NORAH
Lärmwirkungsstudie

29 October 2015

NORAH noise impact study concluded

The most comprehensive study so far on the health effects of traffic noise shows differentiated results. On the one hand, it was established that all three types of traffic noise (aviation, road and rail) partially effect the physical and mental quality of life of the persons concerned as well as their health. On the other hand, the overall health risks of traffic noise are lower than assumed in advance in the public sphere. Effects on blood pressure cannot be verified. Traffic noise can, however, increase the risk of depression and congestive heart failure. Annoyance due to aviation noise has risen sharply at all the investigated airports in recent years. Since the introduction of the core rest period (night-time flying curfew) at Frankfurt Airport, residents have been sleeping better.
Frankfurt, 29 October, 2015. The authors of the NORAH study presented the results of the most comprehensive study so far on the effects of traffic noise to the public today in Frankfurt. For almost five years now, eight scientific institutions and an engineering office have been researching the effects of aviation, road and rail noise on humans. The investigations were carried out at Frankfurt Airport and in the Rhine-Main region as well as at the comparison locations of Cologne/Bonn, Berlin and Stuttgart. Only a subgroup showed a statistically clear correlation between heart attacks and aviation noise, but there was no clear trend for strokes. It was possible, however, to find clear evidence for a connection between constant traffic noise and the occurrence of depression and congestive heart failure. This connection applies to all three investigated traffic types, i.e. road, rail and aviation. For depression, aviation noise showed the highest effect, for congestive heart failure it was rail noise. The scientists were also unable to verify an increase in blood pressure due to constant aviation noise. This result contradicts suggestions from some previous studies. The high quality of the study, however, reinforces the result: it is based on far more blood pressure measurements and on more precise acoustic and calculation data than any previous study. Overall, the health risks from aviation noise identified by NORAH are lower than assumed up to now.

Annoyance due to aviation noise increased

In general, the residents around Frankfurt Airport felt more annoyed by aviation noise at the same continuous sound level than in earlier studies. Even at the investigated comparison airports, the annoyance was considerably above the EU standard graphs used, for example, for the EU environmental noise directive. Compared with the airports Cologne/Bonn and Stuttgart, people in Frankfurt exposed to the same noise level feel greater annoyance. The annoyance increased initially after the opening of the North-West runway in 2011, and fell slightly in 2013. The scientists refer to a "change effect" in connection with the expansion of the airport. They were also able to verify that aviation noise bothers people more than road or rail noise. A differentiated picture also results from

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the effects on sleep: The NORAH Sleep Study shows that residents around the airport have been sleeping better since the introduction of the core rest period (curfew on night-time flying) in 2011. Nonetheless, they often feel more tired in the morning – at the same level of noise. Persons who have a critical attitude towards aviation in general sleep less well than those with a positive attitude towards aviation.

Comprehensive quality assurance

"NORAH is a milestone in noise impact research. Many of the connections have never before been investigated in the depth and breadth realized here," says Johann-Dietrich Wörner, member of the board of the Frankfurt Airport and Region Forum (ARF). All of the results are backed up by the unanimous approval of a Scientific Advisory Board for Quality Assurance, who constantly accompanied and monitored the study. Wörner continues: "First of all, I find it reassuring that the serious impacts on health feared by many due to air traffic in the Rhine-Main Region could not be verified. The decisive factor is not only the direct health effect but also the impairment of the quality of life and the high degree of annoyance that was detected in the study. This – the study clearly shows that - involves not only aviation noise. Traffic noise as a whole represents a relevant issue, so that appropriate attention must be paid to noise protection as for the street and rail."

Careful handling of results

Overall, the study creates clarity in many areas, but also highlights the need for further research. This applies, for example, to the still largely fragmentary acoustic database in the area of road and rail noise. The board of the ARF appeals to all interested politicians and citizens, aviation critics and defenders, to treat the highly complex results with care, and to avoid extreme interpretations and knee-jerk conclusions. Wörner: "The consortium has presented more than 2,500 pages of results reports. Now we have to fundamentally analyze which conclusions we can and must draw from this trove of data."

Overview of sub-studies

The NORAH Consortium today presents the results of the following NORAH sub-studies:

- Quality of Life Study
- Study on Health Risks
- Sleep Study
- Blood Pressure Study

The NORAH Child Study was already published last year.

The Board of the ARF

The Board of the ARF has three members:

- Ms. Anke Giesen, Executive Board Member of Fraport

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- Mr. Oliver Quilling, District Administrator of Offenbach
- Prof. Dr. eng. Johann-Dietrich Wörner, Director General of the ESA

The NORAH study

The noise impact study NORAH (Noise-Related Annoyance, Cognition and Health) is the most comprehensive study ever conducted of the effects of aviation, rail and road traffic noise on the health and quality of life of the population. The NORAH research consortium is made up of nine prominent research and technology institutions in the fields of medicine, psychology, social science, acoustics and physics. The investigations were carried out mainly in the Rhine-Main Region, and partially also in the regions around the airports Berlin-Brandenburg, Cologne/Bonn and Stuttgart. The client for the NORAH Study is the Umwelt- und Nachbarschaftshaus (UNH) in Kelsterbach, a subsidiary of the Land of Hessen. Alongside the land of Hessen, communities, Fraport, airlines and the UNH were also involved in the financing.

If you would like to learn more about the NORAH Study, please visit the website www.laermstudie.de (http://www.laermstudie.de/) , call us or order by e-mail one or more of the brochures as a PDF

- NORAH Knowledge 10: Sleep Study – Results
- NORAH Knowledge 11: Blood Pressure Study - Results
- NORAH Knowledge 12: Study on Health Risks - Results
- NORAH Knowledge 13: Quality of Life Study – Results
- NORAH Knowledge 14: NORAH Study – Overall results

Picture material

As of the afternoon of 29.10., you will find up-to-date photos of the press conference at www.laermstudie.de (http://www.laermstudie.de/) .

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