

Annual Report

2020

Center for Health and Performance



GÖTEBORGS
UNIVERSITET



THE LOVE

...of physical activity and sport is key to us at the Centre for Health and Performance. We are developing the science of physical activity to improve sport performance.

However, physical activity is so much more than the hunt for milliseconds. It is also critical to our well-being as humans.

Daily physical activity improves health in numerous ways and we are at the frontier of science of improving people's everyday live.

Content

A Different Year	5
Our Staff	6
Research	7
Education.....	8
Strategic Work	8
New Research Projects	9
Collaborations as Center	9
Scientific output	10

VISIT US

Skånegatan 14B, Göteborg Building:
Idrottshögskolan

Center for Health and Performance,
Department of Food and Nutrition, and Sport
Science.

P.O. Box 300
SE - 405 30 GOTHENBURG
<https://www.gu.se/chp>



A different year...

The year 2020 has come to an end. It was a year of unprecedented challenges and adaptations. Everyday life has changed substantially for many people. In the Center, too, we had to face it. Nevertheless, as you can see in this year's end report, still many things have happened and many tasks have been performed during the year.

The University of Gothenburg introduced substantial restrictions already in mid-March. From one week to the next, teaching was digital and practical moments such as laboratories were not possible.

Other restrictions, such as distancing (and later work from home), hygiene and reduction of travelling (later interdiction to travel) have also challenged the everyday function of the Center. Most Scientific conferences were cancelled and meetings were being held digitally, another defiance for scientists to exchange knowledge and to network. Almost all testing of elite Swedish athletes was cancelled, Erasmus exchange stopped completely.

Halftime Evaluation

In spring 2020, the Center underwent an obligatory halftime evaluation by an external expert. The result showed that we had outstanding scientific performance with regard to the number and quality of projects, of peer-reviewed publications as well as scientific presentations and transfer of knowledge to the public.

All necessary Center criteria to be an official Center at Gothenburg University were fulfilled by a large margin, already three years after the start of the Center. Thus, the Center status was prolonged for another three years.

Research and projects

We were also able to manage most of our ongoing research projects, many of them collaboration projects with national and international partners, both scientific and industry.

Approximately 40 peer-reviewed articles were published from these projects. Among them was our contribution to the European Society of Cardiology guidelines of Sports Cardiology 2020, which will guide sports cardiology in Europe for many years.

A focus in 2020 was the work with the strategic development of the Center, for the coming years.

Among many activities, the work towards a VINNOVA knowledge Center application in 2022, the Health City initiative (GoCo) in Gothenburg, the development of Massive Open Online Courses for the public (MOCC) and the support of the elite sport initiative of the City of Gothenburg need to be mentioned.

Our media profile continued to be high with TV, radio and public appearances, promoting our center. Internationally, we organised a 3-day virtual education seminar on the Swedish Physical activity on prescription (PAP)-method, for representatives from 9 EU countries. This work will continue in 2021.

Another highlight in 2021 will be the 15th Footwear Biomechanics Conference, which we co-organise. Due to the pandemic, the conference will be fully virtual, and not be hosted in Gothenburg as planned. If you are interested in the topic, please visit the conference website:

<https://fbs2021.footwearbiomechanics.org>

In the spring of 2021 we will also produce the American Medical Society of Sports Medicine (AMSSM)'s educational web-tool on "exercise prescription", aimed at US sports medicine specialists as part of their educational curricula.

We would like to thank all employees of the Center for their outstanding work in 2020. We would also like to thank the host department (Department of Food and Nutrition, and Sport Science) and the co-department (Molecular and Clinical Medicine), for their continuous support. A special thank goes to Region Västra Götaland for their financial support (both motor and strategic money 2020), to lift the Center to the next level.

Finally, we would like to thank the Faculty of Education and the Medical Faculty (Sahlgrenska Academy) for their belief in the Center! It means a lot to have this support by our side, to be able to manage the present and to further develop the center for the future.

Prof. Stefan Grau

Manager CHP

Prof. Mats Börjesson

Manager CHP

Our staff

Among our employees you will find scientists, teachers, and students that all love physical activity. Our aim is to create an environment where ideas develop into new knowledge, innovations, and new methods.

Permanent and Temporary Positions

Professor Positions

Prof. Stefan Grau (100%) Manager CHP, Professor in Biomechanics and Movement Science

Prof. Mats Börjesson (100%) Manager CHP, Professor in Sports Physiology, MD

Prof. Stefan Lindinger (100%) Professor in Exercise Physiology/Training

Prof. Emeritus Claes Annerstedt (Learning)

Associate Professor Positions

Dr. Daniel Arvidsson (100%), Nutritionist

Senior Positions (with PhD)

Dr. Stefan Pettersson (60%) Nutritionist

Dr. Lennart Gullstrand (70%) Exercise Physiologist

Dr. Mathias Wernbom (assoc.) Physiotherapist

Dr. Dan Fransson (50%), Sport Scientist

Laboratory Positions

Fredrik Edin (60%) Lab assistant physiology

Mikael Gustafsson (100%), Lab assistant biomechanics & strength & body composition

Magdalena Lindinger (50%) Lab assistant physical activity

Pia Skovdahl (50%) Lab assistant physical activity

Administration Positions

Daniel Wennerlund (50%), Project Coordinator

PhD/Licentiate positions

Jacob Lindh (Licentiate student, externally financed, supervisors Grau/Annerstedt)

Jonatan Jungmalm (PhD student, funded by Stena Stiftelsen, supervisors Grau/Nielsen)

Andreas Zachrisson (PhD student, funded by Göteborgs Friidrottsförbund, supervisors Grau/Ivarsson)

Pia Desai (PhD student, financed by Sahlgrenska Akademin and CHP, supervisors Karlsson/Grau/Börjesson)

Solveig Hausken ("guest" PhD student, funded by CIF, IKI and ALF, supervisors Barker-Ruchti/Grau/Schubring)

Erik Lignell (Licentiate student, financed by Frölunda Hockey, supervisors Mohr & Annerstedt)

Matilda Frisk Torell (50% PhD-student, financed by ALF Money, supervisor Börjesson)

Jonatan Fridolfsson (PhD student, financed by Faculty/host department, supervisors Arvidsson/Lindinger/Börjesson)

Hampus Luning, (50% PhD student, financed by ALF Money, supervisor Börjesson)

Tania Nilsson, (PhD student, financed by IF Elfsborg, supervisors Börjesson/Fransson)

Frida Nilsson, (100%, PhD student, financed by Sahlgrenska Academy 60% and ALF money 40%, supervisors Börjesson/Arvidsson)



STUDENT POSITIONS

Klara Boje af Gennäs (80% all year)

VISITING STUDENTS (RESEARCH PROJECT SUPPORT)

Arved Reimann (until 6/2020; University Bielefeld/Germany; Erasmus Placement)

Julia Schöps (until 2/2020; Technical University Chemnitz/Germany; Erasmus Placement)

Patricia Gruner (until 4/2020; Technical University Chemnitz/Germany; Erasmus Placement)

Paula Janecke (until 6/2020; Technical University Chemnitz/Germany; Erasmus Placement)

Philip Ingmarsson (until 1/2020): Örebro University, Medical students master: PA and heart failure



Steering Board Members

Ann Söderström, Director, Healthcare services, Region Västra Götaland

Olle Larkö, Professor, Steering Board Member Inga-Britt and Arne Lundbergs Research Foundation, Former Dean Medical Faculty, Gothenburg University

Agneta Holmäng, Professor, Dean Medical Faculty, Gothenburg University

Bo Edsberger, CEO Taxi Göteborg, Former Head of Gothenburg Half Marathon and Gothenburg Athletic Federation

Anders Albertsson, District Manager, RF-SISU Västra Götaland (from 2021)

Patrik Mossberg, CEO, Marininvest

Frode Slinde, PhD, Head of Department, Department of Food and Nutrition, and Sport Science.

Mattias Zackrisson, Head of Administration, Department of Food and Nutrition, and Sport Science.

Mats Börjesson, Professor, Manager, Center for Health and Performance, Department of Molecular and Clinical Medicine

Stefan Grau, Professor, Manager, Center for Health and Performance, Department of Food and Nutrition, and Sport Science

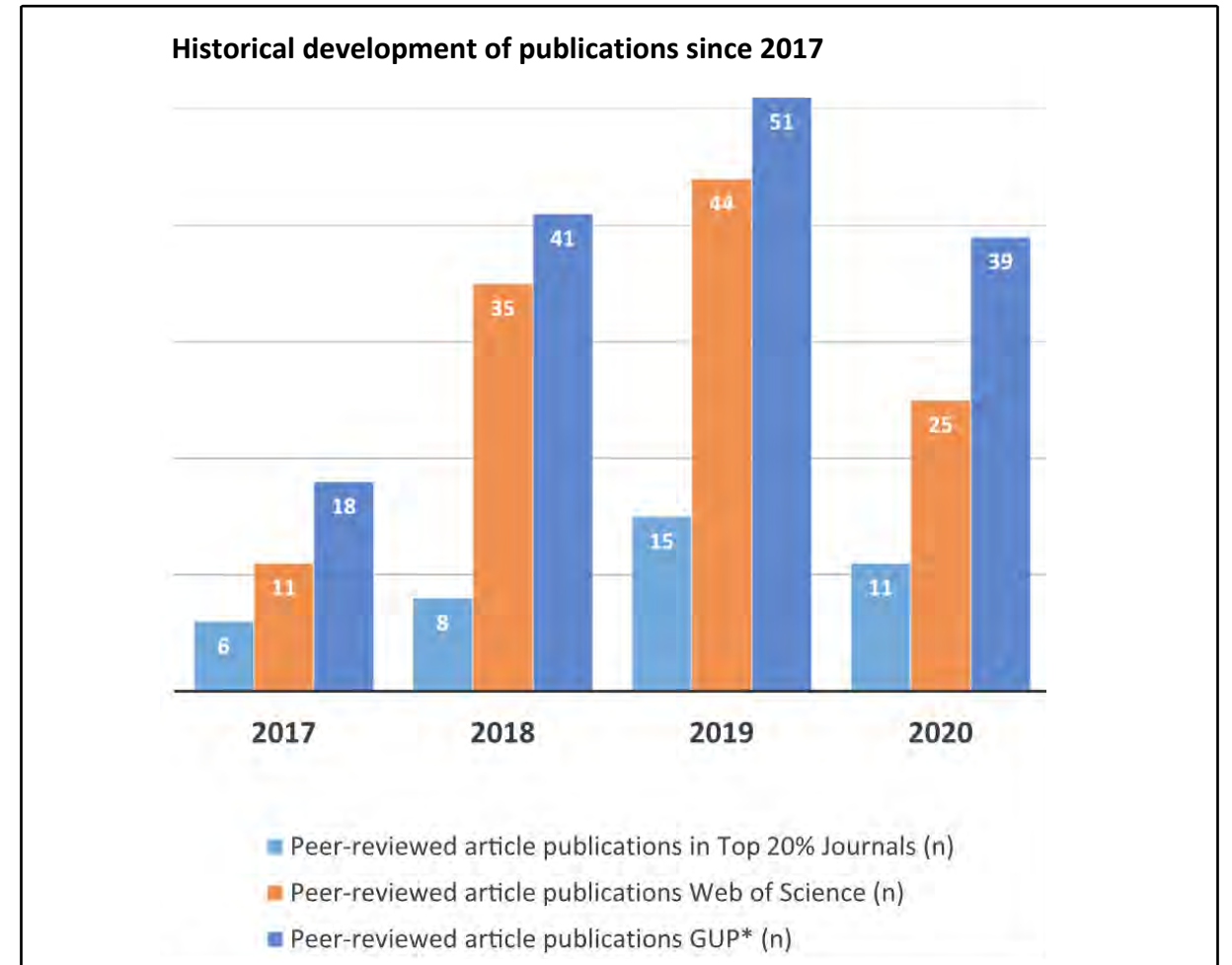
Daniel Wennerlund, Project Coordinator and Communication, Center for Health and Performance, Department of Food and Nutrition, and Sport Science

Research

At CHP, a number of established research groups work interdisciplinary with physical activity, sports and diet from both a health and performance perspective.

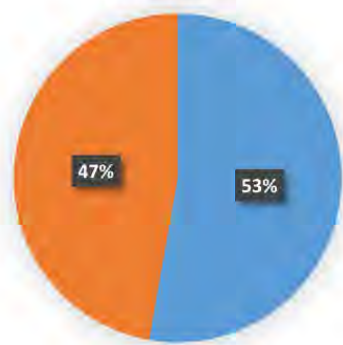
Scientific output 2020 in Summary

- 39 Peer-Reviewed Publications in Scientific Journals,
- 4 peer-reviewed publications were accepted but not yet published.
- 1 Book and 5 Book chapter publications
- Our staff serves as external reviewers and/or opponents for PhD theses for national and international universities, as reviewer for peer-reviewed journal articles (different journals) and as examiner for theses at the Department of Food and Nutrition and Sport Science at the Faculty of Education (BA & MA).
- CHP-researcher function as associate editor for international journals (e.g. Br J Sports Med) and has also appeared on national television and radio, in news articles, and as contributors or speakers at multiple international conferences.

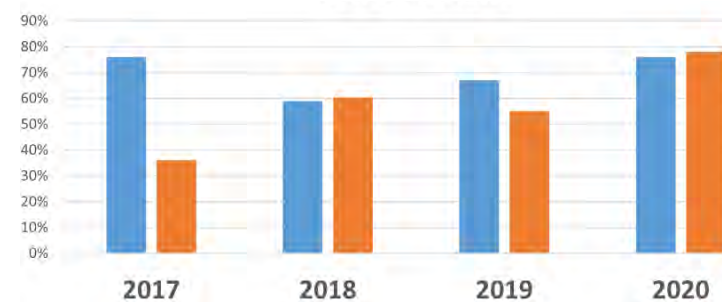


*University of Gothenburg Publication data base

Collaborations average



Historical development of collaborations



- Peer-reviewed publications with national and international collaborators
- Peer-reviewed publications with other Faculties at Gothenburg University

About CHP

In 2017, CHP was established as an official center at the University of Gothenburg. The vision is to become an internationally recognized research center in the field of health promotion and sport performance through multidisciplinary collaboration, innovative entrepreneurship and product development in collaboration between academia and the surrounding community.

A center is expected to be multidisciplinary and as such has a complementary function to departments and other units. A center is an open meeting place where both external and university-based parties are given the opportunity for dialogue and collaboration within the framework of the center's activities. At least two faculties are involved in each university-wide center. With regards to CHP this is the Faculty of Education and the Faculty of Medicine (Sahlgrenska Academy).

Education

CHP provides education for students in sport science and medicine in the fields of biomechanics, physiology, match analysis, training, sports medicine, anatomy and physical activity to prepare students for their future dedication.

Teaching for the Department of Food and Nutrition and Sport Science at the Faculty of Education

BACHELOR LEVEL
SPORT COACHING, HEALTH
PROMOTION

Curricular courses

Anatomy, Physiology, Biomechanics,
Training Science 1 and Sports
Medicine.

Free standing courses

Training- and Match Analysis in
Team-sports, Assessment of Human
Performance I and Training Science 2.

TEACHER EDUCATION
(Teaching hours) Anatomy,
Physiology, Biomechanics and
Exercise Physiology

NUTRITION, HEALTH ECONOMICS
Nutritional aspects on food habits and
meals, Food chemistry nutritional
biology

MASTER LEVEL (INTERNATIONAL
MASTER SPORT SCIENCE)

Measurement methods 1: Diet and
physical activity; Measurement methods
2: Movement, strength, body
composition and physical capacity;
Critical analysis in health pro-motion;
Sports medicine in Health and
Performance; Applied quantitative data
analysis; Internship 1; Internship 2

Teaching for the Institute of Medicine at Sahlgrenska Academy

Exercise Physiology Lab-demo
Medical students Contributions to
Lifestyle-week, Internal medicine,
Medical students Dentist students
Pharmacology student
Physiotherapist students

Physiotherapy educations:
Exercise physiology and physical
exercise



Strategic work

We work on a number of strategic issues to create favourable conditions for all our activities. This includes both financial conditions, research applications, communication and promotion of the Center.

⇒ Collaboration with the newly established Health innovation cluster GoCo which includes responsibility for and contribution to the Scientific Programme in a seminar series covering health, nutrition, and physical activity. The work continues during 2021, when more researchers from CHP present their projects. Read about GoCo and its partners at <https://goco.se/>

⇒ CHP is a partner in the University Pilot Project for Open Online Education (DURK-project). CHP will develop a MOOC on Lifestyle Habits with a focus on Nutrition, Physical activity and health. Read more about the DURK-project at <https://pil.gu.se/projekt/durk>

⇒ Collaboration and knowledge service to Västra Götaland Region and Sahlgrenska University Hospital in lifestyle (PA/diet) related disease (treatment, prevention), including participation in the regional organisation for Clinical Knowledge management (RPO).

⇒ Application to be VINNOVA Competence Centre started up in 2020 with meetings and coordination with potential partners. The project development process starts at the beginning of 2021 and continues into 2022.

⇒ Our aim is to function as the providers of evidence-based research and knowledge on physical activity and health, supporting the clinical health care and public health (in Västra Götaland Region and nationally) as well as other researchers, governing bodies (National Bureau of Health and Welfare etc.) and the national system for Clinical Knowledge Management (in Swedish: Kunskapsstyrning, NPO, RPO).

⇒ Increase our role as a Scientific player on the national and international level through continued development of local, national, international collaborations (Universities, authorities, sports federations, clubs & races)

⇒ In 2020 CHP was appointed host and co-organiser for the 15th Footwear Biomechanics Symposium but due to the pandemic it will be held online in July 2021. Read more about the conference at <https://fbs2021.footwearbiomechanics.org/>

⇒ Together with different stakeholders, we work to develop support for elite sports in the Gothenburg region.

Economy

Both the Host department (Department of Food and Nutrition and Sport Science) and the Co-department (Molecular and Clinical Medicine) contribute financially to the CHP-budget.

- 29% of the budget comes from the host department for CHP staff to teach in the departments' ground education (bachelor and master programs) as well as to teach for other departments.
- 41% of the budget is strategic support from the host department (22%) and the co-department (19%) for CHP research and administration. A large proportion of this research support from both departments is refunding to CHP for performance-related scientific output in previous years.
- 30% of the budget of CHP is from external research grants (29%) and income from testing of elite athletes (1%).



Economy in summary

Total budget CHP 2020: ~16.5 MSEK

- 29% Host Department (Teaching)
- 22% Host Department (Research + Admin)
- 19% Co Department (Research + Admin)
- 30% External grants (Research & Testing)

New Research Projects

Walking football for health

Partners: The Swedish School of Sport and Health Sciences Stockholm, Swedish Football Federation

Health, Aging and Retirement Transitions in Sweden - Hearts Study (HEARTS)

Partners: Department of Psychology, University of Gothenburg,



Development of propulsion models for nordic skiing on treadmill and in field considering force and center of mass

Partners: University of Jyväskylä, Finland

Towards an evidence-based and fair classification system for athletes with cerebral palsy

Partners: The Swedish School of Sport and Health Sciences Stockholm, KU Leuven, University Miguel Hernandez, Spain; University Politecnico di Torino,

Physical workload and injury incidence in elite youth football players

Partners: Swedish Football Federation, IF Elfsborg, BK Häcken

Cardiorespiratory fitness in late adolescence and its change over time in relation to long-term risk factors for cardiovascular disease in Swedish men. (SCAPIS)

Partners: The Swedish School of Sport and Health Sciences Stockholm, Department of Public Health and Community Medicine, University of Gothenburg

ATLAS Effect of artificial loading, through application of weight vests, on body weight in obese subjects; a randomized controlled trial
Partners: Sahlgrenska Academy

a) Academic Collaborations - Local

- Department of Psychology at GU
- Technical University Chalmers (Landberg Lab, Sport Tech)
- Sahlgrenska Academy (Institute of Neuroscience and Physiology, Orthopedics, Institute of Medicine, Pulmonary Medicine, Physiology, Sleep Center, Cognition, Bone Health, Department of Surgery- SSORG, Center for Neuropsychiatry (AgeCap)
- Institute of Stress Medicine (ISM)
- Dept of Earth Science, GU (weather as predictor of events in endurance races)
- Sahlgrenska University/Hospital (Pain Unit SU/Östra & ENT unit)

b) Academic Collaborations – National

- University of Örebro
- Umea University
- Mid University in Östersund
- Swedish School of Sports and Health Sciences (GIH)

c) Academic collaborations - International

- Technical University in Chemnitz (Germany)
- University in Bielefeld (Germany)
- Medical Technical University in Remagen (Germany)
- SEMLI Institute, Pretoria University (South Africa)
- University in Jyväskylä (Finland) & KU Leuven (Belgium) & University Turin (Italy) & University Miguel Hernandez (Spain)

d) Other collaborations

- Major Distance races in Sweden (Vasa Loppet, GöteborgsVarvet,)
- Firebrigade Göteborg Region
- Göteborg Athletic Federation & GöteborgsVarvet
- Swedish Badminton Federation
- Swedish Football Association
- Swedish Innebandy Federation
- IFK Göteborg
- Frölunda Hockey
- SOK - Swedish Olympic Committee
- Folkhälsomyndigheten (FHM)- EU-PAP (physical activity on prescription)- project-Development and deployment of educational courses for 9 countries (3 days x 2, 2020)
- World Athletics (IAAF-International Association of Athletic Federations) Safer-studies
- Elfsborg IF
- Djurgården IF
- Helsingborg IF
- BK Häcken
- Intl. Paralympics Federation
- Speed Skating Federation

e) Industry collaborations

- Elten Safety shoes (Germany)
- Tenson outdoor (Sweden)
- Maurten nutrition (Sweden)
- Blackroll (Germany)
- Cosmed (Italy)
- GoCo (Next step) and AstraZeneca

Appendix B – Scientific Output 2020

PEER REVIEWED JOURNAL PUBLICATIONS			
Title	Authors (CHP contribution bold)	Journal	Link
Occurrence of overuse injuries in elite Swedish athletics—A prospective cohort study over one athletics season	Lundberg-Zachrisson, A., Desai, P. , Karlsson, J, Grau, S.	Translational Sports Medicine	https://doi.org/10.1002/tsm2.178
Muscle Metabolism and Fatigue during Simulated Ice Hockey Match-Play in Elite Players	Vigh-Larsen, Jeppe F.; Ermidis, Georgios; Rago, Vincenzo; Randers, Morten B. Fransson, Dan ; Nielsen, Jakob; Gliemann, Lasse; Piil, Jacob F.; Morris, Nathan B.; De Paoli, Frank V.; Overgaard, Kristian; Andersen, Thomas B.; Nybo, Lars; Krstrup, Peter; Mohr, Magni	Medicine and science in sports and exercise	http://dx.doi.org/10.1249/mss.000000000000002370
Simple Method for the Objective Activity Type Assessment with Pre-schoolers, Children and Adolescents	Jan Christian Brønd, Anders Grøntved, Lars Bo Andersen, Daniel Arvidsson , Line Grønholt Olesen	Children	http://dx.doi.org/10.3390/children7070072
Analysis of goal scoring opportunities in elite male ice hockey in relation to tactical and contextual variables	Erik Lignell , Vincenzo Rago & Magni Mohr ,	International Journal of Performance Analysis in Sport	http://dx.doi.org/10.1080/24748668.2020.1823161
A Hydrogel Drink With High Fructose Content Generates Higher Exogenous Carbohydrate Oxidation and Lower Dental Biofilm pH Compared to Two Other, Commercially Available, Carbohydrate Sports Drinks	Stefan Pettersson , Martin Ahnoff, Fredrik Edin , Peter Lingström, Charlotte Simark Mattsson and Ulrika Andersson-Hall	Frontiers in Nutrition	http://dx.doi.org/10.3389/fnut.2020.00088
The effects of exercise training on hypothalamic-pituitary-adrenal axis reactivity and autonomic response to acute stress—a randomised controlled study	Elin Arvidson, Anna Sjörns Dahlman, Mats Börjesson , Lennart Gullstrand and Ingibjörg H. Jonsdottir	Trials	http://dx.doi.org/10.1186/s13063-020-04803-3
Effect of the Neurofeedback-EEG Training During Physical Exercise on the Range of Mental Work Performance and Individual Physiological Parameters in Swimmers	Mirosław Mikicin, Anna Mróz, Magdalena Karczewska-Lindinger , Karolina Malinowska, Andrzej Mastalerz, Marek Kowalczyk	Applied Psychophysiology and Biofeedback	https://doi.org/10.1007/s10484-020-09456-1
Training load and submaximal heart rate testing throughout a competitive period in a top-level male football team	Vincenzo Rago Krstrup, Rafael Martín-Acero, António Rebelo & Magni Mohr	Journal of Sports Sciences	http://dx.doi.org/10.1080/02640414.2019.1618534
Intrarater Reliability and Agreement of Recommended Performance-Based Tests and Common Muscle Function Tests in Knee Osteoarthritis.	Pætur Mikal Holm, Mette Nyberg, Mathias Wernbom , Henrik Morville Schrøder, Søren Thorgaard Skou	Journal of geriatric physical therapy (2001)	http://dx.doi.org/10.1519/JPT.000000000000000266
Myocellular Adaptations to Low-Load Blood Flow Restricted Resistance Training	Vissing, Kristian; Groennebaek, Thomas; Wernbom, Mathias ; Aagaard, Per; Raastad, Truls	Exercise and sport sciences reviews	http://dx.doi.org/10.1249/jes.00000000000000231
Muscle fibre activation and fatigue with low-load blood flow restricted resistance exercise—An integrative physiology review	Mathias Wernbom , Per Aagaard	Acta Physiologica	http://dx.doi.org/10.1111/apha.13302
Low-dose strength training in addition to neuromuscular exercise and education in patients with knee osteoarthritis in secondary care – a randomised controlled trial	P.M. Holm, H.M. Schrøder, M. Wernbom , S.T. Skou	Osteoarthritis and Cartilage	http://dx.doi.org/10.1016/j.joca.2020.02.839
2020 ESC Guidelines on sports cardiology and exercise in patients with cardiovascular disease.	Antonio Pelliccia, Sanjay Sharma, Sabiha Gati, Maria Bäck, Mats Börjesson , Stefano Caselli, Jean-Philippe Collet, Domenico Corrado, Jonathan A Drezner, Martin Halle, Dominique Hansen, Hein Heidbuchel, Jonathan Myers, et.al.	European heart journal	http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt= Citation&list_uids=32860412
Collateral Health Issues Derived from the Covid-19 Pandemic.	Borja Muniz-Pardos, Jonathan Shurlock, Andre Debryne, Juergen M Steinacker, Mats Börjesson , Bernd Wolfarth, James L J Bilzon, Herbert Löllgen, Anca Ionescu, Petra Zupet, Michiko Dohi, Jeroen Swart, Victoriya Badtjeva, et.al.	Sports medicine - open	http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt= Citation&list_uids=32770421

Constitutive PGC-1 α Overexpression in Skeletal Muscle Does Not Contribute to Exercise-Induced Neurogenesis.	Lars Karlsson, María Nazareth González-Alvarado, Reza Motaleb, Yafeng Wang, Yong Wang, Mats Börjesson , Changlian Zhu, Hans-Georg Kuhn	Molecular neurobiology	http://dx.doi.org/10.1007/s12035-020-02189-6 ;
Exercise in the Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2) era: A Question and Answer session with the experts Endorsed by the section of Sports Cardiology & Exercise of the European Association of Preventive Cardiology (EAPC)	Raghav T Bhatia, Sarandeep Marwaha, Aneil Malhotra, Zafar Iqbal, Christopher Hughes, Mats Börjesson , Josef Niebauer, Antonio Pelliccia, Christian Schmied, Luis Serratos, Michael Papadakis, Sanjay Sharma	European Journal of Preventive Cardiology	http://dx.doi.org/10.1177/2047487320930596
Long-term risk of stroke and myocardial infarction in middle-aged men with a hypertensive response to exercise: a 44-year follow-up study.	Kok W Giang, Per-Olof Hansson, Zackarias Mandalenakis, Carina U Persson, Gunnar Grimby, Kurt Svärdsudd, Lars Wilhelmsen, Mats Börjesson , Per Ladenvall	Journal of hypertension	http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Citation&list_uids=33038085
Underlying contributing conditions to breathlessness among middle-aged individuals in the general population: a cross-sectional study	Magnus Ekström, Mats Börjesson , Göran Bergström, Annika Rosengren, Oskar Angerås, and Kjell Toren	Bmj Open Respiratory Research	http://dx.doi.org/10.1136/bmjresp-2020-000643
Insomnia is associated with metabolic syndrome in a middle-aged population: the SCAPIS pilot cohort	Ding Zou, Heini Wennman, Jan Hedner, Örjan Ekblom, Olof Drotz, Daniel Arvidsson , Göran Bergström, Ludger Grote, Mats Börjesson	European Journal of Preventive Cardiology	http://dx.doi.org/10.1177/2047487320940862
Association between change in cardiorespiratory fitness and incident hypertension in Swedish adults	Tobias Holmlund, Björn Ekblom, Mats Börjesson , Gunnar Andersson, Peter Wallin, Elin Ekblom-Bak	European Journal of Preventive Cardiology	http://dx.doi.org/10.1177/2047487320942997
Brief recommendations for participation in leisure time or competitive sports in athletes-patients with coronary artery disease: Summary of a Position Statement from the Sports Cardiology Section of the European Association of Preventive Cardiology (EAPC)	Mats Börjesson , Mikael Dellborg, Josef Niebauer, Andre LaGerche, Christian Schmied, Erik E Solberg, Martin Halle, Paolo Emilio Adami, Alessandro Biffi, Francois Carre, Stefano Caselli, Michael Papadakis, Axel Pressler, Hanne Rasmussen, Luis Serratos, Sanjay Sharma, Frank van Buuren and Antonio Pelliccia	European Journal of Preventive Cardiology	http://dx.doi.org/10.1177/2047487319876186
Delphi developed syllabus for the medical specialty of sport and exercise medicine: part 2.	David Humphries, Rod Jaques, H Paul Dijkstra, Irfan Asif, Mark E Batt, Mats Börjesson , Emin Ergen, Celeste Geertsema, Boris Gojanovic, Anca Ionescu, Dina Christina Janse van Rensburg, Constance Lebrun, Nahar Azmi Mohamed, Margo Mountjoy, Tvisha Parikh, Diana Robinson, Robert Sallis, Martin Schwellnus, Padraig Sheeran	British journal of sports medicine	http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Citation&list_uids=32972978
Is Physiological Equivalent Temperature (PET) a superior screening tool for heat stress risk than Wet-Bulb Globe Temperature (WBGT) index? Eight years of data from the Gothenburg half marathon.	Sofia Thorsson, David Rayner, Gunnar Palm, Fredrik Lindberg, Eric Carlström, Mats Börjesson , Finn Nilson, Amir Khorram-Manesh, Björn Holmer	British journal of sports medicine	http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Citation&list_uids=32467149
Long-term physical activity on prescription intervention for patients with insufficient physical activity level-a randomised controlled trial	Stefan Lundqvist, Mats Börjesson , Åsa Cider, Lars Hagberg, Camilla Bylin Ottehall, Johan Sjöström & Maria E. H. Larsson	Trials	http://dx.doi.org/10.1186/s13063-020-04727-y
Pre-race screening and stratification predicts adverse events-A 4-year study in 29585 ultra-marathon entrants, SAFER X	Nicola Sewry, Martin Schwellnus, Mats Börjesson , Sonja Swanevelder and Esme Jordaan	Scandinavian Journal of Medicine & Science in Sports	http://dx.doi.org/10.1111/sms.13659
Position statement: Recommendations for participation in competitive sport in adolescent and adult athletes with Congenital Heart Disease (CHD.)	Werner Budts, Guido E Pieles, Jolien W Roos-Hesselink, Maria Sanz de la Garza, Flavio D'Ascenzi, George Giannakoulas, Jan Müller, Renate Oberhoffer, Doris Ehringer-Schetitska, Vesna Herceg-Cavrak, Harald Gabriel, Domenico Corrado, Frank van Buuren, Josef Niebauer, Mats Börjesson , Stefano Caselli, Peter Fritsch, Antonio Pelliccia, Hein Heidbuchel, Sanjay Sharma, A Graham Stuart, Michael Papadakis	European heart journal (http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Citation&list_uids=32845299
Recommendations for participation in leisure-time physical activity and competitive sports of patients with arrhythmias and potentially arrhythmogenic conditions. Part 2: ventricular	Hein Heidbuchel, Elena Arbelo, Flavio D'Ascenzi, Mats Börjesson , Serge Boveda, Silvia Castelletti, Hielko Miljoen, Lluís Mont, Josef Niebauer, Michael Papadakis, Antonio Pelliccia, Johan Saenen, María Sanz de la Garza, Peter J Schwartz,	Europace : European pacing, arrhythmias, and cardiac	http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Cit

arrhythmias, channelopathies, and implantable defibrillators.	Sanjay Sharma, Katja Zeppenfeld, Domenico Corrado	electrophysiology	ation&list_uids=32596731
Impact of insufficient ACE2 products and late enterocyt regeneration in severe covid-19	Bengt Nellgard, Magnus Gisslén, Mats Börjesson , Martin Lagging, Ketil Dalla, Joar Svanvik,	eLetter, Science	https://science.sciencemag.org/content/early/2020/04/30/science.abc1669
Sport and exercise genomics: The FIMS 2019 consensus statement update	Kumpei Tanisawa, Guan Wang, Jane Seto, Ioanna Verdouka, Richard Twycross-Lewis, Antonia Karanikolou, Masashi Tanaka, Mats Börjesson , Luigi Di Luigi,	British Journal of Sports Medicine	http://dx.doi.org/10.1136/bjsports-2019-101532
Stable coronary artery disease in the Master athlete: comparison between European and American guidelines and the importance of shared decision making	Elizabeth Hill Dineen, Mats Börjesson ,	American College of Cardiology	https://www.acc.org/latest-in-cardiology/articles/2020/12/11/13/08/stable-coronary-artery-disease-in-the-masters-athlete?utm_medium=social&utm_source=twitter_post&utm_campaign=twitter_post
Subjective reports of physical activity levels and sedentary time prior to hospital admission can predict utilisation of hospital care and all-cause mortality among patients with cardiovascular disease	Amanda Ek, Lena V Kallings, Mattias Ekström, Mats Börjesson , Örjan Ekblom	European Journal of Cardiovascular Nursing	http://dx.doi.org/10.1177/1474515120921986
The gap between stated importance of and clinical work in promoting healthy lifestyle habits by healthcare professionals in a Swedish hospital setting: A cross-sectional survey	Amanda Ek, Örjan Ekblom, Mattias Ekström, Mats Börjesson , Lena Viktoria Kallings	J Health & Social Care in the Community	http://dx.doi.org/10.1111/hsc.13097
Association of change in physical activity associated with change in sleep complaints: results from a six-year longitudinal study with Swedish health care workers	Markus Gerber, Mats Börjesson , Ingibjörg H.Jonsdottir, Magnus Lindwall	Sleep Medicine	http://dx.doi.org/10.1016/j.sleep.2019.01.026
Stronger association between high intensity physical activity and cardiometabolic health with improved assessment of the full intensity range using accelerometry	Jonatan Fridolfsson , Mats Börjesson , Elin Ekblom-Bak, Örjan Ekblom and Daniel Arvidsson	Sensors (Switzerland)	https://doi.org/10.3390/s20041118
Athlete availability and incidence of overuse injuries over an athletics season in a cohort of elite Swedish athletics athletes - A prospective study	Lundberg-Zachrisson, A. , Ivarsson, A., Desai, P. , Karlsson, J, Grau, S.	Injury Epidemiology	https://doi.org/10.1186/s40621-020-00239-0
Recreational Runners With a History of Injury Twice as Likely to Sustain a Running-Related Injury Than Runners With No History of Injury: A One-Year Prospective Cohort Study.	Desai, P. , Jungmalm, J. , Börjesson, M. , Karlsson, J, Grau, S.	The Journal of orthopaedic and sports physical therapy	http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Citation&list_uids=33356768
Workplace activity classification from shoe based movement sensors	Fridolfsson, J. , Arvidsson, D. , Doerks, F., Kreidler, T., Grau, S.	BMC Biomedical Engineering	https://doi.org/10.1186/s42490-020-00042-4
Physical Performance and the Relationship to Game Performance in Elite Adolescent Ice Hockey: A Case Study	Williams, M., Grau, S.	International Universities Strength and Conditioning Association Journal	https://journal.iusca.org/index.php/Journal/article/view/3/58
Associations between biomechanical and clinical/anthropometrical factors and running-related injuries among recreational runners: a 52-week prospective cohort study.	Jungmalm, J. , Nielsen R.O., Desai, P. , Karlsson, J., Hein, T. , Grau, S.	Injury epidemiology	https://pubmed.ncbi.nlm.nih.gov/32234070/
The effect of pre- and postoperative physical activity on recovery after colorectal cancer surgery (PHYSSURG-C): study protocol for a randomised controlled trial."	Onerup A, Angenete E, Bock D, Börjesson M , Fagevik Olsén M, Grybäck Gillheimer E, Skullman S, Thörn S-E, Haglind E, Nilsson H.	Trials	

ACCEPTED IN 2020 NOT PUBLISHED			
Title	Author (CHP contribution bold)	Journal	Link
Children and adolescents treated for valvular aortic stenosis have different physical activity patterns compared to healthy controls: a methodological study in a national cohort.	Pia Skovdahl , Cecilia Kjellberg Olofsson, Jan Sunnegårdh, Jonatan Fridolfsson , Mats Börjesson , Sandra Buratti, Daniel Arvidsson	Pediatric Cardiology 2021.	https://pubmed.ncbi.nlm.nih.gov/33523288/
Recommendations for Competitive Sports Participation in Athletes With Valvular Heart Disease- Position statement of the Sport Cardiology Section of the EAPC branch of the European Society of Cardiology.	van Buuren F, Gati S, Sharma S, Papadakis M, Adami PE, Niebauer J, Pelliccia A, Rudolph V, Börjesson M , Carre F, Solberg EE, Heidbuchel H, Casello S, Corrado D, Serratos L, Biffi A, Pressler A, Schmied C, Panhuysen N, Kruse Rasmusen H, La Gerche A, Faber L, Bogunovic L, D'Ascenzi F, Mellwig K-P.	Eur Heart J.	
Youth sport injury research: a narrative review and the potential of interdisciplinarity	Hausken-Sutter, S.E., Pringle, R., Schubring ,A., Grau , S. , Barker-Ruchti, N.	BMJ Open Sport & Exercise Medicine	https://bmjopen.sem.bmj.com/content/7/1/e000933

BOOKS AND BOOK CHAPTERS		
Title	Author (CHP contribution bold)	Book
Safety in sports arenas	Luis Serratos, Efraim Kramer, Erik Solberg, Mats Börjesson	Textbook of Sports and Exercise Cardiology
Criteria and considerations relative to safe participation in sport for athletes with cardiac abnormalities.	Antonio Pelliccia, Hein Heidbüchel, Domenico Corrado, Sanjay Sharma, and Mats Börjesson	The ESC Textbook of Sports Cardiology
Exercise in specific diseases: Coronary artery disease	Mats Börjesson , Josef Niebauer, Mikael Dellborg	Textbook of Sports and Exercise Cardiology
Impact of exercise on cardiovascular risk factors: dyslipidemia	Axel Pressler, Mats Börjesson	Textbook of Sports and Exercise Cardiology
Science and Skiing VIII	Magdalena Karczewska-Lindinger , A. Hakkarainen, V. Linnamo and Stefan Lindinger	Science and Skiing VIII (Editor)
Distansbaserad blended learning – ett realtidssamarbete inom biomekanik	I: M. Rydmark, G. Petersson & A. Thurin (Red.) Annerstedt, Cleas	Medicinsk informatik

OTHER PUBLICATIONS			
Title	AUTHOR (CHP contribution bold)	TYPE	
EFFECT OF 20 KM SIMULATED RACE LOAD ON PROPULSIVE FORCES DURING SKI SKATING	Ohtonen Olli, Linnamo Vesa, Göpfert Caroline, Lindinger Stefan	Abstract	Abstract Book 8th International Congress on Science and Skiing. March 11–15, 2019
HISTORICAL ANALYSIS OF DOUBLE POLING IN HIGH-LEVEL CROSS COUNTRY SKIING (XCS)	Canclini Arrigo, Canclini Antonio, Pozzo Renzo, Baroni Guido, Lindinger Stefan	Abstract	Abstract Book 8th International Congress on Science and Skiing. March 11–15, 2019
What proportion of athletes sustained an injury during a prospective study? Censored observations matter	Jonatan Jungmalm , Michael Lejbach Bertelsen, Rasmus Oestergaard Nielsen	Letter to the Editor	British Journal of Sports Medicine
Riskfylld resa mot OS kräver rätt stöd	Anna Post, Astrid Schubring, Natalie Barker-Ruchti, Stefan Pettersson	Article	Svensk Idrottsforskning
The Olympic Games: Dream-come-true or a precarious career phase?	Astrid Schubring, Natalie Barker-Ruchti, Anna Post & Stefan Pettersson	Article	Idrottsforum.org [Nordic sport science forum]
Vätskeintag i värme kort före och under uthållighetsarbete	Stefan Pettersson	Article	Svensk Idrottsmedicin
VALIDATION, ACCURACY AND PRACTICAL USE OF A POWER MEASUREMENT SYSTEM FOR CROSS-COUNTRY SKIING ANALYSIS – A PILOT STUDY	Karczewska-Lindinger, M. , Hakkarainen, A., Linnamo, V., Lindinger, S.	Abstract	Abstract Book of the 8th International Congress on Science and Skiing. March 11–15, 2019 Vuokatti, Finland
Vädrets påverkan på värmerelaterade kollapser under långlopp.	Luning H, Börjesson M , Thorsson S.	Article	Svensk Idrottsmedicin 2020; 2: 10-12.
Komplikationer vid ansträngande aktivitet i värme.	Börjesson, M.	Article	Svensk Idrottsmedicin 2020;2: 13-16.
Ohälsosamma levnadsvanor- ett folkhälsoproblem.	Bergström K, Börjesson M , Dahlin S, Eriksson M, Johansson C, Lingfors H et.al	Article	Allmän Medicin, 2020;2: 23-25.
I väntan på ett vaccin: konditionsfaktorn.	Karlsson C, Börjesson M	Article	Idrott & Kunskap, no 3, 2020, pp 14-19.



<https://www.gu.se/en/chp>