

Heartbeat...

ISSUE No. 12

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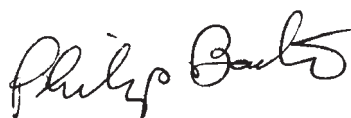
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From the Director's Desk

Welcome to the latest edition of *In a Heartbeat*. In this issue, we discuss a new study that reveals smoking during pregnancy results in far worse problems than previously thought. We also reveal some interesting facts about daily milk in Research Highlights.

And as always, there's a delicious new recipe from *Heart Food – the Healthy Heart Cookbook*, this one an old favourite and great winter accompaniment.

We hope you take the time to learn about the critically important research that you're helping to make happen. Enjoy your newsletter... and thank you again for your wonderful support.

Professor Philip Barter
MBBS, PhD, FRACP

Director
The Heart Research Institute

Research Highlights

Dairy milk for a healthier liver and heart?

The **Nutrition and Metabolism Group** has continued studies into the potential of extracting phospholipids from dairy milk and using these milk fats as a cardiovascular nutraceutical in individuals at increased risk of cardiovascular disease. Two PhD students in our laboratory, Alvin Kamili and Elaine Wat have shown that phospholipid-rich dairy milk extract can reduce hyperlipidemia (high blood fat levels); reduce hepatomegaly (the size and weight of the liver); and reduce hepatic steatosis (accumulation of fat in the liver). These findings were published in the journal *Nutr Metab (Lond)*.

Damaged DNA contributes to heart disease

The **Inflammation Group** has forged ahead with studies looking at how oxidants damage cellular components including DNA and how this contributes to atherosclerosis. PhD student Naomi Stanley has published a study that looks at how damaged DNA bases (previously only regarded as by-products) affect the way cells grow.



Proof - smoking puts unborn children at risk

While it's hardly news that smoking during pregnancy is bad for both mother and baby, a new study reveals **the problem is much worse than previously thought**. In fact, it's now official...children born from mums who smoke during pregnancy are definitely at risk of inheriting heart disease.

The study, conducted by several groups including the Clinical Research Group at The Heart Research Institute and published in the *European Heart Journal*, examined 405 eight-year-old children of mums who had smoked during pregnancy. It reports that **these children had significantly lower levels of 'the good cholesterol'** (high density lipoproteins or HDL), which is an important anti-inflammatory molecule known to protect against the development of cardiovascular disease.

The results even surprised one of the report's authors, Professor David Celermajer, Group Leader of our Clinical Research Group.

"This is a significant finding since it is well known that HDL provides protection against the development of heart disease.

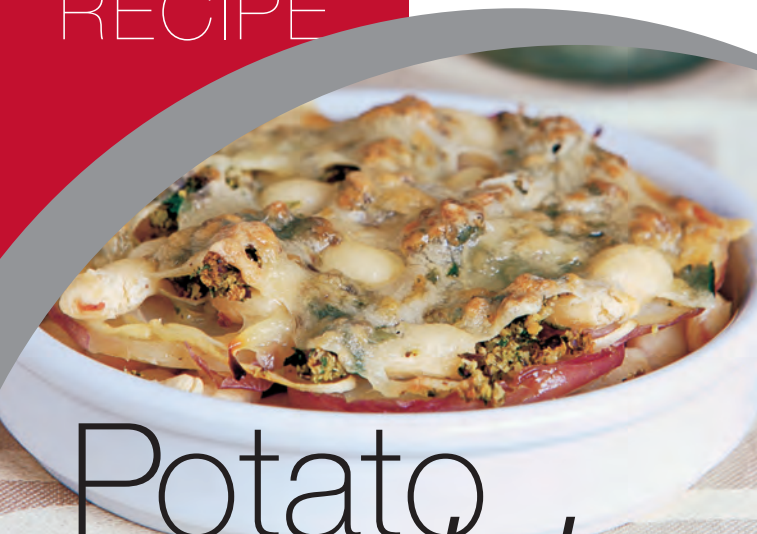
"We postulate that these kids are up to 20 per cent more likely to develop problems such as heart attack and stroke during their lifetimes... and with heart disease remaining the number one killer in the United Kingdom, this represents a massive number of people who are potentially affected", Professor Celermajer said.

The findings were unexpected since it was previously thought that the effects of exposure to cigarette smoke declined over time.

"Here are kids who were exposed to another person's smoke when they were growing in their mum's belly and eight years later... eight years after being removed from that insult... they're still wearing a footprint from it" said Professor Celermajer.

"For kids whose mums did smoke – and they can't wind back the clock now – they have to be particularly careful of the way they live their lives to maximise their heart health by not smoking themselves and by having healthy diet and exercise habits", Prof Celermajer said.

Importantly, the team was unable to identify a 'safe' level of smoking, further emphasising the importance of suspending smoking completely when pregnant. **The message to expectant mums is clear...** even if you're tempted to have one or two cigarettes when pregnant, to protect the long term heart health of your unborn children, please don't.



Potato *bake*

Ingredients

- 3 small Desiree, Maris Piper or King Edward potatoes, skin on
- 2 slices mixed grain bread
- ½ cup tightly packed curly parsley sprigs
- Canola cooking oil spray
- 100g/ 3½ oz shaved Swiss cheese
- 1 medium onion, finely sliced
- 400g/14oz can cannellini beans, rinsed and drained

Serves 4 – each serving contains 2½ serves of vegetables

Per serve:

1335 kilojoules (285 calories)
20g of protein
9g total fat (5g saturated fat)
Low GI
39g total carbohydrate
9g of fibre
340mg of sodium

Directions

1. Place potatoes, covered with cold water, in a saucepan, cover and bring to the boil over a high heat. Reduce heat and simmer for 15 minutes or until cooked. Drain and set aside until they are cool enough to handle.
2. Place bread in the bowl of a food processor or blender and process for 5 – 10 seconds. Add parsley and process for a further 5 – 10 seconds.
3. Meanwhile, preheat oven to 180°C/350°F/Gas mark 4. Spray a 6-cup capacity ovenproof dish with oil.
4. Place a layer of very thinly sliced potatoes on the base of the prepared dish. Cover with a layer of cheese, the remaining onions and the beans.
5. Top with remaining potato, half the cheese and remaining onion and the breadcrumb and parsley mix. Layer remaining cheese evenly over the top.
6. Bake 15 – 20 minutes until heated through, the cheese had melted and is golden. Serve immediately.

HEALTH BEAT

- The addition of low GI cannellini beans and mixed grain bread (a wholegrain food) as well as the cheese, brings down the GI of this dish.
- Look for grain bread with the lowest sodium content you can find – we used one with 360mg/100g.
- We've used shaved cheese but you could use thinly-sliced cheese to really stretch the flavour without overdoing the saturated fat and sodium.

A gift in your will could save millions of lives in the years to come. For more information about this selfless act, we would be happy to send you our FREE booklet – *Time to Reflect*.

To receive your copy please email: legacy@hriuk.org or for Legacy information only, call 0808 234 4009.

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

Dr Anna Waterhouse

Translational and Biomaterial Group



Recent PhD graduate Anna Waterhouse has developed a synthetic coating for stents that could reduce the risk of clotting and thrombosis in patients with implantable devices, while being well-tolerated by the human body.

Devices such as stents, pacemakers and heart valves are generally made of metal and require a polymer coating so the body does not see it as a foreign object. The latest stent on the market helps mitigate clotting through the slow release of a drug, but its non-biocompatible polymer coating can lead to fatal events in the patient.

Anna, who was born in Halifax, undertook her PhD with The Heart Research Institute and is now a fulltime research assistant. She was drawn to biomaterials and bioengineering because of its potential for clinical application.

“I love the idea that the research we’re doing could be used to generate a commercial product that will help people,” she said. ***“I wanted to do something I could see working one day.”***

Anna may well see the results of her research taken to market. The coating she has developed uses an immobilised human protein to enhance biointegration of an implanted stent. Further developments will aim to characterise the safety and long-term response to this stent coating.

This new coating has the potential to reduce blood-thinning medications required by a patient, such as anti-platelet therapy.

“These medications have complications for patients,” explained Anna. ***“For example, patients need to come off them if they require surgery because of the risk of bleeding. It would be a major achievement to reduce the anti-platelet therapy.”***

If the coating is successful on stents, it could also be used for heart valves and pacemakers, and potentially polymer implants as well.

Anna undertook her Bachelor of Science in Cell Biology with Honours at the University of Manchester, 2001–2005.



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