

in a **Heartbeat...**

ISSUE No.4

In this Issue

- From the Director's Desk
- Chewing the fat
- New discovery highlights dangers of smoking
- Cook Smart for a Healthy Heart
- Meet the Team

From the Director's Desk

Welcome to the first edition of *In a Heartbeat* for 2008. In this issue you'll read about some of the important research you've helped to make happen.

You'll also meet another member of the team, Associate Professor Jeffrey Cohn, Group Leader, Nutrition and Metabolism Group. And there's another delicious recipe from the Reader's Digest publication, *Cook Smart for a Healthy Heart*.

I hope you enjoy your newsletter. We look forward to bringing you more news in future editions of *In a Heartbeat*.

With heartfelt thanks for your interest and support.



Professor Philip Barter
MBBS, PhD, FRACP
Director
The Heart Research Institute

The Heart Research Institute Mission Statement

The prevention of death and suffering from heart disease through understanding of the biological processes that cause atherosclerosis.

Atherosclerosis is the major cause of heart and blood vessel disease and is a disease characterised by thickening of the blood vessel walls and the build up of fatty material in them. Understanding and overcoming atherosclerosis is one of the most important medical problems in the World and The Heart Research Institute is working tirelessly towards detection, prevention and cure of this disease.

New discovery highlights dangers of smoking

The activity of an enzyme occurring naturally in the white cells (Myeloperoxidase) is part of the normal function of the immune system. Among other actions it produces the oxidant products necessary to kill bacteria. However, there is a 'down side' to this enzyme.

Those same oxidant products are also created in blood vessels in processes that contribute to the development of atherosclerosis (hardening of the arteries). One of the main oxidant compounds produced by myeloperoxidase is a substance known as

hypochlorous acid (basically, household bleach). It has been found that myeloperoxidase makes a similar amount of another oxidant product, called hypothiocyanous acid.

Researchers, led by Dr Clare Hawkins in the Inflammation Unit at The Heart Research Institute, have now discovered that this oxidant is even more destructive than hypochlorous acid in terms of causing damage to cells in the artery wall. This may be the reason why smokers have a much greater risk of developing heart disease than non-smokers and further highlights the multiple dangers of smoking.

Chewing the fat

What is a lipid?

A: A lipid, or fat, is a water-insoluble molecule that can be extracted from cells and tissues by non-polar solvents, such as chloroform, ether or benzene. In simple terms, lipid is fatty material that does not dissolve in water.

What is a phospholipid?

A: A phospholipid is simply a type of fat containing phosphoric acid. The unique feature of phospholipids is that they are "fatty" at one end, where two fatty acids are attached (the non-polar end), and have an affinity for water at the other end (the polar end). This means that phospholipids have a very distinguishable "head" which is charged and a "tail" that is not charged. Phospholipids molecules thus like to align themselves and self assemble in water into a bi-layer. This tendency to form bi-layers is the basis of the cell membrane, characteristic of all living things on earth.

What foods contain phospholipids?

A: All plants and animals contain phospholipids, since they are the main components of cell membranes. Virtually all animal- and plant-derived foods contain phospholipid, although at much lower levels than triglyceride, which is the principal fat-type in foods. Phospholipid is nevertheless more abundant than cholesterol in foods.

breasts of chicken

with roasted
**garlic-tomato
sauce**



Here's a recipe that turns the ordinary into the extraordinary. This chicken dish, simmered in a rich tomato sauce seasoned with roasted garlic, is high in vitamins C, B6, beta carotene and niacin, is low in fat, but fabulous in flavour.

Ingredients

- 2 heads garlic, papery skin removed
- 2 bone-in chicken breast halves, about 150g each, skin removed
- 1/2 teaspoon pepper
- 2 carrots, thinly sliced
- 1 large shallot, finely chopped
- 4 canned no-salt-added whole tomatoes, seeded and chopped
- 1/2 cup reduced-salt chicken stock
- 1/2 cup dry white wine or additional reduced-salt chicken stock
- 1 teaspoon chopped fresh rosemary or 1/4 teaspoon dried rosemary
- 1 tablespoon chopped continental parsley
- 350g cooked fettuccine

Per serve: 1953 kilojoules, 38g protein, 9g total fat (2g saturated fat), 87mg cholesterol, 53g total carbohydrate (7g sugars), 12g fibre, 331mg sodium.

Preparation time approx. 20 minutes. 1 hour cooking time. Serves 2.

Directions

- 1 Preheat the oven to 180°C. Cut the top off each head of garlic and wrap the heads in foil. Bake until soft, about 1 hour.
- 2 Meanwhile, coat a medium ovenproof pan (with a lid) with nonstick cooking spray and set over medium-high heat. Sprinkle the chicken with pepper and cook until golden-brown, 4-5 minutes on each side. Transfer chicken to plate.
- 3 Add the carrots and shallot to the pan and fry until the shallot is soft, about 2 minutes. Return the chicken, skinned-side down, to the pan. Add the tomatoes, stock, wine and rosemary. Bring to a simmer. Cover and transfer to the oven. Bake the chicken until the juices run clear, 30-45 minutes.
- 4 Remove garlic cloves from their skins with the tip of a sharp knife and mash until smooth. Stir the garlic into the sauce and sprinkle with parsley. Serve over the cooked fettuccine.

HEALTH HINT

Nutritionists recommend 30g fibre every day, but most of us consume only half that amount. Much of the fibre in this dish comes from the tomatoes, which also provide healthy amounts of vitamin C and beta carotene.

Cook's Tip: Roasted garlic can also be stirred into soup, tossed in salad or spread on bread.

If you have an interesting story, perhaps about winning a fight with heart disease, or you have some feedback to the newsletter, please e-mail our editor at administration@hriuk.org

If you would like to know about leaving a gift in your Will to The Heart Research Institute, we would be happy to send you our **FREE** bequest booklet – *Time to Reflect*.

To receive your copy, please contact Carol O'Carroll at email: legacy@hriuk.org or for

Bequest information only, call 0808 234 4009.

MEET the Team...

Dr Jeffrey S. Cohn BSc (Hons) PhD
Group Leader, Nutrition and Metabolism Group



Jeffrey Cohn joined the Heart Research Institute in 2005, having spent 12 years in Canada as Senior Scientist at the Clinical Research Institute of Montreal. He obtained a Bachelor of Science Degree with First Class Honours at Sydney University and a PhD at the Baker Medical Research Institute, Monash University, Melbourne.

From 1986-1988, he was a Post-Doctoral Fellow in the Lipid Metabolism Laboratory at the Human Nutrition Research Centre on Aging at Tufts University in Boston. Together with Professor Ernst Schaefer, Jeffrey devised and tested a clinical procedure for measuring the metabolism of plasma lipoproteins. This methodology is now used in a number of different laboratories around the world and is an accepted method for investigating the effect of diet and drugs on plasma apolipoprotein metabolism.

Jeffrey's scientific research has focussed on the structure and function of pro- and anti-atherogenic lipoproteins, on their metabolism in health and disease and on their modification by diet and drug treatment. His work has resulted in over 85 refereed journal articles, 11 review articles and 5 book chapters.

Jeffrey is a leading expert in the role of postprandial lipoproteins and triglyceride-rich remnants in the development of coronary artery disease. He often gives lectures to lay and scientific audiences pertaining to nutrition, lipids and cardiovascular disease. He is on the Editorial Board of the journals: "Atherosclerosis", "Clinical Biochemistry" and the "Journal of Lipid Research". He was recently invited to be Sectional Editor of the Lipid Metabolism Edition of "Current Opinions in Lipidology".

As leader of the Nutrition and Metabolism Group at the Institute, Jeffrey is interested in the role of phospholipids and dietary flavonoids in the onset and development of atherosclerosis. His research aims to establish whether these food components can be used as dietary supplements or nutraceuticals to treat or prevent coronary artery disease. He has helped establish the Nutraceutical and Functional Food Research Facility at the Institute whose goal is to provide advanced analytical and investigative methods for the assessment of atheroprotective properties of dietary products, food components and nutraceutical agents.



HEART RESEARCH INSTITUTE (UK)

Science for Living

www.hriuk.org
administration@hriuk.org