Pearls of wisdom

Professor Jean-Pierre Després, a physiologist and health researcher based in Canada, talks through the research side of his collaborative work towards changing the way that patients, clinicians and policy makers see obesity

Could you discuss your academic and professional background? What skills do you bring to your current work?

I was trained as an exercise physiologist but I’ve always been interested in fat, lipid and adipose tissue metabolism. I started my academic training studying adipose tissue biopsies in marathon runners, and I found that they were made of tiny fat cells. When you look under the microscope at the cells that store your fat, they look like pearls – it’s a pretty image! I studied fat metabolism among those highly trained athletes and reported that the tissue itself was different from that found in sedentary individuals. Then I started exercise training for sedentary individuals and showed that the more they trained, the more they looked like endurance-trained athletes. At the same time, I was interested in the relationship between fat metabolism and health. I came across some literature suggesting that there were investigators who thought body shape mattered more than the amount of fat. I started using simple methodologies to explore that hypothesis in the early 1980s, and discovered that those investigators were right.

Your lab has been investigating visceral fat for nearly 30 years. Could you explain the science behind your work and how this research is disseminated?

It is true that we first identified this theme 20-30 years ago, but our work has ranged widely around this area. We have been interested in why people put on fat in the abdominal cavity rather than elsewhere – that is, the aetiology of visceral fat – as well as where it is located, and how we can assess this and provide tools for clinicians. I was among those who, quite early in the process, suggested that we should measure the circumference of the waist as a vital sign in addition to measuring body weight. The answers to those questions have implications for aetiology, they will tell us why we put on that fat and what we can do to identify patients with too much visceral fat.

What has motivated you to pursue this work over such a long period of your career?

For me, the real problem was the media. As I sat down to drink my espresso in the morning and read the newspaper, I often came across false information about healthy body weight, weight loss and diet. There has been a lot of misinformation in the press lately, probably fuelled by those who have a personal agenda or are trying to sell something. I became very disappointed by the gap between scientific findings about weight and what was actually being communicated to health professionals and the public.

With whom are you working, both nationally and internationally, to achieve your objectives and further the goals of the International Chair on Cardiometabolic Risk (ICCR), which you founded?

The Chair benefits from the input of an outstanding international board of experts from Asia, Australia, Europe, the US and more. For instance, we have fantastic collaborations with colleagues at Cambridge in the UK and Harvard in the US. With a collaborative network spanning 29 countries, we are looking at whether this is an issue affecting all parts of the world. At the moment, we are getting clear signals that the answer to this is yes.

Take the Asian population – on average, they are smaller than Europeans and North Americans but they are genetically more prone to putting on more visceral fat. This makes them more susceptible to diabetes; in China there are currently 114 million people with diabetes, which has become a huge clinical and public health problem.
After a long and successful career in the pharmaceutical industry, in 2005 Jean-Claude Coubard devoted his skills to a new initiative that would spread the word about visceral fat and the dangers that it poses to a healthy lifestyle.

Your role within the collaboration is more business-focused. What are your primary activities? How are you exploring potential networking opportunities?

When we started the ICCR 10 years ago, the objective of this international group of experts was really to educate specialists around the world on one particular form of obesity – abdominal obesity – and how to increase awareness on this as a code marker of type 2 diabetes and cardiovascular risk. We did this for three years in international symposia at big congresses around the world.

Since then we have continued to work on increasing awareness about this form of obesity. Although it is now recognised by experts worldwide, it is not wholly taken into account by physicians or GPs. One of my objectives, in terms of education, is to work with the medical community, to educate them about the importance of measuring waist circumference as a simple clinical marker of abdominal fat.

With whom are you working, both nationally and internationally, to achieve your objectives? What priorities do you have in this regard?

Together with the executive committee, we have come to realise that, given everybody’s extremely busy agenda, it would be more efficient if I first developed the business side and then share my efforts with them when comes the time to make decisions.

Our current major focus is Europe. When I started to build the European Healthy Lifestyle Alliance (EHLA) 18 months ago, I met all the important institutions interested in and engaged with health: the European Commission, the Directorate General for Health and Food Safety based in Luxembourg, the Directorate General for Education and Culture and other stakeholders in Brussels, along with hundreds of people and NGOs interested in health. The idea was to create a network that could break the silos between researchers and organisations in Europe. They all want to fight obesity, but they don’t speak to one another! So when I organised my EHLA meeting in Brussels – I do three statutory meetings per year there (the next of which is in September) – I invite all stakeholders, including the House of Sport, the Association of European Cancer Leagues, European Association for the Study of Obesity, and so on, to discuss what we can do in Europe.

The 5th ICCR Congress on Chronic Societal Cardiometabolic Diseases took place in Canada in July of this year; was it a successful event?

It was a long and comprehensive meeting that lasted five full days! We began on Wednesday morning and went on until Sunday evening. It was a great platform to deliver our messages, because we expanded into other themes such as sleep apnoea, cancer and impaired cognitive function/brain health. It provided a great link between these issues and obesity. All the speakers were top experts in their field and they all stayed to listen to each other – so it really was one of the best scientific congresses we’ve ever had.

Do you have any exciting plans for the future?

We are a small organisation that works on a regional basis. One of our next steps this year will be to start work in the Middle East. We haven’t been there until now because we have been too busy – but there is an epidemic of obesity and diabetes in that region. We will hold two major conferences in Turkey in October. We will also commence our plans to begin work with physicians and medical specialists in Turkey and the Middle East this year. We also have some activities planned in China, and we would like to go to India as well. There is a lot of work to do!
The founders of the **International Chair on Cardiometabolic Risk** have been working tirelessly for the past decade to change the way that unhealthy lifestyle habits are researched, discussed, managed and prevented. In 2015, their endeavours are only becoming more productive.

**AT THE INTERSECTION** of health, diet and lifestyle is a subject that will concern almost all members of the public at some point in their lives. Fat. The amount of fat a human body contains can vary widely, and an excess of it – obesity – has a cosmetic as well as a functional impact on the body. As a result, there are large sections of society the world over that are positively obsessed with body weight, with some individuals putting their health in jeopardy by attempts to reduce it. Yet, despite these extremes, fat is an easily-acquired metric for everyone, providing immediate information about the body and the state that it is in.

Or is it? There is actually a wealth of evidence to suggest that this indicator of health is not so useful after all. Firstly, there are problems with the process of gauging the fat content of a body by proxies like weight – a relationship that can vary from person to person. Secondly, as many people know from experience, the relationship between someone’s size and their health is not always clear-cut; people who are very large may not encounter health problems as a result of their size. Finally, however – and perhaps most importantly – it seems that it is the location of the fat that makes all the difference. External fat collecting under the skin is unlikely to cause severe harm; rather, it is visceral or ectopic fat that causes problems.

**ECTOPIC OF CONVERSATION**

Ectopic fat is fat that accumulates in the lean tissue of the viscera – in the organs of the abdomen, such as the liver and the heart. This is a factor that is not measureable by excess body weight; it cannot even be gauged by body mass index, in fact, and this means that treatment methods beyond simple weight loss or the maintenance of a healthy body mass index are required. In order to develop appropriate responses to visceral fat, it is first necessary to fully define what visceral fat is and to understand the causes or aetiology behind its accumulation. Finally, it will be important to find a way of measuring visceral fat so that clinicians can see when it is being reduced or eliminated.

These are among the goals of Professor Jean-Pierre Després and Jean-Claude Coubard, a pair of health experts hailing from Canada and France respectively. Though their backgrounds are distinct (academia vs private sector), they share one mission: to spread the word about what obesity really means. In his lab at Université Laval in Québec City, Canada, Després has been examining this difficult topic for almost 30 years – but it is only in the last 10 years that he has joined forces with Coubard to establish organised initiatives to engage and inform key stakeholders about visceral fat. With a number of years’ experience in educating people on medical matters, Coubard was the ideal partner, as Després explains: “In a nutshell, it was a meeting between a scientist with a message and someone who was responsible for large-scale medical education with a pharmaceutical company.”

**BREAKING GROUND**

Després’ team was able to gain an early insight into visceral obesity because it was among the first to employ imaging techniques such as computed tomography and magnetic resonance imaging, which are now widely used in research and medicine. As a result, in the mid-1980s...
Després and his colleagues estimate that as many as 25 per cent of sedentary adults may suffer from visceral obesity.

Over the intervening years, the remit of the Université Laval group’s research has expanded – and so has the significance of visceral obesity. Cancer, impaired cognitive function and dementia, as well as bone health and respiratory diseases, have all been linked to this dangerous entity, making visceral fat a costly problem for Canada and other Western nations. Indeed, Després and his colleagues estimate that as many as 25 per cent of sedentary adults may suffer from visceral obesity. It is for this reason that they have also devoted time to investigating methods for the management of visceral fat, including pharmaceutical therapies, lifestyle interventions, dietary programmes and even genetic factors. “There are ways to lose visceral fat,” Després confirms.

LISTEN UP

Despite the broad implications of their findings, Després and his collaborators were disappointed by the lack of response from practitioners, policy makers and the public when it came to their work. “In newspapers, we still hear a lot every week about healthy body weight and weight loss – but there is no scientific basis for this,” he asserts. It was in order to combat this misinformation that he joined forces with Couillard and, in 2006, the pair established the ICCR at Université Laval. The purpose of this organisation was to bring together a multidisciplinary group of experts – nutritionists, cardiologists, diabetologists and lipidologists, among others – to work together on a clinical education portfolio to inform physicians about obesity.

Coubard’s experience in organising academic symposia around the world, and the portfolio of contacts that the pair shared in the field, were invaluable for tackling this ambitious task – but the two experts were also driven by their conviction that, at that time, there was a big gap between the scientific understanding of obesity and clinical approaches. The ICCR quickly grew into a large academic organisation for the promotion of both research and education into the health implications of ectopic fat and visceral obesity, with a primary focus on preventive lifestyle choices. Participants regularly attend the ICCR’s symposia, which tackle specific themes within the initiative’s remit, including metabolic syndrome, markers of obesity and the consumption of high-sugar beverages.

WEB PRESENCE

The years following the ICCR’s establishment were particularly busy for Després and Couillard, as they organised conferences worldwide and continued their research efforts at home – but it was nonetheless during this time that they established their website, which would come to be a staple of their education efforts. Launched in 2007, the site was originally hosted at www.cardiometabolic-risk.org – but the ICCR board members agreed some time later to change the name in order to better reflect the diversity of the organisation and its positive outlook; it can now be found at www.myhealthywaist.org. Containing a wealth of information available for download, the site has attracted visitors from all over the world, tracking visits from more than 160 countries. “The response we have received has been phenomenal,” Couillard enthuses.

TRANSATLANTIC CROSSING

More recently, the pair has also been involved in the establishment of EHLA, an ICCR initiative aiming to engage with key stakeholders in France and the UK particularly, and Europe in general. As with all of the work undertaken by Després and Couillard, the EHLA focuses on putting science into practice – a goal that they will continue to pursue in future.