

## COVID-19 special edition: To a new quality of life (2)



**SPRINT partners** design unique healthcare innovation improving the quality of life of corona patients and their caregivers. ■ **Beatrixoord, location Haren**, designed a COVID-19 recovery protocol to successfully reintegrate corona-cured UMCG employees into the workplace. ■ Master's students **Floris Idema and Tom Buitink**, Biomedical Technology, University of Groningen (UG), are researching a renewable and transparent mouth mask. ■ Lode B.V. developed a bicycle ergometer for rehabilitation at the Intensive Care Unit (ICU). ■ Read the stories in this **second COVID-19 special edition** of the SPRINT newsletter.

## COVID-19 health care innovation

### ► Improving fitness at ICU



**'Mobility is the best medicine to physical recovery,' says Ton Rademaker, general director of Lode B.V.** It is in this 'towards a better quality of life' spirit, the Groningen-based technology company designed a ICU bicycle ergometer. The ergometer makes it possible for COVID-19 patients to kick-start their rehabilitation at the ICU by improving their fitness and muscle strength while cycling in bed. Go to the [SPRINT-website](#)

### ► New transparent faceshield makes human emotion visible

**UG master's students Floris Idema and Tom Buitink, Biomedical Engineering, are designing a transparent and renewable mouth mask to prevent that people get infected by COVID-19. The ultimate challenge, says Floris: 'The demand for mouth masks in which the facial expression of the wearer is visible has been an issue in health care for some time.'** By pediatricians, for example, adds Tom: 'A visible reassuring look from the doctor puts children at ease in a hospital environment.' And a transparent faceshield provides added value for the deaf & hard of hearing as well, Floris continues: 'Current faceshields prevent you from being able to read lips.'

#### Transparent & re-usable

An interview with UMCG-microbiologist Alex Friedrich in a local newspaper was the starting point to kick-off the master thesis, Tom and Floris say. The master research will be conducted within the Center of Research Excellence SPRINT. Friedrich called on businesses & researchers to come up with innovative COVID-19 faceshields or masks made of transparent textile. The choice of material is essential, endorses Tom: 'The material must not only be transparent, but also easy to wash and disinfection cost-effectively as well, so that the mask can be reused, unlike current COVID-19 masks.'

#### Suitable mask for multiple audiences

The first option is to design a faceshield equipped with a translucent nanofilter that filters the air particles from the air and breath. Floris: 'For medical use, it is required to filter at least 95% of contaminated particles from the air.' The aim is to complete the design study sometime in July and to come to an advice for a prototype medical device that meets European standards. A prototype that meets the requirements for use in a medical setting, as well as for use between citizens. Tom: 'Our ultimate goal is to enable a safe and optimized way of communicating between people in special circumstances as this corona pandemic requires.'

Floris Idema: [f.w.idema@student.rug.nl](mailto:f.w.idema@student.rug.nl) & Tom Buitink: [t.buitink@student.rug.nl](mailto:t.buitink@student.rug.nl)

## ► Back to the workplace after COVID-19

**Just returned home from a winter sports holiday, Ronald Stevens is feeling a bit flu-like. He was tested for corona by his employer the University Medical Center Groningen (UMCG). 24 hours after being tested, Ronald Stevens was sitting on the couch in home quarantine: 'Colleagues called, you talk to your supervisor and company doctor, but after a while the contacts stop. How to return to the workplace after being cured from COVID-19 infection was fully unclear.'**



After five weeks of home recovery and taking much experience overthere, the director of Beatrixoord Arbeid, location Haren, decided to draw up a return-to-the-workplace protocol for corona-cured UMCG employees. Ronald: 'Corona-cured employees who returned to their workplace without supervision did often report sick again to the company doctor a few weeks later with physical and/or mental complaints. The impact of COVID-19 on physical and mental resilience appears to be hugely serious and should not be underestimated, including patients who are not hospitalized for COVID-19 infection,' stresses Stevens.

#### Working on recovery of physical fitness

The most important first step in the UMCG COVID 19 recovery protocol is attention for the loss of physical fitness. Ronald: 'I am quite sporty myself, but the virus really exhausted me. I continued to lose weight, despite eating well.'

The UMCG recovery protocol provides daily monitoring of the patient during rehab in real time for muscle strength, load capacity, endurance and energy. The protocol delivers facilities to improve the physical condition under supervision at home or on location as well.

#### Mental health team

When necessary, the workplace of the reintegrating employee will be analyzed for, among other things, energetic work load and environmental factors. Ronald: 'The workplace and the corona-cured reintegrating employee must be a real match between the two.' A psychosocial team is there to provide mental help. Ronald: 'Corona-cured patients are very anxious about the physical consequences of the disease, even if they were not hospitalized for rehabilitation.'

#### UMCG recovery protocol available for companies

The COVID-19 protocol is based on the *Vroege Interventieplan Arbeidsbelasting* drawn up by the Dutch Early Intervention network to which Beatrixoord Arbeid department is affiliated. A unique protocol that Ronald Stevens would like to share with everyone: 'The protocol is not only available for corona-cured UMCG employees, but every company or organization can take advantage of our expertise.'

**Are you interested in the UMCG COVID-19 recovery programme? Feel welcome to contact Ronald Stevens via [arbeid@umcg.nl](mailto:arbeid@umcg.nl) en 050-3617428**



### FUNDING: Next High-Impact Human Pandemic call

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### Medical Device Regulation 2020

The MDR 2020 has recently been updated. Is your COVID-19 medical device MDR proof?

Go to the website: [CE-tool](#)