



19th International Congress on Twin Studies
11 – 14 November **Budapest, Hungary**
Hybrid Conference

All workshops and conference sessions will be live wherever possible, with an opportunity for attendance in Budapest for those who can travel. All workshops and sessions will be recorded.

Session times are Eastern Standard Time (EST).

Thursday 11 November

Workshops - Session 1

Workshop 1A
03:00 – 06:30

ICOMBO – Achievements & Challenges



Hosted by: Monica Rankin
Chairperson, International Council of Multiple Birth Organisations (ICOMBO)
chair@icombo.org

In this session, members will share projects, research, and other activities they have conducted since 2017. A review of the Declaration of Rights and Statement of Needs of Twins and Higher Order Multiples will be conducted.

Workshop 1B
03:00 – 06:30

More than heritability: Diverse designs, outcomes and statistical approaches for data from twins – Part 1

Co-organisers: Jacob Hjelmborg, Katrina Scurrah, Márton Piroska, (Levi Littvay, Instructor)

This workshop will continue in Workshop Session 2 - Workshop 2B.

Workshop 1C
03:00 – 06:00

Do it with twins: tips for twin studies and registers

Co-organisers: Dorret Boomsma, Gonneke Willemsen, Adam Tarnoki, David Tarnoki, Emanuela Medda, Jane Loke

Twin registers across different cultures

Yoon-Mi Hur, South Korea & Veronika Odintsova, Netherlands

Participation engagement

Isabella Budin, Norway & Gonneke Willemsen, Netherlands

Longitudinal studies and the impact of covid

Emanuela Medda, Italy & Jane Loke, Australia

Extended twin studies and transgenerational studies

Tim Bates, Scotland & Nathan Gillespie, USA



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Overview of recent new technologies for twin studies

Mike Neale & Hermine Maes, USA

Insights from twin registers around the globe

Dorret Boomsma & Gonneke Willemsen, Netherlands

Workshop 1D

03:00 – 06:30

Microbiome & Health

Co-organisers: Chika Honda, Helga Szabo, Rie Tamizawa, David Tarnoki

The aim of the workshop is not to present findings but share practical issues about twin microbiome studies: how you involve your twins, what devices/kits etc you use, how you collect the samples etc. The main aim is (1) to get insight for researchers who plan to start a microbiome study what they should be take care of; (2) to get information for professional microbiome twin researchers on how they can improve their technique; and (3) what future goal / international collaboration could be achieved using microbiome research in twins.

Beyond diet: distal environmental factors influencing the composition of the human gut microbiota Ruth Bowye, UK

Jun Kunisawa, Japan

Microbiome twin research in the UK: experiences and practical issues

Dr Emily Leeming, UK

Beyond diet: distal environmental factors influencing the composition of the human gut microbiota

Dr Ruth Bowye, UK

Microbiome research on twins in Japan

Rie Twomizawa, Japan



Jun Kunisawa is Director of Center for Vaccine and Adjuvant Research (CVAR), National Institutes of Biomedical Innovation, Health and Nutrition (NIBIOHN) and also serves as Adjunct Professor at Osaka University, Kobe University, The University of Tokyo, Hiroshima University and Waseda University. His research has been focusing on the immune regulation by gut environment (e.g., diets and commensal bacteria) and its association with immune diseases and health. He is also doing translational research for the development of vaccines, medicines, and functional foods.



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Microbiome research: Hungarian experiences(TBD)

Helga Szabo, Hungary

Workshops – Session 2

Workshop 2A 07:00 – 10:30

Twin Systematic Reviews – Part 1

Co-chairs: Shayesteh Jahanfar, David Haas, Donald O’Mathuna, Isha Taneja, Tiffany Duque

This workshop is a top-rated standard author training offered by "Cochrane Trainers" from four universities across the United States: [Tufts](#) (Boston), Ohio State University (Ohio), Indiana University (Indiana), and the University of Michigan (Ann Arbor). We also have the coordinator of the [Cochrane US Network](#) (Seattle) on board. You will learn how to conduct a systematic review of twin studies using Cochrane's high standard methodology. The concepts discussed include ten steps of developing a protocol, meta-analysis, heterogeneity, and writing a review. We also introduce software(s) Revman, Covidence, and Grade_Pro. Small group activities will help you develop protocols to be registered with Cochrane Collaboration. Participants can apply for a mentorship program following the workshop, which supports them throughout all the steps for six months to 1 year.

Introduction & How to write a Cochrane review

Shayesteh Jahanfar

Steps in writing a protocol

David Haas

Defining a review question

Donal O’Mathuna

Small group activity – Defining a review question for your review

Four facilitators (each group will have 5 participants and one facilitator)

Introducing screening software-Covidence

Isha Taneja

Assessing risk of bias

Donal O’Mathuna

This workshop will be continued in Workshop Session 4A, Friday.



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Workshop 2B

07:00 – 10:30

More than heritability: Diverse designs, outcomes and statistical approaches for data from twins – Part 2

Co-organisers: Jacob Hjelmberg, Katrina Scurrah, Márton Piroška, (Levi Littvay, Instructor)

This is a continuation of Workshop 1B.

Workshop 2C

07:00 – 10:00

Twin Birth Cohorts

Co-organisers: Jeff Craig, Sonia Brescianini



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Friday 12 November

Workshops - Session 3

Workshop 3A

03:00 – 06:30

ICOMBO - Future directions for ICOMBO

Hosted by: Monica Rankin

Chairperson, International Council of Multiple Birth Organisations (ICOMBO)

chair@icombo.org

In this session, members will discuss possible research projects, ways to facilitate more sharing of resources and communication, and other topics of interest to members.

Workshop 3B

0:900 – 12:30

Imaging Methodology – Part 1

Co-organisers: Adam Tarnoki, Laszlo Szalontai, Marc Seal, Shunsuke Toyoda

Basics of imaging methods (X-ray, US, mammography, CT, MRI, nuclear medicine)

Adam and David Tarnoki

Mammographic analytic methods in twin studies

John Hopper

Imaging the genetics of brain structure and function

Katrina L Grasby, Sarah E Medland

MRI and fMRI methods used in the TWIN-E Mental Wellbeing Study

A/Prof Justine Gatt, Dr Haeme Park



Justine leads the Gatt Resilience Group in the School of Psychology at the University of New South Wales (UNSW) and Neuroscience Research Australia (NeuRA), Sydney Australia. Her research program aims to understand the neuroscience of mental wellbeing and resilience, as well as the development of clinical tools to promote resilience in the general population. In this talk, she will provide an overview of the TWIN-E Study which she has led since 2009. This study is a 10-year longitudinal study of 1,600 healthy Australian adult twins.



Haeme is a Postdoctoral Research Fellow in the Gatt Resilience Group in the School of Psychology at the University of New South Wales (UNSW) and Neuroscience Research Australia (NeuRA), Sydney Australia. She is the Coordinator of the 10-year follow-up of the TWIN-E Study (TWIN-10) and has extensive experience in MRI neuroimaging and analyses. In this



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talk, she will provide a discussion of using functional and structural MRI data from twins in statistical modeling.

Neural mechanisms for individuality in the brain – fMRI study methods in twins and epigenetics)

Shunsuke Toyoda

fMRI in twin studies & methods used in Peri/postnatal Epigenetic Twin Study (PETS)

Marc Seal

This workshop will continue in the afternoon, Workshop Session 4 - Workshop 4B.

Workshop 3C

03:00 – 06:30

Epigenetics

Co-organisers: Joon Sung, Namitha Mohandas, Jordana Bell

Workshops - Session 4

Workshop 4A

07:00 – 10:30

Twin Systematic Reviews – Part 2

Co-chairs: Shayesteh Jahanfar, David Haas, Donald O’Mathuna, Isha Taneja, Tiffany Duque, Joel Gagnier

This workshop is a continuation of the workshop held in Session 2A, Thursday.

Small group activity: Appraising the risk of bias in a trial

Four facilitators (each group will have 5 participants and one facilitator)

Analysing dichotomous outcomes

Joel Gagnier

Analysing continuous outcomes

Joel Gagnier

Introduction to meta-analysis

Shayesteh Jahanfar

Introduction to Revman and forest plot

Shayesteh Jahanfar

Heterogeneity

Donal O’Mathuna



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Workshop 4B **Imaging Methodology – Part 2**

Co-organisers: Adam Tarnoki, Laszlo Szalontai, Marc Seal, Shunsuke Toyoda

This is a continuation of Workshop 3B.

Novel ultrasound imaging methods (elastography, stiffness, IMT, plaque etc) in twin studies

A Hernyes

Available radiomics softwares (brain volume measurement, WMH, Whole Brain etc)

Bianka Forgo MD, PhD



Bianka is a resident in radiology at the Department of Radiology, Örebro University Hospital in Örebro, Sweden and a postdoc member of the Department of Clinical Neuroscience research group, Karolinska Institutet, Stockholm, Sweden. She obtained her PhD in 2019 at Semmelweis University, Budapest Hungary, under the supervision of Adam Domonkos Tarnoki MD, PhD. Her dissertation topic was related to the heritability of cerebrovascular variants investigated by magnetic resonance angiography and transcranial ultrasound in twins. Currently she is involved in research in several areas of neuroradiology, such as multiple sclerosis, stroke, and postcovid.

3D reconstruction of cerebral vessels

Szalontai

DTI methods and other novel neuroimaging methods

Szabó Ádám

The Heritability of Cortical Folding: Measurement methods and experiences from the Human Connectome Project

J Eric Schmitt/Mike Neale



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Conference Opening Session

- 13:00 – 13:10** **Opening remarks**
Professor Jeffrey Craig, Professor Asma Khalil, Ádám & Dávid Tárnoki
- 13:10 – 14:00** **Keynote: L Scott Forbes “The Evolutionary Biology of Twinning in Humans”**
Introduction: Nancy L Segal, PhD
- 14:00 – 14:45** **Discussion: Five recent and forthcoming books on twins – Live discussion and Q & A with the authors and editors**
Co-chairs: Nancy L Segal, PhD & Professor Jeffrey Craig

Twin Studies in Behavioral and Health Research: Current Status, Prospects and Applications, São Paulo, Brazil: Digital book in open access: USP Open Books Portal, 2021
Tania Kiehl Lucci PhD, E. Otta and T.K. Lucci (Eds.):
University of São Paulo, Brazil
Tania is a researcher at the Universidade de São Paulo, Brazil (USP) Twin Panel coordinated by Emma Otta, Professor at the Instituto de Psicologia, also at USP, in Brazil. The main aim of the panel is to promote research with twins on psychological processes and behaviors, particularly on well-being, cooperation, attachment and twin relationships. tanilucci@usp.br

Why Are Monozygotic Twins Different: From Genetics to Environment, London: Elsevier. A. Matias, & I. Blickstein (Eds.)
Alexandra Matias, MD, PhD
Alexandra is an Associate Professor of Obstetrics and Gynecology in the Porto Medical School in Portugal, and Senior Consultant of Obstetrics and Gynecology. She earned her doctoral degree in 2000 and Habilitation in 2007. She has authored 250 full papers, 36 chapters in international books and the book, *Developmental and Fetal Origins of Differences on Monozygotic Twins: From Genetics to Environmental Factors* (Elsevier, 2020).
matiasalexand@gmail.com

Deliberately Divided: Inside the Controversial Study of Twins and Triplets Adopted Apart, Lanham, MD: Rowman & Littlefield, 2021
Nancy L. Segal, PhD
Nancy is a Professor of Psychology and Director of the Twin Studies Center at California State University, Fullerton. She has authored seven books on twins, the latest being *Deliberately Divided* (2021). Her 2012 book, *Born Together-Reared Apart*, won the William James Book Award from the American Psychological Association. The URL for her twin-based website is drnancysegaltwins.org; she can be reached at nsegal@fullerton.edu.

Twin Research: The Complete Reader, New York, NY: Elsevier (in press). Tarnoki, A.D. Tarnoki, D.L., Harris, J.R., & Segal, N.L. (Eds.)
David L. Tarnoki, MD, PhD
Dávid is an Assistant Professor, radiologist and twin researcher at Semmelweis University Medical Imaging Center and Head of the Oncologic Imaging Diagnostic



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Center, National Institute of Oncology, in Budapest, Hungary. He is a founding member of the Hungarian Twin Registry. He presented over 200 international lectures and authored over 150 publications. He serves as secretary of the Hungarian Medical Association (American Hungarian Chapter). Tarnoki4@gmail.com

Twins - Superstitions and Marvels, Fantasies and Experiments, Reaktion Books, London, 2021.

William Viney, PhD

Department of Anthropology, Goldsmiths, University of London



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Saturday 13 November

Session 1

03:00 – 04:30 COVID-19
Co-chairs: John Hopper, Catherine Bennett

Session 2

05:00 – 06:30 Longitudinal birth cohorts
Co-chairs: Jeff Craig, Sonia Brescianini

Session 3

07:00 – 08:30 Bulmer session: The Biology of Twinning
Co-chairs: Nils Lambalk, Catherine Derom

Co-chairs:
Prof Cornelis Lambalk, MD PhD
Division of Reproductive Medicine, Department of Obstetrics/Gynecology
VU University Medical Center, Amsterdam

Catherine Derom, PhD
Department of Obstetrics and Gynecology, Ghent University Hospitals, Ghent, Belgium

This symposium deals with the biology and genetics of the twinning phenomenon and is named after Michael Bulmer, who wrote in 1970 this fascinating book “the Biology of Twinning in Man”. This session deals with every aspects of twinning from the frequency of twinning in humans, the genetics of DZ and MZ twinning, the development of the human embryo and how normal embryogenesis takes place...

Identical twins carry a persistent epigenetic signature of early genome programming

Jenny van Dongen, PhD
The Netherlands

Update on the genetics of DZ twinning

Hamdi Mbarek, PhD
The Netherlands



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Study of twin pedigrees to investigate mechanisms of male microchimerism in females

Brandon Johnson, PhD candidate

Brandon is a PhD candidate at the Avera Institute for Human Genetics in Sioux Falls, South Dakota, pursuing a joint PhD at the University of South Dakota and Vrije Universiteit Amsterdam. Brandon has interests in studying natural chimerism with additional translational research interests in applications of molecular diagnostic techniques, under the mentorship of Dr. Erik Ehli and Dr. Dorret Boomsma.

Avera Institute for Human Genetics, Avera McKennan Hospital & University Health Center, Sioux Falls, SD, USA & Department of Biological Psychology, Vrije Universiteit, Amsterdam, The Netherlands

Email: brandon.johnson2@avera.org

An update about MZ twinning risk and assisted reproduction

Anja Pinborg, PhD
Denmark

5. To be selected from abstracts

Session 4

09:00 – 10:30

Twin Studies: Psychological, Biological and Social Perspectives

Co-chairs: Nancy L. Segal, PhD & Maria Antoinetta Stazi, PhD



Nancy is a Professor of Psychology and Director of the Twin Studies Center at California State University, Fullerton. She has authored seven books on twins, the latest being *Deliberately Divided* (2021). The URL for her twin-based website is drnancysegaltwins.org; she can be reached at nsegal@fullerton.edu.



Antonia is a genetic epidemiologist, with long experience on twin and general population studies, spanning from early life to aging. She currently works at the Center for Behavioural Science and Mental Health of the National Public Health Institute in Rome, Italy, where she directs the Italian Twin Registry. Her email is antonia.stazi@iss.it.



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This panel draws together a diverse group of speakers whose presentations are set within a variety of theoretical frameworks. The different topics to be addressed cover a range of behaviors, issues and controversies within the field of psychology, e.g., behavioral genetics, evolutionary psychology, social psychology and other approaches. An underlying theme is that twins can be used to study and inform virtually every measurable behavioral trait.

Twin Tempos: Cross-Correlations of Young Twins' Social and Emotional Skills

Lisabeth Fisher DiLalla, PhD



Lisabeth is a Professor of Behavioral Sciences at the Southern Illinois University School of Medicine. Her behavioral genetic research on preschoolers has focused on aggressive and cooperative peer behaviors, parent-child interactions, and play and imagination. She directs the Southern Illinois Twins/Triplets and Siblings Study, active since 1993. ldilalla@siu.edu

Triangulating Genetic Methods to Uncover the Contribution of Cognitive and Noncognitive Skills to Academic Achievement Throughout the School Years

Margherita Malanchini, PhD



Margherita is a Lecturer (Assistant Professor) in the Department of Psychology at Queen Mary University of London, where she directs the Cognition, Development and Education (CoDE) Lab. Her research aims to uncover the complex interplay between the genetic, environmental, and developmental factors shaping individual differences in learning and cognition. m.malanchini@qmul.ac.uk

Three Twinship Myths: Setting the Record Straight

Joan A Friedman, PhD



Joan psychoanalytically trained psychotherapist who has devoted many years of her professional career to educating twins and their families about twins' emotional needs. Her books and blogs provide specialized insight into twin psychology. She can be contacted via her website: www.joanafriedmanphd.com



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Narrowing in on What *Really* Matters: Testing Criminological Theory Using Twin-Based Methodology"

Joseph L. Nedelec, PhD



Joseph L. Nedelec, Ph.D. is an Associate Professor and Director of the Online MS Program in the School of Criminal Justice at the University of Cincinnati. His research includes biosocial criminology, evolutionary psychology, intelligence, behavior genetics, and cybercrime. He is one of the three co-founders of the Biosocial Criminology Association.
nedelej@ucmail.uc.edu

Exceptional Sibships and Curious Couples: General Intelligence Findings From Chinese Twins Reared Apart and Together and Virtual Twins

Nancy L. Segal, PhD

Department of Psychology, California State University - Fullerton

Session 5

13:00 – 13:45

Discussion: Participant engagement and user involvement in twin research

Co-chairs: Dr Carolyn Lister & Petra Zwijnenburg



Carolyn is a mum to 16 year old fraternal twins (boy/girl) and has been involved in her local and national multiple birth organisations and now sits as Vice Chair and Research Direction at ICOMBO (volunteer positions). She has been involved in a research project gathering information to present to researchers about what multiples (and their families) would like if they are involved in research. She also participated in the Twins and Multiples Global Priority Setting Partnership. In addition she has a PhD in biochemistry and leads the Food & Health Information Team at the New Zealand Institute for Plant and Food Research. Carolyn is passionate about communication – everything from parenting multiples through to the latest scientific research.

A panel of researchers, study coordinators and parents of twins will discuss some of the challenges in engaging participants for twin studies and the importance of understanding the perspective of participants and users. Topics covered will include survey design, types of approaches, country & cultural differences, the use of online tools for questionnaires,



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increasing participation (how best to engage with communities) and disseminating research findings. The session will end with a chance for some questions from the audience.

Panellists:

Stephanie Ernst-Milner, Founder of the TAPS Support Foundation & twin Mum



Stephanie is the founder of TAPS Support. She is a self-confessed TAPS nerd, respected writer, speaker, and patient advocate within the rare disease and twin communities. With a firm belief in creating strong communities backed by evidence-based medicine and breaking down research barriers, her passion for collaboration and communication with medical professionals provides a voice for parents. She maintains that empowering patients with knowledge creates better patient-doctor communication channels. Stephanie's extensive written work covers everything from light-hearted stories to hard-hitting articles and peer-reviewed papers. Australian-born, Dutch by choice, Stephanie lives in the Netherlands with her husband and twin girls.

Natasha Fenwick, Research and Resources Officer, Twins Trust, UK



In her role at Twins Trust, Natasha works with parents, clinicians and researchers to ensure the voices of multiple-birth families and experts are heard in research. In 2019, she led a national survey of antenatal care, and represented Twins Trust as a collaborator on the Twins and Multiples Global Priority Setting Partnership in 2018/19. She now oversees collaborations with the British Maternal Fetal Medicine Society and St George's Hospital in London to fund research in line with the top 10 priorities. Natasha is passionate about empowering multiple-birth parents to take an active role in research and works with researchers to ensure parents are involved at all levels of research.

Gonneke Willemsen

14:00 – 14:45 Discussion: Controversial topic(s) in twin research
Co-chairs: Professor Asma Khalil & Mark Kilby



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Sunday 14 November

Session 6

03:00 – 04:30 **New twin registries and studies**
Co-chairs: Yoon-Mi Hur & Bianka Forgo

Major changes and developments in the Hungarian Twin Registry website related to the conversion from a voluntary to a population-based registry
Marton Pirooska, Hungary

Isfahan Twin Registry
Professor Nizal Sarrafzadegan

TwinLIFE4
Professor Bas Heijmans

University of Sao Paulo Twin Panel
Professor Emma Otta

Session 7

05:00 – 06:30 **Clinical trials**
Co-chairs: Petra Zwijnenburg, Athula Sumathipala

Session 8

07:00 – 08:30 **Cognition & neurodevelopmental disorders**
Co-chairs: Jaakko Kaprio, MD, PhD
Institute for Molecular Medicine Finland, University of Helsinki, Finland
Ida Karlsson, PhD
Department of Medical Epidemiology and Biostatistics, Karolinska Institutet, Sweden

This session provides a selection of studies across the life course, from childhood to late-life, within the broad field of cognition and neurodevelopmental disorders. The presentations will address aggression, cognitive abilities, and dementia, as well as the unique methodological opportunities gained from studying twin cohorts.

Continuity of genetic risk for aggression across the life-course
Camiel M. van der Laan, MSc
Biological Psychology, Vrije Universiteit, Amsterdam, The Netherlands
c.m.vander.laan@vu.nl



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Postmenopausal hormone therapy and dementia

Laura Ekstrøm Løkkegaard, MD

Epidemiology, Biostatistics and Biodemography, University of Southern Denmark, Odense, Denmark

leloekkegaard@health.sdu.dk

Educational influences on cognitive aging: Exploring unequal opportunities through genetic propensities and societal change

Malin Ericsson, PhD

Department of Medical Epidemiology and Biostatistics, Karolinska Institutet, Stockholm, Sweden

malin.ericsson@ki.se

NONAGINTA study – cognition in 90-year-old twins

Eero Vuoksimaa, PhD

Institute for Molecular Medicine Finland (FIMM), University of Helsinki, Helsinki, Finland

eero.vuoksimaa@helsinki.fi

Final speaker – to be confirmed

Session 9

09:00 – 10:30

9A

Chronic Diseases and Cancer

Co-chairs: Wendy Cozen & Joonhng Sung

Chronic depression

X-inactivation and cancer

Breast cancer and new model of heritability

Professor John Hopper

Biology of cancer survivorship in twins with Hodgkin lymphoma

Professor Wendy Cozen

09:00 – 10:00

9B

ICOMBO Business Meeting

Chair: Monica Rankin



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Session 10

13:00 – 13:45

ISTS AGM & Elections

Professor Jeffrey Craig, Professor Asma Khalil

13:45 – 14:00

Prizegiving

Professor Asma Khalil

James Shields Award for lifetime contributions to twin research

Galton Prize for best student presentation

Gedda Prize for best student poster

ICOMBO Prize for best ECR paper on research of benefit to multiple birth families

14:00 – 14:15

Closing Remarks

Professor Jeffrey Craig, Dávid Tárnoki