Treatment and Prevention of Injuries with Rehabilitation Wearables

Empowering patients to transform knee osteoarthritis and surgical rehabilitation
Value-based care starts at home, for example with advanced muscle activation solutions for tele-rehabilitation. More engaged patients mean faster recovery times, lower chances of readmission, and more predictable outcomes at a better cost. Therefore CyMedica Orthopedics has developed e-vive, an app-controlled muscle stimulation therapy and patient engagement solution in order to minimize pre- and post-surgical muscle atrophy. The technology adjusts to the patient’s physiology and bioimpedance, allowing for a more targeted and individualized therapy. www.cymedicaortho.com

Sensor powered smart rehab for neuro and aging patients
Movement analysis is a major driver when it comes to performance tracking and improvement. Making sense of motion for therapeutic virtual reality in various applications is the mission of Gait Up. Targeting the neuro and aging patient, Gait Up smart sensors interpret and send live movement data to the MindMotion platform, powering a feedback loop which tailors serious games to the individual patient’s ability. This system creates optimal conditions for patient rehabilitation, and, thanks to technology, virtually limitless scalability for the healthcare provider. www.gaitup.com

Intelligent assistance in functional rehabilitation
The human body has a great capacity for functional and structural adaptation as well as for intensive physical exercise. But do you know whether you are using your body, mind and energy to full potential whenever practicing any kind of physical activity? Designed for physiotherapists, K-FORCE by Kinvent is a central functional rehabilitation solution consisting of a network of connected measuring devices that are providing evaluation and practice for balance, muscle strength and human movement through precise dynamometry instruments. Therapists can monitor their patient’s progress in real-time and get acoustic and optic bio-feedback on a smartphone or a tablet. www.k-invent.com

Remote patient monitoring technology for physiotherapy clinics and orthopaedic hospitals
Physiotherapy hasn’t changed much over the last 100 years. But when technology evolved up to the point where the physiotherapist was able to deliver video exercises for patients to continue their workout at home, everything changed. New opportunities and challenges were created. Now remote monitoring technologies proved to do an even better job than video exercises. The wearable sensors of reflex are showing how this new method of delivering orthopaedic rehab treatment will benefit healthcare providers and insurers in the future. www.reflex.help

Making Every Orthopaedic Implant Smart
The healthcare industry is changing, it is becoming more connected and wearable devices are having a lasting effect on today’s medicine. This change is of course also affecting orthopedics and total joint replacement. But what is still missing is the ability to monitor what is actually happening during the rehabilitation process after surgery. TracPatch enables to gather real-time data with the help of a knee patch. The remote monitoring device makes recovering at home easily accessible, connected, and more predictable. www.tracpatch.com
Next Generation Optoelectronics
Drug-free pain relief can get you back in action fast, without side effects’ risks and dangers. The Care-Wear light patch produces blue and red light to reduce pain and improve tissue recovery by increasing local blood circulation and elevating tissue temperature. The patches emit wavelengths of light that warm tissues to relax muscles, stimulate increased nitric oxide production to improve circulation, decrease inflammation to relieve pain, and stimulate energy production to improve cellular function that facilitates healing and repair. [www.carewear.net](http://www.carewear.net)

Staying Fit and Balanced – Professional Tools for a Healthier Lifestyle
How professional wearables can open your eyes to hidden stress and highlight recovery’s role
Stress can disrupt our everyday lives and impact business efficiency. But what about when it peaks, and why? Depending on the situation or scenario, stress can help or hinder us. With issues like absenteeism and burnout hot topics in 2018, professional wearables, like the Firstbeat Lifestyle Assessment screening tool, open your eyes to hidden stress and highlight the role recovery plays. They show you when stress is working for, or against, individuals and allow you to make informed decisions to benefit an individual or entire company. [www.firstbeat.com](http://www.firstbeat.com)

Dosage of sport and movement – the importance of metabolism diagnostics for everyone
95% of all recreational athletes simply just run past their fitness goal? They train with rules of thumb, inaccurate measurement methods and usually in excessively high pulse areas. A right dosed training has a big impact on sport science and the athlete’s performance. Keeping that in mind, DYNOSTICS has created a system for performance and metabolism analysis which enables an effective and holistic body management and ensures optimal training and tailor-made nutrition based on individual pulse values. [www.dynostics.com](http://www.dynostics.com)

Continuous measurement of vital parameters
24/7 vital sign monitoring is getting more valuable than ever and no matter if you are exercising, working or sleeping, it gives us extensive insights into our health conditions. Using a number of meaningful statistics and tables for blood pressure, blood glucose, activity, weight and body temperature, the MEDISANA VitaDock makes your measurements available at a glance. The portal allows you to store, view, analyse and export your own vital data for a broad selection of compatible devices. [www.medisana.de](http://www.medisana.de)

Mobile Monitoring Solutions Improving Healthcare
Mobile Patient Monitoring or Remote Patient Monitoring (RPM) include daily monitoring devices such as Continuous Glucose Monitoring (CGM) devices for patients with diabetes, and heart or blood pressure monitors for patients receiving cardiac care. Data is then often sent to a doctor’s office or hospital by using a special software application installed on the patient’s computer, smartphone or tablet PC. According to the National Broadband Plan drafted earlier this year by the FCC, using remote patient monitoring in conjunction with EHR (Electronic Health Records) could benefit the healthcare industry by saving $700 billion over 15 to 20 years. Here some interesting examples from this field:

Biovotion provides integrated solutions with connected hardware and value-added monitoring services. This Switzerland-based company actively promotes the consumerization of healthcare, providing solutions that integrate medical grade quality and reliability with ease-of-use and design of the
consumer markets. Biovotion’s solutions support users in keeping a healthy lifestyle, improve healthcare treatment outcomes, and aiming to reduce cost of health provisions. The company’s multi-sensor platform measures various vital signs on your upper arm (e.g. heart rate, stress, respiration). Biovotion’s wearable solutions have been awarded with multiple prestigious prizes and high-caliber endorsements. www.biovotion.com

ViCardio is a completely non-invasive, cuff-less, discreet, accurate, beat to beat wearable blood pressure monitor. The device delivers an accurate long-term picture of blood pressure using the Tarilian Laser Technologies’ optical biosensor that detects biological signals. It is a medical grade product that sits comfortably on your wrist without applying any pressure to the body. ViCardio accurately measures your blood pressure at frequent intervals during the day and night, allowing you and your healthcare professionals a completely new level of insight into your blood pressure and how it varies each day, each week and each month. By helping you get a more accurate long-term picture of blood pressure, it allows you to get a better treatment and lifestyle choices. www.vicardio.com

KOB (KARL OTTO BRAUN GmbH & Co. KG) has been developing medical textiles for 115 years. With the current shift in the medical market from merely healthcare professional driven care to patients’ self-care the company offers a range of interesting new solutions. A pretty simple example of support for these patients e.g. in the scope of chronic wound treatment is a newly developed KOB compression bandage with an indicator for secure and functional application. The company also has several development projects of more sophisticated medical textiles with integrated sensors wirelessly connected with mobile devices. www.kob.de

mHealth offers wearable rehabilitation solutions for the restoration, assessment and rehabilitation of the motor function, e.g. for the aging population and people with motor impairments. mHT solutions for functional assessment are based on wearable sensors, smartphones, and tablets. They can provide an objective and comprehensive assessment of the motor performance during normal functional tests like the Timed Up and Go. Basically a portable movement analysis lab - their solutions can automatically detect the motor status of the person by analyzing her/his movements and provide real-time feedback to improve her/his motor performance. www.mhealthtechnologies.it

PLUX creates innovative products for physiotherapists and researchers, by developing an advanced bio signal monitoring platform that integrates wearable body sensors such as electromyography (EMG), electrocardiography, respiration, and accelerometers combined with wireless connectivity and software applications. www.plux.info

AiQ Smart Clothing is an expert in combining textiles with smart technology. The company offers solutions for a variety of markets ranging from health and fitness to extreme sports to home care and health care. Their smart clothes are made of King’s Metal Fiber, a company that is known for their fashion and functionality. Stainless steel yarn allows for flexibility and will stand up to any and all washing conditions. www.aiq.com

LifePlus uses commercial sensors currently being used in many wearables. The startup has announced a new wearable dubbed “LifeLeaf,” which it claims is the world’s first non-invasive continuous glucose monitoring (CGM) wearable device. The difference, the company says is that it has found a way to utilize light from existing sensors to better separate glucose in the blood. The device then takes the isolated data and employs machine learning and artificial intelligence to deliver tracking metrics. On top of monitoring blood glucose levels, this multi-sensor device tracks blood pressure, heart rate, respiration rate, cardiac arrhythmia, sleep apnea, and oxygen saturation. www.lifeplusinc.net
Meditor LLC aims leveraging patented optical technology to bring medical grade vital signs monitoring to wearable platforms. The company has already developed a complete medical OEM solution, including wired sensors and hardware module, which has been validated in several independent clinical studies. Their current focus is on completing the development of a wearable optical sensor algorithm and hardware, implemented in a single-patient-use medical biosensor as well as a wrist-wearable module for use in smartwatches. www.medtorllc.com

Smart Healthcare Solutions for the Silver Economy

Close the gap – how telemedicine & wearable technology work hand in hand

Medicine is a driver of innovation with big impact for all of us. Life expectancy increased more over the last century than during the history of mankind. It is time to focus on the growing population of elderly people and make solutions possible that allow a better quality of life for every generation. Wearables and telemedicine are key technologies of the digital healthcare industry - corbit tries to close the gap in time and space with its unique bracelet and other innovative health solutions to enable a healthier and better everyday life for the elderly. www.corbitmed.com

How e-health solutions can assist the silver economy to live a healthier and freer life

The future of a healthy lifestyle is about using data to predict events, to be able to anticipate and launch adaptive interventions; resulting in reduced health care expense, and personally less invasive and life-impacting scenarios. The goal is to make new technologies accessible to everyone, irrespective of age and level of digital dexterity. Society Solutions has created smart algorithms that enable trend analysis, abnormal direction and prevention, supporting the user to feel safe and providing them with tools for a healthier life. www.goliveclip.eu

How Artificial Intelligence can help to improve patient safety

Patients die because signs of deterioration are missed. There is a huge unfulfilled need for better monitoring of vital signs and other data to identify high-risk patients who are on general hospital wards or at home. Patient deterioration is often overlooked or not detected at all. One of the reasons is the intensity in nursing and frequency of vital signs monitoring which decreases from the Intensive Care via ward towards home. Early detection of physiological instability is crucial to prevent death and disability. Railing Medical is addressing this issue with a combination of wearable sensing technology, early warning system and AI. www.railing.com

An objective and accurate evaluation of Parkinson's Disease

Wearables can help to improve the life of people who are suffering from neurodegenerative disorders. Within the field of Parkinson's disease, Sense4care is developing a Parkinson's Holter including gait parameters and a fall detector. The embedded algorithms were trained with a database performed with Parkinson’s disease patients. The dataset was created by European hospitals with meticulous methods being the source of several algorithms for detecting Parkinsonian symptoms in home-environment conditions. www.sense4care.com

New Devices for Women and Newborns, Family Planning and Pregnancy

A connected medical kegel trainer users love

One in three women experience pelvic floor issues as a result of pregnancy and childbirth, aging, high-impact sport or genetics – these challenges can affect women of all ages. Kegel training is perhaps not a glamourous topic but it can help a lot to prevent unpleasant health conditions by developing long-lasting
core strength from the inside out, building control, reducing lower back pain and even improving sexual sensation. With EMY, Fizimed has developed a connected medical device for women to strengthen their pelvic floor at home. It combines safety and quality of a medical device with fun exercises to ensure motivation and autonomy. www.fizimed.com

Taking Control back of your Body
Can technology, wearable and IoT help re-define how women tackle their health, and change their attitude from ‘treatment’ to ‘prevention’? 1 out of 3 women never recover full bladder control after childbirth leading to a global market of approximately 400 Million people each year. Carin by LifeSense Group is a CE & FDA Class II graded wearable system designed for curing urine incontinence in 8-10 weeks by pelvic floor training. The smart underwear comes with smart flexible fabrics, a Bluetooth sensor and a medical app measuring the progress by showing urine loss data. www.carinwear.com

The Relevance of Vital Parameters for Health Insights
No matter if in home health, mHealth, remote patient monitoring or in a hospital setting: Collection of vital data from the patient is the first step and the basis for for health insights all decisions afterwards. cosinuss® in-ear vital sign monitoring devices are non-invasive and painless. The cosinuss® One wearable monitors heart rate precisely and the new degree® thermometer measures a child’s body temperature continuously. With several new innovations for home health solutions cosinuss® is addressing COPD, fertility tracking, stress management and elderly care. www.cosinuss.com

Intelligent Technologies for Wearable End Products – Platforms, Materials, Sensors, Energy & Distribution

Electronic components for Wearable and IoT applications
Specialists in European semiconductor distribution EBV Elektronik adds value at all stages of a customers' supply chain. Services range from in-depth design expertise and application know-how through value-added services right up to full logistics solutions. The disciplines of sensor technology, data preparation and data processing, data output, actuator engineering, connectivity and security come together in the Internet of Things – and EBV has been continuously active in all these areas for over a decade. The terms IoT and the very closely related ‘Industry 4.0’ now create a high recognition value and a starting point for further discussions. One of EBV’s main strengths for many years has been its ability to combine these individual areas and from this combination develop new potential for its clients. www.avnet.com/wps/portal/ebv/

Skin friendly fixation, haptic, design, cost conscious / R2R
In many cases, chronic diseases need permanent monitoring and treatment at the same time. New medical technologies like wearable electronic patches give patients higher mobility. But permanent skin contact and fixation is an extraordinary challenge for the human skin. Skin friendliness (no sensitization) but safe fixation, design, haptic and acceptable cost are achievable with the right choice of materials and production technologies. Manufacturer of high-tech polymer materials for key industries Covestro, is introducing soft electronic embedding on R2R technology + skin friendly fixation – high performance materials for maximum wearing comfort. www.covestro.de

Innovating the Future of Connected (Medical) Devices – 5 Elements of Success
Dow DuPont Specialty Products Division with its range of material solutions will help you stay at the forefront of the fast-moving area of connected and wearable devices. Building on decades of experience, Dow DuPont Specialty Products Division will highlight its material solutions which are structured in five
elements for convenient and determined selection of the right material for wearable device manufacturers: Diffusing, Protecting, Conducting, Emitting, and Insulating. The materials incorporated in these elements can be used in all areas of the wearable market, ranging from smart (medical) patches to smart textiles and every thinkable wearable device in between. www.dow.com

**Challenges in power supply in medical healthcare devices**
Technology is getting smaller, smarter and more efficient. The new generation of sensors and Bluetooth chips are able to reduce their average power consumption about 50%, by supporting the same features. Due to these improvements in technology bulky batteries for energy supply are not necessary anymore in those applications. Designers are now able to shrink the entire devices. VARTA Microbattery supports this by releasing two new small batteries in a new footprint. Now the cells are even thinner without compromising in capacity, charging performance or cycle life. VARTA’s mission is to manufacture high performance, high-quality battery solutions for critical devices under extreme operating conditions. www.varta-microbattery.com

**A holistic view on a product’s life cycle**
A successful wearable device is not only defined by its’ hardware. You need a good user interface for an optimized customer experience. You have to run tests to make sure that the materials do not cause allergies on your clients’ skin. You want a good retailer for your product and an experienced ODM to build your product. Hochuen Smart Technology is one of the largest OEM/ODM manufacturers of medical disposables and wearables in China. Specialized in precision die-cutting, lamination, injection molding, microfluidic cartridges, blister packing, plastic bonding, CNC/laser machining, printing, packaging, soft goods manufacturing, wearable devices and electronic accessories manufacturing the company can be your one-stop-shop for many of your projects. www.hochuen.com

**Development and manufacturing of secure wearables and solutions for patient monitoring**
In healthcare and medical technology, wearable electronic devices offer a wide range of uses. Under everyday conditions and with no undue loss of comfort, these devices record vital parameters, analyze them and make them available to medical personnel for diagnosis. Kontron electronics, a provider of secure hardware, middleware and services for IoT and Industry 4.0, works closely with its customers to develop and manufacture innovative medical devices, body wearables and portables, and to ensure secure connectivity for these products. www.kontron-electronics.ch

**Enabling wearable health**
Wearable health devices are small, comfortable-to-wear sensors that continuously collect clinical-grade data while you go about your daily routine. They will play a vital role in making medicine preventive, predictive, and personalized. But modern healthcare is complex, and the number of applications for wearable health devices is vast. Byteflies’ development platform can kickstart your wearable health application from proof-of-concept to market-ready solution. www.byteflies.com

**Patient empowerment and secondary prevention**
Healthcare systems are notorious for the mass of data they create. However, much of these data are never analyzed; and much of the data that are analyzed never benefit their original owners. There are two ways in which patients could profit from data they make available: By being able to make better individual decisions with regard to their health, especially in chronic conditions such as diabetes, and by partaking in the flow of financial profits that originate from the exploitation of their data. Medical Ledger is building a Hyperledger- and Ethereum-based ecosystem to facilitate safe and secure data
storage and processing in healthcare, as well as an anonymized health data marketplace on which patients are equal and emancipated participants. www.medicalledger.io

Faster, smarter medical research
Castor EDC is a cloud-based Electronic Data Capture platform that enables every researcher worldwide to easily capture high quality, reusable data. Through revolutionizing data capture, we aim to improve medical research and help find cures for disease faster. www.castoredc.com

Making health and wellness an effortless part of daily life
The PCHAlliance is a non-profit organization formed by HIMSS, to change the way we think about, access and engage in health, wellness and disease prevention, by advancing personal connected health solutions. PCHAlliance accelerates technical, business, policy and social strategies necessary to advance personal connected health. www.pchalliance.org

Renesas Electronics Corporation delivers trusted embedded design innovation with complete semiconductor solutions that enable billions of connected, intelligent devices to enhance the way people work and live—securely and safely. In particular for medical devices Renesas offers a wide portfolio of solutions to support manufacturers during design, development and certification of safe and secure medical devices ranging from microcontrollers to software and consulting services. www.renesas.com

Trusted therapy made compact - AirMini™ by ResMed is the world’s smallest CPAP, designed to deliver a quality therapy experience anywhere. It’s packed with proven ResMed technologies, such as the AutoSet™ algorithm, and brand-new features, like waterless humidification. www.resmed.com

Advancing the human connection in healthcare - HP is reinventing solutions for Healthcare to empower both the care provider and patient, connecting human intuition, compassion and knowledge for the next generation ecosystem of care. Working together, we are innovating new technology-enabled ways to address persistent challenges in healthcare. www.hp.com/go/healthcare

Wearables for Chronic Diseases and Mobility Challenges
FREE Walk by FREE Bionics is an exoskeleton device designed for people with lower limb weakness or paraplegia. It mimics the most natural human gait and helps people to stand up and walk again. With user-oriented technology and intelligent control, FREE Walk recognizes user’s intention by detecting posture changes to walk or stop at any time. With normal upper limb function, users can strap in and out of the device independently. www.freebionics.com.tw

Health Care Originals develops products for the management of chronic respiratory diseases. ADAMM, with its three-part solution comprising a wearable, smartphone app and web portal, will benefit the 300 million people globally who have asthma. ADAMM provides Intelligent Asthma Management — automating management, increasing adherence and identifying precursor symptoms much earlier — giving caregivers peace of mind and improving asthmatics’ quality of life. www.healthcareoriginals.com

YBrain has developed MINDD, a wearable headband and a non-invasive neuromodulation system for depression treatment. It uses transcranial direct current stimulation to deliver a stream of electricity to the frontal lobe. The company does research on an application for Alzheimer’s patients. www.ybrain.com
Swiss research and technology organisation **CSEM** has developed sensing technology for medical wearables. These cooperative devices work together to measure a large variety of physiological signals (e.g. multi-lead ECG, EIT or SpO2) in the highest-quality manner when at rest or in motion. They differ from existing sensing technology, thanks to a patented electronic circuit that enables them to be easily electrically connected, thereby simplifying their integration into wearables. [www.csem.ch](http://www.csem.ch)

The **Fraunhofer Institute for Integrated Circuits** is one of the world’s leading application-oriented research institutions for microelectronic and IT system solutions and services. It presents smart sensors, integrated circuits and software solutions focusing on wearable technologies in the healthcare segment. [www.iis.fraunhofer.de](http://www.iis.fraunhofer.de)


**Link to Event Website:** [www.bit.ly/wtmed18](http://www.bit.ly/wtmed18)

**Contact:**

Ramona Socher  
Wearable Technologies AG  
0049 (0) 8152 99 88 60  
press@wearable-technologies.com  
[www.wearable-technologies.com](http://www.wearable-technologies.com)