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LIPID CLINIC NEWS

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Raising HDL - A Real Challenge!

Both physicians and patients know that a low blood HDL (high density lipoprotein) is associated with more heart disease and stroke. The difficulty lies with knowing how to increase HDL and thus protect patients from blood vessel problems.

Testing A New Drug - Torcetrapib

The pharmaceutical industry has been hard at work trying to produce a drug that would raise HDL 40-60 percent. Such a drug might have great merit. Recently, a study was conducted using such a drug, Torcetrapib. It inhibits a transfer protein (CE1P) in the blood and elevates HDL.

Fifteen thousand patients at risk for coronary disease were divided into two groups. One group was given a placebo plus Lipitor. The other group was given Lipitor plus Torcetrapib. HDL increased from 49 mg/dL to 83 mg/dL (70% increase). However, the trial was stopped early because there were more coronary events and deaths in the Torcetrapib group. Torcetrapib also raised blood pressure and this was a concern. The scientists concluded that Torcetrapib carried too much risk to put it on the market. There was also speculation that raising HDL by this technique might produce a dysfunctional HDL that might not carry out the beneficial reverse cholesterol transport.

What is known about raising HDL?

1. Statin drugs have a mild action to raise HDL.
2. It is well known that the vitamin niacin in high doses, up to 2,000 mg/day, does raise HDL - and it lowers LDL and triglyceride. Because of flushing or other side effects, some patients cannot take niacin. Niacin trials have resulted in less coronary disease.
3. It has long been known that estrogen will increase HDL concentrations. However, in estrogen trials, there was more coronary disease in women and in men who received estrogen so this is not an option.
4. Alcohol can raise HDL. This is usually HDL₃ that may be less beneficial than HDL₂. In many of our patients, triglycerides are high and HDL is low. Drinking alcohol raises their triglycerides even more and can lower their HDL. Stopping alcohol decreases triglyceride synthesis in the liver. This causes the triglyceride to fall and HDL to rise. So, alcohol may not raise HDL in those who need it most.
5. Exercise will increase HDL, and as far as we know, this is a beneficial effect. However, it takes quite a bit of exercise to do this. Running seven miles per week produces a higher HDL concentration. It is not known whether this elevation in HDL actually reduces the propensity to coronary heart disease. However, exercise alone would be beneficial in coronary heart disease and should be pursued as a preventive measure.
6. Dietary cholesterol and saturated fat increase HDL. However, they also increase LDL! The saturated fat can also make the blood have a greater tendency to clot and block an artery resulting in a heart attack or stroke. This is not a good way to raise HDL.
7. Cigarette smokers have lower HDL levels. One very healthy way to raise HDL would be to stop smoking. The mechanism of smoking lowering HDL is due to multiple factors. There are numerous other reasons to stop smoking.

8. A very physiological way to increase HDL would be to lower the blood triglyceride when it is above 150 mg/dl. The apoproteins that are also in HDL are also in the triglyceride-carrying particle, VLDL. When VLDL is high, there is more active cholesterol transport into VLDL from HDL. With the lowering of VLDL, HDL resumes its more normal position with regard to the transport protein. Invariably, when triglyceride is lowered either by niacin, fibrate drugs, fish oil, or by weight loss, HDL is increased. This elevation would seem to be associated with less heart disease, although it is difficult to prove since triglyceride is a risk factor for heart disease and lowering triglyceride might be the predominant effect.

What is known about high & low HDL?

While there is no doubt that HDL is a very important marker to indicate the risk for coronary disease, this may not be true in all circumstances.

1. HDL is lowered by a diet low in fat and cholesterol and high in unsaturated fats. There is no information that this is hazardous to one's health, especially since LDL is also lowered. Overall, the low fat diet has been proven to have beneficial effects on coronary heart disease.

2. HDL below 30 mg/dl has been found in populations who have habitually consumed a low fat diet but who are known to have low rates of heart disease. A classic example is the Tarahumara Indians who have been well studied on a number of occasions. Typical HDL levels were 26 ± 7 mg/dL in men, 28 ± 14 mg/dL in women, and 26 ± 9 mg/dL in children. LDL levels were very low also: 87 mg/dL in men, 89 mg/dL in women and 83 mg/dL in children.

Interestingly, pregnant Tarahumara women had higher HDL levels, but still low compared to Americans (36 ± 9 mg/dL). HDL increases in pregnancy as do all of the other lipoprotein fractions including VLDL, triglyceride, cholesterol and LDL.

We fed Tarahumara Indians a high fat, weight gain diet. HDL levels increased from 29 to 35 mg/dL in men 36 to 47 mg/dL in women. LDL increased greatly from 72 to 100 mg/dL as did triglycerides (91 to 108 mg/dL) and total cholesterol (121 to 159 mg/dL). This Tarahumara study showed that a high calorie, high saturated fat, high cholesterol diet would elevate HDL concentrations, but the overall lipid results were worse.

3. Some people lack the transfer protein (CE1P) on a genetic basis and have higher HDL levels. It is not known if they are protected against coronary heart disease. Would they have the same results as in the Torceptibid study if HDL were high as a result of an absence of the transfer protein? More studies are needed.

4. Some people have no HDL on a genetic basis (Tangier disease). These people have more problems from neurologic loss of function than from heart disease.

The Bottom Line. HDL is complicated. Stay tuned as more studies are done and reported. Safe things to do about HDL are stop smoking, exercise, lose weight and take lipid medications to lower triglyceride levels.

Dr. Connor Sends Comments on Salt to the Food & Drug Administration

Dr. Connor sent comments on a **Petition to Revise the Regulatory Status of Salt; and Establish Food Labeling Requirements Regarding Salt and Sodium.**

The amount of salt consumed by most Americans is several times what the body actually needs. When excess sodium chloride is consumed over the lifetime, there are several long-term consequences that produce disease conditions. Twenty to 30 percent of Americans develop essential hypertension in adult life. As children they have normal blood pressures, but by the age of 60 or 70 a sizeable proportion of the population has hypertension. This is especially prevalent in 40 percent of African Americans. Laboratory studies in experimental animals and in humans have shown that sodium chloride increases the blood pressure. The administration of sodium chloride increases arterial reactivity such that hypertension results. This is especially so as people age and renal function declines, because an increased blood pressure is needed to excrete the excess sodium chloride taken in. This is our teaching of medical students at Oregon Health & Science University. The relationship of salt as a major factor in hypertension is well established.

Salt consumption is also incriminated in the pathogenesis of cancer of the stomach, which has declined in the United States with the onset of refrigeration making salt less necessary to preserve foods, but cancer of the stomach still occurs. In Japan, salt intake is very high, and stomach cancer is the most common cancer. Over the years our salt consumption has declined but still is too high at 10 grams per day. Also, osteoporosis has some relationship to excessive sodium chloride consumption. When the diet is high in sodium chloride, there is increased urinary calcium excretion that may promote osteoporosis. The evidence here is much less well developed than it is for hypertension or cancer of the stomach.

My recommendation is that sodium chloride or salt be removed from the list of substances generally regarded as safe and that there be a voluntary suggestion that food manufacturers put less and less sodium chloride in their products in the interest of health of the American people.

I Hate Vegetables!

- My mother cooked vegetables for hours before serving them to me.
- Vegetables give me gas?
- My stomach feels too full after eating a large plate of vegetables?
- My jaw gets tired of chewing.

These are some of the reasons patients give us for not eating their veggies. The dislike of vegetables often goes all the way back to childhood when they were forced to eat peas or green beans that had been cooked so long they were olive-colored and mushy. When this is the case, patients have no experience with properly cooked veggies – and, on first taste, they seem to be undercooked. We have yet to find the person (even a kid) who would not scarf down the spinach in our *Spicy Chicken with Spinach* from the New American Diet.

It is not uncommon for people to get gas when they eat more vegetables. Any time the amount of fiber is suddenly increased, your intestinal track will turn on you – and you will not be happy! It is easy to do this with veggies especially with broccoli. The trick is to increase your intake slowly. This gives the bacteria in your intestinal track time to gear up to handle more fiber.

Vegetables not only taste different than “meat & potatoes”, they feel different too. As with most new foods, you will feel full after eating a small serving of veggies. You will feel stuffed if you eat a plate full. Thirty minutes later you may find you are hungry – because you did not get very many calories! Again the trick is to gradually increase your intake.

If you tremendously increase your intake of veggies, it will take a whole lot of chewing to get enough calories. Most people have nothing to fear!

Tips for Increasing Intake of Veggies

- Put them in foods that you like such as stir-fries, soups, pizza (try our *Roasted Veggie Pizza* in The New American Diet Cookbook) and other dishes.
- Serve them along with favorite foods.
- Gradually increase your serving size of veggies.
- Eat veggies for lunch and for dinner.
- Always have a veggie and a salad for dinner. Dr. Connor has a fit if he doesn't get both for dinner.



SPICY CHICKEN WITH SPINACH

This is a 10-star recipe! It came from a Chinese cookbook that was written in Mandarin.

SAUCE #1

- 1 tablespoon lower-sodium soy sauce
- 1 teaspoon white wine
- 2 tablespoons water
- 2 teaspoons cornstarch

SAUCE #2

- 1 tablespoon each, finely chopped: green onion, ginger root, garlic
- 1 teaspoon black bean sauce with chili*

SAUCE #3

- 1 teaspoon white wine
- 1 tablespoon lower-sodium soy sauce
- 2 teaspoons sugar
- 1/2 teaspoon sesame oil
- 1 teaspoon vinegar
- 1 1/2 teaspoons water
- 1 teaspoon cornstarch

- 4 chicken breasts, skinned and boned
- 1 tablespoon oil, divided
- 3 bunches fresh spinach, stems removed

Prepare 3 sauces in separate bowls. Cut chicken into thin strips. Mix the chicken with Sauce #1 and marinate about 20 minutes. Heat 1 teaspoon oil in a large skillet or wok. Stir-fry the chicken and remove from the skillet or push to sides of skillet. Heat 2 teaspoons oil in the center of the same skillet; add Sauce #2. Heat until mixture is very bubbly. Mix in chicken. Stir in Sauce #3 and cook briefly, then transfer chicken with sauces onto the center of a heated serving platter and keep warm. Stir-fry the spinach in whatever juices are left in the skillet, until spinach is wilted. Place spinach on either side of the chicken on the serving platter. Serve with steamed rice.

Makes 4 servings

* Available in Asian grocery stores.

Per Serving:
CALORIES 221 TOTAL FAT 7 gm
SODIUM 440 mg FIBER 5 gm
CHOLESTEROL-SATURATED FAT INDEX 4

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Chinese Greens with Black Mushrooms

Dr. Connor loves this veggie dish.

4 dried black mushrooms
1 cup boiling water
1 pound (about 6) baby bok choy, washed and trimmed
2 teaspoons vegetable oil
2 teaspoons minced garlic
2 teaspoons minced fresh ginger
1 tablespoon reduced sodium soy sauce
¼ teaspoon sesame oil
1 tablespoon cornstarch dissolved in 1/4 cup cold water

Directions:

Soak dried mushrooms in 1 cup boiling water for 30 minutes. After soaking, save the liquid by removing mushrooms one at a time and squeezing the liquid out of the mushrooms; set liquid aside. Remove stems and slice mushrooms into thin strips; add to liquid. Slice bok choy length-wise into halves (smaller ones) and quarters (larger ones).

Heat oil in a large skillet. Add garlic and ginger; stir until bubbly but not browned. Add bok choy; stir until heated through. Add mushrooms and liquid. Reduce heat, cover and cook 3 minutes. Remove cover, add soy sauce and sesame oil; bring to a boil. Thicken with cornstarch mixture; cook 1-2 minutes or until sauce turns clear. Serve.

Makes 2 large servings

Per 1/2 recipe:

Calories 122

Sodium 419 mg

Potassium 722 mg

Fiber 3 gm

Total Fat 6 gm

Saturated Fat 1 gm

Cholesterol 0 mg

