



## **Why women should eat less, move more and consider wearing transdermal HRT patches during menopause**

**24 November 2008**

Weight and appetite experts from around the world met at a conference in Bangkok<sup>1</sup> earlier this year to discuss sex differences in obesity. One line of discussion looked at factors leading to women's weight gain during menopause, and how it might be avoided.

Co-chairs of the conference, Dr Amanda Sainsbury-Salis from Sydney's Garvan Institute of Medical Research and Dr Jennifer Lovejoy from the University of Washington, Seattle have summarised the conference consensus for the December issue of *Obesity Reviews*. The paper is now available online.

"One of the most interesting things that came out of the conference – with applicability to large numbers of women – was the discussion about why women gain weight during menopause," said Dr Sainsbury-Salis.

"So many women get confused when they start to gain weight during menopause, because their eating habits haven't changed."

"What the research shows clearly is that menopause causes a dramatic and sudden reduction in physical activity levels. Just prior to menopause, women halve their amount of activity compared to pre-menopause levels."

"So one reason women gain weight in menopause is because of a reduction in energy expenditure. Combine this with unchanged eating habits and weight gain is almost inevitable."

"We don't know exactly why menopausal women stop moving as much. But we know it's not because of their age and the lifestyle constraints happening at that time of life. Research suggests it's directly related to the lack of oestrogen, which has dramatic effects on signals the brain sends to the body. We're doing research to see what causes these effects and whether or not they continue long-term.

"A lot of women ask whether they can actively counteract that tendency. In fact, it's been shown that women who maintain or increase their level of physical activity during menopause tend to come out the other end without gaining weight."

"Another thing, when physical activity levels drop and your energy needs are less, it's really important to stay in tune with your hunger signals because you just don't need to eat as much in order to feel satisfied."

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<sup>1</sup>The International Association for the Study of Obesity (IASO) convened a conference in Bangkok, Thailand in March 2008

There was a related discussion about hormone replacement therapy (HRT) at the conference. Garvan's Professor Lesley Campbell, also Director of the St. Vincent's Diabetes Centre, was an invited speaker and put forward her view that HRT can actually help protect women against harmful abdominal fat gain and the development of heart disease and Type 2 diabetes.

"During menopause, most women experience redistribution of fat, often gaining weight around the middle," said Professor Campbell. "As we have demonstrated in our research, abdominal fat is a risk factor in the development of cardio-metabolic diseases, such as diabetes. Prior to menopause, women have a lower risk of heart disease than men. Menopause equalises that risk. Women taking HRT appear to maintain their pre-menopausal risk levels."

"It's also worth mentioning that around 10 years ago, Garvan endocrinologists made a very significant breakthrough discovery that is known by surprisingly few women and GPs. They found that taking HRT by wearing transdermal patches - so bypassing the liver – may be better for women than taking HRT orally.<sup>2</sup>"

So the overall take home message for women in menopause is eat less, move more and if you're on HRT, consider transdermal patches.

### **Note to Editors**

Whether or not to use HRT is a choice women must make themselves. It is a complex and controversial area. Many clinicians believe that the concerns about HRT which arose from the NIH's Women's Health Initiative<sup>3</sup> may have been exaggerated. Others believe they were warranted.

Garvan does not adopt a particular stance on the topic, but rather encourages its experts, who look at different aspects of the data from a variety of perspectives, to express the conclusions that arise from their research and clinical expertise.

There is no doubt that oestrogen has some beneficial effects on the body. It helps maintain bone strength and can help protect against Type 2 diabetes.

At the same time, it has some adverse affects. For example, it may help stimulate those cancers that have oestrogen receptors, or increase development of such cancers if they already exist when oestrogen supplementation begins.

It has been reported that HRT (like the contraceptive pill) can increase a woman's risk of developing deep vein thrombosis (DVT).

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<sup>2</sup> O'Sullivan AJ, Crampton LJ, Freund J, Ho KK. The Route of Estrogen Replacement Therapy Confers Divergent Effects on Substrate Oxidation and Body Composition in Postmenopausal Women. *J Clin Invest.* 1998 Sept; 102(5):1035-1040.

<sup>3</sup> The Women's Health Initiative was launched in 1991 and consisted of a set of clinical trials and an observational study, which together involved 161,808 generally healthy postmenopausal women.

The clinical trials were designed to test the effects of postmenopausal hormone therapy, diet modification, and calcium and vitamin D supplements on heart disease, fractures, and breast and colorectal cancer.

Before making the decision to take HRT, each woman would be wise to consult her doctor.

### **HRT Trial**

Professor Lesley Campbell (Director of the St. Vincent's Diabetes Centre and senior clinical researcher at Garvan) and Associate Professor Katherine Samaras (Head of Garvan's Clinical Diabetes Research Group) conducted a trial in 1999 on the effects of HRT on women at menopause<sup>4</sup>. They found that HRT prevented gain in abdominal fat mass. Essentially this explained why diabetic postmenopausal women, not using oestrogen replacement, increased their risk of developing cardiovascular problems. Prior to menopause, their own oestrogen had kept their risk lower. A similar study exists in non-diabetic women.

### **Transdermal vs Oral administration of HRT**

Professor Ken Ho, Endocrinologist and Head of Garvan's Pituitary Research Unit, demonstrated that how oestrogen is administered is important. When given as a pill, oestrogen reduces lipid oxidation (fat burning), increases fat mass, and reduces lean body mass, changes which do not occur when oestrogen is administered transdermally.

As people age, they tend to gain fat and lose muscle. Over a 6-month period, oral oestrogen treatment induced a gain in fat mass and a loss in lean mass equivalent to that occurring over a 5-10 year period of the normal ageing process. The route of oestrogen therapy (oral or transdermal) is therefore significant in terms of body composition and postmenopausal health.

When a woman takes HRT orally, it goes directly to the liver, exposing it to relatively higher levels of oestrogen – which interferes with the liver's ability to burn fat and make a hormone called IGF-1 (Insulin-like growth factor-1).

Growth hormone is secreted from the pituitary gland, goes to the liver and stimulates the production of IGF-1, which in turn stimulates muscle synthesis and strengthens bones. Oestrogen, by direct action on liver, suppresses the production of IGF-1 in accordance with the dose of oestrogen used.

### **ABOUT GARVAN**

The Garvan Institute of Medical Research was founded in 1963. Initially a research department of St Vincent's Hospital in Sydney, it is now one of Australia's largest medical research institutions with approximately 400 scientists, students and support staff. Garvan's main research programs are: Cancer, Diabetes & Obesity, Immunology and Inflammation, Osteoporosis and Bone Biology, and Neuroscience. The Garvan's mission is to make significant contributions to medical science that will change the directions of science and medicine and have major impacts on human health. The outcome of Garvan's discoveries is the development of better methods of diagnosis, treatment, and ultimately, prevention of disease.

### **All media enquiries should be directed to:**

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<sup>4</sup> Effects of postmenopausal hormone replacement therapy on central abdominal fat, glycaemic control, lipid metabolism and vascular factors in Type 2 diabetes mellitus. A prospective study. Samaras K, Hayward CS, Sullivan D, Kelly RP, Campbell LV. *Diabetes Care*, 22; 9:1401-1407, 1999.