise might.

6). *Provide education about amount of fat, type of fat, and healthy fats.*

Nutrition education efforts will continue to be important. In the cafeteria, the cup filled with sugar illustrating how much sugar is consumed with soda is a great addition, as is the water filter. Perhaps to help the campus community understand the problem with the overconsumption of fats some container could be filled with lard or fat to show how much the average American consumes in a week or so. This could be setup next to the flax seed grinder to encourage the eating of healthy fats instead.

Fats education ideas offered by students from Nutrition and Lifestyle:

- Throughout campus there should be a recommended daily intake posted in areas where food is offered on campus showing amounts of total fat, saturated fat, and trans-fat.
- Another inexpensive way for low fat options to be identified to the campus community is for these low fat options to be marked by a distinct symbol. Next to low fat options a heart could be placed next to the label letting the consumers know that it is a healthy option as far as being low in fat.
- Provide a chart—either by using a large poster or smaller displays distributed around the dining hall, which can allow students to approximate their fat requirements by comparing their gender, bodyweight, and factors such as physical activity level to a set of fat intake recommendations (such as those from the USDA guidelines, for example). Listed in the chart should be total fat, saturated fat, trans fat, as well as monounsaturated fat and polyunsaturated fat. Many students may then be able to tell whether they are meeting their requirements simply by figuring out what their recommended amount is.

Conclusion

In conclusion, providing healthy options for students today can foster healthy eating habits for a lifetime. These are some basic, logical steps that can be taken with relatively little effort and expense, and can maximize the health of the UNCA students, and their accessibility to good healthy fats. Of course, given the financial constraints of the dining services budget, certainly it may prove out of range to provide for example, fresh, organic, avocados for students, but many of the recommendations herein would not increase costs at all. However, these changes will help to maximize the health of the UNCA students, and the accessibility of the healthy fats their bodies need.

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Sodium

Compiled by Hozumi Inoue and Margie Matthai with the Food for Thought Cluster Students

Background

As UNC-Asheville Health and Wellness Promotion majors, we feel privileged to have the opportunity to propose nutrition guideline recommendations concerning the issue of sodium in foods on campus. The reason that this is an important issue to address is because there are negative health effects that can form as a result of consuming too much sodium. Sodium is a mineral that is often found sneaking in our foods. It is mostly found in processed foods, dairy products, and condiments, including many of which are served on campus. Many of the people of the campus community do not realize these negative health effects, and they do not realize how much sodium is in the foods they are consuming.

Although, we need sodium to replace what is lost through perspiration and to help absorb nutrients, we require less than 2,300 milligrams of sodium daily, according to the American Heart Association. That equals about a teaspoon of salt. The Dietary Reference Intakes (DRI) even recommends less than 1,500 milligrams. The average American eats 6 to 18 grams of salt daily; over two times the recommended dosage. Excessive sodium can result in high blood pressure; eventually can reach heart disease and stroke which can be deadly. Cardiovascular disease is accountable for 36.3% of all deaths in the United States, and 1 in 3 adults over 20 have high blood pressure. People who consume too much sodium are also at risk for kidney disease, liver cirrhosis, and congestive heart failure (allreferhealth.com). We think it is important for our campus to limit the amount of sodium in foods, so they can help lower people's risk of contracting these sodium related diseases.

In UNC-Asheville's food chemistry class, students took samples of foods found on campus and discovered that these foods are unnecessarily high in sodium content. For example, there is approximately four times the amount of sodium in cooked carrots from the cafeteria (138.62 milligrams), compared to the amount in raw carrots (34.5 milligrams). A serving of squash naturally only has 1 milligram of sodium, but the cooked spaghetti squash in the cafeteria had 193.52 milligrams. A serving of French fries, found in the Highsmith student union, contains 964 mg of sodium, before added salts and seasonings. These numbers are evidence to confirm our belief, that the amount of sodium in on campus foods is too high (see Appendix A for more details).

UNC-Asheville needs to take action to become a role model school that promotes prevention and wellness for college campuses around the country. We feel one of the most crucial steps is lowering the amount of sodium in foods served on campus. After completing research through classes in the Food for Thought Cluster, and learning more about the sodium content of foods, we came up with guidelines the school could use in order to be move towards becoming a healthier place to live and learn.

Here are several suggestions/recommendations to the UNC-Asheville community on sodium intake:

- 1. Use salt substitutes in foods:** Examples: potassium, fresh or dried herbs and spices, and other low sodium substitutes.
 - Potassium plays a major part in balancing out sodium, regulating blood pressure, helps muscle contraction, and balances out water in our bodies. By using potassium as a substitute for salt, campus community members can consume well-flavored foods, without the negative health effects.
 - It is unnecessary for this much salt to be used in our food when we have other options such as oregano, basil, cloves, garlic, ginger, lemons, and lime to provide seasoning. The use of different ingredients can help spice up the menu, lower sodium content, and will result in more students wanting to eat on campus.

- 2. Reduce numbers of salt shakers in the cafeteria, the Highsmith Union and other eating facilities on campus:**
 - Salt shakers on every table and providing seasoned salt to pour onto the fries is only promoting excessive sodium intake. UNC-Asheville should be promoting healthy habits since for most students; it is their first time living on their own without any guide or support.

- 3. Display sodium content for condiments:**
 - Providing a chart with ingredients and nutritional information (including sodium content), should be an easy improvement for the campus to make. Nutrition fact labels create awareness, which should be important to our health-conscious community. Students can decide whether or not to add any extra flavoring, and how much, on their own.
 - Displaying sodium content of foods prepared on campus is also an essential step to becoming a healthier community. This will help students to make an educated and conscious decision when choosing from a variety of on campus food options.

Implementation

Making these changes on campus may present some obstacles and hesitation from the campus community. Because our campus has been spoiled with sodium in their foods thus far, they may be resistant to these types of changes. It is possible for community members to believe that with these changes the taste of their food will be compromised. However there are ways to present this change as a positive one. We suggest that the UNC-Asheville community be informed about this recommendation in a few ways. We believe that a mass email could be sent out informing the community of the proposed changes and why they are being considered. We also think a good way to inform the community would be to place signs near the foods in the cafeteria that will be changed with the new guideline. The signs will inform the community of how much sodium is in that particular food now, and how much sodium will be in that food if and when this recommendation takes effect.

Conclusion

We feel that lowering the amount of sodium in on campus foods is an essential step to on campus wellness. UNC-Asheville's Strategic Plan includes "building a campus that is cohesive, respectful, vibrant, creative and responsible." Giving students healthier options and labeling foods is a way to show respect and act responsibly in supporting our future generation in making wise and health conscious decisions when it comes to their food choices.

Resources

Research conducted in the chemistry of food class on the amount of sodium of foods on campus.

<http://www.fda.gov/FDAC/special/foodlabel/dvs.html>

<http://health.allrefer.com/health/cirrhosis-info.html>

<http://www.mayoclinic.com/health/sodium/NU00284>

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Calcium, Magnesium and Vitamin D

Compiled by Jonathan Alpert with Food for Thought Cluster Students

Background

Calcium, magnesium and Vitamin D are all important nutrients for bone health. In addition calcium plays important roles in the processes of nerve conduction, muscle contraction and the blood clotting. Magnesium is involved in hundreds of reactions in the human body, the activation of enzymes, assistance in energy production, and the regulation of metals in the blood, while Vitamin D is essential for calcium absorption allowing the body to maintain healthy levels of calcium and phosphorous.

The current U.S. recommendation for calcium is 800 mg/day for children age's four to eight, 1300 mg/day for teens and 1000mg/day for adults.(NAS) Experts are concerned that these numbers are unnecessarily high, in contrast to The World Health Organization's recommendation of 400-500mg/day for adults.(Lanou) Recommended daily intakes for magnesium and Vitamin D for adults are 400mg/day and 400-1000 IU's respectively.(NAS)

Recommendations for Meeting Calcium, Magnesium, and Vitamin D Requirements:

- 1.) I recommend a variety fresh vegetables, beans and grains as part of a plant-based diet to provide student's supply of calcium and magnesium, along with outdoor exercise for the production of vitamin D.

Rationale:

The influence of the American dairy industry on vitamin/mineral consumption recommendations is equally immense and alarming. Dairy products are considered to be a good source of calcium despite their relatively low absorption rate (about 30%); in relation to the absorption rates we observe from plant and grain calcium sources (40-60%). (Lanou) In addition to lower absorption rates dairy products are high in fat, and sometimes sugar, and dairy proteins stimulate immune reactions in some people. Along with high levels of dairy consumption come problems like cancer, autoimmune disorders and coronary failure, all associated with high fat, high cholesterol diets.

The volume of food we need to consume will be reduced if the sources of nutrients are more efficiently processed. This logic aligns itself with the average global calcium recommendation of 400-500 mg/day. The animal proteins found in dairy actually leech calcium from bones, compounding the problems of recommended volume. (Lanou) Furthermore, it is estimated that 1 in 4 individuals in the U.S. are lactose intolerant, meaning they lack the enzyme that metabolizes lactose, the sugar found in dairy products. This results in bloating, diarrhea or constipation and abdominal pain.

Because of dairy's inefficiency at supplying calcium because of its high protein content, along with the lactose intolerance that many Americans have, my recommendations for calcium, magnesium and vitamin D will be to get these nutrients from entirely plant-based sources. The negative effects of dairy consumption are simply too great to our health and our environment to be considered a viable long-term option.

2.) Regular, preferably daily, outdoor exercise is recommended as a means of vitamin D production.

Rationale:

Vitamin D, a hormone produced in the skin by the body in response to sunlight. While natural sources of vitamin D are uncommon, fortified foods coupled with the body's production are adequate to satiate the body's needs. A 30-minute outdoor walk with the hands and face exposed can do a lot to support our own production. In addition, exercise has been shown to support bone health as well. (PCRM)

Implementation

Calcium and magnesium are both found in several common foods such as kale, white beans, pumpkin seeds, oat bran, barley and soybeans which all contain more than 100mg magnesium per serving. By incorporating a broad selection of beans and vegetables into our diets we can easily achieve the USDA's magnesium recommendation of 400 mg/day. Let's examine specific volumes of foods that would meet and exceed our daily recommendation for calcium. For this exercise we will use 400-500mg/day-calcium intake.

One bowl of total plus cereal w/ calcium-fortified soymilk is 400 mg/day absorbable calcium along with several hundred milligrams of magnesium. One cup of calcium-fortified orange juice is 100 mg/day of absorbed calcium. These three items may be a meager breakfast but they provide ample calcium for an adult's daily requirements, without the risks of cancer, obesity, diabetes and coronary disease that accompany dairy products. Dark green leaf vegetables and whole grains incorporated into the diet on a daily basis can easily provide up to an additional 100-400mg/day of absorbable calcium as well as large amounts of magnesium.

Incorporating fresh, steamed, raw, or lightly cooked vegetables with every meal on campus, will easily satisfy our bodies' need for micro-nutrients and trace minerals. Simple charts of the available daily vegetables and their nutritional content can be made available to students in all dining facilities so that they may make informed choices and take responsibility for their own health.

Conclusion

The nutrition and efficiency of nutrient absorption provided by the current food on campus is sub-standard, and makes it difficult for a student to achieve balanced nutrition. The benefits of making plant-based meals more readily accessible will have profound health benefits for both omnivores and vegans alike.

By incorporating these whole unprocessed plant foods into our diet, using common sense eating practices and allowing time for fresh air, sunshine and exercise, we as a campus can improve overall health, and nutritional awareness, while reducing our dependence on industries that have attained far too much influence on the policy makers of this nation.

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Achieving and Maintaining a Healthy Weight

Compiled by Austin Graham with Food for Thought Cluster Students

Introduction

Achieving and maintaining a healthy weight is a problem many Americans struggle with and it is because they are not completely informed on the best ways to go about life while being completely healthy. UNCA is no different from the rest of America, but there definitely is something we can do about the issue. Our campus and the surrounding area is becoming a cornerstone for health and wellness in North Carolina and in order to reach our full potential, there needs to be a change issued soon.

Recommendations

In order to reach the goal of a achieving and maintaining a healthy weight, several steps need to be taken. The steps include 1) losing weight to reach your healthy weight or Body Mass Index (BMI) and 2) maintaining your healthy weight by eating in a healthy manner and exercising regularly. Losing weight is difficult because a complete overhaul of eating habits and exercise routine often needs to occur. You will have to have a lot of self-control, a determined mindset, and to be able to put forth the effort. Here are the key things you need to know:

1) Finding an exercise routine that fits your lifestyle is the most important.

- If you aren't having fun working out and being active, then you need to try something you enjoy so you will stick to it.
- Make sure to exercise everyday and work in a healthy diet at the same time.

2) A healthy diet complimented by exercise will increase your ability to lose weight or maintain a healthy weight remarkably.

- Removing foods that are high in fat and foods lacking sufficient fiber from your diet will be necessary. If you stay away from the meats and dairy, then the unwanted fat will be reduced tremendously.
- Sticking to fruits, vegetables, beans, and whole-grains will not only help you to lose weight, but will help to prevent many diseases and illnesses.
- Keep in mind that carbohydrates are not bad for you; it is only if you eat a large amount of simple carbohydrates (such as the ones found in soda, candy, baked goods and other highly processed foods) that will cause trouble.
- Learning the correct portion sizes to keep from over indulging, especially in buffet style serving areas like the cafeteria.

Rationale for Healthy Eating

Reducing the fats and sugars in our diets and increasing the healthy nutrients we need, will help out tremendously with achieving and maintaining a healthy weight. Staying away from added sugars and sticking to naturally occurring sugars will be very beneficial to a person's overall health (Zook). If naturally occurring sugars are sought out to be consumed, essential vitamins, minerals, and fiber will come with those foods (Zook). Essential vitamins and minerals include calcium, magnesium, and Vitamin D. People need to consume around 400-500 milligrams of calcium per day, according to the World Health Organization. By eating more dark green leafy vegetables, whole grains, and beans a person can not only increase their intake of calcium but also increase magnesium. Pairing this recommendation with regular outdoor exercise, Vitamin D can be produced and your body will reap the benefits. The risk of cancer, coronary failures, high blood pressure, and many other chronic diseases will decrease if the right steps are taken to stay away from high cholesterol and high fat diets. (Alpert)

UNCA Support for Achieving and Maintaining Healthy Weight

Our campus needs to be a role model for North Carolina, especially since we will be home to the new NC Center for Health and Wellness building in a few years. The place to start is our food consumption and the choices we have on campus. Although there is a bit of advertising for healthy foods in the cafeteria and other places, it doesn't mean the foods are actually good. I have asked friends of mine about their experiences with the campus dining and normally I don't get any positive feedback. They talk about the amount of greasy and fried foods we have and how they don't feel they can eat healthy on campus. Most of my friends happen to be on the baseball team, so they are getting enough exercise but that one component of healthy foods is missing.

Recommendations

- 1) UNCA should care more about its students being healthy and demonstrate this concern by not serving foods with very high fat and calorie content and extremely low fiber content. Some students aren't able to eat anywhere off campus and have to eat in the cafeteria or the Highsmith Student Union, so there should be healthier choices in both places.
- 2) Control the amount of high fat and calorie content by creating small changes like reducing the availability of dessert to every other day, having a completely vegetarian menu once per week (like meatless Mondays (www.meatlessmonday.org), and removing all fried foods one day per week (Small).
- 3) Control the portion sizes by purchasing serving utensils with a one cup capacity to allow students to take smaller portions. Smaller portions will lead to a decrease in calorie intake, making it possible to maintain a healthy weight. Awareness of portion control can be displayed through visual stimulants such as posters or examples of the correct portion size in relation to easily recognized objects like tennis balls or the palm of your hand.

(Chesky) Not only will this help with portion size, but will also help with cutting down the amount of waste produced each day.

4) The dining areas need to include labels so students can put their knowledge about healthy eating to work. Labels that include the ingredients, the nutritional facts, and the source of the food should be implemented in order for students to make the right choices (Bernhardt).

5) Along with the nutritional data, UNCA should provide students with guidelines and education on how to maintain a healthy weight while simultaneously providing the food choices needed for students to meet those guidelines.

6) The guidelines should include requiring students to take a health and wellness class addressing nutrition and healthy weight. It could include information on ways to exercise and stay fit, show them the consequences of eating un-healthy foods, eating the correct portion sizes, what foods they should eat, and what foods to stay away from in order to live a healthy life. I know there are many classes here at UNCA that are mandatory and benefit students with a more defined knowledge of the liberal arts, but why not integrate a class focused on nutrition into the mandatory category? If students were required to take a class that explains all of the information previously listed and are taught about achieving and maintaining a healthy weight, we could benefit so many lives physically. Students would not only leave UNCA with a liberal arts degree, but with a working sense of how to stay healthy for the rest of their lives, not to mention increasing the number of years they are alive.

Alternatively, addition of this content to the requirements could be accomplished by altering the content of the current required health and wellness class. By taking the class which is primarily focused on exercise and adding a more detailed nutrition section to the class, it would be an optimal course for maintaining and achieving a healthy weight.

The change in foods offered on campus along with this class will help our campus to be a true role model for achieving excellent health and wellness and living in a healthful manner. The UNCA community should be advised about these recommendations through the Student Government Association. The SGA could send out a mass e-mail to all students and could hold an open forum to receive possible suggestions or critiques of the proposal.

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Vending Offerings

Compiled by Janet Schafer with Food For Thought Cluster Students

Introduction

College students are often loaded with various classes, hours of homework, club meetings, and late shifts at work every single day. These many duties make students experts at saving time. Unfortunately, healthy meals are usually the first things to be cut out of a busy lifestyle. On the UNCA campus, students are often replacing healthy meals with convenience foods that lack in nutritional value due to time constraints. The vending machines located in several residence halls and next to classrooms limit nutritional options. Both food and drinks offered in these vending machines are high in sugars, sodium, and far and limiting in vitamins and nutrients. Both students and faculty would benefit from a healthier selection of convenience foods in the campus vending machines.

Recommendations

The current vending services on the UNCA campus lack foods with nutritional value. Healthy snacking is an important aspect of healthy eating behaviors that should be promoted in the campus community of UNCA. **1. To promote easy, nutritional snacks outside of the dining services, UNCA should adopt a new vending contract that includes several healthy, natural and organic options.** The current vending services with Canteen offer only highly processed snacks that are high in fat and sodium and lacking in nutritional value. The new set of guidelines for the UNCA vending services will provide options to vending that allow and promote healthy snacks all over campus at any time of the day to ensure that all students and faculty receive benefits from these healthy alternative vending services.

There are several vending companies that offer natural, organic, nutritional snacks. Some of these vending services allow for several options of vending including fresh vegetables, cold nutritional sandwiches, and healthier beverages. A few of these companies are:

1. YoNaturals- Offers over 500 organic and nutritional snacks and beverages through vending.
2. Natural Nosh- A Western North Carolina Company that provides vending machines stocked with treats that have no trans-fats, artificial colors or flavors and no chemical preservatives.
3. Fit Fuel- Provides several options of snacks that include color coded nutritional categories for each type of snack and offers a refrigerated vending machine for fresh produce and sandwiches.
(Millard)

2. A nutritional analysis of the foods offered in the UNCA campus vending machines should be provided at each vending site. The analysis will provide students and faculty with knowledge of the nutrition and ingredients available in each product

prior to its purchase. The products in the vending machines will each have an analysis of calories, fat, sodium, and other nutrients that can be found on the label of the product. A general analysis of these products could be placed on the glass of the vending machine, allowing for easy and convenient referral to the analysis when students are purchasing a product from the vending machine. This will allow students and faculty to interpret the information and choose a product that fits their dietary needs or concerns.

3. UNCA should promote consumption of water and educate students about soft drinks. Due to sponsorships that UNCA receives from soft drink companies, the school should not focus on ways to get students to drink less of these soft drink products. The number one answer to healthy beverages is water, since it is needed everyday for the body to properly function. With the environment in mind, UNCA should provide a way for students to purchase sturdy, reusable water bottles to promote the use of the free water fountains on campus and discourage students to pay everyday for a soda or disposable bottle of water. Calan Halford, a Health and Wellness student noted that one 20 ounce soft drink contains 17 teaspoons of sugar while the USDA's daily recommended amount of sugar is only eight teaspoons. This statement is rather shocking and a simple display of this knowledge near the soft drink vending machines would have a huge impact in discouraging students to consume these sugar loaded beverages and switch to water (Healthy Vending).

Implementation

Changing the vending machine services means that UNCA will have to discontinue services with any current vendors. Typically, vending contracts roll over to the next year automatically if no written documentation of a wish to discontinue the services is sent to the vender at least 60 days prior to the end of the contract. Also, the quality vending snacks are expected to cost more than the "Canteen" products, but, these new healthy vending machines will produce more revenue. There has been a high success rate of healthy vending machines in schools and business. The healthier vending machines have been very popular among people of all ages and often generate twice as much profit than the previous machines. This investment has proven to be worth the time and money that is put into it (Hohn). Students and faculty should be allowed to give feedback on this topic before the plan is implemented. This will allow UNCA to fix any problems or issues that anyone may have with the change. Once all aspects of the plan are perfected, the recommendations should be presented to UNCA as another step in improving the health and wellness of our campus community.

Conclusion

Nutritional snacking is a healthy eating habit that can be encouraged at UNCA by these few simple recommendations. Healthy eating habits are important to an individual's health and wellness. An overall positive shift toward more nutritional eating habits on campus will promote a happier, smarter, more energetic college campus at UNCA. These recommendations for the change in the vending machine services at UNCA will lead to the positive change that our students and faculty want and need.

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Whole vs. Processed Foods

The usage of processed v. whole foods at UNCA and the subsequent effect on the university's goals of wellness and environmental consciousness

Compiled by Grant Waters and students in the Food for Thought Cluster

A. Important Issues for University Consideration

Wellness and Whole Foods

A diet rich in whole foods, such as fruits, vegetables, whole grain, nuts, and legumes, has been shown to have many positive health benefits. Overall, people who eat a whole foods diet are less likely to have weight and digestive problems. They are less likely to suffer from chronic conditions such as heart diseases, colon cancer, and type 2 diabetes. Specifically, students from Nutrition and Lifestyle class point out that:

1. A diet rich in these foods provides more fiber, which helps to regulate the digestive tract, and help a person to feel fuller faster.
2. Many fruits and vegetables contain phytochemicals, such as cancer-fighting lycopene, that cannot be derived from any other source.
3. Whole grains, provide fiber, vitamins and minerals, and high quality energy.
4. Whole foods provide the good fats and proteins that many people get too little of, while consuming too much of the highly saturated fats and animal proteins.

Concerns with Highly Processed Foods

1. There exists an obvious impact on student health and well-being, given that many cases of illness can be traced back to ingesting a substance in a processed food that does not naturally occur in the raw form of the food (Serra 2008).
2. Processing not only tends to remove fiber, vitamins, and minerals from whole foods, it also tends to add fat, sugar, salt, and various other unneeded and at times unhealthy substances.

Whole Foods and Sustainability

1. The purchases and the origins of said purchases have an impact that is on a larger scale than the western North Carolina area. That said, the university's dietary plan needs to include stimulation of local economy, as well as utilizing practical logic when making purchases unavailable locally (i.e. buying avocado from Florida rather than Guatemala, etc.).
2. Through the local/short travel model, not only will the quality of food and student life improve from a sanitation and wellness perspective, but the flavor benefit and the enjoyment that follows has been illustrated in research on the travel distance of food and the enjoyment from its consumer (MacLaurin 2003).

B. Specific Recommendations to the University

The following are a short list of prioritized goals and recommendations from the student body in regards to providing whole foods in with sustainability in mind.

1. **Whole Foods**--Provide more whole foods and fewer highly processed ones in all settings where food is offered or served. (See related recommendations to provide produce and whole foods in the Rocky's, vending, and recommendations to offer additional vegetarian and non-dairy alternatives.)
2. **Safety**—As many in the foodservice and healthcare industries are aware, food can be one of the most effective carriers of disease, whether from naturally occurring sources (contaminated feces for manure, i.e.) or from the processes in which they are packaged and sent out (worker/human contamination). UNCA's dining hall and Highsmith University Union foodservice staffs should have a unanimous 'ServSafe' certification, with a fully educated/informed staff on proper food handling, contaminant identification, and temperature safety levels. Through this, processed foods can be phased out given the staff's competency in working with fresher foods in a safe manner, and per the state's appreciation, the sanitation score of an establishment is raised if ServSafe certified staff are in the workforce of UNCA.
3. **Sourcing**—Despite contractual obligations to Chartwell's through the 2010 school year, preemptive planning of local and regional sourcing options can begin now. That said, a 'University-WNC Farms' liaison position should be created as a possible cabinet/delegate position within both SGA and the Office of Student Affairs. This would take the brunt of research and face time off of Dining Services staff and would generate more student efficacy by being involved in such a process. With information gathered by the liaison, a database of cost, seasonal availability, and quantity can all be constructed prior to ever re-negotiating a dining contract.
4. **Environmental/Agricultural Provisions**—By acting on the recommendations above, great strides will have already been taken toward streamlining UNCA's 'dining footprint,' for lack of a better term. Less shipping and freighting cost lower the amount of fuel used on the university's behalf; the stimulation of local and/or organic farming offsets some of the ecological damage done by concentrated feeding operations, both local and abroad. In the same vein, a student organized composting organization, following sound student-faculty collaborative leadership, could work through university marginalization of composting's importance and benevolence to the campus and Asheville community at large.

C. Fiscal Consequences

The ever-present issue of the bottom line is clearly not out of consideration in this particular instance, yet the three aforementioned recommendations for dietary

reform are also low or no cost for operation. The creation of a UNCA-WNC Farm liaison would cost the University nothing, and barring professional intervention, no salary need be paid. At most, a paid internship with UNCA similar to that of a Student Environmental Commission position—approx. \$500 a semester. The composting proposition and ServSafe certification process would take relatively low (>\$1000 collectively) start-up fees, which in terms of ServSafe need only be completed once every five years to stay current with the certification. Composting costs would be handled primarily by student-organized maintenance and upkeep of the composting facilities.

Conclusions

The university's frame of reference and line of thinking should be on a grand scale of thinking about how dining services impact the overall student experience. Fiscally, the university stands to benefit over time with cutting costs via local transport, as well as eventual increases in freshman enrollment due to the activism of the student body when it comes to their food and their health.

Moreover, UNCA should strive not to overhaul an entire structured system overnight, for fear of a backlash from those who are content with current dining circumstances. Constant work between the SGA, Dining Services, the Health and Wellness Dept., and a newly formed liaison will be quintessential in the formation and adherence to a newer, healthier, more streamlined dietary environment at the university for years to come.

Plant-based Foods

Compiled by Elizabeth Brownell and Margaret Johnson with Food for Thought Cluster Students

Introduction and Rationale

Students on the UNCA campus who chose to eat a vegetarian or vegan diet may do so for a variety of reasons; including health benefits and ethical considerations. Even those students who do not wish to consume a vegan or vegetarian diet may want the benefits of a diet rich in plant foods. Current dietary recommendations call for the consumption of more fruits and vegetables. The U.S. Dietary Guidelines for Americans recommend “increased intakes of fruits, vegetables, whole grains... are likely to have important health benefits for most Americans.” Diets high in plant-products have been shown to reduce disease risk. “Eating patterns characterized by an abundance of fruit, vegetables and other plant foods are associated with a reduced risk of chronic disease, e. g. cardiovascular disease and cancer.”

With the concern for the rising epidemic of obesity and chronic disease there is lots of evidence that reveals that eating a mainly plant-based diet helps lower these risks. Animal products tend to be high in saturated fat, and cholesterol, and low in fiber, they increase the risk of chronic disease, whereas plant-centered diets decrease the risk. According to the American Dietetic Association, plant-based diets have a wide range of health benefits over diets rich in animal products, due to their higher levels of carbohydrates, fiber, magnesium, potassium, folate, and antioxidants such as vitamins C and E, and phytochemicals. The American Dietetic Association also reports that vegetarians generally are found to have lower body mass indices than non-vegetarians, as well as lower rates of death from heart disease. Besides lower cholesterol, they also have lower blood pressure; and lower rates of hypertension, type 2 diabetes, and prostate and colon cancer.

Others decide not to eat meat for ethical reasons including the cruelty inflicted on animals during breeding, raising and slaughtering these animals. Many are also object to the very poor conditions of workers in the slaughterhouses and meat processing facilities. Along with the idea of not eating meat for ethical reasons, comes the belief in not eating meat for environmental reasons. The United Nations determined in 2006 that the livestock industry is one of the largest causes of environmental degradation (air and water pollution, deforestation, loss of topsoil, climate change, overuse of oil and water resources, loss of biodiversity, etc.) worldwide.

The UNC Asheville Strategic Plan emphasizes areas of Diversity, Inclusion and Social Sustainability. In being aware of, and meeting the needs of students who wish to maintain a vegetarian or vegan diet, we are acknowledging and supporting diversity on our campus. As stated in the report by food cluster student Alex Willard, many persons of color are lactose intolerant and this should be taken into consideration as well. The United Nations has issued a report encouraging people to eat less meat in an effort to curb

global warming. They estimated that “nearly a fifth of global green house gas emissions”, can be accounted for by meat production. Consumption of plant-based foods can be a way to make an impact in sustainability. To quote Marian Sadler from the nutrition class in her report (see resource list):

...it would be wonderful if our campus cafeteria could take a leadership role in becoming one of the most “green” cafeterias in the country. Doing this would be so easy, healthy, and cost effective, considering that by doing nothing more than increasing the amount and variety of plant-based meal options while decreasing animal products, we could surpass most other campuses in terms of our contribution to the environment!... Surely with the interest in promoting students’ health, avoiding food waste, helping the environment, and preventing cruelty to animals all while saving money, there is no reason for our school cafeteria to not increase the variety and availability of plant based foods in our cafeteria.

Current Situation

UNCA claims that they provide a variety of nutritious and appetizing vegetarian and vegan options in the school cafeteria, that they have put into place a corporate social responsibility program (cage-free shell eggs, zero trans fat in oils, etc.), and that there are specifically labeled vegetarian and vegan options offered daily. Many students and faculty would disagree with some of these claims.

In taking a closer look at the Highsmith and dining hall on campus and the foods provided there, one can find much to be desired. Although many of the foods in the cafeteria seem to be vegan or vegetarian there is no consistent labeling to indicate them as such. In Highsmith, as well, most of the packaged foods are without ingredient labels. Also, the vegan and vegetarian options in the cafeteria and Highsmith are very limited. During one investigation into the non-meat proteins available in the cafeteria, the only suitable meat substitute was beans. In the Highsmith the only vegan options were Odwalla drinks, hummus and soup. The drinks were \$4 a bottle, the hummus \$5 and the soups \$3-\$4. To get a decent and balanced and relatively inexpensive meal on a vegan diet seems impossible in these conditions. (Investigative information from food cluster student Rebekah David, 2008)

Some Key Issues

Options for vegetarian dishes on the UNCA Campus dining hall are somewhat limited, and inconsistent. Foods are not often labeled, or are incorrectly labeled. One day a legume or particular vegetable might be found on the salad bar, the next it’s not. Dishes which could be made as a vegetarian option are not. For example, macaroni and cheese is routinely made with ham. If possible, it would be good to identify menu items that could be made as a vegetarian or vegan alternative and find ways to implement these dishes. In the Highsmith Union Food Court, there is less clear labeling and fewer choices.

There is not a definitive indication of how many vegetarians or vegans there are

on campus. It's hard to determine which options they are choosing. The vegetarians or vegans I've encountered feel that the options for them are inadequate. Many have sought alternatives outside the Dining Hall, Highsmith Union or Ramsey Café. Commuter students have voiced their frustration in having to find off-campus alternatives when it would be more convenient to eat on-campus.

Recommendations

A survey of vegetarian/vegan students would be useful in assessing whether their needs are being met. Also, a study of the vegetarian/vegan options offered on the menu over a period of time would help in establishing strengths and weaknesses in what is being provided.

Some areas for which it would be useful to have data for:

- The number of students identifying as vegetarian or vegan (One simple way to start with this would be to ask resident students about dietary needs on their forms for campus housing).
- At which campus venues do these students eat, and how often?
- Opinions about the choices of entrees available to them on campus. Are the choices sufficient? What's being done poorly? What's being done right?
- Keep track of vegetarian and vegan options available in the main cafeteria, in Highsmith and in Ramsey Café to determine if a complete, balanced, nutritious selection of food is available to vegetarians and vegans. Enlist a number of vegetarian or vegan participants who record the foods they choose over a period of time to determine if their diets are balanced and if there is adequate variety of nutritious choices.

Surveys are time-consuming -both in development and implementation. Wide dispersion, well-formulated questions, proper dissemination and tallying are important for the best results. All of these concerns would need to be answered. However, despite the challenges, we feel a survey could provide essential information and has the potential to be beneficial. In creating the survey, a committee would be needed to oversee the development. Those involved in the Psychology and/or Sociology departments could be resources in the development and formulation of questions. A practical form of dissemination would be by internet.

Labeling is also important and needs to be improved. Vegetarian and vegan choices need to be clearly identifiable. Some ways to do this would be:

- Labeling of foods should happen accurately and consistently. Labels with the name, ingredients and possibly a symbol indicating vegan or vegetarian, always placed in close proximity to the actual food. Although there is apparently a system like this currently in place, accurate labeling does not happen. Proper labels, and staff education is needed for implementation.
- Using color-coded labels on foods to indicate which entrees are vegetarian/vegan or both. Also utilizing color-coded cooking pans, to reduce errors made by staff. This would be a simple and consistent identifier.

- Signage and information in dining locations about the benefits of plant-based foods and option available.
- It would be excellent if students could have online access to menus/recipes. This way, students could examine for themselves ingredients and make choices. Currently, it is only available in the dining hall. By offering this online, it would open accessibility to off-campus and other students. It would allow for students to know the choices -and if they meet their needs - before paying and entering the dining facilities.
- It is also possible to section off a portion of the cafeteria (possibly one side of the salad bar) that is always vegan. This way a vegan or vegetarian person can know there is always something available for them to eat. This section should include a protein, a vegan pizza, sub or sandwich, vegetables, and maybe fruit or salad each day.

To ensure that foods served on campus are correctly labeled, we must work closely with dining services. We will be working within the confines of what dining services is able or willing to do. Also, it should be realized that there would be a transition period in implementing a labeling system whatever that may be. Modifications and adjustments might need to be made. Education about the benefits of these foods and general nutritional information would be useful in pacifying any resistance to offering more plant-based foods. We should also be aware of the possibility of a compromise to occur in the balance of plant-based and meat-based dishes.

Consistently Offer Vegetarian and Vegan Options

- Always have at least one bean item on the salad bar; other protein dense plant foods such as nuts, tofu chunks, etc. would be helpful too.
- Offer a vegetable pizza with no cheese or soy cheese.
- Have a vegetarian option at the grill, for example, vegetarian hotdogs, burgers, chicken nuggets, as needed.
- Always have one vegetarian/vegan soup option.

Consider adding these items more regularly to offerings:

Variety of unsalted nuts: almonds (protein, magnesium, calcium, potassium, iron), brazil nuts (selenium), pine nuts, pumpkin seeds, sunflower seeds, walnuts (omega-3); offer at salad bar, preferably with a sign indicating the recommended serving size and nutritional content, as many nuts can be high in fat.

Calcium-fortified tofu or tempeh: a modest serving can provide 200-330 mg of calcium and 10g of protein. Tofu is versatile and can be used in stirfrys, tofu scramble, sandwiches, desserts, soups and curries, sauces, and more.

Hummus: is cheap and easy to prepare. There is hummus available in Highsmith, but it costs \$5 for a small package; a package twice the size is available at Earthfare for \$3.50. Offering hummus at the salad bar alongside fresh vegetables in the main cafeteria would provide a low-sugar, low-fat source of zinc, iron, vitamin C, and fiber.

Variety of dark leafy green vegetables: i.e., broccoli, kale, collard greens, spinach, romaine lettuce, etc. These items tend to be rich in vitamins A, C, E, K, calcium, magnesium, folate, etc. These items should be offered raw or steamed, or cooked with

a minimal amount of oil. Optional dressings or sides, like cheese and soy sauce, could be available nearby for students who would prefer them.

(Red Star Formula) Nutritional yeast: a key source of vitamin B12 for vegans, as well as containing other B-complex vitamins, folate, and protein. Can be sprinkled on soups, salads, casseroles, or... anything, except maybe desserts.

Flax-based salad dressing: will provide omega-3s, calcium, iron, etc. Currently, the only apparent (since nothing is labeled) vegan salad dressing available is oil and vinegar.

Other excellent food options: edamame, quinoa, avocados, sweet potatoes, lentils, portabella mushrooms, tropical fruit/melons with yogurt (soy yogurt is also available) for dessert, wild or brown rice. These are all known to be nutrient-dense, versatile, appealing food choices. A better selection of vegetarian and vegan breakfast items might include tofu scramble, veggie sausage or bacon, vegan biscuits with gravy, a good selection of fruits, whole grain bagels with hummus, and/or oatmeal made from whole/rolled oats, with no sugar added.

(food options recommended by food cluster student, Rebekah David)

When recommendations concerning plant-based foods are finalized, they need to be publicized to members of the UNCA campus. Some suggestions:

- Network through UNCA clubs and organizations. Disseminate the information to relevant groups so they might help spread awareness to their members and the wide campus community.
- Make recommendations available online through the cluster website. Consider a facebook group promoting the information. Develop a website where the recommendations can be viewed.
- Changes or improvements to the labeling system in on-campus dining could serve as a way of highlighting the new recommendations.
- Informational posters should be prominent in the dining hall and in Highsmith. They should contain information about creating a balanced meal with the foods offered in the dining hall and Highsmith.

Conclusion

Taking into consideration that the U.S. government's official U.S. Dietary Guidelines advise an increased consumption of a variety of fruits, vegetables, and whole grains and a reduction in the use of foods rich in saturated fat and cholesterol like most foods from animal sources while also considering all of these previously noted issues along with UNCA's promise to provide a variety of nutritious and appetizing vegetarian and vegan options, a corporate social responsibility program, and specifically labeled vegetarian and vegan options offered daily, there are many changes that can and should take place as soon as possible. Any other changes should be implemented with the long-term goals of the university in mind and within the context of the contracts, present and future, with food providers at UNCA.

Resources

Physician's Committee for Responsible Medicine Website: www.pcrm.org

Marian Sadler, HWP225, "The Need for More Plant-Based Foods in UNCA Cafeteria", November 2008.

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Livestock's Long Shadow. Agriculture and Consumer Protection, 2007.
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Dairy Alternatives

Compiled by Alex Willard

Introduction and Rationale

As a student, Health and Wellness Promotion major, consumer of food, and general advocate for food choices, I would like to present my arguments and recommendations for the inclusion of more dairy alternatives on campus. Currently the options are meager, while the need for them is great. UNCA tries to promote diversity on its campus and thus needs to include diversity in food to accommodate the various dietary needs and lifestyles of its students, faculty, and staff.

In a country as diverse as the U.S., dietary particularities are vast, including the inability to digest lactose. If a person with lactose intolerance ingests lactose, they will suffer from abdominal discomfort, pain, and diarrhea. People of color are particularly prone to lactose intolerance, where it has been estimated that 75% of Blacks, 79% of Native Americans, and 51% of Hispanics are affected.ⁱ According to UNCA's Fact Book, in 2007 the student population was 3% Black, 2% Hispanic, 1.3% Asian, and 0.3% Native American. The faculty and staff was 7% Black, 2% Hispanic, 2% Asian, and .3% Native American.ⁱⁱ While these percentages may seem small, they indicate a population that has a very high chance of being affected by lactose intolerance. Caucasian people are also prone to lactose intolerance at 21%.ⁱⁱⁱ UNCA's student population is 88.2% Caucasian, with faculty and staff at 90% Caucasian.^{iv} Thus, it is very likely that many individuals at UNCA have lactose intolerance and are not offered sufficient dairy alternatives.

Beyond those with lactose intolerance are the growing population of people choosing vegetarian and vegan diets. According to a 2005 poll conducted by Harris Interactive, 3% of Americans aged 8 through 18 are vegetarian.^v Another poll, in 2003 estimated that 1.8% of Americans are vegan.^{vi} Vegetarian and vegan diets include no meat products, and little-to-no animal by-products, such as dairy. Students and faculty who choose an ethical or health promoting diet should not be penalized with a lack of food options on campus. While these diets are a choice, whereas lactose intolerance is not, vegan and vegetarian lifestyles should still be recognized as valid by UNCA and alternatives should therefore be provided. Thus, UNCA should address this growing population whose diets require alternatives to cow milk and cheese.

The Current Situation

Presently, the only dairy alternatives on campus are in the cafeteria and the Highsmith Union. The options are minimal: in the cafeteria, there is one soymilk dispenser near the cereal bar and vanilla soymilk upon request; in the Union, small bottles of soymilk are sold.

Recommendations

- 1) I recommend that the cafeteria offer a full alternative dairy milk dispenser, including soy as well as rice and almond milks.

- 2) I recommend non-dairy cheese for the salad bar, easily accessed milk alternatives near the coffee, dairy-free soups of the day, and the inclusion of non-dairy ice cream in the cafeteria's myriad of dessert options.
- 3) The cafeteria and Union should also include dairy-free options for foods that typically contain dairy, such as pizza, pasta dishes, and baked goods.
- 4) Finally, I recommend that all prepared foods on campus be labeled with their ingredients so that students and faculty may make informed food decisions.

Implementation

Danny Dawkins, Senior Director of Dining Services, said he wants students and faculty to have plenty of food options. According to the dining services staff page, Dawkins' "field of specialty" is vegan and vegetarianism, so implementing my recommendations should be quite simple.^{vii} In a personal interview, Dawkins said there was not enough room for a completely dairy-free milk dispenser. I recommend space be created by cutting down the number of sugary, nutritionally void cereals offered in the cafeteria, or by reducing the number of fountain soda machines down to one. I am sure space can be found if we prioritize dairy alternatives over junk food. Labeling food should also be simple, as Dawkins claims every recipe used on campus is documented. The implementation of dairy-free options will require creativity of recipes, and a commitment to providing the community with food alternatives.

Once my recommendations are implemented, the UNCA community could be informed with a university-wide e-mail and signs indicating the new options in the cafeteria. The inclusion of dairy alternatives would likely increase the interest in meal plans, as well as assure the community of UNCA's dedication to diversity of backgrounds and lifestyles.

ⁱ Scrimshaw NS, Murray EB. The acceptability of milk and milk products in populations with a high prevalence of lactose intolerance. *Am J Clin Nutr* 1988; 48: 1079-159.

ⁱⁱ UNC Asheville Fact Book 2007-2008. Office of Institutional Research. Accessed at: <http://www.unca.edu/ir/factbook/>

ⁱⁱⁱ Scrimshaw, The acceptability.

^{iv} UNC Asheville, Fact Book.

^v Marcus MB. More young people go the vegetarian route. *USA Today* 2007. Accessed at: http://www.usatoday.com/news/health/2007-10-14-veggie-kids_N.htm

^{vi} Harris Interactive Inc. Telephone poll 2003. Accessed at: <http://www.vrg.org/journal/vj2003issue3/vj2003issue3poll.htm>

^{vii} UNC Asheville, Dining Services. Accessed at: <http://www.dineoncampus.com/unca/?cmd=theStaff>

Local Food Priority

Compiled by Callie Herron with Food for Thought Cluster Students

Background

According to Michael Pollan, “the way we feed ourselves contributes more greenhouse gases to the atmosphere than anything else we do – as much as 37 percent, according to one study.” (Pollan) If UNCA, as well as the whole UNC system hopes to, as the Executive Summary of the North Carolina Tomorrow commission suggests, “assume a leadership role in addressing the state’s energy and environmental challenges,” we must concern ourselves with our school’s food miles. Recommendations should be made to all facets of the UNCA community to eat more seasonal foods and incorporate local foods into their diets.

Defining local—any produce grown within a 200-mile radius, and any meat and dairy animals raised within a 300-mile radius. If certain foods are unavailable within those restrictions, it is important to look to the closest source available for individual products and purchase nothing from outside the United States.

A food system, which incorporates more local food, is a must, but simply increasing our purchasing of local food can have negative effects on other people and institutions looking to purchase food locally. If UNCA were to purchase as much local food as possible, the cost for local food would increase and the supply for other consumers may dry up, so, UNCA would take away local food from others interested in purchasing it. Currently, there is a greater demand for local food than there is a supply available, and that is the true concern UNCA must concern themselves with. This is why I propose UNCA grow more food on campus, so as to not take away from the supply of local food, have a farm work program to help farmers with their constant labor needs and educate students on sustainable farming practices, provide cooking clinics for students interested in incorporating more seasonal foods into their diets, and incorporate advertising on the benefits of local food in dining areas. All of these programs are feasible and would allow UNCA to increase the supply of local food while at the same time decreasing the campuses carbon footprint and solving the Dining Service problems with incorporating more locally grown and produced foods.

Recommendations

1) Incorporate more local food (as defined above) into the diets of UNCA community members in all settings in which they consume food without decreasing the supply and increasing the price for other members of the community.

Problems: Cost, availability, and seasonality, especially with respect to dining services sourcing more local food ingredients for their large scale food operations.

Solutions:

- Establish a Local Farm Work Program:

Costs—Implementation of an additional program option for students (including finding farmers and all other logistics)

Benefits to—Farmers (added workers); Students (education on sustainable farming practices); Dining Services (produce provided from the farm at a slightly reduced rate)

Create programs that allow students to work on farms from which the university then purchases food. Local farmers are constantly struggling to find labor. By having a volunteer program, farmers would have the additional hands they need, and as a result of the free labor, farmers could provide produce at a lower price. This relationship would help UNCA purchase locally produced food at a **lower cost**, benefit the farming by providing beneficial labor, and provide long term benefits to the student and their environment. Students would learn the farms sustainable practices and be able to implement them in our campus garden and their very own.

Incentives for students: To encourage participation, students involved could have reduced costs for their meal plan, could receive credit hours for their labor, or the program could be mandatory or a required part of the curriculum for certain classes. Students would learn the farm's sustainable practices and be able to implement them in our campus garden and their very own gardens when they leave campus.

- Green Rooftops on Campus:

Costs—Infrastructure and upkeep

Benefits to—Buildings (increases life of building, reduces energy cost by acting as an insulator, helps reduce water runoff); Dining Services (local food without added costs, decrease problems with variability)

- Vertical Farming on Campus:

Costs—Infrastructure needed for vertical farming implementation and maintenance fees

Benefits to—Dining Services (local food without added costs, request specific foods to decrease problems with variability); Students (more healthy local food options); All individuals stepping foot on UNCA's campus (beautification of barren ugly wall faces); Environment (more carbon is sequestered)

Vertical Farming is the use of vertical faces of the buildings on campus to produce food. In Los Angeles on Skid Row, a place with one of the nation's largest homeless populations, an urban gardener and an architect designed a thirty foot wall that can hold over 4,000 plants that bear food. This idea could be applied to places on campus that are currently just bare concrete walls. Vertical farming not only sequesters carbon dioxide, but also beautifies campus. Student participation in the planting, harvest, and maintenance of such gardens could be encouraged by strong incentives. (See incentives for farm work program.)

- Convert Unused Open Space to Food Garden:

Costs—inputs needed and any maintenance required

Benefits— Dining Services (increase supply of local food at no cost, decrease issue with variability); Students (more local food options, more opportunities to learn and garden); Environment (reduces fossil fuel consumption by not requiring any transportation or any lawn mowing)

Seal off unused opens space to convert into agricultural land. Dining Services can request specific foods to be grown and can know exactly how much of each will be produced. This will also save on fossil fuels, as the land will be worked rather than left to grow grass that requires regular inputs of fossil fuels to keep short. Participation would be encouraged through incentives. (See incentives for farm work program.)

- Edible Landscape Features:

Costs—Change in allocation of landscaping funds; Any education provided to landscapers on how to grow such features

Benefits to—Student and Faculty (provides free healthy food options); Environment (no food miles required)

Adding more plants, trees, and bushes that bear food as part of the landscaping program. The current landscapers employed on campus, and supported by the gardening club and specific classes would maintain this.

- Education/Information Program about Local Food:

Costs—Professors and other community members time; time spent on planning the class; any materials needed for participants

Benefits to—Students and faculty (education about incorporating local foods); Dining services (as appreciation for local food increases)

Once a semester or year, provide an educational seminar and/or cooking session for students, faculty, and staff and provide seasonal recipes and highlight the importance of local foods.

- Labeling

Costs—Materials used in labeling, volunteers and/or dining services time to make materials on the importance of buying local

Benefits to—Students and faculty (understand importance of local food system); dining services (will receive less complaints of variable produce, etc.)

Labeling all campus food as local or not local, with a description of where the local food is from, would allow students to decide whether local food choices, though possibly more expensive, are worth purchasing. As Michael Pollan suggests in The Omnivores Dilemma, people are more likely to purchase what he calls “storied food,” and often people will pay more for it, too. Information describing the importance of local food as it relates to sustainability would be posted with the local foods and throughout the dining facility, Highsmith Union, and Café Ramsey. Knowledge about this relationship could expand student willingness to pay for local foods.

- Local Prepared Food in Rocky's:

Costs—Cost of prepared food, time it takes to comprise a contract with and decide on local restaurants to incorporate

Benefits to—Students (more local options that are delicious, healthy, and sustainable); Community members (restaurants will increase revenue, maybe need to hire more employees, spend money they raise in other areas of the community); Rocky's convenience store (increase revenue and popularity)

Rocky's could replace the Krispy Kreme donut station (if space is a concern) with prepared meals from local restaurants. Also, Rocky's could sell local produce when it is in season.

- Local Food Station

Costs- additional counters or a transformation of the current set up, change in the way the current dining services operate

Benefits to—Dining Services (be able to easily switch out local items as the seasons change, track the popularity of local foods); Students and faculty (more local and healthy options)

The local food station could also be called a UNCA food station, where all the food in that area was grown on campus. The UNCA station would have no increased cost for food and it would make it easier to place a variety of whole foods in the dining hall as they were in and out of season. The most beneficial part is that this station would be a great way to include strictly whole foods, which would increase the health of students, increase the popularity of the dining hall, and allow vegans and vegetarians to feel confident in choosing those foods.

Resources

My Land Economics group members—Jonathan Ball, Patrick Bartholomew, and Georgia Frierson, as well as all other group documents on local food from the Land Economics class.

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Sustainable Food Sourcing

Recommendations Regarding Organic Food and Genetically Modified Food on Campus

Compiled by Zoe Maya Jones with Food for Thought Cluster Students

Background

As UNCA moves forward with its goals of environmental awareness, and the opening of the North Carolina Center for Health and Wellness, changes in the types of foods provided on campus should be considered. The demand for organic foods has grown tremendously in the past few years, and as so has the supply. We have also seen some immediate effects, both positive and negative, in the agricultural world since the introduction of genetically modified (GM) foods. While genetic modification of crops has increased yields on the short term, it reduces plant diversity and decreases crop yields over the long term, increases allergic reactions among consumers, and is impacting the economic viability smaller scale food production systems worldwide.

Organic food is clearly better for the environment and the people who propagate it. When farmers are not exposed to pesticides, they will not have the side effects attached to those poisons, and neither will the wildlife around them. Healthy soil is always going to be a necessity if we want to continue farming. The only way to keep that is by cultivating food in ways that benefit the soil, not destroy it. Genetic modification is inconsistent with organic farming practices as it also comes with heavy pesticide use, because the plants are immune to pesticides like Round Up®. In fact, they contain Round Up® resistance in their DNA. Steps can be taken by the campus food providers as well as those in charge of campus maintenance to promote a healthy food system and a healthy campus environment.

Recommendations

1. Purchase Organic Food

Chartwells, the main supplier of the food on campus, should have an organics line available to them soon through its main suppliers if it doesn't already. Research about what is already available through Sysco is needed and purchasing organic food ingredients should be made a priority. Meanwhile, Danny Dawkins told us that contractually 10-12% of food can be bought from a source of the university's choice. This amount should be used to purchase organic (and preferably local when available) food.

Overtime, UNCA should work toward a goal of sourcing most of its produce organically and regularly offering organically raised meats. Hannah Pinkerton from HWP 225 recommends, specifically:

- *65-80% of all produce offered should be organic.* Because some fruits and vegetables may have too high of a margin of difference between organic and nonorganic prices, some non-organic products may be best financially for the

dining services. However, if the price difference between organic and non-organic is minimal (say, tomatoes are \$1 more per lb. for organic) the choice for the organic product should be made.

- *Provide an organic meat option 2-3 times per week.* An organic meat option should be offered at minimum, 2-3 times per week. Considering the significantly higher price for organic meat, a cheaper meat such as a chicken can be used to supplement the need for antibiotic and hormone free meat.

2. Clear Labeling

All foods that are organic should be prepared separately and clearly labeled. This way, the demand by students can be gauged and students will have the information needed to choose these foods when available.

3. Responsible Sourcing

Because there are no clear labeling laws for GM products, the only way to know if food is not GM is to buy products from sources who label their food as such. Certified organic foods are not likely to be GM. By buying products from sources like those, the school would not only be promoting healthier farming choices but also moving closer to a system that is honest in the process. When someone purchases genetically modified foods, they are basically supporting a monopoly called Monsanto Seed Co., which owns over 80% of the world's seeds. This is not responsible. By supporting organic and local farmers that use seed saving techniques, we can support a food system that promotes environmental stewardship and the long term sustenance of plant diversity.

4. Becoming a Positive Model

By adopting and promoting healthier habits of eating, the school can be an example for other universities and communities everywhere. I encourage the school to continue with such endeavors as funding the UNCA Garden Crew, and making student-initiated projects like this one a regularly funded and encouraged step toward a more sustainable campus. More edible landscape and on campus agricultural projects are a learning experience as well as a promotion of healthier styles of eating.

5. Providing an All Organic Cafe

As the opportunity arises for a new cafe on campus within the North Carolina Center for Health and Wellness, it would be in the school's interest to make this new food source completely different than the others on campus. This could be accomplished by having an all organic cafe with a seasonal menu, promoting more local food sourcing and education about what it means to eat seasonally and healthfully. With funding from the Center, as well as the re-negotiation of the Chartwells contract in 2010, a cafe like this could be easily accomplished.

6. If nothing else, Stop Using Pesticides on Campus

Organic is not just about food, it is about eradicating alien toxins from soil and ecosystems that survived without them before the creation of pesticides. The campus currently uses Round Up® as a weed deterrent on campus. There are organic sprays if the campus wants to continue to spray, but it is also just as easy (and less expensive) to hand-

pick unwanted plants from the ground. Round Up® is a product provided by a socially and environmentally irresponsible corporation, Monsanto, and its long term effects range from unhealthy soil and water run off, to the emergence of "super weeds" which are plants that become immune to pesticides and grown exponentially. Most importantly, pesticide use could affect the current projects by the Garden Crew and other student gardening and environmental groups which strive to be organic and environmentally friendly.

Conclusion

The main goal here is to take steps toward actually fulfilling the goals which UNCA and Chartwells state to be part of their missions. Environmental and social responsibility seem to be the most prominent, and those simply can't be fulfilled without a responsible food system on campus. With food being one of the three essential needs for human life, is it too much to ask to have types that are true to their origins, and safe for people and animals alike? With cancer, diabetes, and heart disease being highly prominent in the U.S., and very often linked to the food we eat, we need to take every step toward educating students on a lifelong manner of healthy eating and living, and not suppose that they will outgrow unhealthy eating habits they might incur in their college years. The college experience should not just be about academics and social experience; it should also include education on a healthy lifestyle model that students can take with them throughout their lives.

Resources

Chahbazi, John, MD and Shelly Grow, MS. "Common Foods and Farming► Methods Thought to Promote Health: What the Data Show." 10 Nov. 2008, Primary Care: Clinics in Office Practice Vol.35 Issue 4: Copyright © 2008 Elsevier Inc. 769-788. ScienceDirect.Com

International Federation of Organic Agriculture Movements (IFOAM). 2008 Environmental Benefits of Organic Agriculture. 10 Nov. 2008. http://www.ifoam.org/organic_facts/benefits/index.html

Organic Consumers Association Website: www.organicconsumers.org

The Real Food Challenge Website: www.realfoodchallenge.org

Reducing Exposure to Hormones Used in Dairy Production and on the Use of Free-Range Poultry

Compiled by Delaney Storm Brown

Introduction

Due to a recent public devotion to sustainability and health/wellness, it would benefit our campus to start providing easily accessible dairy alternatives as well as free-range local poultry to avoid food products containing rBGH, antibiotics or food products that were manufactured at the expense of animal's rights.

A. Reducing Exposure to Hormones Used in Dairy Production

What is rBGH?

- rBGH stands for recombinant bovine growth hormone, and is also known as rBST (recombinant bovine somatotropin)

Why are rBGH injections used regularly in dairy production?

- rBGH is used primarily for increasing the production of individual dairy cows milk through biotechnology and changing the dairy cows hormonal composition
- rBGH was introduced into the market in 1993 (first extracted from the pituitary glands of slaughtered bovine) and because of limited resources it was rather expensive
- DNA research has allowed for scientists to locate and remove the hormonal gene and by inserting the gene into a bacterium called Escherichia coli (found in the intestinal tract of humans and animals) help produce the hormone in large quantities after purification.

Why are antibiotics used regularly alongside rBGH injections in dairy production?

- The risk of lameness of dairy cows injected with rBGH is increased by 50%
- 1/4 of the cows develop udder infections
- The cows' reproductive system have been observed to be affected by rBGH injections such as infertility, cystic ovaries, fetal loss and serious birth defects
- To counter these side affects, dairy farmers have resorted to antibiotics to fight off infections, the contents of which may also permeate our milk supply.

Health Concerns

Problems with purchasing dairy processed with rBGH (recombinant bovine growth hormone), also known as rBST (recombinant bovine somatotropin) and antibiotics according to the Center for Food Safety,

“...recent research has shown conclusively that the levels of a hormone called "insulin-like growth factor-1" (IFG-1) are elevated in dairy products produced from cows treated with rBGH. Canadian and European regulators have found that the FDA completely failed to

consider a study that showed how the increased IGF-1 in rBGH milk could survive digestion and make its way into the intestines and blood stream of consumers. These findings are significant because numerous studies now demonstrate that IGF-1 is an important factor in the growth of cancers of the breast, prostate and colon.”

Recommendations

1. Purchase dairy processed without the use of rBGH or antibiotics. UNCA could do this by choosing to purchase organic dairy products and thereby would provide thousands of members of our community with much less risky foods.

2. Provide ample calcium rich alternatives to dairy. I feel that the possible alternatives to dairy for daily calcium it should be brought to the attention of our student body. At this time it is understood in the United States that dairy products are the best source of calcium available daily, even though;

- the absorption rate of milk is only 30% per serving while
- kale, collards, other leafy cabbage family vegetables are ~60%,
- cooked cauliflower is 63% and
- boiled rutabaga is 65% (not to mention these vegetables lack fats found in dairy)

B. Free-Range Poultry Production

What is “free range”?

- The term “free range” seems to imply that the chicken has total access to green pastures and chicken-dancing room.
- According to the USDA regulations, free range poultry has only to prove that “producers must demonstrate to the Agency that the poultry has been allowed access to the outside.”

Problems involving labeling and the term “free range” in regards to animal products:

- These loose regulations allow for misrepresentation of the industry a consumer may choose to support.
- The Pastured Poultry Co-op (a group of poultry farmers who believe a traditional farming environment achieves a level of sustainability, humane treatment and overall health improvements) states their concern on the lax regulation of free range poultry;

“No mention of vegetation (pasture) is made. Poultry producers themselves seem to have no common standards on what the term means. Some producers interpret ‘access to the outside’ as a small pop-door (chicken door) on an end-wall of a 100 ft. long shed filled with un-caged birds moving about freely on a litter-covered floor. Others feel they are compliant with the spirit of free-range if their birds are outside in the fresh air and sunshine; even if their “range” is bare dirt. So when someone purchases poultry products labeled “free range” or “organic”, the birds may never have actually seen the light of day or green grass its entire life. Technically, they simply have to have a door out of their confinement, but they don't have to necessarily walk through that door to meet the requirements.”

Recommendations

- 1. UNCA should continue to look for products from more humanely raised birds including shell eggs, liquid eggs, as well as chicken and turkey meat.** This may mean that an employee or a student will need to investigate the reality of a company’s “free-range” claim.
- 2. UNCA should work towards reducing community members reliance on poultry and towards reducing waste of eggs, chicken, and turkey.**

Goals

Short term goals for UNCA: Within the next year UNCA should provide all of its students with a counter dedicated to dairy alternatives, such as soy, rice or hemp milk, to reduce the campuses intake of rBGH and antibiotic ridden dairy products. UNCA should also begin researching the cost-effective ways to slowly incorporate dairy products processed without the use of rBGH and antibiotics, as well as local “free-range” poultry that has been inspected to be animal friendly, so that in the future we may be able to sustain on only organically produced dairy and truly free range poultry.

Long term goals for UNCA: Within the next five to ten years UNCA should set an example for all other American campuses by providing dairy alternatives (soy, rice or hemp milk) readily for its students as well as banning any dairy processed with rBGH or antibiotics.

Summary

To support a system that is being questioned by science and the surrounding food industries of other countries is not only dangerous, but also disrespectful to the health and wellness efforts we as a community have recently taken on. Furthermore, to show an interest in the conditions and hence the quality of the poultry we receive would set an example for colleges everywhere to look closely at what they consume.

Water Safety and Sourcing

Compiled by Matt Dinsmore

Background

Water is a vitally important and often overlooked nutrient that is necessary to sustain life and promote health. In addition to acute effects of dehydration (reduced muscular performance, inability to concentrate, heat stroke, collapse, etc.), chronic low water intake has been shown to increase the risk of heart attack, constipation, headaches, dry skin, and urinary tract infections among other things. Water contaminated with microbes, environmental contaminants such as lead or pesticides, and/or additives such as fluoride and chlorine cause a wide variety of health concerns. A clean, safe water supply should be a goal of all individuals, institutions and governments. Efforts to provide clean safe water ideally would also consider environmental sustainability.

Recommendations

- UNCA's drinking water should be filtered with reverse osmosis filtration systems. As a second step, all of UNCA's tap water should be filtered with reverse osmosis filtration systems. Ultimately, all of UNCA's water should be independent of Asheville City's contaminated, fluoridated tap water.

Implementation

Atmospheric moisture extracting water generators exist in smaller, more office/residential styles, as well as larger industrial sizes. They could be purchased for communal areas that are also friendly to commuters (i.e., not only the dining/residence halls). They could be installed on each floor of the buildings with classrooms. There are a variety of residential/office sized reverse osmosis filtration "bubbler"-like dispensers. These would require that someone be responsible for filling them, and their five-gallon capacity may be inadequate for UNCA's needs.

If students become accustomed to carrying a refillable water bottle these water dispensers would also help reduce waste by encouraging students to use this water instead of individual servings of bottled water.

- Retrofitting the current plumbing to move the whole campus cleaner safer water will be seen as costly. However, once complete, the retrofitting will require only the same general maintenance as the current system. This can be looked at as both a shorter, and longer-term goal, as UNCA could prioritize retrofitting the plumbing for immediate-consumption-water (food prep, water fountains,

showering facilities, etc.) over that of sanitation closets (toilets, custodial tubs/sinks), grounds keeping (for which captured rainwater should be used), etc.

- To combat those costs, atmospheric moisture extractors, and rainwater cisterns (both complete with reverse osmosis filtration systems) should be implemented. This too is both a short and long-term goal: Water fountains should be replaced with atmospheric moisture extractors where reverse osmosis is impractical or impossible. There are legal/health code impediments to capturing and using rainwater for human consumption. UNCA should be a leader in fighting -at the local level, and if necessary, the state/federal level- the paradoxical legality of using unhealthy, dangerous tap water over filtered natural rainwater for consumption.
- All of these actions could eliminate UNCA's reliance on bottled water vendors, significantly reducing environmental impact, providing a healthier, more sustainable campus environment.

Rationale

I write you because of my concern for our health and well-being, and my belief that the continued consumption of Asheville's (as well as the other 65% of the tap water systems in the U.S. alone) fluoridated tap water jeopardizes that health and well-being. Sodium Fluoride, an industrial waste byproduct (www.fluoridealert.org/faqs.htm#A6), was introduced to water supplies in Soviet gulags in the mid-twentieth century. Fluoride, the primary ingredient in rat poison, as well as pharmaceutical mood stabilizers, deserves no place in our water supplies. On top of fluoride, both tap and bottled water often contain untold foreign ingredients such as pharmaceutical drugs (www.cnn.com/2008/HEALTH/03/10/pharma.water1.ap/). Though it goes without saying for the pharmaceutical drugs, many of the other contaminants are toxic and hazardous. Acquiring and utilizing atmospheric moisture extractors, and rainwater cisterns, both complete with reverse osmosis filtration systems would eliminate these concerns entirely.

Conclusion

Existing research overwhelmingly indicates that mineral deficiencies, the prevalence of toxins, and fluoridation of tap water all endanger people unnecessarily at every single point of contact. What requires exploration are the legal routes to either satisfactorily filtering Asheville's tap water, or removing UNCA from Asheville's tap water supply without negatively affecting the university economically, as this will certainly be a concern for the decision-makers in the administration. That being said, when the decision makers become fully aware of the health risks associated with fluoridation and other contaminants in tap water, they will be much more likely to see this cost as necessary.

Due to some calcified red tape clogging the proverbial series of tubes connecting the city's water supply to campus, UNCA suffered a drought of its own on November 20th, 2008 (<http://www.citizen-times.com/apps/pbcs.dll/article?AID=2008811210344>). Were UNCA capturing and containing rainwater, and using atmospheric moisture

extractors to supply its own water, this unfortunate and possibly dangerous experience would have been avoided altogether.

References

Asheville Citizen Times website (2008, November 21) . *UNCA Loses Water* Retrieved from the World Wide Web: <http://www.citizen-times.com/apps/pbcs.dll/article?AID=2008811210344>

CNN.COM (2008, November 25) . *Pharmaceutical Drugs Found in Drinking Water Across the U.S.* Retrieved November 25, 2008 from the World Wide Web: <http://www.cnn.com/2008/HEALTH/03/10/pharma.water1.ap/>

Fluoride Alert Dot Com. (2008, November 25) . *Fluoride an Industrial Waste Byproduct* Retrieved November 25, 2008 from the World Wide Web: <http://www.fluoridealert.org/faqs.htm#A6>

Recycling and Waste Reduction

Compiled by Callie Herron with Food for Thought Cluster Students

Background

If UNCA hopes to, as the University of North Carolina Tomorrow Commission states, “Embrace sustainability as a core value” and “assume [a] leadership role in addressing the state’s energy and environmental challenges” we must, as a campus, increase recycling and reduce our waste.

If more food is grown on campus and used in the dining hall, there will be much less food waste, because there will be no need for packaging produce for shipment. Also, with an increase in produce, there hopefully be a decrease in prepackaged foods that will greatly decrease waste.

According to Danny Dawkins, dining services is already trying to reduce waste in the dining hall, by using eco-friendly (although made in China) reusable carryout boxes, and no longer using trays.

Another interesting way they are attempting to decrease food waste is by putting all of their discarded food waste into a tub to be weighed and looked through to find ways in which they can decrease waste even more.

Currently, as I understand it, we are finishing up the paper work needed to compost both pre and post consumer. Now that we are in the process of receiving such permits, we should educate students on the values of composting, form a composting team of passionate students who will be in charge along with faculty members of maintaining the compost, and provide bins for food waste so students can discard their unwanted food and help increase compost on campus while decreasing what would otherwise be waste.

The Recycling crew and/or the compost crew would be in charge of collecting compost from the cafeteria and other areas and placing it in the schools composter. During the 2007-2008 school year Warren Wilson composted 31.5 tons of food waste and 22 tons of amendment (wood chips and sawdust) (Correspondence with Wooten). They threw away 6.5 tons of various off and unloaded 40 tons of compost from their Green Drum. Warren Wilson’s program is proof that composting would greatly reduce waste, and UNCA would be leaders in a large scale composting program, that hopefully will eventually be used across Western North Carolina

UNCA is fortunate to have a college so close by that has found success with their recycling and waste reduction programs. Warren Wilson College’s recycling and waste reduction management can pose as a great guideline for ours. Many of my suggestions

follow their program. I found information on their program on their website and by emailing their recycling center.

Recommendations

How Will Students And Faculty Learn About Recycling?

Offer a seminar once or twice a year about the importance of and ease of recycling. This seminar would be required through the LSIC 179/379 program, which all students are required to partake in. The seminar would strive to promote recycling on campus and explain what can and cannot be recycled. Also, the seminar would explain where on campus recycling is located and encourage feedback from students about ways to encourage recycling even more

At Warren Wilson, students on their recycling crew conduct a ‘garbology study’ in front of the student center. They collect trash from a certain area and sort through ALL of the trash, pulling out materials that should have been recycled. This helps raise awareness of recycling on their campus. UNCA should have a similar study to show students what can be recycled and how important recycling is in having a sustainable campus.

Also, there should be an extremely user friendly website dedicated to letting students know what they can recycle and where they can go to recycle it. Evergreen College has a great website and it could be used as a guideline.
(www.evergreen.edu/facilities/Recycle/recyclehome.htm)

What Should We Recycle?

Recyclables should include brown, clear, and green glass, #1 and #2 plastics, paper, cardboard, and aluminum (cans, pie tins, foil). Warren Wilson also recycles miscellaneous items including packing peanuts, tires, floppy disks, batteries, electronics, cell phones, CDs, DVDs, tapes, fluorescent lights, printer cartridges, appliances, pallets, and old textbooks. UNCA should definitely have containers where people can dispose old batteries, print cartridges, and cell phones. The locations of these containers should be told to all students during the required seminar, and students should be educated on the importance of recycling all those materials.

Who Will Be In Charge Of Recycling?

Students and faculty should work together to form a group of volunteers on a recycling committee. These recycling experts will collect the materials and take transport them to the appropriate recycling locations. They will have a specific pick up schedule for dorms and other buildings.

Warren Wilson has three normal sized pick up trucks that collect trash and recycling from ‘trash sheds’ around campus. The waste from inside buildings is moved to outdoor sheds by cleaning crews.

Recycling Container Placement

Students should have the option of renting small blue recycling tubs at the beginning of the school year, which they will return or be charged for at the end of the year. This way, students can recycle within their rooms and then, after filling their tubs,

take their recyclables to the end of the hall or some area located within their dorm, and recycle each item in its specific large container.

Commuter students should have a recycling drop off location somewhere on campus, so if commuters do not have a recycling service available to them they can bring their recyclables to campus to be disposed of. Bins for ink cartridges, cell phones, and batteries, can be located in one or two places on campus, since students do not go through them as quickly as other recyclables. Also, wherever there is a trash can on campus there should be recycling containers located within eyesight so that even the laziest of students will have no excuses.

Costs—infrastructure, recycling bins, creating a new position—recycling and waste reduction coordinator

Benefits—create a more sustainable campus, decrease waste, increase recycling

Other Ideas:

Place signs next to or around recycling bins explaining the importance of recycling. Have interesting facts posted on the recycling page and around the university to promote recycling and waste reduction. On light switches have messages saying the importance of turning them off.

- Costs—Cost of purchasing recycled sign materials. Individuals will have to spend time researching interesting facts, making the signs, and posting the around campus
- Benefits—more people will participate in the recycling program and reduce energy use, decreasing on campus waste and energy costs

Give students discounts for bringing their own cups/mugs to Highsmith and the Ramsey Library Café.

- Costs--discount may reduce revenue slightly, although discount is supposed to cover the cost of the cup they would have been using
- Benefits--reusable mugs/cups will reduce on campus waste

Give freshman reusable water bottles or coffee containers instead of wasteful Frisbees and carabineers.

- Cost—any increase in the cost of purchasing water bottles and/or mugs
- Benefits—students will use their free reusable bottles instead of contributing to more waste on campus.

Allow students to take fresh produce out of the cafeteria. Less food will be wasted and students will be encouraged to have healthy snacks throughout the day.

- Cost—potential need for an increase in the number of fruits available
- Benefits—little to no produce will be wasted or thrown away, students will be able to have healthy snacks throughout the day

Decrease the amount of produce used for decoration. No fresh produce should be used as a decoration if it is not free to be taken by a student for consumption. Food used for decoration is an incredible waste. Guests on campus will note the edible decorations

that can't be eaten and if they care about sustainability they will be turned off from UNCA for our very wasteful practices.

- Cost—less edible decorations
- Benefits—UNCA would appear much less wasteful to guests, students could have an opportunity to eat edible decorations, decrease the amount of food being thrown away

Summary

The most important thing when implementing a recycle and waste reduction program on campus is to educate the students on its importance and make it extremely easy for students to get involved.

Appendix

Information on Warren Wilson's Recycling Infrastructure from, Jessica Foster Wooten, the Recycling and Solid Waste supervisor

At our recycling center, we have a cardboard baler; one 40-yard trash compactor; 1 30-yd open top trash roll-off; 1 30-yd scrap metal roll-off; and three 30-yard recycling containers. The recycling containers are covered and are compartmentalized. One of the recycling containers is for glass and has 3 compartments for brown, green, and clear. One is for plastic and has two compartments for #1 and #2 plastics. The other is for paper. It was previously sectioned into 3 parts for office, news, and mixed paper; however, now we are just doing mixed paper and have removed the sections. Our aluminum and steel cans are separated, bagged, and stored in our warehouse in gaylord boxes. We use reusable bags for these items. We haul these bags of cans to a vendor ourselves. The recycling containers and trash compactor are all rented from a hauling company. Our hauling company will take these to any vendor we choose. However, right now, there is only one vendor in our area handling these recyclables. (We also have one 8-yd dumpster at the cafeteria).

Resources:

UNC Tomorrow Commission—Executive Summary. September 4, 2008.

www.nctomorrow.org/content.php/reports_documents/commission/execsummary.pdf

UNC Asheville Strategic Plan. October 17, 2008.

http://www.unca.edu/sp/UNC_Ashville_Sustainability_Policy_all_comments.doc

<http://www.warren-wilson.edu/~recycle/projects.php>

E-mail Correspondence with
Jessica Foster Wooten
Supervisor, Recycling & Solid Waste

Rocky's Convenience Store

Compiled by Mark Boyd

Overview

Rocky's Convenience Store is the only food purveyor on UNCA's campus that is not associated with Chartwells. This should be seen as an opportunity to bring in more local, organic, and healthful food to campus. Currently, however, the only organic lines they carry are Annie's ready-made meals and Syzmo energy drinks. They deal largely in candy, soda, doughnuts, and coffee, as well as other "dorm essentials" like detergent, paper towels, and cups. Rocky's ideally could operate as a kind of small grocery store that provides, and favors, raw, bulk ingredients for cooking rather than processed, boxed meals. With only a few small changes, primarily adding to, rather than taking away, the store could become a more eco- and health-conscious establishment.

Recommendations

1. The first major change would be the addition of fresh produce to their product lines. Many gas stations are beginning to sell fresh produce from small baskets found next to their registers. Rocky's could first begin to sell in-season local and organic produce, focusing first on fruit that does not need refrigeration (apples, oranges, nectarines, etc.). I do not recommend selling exotic fruits like bananas or kiwifruit, and I hesitate to recommend out-of-season produce, for their contribution to global warming.

2. The next step would be to stock bulk items--brown rice, dried fruit, and cereals, for example. This would pass on savings to students, while also providing them with whole-grain, whole-food options.

3. Rocky's should also consider making room in their drink coolers for a produce space, where people can purchase fresh greens and vegetables. Again, their purchasing priority should be placed on local and organic food. This and the above plan would not only improve the health of students and staff campus-wide, but also improve the health of the local economy. It is sad and somewhat contradictory that UNCA hosts a farmer's market, yet is not a frequent patron of it.

4. The choice of brands for the "ingredients" (lunch meat, cheese, milk, etc.) should also be reconsidered. Currently, Rocky's carries Carolina Pride sandwich meat, which could be construed as local, but in no way environmentally responsible. There are no organic or at least rBGH-free alternatives for cheese or milk. Rocky's would ideally stop buying from irresponsible companies, but if cost is an issue, alternatives should be carried as well.

5. Next, we turn to the bottled drinks. Ideally, Rocky's would ban any soft drink that contains high-fructose corn syrup--an ingredient shown time and time

again to wreak havoc on the digestive system and expand waistlines¹. Selling such products shows a negligence, even active disregard for the growing body of medical evidence, pointing fingers at these products. *If this is not possible, again, real-sugar and organic, all-natural alternatives should be reinforced.* That the University finds it fitting to put their name on a line of disposable water bottles is hypocritical to the UNC system's stated aim to become more environmentally responsible.

6. Rocky's should ban ALL bottled water and instead sell reusable containers. For a number of reasons discussed in greater detail elsewhere², bottled water is an environmental travesty, tantamount to bottling fresh air. If need be, a sign directing customers to the nearest drinking fountain could be installed.

The candy aisle is in an equally sad state. **7. Rocky's should support local, organic, and all-natural candy when possible (Krispy Kat is a local favorite), but also feature fair-trade chocolate, as well as fruit-based candy, rather than peddling more corn syrup and socially unsustainable chocolate.**

8. The chips aisle also needs a similar overhaul. There are plenty of organic and all-natural alternatives to the products they carry that are not significantly higher in price.

9. The essential dorm supplies, though not strictly related to food, must see a change also if this transition is to be considered holistic. Eco-friendly, biodegradable soap and detergent lines should be featured. Also, Rocky's should carry recycled, unbleached paper towels and biodegradable plates and silverware.

Along the same line, Rocky's is the only place on campus where you can still get a Styrofoam cup for coffee. **10. If none of the above recommendations are considered, they should at least make this one small change, and put Styrofoam to rest in the graveyard of human ecological mistakes.**

11. Also, the coffee provided should be shade-grown and fair trade.

Conclusion

Once again, these changes are small, and though they often come with a higher point-of-purchase price tag, they don't carry the same ecological costs others do. This reflects a more real, sane price not underwritten by extensive subsidies, and signage could be provided that makes this point clear to customers. Again, most of these recommendations include *adding* products, not taking them away, and giving consumers a choice to vote with their dollar which they prefer. A list of the wide range of products and distributors could easily be found through a local health food grocery store like Green Life. If anything, my recommendations could make Rocky's Convenience Store *more* profitable in the end, without compromising student health in the process.

References:

<http://www.npr.org/templates/story/story.php?storyId=11523344>

IV. Addressing the Needs of Specific Populations

Compiled by Hozumi Inoue and Amy Lanou with Food for Thought Cluster Students

A. Meeting the Needs of Commuter Students

Commuter students have addressed concerns regarding the foods and facilities available on campus. In particular, students from the sociology class prepared presentations on a variety of problems facing commuter students and recommended solutions for UNCA to consider implementing. Problems discussed include: 1.) the accessibility of foods and a lack of information about menus and ingredients, 2.) cost of meals, 3.) unavailability of storage for foods brought on campus. Many commuter students found the dining hall, Highsmith Union food court, and Ramsey Café to difficult access because of location, food offerings, and price. One meal at the cafeteria or Highsmith Union can easily go over \$8.00. The current cost to enter the dining hall is about \$7 for students and there is no way of knowing what is being served on a given day without paying to go inside. To eat an eight-dollar meal, commuter students have to make a ten minute hike over to the other side of campus. Also, UNC-Asheville offers no storage to commuter students who bring their meals onto campus. Many find it inconvenient and difficult, and food safety starts to become an issue when food is left out for a long period of time.

Here are some recommendations to improve dining on campus for commuter students:

- Post daily dining hall menu offerings outside of the dining hall (like a restaurant menu in the window) so commuters as well as faculty and staff can know what the offerings are before paying. Post these menus on UNCA's dineoncampus website in the section titled "What's on the menu?"
- Open a commuter lounge: A commuter lounge with a microwave, refrigerator, kitchen, and tables to sit and eat would be greatly utilized and solve most of the needs they have. It should be preferably placed in one of the buildings surrounding the Quad so it is convenient to classrooms.
- A large refrigerator in the commuter lounge for storage: A refrigerator ensures food safety and a sliding card system much like the OneCard scanners in the cafeteria to prevent others from accessing their food.
- Shuttles to local restaurants and grocery stores and/or make Rocky's a small scale grocery store instead of a convenience store: Both commuter and resident students have suggested providing a shuttle to local restaurants and grocery stores in close vicinity to UNC-Asheville. Students can have more variety and it can strengthen the

relationships between UNC-Asheville and the local community.

- Include one very low cost healthful item at each food service location such as some variation on rice and beans. Review a la carte prices for fairness (for example, single serving soymilk is \$3.29 at Highsmith and \$1.39 at 2 local grocery stores.)
- Further emphasize healthfulness and sustainability of the foods offered in all the campus settings as per recommended in other sections of this document to increase interest in campus food service by commuters.

B. Meeting the Needs of Athletes

UNCA's student athletes also have some specific concerns regarding UNCA's food environment. Some athletes are residential students and therefore get most of their energy and nutrients from UNCA food service, but even many athletes living off campus (at least in season) will consume a large proportion of their calories from campus food service because of the long hours they spend on campus for class and practice. In general, athletes need more energy and notice nutrient deficiencies earlier because they are pushing their bodies physically harder than non-athletes. Healthy complex carbohydrates complemented with lean protein sources and small portions of healthy fats and lots of water and other fluids are needed for optimal performance. For female athlete's adequate food sources of iron are also important.

Concerns

- Limited availability of food during non-peak hours. "Most days my teammates and I find ourselves walking around the café about three times trying to find something good to eat. When the salad station is closed (normally I eat from there everyday because it provides you with a meat and lots of vegetables), we end up having to leave campus to find something decent like Subway or Atlanta Bread Com."—Donovan Jones, UNCA basketball team
- Digestibility of foods for pre-practice meals. It's hard to perform your best when you're not getting the right nutrition that you need and if the food eaten is greasy or doesn't sit well.
- Prioritize dining to best fit student's lives rather than what is easiest for the staff to serve. For example, North Carolina State University has a dormitory that has a private dining hall for the students that live there. They serve food that's going to give energy throughout the day, and if you are in a rush you can grab a bagged lunch and be on your way to class, practice or to dorm room to rest.
- According to student athletes in the nutrition class, our food services don't offer the right nutrition that the body of an athlete requires. The Highsmith has a food court that offers greasy and fried food, because it's easy and fast to make and serve. The "food has no color at all" making it "not the healthiest place to eat." Another alternative is Rocky's which is a convenience-mart that offers junk food or meals that you must prepare yourself.
- Nutrition information and how to translate it into appropriate food choices is lacking unless a student athlete takes the Nutrition and Lifestyle class. "I learned more in my Nutrition class about healthy eating for my sport, than I have all my

years playing sports.”—Louise Bottomley, UNCA tennis team

Recommendations

- Keep one campus food service operation open for longer hours. Be sure to have “training” appropriate food (see above; complex carbohydrates (such as grains, whole grain breads, pastas, beans, and vegetables), lean protein sources (from both plants and animals) and fruits and vegetables. “The men’s basketball team sometimes has late practices that run after the time that campus offers food. I was curious about what my teammates ate on nights like this and most of them replied with ramen noodles that packs tons of sodium. Not the right food to replace in the body after a long practice in the middle of the night.”—Donovan Jones, UNCA basketball team
- Introduce a “training table” area in the dining hall that showcases healthy food choices for athletes (it should be available to all customers). This area could be used to educate students and student athletes about healthy eating to support exercise and sport.
- Provide nutrition education targeted at student athletes. Work with coaches to set up a nutrition education session with each team at the start of every pre-season. The registered dietitian could provide these important sessions. They could include tours of campus food service operations pointing out how to best meet high performance goals, as well as grocery store tours or cooking demonstrations for athletes who prepare their own foods at home.
- Provide opportunities for athlete’s to meet one on one for nutrition counseling to help them meet their health, school and sport performance goals.

C. Meeting the Needs of Students with Health Concerns or Disordered Eating Habits

The counseling center and student health services see students with special dietary needs due to health issues, students with interest in weight loss or the avoidance of weight gain, students needing to know about dietary concerns in pregnancy, and students dealing with disordered eating habits. Many other students deal with these issues but do not present to either the counseling center or student health services. According to Amy Lanou, assistant professor in Health and Wellness, many students are interested in and would benefit from having a resource on campus for individual dietary counseling with a registered dietitian.

Recommendations

- Increase the number of hours a registered dietitian is available on campus to provide for 8 hours per week of individual counseling appointments. These hours should be consistently offered each week that school is in session at regular times (eg. Monday afternoons and Thursday mornings).
- These appointments should be held either in the counseling center or the health and fitness center (not in dining facilities) to make them more accessible to students in need. Appointments should be scheduled in advance by phone or

email although drop in hours could also be helpful. The counseling center and student health services would refer students in need of nutrition support and counseling to this person during these regularly

- The availability of this service should be promoted broadly through athletics, student affairs, LSIC 179 and 379 classes as well as HWP 152, 153, 154, and 155 classes.

V. UNCA is Not Alone: Improving Food Environments on College Campuses across the Nation

Compiled by Jesse Moore

Colleges and universities across the country have already begun and continue to take measures that create healthy food environments on their campuses. The implementation of various measures has helped address students' increasing interest in healthy living and the foods they eat. This includes making nutritional changes to menus, while also exploring environmentally friendly methods of growing and sourcing the food served on campus.

Even small actions can make large positive impacts on student health. For example, the University of North Carolina Wilmington replaced all of the oil used in their campus dining facilities with non-hydrogenated, trans fat free versions approved by the Food and Drug Administration. These new oils "offer the best combination of value, performance, taste delivery and health profile" according to JP Fesperman, director of campus dining.⁵ Illinois State University has also made healthy nutritional changes on campus. Along with using trans fat free oil, they replaced the school's Chick-Fil-A franchise with "a more nutritional eatery" that "provides whole grain foods, lean meat, grilled fish, and vegetables". They also reevaluated portion servings and "gently reduced" the size of items like hamburgers, cookies and muffins, in an effort to "not encourage over-consumption".²

Along with these nutritional changes, schools are also becoming more concerned with the quality and sources of the food they serve. Organic, sustainable, and locally grown items are the highlights of menus at Yale University, a leader in the healthy campus dining movement. In fact, these foods are often the first to be devoured in all of the university's twelve dining halls. Data collected through a survey the university conducted supports this claim, noting that "80% of Yale students... said they'd eat in the school dining halls more often if sustainable food was served".⁴ Even the school's cupcakes and pizzas are made from scratch with organic ingredients, many of which are grown on Yale's own "mini-farm". When the farm cannot provide certain items, they are bought from other local sources. For example, its salsa and apples come from organic farms in Connecticut, "instead of being trucked from Washington state or California".⁴ Yale's eco-friendly and nutritious dining has also been an attraction and acted as a deciding factor for health-conscious students considering which school they would like to attend. Currently, "nearly 40% of food served on Yale's campus is organic," but the university's ultimate goal is for 100% of their food to be organic and sustainable in the future.⁴

Many other colleges and universities are also growing their own food, from small on-campus herb gardens to large off-campus farm operations. These efforts have helped to supplement schools' food supplies, while also connecting students and faculty to the sources of what they consume. Locally, students at Warren Wilson College help maintain several gardens that provide some of the school's food.⁶ Growing food on campus has numerous advantages, including providing the freshest ingredients possible. It is even possible to prepare and serve produce the same day it is harvested. For example, Evergreen State College in Olympia, Washington has its own on-campus greenhouse where foods like arugula are grown. When explaining the relationship between growing and serving food on campus, Evergreen's director of residential and dining services said, "The arugula that I helped picked one morning was on the salad bar in the dining hall by lunch time. It felt great to tell students that I had... harvested the arugula that very day and that it was fresh, local, organic, and was grown for us to all enjoy."³

Finally, the Massachusetts Institute of Technology has devised a uniquely innovative way of serving its students healthy and responsible food. The university has developed an environmentally friendly vending truck, which features an entirely vegetarian menu comprised of local, organic, and sustainable food. The truck utilizes biodiesel and solar panels for power, is managed by an alumnus, and staffed by students. This project, named the Clover Food Lab, has been very successful in exposing students and faculty to healthy and sustainable food, while still maintaining an informal and fast-food-like approach that customers appreciate.¹

Through these examples, it is apparent that colleges and universities of all sizes and demographics have already begun making progress when it comes to creating healthy food environments on campus. However, there is still much that can be done to ensure that schools are serving the healthiest and most responsible foods possible. Changes of all sizes can positively effect on-campus dining services—especially in the areas of nutrition, food sourcing, and sustainability.

Lessons for UNCA include:

- 1). We should publicize the things we are already doing such as going trayless and committing to using trans fat free oils and margarines.
- 2). We need to follow through with the commitments we already have in place such as growing our own herbs on campus for use in dining services, our Farm to Fork program that sources less than 5% of ingredients locally and our balanced choices program which promises labeling of healthier options; in addition, we should look to expand our ability to source some food for the campus from our grounds.
- 3). We need to do a better job of exploring opportunities for building economic and social relationships with western NC businesses, organizations and individuals.
- 4). There is national support for and nationwide student interest in healthier and more environmentally sustainable campuses. We can position ourselves the public liberal arts college that is a leader in both.

5). Creativity may be required to find workable opportunities, but we have an enormous reserve of creative ideas to utilize and energy for implementation in our campus community.

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VI. Implications and Outcomes

Compiled by Elizabeth Brownell, Julie Osborne and Janet Schafer

In implementing the recommendations above, UNCA would be well on its way to offering food choices that are sustainable and nutritionally beneficial to the students, staff and faculty who frequent on-campus eateries. Taking steps to decrease the salt, sugar and fat contents of the foods served would lower the risk for chronic disease. Inversely, offering a greater variety of vegetables, whole grains, healthy fats and dairy alternatives would contribute to overall health. UNCA would provide its students with better nutrition and make on-campus dining more accessible to its diverse population. In continuing the commitment to sustainability and social responsibility, UNCA could begin sourcing local, organic, non-GMO and rBGH-free foods. This commitment would be seen throughout the available campus food options whether at Rocky's Convenience store or the Dining Hall. In showing a dedication to healthful, sustainable foods, UNCA would set itself apart. Through clear, consistent labeling, these healthful and socially responsible choices could become easily identifiable. In providing information on nutrition and the excellent choices being offered, awareness would be raised. This would allow for campus food consumers to make informed, healthy choices they can feel good about. What might begin as small changes could make a large impact toward the goal of being a model for sustainability and health.

Role Modeling a Healthy Food Environment

With the new North Carolina Center for Health and Wellness on the UNCA campus, these health and environmental goals must be actualized for the UNCA community to uphold its standards as a leading role model for Health and Wellness. Making positive changes in the foods served on campus as well as creating an environmentally friendly campus community will attract more likeminded students to our campus. Health can be ensured on campus through educating our students on what it takes to obtain a health body and environment as well as providing them with the tools they need to achieve these goals. UNCA should implement these health and environmental goals to support all of its diversity. Implementing these recommendations will make the state of North Carolina proud of us for being part of the solution to statewide health issues. This, like a championship-winning sports team, could be a way for UNCA to not only be recognized nationwide as an inspiring role model for health and wellness but also sought after by students and researchers alike.

Information and Education

Throughout we discuss methods that could be applied in order to alter the dining services and other campus operations in a way that would be acceptable to most students, and thus increase their interest in eating on-campus. We provide methods and ideas for implementation that would better serve the campus community. Educating members of the campus community about the foods available on campus would also have the ability to raise student, faculty and staff interest. People appreciate honesty and reliable information. With things such as informative nutritional posters and seminars, and ingredient and nutrition labeling, student confidence in the dining services would increase. These changes will impact the staff in a positive way. If the staff is serving things that are beneficial to health and aim for a healthier lifestyle, while reducing the impact on the environment they will likely feel proud to educate the campus community-- about healthful and sustainable choices, the foods they serve, and why it is in the students' best interests to have a meal plan and eat the food served on campus. As a result of this education, students would feel empowered to be a part of the important changes in place at UNCA.

Importance of Marketing

Consumer interest in wellness and campus food services would be increased by the use of marketing. Most students who live on campus are aware of what foods are offered and what kind of meal plan options work best for them, but the commuter students have very little information available to them. When considering the statistics of commuter student's interest in campus dining services, who are not required to participate in a meal plan at UNC Asheville, it becomes apparent that changes are needed to the services provided in order for the greater UNC Asheville population to be better served. This is where the most popular interest-provoking techniques could go a long way and greatly increase the sales of meal plans among commuter students on the UNC Asheville campus. If more marketing was geared towards commuters along with the changes suggested in this document the interest would surely rise because the entire campus community would be able to come together and promote a healthful and sustainable lifestyle making UNC Asheville a trendsetter for this new health and wellness way of life.

Evidence-based Change

As the final note of this conclusion, the importance of research while engaging in these recommended changes should be addressed. When implementing these changes it will be important to study their effectiveness. We want to make sure that these recommendations not only meet our goals but do so in a way that is efficient and beneficial. In working towards these achievements, for the present and near future, needs and demands should be monitored. Also, as our success increases, we would like to have research-based evidence. This, in turn, could be used to prove the ways in which we have met our goals and show others how we have become a model of excellence.

Our Hoped for Outcomes Include:

1. Response and discussion with decision-makers on priorities and next steps for working towards implementation of these recommended guidelines.

2. Quick action on easily implemented guidelines such as consistent nutrient and ingredient labeling, increased nutrition education efforts, increase in campus gardening, and changes in the offerings of Rocky's convenience store.

3. Additional research into community needs and interests as well as options for overcoming obstacles to implementation.

4. Assembly of a team of students to work with appropriate decision makers to conduct further research and do the work needed to implement our recommendations.

Thank you for your interest in our project and making UNCA a healthier and more socially and environmentally sustainable campus.
Appendix

A. Mineral Recommendations and Results from CHEM 174

Recommendations Regarding Calcium in Campus Foods from CHEM 174

DISCLAIMER: Selection of foods used in experiment not representative of all campus foods.

First of all, it must be noted that the selection of foods for this experiment is not in any way representative of the selection of foods available on campus (i.e., if we were to get all our calcium from the experiment food containing the highest level of calcium, that would mean we would have to eat about 26 bagels with cream cheese in a day). It is also important to recognize that none of the foods selected are known to be high in calcium content.

- Note: DRI for calcium is 1000 mg/day for people between 19 and 50 years old.
- Consider some evidence suggesting increased risk of some diseases and calcium loss promoted by high dairy and animal protein intake.

The daily recommended intake for calcium is about 1000 mg/day for people between 19 and 50 years old. Some sources recommend a lower intake based on evidence suggesting high intake of dairy increases risk of heart disease, high cholesterol, some cancers, and type I diabetes. Additionally, high consumption of animal protein increases calcium loss, which the 1000 mg/day recommendation takes into consideration.

- Cafeteria and Highsmith offer many items containing or featuring dairy products which are known for high calcium content.
- Non-dairy items with calcium-containing foods include Brussels sprouts, soymilk, and beans.

A brief tour of the campus dining services reveals a number of items containing dairy products such as milk, cream, cheese and butter—soups, pizza, mashed potatoes, etc. The non-dairy sources of calcium that were available were: Brussels sprouts, soymilk, and beans (available in burrito wraps or stir-fry, and possibly some unlabeled soups).

It is questionable how many college-aged students are aware of their need for calcium, the most prominent sources, and the advantages and consequences of consuming calcium from each of these sources.

RECOMMENDATIONS:

1) Display food labels for as many items as possible; at least for all items offered regularly in the main cafeteria.

Implement food labels for as many items as possible; at least for all items offered regularly in the main cafeteria. This could be the same kind of food label as what is required on all packaged items in the U.S. or a shorter list highlighting the main micro- and macronutrients available in the food. Percentages of recommended intakes and some amounts (in the case of macronutrients and controversial micronutrients such as calcium) should be listed.

2) All items should have ingredients listed.

All items should have ingredients listed so that individuals can know what they are choosing and whether it meets their health and preference requirements.

3) Consider amount of dairy (milk, cream, butter, cheese) used in food items and the possible related health risks.

A consideration should be made for the amount of dairy used in food items to take into account possibly high amounts of fat and cholesterol, other increased health risks, and increased calcium loss due to higher amounts of animal protein.

4) Conduct an audit to determine the amount and type of calcium-containing foods in the average student-selected meal.

An audit could be done to determine the amounts of calcium-containing foods in the average student-selected meal. For example, how many students choose Brussels sprouts, beans or soymilk? How many get all their calcium from cheese-containing items? What are the implications of these choices? This could be done by randomly asking students to record the meals they get from campus, or by observing the number of students who choose a selected item in comparison to the total number of students who ate in the cafeteria that day.

5) Offer more leafy greens with separate, optional toppings to make them more appealing.

More leafy greens such as broccoli, kale, collards, and mustard greens should be regularly available as a side dish, made steamed with toppings (cheese, salt, garlic, soy sauce, etc.) available *separately* if students desire to use them. Leafy greens have a number of nutritional benefits besides calcium, including fiber, iron, vitamin C, carotenoids, and folic acid.

6) Offer calcium-containing meat substitutes wherever possible.

Calcium-fortified tofu or tempeh should be available at stations where stir-frys, burritos or sandwich wraps, tacos, and other such made-to-order items are served.

Compiled by Rebekah David, Amy Wolf, Laura Epstein and Caroline Eudy. CHEM174. November 2008.

Magnesium Results and Related Recommendations from CHEM 174

- The Average DV for Mg is 400 mg
- College Age Males need 400-410 mg a day
- College Age Females need 310-360 mg a day
 - Advertise this in the café to show college ages students their recommended DV

Café Recommendations

1. Include more Mg rich foods as options for UNCA students
 - Have options at each meal in the café
 - Vary the sources of Mg- not just one dish
2. Provide posters, pamphlets, etc. that display what healthful foods have high Mg
 - Cereals, Brown Rice, Spinach, Nuts, Beans, Bananas
 - If people know what food sources provide Mg they would be more likely to get the recommended amounts
 - Stickers over cereals or grains to show that those food items are good sources
 - At the salad bar there could recipes posted for various ways to construct a salad that will have ingredients to contribute most effectively to a healthful diet

Food Samples	Total Mass of Ion per Food Serving (mg)	Mass of an entire serving (g)
Squash	8.4503	42.17
English Muffin	3.3136	52.13
Falafel	3.2163	65.79
Beef Stroganoff	1.5009	81.1
Bagel and Cream Cheese	1.3249	128.1
Cookie	0	28.38
Blueberry Muffin	0	116.25
Carrots	0	98.95

Good Food Sources of Mg

- Lots of green vegetables like spinach
- Legumes (beans and peas)
- Nuts and Seeds
- Whole, Unrefined Grains

Recommendations and Results on Potassium and Health from CHEM 174

Benefits

- Plays an important role in regulating blood pressure
- Reduces risk of:
 - Stroke
 - Bone Loss
 - Kidney stones
 - Can blunt negative effects of sodium

Negative Effects

- Too much: Hyperkalemia (very rare)
 - Insufficient kidney function, kidney failure
- Too Little: Hypokalemia
 - Weakness, lack of energy, irregular heart-rate

Daily Recommended Value

- 4700 mg a day
- The average American only consumes about ½ that
- “The typical Western diet is high in salt and low in potassium—the opposite of what evidence shows is optimal for good health and reducing the risks of chronic disease” (186)

Potassium Rich Foods

- Bananas
- Sweet Potatoes
- Lima beans
- Salmon
- Orange Juice
- Plant foods

Chromatography Procedure

- After retrieving food samples from the dining hall we prepared solutions to be tested
- Using a Dionex High Performance Ion Chromatography instrument with Dr. Wasileski’s help we were able to detect common metal cations in our food samples

- We then recorded the ions present and charted their peak areas on a spreadsheet
- From the spreadsheet we found the regression line equation for each cation and used these equations to find the total mass of ion per food serving

Food Sample	Mass of Sample	Mass of Serving	Total mass of ions in solution	Total mass of ion per food serving
Squash	.5165	42.17	1.7148	140.006
Carrots	.4827	98.95	1.3014	266.77
Bagel & cream cheese	.4641	128.10	.2507	69.1977
Beef Stroganoff	.4809	81.10	.4697	79.2112
English Muffin	.5286	52.13	.4274	42.1497
Blueberry Muffin	.4998	116.25	.4021	93.5256
Falafel	.5032	65.89	.8521	111.575
Cookie	.5084	28.38	.1549	8.6468

Potassium and Carrots

- 1 cup boiled carrots = 230mg of potassium
 - This shows our testing was relatively accurate
- It is recommended that you eat 1-3 whole carrots daily to get sufficient potassium supply

Recommendations

- Advertise foods high in potassium
- Keep whole (unprocessed) foods whole
- Use salt substitutes that contain potassium to increase potassium intake and decrease sodium intake

Compiled by DeAnn Brame, Maren Close, Hannah Pinkerton, and Samantha Pope

Sodium Lab Results and Recommendations from CHEM 174

- Less than 2,300 milligrams of sodium per day (American Heart Association)
- 1,500 milligrams (DRI recommendations)
- We eat an average of 3,300 milligrams per day
- Mostly found in processed foods, dairy, and condiments

Benefits

- Important for the body's fluid and electrolyte balance - maintains volume of the fluid outside the cells
- Necessary for nerve transmission and muscle contraction
- Helps acid-base balance

Too much sodium intake causes

- Cardiovascular disease & stroke (36.3% of all deaths)
- Hypertension/high blood pressure (1 in 3 adults over 20)
- Cerebral hemorrhage

Ion Chromatography

1. Breaks up complex samples into separate components
2. Identifies each component and its amount
3. Each component has its own retention time
4. This allows you to identify what the ion is based off when it appears
5. This is determined by size and positive charge

Ex: Sodium - small and less positive molecules, therefore appear early in the chromatogram

Analysis

Food Sample	Mass of Entire Serving	Total mass of ion per food serving (mg)
Bagel & Cream Cheese	128.10	477.35
Falafel	65.89	368.17
Beef stroganoff	81.10	328.22
Blueberry muffin	116.25	257.70
English muffin	52.13	197.24
Carrots	98.95	138.62

Cookie	28.38	117.92
Squash	42.17	82.77

	Sample size (g)	Sodium (mg)	Calculated to 100 g	Converted sodium content for 100 gm sample
Raw carrots (USDA)	55	19	100	34.5
Cooked carrots (USDA)	78	52	100	66.67
Canned carrots (USDA)	72	176	100	241.1
Analyzed carrots (cooked)	98.95	138.62	98.95	138.62
Squash (USDA)	102	1	102	1
Analyzed squash (cooked)	42.17	82.77	100	193.52

**We felt that sodium content of vegetables prepared in the cafeteria was unusually high compared to recorded data from the USDA.

Our Recommendations

- Less processed and pre-prepared foods
- Use fresh vegetables as often as possible or use no salt added canned vegetables
- Add minimum salt before serving
- Use salt substitutes - potassium
- Use herbs and spices for flavoring
- Display sodium content for condiments

B. Food Survey Designed by SOC 385

Pilot Survey of Students Regarding Food and Nutrition Preferences and Concerns

This survey will be used to gauge student preferences and needs regarding food choices on campus. It was designed by students in the Food for Thought Cluster and will be used to propose plans for a UNCA food policy.

*Thanks for your time. All answers are anonymous. **Please do not take the survey more than once.** Please circle one answer per question unless otherwise indicated.*

1. Please tell us about yourself

In what year of college are you?

First Year Second Year Third Year Fourth Year Fifth Year or
more Graduate Student/ Post-Bac

What is your age?

18 or younger 19 20 21 22-25 25 or older

Are you currently on a meal plan?

Resident Meal Plan Commuter Meal Plan Commuter, not on a Meal Plan

On a weekly basis, excluding meal plans, how much do you spend on food ...

...on campus (please include food purchased anywhere on campus, including Dining Hall and Highsmith Union, Rocky's Convenience Store, and Vending Machines)

\$ _____
per week

...on "fast food" restaurants off campus (drive thrus, pizza, subshops)

\$ _____
per week

...on groceries (please estimate for yourself alone if you also shop for others)

\$ _____
per week

During a typical week, how much do you typically spend on food (excluding meal plans)?

\$ _____
per week

2. Please tell us about your typical food consumption.

How frequently do you purchase food or drinks from a campus Vending Machine?

Everyday	Almost Every Day	A Few Times a Week	A Few Times a Month	Almost Never
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How frequently do you bring your LUNCH from home or prepare it in your campus residence during the Monday-Friday School week?

Everyday	Almost Every Day	A Few Times a Week	A Few Times a Month	Almost Never
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How frequently do you purchase your LUNCH Off-Campus during the Monday-Friday School week?

Everyday	Almost Every Day	A Few Times a Week	A Few Times a Month	Almost Never
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In the past semester, since August, how many visits have you made to the North Asheville Tailgate Market held on Saturday Mornings at UNCA?

Three or More Times	Twice	Once	Never
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In the past semester, since August, how many visits have you made to any Tailgate or Farmer's Market other than the North Asheville Tailgate Market?

Three or More Times	Twice	Once	Never
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4. Please tell us about Information on foods sold on campus

When you purchase food on campus, how likely are you to read the Nutrition Facts information if it is available before purchase?

Very Likely	Somewhat Likely	Somewhat Unlikely	Very Unlikely
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How interested are you in having nutrition information available before choosing a food purchase on campus?

Very Interested	Somewhat Interested	Somewhat Uninterested	Very Uninterested
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How interested are you in having a list of ingredients in the food available before choosing a food purchase on campus?

Very Interested	Somewhat Interested	Somewhat Uninterested	Very Uninterested
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5. Please tell us about the Healthfulness of Foods

How important is the healthfulness of food in your decision to purchase?

Very Important	Somewhat Important	Somewhat Unimportant	Very Unimportant
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How satisfied are you with the healthfulness of foods available in the Dining Hall?

Very Satisfied	Somewhat Satisfied	Somewhat Unsatisfied	Very Unsatisfied
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How satisfied are you with the healthfulness of foods available in the Highsmith Union Food Court?

Very Satisfied	Somewhat Satisfied	Somewhat Unsatisfied	Very Unsatisfied
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How satisfied are you with the healthfulness of foods available in Rocky's Convenience Store?

Very Satisfied	Somewhat Satisfied	Somewhat Unsatisfied	Very Unsatisfied
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How satisfied are you with the healthfulness of foods available in Café Ramsey?

Very Satisfied	Somewhat Satisfied	Somewhat Unsatisfied	Very Unsatisfied
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How satisfied are you with the healthfulness of foods available in campus Vending Machines?

Very Satisfied	Somewhat Satisfied	Somewhat Unsatisfied	Very Unsatisfied
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6. Please tell us about your preferences.

Note: currently less than 5% of the food available through Chartwells is of local or organic origins.

How interested are you in increasing the amount of Locally Grown or Produced foods available on campus?

Very Interested	Somewhat Interested	Somewhat Uninterested	Very Uninterested
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If UNCA increased the amount of locally grown food offered on campus, would you be willing to accept fewer food choices in the dining hall?

Yes, I would be willing to accept a significant reduction in the number of food selections in the dining hall.	Yes, I would be willing to accept a minor reduction in the number of food selections in the dining hall.	Maybe, if the food selections were limited only during certain times of the year.	No, I would not accept fewer selections in the dining hall in order to get more locally produced food served on campus.	I'm not sure.
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If UNCA increased the amount of local food available on campus by 25%, how much more would you be willing to pay for your food on campus?

\$1.00 per meal \$.75 per meal \$.50 per meal \$.25 per meal No increase in cost is acceptable

How interested are you in increasing the amount of Organically Grown food available on campus?

Very Interested Somewhat Interested Somewhat Uninterested Very Uninterested

If UNCA increased the amount of Organically Grown food available on campus by 25%, how much more would you be willing to pay for your on-campus food?

\$1.00 per meal \$.75 per meal \$.50 per meal \$.25 per meal No increase in cost is acceptable

How concerned are you about water quality?

Very Concerned Somewhat Concerned Somewhat Unconcerned Very Unconcerned

How are you most likely to currently drink water? (circle one)

from a nalgene bottle that you fill yourself from another type of bottle that you fill yourself from a drinking fountain or the tap from single serving bottled water bottles other, please specify: _____

How interested would you be in unlimited access to filtered water on campus?

Very Interested Somewhat Interested Somewhat Uninterested Very Uninterested

How likely would this be to decrease your use of bottled water?

Very Likely Somewhat Likely Somewhat Unlikely Very Unlikely

How interested are you in having an “a la carte” option in the Dining Hall, where you would be able to purchase single food items rather than paying for an “all-you-can-eat” buffet?

Very Interested Somewhat Interested Somewhat Uninterested Very Uninterested

Please identify your dietary concerns (circle all that apply)

Omnivore (Prefer a diet that includes meat and dairy as well as other foods) Vegetarian Vegan Low Fat Medical Reasons or Concerns Religious or Cultural Dietary Considerations Low Sodium Lactose Intolerant Low Sugar Food Additives such as MSGs

How well are your particular dietary needs (add list from last question here) met by UNCA’s current food offerings?

Very Well Met Somewhat Well Met Somewhat Unmet Not Met

If UNCA were to increase the availability of foods that met your particular dietary needs, how much more would you be

willing to pay for food on campus?

\$1.00 per meal	\$.75 per meal	\$.50 per meal	\$.25 per meal	No increase in cost is acceptable
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If UNCA developed an on-campus cooperative food garden, would you be willing to work in the garden in exchange for reduced food costs or access to free food?

Very Willing	Somewhat Willing	Somewhat Unwilling	Very Unwilling
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6. Open Ended Questions *Please answer those which are applicable to your situation*

What are the things you are most pleased about regarding food choices on campus?

What are the things you are least pleased about regarding food choices on campus?

What are the barriers that keep you from purchasing more of your meals on campus?

What additions or changes to campus would make bringing meals from home more convenient for you?

What could be changed to make your nutritional needs more fully met while you are a student at UNCA?

What changes would you most like to see regarding food available on campus?

7. What is the single most important improvement that you think UNCA should make to its current food policies or offerings?
