

COOKING TO PREVENT HEART DISEASE

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INTRODUCTION

Cardiovascular disease is killing 45% of people in the industrialized nations. As the economics improves in the third world countries the poor habits of those in the industrialized nations are adopted and the death rate from this disease goes up sharply. For this reason it is imperative that all learn how to prevent this situation, especially even more so since it is known that the risk of this disease can be reduced by 90%.

It is recommended that community health programs such as the Breathe Free program to stop smoking, the Heartbeat program for coronary risk awareness, and Cooking to Prevent Heart Disease cooking schools be carried on everywhere. Larger populated areas could have the Weight Control program added to these other programs.

This program, Cooking to Prevent Heart Disease, is planned as a four night cooking school. Yet it is not like many cooking schools in that this program gives considerable theory as to why things are being done as they are. The mixing and stirring that everyone knows how to do is de-emphasized. Ideas and concepts are emphasized rather than specific recipes. This is why a large number of recipes are discussed rather than just a few which take much time to prepare in front of the audience.

Since theoretical considerations are made prominent, knowledgeable and well-trained people conduct these programs.

An outline of what is to be done in each of the four nights is given, listing which recipes will be used and what scientific or medical points will be emphasized. Naturally there are many other recipes which are just as acceptable but should be consistent with the principles being taught. In fact, individuals will have to adjust depending on their personal likes and dislikes and the culture from which one comes.

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Heart Disease Prevention

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Reducing Sugar in the Dietary

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Increasing Fiber in the Diet

Medical Practice and Heart Disease

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Hypertension, Diabetes, Heart Disease Related

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Diet, Nutrition and the Prevention of Chronic Diseases

National Academy of Sciences Report on Diet and Health

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FIRST NIGHT—REDUCING THE FAT IN YOUR DIET

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1. Entrees Without Animal Fat (Meat, Milk, Eggs)
2. Major Food Sources of Saturated Fats
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FIRST NIGHT—REDUCING THE FAT IN YOUR DIET

OUTLINE OF RECIPES AND DEMONSTRATIONS

ENTREES

A. Vegetables and Grains Are Low in Fat

Plan Entrees Around Vegetables and Grains

Use: Potatoes, rice, corn, beans, etc.

1. Wok Cooked Vegetables on Brown Rice
 2. Ala Pilaf
 3. Tamale Pie
 4. Beans—Lentil Stew
 5. Fettucini Primavera
- (+ Recipe for Flavored Salt Seasoning)

B. Adding Nuts Adds Fats But of Right Type

1. Basic Roast
 2. Celery Loaf
- (+ Recipe for Home-Style Chicken Seasoning)

C. Meat Analogs Low in Fat or Fat of Right Type

1. Spaghetti with Vegeburger
2. Savory Steak
3. Strogonoff
4. Chicken Style Soy Meat with Dressing

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NIGHT ONE—REDUCING TOTAL FAT

1. General principles for heart attack risk reduction are:

Eliminate cholesterol from the diet.

Means to eliminate most all animal products.

Reduce saturated fat to as low as 7% of the calories if need be.

Get adequate soluble fiber especially from beans, oats, and apples.

Get adequate beta carotene (the plant form of vitamin A).

Keep your weight at the proper level.

Exercise adequately every day.

Do not smoke.

Learn to cope with stress.

Keep your diabetes under control.

Use no more than 1 t. salt daily.

Avoid alcohol.

Limit use of sugar to no more than 10% of the calories.

2. Present scientific recommendations are to reduce fat intake to under 30% of the calories but ideally down even to 20-25%.

These recommendations are from the National Academy of Sciences and the World Health Organization. Most all scientific groups around the world are in agreement on these general recommendations.

However, the World Health Organization also states that the ideal level is probably down to 20-25% particularly if breast cancer risk is to be lowered. It is even suggested that 20% might be better than 25%. It is believed that people are not ready to go that low and therefore this is being done in a step-wise fashion. But this program will describe to you now what the ideal is.

Vegetables and grains are low in fat and therefore if meals are planned with entrees made from them the fat in the diet is lowered considerably. If we look around the world at population groups that do not have the high rate

of heart disease that occurs in the industrialized countries we can get clues from the way they eat as to how to prevent this modern scourge.

For example, the Chinese are great cooks. Their restaurants are found around the world. Unfortunately they serve in them dishes that they do not use in China. The way they eat in China is better. But the Chinese wok cooked meals can be among the most healthful of diets.

Chinese Wok Cookery - Stir Fry Vegetables

Cooking Temp.: Medium - High

Yield: 14 servings

Cooking Time: 5-10 min.

Portion: ½ C

Garlic, crushed	1 t	Saute garlic in oil until brown.
Oil	2 T	
Soy sauce	4 T	Add soy sauce and water. Fold in
Water	2 C	carrots. Cook covered until tender.
Carrot, large, cut lengthwise, slice crosswise	1 C	
Baby corn	1 ½ C	Add other vegetables. Let cook till
Water chestnuts, drained	½ C	half done.
Straw mushrooms, whole	1 8 oz. can	
Broccoli pieces	3 C	
Onion, small, sliced	1 C	
Pea pods, fresh	½ lb.	Add in pea pods (may use frozen) last.
Corn starch	2 T	Mix cornstarch with water. Add to
Water	¼ C	vegetables slowly, simmer to thicken.

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3. What is a 20% fat diet?

Would people be willing to go this low in fat intake? Several studies were done in attempt to determine this. The goal was to put the people on a 20% fat diet. The result was that the average was satisfied on 23% fat in the diet.

Here is a handout on Fat Exchanges to tell you how to go on a 20% fat diet. (In the pocket at the back of the notebook)

The women who underwent these trials on the low fat diet were usually on 1800 calories a day. A 20% fat diet would allow 360 calories a day from fat. One gram of fat produces 9 calories. Therefore, the 360 calories would represent 40 grams of fat. If one arbitrarily divides this into five gram portions one could have eight servings of food each containing five grams of fat every day. The centerfold lists amounts of various foods each containing five grams of fat.

Note 0.5 cup of whole fat milk has 5 grams of fat or one fat exchange, 1 cup of 2% or low fat milk has the same but one could drink 20 cups of nonfat milk before getting five grams of fat.

With 6 jumbo potato chips there are five grams of fat. Ten French fries gives you the same. Two-thirds of a cup of potato salad provides one fat exchange also. But one can eat 25 baked potatoes before he would get five grams of fat. Of course, that would be without any sour cream on top!

Soybeans are a high fat bean. Half a cup gives you five grams of fat. With any other type of bean you could have five cups before you would get five grams of fat.

It takes only 0.4 of an ounce of broiled T-bone steak for five grams of fat. Half a chicken breast does the same.

Note the fruits. Olives and avocados are high in fat. However, the type of fat in olives is still a good type and doesn't increase the risk of heart disease. Ten olives gives you five grams of fat. One-ninth of an avocado does also.

One egg, one pat of butter or margarine or one teaspoon of oil would provide each one fat exchange or five grams of fat.

On 1800 calories a day you could have eight servings of any of these foods to make a 20% fat diet, 4 servings would provide a 10% fat diet and 12 servings would make a 30% fat diet. If one were on a reducing diet of only 900 calories he could have only 4 servings or fat exchanges a day to make a 20% fat diet. And if he were a hard working lumberjack needing 3600 calories a day he could have 8 servings for a 10% fat diet.

From this table (in the back pocket of this notebook) one can calculate approximately whether he is on a 20% or a 30% fat diet. Some have had 8 fat exchanges in one meal alone.

Ala Pilaf

½ cup corn oil	2 cups boiling water
2 cups Ala bulgur wheat	1 cup slivered almonds
1 cup chopped celery	1 t salt
8 green onions, finely chopped	¼ t marjoram
2 cups vegetable broth or bouillon	½ oregano
(Savorex, 1 t per c of hot water)	

Brown celery and onions lightly in corn oil. Add Ala bulgur wheat and brown. Add bouillon and simmer until wheat is nearly done, flakey. Blend in almonds, salt, marjoram, oregano, and remaining water.

Place in baking dish, cover and bake at 325 degrees F for 1 ½ hours, or until done.

Yield: 8 servings.

4. A polyunsaturated to saturated fatty acid ratio should be at least 1.25 or more.

Here's a two minute chemistry lesson. Linoleic acid, is an essential fatty acid. By essential, I mean you must get it in the diet because the body cannot make this one. It is the one that helps to lower your blood cholesterol level. Here is the formula:

C - C - C - C - C - C

C - C - C

C - C - C - C - C - C - C - C - COOH

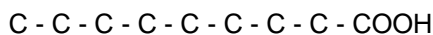
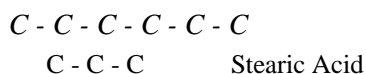
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Every carbon has a valence of four. That means it has four arms out holding on to something. The first carbon has one arm out connecting it with the next carbon. That means it has room for three more arms. Hydrogens are attached to these arms. The second carbon has one arm out on each side of it to the two other carbons and therefore has room for only two other arms to which are connected hydrogens. The carbon just before the double bond and the bend in the chain would have room for how many hydrogens? One because two arms go to the one carbon and one arm to the other carbon leaving room for only one arm to connect with a hydrogen molecule.

Corn oil has a lot of this linoleic acid in it. When corn oil is placed in a large vat and heated to a high temperature under pressure and with a catalyst like nickel it is hydrogenated. What happens? It gets harder and is more spreadable as in your margarines. Chemically the two double bonds are knocked out and hydrogens are added at those points. It is then saturated with hydrogens. It has been hydrogen-ated. It is no longer linoleic acid but stearic acid, a saturated fatty acid.

The molecule after the oil is hydrogenated would look like this:



If the double bonds were eliminated except for the one in the middle of the molecule it would be a monounsaturated fatty acid. This would be oleic acid. Olive oil is loaded with this type of fatty acid. It tends neither to elevate or lower blood cholesterol levels. Saturated fatty acids tend to elevate blood cholesterol and polyunsaturated ones, those with more than one double bonds, tends to lower blood cholesterol.

The ratio between the polyunsaturated fatty acids and the saturated fatty acids is termed the P/S ratio. When one changes his diet he can estimate based on this as to what will happen to his blood cholesterol level.

The average P/S ratio in the United States is 0.5. That means for every one ounce of saturated fatty acids (which tend to elevate blood cholesterol) there is only 0.5 of an ounce of the kind which tends to lower blood cholesterol.

Dr. Norman Jolliffe, who for many years operated the New York City Bureau of Nutrition, took individuals with high cholesterol levels and those who had had heart attacks and experimented with the amount of fat and the type of fat in their diets. He discovered that a P/S ratio of 1.25 or better was ideal and he termed it the Prudent Diet. Everyone uses that term now. If you are prudent or wise you will be on that kind of a diet. The American Heart Association for years has stated a therapeutic diet would have a ratio of 2.4 or greater.

Now to see if you know how to do this we are giving you a sheet called Fatty Acids in Food Fats. (See Appendix A) We will calculate the P/S ratio for the first item BEEF.

$$\begin{array}{r} 47 - 44 = 0.06 \\ 48 \end{array}$$

What does the 0.06 mean? For every 100 grams (or ounces) of saturated fatty acids there are only 6 grams (or ounces) of polyunsaturated acids. In other words, beef is a very saturated fat type of food. Now you try and do no. 61 on that sheet to see what the P/S ratio is in the fat of corn or corn oil.

$$84 - 28 = 56 \text{ and divided by } 10 = 5.60.$$

That means there is 5.6 times as many fatty acids which tend to lower serum cholesterol as saturated types which tend to raise it.

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Now let's list the P/S ratio of a number of foods.

Coconut	0.01	
Chocolate	0.04	
Beef	0.06	
Milk	0.10	
Pork	0.47	
Eggs	0.53	
Poultry	0.82	
Fish	2 or 3.0	
Corn oil	5.60	
Safflower oil		9.0
Walnuts	10.00	

It is for this reason the Senate Select Committee on Nutrition and Human Needs stated we need to make four major changes in our diet:

- No. 1 - Reduce use of red meat (beef and bacon).
- No. 2. Avoid the fat of milk and other dairy products.
- No. 3. Do something about the margarines and shortenings.
- No. 4. Avoid egg yolks.

The margarines companies quickly learned how to make soft margarines where only a small amount of hydrogenated oil is mixed with a lot of unhydrogenated oil so the P/S ratio is 2 or 3 to 1 in most of them.

Therefore, the goal is to find main dishes, entrees, other than from animal products. Another entree that some enjoy is Tamale Pie.

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Tamale Pie

Yield: 12 servings

Onion, chopped	2 C	Saute onion and pepper in oil.
Green pepper, diced	¼ C	Set aside.
Oil	¼ C	
Water	1 ½ C	Put water, Soyagen, salt, and
Soyagen powder	½ C	basil in blender. Blend until
Salt	1 t	smooth.
Sweet basil	½ t	
Tomatoes, stewed	28 oz. can	Combine tomatoes, tomato
Tomato puree	¼ C	puree, corn, and cornmeal with
Corn, whole kernel, (frozen, thawed)	2 C	onions and peppers. Add
Cornmeal, yellow	1 2/3 C	liquid. Cook over medium
		heat until thickened.
Olives, whole (pitted, drained)	6 oz. can	Add olives and place mixture
		in casserole dish coated with
		vegetable cooking spray. Bake
		at 350oF. for 30-60 min. till
		done.

The Mexicans use a lot of beans. The type of fiber in beans is excellent at lowering blood cholesterol levels. Beans can be the main dish for many meals.

Cooking Beans—Lentils

Work is being done to market beans pre-soaked and processed to make them quicker to cook and easier to digest. When soybeans are made into tofu cheese or commercial products the problems with intestinal gas are lessened. Beans, peas, et cetera, may be sprouted. In sprouting the indigestible sugars are said to be destroyed in 3 to 4 days. A cup of sprouted beans contains lower amounts of calories and protein than does a cup of the dry beans cooked. Sprouted beans and peas should be steamed before being eaten, but the cooking time is shorter, and the flavor and texture of the bean itself is similar to that of dry beans cooked.

Cooking time depends on the crop, the locality in which grown, and freshness (loss of color and plumpness usually indicates long storage; older beans take longer to cook). High altitude increases cooking time. Hard water and some artificially softened waters affect flavor and may toughen beans. Sugar, molasses, and acidic ingredients such as lemon and tomato should not be added until beans are nearly tender. After beans are soaked, they can be frozen. Freezing soaked beans prior to cooking may improve the digestibility for some. Simmer: fast cooking and pressure cooking causes beans to break open, whereas, simmering keeps them whole and prevents sticking to the kettle.

Soaking beans and peas before cooking shortens cooking time and saves energy. The old standby method of soaking beans overnight is all right, but the newer one-hour hot-water soak is better. Here's how you do it: Sort beans; wash well; bring to boil; simmer 2 minutes; cover tightly; turn off heat; soak for 1 hour or longer.

Cooking: After the soaking bring to a boil; cover (tilt lid or add a few drops of oil if foaming is a problem); reduce heat; simmer until tender. Three-fourths teaspoon of salt for each cup of dry beans, peas, or lentils will suit the average taste. Add salt after beans are cooked and tender.

Lentil Stew

½ c. barley, uncooked
1 lb. dry lentils
1 large potato, cubed
1 large carrot, cubed
1 stalk celery, diced
1 onion, diced
1 clove garlic, through garlic press

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1 or 2 bay leaves
2 t salt or to taste
1 T Savorex (a yeast-type paste)

Soak barley overnight and cook with lentils in 8 cups water in large kettle for ½ hour on low heat. Add other ingredients, reserving salt until the last half hour of cooking. Then cook another 30 minutes or until all is tender. Add water as needed. The barley gives a thick, hearty character.

Yield: 8 servings.

5. Present recommendation for saturated fat is 10% of the calories.

The consensus of scientists is that saturated fat should not be above 10% of the calories. The American Heart Association has three phases to their recommendations. All Americans should be on at least the Phase I diet.

	Cholesterol	% Saturated Fat
Phase I Diet	300 mg	Under 10%
Phase II Diet	250 mg	8%
Phase III Diet	100 mg	7%

If the blood cholesterol does not come down to where it should be with the Phase I diet the person is to go to Phase II. If that doesn't do it he should go to Phase III. The average American is consuming approximately 480 mg of cholesterol a day and about 14% of the calories are from saturated fat. All the cholesterol and 70% of the saturated fat comes from animal products.

Entrees can be made from vegetables such as Ratatouille made from eggplant, zucchini and green peppers. Other types of entrees are those of the pasta type. An example of that would be Fettucini.

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Fettucini Primavera

Cooking Temperature: Medium
Cooking Time: 25-35 minutes

Yield: 4 servings
Portion: 1 Cup

Fettucini Noodles	¼ lb.	Cook according to directions on package. Drain.
Milk, tofu or nonfat	2 C	Mix flour and milk. Cook over
Flour	3 T	medium heat until thickened.
Soyannaise	4 T	Add soyannaise, cheese and
Tofu cheese, mozzarella-style, shredded	¼ C	seasonings.
Sweet basis	¼ t	
Garlic powder	¼ t	
Onion powder	¼ t	
Salt	1/8 t	
Flavored Salt Seasoning*	1 ½ t	
Broccoli Flowerets	1/3 lb. (1 ½ C)	Cook vegetables and add to
Carrots, sliced	1/3 lb. (1 ½ C)	sauce. Serve over noodles.

*Flavored Salt Seasoning

Yield: 2 Cups

Onion Powder	½ C	Mix all ingredients together.
Yeast, nutritional	1 C	Store in glass or plastic container
Garlic powder	2 t	with tight lid.
Salt	½ C	
Savory	1 t	

Entrees can be made by using a combination of grains, with beans and nuts. Although nuts are high in fat the fat is of the right type. From a standard formula one could make a thousand different entrees. This is the Basic Roast or Loaf.

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Basic Roast/Entree Loaf

Choose one item from each of the following categories:

Protein (2 cups)

Kidney beans

Lentils

Garbanzos

Meat analogs

Tofu

Soy beans

Carbohydrate (1 cup)

Dried whole wheat bread crumbs

Uncooked oatmeal

Cooked brown rice

Crushed cereal flakes

Wheat germ

Nuts (1/2 cup), chopped, raw

Peanuts

Cashews

Almonds

Walnuts

Sunflower seeds

Binding

3 T potato flour

2 T soy flour

1/2 cup cooked oatmeal

1/2 cup Cream of Wheat

3 T tapioca

1 heaping T flaxseed meal

Liquid (1 - 1 1/2 cups as needed)

Tomato sauce or juice

Broth from cooked or canned

vegetables or meat analogs

Milk or soy milk

Savorex broth

Seasoning (1/4 t of one or more)

Sage

Sweet basil

Oregano

Thyme

Rosemary

Italian seasoning

Parsley

Salt (1 t) and/ or

Chicken-style seasoning

Soy sauce

Savorex

Garlic salt

Onion salt

Celery salt

Vegetable Oil or Margarine (2 T)

Onion (1 chopped)

Mix all ingredients together. Press into an oiled loaf pan. Bake 45 minutes at 350 degrees F. Serve with light gravy, if desired.

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Celery Loaf

1 cup celery, chopped fine	2 T corn or soy oil	
1 cup nuts (ground)	1 ½ cups ground whole wheat toast	1 ½ cups
hot skim milk (or soy milk)	1 onion, chopped fine	
1 cup oats	1 T home-style chicken seasoning*	

Add celery, onion, nuts to milk mixture in mixing bowl. Add bread crumbs and oats. Bake in oiled pan at 350 degrees F. for about 45 min. or until done.

Home-Style Chicken Seasoning

Yield: 1 ½ Cup

Celery salt	¼ C	Mix all ingredients together.
Turmeric	1 t	Store in plastic or glass con-
Onion powder	¼ C	tainer with tight lid.
Garlic powder	1 t	
Brewer's yeast	½ C	
Parsley flakes, ground	¼ C	
Savory	1 t	
Salt	¼ C	

When using this instead of G. Washington Broth (Golden) 1 t = 1 pkg.

1 t = 1 t McKay's seasoning. When substituting for McKay's, use less salt in recipe.

6. Who needs to be on a special diet?

Who needs to go on this special diet? This is determined by your blood cholesterol level. How many of you know what your level is? Every one by the age of 20 if not before should know what his level is according to the American Medical Association. Actually all should be checked by age 2 and on to find early those that have a genetic problem.

All those who have a cholesterol blood level of 200 mg/dl or higher are considered to be at moderate risk of a heart attack. Those whose levels are 240 or higher are considered to be at high risk.

Those who are at moderate or high risk are to have a test done to determine how much of the good cholesterol and how much of the bad kind they have in their blood. There are three major types of cholesterol in the blood. They are:

Total

HDL	High Density Lipoprotein Cholesterol
LDL	Low Density Lipoprotein Cholesterol
VLDL	Very Low Density Lipoprotein Cholesterol

The HDL cholesterol is the good kind. That protects against heart attacks. Think of it as the dump truck that is going around and picking up the bad kind, LDL cholesterol, stacking it up in the truck and getting rid of it. The average level of HDL for men in the U.S. is 46 mg% and in women 56 mg%. If it is low aerobic exercise may increase it. Stop smoking, reducing in weight will also help it. Alcohol, organic pesticides and other things will increase it but certainly are not recommended.

The LDL cholesterol is the bad kind. Average is about 140 mg/dl. This should be down to 120 and if it is 100 or under for five years in a row it is probable that you would be reversing your atherosclerosis. If it is 160 or higher and you have two other risk factors of a heart attack you are a candidate for medication if diet and exercise doesn't bring it down. If it is 190 or higher without any other heart attack risk factors you are also a candidate. But diet and exercise are to be tried for six months first. What do you do to reduce your LDL cholesterol? Stop smoking, reduce in weight, get on a good aerobic exercise program but most important get on the right diet. And that is what this seminar is all about. It will take at least four nights to go over all the major principles that are involved in this.

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Spaghetti with Vegeburger

If you feel it is an absolute necessity to have something like meat you may wish to try the meat analogs. Vegeburger may be used wherever you would use a ground meat such as in spaghetti.

The meat analogs that are low in fat are the burger and steak type. Here is an example of what Chinese have used for many years, gluten steaks. These savory steaks can be cut into pieces and used as a Stroganoff on top of rice.

Savory Steaks

Gluten steaks	19 oz. can	Place gluten steaks in flat baking dish. Save liquid.
Onions, chopped	1 C	Saute onions and mushrooms in oil.
Mushrooms, chopped	4 oz.	
Oil	2 T	
Flour, white, unbleached	$\frac{1}{4}$ C	Mix unbleached flour, yeast, liquid and soy sauce together.
Yeast, nutritional	2 T	Add onions and mushrooms and simmer until thickened.
Water (include liquid from steaks)	to equal 2 C	Add Soyannaise. Pour over steaks in baking dish, layering steaks and gravy if desired.
Soy sauce or savorex	2 t	Bake at 350oF. 35 minutes.
Soyannaise	$\frac{1}{2}$ C	

Another recipe as an entree especially around Thanksgiving is this chicken-syle or turkey style soy meat with dressing.

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Chicken-Style Soy Meat with Dressing

Mushrooms, diced	1 4 oz. can	Drain mushrooms, set aside.
Water	to equal ½ C	Add enough water to liquid to
Croutons, unseasoned	3 C	make ½ cup. Set aside.
(whole wheat bread diced & baked)		
Corn oil	2 T	Saute onion, celery, and mush-
Onions, chopped	1 C	rooms in oil until half done.
Celery, diced	1 C	
Celery tops, diced	½ C	
Thyme	¼ t	Add seasonings to sauteed
Sage, ground	¼ t	vegetables. Add water and
Marjoram	1/16 t	croutons. Mix well. Add
Sweet basil	1 t	more liquid if necessary.
Garlic powder	1/3 t	(Mixture is moist enough if
Savory, ground	½ t	it can be squeezed in your
Salt	¼ t	hand.)
Chicken-style soy meat slices	12 slices	Place ½ c. of dressing on each slice of chicken. Fold up as for a taco. Use tooth pick to hold together. Pour small amount of gravy on bottom of shallow baking dish. Place folded chicken slice with dressing, open side up, close to each other in dish. Pour gravy down the center of tops. Bake, covered, at 350o F. for 15-20 minutes. Serve with extra gravy if desired.

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SECOND NIGHT

USING THE RIGHT TYPE OF FAT AND CHOLESTEROL

Theoretical Considerations

1. Dinner Meal Patterns
2. Types of Saturated Fat
 - Major Ones That Elevate Blood Cholesterol
- Primary Food Sources of These
 - Those That Do Not Elevate Blood Cholesterol
3. Exceptions to P/S Ratio Rule
4. Hydrogenation
 - Trans Fatty Acids
5. Animal vs. Vegetable Fat
6. Necessity for Some Fat
 - Minimum vs. Optimum
7. Which Oil Is Best?
8. How Much Oil?
9. Importance of Dietary Cholesterol vs. Saturated Fat
10. Amount of Dietary Cholesterol
11. Your Body's Cholesterol vs. Food Cholesterol
12. The Original Diet; Total vs. Lacto-Vegetarian Diet
13. Fish; Chicken
14. Where Will We Get Our Protein?

Practical Considerations

1. Meal Patterns Without Meat, Milk or Eggs
2. Salad Dressing - Low in Fat
 - Fat of Right Type
3. Milk Substitutes
4. Egg Substitutes
5. Cheese Alternates
5. Butter or Margarine Substitutes

SECOND NIGHT

SALAD DRESSINGS; MILK, EGGS, CHEESE, BUTTER SUBSTITUTES

A. Meal Patterns Discussed

B. Salad Dressings

1. Zero Dressing Discussed
2. French Dressing
3. Soyonnaise
4. Sour Cream

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5. Tofu Dill

C. Milk Substitutes

1. Nut Milks
2. Soy Milks
3. Nonfat Cow's Milk

D. Butter Substitutes

1. Margarines
2. Low Calorie Margarine
3. Nut Butters
4. Corn Butter
5. Apricot-Date Jam

E. Egg Substitutes

1. Scrambled Tofu
2. Vegeburger Pattie
3. Potato Salad

F. Cheese Substitutes

1. Pimiento - Cashew Cheese
2. Pizza
(+ Recipe for Italian Sauce)
3. Macaroni and Cheese
4. Lasagne

NIGHT TWO

USING RIGHT TYPE OF FAT AND CHOLESTEROL

1. Dinner Meal Patterns

The evening meal should be the lightest meal of the day. Therefore, dinner should be around the middle of the day. Let's list some major types of meals or at least the major entree upon which the meal can be built around.

Chinese Wok Cookery—Stir fry vegetables on brown rice

Italian pasta type - Eggless noodles, Stroganoff

Fetuccini Primavera

Spaghetti and vegeburger

Ratatouli

Pizza

Near Eastern type such as Ala Pilaf

Mexican type with beans and tortillas

Enchiladas

American - Beans and potatoes

Macaroni and cheese

Potato salad

Vegeburgers

All of these dishes can be made in a much more healthful way than in the way most people eat them.

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2. Various Types of Saturated Fatty Acids

- 18 C -----Stearic Acid
- 16 C -----Palmitic Acid
- 14 C -----Myristic Acid
- 12 C -----Lauric Acid

It was discovered that stearic acid was metabolized more like oleic acid (the monounsaturated fatty acid) and it didn't raise blood cholesterol levels. Myristic and Lauric acids are in food fats but are not there in any great quantity. However, coconut is 40% lauric acid. The commonest saturated fatty acid in our food supply that elevates blood cholesterol is palmitic acid.

Look at your Fatty Acids in Food Fats sheet and find the foods which have the highest percentage of its fat as palmitic acid.

Palm Oil	39%
All Animal Products	% depends on which one
Cottonseed Oil	23%
Chocolate	22%
Avocado	18%

All these fatty acids are in every food fat. It is just that you don't want to get too much of these saturated fatty acids that raise the blood cholesterol.

Recent studies on palm oil show that it does not elevate blood cholesterol. Recent studies on avocados show they lower blood cholesterol better than does the American Heart Association Phase II diet.

Salad Dressings

Mayonnaise contains egg with its cholesterol. Many salad dressings can be made with less fat. Many of these dressings contain irritating spices. It is preferable to make your own. Here are some examples:

Zero Dressing

Tomato Juice	½ C	Combine in a jar with a tight lid and shake.
Onion, dehydrated	1 t	
Parsley, dehydrated	1 t	
Lemon juice, fresh	2 T	
Yeast, nutritional	1 t	
Salt	1/8 t	

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French Dressing

2 cups water		4 ½ t. paprika
2 T cornstarch		½ cup lemon juice
1 t salt		¼ cup salad oil

Mix all ingredients together in saucepan. Stir frequently until boiling and slightly thickened. Shake well before using.

Yield: Approximately 2 ¾ cups.

Soyannaise

Water	1 C	Blend these ingredients until smooth.
Soyagen powder	½ C	
Salt	½ t	
Onion powder or 2 T fresh onion	¼ t	
Garlic powder or	1/8 t	

½ clove garlic

Corn oil	¾ C	Add oil slowly while blending. Blend for about ½ minute.
Lemon juice	¼ C	Add lemon juice & turn off blender immediately.
Turmeric	Dash	Add with salt for color.

Refrigerate. Will keep approximately 2 weeks.

Sour Cream

With the addition of more lemon juice this recipe can be used as a sour cream.

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Tofu Dill Dressing

Tofu, soft	1 C	Blend tofu with oil, garlic, and salt, until smooth. Pour into bowl and add dill weed. Refrigerate.
Oil	1/3 C	
Garlic powder	1/8 t	
Salt	½ t	
Dill Weed (fresh preferred)	¼ t	

3. Exceptions to the P/S Ratio Rule

If the ratio is all that is important one could eat all the steak he wanted as long as he put enough corn oil on top of it.

P (corn oil)
S (Steak)

The only trouble with it was it didn't work to lower the blood cholesterol. It was the absolute amount of saturated fat that was important. This is why they are now recommending everyone get below 10% of his calories as saturated fat.

Olive oil has a poor P/S ratio of 0.7. Yet, it is a good oil. In Crete where they consume as much fat as in the United States they have only one-tenth as many heart attacks. 80% of their fat comes from olive oil which is 76% oleic acid.

There is so much oleic acid in olive oil that there is not much room left for either the polyunsaturated or saturated fatty acids. The major saturated fatty acid that elevates blood cholesterol, you recall, is palmitic acid. There is only 9% palmitic acid in olive oil. Corn oil contains 8% and yet it lowers blood cholesterol. Stearic acid is 2% but it doesn't elevate blood cholesterol. So the absolute amount of palmitic acid is not high in olive oil and even though the P/S ratio is poor it is a good oil to use.

Cashews are another exception to the P/S ratio rule. The stearic acid is high, 11%, but the palmitic acid is low, %. However, the oleic acid is high at 70%. Any fat which is high in oleic acid cannot be high in either the polyunsaturated or the saturated fatty acids. Therefore, even though the P/S ratio for cashews is 0.47 they are a good nut because the absolute amount of palmitic acids is not high.

Avocados would be the other exception to the rule. The P/S ratio looks pretty good. It is 1.2. Yet, the absolute amount of palmitic acid is pretty high at 18%. So some physicians would have you not use avocados if your blood cholesterol were elevated. However, with the newer studies out now which show they do not cause a problem I would still allow avocados to be used in a cholesterol-lowering diet.

Nut Milks

Nuts are high in fat but the fat is of the right type. So they can be used although they should still be used sparingly because a high fat diet increases cancer risk even though if it is of the right type it decreases heart attack risk.

So here is how to make a milk from nuts that could be used in place of cow's milk.

Nuts (almonds, walnuts, ¼ - 1/3 C cashews, blanched or plain)		Blend all ingredients in blender. May be used as milk or cream on hot cereal.
Water	2 C	
Dates, pitted (optional)	2-3	
Banana	1	
Vanilla (optional)	¼ t	
Salt	pinch	

Other milks could be used such as soy milk. As usually made they do contain considerable sugar. Nonfat cow's milk could be used. There would be only 5 mg cholesterol per cup. The saturated fat has been removed. However, it still has the animal protein which elevates blood cholesterol but it is not nearly the problem the fat is.

4. Hydrogenation - Trans Fatty Acids

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When one hydrogenates corn oil to make a margarine he converts the linoleic acid to stearic acid. Stearic acid is metabolized somewhat like oleic acid and does not elevate blood cholesterol. However, in the hydrogenating process some trans fatty acids are made. The average American gets approx-

imately 8 grams of this a day. There is no evidence that these cause any problem with cancer or high blood pressure. It can elevate serum cholesterol but even then will not cause any problem if there is no cholesterol in the diet.

Margarines are far superior to butter because they have no cholesterol. They also have much less saturated fat while at the same time having more polyunsaturated oils.

Some margarines are better than others because they do not start out in making them with a fat that is high in palmitic acid, such as cottonseed oil.

But if anyone is concerned about too much saturated fat here is how one can make a low calorie margarine.

Low Calorie Margarine

1 lb. margarine (room temperature)
1 cup corn oil
1 cup water

Beat above ingredients well with electric beater. This may be frozen for keeping well.

Yield: 4 small margarine tubs.

Nut Butters

Nut butters could also be used in place of margarine.

One can make quite an acceptable spread from corn itself. Here is the recipe:

Corn Butter

1 T millet cooked with $\frac{1}{4}$ cup water.
2 7 oz. cans of whole kernel corn, drained and put through a Champion juicer.
 $\frac{1}{4}$ t salt.

Mix corn pulp and salt with 1 T cooked millet, drained. Place in blender until smooth.

Another type of spread could be a healthful jam. Instead of the usual jam which is 2 cups of sugar to 1 cup of strawberries here is one that is made just from fruit but even the children like it.

Apricot-Date Jam

Blend one cup of dried apricots with one cup pitted dates in pineapple juice.

5. Animal vs. Vegetable Fat

All animal products contain both cholesterol and the saturated fat which together tend to elevate blood cholesterol. The vegetable oils which contain linoleic acid tend to lower blood cholesterol levels. Therefore animal products are the foods that should be avoided.

The average American gets 36% of his calories from fat. Over half of his fat comes from animal products. If he would eliminate these foods his fat intake would be down to the recommended 20% of the calories. Most who give up the animal foods tend to use more vegetable oils so their fat intake is still too high.

Eggs are the single greatest source of cholesterol in the American diet. 36% of the cholesterol is from this source. So something must be done to take the place of scrambled eggs. Here is an idea:

Scrambled Tofu

1 block (1 lb.) tofu, drained
1 t oil
Place in skillet. Break up tofu with fork and spatula.

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1/8 t turmeric
1 t onion powder
1 t salt

Add to mashed tofu the above ingredients and cook until well mixed.

Eggs are also used to hold things together as a binder. A meat burger is held together by the blood and the fat. Vegetarians for years have used eggs to bind together the vegeburgers. Now an alternate has had to be found to replace the eggs. Potato meal, cooked rice or cooked oatmeal have been used for this purpose.

Vegeburger

1/3 cup VegeBurger
1/3 cup cooked oatmeal
4 T onions
1/2 medium potato, grated
1/2 t salt
1/4 t sage
1 T soy sauce
1/4 cup bread crumbs

Mix all ingredients. Form into patties and bake on oiled cookie sheet at 375oF. Turn over after 15 minutes. (Can use jar lid and ring to make patties uniform in size.)

How can a potato salad be made without eggs. Here's how:

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Potato Salad

Yield: 10 servings

Potatoes, cooked, peeled, diced	4 C	Mix all ingredients with soyannaise.
Celery, chopped	½ C	
Green Pepper, chopped	½ C	
Pimentos, diced fine	½ ½ oz. can	
Olives, ripe, sliced	¾ C	
Tofu, scrambled	¾ C	
Onions, chopped	¾ C	
Dill Weed	1 t	
Lemon juice	1 ½ T	
Soyannaise	1 ½ C	

Garnish with paprika, chopped parsley, radish roses and/or avocado slices.

If not served immediately add a little extra salt as the potatoes tend to absorb the salt.

6. Necessity for Some Dietary Fat

Adequate intake of the essential fatty acids is important for the following reasons:

- 1) It prevents essential fatty acid deficiency.
- 2) It reduces the risk of hypertension according to animal studies. Small animals given adequate linoleic acid do not get high blood pressure when given a lot of salt in their diet but do if there is inadequate linoleic acid. Some believe this occurs with humans also.
- 3) It reduces the platelet stickiness and the aggregation or clumping of the red blood cells.
- 4) It lowers the blood cholesterol further than one can do with a no oil diet. Years ago Ancel Keys showed that hospital patients had average cholesterol levels of 221 mg% at a time in our history when the average person was eating a 40% fat diet. When these patients had all fatty foods and oils removed from their diet and the fat intake was now only 11% of the calories the serum cholesterol level dropped to 186 mg%. When they then had corn oil added back to the diet so they were getting 37% of their calories from fat their serum cholesterol dropped even further down to 160 mg%.
- 5) It increases heart muscle contractility.
- 6) It reduces the risk of heart attack. In studying the linoleic acid content of fat depots in the people in various countries it was noted that the average levels were inversely related to heart attack rates. In another study it was shown the higher the percentage of the fat that was esterified with cholesterol (the fatty acids are connected to cholesterol as it travels around in the blood stream) that was linoleic acid the lower the risk of heart attack. Fortuitously they obtained blood from some patients just a few hours prior to their heart attacks and the levels were 23% which is about half the normal level of healthy people.
- 7) It lowers the risk of death from ventricular fibrillation. Ventricular fibrillation is easily produced in animals deficient in linoleic acid but difficult to produce in those with considerable of this in their diet. Two human studies suggest this is true with them also.

The biggest problem for some is how to replace the cheese. A lot of people like cheese. It is used in so many ways such as macaroni and cheese, pizza, lasagne and just to stuff celery sticks or to be used in sandwiches.

Here are suggestions how to make a more healthful cheese although one can now purchase commercially a non-dairy fat cheese (Soya Kaas, as an example).

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Cashew Pimento Cheese

Water	1 C	Bring water to a boil. Add agar flakes, boil until clear, stirring constantly. Set aside.
Agar flakes	4 T	
Cashews, raw	¾ C	Put cashews and sesame seed in blender. Blend till smooth, scraping side of blender with spatula occasionally. Add remaining ingredients & blend.
Sesame seed	2 T	
Pimentos	2 oz.	Add agar while blending.
Flake yeast (nutritional)	3 T	
Salt	1 ¼ t	Slowly add oil into blender while blending. Scrape.
Onion powder	1 t	
Garlic powder	¼ t	Add lemon juice to blender mixture while blending, and scraping. Cheese will thicken as it cools.
Dill seed	¼ t	
Oil	½ C	
Lemon juice	¼ C	

7. Which Oil Is Best?

There are three types of oils that are now found to reduce risk of heart attack but by three different mechanisms.

A. There is something in olive oil (and we don't know what it is) which keeps the arteries elastic. Small animals on specific oils all their lives were examined when they were old. Those fed olive oil had arteries just as elastic as when they were young. No other oil does that.

B. Corn, sunflower, safflower and a number of other oils contain large amounts of linoleic acid which tend to lower the serum cholesterol. These oils are good for this reason.

C. Canola (rapeseed) oil and soybean oil to a much lesser degree contain alpha linolenic acid some of which in the blood stream is converted to eicosapentaenoic acid (EPA that is common in fish oils). The EPA helps to keep the blood from clotting reducing the risk of a clot in the coronary artery resulting in a heart attack.

So these three types of oils are good for these very different reasons.

8. How Much Oil Should Be Used?

If 20% fat is considered ideal, and it is recommended that one-third should be from saturated fat, one-third from monounsaturated fat, and one-third from polyunsaturated fat, then at least 6% of the fat should be linoleic acid.

In a Pritikin type diet where no high fat foods such as soybeans, olives, etc. or oils were allowed there was 3% linoleic acid. How could one get the extra 3% needed to make up the recommended 6% linoleic acid. On a 2500 calorie diet it could be had in the following ways:

- 1.15 T. corn oil
- 1/6th cup walnuts
- 1/5th cup sunflower seeds
- 15 ears of corn (1800 calories)
- 94 olives (469 calories)
- 37.5 cups of brown rice (8700 calories)

On a Pritikin type of diet one took in 10% of his calories in the form of fat. If one used a tablespoon of oil a day in their food, as salad dressing, or in the bread they ate, that would provide another 5% fat on a 2500 calorie diet.

If he used some olives, nuts or avocados that would provide at least another 5% fat. This would make up the 20% that is recommended.

Therefore, one should use very little oil - not more than 1 or 2 tablespoons at the most each day to meet the recommended allowance.

Even though the polyunsaturated oils are very good in reducing heart attack risk it is important not to use much fat of any kind since it is a promoter of cancer. The saturated fats (animal fats) correlate more closely to cancers than do

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plant fats. However, even plant fats should not be used in great quantities because of this reason. If one did use a lot of oil, olive oil would probably be the safest from the cancer standpoint.

Pizza

Onions, sliced	½	Saute onions, mushrooms, green
Mushrooms, sliced	½ C	peppers and olives in oil. Set
Green peppers, diced	½	aside.
Olives, sliced	½ C	(If you prefer not to saute these
Corn oil	3 T	ingredients, arrange them on
		the pizza fresh and bake 5-10
		min. longer.)
Basic dough	8 oz.	Place dough into center of 12
		in. (1/6 recipe) pizza pan. Roll
		it to edge of pan & spread
Italian Sauce	1 C	Italian sauce on it.
*Tofu Cheese, shredded		Sprinkle cheese on top.
		Arrange sauteed vegetables on
Cheddar-style	¾ C	top and bake at 400 degrees F.
Mozzarella-style	¾ C	8 minutes.

*The tofu cheese is the Soya Kaas brand.

Italian Sauce

Onions, diced	½ C	Saute onions in oil.
Olive oil	2 T	
Tomato Sauce	3 C	Add tomato sauce, paste, water,
Tomato paste	1 ½ C	seasonings, lemon juice and
Water	1 qt.	honey to onions and simmer for
Sweet basil	2 T	10 minutes.
Italian seasoning	1 ½ t	
Garlic powder	1 ½ t	
Oregano	1/8 t	
Savory	1/8 t	
Salt	1 t	
Lemon juice	1 ½ t	
Honey	2 ½ t	

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9. Cholesterol vs. Saturated Fat

When cholesterol and saturated fat are both consumed saturated fat has twice the blood cholesterol raising effect as does cholesterol.

When there is no cholesterol in the diet saturated fat does not cause a problem from the heart attack risk standpoint. In monkeys atherosclerosis has been hard to produce without cholesterol in the diet. The Inter-Society Commission for Heart Disease Resources states:

“In the absence of dietary cholesterol, severe atherosclerosis has not been induced in nonhuman primates.”

Cholesterol comes only from animal products. It is not found in any plant used for food.

Baboons were fed a high saturated fat diet which elevated their serum cholesterol but there was no damage to the arteries. Only when cholesterol was added to the diet did vascular damage occur. In the majority of the studies with humans saturated fat does not elevate the serum cholesterol (although it did in one or two studies). Saturated fat without cholesterol in the diet does not damage the arteries.

10. Amount of Dietary Cholesterol

Blankenhorn placed patients with clogged coronary arteries on the American Heart Association Phase II diet which allowed 250 mg of cholesterol (but with less saturated fat - 5%). and found on examination one year later that the disease had progressed and the blood vessels of the heart were more clogged than before.

However, Ornish showed 82% of the patients with clogged coronary arteries who were on only 12 mg of cholesterol a day (also on 5% saturated fat) had a reversal of the atherosclerosis and the clogged vessels were beginning to open up.

A more recent study showed 32% of the patients had a reversal when the diet contained 100 mg of cholesterol each day.

A study of Adventist men showed those who were total vegetarians had only 14% of the expected coronary heart attack rate. The lacto-ovo-vegetarians had 39% of the expected death rate and the non-vegetarians had 56% of the expected rate. Why were there even the 14% if there was no cholesterol in the diet? No one in that study had been on this diet for over 5 years. It would be expected had they been on it for a long period of time that the death rate from heart attacks could have been reduced even more, and perhaps down to 90% of the expected. The non-vegetarians had a lower heart attack rate than usually found in the general population because they did not smoke and the amount of meat consumed was probably less.

The intake of cholesterol should be as close to zero as possible!

Macaroni and Cheese

Macaroni	½ lb.	Bring water with salt to a boil.
Water	2 ½ qt.	Add macaroni & boil for 10
Salt	½ t	min. Drain in colander.
Cashews, raw	1 C	Whiz cashews in blender with
Water	1 C	water.
Lemon juice	¼ C	Add lemon juice and seasonings
Yeast, nutritional	3 T	to blender and blend.
Salt	1 t	
Onion powder	¾ t	
Pimento	2 oz.	
Garlic powder	1/8 t	
Corn oil	¼ C	Add oil slowly to blender to
		thicken.
Bread crumbs	¼ C	Mix "cheese" sauce with
		macaroni, put in greased
		baking dish and top with bread
		crumbs.
		Bake for 30-40 min. at 350oF.

11. Your Body's Cholesterol vs. Food Cholesterol

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Pure cholesterol has not produced atherosclerosis in monkeys. It is the oxidized cholesterol that caused the damage. What the body makes is pure cholesterol. The body makes four times as much cholesterol every day as the average American gets from the foods he eats. That cholesterol which we obtain from animal products in our diet will contain some of these oxidized products. Even cottage cheese has been shown to contain considerable of the epoxides.

Foods which have been demonstrated experimentally to cause damage to the arteries are custards (such as puddings and ice cream), with their milk, sugar, and egg combination, Aunt Jemima pancakes with its powdered egg in the mix, and Parmesan cheese (which was as bad as lard in destroying artery wall cells).

We have demonstrated in the laboratory that oxidized cholesterol (epoxides) are hydrolyzed in the gastrointestinal tract to form triols which when given to small animals changed significantly three of the amino acids in the chain of amino acids which makes up the elastin of the arterial wall. This chain is controlled by one gene. It is possible that these triols are affecting that gene. This change in the elastin may be significant in the production of atherosclerosis.

12. The Original Diet

According to the Bible the diet first given to man was one of fruits, grains, nuts, and seeds. When man no longer had access to the Garden of Eden herbs or vegetables were added to the diet. This was considered the ideal diet by God Himself. Now scientists have come to the conclusion that such a diet is the optimum diet.

The total vegetarian has a lower heart attack risk than even the lacto-ovo-vegetarians. In 1970 the Inter-Society Commission for Heart Disease Resources recommended that we avoid egg yolks. The fat of milk and cheese should also be avoided.

For several reasons absolute avoidance of all milk can not at this time be recommended. A group of total vegetarians in California were studied and 30% had vitamin B-12 deficiency. This vitamin is produced by the bacteria in the small intestine but the non-biologically active form is also produced which competes with the active form for absorption. How much active B-12 is absorbed from these sources is not know but evidently is inadequate for many. Dr. Victor Herbert has stated only 0.1 mcg of B-12 is needed to be absorbed each day to meet one's requirement. Use of small amounts of nonfat milk would provide the necessary amount.

Studies in both Japan and in the United States show that those who use some milk have a lower intestinal cancer risk. Some have also suggested that beta carotene, the plant form of vitamin A, may be more effective if some vitamin A from animal sources is also consumed.

For these reasons it may be best to use small amounts of nonfat milk for the above reasons. Three cups a day would give you 15 mg of cholesterol which certainly should be the maximum for heart disease risk reduction.

Lasagne

Lasagna Noodles, dry	1 ¼ lb. (12 strips)	Cook according to directions. Set aside
Tofu, mashed	1 ½ C	Arrange in 9x12" pan in layers:
Tofu cheese, shredded (Soya Kaas brand)	3 C	thin layer of sauce, cooked lasagna noodles, sauce, mashed
Italian sauce	4 C	tofu, shredded cheese. Repeat until depth desired. For the top layer use only sauce and cheese.
		Bake at 350oF for 25-35 min. covered. Uncover, sprinkle with cheese. Bake until cheese melts.

(A quick method would be to use uncooked noodles, cover with foil and bake 1 hour and 15 minutes. It may take a little more sauce. Cashew pimento cheese may be used instead of the Soy Kaas.)

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13. What About Fish and Chicken?

A vegetarian Adventist man at age 35 lives 3.7 years longer than the non-vegetarian Adventist man. Meat users in the general population at age 40 have four times as many heart attacks as vegetarian men. Adventist men who are non-vegetarians have 3.8 times the risk of having diabetes on their death certificates as do vegetarians. Twenty years prior, at the beginning of the study, those who did not have diabetes were followed and non-vegetarians were much more apt to get diabetes. This suggests that meat increases the risk of diabetes or that fruits and vegetable use decreased it.

In Lev. 3:17 the fat and the blood of even the clean animals were not to be used.

Chicken has almost the same amount of cholesterol as beef has (69 vs. 70 mg/100 gm). It is lower in saturated fat, however, than beef. Because it is lower in saturated fat chicken has been promoted to use in place of the red meats.

Dr. Jeremiah Stamler reviewed four large epidemiological studies that had been done since 1981. He found that if a person is consuming 2000 calories a day and increases his dietary cholesterol from 200 mg to 600 mg a day his heart attack risk increases by 30%. If he has been used to 600 mg of cholesterol a day and reduces it to 200 mg he decreases his risk by 37%. That is the equivalent of living 3.4 years longer.

Fish was thought to lower the heart attack risk. Eskimos who consume considerable fish do have less heart attacks, however, their death rate from cerebral hemorrhage is 34-50% higher than with the general population in the other states. It should be said that thrombotic strokes are much more common than those due to hemorrhage.

Fish-eaters have a higher blood cholesterol level than do lacto-ovo-vegetarians and are therefore at higher risk than they are. The early studies from the Netherlands suggested those who ate one ounce of fish a day had a 50% reduction in heart attack risk. A total vegetarian diet will reduce the risk in men by 90% (based on the Adventist men studied) while not elevating the cerebral hemorrhage risk at all, in fact, it will even lower this risk. Fish contain 40-60 mg of cholesterol per 3.5 ounce serving.

Fish oils have not been tested for chemical contamination from mercury, arsenic, or other substances and therefore could be quite hazardous to use.

Fish oils have been shown to interfere with the production of insulin in diabetics and is even now thought to possibly do the same for non-diabetics. Scientists recommend fish oil capsules not be used by diabetics. Fish will lower the serum triglyceride levels but in the process often elevates the serum LDL cholesterol (the bad kind in the blood).

Fish are contaminated with industrial pollutants and many now have cancers as a result. Fish contain many double-bonds in their long-chained unsaturated fatty acids which oxidize readily forming peroxides which some consider to be carcinogenic.

The World Health Organization's expert committee on coronary heart disease prevention recommends that emphasis be placed on the use of fish, poultry and lean meats, rather than the red meats, but that even these be used in small portions and less often as the main dish. So present recommendations of the scientists is that even the best of the meats should be used less often.

14. Where Will We Get Our Protein From?

If one gets enough calories to eat he will almost always be sure to get enough protein. The average American for an example, is getting 12% of his calories from protein. If he gets 10% of his calories as protein he will get as much as is recommended by the Food and Nutrition Board of the National Research Council. If he gets 5% of his calories as protein he will get his minimum requirements.

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For example, if one-third of a person's calories came from each of the following three groups of foods:

Ave.

Greens		30+% of calories as protein	
Legumes		22% (same as in milk)	23%
Potatoes		8%	8%
Grains - Rice	7%		
Corn	10%	8%	
Wheat	13%		
Fruits			8%
		Ave.	13%
Even if diluted by 50% with sugar and oil			= 6.5%

13% of his calories would be from protein on such a diet. This would give more than the recommended allowance of protein. But the problem is that we don't eat like that. We dilute our food nutrients and protein with sugar and oils. Even if diluted by 50% one would still get 6.5% of his calories as protein which would still meet minimum needs. In other words, if an attempt was made to make you protein deficient it would be very difficult to do as long as you were getting the calories you should have.

Protein deficiencies are common in some countries in the world. This occurs most commonly with children from one to five years of age. This occurs because they do not get enough calories or food of any kind. In the United States protein deficiency is rare. It can occur in adults who have kidney disease, or a running bed sore where protein is being constantly lost from the body.

But what about the quality of the protein? Don't we have to get the right quality? All proteins, except gelatin, in foods we eat contain all the essential amino acids, those that the body has to have in the food because the body can not make them. The proportion of one amino acid to another is important in the amount of the total food one eats. On a mixed diet this is not important. It used to be thought that at every meal a complete protein type of food was necessary. Now experiments have shown that not to be the case. The early studies were done on diets made up of isolated amino acids. We don't eat just isolated amino acids. We eat food. In food you may have less of a particular amino acid but it will not be entirely absent except in the case of gelatin which lacks tryptophan. Therefore, the deficiency of a particular amino acid in food is not important with the great excesses that the Americans get in protein in their diet.

A study was done with dogs. One was given just protein, another just carbohydrate, another just fat. At the end of 1.5 hours a tube was placed in the duodenum in the intestinal tract and the contents removed from the intestines and analyzed for amino acids. One could not tell which dog had been fed which meal by this analysis. All the amino acids needed were present. Where did they come from if they were not in the diet? They came from the intestinal juices and pancreatic enzyme secretions. Enzymes are proteins. Even more of the protein came from the sloughed off cells from the stomach into the intestines. Therefore, these dogs had all the amino acids they needed. This doesn't mean one could go on forever without any protein but it is known that one does not need to have a so-called complete protein at one time.

We get protein in almost all the foods we eat. Asparagus has 36% of its calories as protein, tomatoes 18%. They do not have a lot of protein but for the calories they have they do give more than their share in protein.

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THIRD NIGHT—BREAKFAST; WEIGHT CONTROL; TRIGLYCERIDES

Theoretical Considerations

1. Importance of Breakfast
2. Significance and Cause of Elevated Blood Triglycerides
3. Weight Control
4. Fiber
5. Beta Carotene
6. Nuts
7. Salt

Practical Considerations

1. No Cholesterol, Low Saturated Fat Breakfast
2. Quick Breakfasts
3. Variety of Breakfasts

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THIRD NIGHT—TYPES OF BREAKFASTS

A. The Cereal and Milk Breakfast

1. Dry Cereals - Granola
2. Hot Cereals - Oatmeal, Rice, Millet
Wheat berries

B. Vegetable Breakfast

1. Potatoes - Breakfast Hash
2. Hash Browns
3. French Fries
4. Chicken-Style A La King

C. Fruit Toast

1. Grape Juice, Zwieback with Nut Butter
2. Blueberries
3. Apricots or Pears

D. Oriental Breakfast

1. Wok Cooked Vegetables on Brown Rice

E. Waffles; French Toast

1. Oatmeal Waffles with Toppings

Banana Cream Pie Filling

Berries - Strawberries, Blueberries, Boysenberries
Persimmons or Peaches
Apricot-Date Jam; Discuss others such as Applesauce

2. French Toast with Toppings

F. "Bacon and Egg" Breakfast

1. Scrambled Tofu - Spanish or Chinese Style
2. Stripples

WHAT ELSE GOES WITH BREAKFAST?

1. Hot Drinks - Roma
2. Fruits on Cooked Cereals or Otherwise
3. Breads of Different Types

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THIRD NIGHT—BREAKFAST; WEIGHT CONTROL; TRIGLYCERIDES

1. The Importance of Breakfast

Breakfast is the most important meal of the day. Two studies show when calories are eaten in the morning they do not put on as many pounds as when they are eaten in the evening. From this standpoint a good breakfast is important for those who wish to keep their weight down.

In the Iowa Breakfast Studies the breakfast skippers were not able to produce as much work in the factory. This was true even if they were given something to eat after they came to work.

Breakfast skippers have a delayed reaction time and therefore were more apt to have accidents at 10-11 o'clock in the morning. This would be the time the blood sugar would be low.

Even students at school were not as alert or apt in learning if they had skipped breakfast.

In Breslow's study of 7000 men he showed the mortality rate in nine years was higher in those who skipped breakfast.

Let's list at least six major breakfast types and how we can make them useful in helping to prevent heart disease. The first one would be the common milk and cereal breakfast. One could use nonfat milk. Ideally one should use whole grains rather than the refined variety. Many like dry cereals but often they are refined and have considerable sugar added. Home-made granola would be an ideal dry cereal. Granola as often sold in the market has 14-21% sugar added. But try this recipe:

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Crunchy Granola

Oats	7 cups	Mix these ingredients and set aside.
Wheat Germ	1 cup	
Sesame Seeds	½ cup	
Sunflower Seeds	¼ cup	
Almonds, chopped	1 cup	
Pecans, chopped	1 cup	
Corn oil	½ cup	Blend these ingredients in blender
Dates, pitted	1 ¼ cup	until smooth. Pour this mixture over
Salt	1 t	the above mixture and mix well. Rub
Vanilla	1-2 t	between hands to break up large
		clumps.

Bake in shallow pan at 225 degrees for 1 ¼ hours for quick oats (1 ½ hours for old fashioned) or until lightly browned. Stir every 15 minutes.

Note: Store in air tight container.

Cooked cereals are usually less refined and more nutritious than the dry cereals. Try brown rice, perhaps with raisins, or millet or wheat berries.

2. Weight Control

Obesity increases the risk of heart disease primarily only if one has hypertension, diabetes or high blood lipids. To reduce in weight use more foods in their natural state. The meats are high in fat and therefore high in calories. Avoid the meats. Use more whole grains in order to get your fiber. With lots of fiber in the diet there will be less fat and you will get your stomach full before you've had very many calories. Drink lots of water. Some eat when they are thirsty thinking they are hungry. Skipping supper but eating a good breakfast is the most definitive way to be sure of losing weight. Calories eaten in the evening put on more pounds than the same number eaten in the mornings according to two studies. (Note the Handout on Weight Control Principles.)

Make breakfast a hearty meal. It should be the best meal of the day. It is perfectly proper to have vegetables for breakfast. Here are some quick ways to fix potatoes without a lot of fat.

Breakfast Hash

Cooking Temp.: Medium - High Yield: 8 servings
Cooking Time: 5 - 10 min. Portion: 1 C.

Corn oil	2 T	Saute onions in oil.
Onion, diced	1 C	
Potatoes, cooked in skin, peeled & diced	3.5 C	Add potatoes, proteena, cubed bread and salt. Stir together.
Proteena, diced	½ 20 oz. can	Continue cooking until golden
Bread, cubed	1 C	brown.
Salt	1 t	

Note: You may place it in the refrigerator. When ready to use, reheat and brown.

Hash Brown Potatoes

Potatoes, cooked	3 lbs.	Steam or cook potatoes until ¾ done. Cool. Peel & shred.
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Corn oil	3 T	Place oil in skillet and add
Salt	2 t	shredded potatoes. Brown and stir as necessary..

TIP: Make Waffle Iron Hash Browns! Treat preheated waffle iron with vegetable cooking spray and grate a raw potato onto grid. Close waffle iron and bake hash browns on high heat for 10 minutes.

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French Fries

Slice potatoes in french-fry style. Use 2-3 T oil to lightly coat fries (do not allow potatoes to get greasy). Spray cookie sheet lightly with Pam and spread fries flat on sheet. Bake at 450oF for 20 minutes or until golden brown. Sprinkle lightly with salt.

If you want something that tastes a little more like meat you might try this next recipe as a topping for rice, noodles or potatoes or even by itself.

Chicken-Style A La King

Cooking Temp.: Medium
Cooking Time: 10 minutes

Yield: 10-12 servings
Portion ½ Cup

FriChick	12 ½ oz. can	Drain FriChick and save liquid. Dice FriChick. Set aside.
FriChick liquid	to equal	Add enough milk to FriChick
Milk, soy or nonfat	2 ¼ cups	liquid to total 2 ¼ cups.
Milk, soy/nonfat	¼ cup	Combine flour and remaining milk. Add to above milk, cook until thickened.
Flour, white, unbleached	¼ cup	
Peas, frozen	½ cup	Add diced FriChick, peppers, pimento, mushrooms and seasonings to above sauce.
Green peppers diced	½ cup	
Pimento, diced	2 T	Serve hot over toast.
Mushrooms, diced	½ C	
Flavored salt seasoning	2 ½ t	
Turmeric	1/16 t	

3. The Triglyceride Factor

The cholesterol in the blood along with the triglycerides (fats) have helped to narrow the coronary arteries. The triglycerides make the platelets sticky and the red blood cells aggregate forming clumps. These can go into the coronary arteries and make a clot. This will occlude the opening entirely not allowing any blood to get through. Without oxygen from the blood's hemoglobin the section of the heart muscle supplied by the occluded vessel dies. If a big enough piece of muscle dies the patient dies.

A blood triglyceride level below 100 mg% is ideal. In Sweden they noted twice as many heart attacks in those with levels above 176 mg% as compared to those under 100 mg.

Hopefully patients can get to a hospital within 4 hours of the heart attack. In 50% of such a clot could be pulled out of the coronary artery if a tube were placed up into the artery. There are now medications that can be given to dissolve these clots.

What are the major causes of elevated blood triglycerides?

A. Obesity is the commonest cause. Reduce in weight.

Glucose has been thought of as going into the fat cell and being converted to fat. However, if the fat cell is already full of fat and anymore would get in there the fat cell would pop. Insulin resistance develops. This means something occurs with the insulin receptor cells on the wall of that fat cell which will not allow that glucose to get into the fat cell. The blood sugar builds up. The pancreas says to itself that it must produce more insulin to force that glucose into that fat cell. Insulin is atherogenic. It helps to cause hardening of the arteries. For a while with high blood insulin the blood sugar level is kept down. Then when the pancreas gets tired and doesn't produce so much insulin the blood sugar goes up and the doctor makes the diagnosis of diabetes. He then prescribes insulin which again aids in the producing of atherosclerosis.

B. Sugar with saturated fat and cholesterol as in ice cream can elevate triglycerides. Some scientists argue against this possibility. However, a group of volunteers (students) were placed on a diet of ice cream only. The triglycerides increased greatly. In fact in two weeks the levels may double. When the same individuals are given 12 servings of fruit (to get enough fructose) a day for the most part their triglycerides are not elevated. God knew how to package sugar. When it is refined some of the important nutrients are discarded.

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Chewing on sugar cane may not cause tooth decay but refined sugar, because of its lack of phosphorus, will cause it especially when taken between meals. Something of a similar nature may be happening in regards to the natural fruit versus the refined sugar. More research needs to be done on this point.

C. Diabetes is a common cause of high triglycerides. In fact often this has been a method of finding diabetics before their fasting blood sugar has become very elevated. With a high triglyceride level a glucose tolerance test may show abnormal findings.

D. Alcohol is also a cause. Some individuals are very sensitive to alcohol and just small amounts will elevate their triglyceride levels. With others it may take quite a lot to do it.

E. A few women may have elevated triglyceride levels due to their taking of estrogens.

F. A few individuals have a genetic lack of the enzyme lipoprotein lipase. This enzyme breaks down fat or triglycerides into its component parts which are glycerol and free fatty acids. Persons with this problem have to go on an extremely low fat diet such as Pritikin would recommend. They don't get heart trouble because a lot of their triglycerides are not in the VLDL component of the blood but are in the chylomicrons. These individuals do often get pancreatitis and die from this. Triglycerides may go up to 5000 or higher.

Here is the triglyceride molecule:

CH₂-OH

HO-CH

CH₂-OH

If the H (hydrogen) after the O (oxygen) is removed and a fatty acid is attached it would be a monoglyceride. If it was done on a second place on the molecule it would be a diglyceride. If it was done in all three places it would be a triglyceride and then we could call it a triglyceride.

If your level is elevated reduce in weight if overweight, avoid sugar especially in combination with cholesterol and saturated fats as in puddings or ice cream, eliminate the use of alcohol, and keep your diabetes under control if you have diabetes.

Try making breakfast without animal fat and without refined sugar. Fruit toast can make a substantial breakfast.

Fruit Toast

Use zwieback (twice-baked bread). Spread the zwieback with a nut butter (peanut, almond, cashew). Thicken unsweetened grape juice with a little cornstarch and heat on the stove. Then pour over the zwieback.

Make zwieback by placing bread on a cookie sheet and baking in the oven at 200oF. Bake until hard and slightly brown.

Variations: Pears, boysenberries, blueberries, cherries, raisins, peaches, etc. may be used. If not sweet enough add some grape juice to sweeten.

4. Fiber is of two major types. The insoluble fiber as in wheat bran helps to reduce the risk of colon cancer. The soluble fiber is the type that helps to lower blood cholesterol and triglyceride levels. The best soluble fiber sources for this purpose are oats, beans, apples and barley.

It takes approximately one cup of oats (calculated on a dry weight basis) to make a dent in your blood cholesterol level. However, if one eats some apples or beans he would not have to consume that much oats. If you don't care for oatmeal mush as a breakfast cereal why not try it in the form of waffles.

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Oatmeal Waffles

Turn on waffle iron to high.

Heat for 10 minutes.

Oats	2 C	Blend all ingredients in blender.
Water	2 C	Let stand for five minutes.
Banana	½ medium	
Soyagen or nonfat milk powder	2 T	
Oil	2 T	
Salt	½ t	

Spray waffle iron with Vegetable Cooking Spray. Pour mixture in waffle iron (do not open for 10 minutes.)

Can add more water. The lighter the batter the lighter the waffle. The longer it stands, the thicker it gets. When it is thick more water can be added to make the waffle lighter.

Can use liquid lecithin (1 T) or 2 T nuts in place of oil. This is almost necessary when using the Belgian waffle irons to keep from sticking.

Can use a couple of dates instead of Soyagen powder to produce the browning effect of the waffle.

Toppings for Waffles, French Toast, etc.

Banana Cream Pie filling

Persimmons, fresh

Apricot-Date Jam

Sliced fresh peaches (may mix with bananas)

Applesauce, hot or cold, over nut butter spread

Unsweetened, canned fruit, thickened with cornstarch

Date butter

Blueberries, boysenberries, cherries, raisins, strawberries thickened with corn starch

French toast is usually made with eggs but here's how you can have it for breakfast without eggs.

French Toast

Water	¾ C	Blend these ingredients in blender until smooth.
Cashews, raw	½ C	
Dates	2	
Orange Juice frozen concentrate	2 T	
Salt	1/16 th t (optional)	

Bread, Whole Wheat 7 slices Dip bread into mixture. Lightly spray skillet with vegetable oil spray. Cook slices on medium low heat until lightly browned. Turn over and brown other side. This is easily done by putting on a cookie sheet and browning in the oven (rather than using the skillet).

5. Beta Carotene

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Physicians who had one heart attack were given either a placebo or aspirin and it is was found that those on the aspirin had only half as many second heart attacks as those who did not take the aspirin. Some of those physicians were given either beta carotene or a placebo. Those taking the beta carotene had only half as many strokes and heart attacks as those who did not get it.

For this reason many wished to buy beta carotene pills. But this is not the way one should do it. For there are 200 carotenoids, or similarly related compounds to beta carotene in foods. If you take just the one you may be missing out on their other 199 which could be doing you a lot of good. For example, in your blood stream are 5-10 of these various carotenoids and the one at the highest level is lycopene. Pancreatic patients have the lowest level of these in their blood stream. It is lycopene which makes the red in strawberries and tomatoes. Tomato users have been found to have the lowest risk of pancreatic cancer. It is for reasons like this that scientists are not recommending beta carotene but are recommending food which has not only beta carotene but many other good things in it that can help to reduce the risk of chronic disease.

Another good substantial breakfast is the "bacon and egg" breakfast without the bacon and eggs. You can use scrambled tofu for the eggs. It can be varied to be like the Chinese might do with mushrooms or like the Spanish might do with tomatoes. You could use a soy meat analog like Stripples for the bacon.

Scrambled Tofu with Mushrooms

1 c. sliced fresh mushrooms	1 c. celery, sliced
1 c. chopped green onions	2 T vegetable oil

Put all into a frying pan, cook until half done. Add 1-2 cups tofu cut in cubes. Add 1 t. seasoning such as Savorex or Vegex mixed with 3 T. hot water. Add this to the frying pan and cook slowly until vegetables are almost done.

Served on rice makes a good breakfast. 1-2 cups of Chinese peas may be added to the above frying pan and cooked for only the last two to three minutes.

Variation: Use of tomato without the Chinese vegetables can make it more Spanish style.

Stripples

Stripples comes in a package. It may be fried in an electric skillet. Put from frying pan onto absorbent type paper for a few minutes then place on a plate and serve.

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6. Nuts

Men who ate nuts daily had half the risk of a fatal heart attack as those who rarely ate them. Studies now show that walnuts and almonds have a good effect on lowering blood lipids. Walnuts are high in polyunsaturated fatty acids. Even the lysine to arginine ratio of almonds is 0.2 which helps to lower blood cholesterol in animal studies but when it is changed to 2.0- as in casein, the milk protein, it elevates serum cholesterol.

The evidence is now clear that animal protein also increases the risk of heart attacks. Soy protein has been compared to milk protein. For those with elevated blood cholesterol soy protein will increase the insulin in the blood and then it drops down again whereas with the milk protein the insulin continues to go up.

7. Salt

A high intake of salt increases the risk of high blood pressure. Hypertension is a risk factor for heart attack. Not more than one teaspoon of salt a day should be taken. Salt is 40% sodium. Sodium has only half the effect at elevating blood pressure as does sodium chloride (salt).

Reducing in weight, if one is overweight, will help to lower the blood pressure in more people than will the reduction in salt intake. However, both are important.

In the natural foods there is not much salt or sodium. Salt the food as necessary in the kitchen but don't put the salt shaker on the table. Use more foods in their natural state and one will not need so much salt. Undercook the vegetables as the Orientals do and there will not be the need for so much salt. Remember the three greatest sources of salt from the foods we eat are processed grains as in pies, cakes and cookies. Then comes meats and dairy products which are high in sodium. (Note the Handouts on Sodium.)

What else goes to make up a good breakfast? Many use coffee. Some forms do elevate blood cholesterol levels. At least it has been shown that coffee drinkers do have more atherosclerosis in their blood vessels. Some studies show that it increases the risk of colon and bladder cancers. It does decrease the absorption of iron, calcium and vitamin B-1. But why not try Roma, a cereal coffee made from barley and chicory. People often say it tastes just like coffee.

Vary the whole grain breads you serve for breakfast. This is also the meal where there should be an abundance of fruit and fruit of a wide variety. Use it on your breakfast cereals or just as it is.

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FOURTH NIGHT—SUGAR AND HYPERINSULINEMIA

A. Theoretical Considerations

1. Hyperinsulinemia
2. What's Wrong with Sugar?
3. Where's Our Sugar Coming From?
4. Natural vs. Refined Sugar
5. Recommendations on Sugar Use
6. Animal Protein and Coronary Heart Disease Risk

B. Practical Considerations

1. Desserts without Added Refined Sugar, Honey, or Artificial Sweeteners
2. Desserts Low In Fat
3. Desserts with Fat of Right Type

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FOURTH NIGHT—DESSERTS

A. Low Fat Desserts

1. Banana Ice Cream
2. Apple Crisp
3. 4 Fruits in Parfait Glasses
4. Pineapple Boats; Watermelon May Baskets; Persimmon in a Cup
5. Banana on a Stick

B. Fat of Right Type

Pies

1. Banana Cream
2. Whole Wheat Pastry Flour Pie Crust
3. Carob Pie
4. Fresh Apple Pie
5. Raisin Tarts
6. Sugar Cubes in Pyrex Pie Plate Demonstration

Candy

7. Carob Fudge

Cookie

9. Date Bar
10. Princess Bar

C. Sweet Drinks

1. Banana-Strawberry- Pineapple Juice Drink
2. Lemonade without Sugar

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FOURTH NIGHT—SUGAR, HYPERINSULINEMIA

DESSERTS

1. Hyperinsulinemia

Hyperinsulinemia is the latest factor that has been discovered that has now been added as a risk factor for heart disease. Those who are obese, pre-diabetics, diabetics on insulin, hypertensives tend to be hyperinsulinemic.

Insulin helps to produce atherosclerosis.

There is no medication to lower blood insulin. However, some things can be done to reduce these high insulin blood levels. Reduction of sugar use, reducing in weight, getting on a good exercise program to increase the ability of the insulin receptor cells to do their work are things that are useful in handling this problem. For this reason alone one should limit his use of sugar.

2. Sugar

Too much sugar causes a number of problems. It increases tooth decay and especially so when consumed between meals. It decreases phagocytosis or the ability of the white blood corpuscles to engulf and destroy germs. This effect occurs when it is consumed between meals. Economically it is the poorest buy for the dollar because one doesn't get many nutrients such as vitamins or minerals when buying sugar. Sugar is considered to be an empty calorie food or one without much in the way of vitamins and minerals.

Just over a quarter of our sugar comes from purchasing it in 5 and 10 lb. sacks at the grocery store. Just a little under a quarter of our sugar comes from the soft drinks we use. Then about a fifth of it comes from the usual pies, cakes and such things.

The differences between refined sugar and sugar in the natural state are three:

1) When one consumes sugar in food in the natural state he usually gets a considerably less quantity of sugar. For example, 5 apples and 1 banana split both contain 25 t. of sugar. But how many will sit down and eat 5 apples at one time like but certainly one would consume the whole banana split at one time.

2) The speed with which the sugar is absorbed makes a great deal of difference. In the banana split the sugar from table sugar will be absorbed very quickly elevating the blood sugar considerably. This makes the pancreas produce a lot of insulin to knock that blood sugar down quickly. This results in a hypoglycemic response with a blood sugar level lower than the baseline level at the beginning. In the case of the apples the soluble fiber, pectin, keeps the sugar from being absorbed too quickly so the blood sugar level never does go up near as high as with the banana split. Therefore, not as much insulin is produced and one does not get that severe hypoglycemic response.

3) What else comes in the package with the sugar makes a difference also. In the banana split you have cholesterol. There is no cholesterol in the apples. The combination of sugar with cholesterol and saturated fat from the milk, sugar and egg combination has a potentiating effect on elevating blood cholesterol and blood triglycerides (fats). In the apples you have the soluble fiber, pectin, which attaches itself to the cholesterol and triglycerides in the intestines and keeps it from being re-absorbed and it is eliminated from the body. This lowers the blood cholesterol and triglyceride levels and thus reduces the risk of heart attack. Usually in the natural state sugar is connected with many other good nutrients as compared to when it is in the refined state.

Is there a difference between honey and table sugar. Table sugar is sucrose, a disaccharide, or two simple sugars hooked together. The one is glucose and the other is fructose. Glucose comes from the breakdown of starch as found in potatoes or bread. It does not tend to elevate blood fats or triglycerides. Fruits contain considerable fructose and thus it is called fruit sugar. When separated out from the fruit it tends to elevate blood fats but in the fruit it is not so likely to do so. When table sugar, sucrose, is ingested the two simple sugars soon are no longer hooked together when in the gastrointestinal tract and then one could call it honey. That is what honey is to start with - 50% fructose and 50% glucose. Honey is therefore very similar to table sugar. Fructose is sweeter than glucose and honey is sweeter than table sugar and for this reason if one uses less of it to sweeten foods it may be useful.

The Bible states that honey is good for us but also warns against its overuse in Prov. 24 and 25. The average American is getting too much sugar. The industry sells 153 lbs. a year for everyone in the U.S. It is recommended that not more than 10% of our calories come from refined sugar (15 t. a day vs. twice that which many get).

Let's look at low fat desserts and also desserts without added sugar.

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Banana Ice Cream

Very ripe bananas

Pineapple juice or concentrate

Peel bananas and cut approximately 2 inches long and dip immediately in concentrated pineapple juice. Place dipped bananas in zip-lock freezer bags and place in freezer. When frozen (may take up to 8 hours) take out just when ready to serve. Put through a Champion juicer and it comes out looking like a frosty freeze.

Variations: Run alternately with the bananas some frozen strawberries through the Champion juicer to make strawberry ice cream.

Add strawberries as a topping to make a sundae.

May wish to add walnuts to the top in making the sundae.

3. Animal vs. Vegetable Protein

A comparison was made between casein, a protein in milk, and protein, a plant protein. For those who have elevated blood cholesterol the soy protein produce an elevated serum insulin level and then it returned to normal. With casein the insulin level goes up as high as that from using the soy protein but then it continues to go up even much higher instead of coming back down right away.

The evidence is that animal protein increases the risk of heart disease as compared to plant proteins. The studies on high blood insulin is one piece of evidence for that. The lysine to arginine ratio of 0.2 that is in almonds lowered blood cholesterol levels whereas if the ratio was 2.0 as in casein it increased it. This is a typical difference between animal and plant proteins. Dr. K. K. Carroll in Canada has done many studies and has reviewed this subject quite well. He points out that the vegetable proteins do lower blood cholesterol. Studies in China where the average blood cholesterol is low there is still a great deal of difference in heart attack rates. According to Dr. Campbell who did studies this is probably due to the variation in animal protein intake.

Let's look at some other low fat desserts.

Apple Crisp

6 large red delicious apples, peeled and sliced

20 soft dates cut in small pieces

1 cup water (or 1 cup pineapple juice)

Place apples and dates in baking dish.

Topping: 2 cups quick cooking oatmeal
1 cup whole wheat pastry flour
½ t. salt

Mix the above ingredients well. Into a cup, mix ½ cup oil and ¼ cup water with a fork and add to oats and flour. Mix well. Put topping on apples and dates.

Bake on bottom rack at 350-375oF for 45 minutes or until done. If topping browns too quickly, lower temperature, or preferably put foil on top of dish.

Variations: Add ground nuts, sesame seeds, sunflower seeds to topping to reduce oil.

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4 FRUITS IN PARFAIT GLASSES

Four volunteers (usually men do well at this) are needed to come forward. On the table four unsweetened fruits, frozen blueberries, banana slices (covered with pineapple juice so as to turn in color), frozen strawberries, and pineapple chunks (canned/or frozen). Each volunteer is to fill up a large parfait glass (all do it at the same time) with these items in any combination they wish. When completed they all will turn towards the audience and display their creations. The colors are beautiful. Who could make any better dessert? These could be used for banquets.

Note this persimmon in a dessert cup or whizzed up persimmon in a dessert cup. Here is another fruit used well as a dessert. It is colorful, sweet, nutritious and delicious.

Advantages of Fruits

Fruits have so many advantages. They have no cholesterol. They have very little fat, except for olives and avocados. They have, therefore, very little saturated fat. One doesn't feel the need for sugar when using sweet fruits. We use too much salt but would not feel the need for salt if we used a lot of fruit. Too much water at a meal is not good. When using fruit one feels no need for a cup of water on the table. Fruits when unsweetened with no added sugar and used in the natural state are not high in calories. One can do less cooking using fresh fruits and this would conserve fuel which is getting more and more expensive.

Fruit Decorations

One eats with his eyes as well as his taste. Fruit can beautify a meal to make it look not only appetizing but festive as at a banquet. Here are some fruits as decorations but which can also be used as part of the meal, either as salad, dessert, or foods on a toothpick to be eaten out of hand.

(Have you seen pineapple boats with fruits of various types in the boats. Fruits can be displayed beautifully. A nice tray loaded with various types of fresh fruits covered with several types of grapes makes a lovely display. A watermelon May basket with melon balls and other fruits in the hollowed out center makes a beautiful display also.)

Some desserts may have fat in them but the fat is of the right type. It might be from nuts or polyunsaturated oils. These would help to decrease heart attack risk. However, even though they are of the right type one should not get too much of them as they are promoters of cancer. Saturated fats or animal fats are greater promoters of cancer than vegetable fats. Here are some desserts that contain fats but of the right type. These desserts are without added refined sugar.

FATS OF THE RIGHT TYPE

Banana On A Stick

4 T Carob powder
1 cup hot water
½ cup dates
½ cup peanut butter
1- 1 & ½ t imitation vanilla extract
1/8 t salt

Whiz these ingredients in a blender.

4 Bananas, ripe
1 - ½ c. chopped peanuts or other nut

Peel ripe bananas and cut in two pieces. Insert popsicle sticks. Coat banana with above fudge frosting and cover with chopped nuts. Freeze.

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Carob Cream Pie

1. Measure into blender $\frac{1}{2}$ cup of raw cashews. Blend at high speed until nuts are finely ground. Add 2 cups boiling water and blend. Then add 20 pitted dates, 1 t. vanilla, 2 T carob powder, and $\frac{1}{2}$ t salt. Blend again.
2. Pour into saucepan. Bring to boil, stirring constantly to prevent scorching.
3. Combine in small cup $\frac{1}{4}$ cup water and $\frac{1}{4}$ cup cornstarch. Mix well. Put mixture slowly into hot cashew mixture, stirring vigorously to distribute evenly and quickly. As mixture begins to thicken, stir gently to prevent scorching. Cook about 1 minute more until thick.
4. Slice 1-2 banana lengthwise into cooled whole wheat pastry pie crust. Cover bottom of the crust with the bananas.
5. Pour filling into pie shell. Cool 15-20 minutes. Garnish with scored bananas on the top.
6. Cool 1 hour at room temperature. Refrigerate at least 3 hours before serving.

Here is what it looks like.

Fresh Apple Pie

2-1/2 cups sweet apples, grated	$\frac{1}{4}$ cup walnuts, chopped
3 cups unsweetened pineapple juice	$\frac{1}{4}$ cup chopped dates
2 T cornstarch	1 baked pie shell
$\frac{1}{8}$ t salt	

Grate apples on a medium shredder into pineapple juice. Keep apples covered with juice. Refrigerate until ready to make the pie, then drain the apples and heat 2 cups of the juice.

Add salt to the cornstarch and mix with a small amount of cold juice. Stir into the hot juice and cook until thickened. Set aside to cool.

Fill 8 inch baked pie shell with the apples and top with the thickened juice. Sprinkle with nuts and dates.

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Raisin Tarts

Use whole wheat pastry flour pie shells (size made in muffin pan), unbaked.

Filling:

2 cups raisins

2 cups water

2 t vanilla

1 t lemon juice (optional)

Boil raisins in water and
vanilla for 5-6 minutes.

Mix 2 t cornstarch with 4 t water and stir into raisin mixture. Cook until thick but a little juicy.

1 cup chopped nuts.

Put filling into unbaked tart shells. Top
with nuts. Bake 15-20 minutes at 350°F.
Let cool. To remove from tins, place
cookie sheet on top of muffin tin and
turn upside down. Then put plate over
tarts and turn over again, carefully.

Sugar Cube Illustration

After the pies have been demonstrated do this illustration with sugar cubes. Have an empty Pyrex pie plate (7 in.). A volunteer is needed to come forward and count aloud the number of sugar cubes from a box with ½ t size sugar cubes into this empty pie plate. When he counts to 64, stop. That is 32 t. of sugar the amount that Betty Crocker had in her good banana cream pie recipe. Continue counting. Stop at 96. That is how many Betty Crocker had in her berry pie recipe. But we want an apple pie. Continue counting. Stop at 144. That is how much sugar there is in her apple pie recipe. Now we want a lemon pie. Continue counting. Stop at 192. That is how much sugar there is in her lemon pie recipe. We won't discuss a rhubarb pie. If one could cut the sugar content of the usual pie recipe in half, no one would know the difference. But sugar is not really necessary to making good pies.

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Carob Fudge

In a sauce pan or double boiler combine:

- ½ cup water
- ½ cup carob powder

Bring to a boil, reduce heat; cook, while stirring approximately 5 minute, or until water is absorbed and you have a thick paste consistency. Remove from heat and add:

- 1 cup peanut butter (chunky style)
- 1 cup date butter
- This date butter is made by blending 1 cup pitted dates in 1/3 - 1 cup of water.

Mix and cream together. Add:

- ½ cup unsweetened coconut (optional)
- 1 cup pecans or walnuts, chopped

Mix well. Press firmly into lightly oiled foil-lined 8 inch square pan. Let stand in refrigerator at least 8 hours.

(Note - use thick, not thin, peanut butter, and date butter as dry as possible.)

Keep refrigerated.

Date Bars

- 2 cups whole wheat pastry flour
- 2 Quick Oats
- 1 t salt
- 2 cups pitted dates
- 2/3 cup chopped nuts

- 1 cup water
- 2/3 cup oil

Cut the dates in half lengthwise when removing the pits. Mix the water and oil together. Then add to dry ingredients. Roll out on cookie sheet. Cut in squares. Bake at 325oF. for 30-45 minutes until brown. May have to turn over date bars to brown evenly.

Princess Bars

- 2 cups pitted dates
- 1-1/4 cup quick oats, or old fashion
- 1 cup whole wheat pastry flour
- ½ cup corn oil
- 1 cup hot water
- 2 T lemon juice
- ½ cup walnuts or pecans, chopped

Combine the oats, whole wheat flour, salt and oil.

For date butter filling, mix water and lemon juice with ground dates in sauce pan and simmer until smooth.

Using a 9 X 11 baking dish, press half of dry mixture into dish to even depth. Spread warm date butter over dry mixture about ¼ inch thick. Sprinkle nuts over date filling, lightly pressing them into filling. Press remainder of dry mixture evenly on top. Bake at 350oF for 12-15 minutes. Chill and cut into squares for serving.

Banana-Pineapple Drink

- 1 46 ounce can of pineapple juice
- 4 bananas

Whiz in blender and serve. This will make two full blenders.

Variation: Add 15 unsweetened frozen strawberries.

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Is not this beautiful? Would not this do at banquets? Don't you think your children would actually like this better than the usual soft drink? You may try all kinds of combinations in making tasty drinks.

Lemonade

Lemonade can easily be made without sugar. Use a little lemon juice in white grape juice and it tastes like lemonade. The sweetness from the grape juice comes through but one doesn't taste the flavor of the grapes. The lemon makes it taste like lemonade.