

Media release

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Swiss Covid-19 lung study:

Persistent lung damage after Covid-19

The nationwide study published today was initiated by Inselspital, Bern University Hospital with the collaboration of the University of Bern and has established for the first time: severe Covid-19 can result in prolonged impairment of oxygen uptake in the lungs even after four months. Long-term monitoring and treatment of these patients is urgent and important .

Already in the summer of 2020, various studies reported persistent symptoms and possible permanent health impairments in patients after Covid-19. The observational study presented here aims to document the medium- and long-term trajectory of the disease based on clinical data, particularly focusing on the lungs. The study provides important baseline data for the clinical care of long-term Covid-19 patients worldwide.

Prolonged reduction of oxygen uptake

The first evaluation of the «Swiss national Covid-19 lung study» after four months presented here shows a significant functional impairment of the lungs especially after severe Covid-19. The functional change was determined by a reduced carbon monoxide diffusion capacity (DLCO). After severe Covid-19, the average DLCO was 76% (median, predicted). In other words: Even four months after the infection severe Covid-19 causes a one-fifth reduction in oxygen uptake capacity compared to a healthy person.

Systematic evaluation of the chest CT scans also indicates impairment. **Prof. Lukas Ebner**, senior attending physician and head of thoracic imaging at the University Institute for Diagnostic, Interventional and Pediatric radiology, explains: *“Although initial imaging presentation of Covid-19 pneumonia is relatively characteristic, the mid- and long-term radiological manifestations are not well understood at the moment. Besides parenchymal damage that can be attributed to residues of the severe pneumonia, CT imaging further indicates a potential involvement of the small airways appearing characteristic following Covid-19. Our interdisciplinary approach shows the importance of pursuing a holistic approach, investigating longitudinal radiological and clinical as well as functional parameters in order to understand potential damage caused by the Covid-19 in the lungs.”*

First national pneumological study on long-term effects of Covid-19

The «Swiss national Covid-19 lung study» is a national, multicenter, prospective observational study initiated under the direction of the Department of Pulmonary Medicine at Inselspital, Bern University Hospital. The Department for Biomedical Research (DBMR) was involved on behalf of Bern University. Currently there are nine centers throughout Switzerland involved in the study, including all important Pneumology centers in Ticino, as well as in French- and German-speaking Switzerland (cf. appendix for list).

In this first publication, data from 113 patients were analyzed. Sixty-six had a severe to critical course, and forty-seven a mild to moderate course. Pulmonary functional data were collected on respiratory muscle strength, carbon monoxide diffusion capacity (DLCO), a 6-minute walk test and CT scans of the lungs. Known risk factors such as BMI, smoking, age, pre-existing conditions, etc. were also recorded.

Nationwide collaboration enables exceptional project

In many respects, the «Swiss national Covid-19 lung study» is an exceptional research project. The principal pneumological centers in Switzerland have joined forces in a concerted effort. The study initiator, **PD Manuela Funke-Chambour**, clarifies: *“Our study was able to collect pulmonary function data throughout Switzerland in a very short time. The data evaluated to date and future findings are important to answer questions about the long-term effects of Covid-19 on the lung. Only by means of data from this kind of study, we will be able to provide patients with optimal support and care for long term follow-up.”*

Long-term follow up after Covid-19

The documented changes in the lungs are a clear warning signal. Covid-19 is far from being overcome after an acute phase. The limitations are underlined by the additionally described neurological and cardiovascular findings. The researchers involved in the Swiss Covid-19 lung study emphasize that patients urgently need multidisciplinary medical care and support in competence centers even after the acute phase of Covid-19. **Prof. Thomas Geiser**, co-initiator of the study and new Director of Teaching and Research at Inselspital, points out: *“Covid-19 places high demands on our research and requires new ways of tackling its challenges. Very high time pressure combined with a new kind of disease that can irreversibly affect numerous organ systems forces us to adopt new approaches. We now focus on innovative research with rapid implementation. In this project, this cooperation was established in a very short time, with an emphasis on a multicenter, interdisciplinary collaboration and a medium-to long-range observation timeline.”*

Experts:

- PD Dr. med. Manuela Funke-Chambour, Principle Investigator and Head of the «Swiss national Covid-19 lung study», Deputy Chief Physician, Department of Pneumology, Inselspital, Bern University Hospital
- Prof. Dr. med. Thomas Geiser, Director of Teaching and Research, Insel Gruppe, Director and Head of Department of Pneumology, Inselspital, Bern University Hospital
- Prof. Dr. med. Lukas Ebner, Senior Attending Physician, Division chief of thoracic imaging, Department of Diagnostic, Interventional and Pediatric Radiology, Inselspital, Bern University
- For further centers involved in the study: cf. appendix

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Links:

- Original publication: <https://erj.ersjournals.com/content/early/recent>
- [University Department of Pneumology, Inselspital, Bern University Hospital](#)