



IMMIDIET News

January 2003 - Issue 2

IMMIDIET: a bridge between tradition and novelty

With IMMIDIET research gets out of universities and big hospitals and enters General Practice and the homes of people, to discover about daily life, dietary traditions and lifestyle that reflect both deeply rooted traditions and rapid changes.

Almost 1100 couples have been recruited and tens of doctors are involved in three European regions, where some years ago important differences were detected in the prevalence and severity of cardiovascular disease.

But in the same Europe, shifting in few decades from the most devastating war to a union of territories and individuals superior to that of the Roman Emperors, goods travel fast and habits change rapidly.

So, many stereotypes are going to disappear, if Italian boys and girls will eat hamburgers like the ones across the channel, or if on Belgian and English supermarket's shelves wine and olive oil will replace beer and butter...

Of course, decades will be needed to deeply change the lifestyle of a population and therefore change the risk of diseases. Nevertheless, the "photograph" being developed by IMMIDIET in Abruzzo, in Limburg and in south-west London - on a time span of three years right on the edge between two millenniums - will set up a unique reference point for all the field - based studies for years to come. Indeed, indigenous couples, not only born in that region, but having parents and grandparents coming from the same area too, can offer us a well detailed image of century - old traditions at the Euro time. Traditions that will quickly disappear under the globalization pressure.

Let's wait with scientific interest and journalistic curiosity the first results of IMMIDIET, due in the next months, to know a little better how we were, or, maybe, how we shall be.

Giovanni de Gaetano
Catholic University, Campobasso - Italy

Down to the heart of European Research

The Immidiets study presented in Bruxelles during the "European Research 2002" conference

It was the biggest conference on European Research ever organized: 142 projects, 65 scientific organizations represented, over 8.000 participants. At European Research 2002, held in Bruxelles from 11 to 13 November, Immidiets too was represented.

The main goal of the event was the launch of the Sixth Framework Programme (framework programmes are the main instruments for financing scientific research in the Union). But the Bruxelles conference had two other important objectives: on one hand the presentation of some of the best scientific and technological European projects, on the other the opportunity for researchers to meet and, most important, to establish new contacts, new networks, new cooperations.

Immidiets, represented by Licia Iacoviello, Scientific Coordinator, and by Americo Bonanni, member of the Communication group of the project, had a stand in the Food Quality and Safety area. It must be highlighted that our was one of the few amongst all those invited dealing strictly with health.

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Entrance to "European Research 2002"
[Photo © European Communities, 1995-2002]

Selenium and cardiovascular diseases

One of the tasks of Immidiets is to study the status of selenium in people participant. What is the role of this element in preventing cardiovascular diseases?

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Selenium is an essential trace element (which means that we need it in our daily diet and that blood and tissue concentrations are extremely low) and has a variety of functions. The main one is its role as an antioxidant in the enzyme glutathione peroxidase (GP), the major intracellular antioxidant. Selenium depletion results in a decrease of both GP activity and protein. Until recently, studies on the function of selenium focused on GP. Recognition that several effects of selenium are not associated with GP has forced re-evaluation of its function. Another selenoprotein, designated Selenoprotein P, has been discovered which is postulated to be a major extracellular antioxidant. More recently, the selenium-dependent thioredoxin reductase system has been proposed to contribute into ascorbate (vitamin C) regeneration. Thus, the selenium-dependent systems are crucial antioxidant defences in humans.

However, its clinical importance is still considerably underestimated.

The cardioprotective Mediterranean diet is actually a selenium-rich diet (for instance, 100 g of cooked octopus, the Greek national dish, provide about 100 µg of selenium) and increased consumption of selenium-rich marine or vegetables foods by cardiac patients was shown to result in a reduced cardiac mortality rate in several trials. This raises the question of the mechanism(s) by which selenium can influence cardiac mortality and morbidity. Selenium deficiency has been related to coronary heart disease and several mechanisms have been proposed. However, the evidence so far remains controversial.

We recently proposed that selenium is particularly important in certain cardiac syndromes such as, for instance, chronic heart failure (CHF).

CHF is indeed associated with peripheral arterial vasoconstriction and impaired skeletal muscle metabolism, both attributed to the impaired vascular endothelial function. CHF is now seen as a disease of the muscles, including skeletal and respiratory muscles, and not only of the heart muscle. Correction of endothelial dysfunction results in a significant increase in exercise capacity (knowing that the main symptom of CHF is reduced exercise capacity) and endothelial dysfunction in these patients is improved by vitamin C, thought to scavenge oxygen radicals and spare endogenous antioxidants from consumption. The selenium-dependent systems act synergistically with vitamin C to neutralize oxygen radicals and preserve endothelial function, which in turn may help to maintain exercise capacity.

This theory is in line with the history of Keshan disease, an endemic cardiomyopathy in low-selenium soil areas. In the Keshan area (in China), the se-

lenium status of the patients coincides with the clinical severity (reduced exercise capacity) rather than with the degree of left ventricular dysfunction as assessed by echocardiographic studies. So selenium deficiency is considered a predisposing (or an aggravating) factor rather than a specific etiologic factor for the occurrence of the Keshan disease. What we learn from Keshan disease is therefore that in patients with a known cause of CHF, even a mild deficiency in selenium may influence the clinical severity (the tolerance to exercise) of the disease. In the cases of CHF in our countries, however, the main cause of the low selenium blood level was likely not the low selenium content of the soil but the diet of the patients.

The IMMIDIET study will allow to examine the selenium status of populations with different risks of heart diseases.

Selected publications by IMMIDIET Partners

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Genetic variation in the renin-angiotensin system and abdominal adiposity in men: the Olivetti Prospective Heart Study.

Ann Intern Med. 2003;138:17-23.

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Association of factor VII levels with inflammatory parameters in hypercholesterolemic patients.

Atherosclerosis. 2002;165:159-66.

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Wine drinking and risks of cardiovascular complications after recent acute myocardial infarction.

Circulation. 2002;106:1465-9.

Cappuccio FP, Oakeshott P, Strazzullo P, Kerry SM.

Application of Framingham risk estimates to ethnic minorities in United Kingdom and implications for primary prevention of heart disease in general practice: cross sectional population based study.

BMJ. 2002;325:1271.

Sieri S, Agudo A, Kesse E, Klipstein-Grobusch K, San-Jose B, Welch AA, Krogh V.

Alcohol consumption in EPIC cohorts from ten European countries.

IARC Sci Publ. 2002;156:173-6.

Zuidgeest-van Leeuwen SD, van der Heijden MS, Rietveld T, van den Berg JW, Tilanus HW, Burgers JA, Wilson JH, Dagnelie PC.

Fatty acid composition of plasma lipids in patients with pancreatic, lung and oesophageal cancer in comparison with healthy subjects.

Clin Nutr. 2002;21:225-30.

Jankowski M, Vreys I, Wittevrongel C, Boon D, Vermeylen J, Hoylaerts MF, Arnout J.

Thrombogenicity of beta 2-glycoprotein I-dependent antiphospholipid antibodies in a photochemically induced thrombosis model in the hamster.

Blood. 2003;101:157-62.

Food Sources of Selenium* (µg/100g):

Fresh tuna	112,0	Raw beans	16,0
Fresh sardine	58,0	Raw dried chick-peas	2,0
Mussels	49,0	Cooked beans	1,4
Cooked lamb	19,0	Cooked dried chick-peas	1,0
Raw whole chicken	10,0	Yogurt	2,0
Corn on the cob	15,5	Goat milk	1,9
Raw parboiled rice	14,0	Cow milk	1,6
Dried walnuts	3,1	Cheddar, cheese	13,9
Dried almonds	1,5	Parmesan, cheese	12,0
Raw field mushrooms	7,5	Pecorino, cheese	6,3
Ripe tomatoes	2,3	Eggs	5,8
Raw courgette	1,0		

Source I.N.R.A.N.
(Istituto Nazionale di ricerca per gli Alimenti e la Nutrizione)

*The selenium content of foods varies according to the growing area.

An Immidiets day

The work of researchers with participants

How is the typical day of an Immidiets investigator?

Here is Franco Zito, from the "Angela Valenti" Laboratory of Genetic and Environmental Risk Factors for Thrombotic Disease, Mario Negri Sud, telling us everything.

37 years old, graduated in Medicine from Bari University, Zito specialized in Clinical and Laboratory Ematology at the Università Cattolica, Rome. He is one of the investigators who worked "in the field" almost every day to meet the couples involved in the study. For those not familiar with Immidiets, the first phase of the research saw the involvement of 270 couples, made up of people only from Abruzzo. Each one of the 540 participants answered a complex questionnaire on his/her dietary habits and underwent a medical evaluation and blood and urine sampling. The whole operation relied upon a network of General Practitioners. Couples were recruited by their doctor who later, on the basis of analysis results, will counsel them about the best strategy to prevent cardiovascular diseases.

But let's get back to the Immidiets average day. "We wake up very early - says Zito - because we have to be in the practice chosen for that day at six o'clock in the morning. Some of the patients have to get to work right after meeting us. Sometimes, when the practice is in a town far away from our Institute, our alarm clock rings at 4:45 AM. I meet Branislav Vohnout (a young Slovakian researcher working at the "Angela Valenti" laboratory since two years and half thanks to a European fellowship) and together we prepare all the tools and materials we have to carry with us. Then we put everything in the car and we leave".

The General practitioner has to wake up early too.

"Yes. He has to open his practice at a definitely unusual time. And let's not forget couples who not only have to be there on time, but have had to follow a rigid procedure before they get there. In my opinion, Immidiets has a great appeal because of those small sacrifices".

How are the visits carried out?

"We spend some 30 minutes with each couple. We introduce ourselves, then we detail the aims and the methods of Immidiets, we take blood and urine samples and finally we take some very simple measures: height, weight and so on. After this, husband and wife leave the practice. They will be back in a few weeks to speak with their doctor, who in the meantime will have received results from our analysis and will have discussed with us the strategy to follow for every single person".

How do you "close" your day?

"We have a very rigid timeline: blood and urine samples have to be treated within three hours. So this is the maximum time between the first appointment and returning to the lab. Once we are at the Institute, we perform immediately all the operations required by the study, such as centrifugation and separation of blood components, for example. At the end we have samples ready for subsequent analysis of Immidiets".

Then you go home.

"Not yet. Two more hours are devoted to input in the computer data about couples of the day and to have everything ready for the following day".

Hard days, someone could say.

"I wouldn't say so. There is also fun during the visits. We meet new people, and we have interesting relationship with the G.P. Often we exchange ideas about strategy to adopt in particular cases. After all, I consider them pleasant days".



Franco Zito and Branislav Vohnout at work.

"It has been a great experience"

"Brano" leaves IMMIDIET to face a new challenge

Branislav Vohnout (but everyone calls him Brano) has been with Immidiets since the first days. He was one of the pillars of the operative phase, the one "in the field", conducted in Abruzzo. Now he will face a new challenge: he is moving to South Africa, where he will work in the Stellenbosch University, Cape Town. Thanks to a fellowship from the International Atherosclerosis Society, Brano will focus on cardiovascular risk factors in familial hypercholesterolemia.

Graduated in medicine at the Comenius University of Bratislava, Brano started his career in the Institute of Preventive and Clinical Medicine, in the same town. After this experience he spent six months in the USA, in the University of Iowa. On July 2000 he arrived at the "Angela Valenti" Laboratory of Genetic and Environmental Risk Factors for Thrombotic Disease, Mario Negri Sud, thanks to a prestigious "Marie Curie" fellowship of the European Union.

"It has been a great experience - says the Slovakian researcher - It gave me the opportunity to see all the steps of a scientific study, including management. All in all, if you want to work in science, you have to be a manager too".

Sure, for Brano and his wife Andrea Havranova South Africa will mark a big change. "It's wonderful to see various perspectives - he adds - not only from a scientific point of view, but also from a social one. There is ever much to learn".

On behalf of all Immidiets staff, good trip and good luck, Brano!

Appointments

Sixth IMMIDIET Meeting

The next IMMIDIET Meeting will be held in Grenoble, from 4 to 5 July 2003, organised by Michel de Lorgeril.

Conferences

ESC Congress 2003

European Society of Cardiology
Vienna - Austria, 30 Aug - 3 Sept 2003
www.escardio.org

43rd Annual Conference on Cardiovascular Disease Epidemiology and Prevention

Miami - FL, 5 - 8 March 2003
www.americanheart.org/conferences

Interview by
Americo Bonanni

Down to the heart of European Research

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"We are very happy with the interest demonstrated by the hundreds of people visiting our stand - says Licia Iacoviello - Researchers, journalists officials and public, all have been impressed by the central concept of our work: migration as a medical research tool".

With a number of publications and a computer multimedia presentation, Immidiets aimed at introducing itself in a simple and direct way, talking not only to specialists, but to a more general public too. The main message, "eat well, live better", is for sure travelling across Europe, thanks also to the project's sticker (no visitor forgot to take home one of them).

"Of course - adds Iacoviello - one of the main goals for us was to establish new contacts, to explore possibilities of broader cooperations in future projects. We met many researchers interested in this work, and they brought us some ideas that fit well within our philosophy".

And now the most frequently asked question: "when will you have some results? We can't exclude that many people asked it for strictly personal reasons: to know what to eat in order to keep themselves in good health. But for sure the interest for what Immidiets can bring in terms of knowledge and guidelines toward better eating habits has been extremely high. We'll not disappoint them.



Antonio Mascioli, European Commission Officer, with Licia Iacoviello and Americo Bonanni at the "European Research 2002" Conference.

Immidiets in a nutshell

**First time you hear about this research?
Here is a brief introduction**

The aim of Immidiets is to understand if and how genetics and dietary habits interact and influence risk factors for cardiovascular diseases. So the study will examine more than two thousands people living in three European areas: Abruzzo in Italy, Limburg in Belgium and the south-west part of London, in the United Kingdom.

- First phase -

Participants

Couples formed by people born in the same area, therefore English married to English, Italians married to Italians and Belgians married to Belgians. Each one of the three groups is formed by 270 couples, over 1,800 individuals.

Objectives

- To evaluate differences in the three populations regarding dietary habits and genetic characteristics
- To evaluate how diet and genetics can have an influence on risk factors for cardiovascular diseases
- To define if and how the diet of the Abruzzo people has changed in recent past and, on the other side, if Belgian and English diets got closer to Mediterranean model

- Second phase -

Participants

270 Italian - Belgian mixed couples

Objectives

- To evaluate if Mediterranean dietary habits acquired after marriage have modified cardiovascular risk in the Belgian partner
- To verify, on the contrary, if Italian partners elevated their cardiovascular risk after the marriage and the subsequent introduction of typically Belgian components in their diet

- Methods of Immidiets -

- Questionnaires to characterize dietary habits of participants
- Evaluation of blood pressure and measurement of biometric indicators (for example body mass index)
- Blood and urine analysis to evaluate biochemical and genetic parameters.

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