



ME-KONFERANSE STRYN

A BIOMEDICAL ME-CONFERENCE

WELCOME

We'd like to wish you all welcome to the ME Conference Stryn, who, due to COVID-19, is a digital conference. This is the 3rd biomedical conference of this kind. The point of the conference is to provide improved knowledge about ME to physicians, health care professionals and other professions that interact with ME patients as a part of their job, so that they can provide the best possible help, support and care to these patients. There are some changes compared to earlier conferences: the subject days will span over two days and will give insight into the latest biomedical research on ME, nationally and internationally. In addition we are putting on an evening lecture, lasting for a couple of hours, and we are hoping that as many people as possible will attend this lecture. There will be a summary of the latest biomedical research findings and the current direction of the research on ME. There's more information about this in the program.

2020 was the year when the COVID-19 pandemic broke out across the world. In spite of this tragic pandemic, there are a couple of researchers internationally regard COVID-19 as a possibility to find out what leads to a human developing ME. ME/CFS, that usually appears when a virus-, bacteria- or fungus infection causing a lasting damage to the immune system, the nervous system and the metabolic system, are often diagnosed years after the original infection, which limits the ability of researchers to study how the disease has developed. In May 2020 the Open Medicine Foundation at Stanford in the USA were early in pointing out that the COVID-19 pandemic is a unique opportunity to study the biological factors that can determine or predict the development of ME/CFS.

They are proud of being able to initiate a study of patients with COVID-19 to study the course of the disease and the comorbidities (chronical conditions stemming from another disease), to find out if it develops to ME/chronic fatigue syndrome, to study the molecular transformation, if such a transformation occurs. This study will include frequent sampling of bodily fluids, continuously following up with health examinations using apparatus attached to the patient's body and data on symptoms that will be registered at several different times within a two-year period. It is expected that some of the COVID-19 patients will get ME/CFS, because we know that several other viruses function as a trigger for this disease.

In the research group led by Jonas Berquist from Uppsala, who will be part of the ME Conference Stryn 2021, they have had a longtime interest to study patients that might have neuroinflammatory diseases, especially Myalgic encephalomyelitis (ME). In this patient group the recovery system is drained of energy at the same time as the nervous system and the immune system is compromised. – What we want to study is whether patients that have gotten a severe COVID-19 infection, have a similar post-viral exhaustion, and if so, to what extent this occurs. We do know about such a connection from other great pandemics, including the Spanish flu, the Asian flu and SARS.



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The research group is already looking for neuroinflammatory markers and nerve cell markers with ME patients, so they are also trying to find these markers in the spinal fluid of COVID-19 patients. This might show a connection and provide data on what kind of patients risk suffering longterm, or even chronic, health problems. If this is the case, what is the composition of these biomarkers and what other organs are simultaneously affected? Now they intend to follow up and study the state of patients that are under intensive care that have neurological symptoms.

In late summer 2020, the American researcher Mady Hornig told the Columbia Magazine that we will probably see a new wave of people contracting ME after having the corona virus. «Even though it is premature to conclude whether patients with COVID-19 can develop ME/CFS or not, earlier studies indicate that 10 percent or more of people that have been severely ill because of a virus infection will be diagnosed with this condition later on. If these numbers apply to COVID-19, Hornig says, then millions of people all over the world can be at risk». With this crisis an opportunity arises: Hornig and other experts on ME/CFS regard this pandemic as their best opportunity so far to examine the physiological root causes to this disease and develop treatments. Hornig is now performing several studies aiming at identifying the risk factors related to ME/CFS among COVID-19 patients and to lay the foundation for new strategies for prevention and treatment.

Jørgen Jelstad has been following the ME research closely the last decade. In the fall of 2020 he wrote the following: «- An increasing number of media articles are describing how a significant percentage of people with COVID-19 are struggling with severe symptoms several months after becoming ill. Symptoms that in many cases are resembling ME. Even the editor in the foremost scientific publication, Nature, writes the following about "long COVID" in his editorial: it is of the essence to listen to what those with this condition are saying, in a way that, tragically, people with ME were not listened to».

There's no doubt that ME is a disabling disease. It is a disease with major consequences; for the one contracting it, the patient's next-of-kin and society as a whole. SF-36 is a certified form mapping out the quality of life, that several of the lecturers have touched upon earlier. SF-36 has been a focal tool in the research on ME/CFS. SF-36 is a form meant to map out the health related quality of life, and it's a standardised and certified measuring tool that is often used in health research. The patients themselves fill out the form where they rate their own experience of their own health through several questions that are divided into eight sub-categories. These eight categories are physical ability, physical role, bodily pain, general health, vitality, social function ability, emotional role and mental health. Compared to other patient groups, such as those with cancer, arthritis and depression, ME patients score lower on the health index (according to a study from 2011).

ME patients are diagnosed based on diagnose criteria. Strict diagnose criteria have been established (the Canada criteria and ICC), and they have been determined by the leading



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physicians and researchers in the international ME field. Following these criteria, it's estimated that between 0,2 and 0,4 percent of the population is afflicted with this disease. That is 2 to 4 people per 1000. In Norway this means about 10 000 to 15 000 patients. On numerous occasions, Jørgen Jelstad has shown graphs with the numbers showing how small an amount of funding that have been allocated to research on ME, compared to other severe diseases, such as MS, Lupus and arthritis, based on numbers from the National Institute of Health (NIH) in the USA. The situation in Norway has not been any better. In 2015, two important reports came out of the USA. One of them came from the Institute of Medicine (IOM), the other once came from the National Institute of Health (NIH). Both these American reports concluded that ME patients have been let down for years by both the health care services and the authorities.

The major breakthrough came with the report from IOM, that was published in February, 2015. This report is the result of 15 researchers going through 9000 articles/research reports. Their conclusion is that ME/CFS is a severe, physiological, chronic, complex multi disease that is severely disabling. The misunderstanding that the disease is psychogenic or somatic has to be done away with. ME/CFS is a physiological disease that attacks several of the core systems within the body. The research shows that ME patients have deviations in their immune system, circulatory system and central nervous system.

Because of this, there's been a shift in the perception of ME in the USA the last 5 years. They have moved away from the earlier of advice of cognitive behavioral therapy and graded exercise therapy as a form of treatment. In the fall of 2020 British health service authorities moved in the same direction, issuing a draft for new guidelines after a thorough review of all available documentation of the right treatment of patients with ME/CFS. Based on this, ME patients will no longer be advised to take part in graded exercise therapy, neither therapy developed from osteopathy, life mastery nor neuro linguistic programming (for example the Lightning Process).

In February of 2015, a press release from Columbia University in New York, where researchers claim to have found solid evidence that points to ME/CFS being a biological disease. Researcher and professor Mady Hornig said «We now have evidence that confirms what millions of people suffering from this disease already knows, ME is not about psychology». Our results implies that patients with ME have a significant disturbance in the immune signature in the cerebrospinal fluid. This concurs with a immune activation of the central nervous system. We have been so lucky as to have the researcher Mady Hornig sent us a recorded lecture as part of the biomedical ME Conference Stryn 2021.

Several aspects of ME indicates that the immune system gets activated in the brain, which leads to a releasing of inflammation substance. This neuro inflammation will lead to several symptoms, including fatigue, pain, cognitive impairment and sleep disorder. One hypothesis is that immune cells that are activated and located in other parts of the body infiltrates the brain, which leads to symptoms of ME. Japan is particularly known for



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research on neuro inflammation in the field of ME. New technology makes it easier to study neuroinflammation.

Luckily, the USA are now putting more of an effort into the research on ME. Recently, three research centers focusing on ME was funded, receiving about 300 million NOK for a period of five years, in addition to the ordinary research allocations (which have increased as well). An increasing number of elite researchers have worked in the ME field, which would not be the case just a couple of years ago. Findings from this research investing will provide more insight into the disease, what's causing it and, hopefully, better methods for treating it.

Norway could become a leading country within ME research in the world, but unfortunately, Norwegian health authorities have not entered the scene with funding for biomedical research on ME. Now fair is fair, the Norwegian Research Council granted 30 million NOK to four projects through BEHOV-ME (NEEDS-ME) in 2016/2017. Representatives from these projects will participate in the third ME Conference Stryn and talk about their project. Three out of the four projects that got grants from the Research Council through BEHOV-ME are medicinal research projects. The last one is a social studies project, and a collaboration between Sintef and FAFO, titled «Tjenesten og Meg» («the Services and ME»). The researchers are studying the needs of ME patients and their families, including the use of and experience with health- and welfare services. The main goal of the study is to find new knowledge in order to create good public services that corresponds to the actual needs of ME patients and their next-of-kin.

There is ground-breaking biomedical research going on at Haukeland University Hospital and the University in Bergen. The research group, led by the oncologists Olav Mella and Øysten Fluge, who have worked with ME for over a decade now, is no small group. This group has been expanding through the years. The researchers are saying that it is interesting how the ME field has been developing, particularly in regards to the major universities in the USA. Thanks to the Kavli Foundation, this group has, since 2011, been a decisive co-contributor to producing interesting research findings, as well as writing several professional articles that have been published in the last couple of years. Through the clinical studies RituxME and CycloME, a robust biobank has been built up, with blood samples and other sample material from the participants in these studies.

The goal of this research is to map out the disease mechanisms connected to ME, and to identify bio markers for the disease. In collaboration with the University of Bergen they are trying to find out whether energy metabolism can explain parts of the over-all picture clinically regarding ME, and whether ME is caused by an energy failure in the cells in the body or not. They have published an article that shows findings indicating that an important energy enzyme, Pyruvate Dehydrogenase (PDH), are being hampered in ME patients, which may explain the lack of energy and increased lactic acid production among ME patients.



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In the spring of 2019, Katarina Lien published a research article, where she laid out findings from research into what happens to ME patients during physical activity, relating to Protein-energy malnutrition (PEM), recovery time, the lactate level in the musculature, using ergospirometry (CPET). When using ergospirometry, both the oxygen consumption and the lung function. This examination makes for a realistic assessment of the function level of the patient, which lays the foundation for evaluating which physical achievements he or she will be able to accomplish.

Healthy people and people with ME were both tested on an exercise bike, two days in a row. On the second day, they repeated the test from the first day, and found out that ME patients are not able to perform as well on the second day as on the preceding day. In this study, the researchers intentionally caused Protein-energy malnutrition (PEM), to see how the ME patients react to two consecutive days of physical activity. In the test subject with ME, the test creates a passing setback of the function level, a phenomenon that is not found in other disease groups. In the autumn of 2020, Katarina Lien and others published a new science article, containing the key words heart function and echocardiography.

At Oslo University Hospital they are working with the ImmunoME study. The purpose of ImmunoME is to understand the ME disease better from a genetic and biological perspective. They particularly want to examine whether the immune system plays a role in the development of ME, and will go through with a thorough mapping of genes that are essential to the immune system to look for differences between ME patients and people in the control group. They also want to examine the occurrence of antibodies in ME patients. – One of our ongoing studies is about a meticulous mapping of genetic associations in the HLA complex on chromosome 6, that contain hundreds of immunologically important genes in addition to the HLA genes. An HLA association is one of several characteristic traits to an autoimmune disease, and any findings that might turn up in this study is motivation for further immunogenetic studies on CFS/ME. The research group published a science article in the spring of 2020.

In a collaboration between the medicinal and physical medicine department at UNN Harstad a new major study focused on ME patients will be conducted. The project received grants from the Research council the spring 2017. At the medical department UNN Harstad they recently conducted a study on treating irritable bowel syndrome with fecal transplant. Through this work, they got on the trail of finding out that the same treatment principle could also work regarding ME. When looking at studies concerning other diseases, we now know that an unbalanced intestinal flora can be normalized through transplanting bacteria from a healthy donor to the intestines of the patient. Findings have shown increased markers in the immune system that can be a sign of bacteria leaking from the intestines.

The research group at Haukeland University Hospital were also collaborating internally with the Children's clinic. Kristian Sommerfelt's experience with ME is with patients that are children and young, up until the age of 18, that were diagnosed before they turned 15. He



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has over 20 years of experience with ME, and have some sound advice to give to patients, their next-of-kin and health care professionals.

Due to the fact that school attendance is obligatory, it is easy to get an overview over all below the age of 15, in what was called Hordaland county earlier, since the physician referred to the Children's clinic. According to Sommerfelt, brain fog might be the most worrying and delimited symptom of ME. – This manifests in the patient not being able to use the head to think or communicate in a normal way. During a consultation, the patient might be able to answer questions well, but then the questioner has to pay close attention. The patient might start moving the hands a little, to sit in an uneasy way and start giving answers that aren't clear. Sommerfelt then usually ask about whether or not it is difficult to concentrate to think, and then he often gets the confirmation that the brain fog has begun. Sommerfelt encourages health care personell to remember that the patients might have from 20 to 40 minutes where they are able to follow a conversation in a regular way.

A research team at Karolinska Institutet and the Brag e clinics in greater Stockholm published a study in a prestigious neurologic journal in the fall of 2020, that's showcasing formerly unknown underlying causes. The physicians at the specialist clinic were taken aback from seeing so many cases of simultaneous hypermobility and constriction of the neck column as an indication of neck damages. They initiated a study with all the willing participants out of the first 229 admitted patients diagnosed with ME. This study showed that half of the patients had general joint mobility, which is way above average. In a magnetic-field camera probe (MRI) of the brain and the upper part of the spine the researchers found a higher occurrence of constriction of the upper part of the spine than they had expected. In addition to this, they found changes in the optic nerve that might indicate an increased pressure in the fluid surrounding the brain in many of the patients. The researcher Bj rn Brag e will be a part of the ME Conference Stryn 2021, and talk about these findings.

The ME Conference Stryn wants to contribute to public institutions in Norway getting better knowledge about and increased to, the ME disease. It's about time that ME patients and their next-of-kin getting the help they need. To be able to do this, you need the right knowledge and to understand the ins and outs of the disease. We are hoping that health care professionals will prioritize to hear what these important lecturers, that we have been as fortunate as to get to participate with their lectures, have to tell us. It is important that both politicians and the health care authorities are up to date on the latest in biomedical research. As is the case with every other illness, there is a need to coordinate the effort from the scientific community to understand the biological causes behind the ME disease. It is also important to increase the funding for biomedical research on ME.

BINDING REGISTRATION BEFORE THIS DEADLINE: MARCH 15TH, 2021