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AIR PROJECTS

ATMOSPHERIC POLLUTION INCREASES THE RISK OF SUFFERING CARDIOVASCULAR DISEASES

At the beginning of this month, researchers in CREAL (Centre de Recerca en Epidemiologia Ambiental) in Barcelona, together with researchers from Switzerland and from South California University, they published the research "[Contaminación atmosférica y evolución de la aterosclerosis en adultos](#)" whose conclusions remark that **atmospheric pollutions speeds up twice as much the atherosclerosis average evolution** which, obviously, **increases the risk of suffering heart attacks or cardiovascular diseases.**

Researchers have specifically reached the conclusion that people who live 100 meters away from a highway or road with heavy traffic are suffering twice as much acceleration in the annual process of growth in the arteries plaque in comparison to the average.

Cardiovascular diseases are the first cause of death en developed countries, even more important than cancer. For example, around 120 people are dying every week in Catalonia because of some ischemic cardiopathy (heart attack, angina pectoris and sudden death), figure that reaches 770 people in the whole of Spain. **This is why the conclusions in this research are so important.**



Xavier Basagaña

The data are so outstanding that in Inspira, **we got in touch with Xavier Basagaña**, researcher in CREAL and co-author of this research, in order to interview him.

Which signs have led a group of researchers to fix their attention in the relationship between atmospheric pollution and atherosclerosis?

There are a lot of researches that show a relationship between pollution and cardiovascular processes. Hundreds of them are focused on an intense short term relationship. For example, if we have quite a lot of pollution today we will detect likewise an increase in the admissions in hospitals due to cardiovascular diseases such as heart attacks, angina pectoris and so on. Nevertheless, the long term effects have not been so thoroughly studied and being one of the reasons the difficulty in carrying them out. These



articles are the basis to formulate the hypothesis that explains that exposure to pollution during a long period of time can entail an increase in the cardiovascular sensitivity. Atherosclerosis is a natural process in life where, throughout the years, the thickness of our arteries increases. It is not necessarily a disease, although in some cases it can reach pathological levels; but it can be a sign of future cardiovascular problems. So, if pollution speeds up the atherosclerosis process, it also can contribute to future cardiovascular problems.

Did the conclusions in the research fit to the hypothesis or were they unexpected?

Conclusions confirmed the hypothesis. CREAL have started a research very similar to the one carried out in Los Angeles and we will shortly have the results. We hope to be able to confirm the hypothesis that similar effects will be seen in Gerona.



Foto: 91RS (vía Flickr)

This research has produced results but investigation must go on ... which are the following steps regarding the connection between pollution and health?

There are quite a lot of differences between Barcelona or Gerona and Los Angeles. In Europe we live close to traffic than in the United States so the effects could be higher. Moreover, the fleet of vehicles is different; here we use diesel as fuel, which causes more pollution while it is hardly used in the United States. There are other differences regarding the diet. On the

other hand, we also want to observe the results on different subgroups, such as those ones belonging to a lower status quo, or the ones that are being treated from atherosclerosis. Likewise, we are going to try and observe the inner pollution effect (inside home) on the research undertaken in Gerona.

The conclusions on this research are important enough so that Civil Services decide to reduce the pollution levels in cities. What is the procedure used so that a scientific research reaches those ones who are taking decisions? Would you say that this process is comforting for the researcher or, on the contrary, procedures are long and frustrating?

Regarding communication with Civil Services, the researches conclusions reach them, since part of CREAL financing comes from *Generalitat* and there are channels so that they receive the reports.

As per the measures undertaken after these kind of researches, things are being done but they probably are not enough. For example, **in Barcelona we are breathing high levels of pollution every day**. Changes are complicated and there are mobility problems that are not easy to solve but, **indeed, the results of the research give away that we are in front of a serious public health problem and that initiatives to cope with it should be studied**.

Which pollutant elements make evolve atherosclerosis in a faster way?

Pollution is composed of several kinds of particles. On our research we have detected “thin” particles whose diameter is lower than 2,5 mm. Most of them are due to combustion, namely, traffic. Despite there can be particles coming from industry processes or heating, most of them belong to traffic.

How can the [Precautionary Principle](#) be combined with the features of the cities that have been crated by ourselves and with a life style derived from a consumer society? Do you think we must renounce to a part of our “privileges” as citizens – travelling on planes, driving a car, etc. – in order to get an improvement in the air breathed in our cities?

An important part of our job is to make people aware that we are not only in front of an ecologic problem that ecologists can take care of. We are in front of a public health problem that is affecting us. It is perfectly countable due to the number of premature deaths, the increases of diseases, etc. **We must all work on the public awareness because this is not understood as a health real problem**. We still think it is more important to arrive to our job on time than having a more pure air. Cities must be made for people, not for cars.

It was a sheer pleasure to talk to Xavier Basagaña who supported his speech with a compromised and enthusiastic attitude.

Fundació Roger Torné is working for children breathing health so it is fully involved in giving support to movements and initiatives to reduce the limits of pollution in our cities. This is why we support this research as well as news as the one [published this week on the blog Ladyverd](#) where a research published by “[Health effects institute](#)” (HEI) is reviewed. Its conclusions show that **there is an indisputable relationship between the exposure to atmospheric pollutants coming from road traffic and the increase of asthma**.



As Mr Basagaña said, we are in front of a public health problem affecting us all. In the Foundation we are working so that it is perceived that way. **Would you like to help us?** Here you are some ideas:

- **Publicize this news** on your blog or in the means available to you.
- Consider as a valid option taking **public transport** or walking during your displacements.
- Get interested on **low energy consumption vehicles** when buying a new one.

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