

5. GAMMA-Kongress, St. Gallen 2025



WISSENSCHAFTLICHE TAGUNG

28.–29.03.2025

Raumplan

Programm

Keynotes



ST. GALLEN
26.-29.03.2025

INFORMATIONEN UND KONTAKT

Datum:

28./29.03.2025

Tagungsort:

Tonhalle
Museumstrasse 25
9000 St. Gallen

Veranstalter:

Gesellschaft für die Analyse menschlicher Motorik und ihre klinische Anwendung
www.g-a-m-m-a.org

Tagungsleitung:

Dr. Nathalie Alexander

Lokaler Veranstalter:

Labor für Bewegungsanalyse
Abteilung Kinderorthopädie
Stiftung Ostschweizer Kinderspital

Lokales Organisationskomitee:



Nathalie Alexander



Florian Dobler



Mark Huybrechts

Wissenschaftliches Komitee:

Julia Block
Harald Böhm
Katrin Bracht-Schweizer
Reinald Brunner
Thomas Dreher
Chakravarthi Dussa
Marco Götze
Matthias Hartmann

Daniel Heitzmann
Jana Holder
Brian Horsak
Matthias Hösl
Andreas Kranzl
Britta Krautwurst
Morgan Sangeaux
Sebastian Senst

Felix Stief
Martin Svelik
Ursula Trinler
Stefan van Drongelen
Elke Viehweger
Bettina Westhoff
Klaus Widhalm
Sebastian Wolf

ALLGEMEINE INFORMATIONEN

WLAN:

GUEST

Passwort: open1234

Gesellschaftsabend:

Freitag, 28.03.2025, 19:30 Uhr

Ort: Candela, Sonnenstrasse 5, 9000 St. Gallen

Morgenlauf:

Samstag, 29.03.2025

Zeit: 7:15 – 8:00 Uhr

Treffpunkt: Tonhalle

<https://kongress.g-a-m-m-a.org/tagung/rahmenprogramm/>

Veröffentlichung der Abstracts

Veröffentlichte Abstracts sind zu finden auf: [Gait & Posture | ScienceDirect.com by Elsevier](#)

PREISE

Wissenschaftspreis:

2.000 EUR für die beste wissenschaftliche Publikation der zurückliegenden zwei Jahren im Themenfeld klinische Anwendung der Instrumentellen Ganganalyse.

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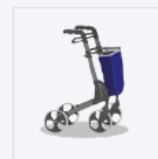
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Prothetik



Alltags - und
Mobilitätshilfen



Rollstühle



Kompression



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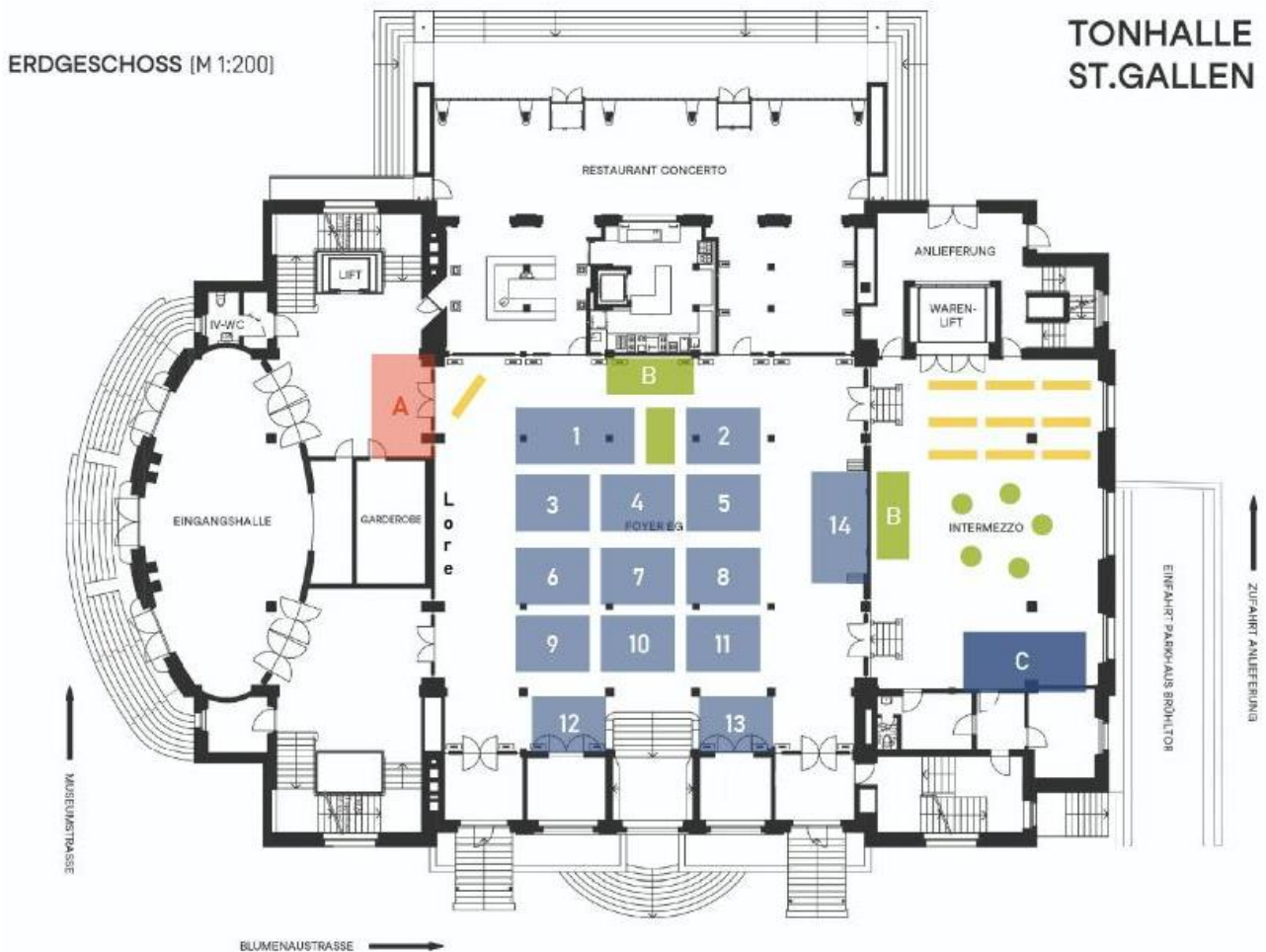


Sport



Hilfsmittel

RAUMPLAN



- A Registrierung
- B Catering
- C Qualisys Workshop

- | | |
|----------------------|-----------------------|
| 1 Kybun Joya Retail | 8 Delsys |
| 2 Stapp one | 9 Oped |
| 3 Zürich HS | 10 Kistler |
| 4 Anybody Technology | 11 Velamed Qualisys |
| 5 Move shell | 12 XSensor |
| 6 Prophysis | 13 Moveck |
| 7 ORTHO Team | 14 Brunner Orthopädie |

PROGRAMM

Freitag, 28. März 2025

Zeit	Programmpunkt	Vortragende	Raum
8.45–9.00	Begrüßung	Lokaler Veranstalter	Saal
9.00–10.00	Session 1: Fuss und Sprunggelenk	Prof. Dr. Harald Böhm, PD Dr. Johannes Cip	Saal
10.00–10.30	Keynote: Unraveling the gait decline in Duchenne Muscular Dystrophy: Insights from 3D motion analysis	Prof. Dr. Kaat Desloovere	Saal
10.30–11.00	<i>Kaffeepause</i>		Foyer
11.00–11.50	Session 2: Deformitäten	Prof. Hans Kainz, PD Dr. Mirjam Thielen	Saal
11.50–13.20	TechWalk		Saal/Foyer
13.20–14.00	<i>Mittagspause</i>		Foyer
14.00–15.00	Session 3: Messmethoden	Dr. Corina Nüesch, Prof. Dr. Felix Stief	Saal
15.00–16.15	Session 4: Poster	Dr. Jana Holder, Dr. Ursula Trinler	Intermezzo
16.15–16.45	<i>Kaffeepause</i>		Foyer
16.45–17.45	Session 5: Neuroorthopädie	PD Dr. Philip Broser, Dr. Matthias Hösl	Saal
17.45–18.45	Mitgliederversammlung GAMMA		Saal
19.30	Gesellschaftsabend		Restaurant Candela

Samstag, 29. März 2025

Zeit	Programmpunkt	Vortragende/Vorsitz	Raum
9.00–10.15	Session 6: Neue digitale Technologien	Dr. Chris Awai, Prof. Dr. Eveline Graf	Saal
10.15–10.45	Keynote: Unravelling successful long-term athlete development pathways – why motion analysis matters?!	Prof. Dr. Jörg Spörri	Saal
10.45–11.15	<i>Kaffeepause</i>		Foyer
11.15–12.30	Session 7: Sportbiomechanik	Dr. Isabella Fessl, Dr. Gerda Strutzenberger	Saal
12.30–12.45	GAMMA Wissenschaftspreis		Saal
12.45–13.00	Preisverleihung und Abschluss		Saal

DETAILPROGRAMM

*Beiträge, welche für Bester Vortrag/Bestes Poster nominiert sind, sind mit * gekennzeichnet*

Freitag, 28. März 2025 – Session 1: Fuss und Sprunggelenk

Session 1: Fuss und Sprunggelenk	
9.00	*V-01 Heel Inversion in the Heel Rise Test: Is it a Reliable Indicator of Decompensated Flatfeet in Children? <u>Böhm H.</u> ^{1,2} , Ender J. ² , ¹ Aschau im Chiemgau, ² Göttingen
9.10	*V-02 Postoperative gait analysis following hindfoot interposition arthrodesis utilizing an IMU-based two-segment foot model <u>Bauer L.</u> ¹ , Küstermann H. ² , Böcker W. ² , Baumbach S. F. ² , Polzer H. ² , ¹ Eisenberg, ² München
9.20	V-03 Impact of Running on Foot Dynamics in Children and Adolescents with Flexible Flatfoot <u>Baumgart C.</u> ¹ , Böhm H. ^{1,2} , ¹ Aschau im Chiemgau, ² Göttingen
9.30	V-04 Functional Assessment of Treated Idiopathic and Non-Idiopathic Clubfoot in Children and Adolescents: A Study Using the Heidelberg Foot Model <u>Chen Q.</u> , Putz C., Fernandes Teixeira J., Wolf S., Heidelberg
9.40	V-05 Functional gait parameters in children with late relapse of congenital equinovarus after initial conservative therapy <u>Szazi B.</u> ¹ , Krautwurst B. K. ¹ , Klucker G. ¹ , Dreher T. ¹ , Canonica S. ¹ , Kraus T. ² , ¹ Zürich, ² Graz
9.50	V-06 Is the pressure load and kinematics of the unaffected foot normal in persons with unilateral clubfoot? <u>Kranzl A.</u> , Unglaube F., Attwenger B., Wagner N., Mindler G., Radler C., Wien

Freitag, 28. März 2025 – Session 2: Deformitäten

Session 2: Deformitäten	
11.00	V-07 Femoral derotation osteotomy leads to more medializing patellofemoral force in most individuals with patellofemoral instability <u>Guggenberger B.</u> ^{1,2} , Kainz H. ² , Svehlik M. ¹ , ¹ Graz, ² Wien
11.10	V-08 Gait analysis with transfemoral amputees: How accurate are essential kinematic and kinetic parameters characterizing the functionality of prosthetic knee joints? <u>Pröbsting E.</u> ¹ , Bellmann M. ^{1,2} , Böhm H. ^{2,3} , Ernst M. ¹ , Pobatschnig B. ¹ , Schopper V. ^{1,1} Köln ² Göttingen, ³ Aschau i. Chiemgau
11.20	V-09 Immediate effects on gait when walking with and without the thigh section of a knee ankle foot orthosis in patients with congenital lower limb reduction deficiencies <u>Hösl M.</u> ¹ , Kotzan A. ² , Thamm A. ¹ , Kröner M. ¹ , Nader S. ^{1,1} Vogtareuth, ² Offenburg
11.30	V-10 Gait asymmetries in children with mild leg length discrepancy <u>Dobler F.</u> ¹ , Ender J. ² , Alexander N. ¹ , ¹ St.Gallen, ² Zürich
11.40	V-11 Walking and running of children with decreased femoral torsion are compared to each other <u>Krautwurst B. K.</u> , Tsagkaris C., Hamberg M. E., Villefort C., Dreher T., Zürich

TechWalk

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TechWalk am Stand (Start 12:40): stAPPtronics GmbH, AnyBody Technology A/S, prophysics AG, ORTHO-TEAM Partner AG, Delsys Europe, Kistler Instrumente AG, Velamed GmbH

Freitag, 28. März 2025 - Session 3: Messmethoden

Session 3: Messmethoden	
14.00	V-12 Physiological plausible muscle paths: A MATLAB tool for detecting and resolving muscle path discontinuities in musculoskeletal OpenSim models <u>Koller W.</u> ¹ , <u>Horsak B.</u> ² , <u>Kranzl A.</u> ¹ , <u>Unglaube F.</u> ¹ , <u>Baca A.</u> ¹ , <u>Kainz H.</u> ¹ , ¹ Wien, ² St. Pölten
14.10	V-13 A step toward assessing gait stability in the wild: Validation of local dynamic stability from inertial measurement units in elderly <u>Neumann S.</u> ¹ , <u>Best A.</u> ² , <u>Ducrot M.</u> ¹ , <u>Sizaret A.</u> ¹ , <u>Ravi D. K.</u> ³ , <u>Naef A.</u> ^{1,3} , <u>Wu A. R.</u> ² , <u>Easthope Awa C.</u> ¹ , ¹ Vitznau, ² Kingston (CA), ³ Zürich
14.20	V-14 Normative pedobarographic data and the role of parameter normalisation in assessing foot loading across childhood and adolescence <u>Behrendt A.</u> , <u>Siebert T.</u> , <u>D'Souza S.</u> , Stuttgart
14.30	V-15 What are the kinematic and kinetic effects of using different methods to determine gait events? <u>Kranzl A.</u> ¹ , <u>Unglaube F.</u> ¹ , <u>Horsak B.</u> ² , <u>Slijepčević D.</u> ² , <u>Dumphart B.</u> ² , ¹ Wien, ² St. Pölten
14.40	V-16 Longitudinal evaluation of gastrocnemius fascicle behaviour and foot biomechanics after calcaneal fracture using heel-rise analysis. <u>Brand A.</u> ^{1,2} , <u>Tashiro T.</u> ³ , <u>Kröger I.</u> ¹ , <u>Maeda N.</u> ³ , <u>Gabel J.</u> ¹ , <u>Augat P.</u> ^{1,2} , ¹ Murnau, ² Salzburg, ³ Hiroshima (JAP)

Freitag, 28. März 2025 - Session 4: Poster

15.00 Session 4: Poster	
	*P-01 Prediction of the expected gait disturbance in cerebral palsy patients based on brain MR imaging, perinatal history and gait analysis – preliminary results <u>Köckemann M.</u> ^{1,2} , <u>Alexander N.</u> ¹ , <u>Boltshauser E.</u> ³ , <u>Wälti S.</u> ¹ , <u>Broser P.</u> ^{1,2} , ¹ St. Gallen, ² Basel, ³ Zürich
	P-02 Assessing the Impact of Virtual Reality on Lower Limb Muscle Synergies: A Comparison with Real-World Movement <u>Eichwalder J.</u> ¹ , <u>Kaufmann P.</u> ¹ , <u>Mandl T.</u> ¹ , <u>Horsak B.</u> ² , <u>Baca A.</u> ¹ , <u>Kainz H.</u> ¹ , ¹ Wien, ² St. Pölten
	*P-03 Use of functional diagnostics for individual sports promotion – results of a predictor analysis aiming for cost reimbursement

Gizik J.^{1,2}, Hartmann M.², Kühne M.^{1,2}, Friedrich A.^{1,2}, Baumeister N.^{1,2}, Sahm D.², Klotsche J.³, Haas J.-P.², Schwirtz A.¹, ¹München, ²Garmisch-Partenkirchen, ³Berlin

P-04 Comparison of markerless and marker-based 3D gait analysis of gait perturbations on a perturbation treadmill
Brust A. K., Bücken G., Lüdtke K., Lübeck

*P-05 AI in Instrumental Gait Analysis: An Overview of Current Applications and Methods
Kocks C., Raab D., Duisburg

P-06 Overground indices of stability during walking in two typically developing toddlers who just acquired independent walking
Sangeux M., Bracht-Schweizer K., Romkes J., Viehweger E., Basel

*P-07 The End of Waddling? Surgical knee varus correction decreases lateral trunk lean in children
Akta C., Kranzl A., Chiari C., Stauffer A., Raimann A., Kocijan R., Mindler G., Wien

P-08 AI in Instrumental Gait Analysis - Challenges, Opportunities and Risks
Raab D.¹, Heitzer F.^{2,3}, Kowalczyk W.¹, Jäger M.^{2,3}, Kecskeméthy A.¹, ¹Duisburg, ²Essen, ³Mülheim an der Ruhr

*P-09 How good is our data? Improving daily-life gait analysis through IMU data quality assessment
Lang C., Ravi D. K., Zürich

P-10 Objective Measurement of "Hand-to-Mouth" Movement in Spasticity Patients: Pre- and Postoperative Analysis
Burgmann A.^{1,2}, Glaser J.^{1,3}, Thielen M.¹, Trinler U.¹, Pennekamp A.¹, ¹Ludwigshafen, ²Heidelberg, ³Berlin

P-11 Qualitative gait analysis in children with different brain lesions
Hörnö-Reissner A., Köckemann M., Alexander N., Dobler F., Broser P. J., St.Gallen

P-12 Convolutional neural networks for 3D ground reaction force prediction in mobile gait analysis settings: A study protocol
Yilmazgün B.¹, Stetter B. J.¹, Stein T.¹, Sell S.^{1,2}, ¹Karlsruhe, ²Neuenbürg

P-13 The influence of leg lengthening on the gait pattern of a child with achondroplasia compared to a child without surgery
Hergenröther M., Witte K., Mohnike K., Palm K., Magdeburg

P-14 Study protocol to assess effects of fatigue on gait in children and adolescents with cerebral palsy
von Deimling C., Lückoff I., Scherr J., Catuogno S., Mettler N., Dreher T., Krautwurst, B., Zürich

P-15 FlexiGait : 3D Markerless Gait Analysis using single camera RGB videos
Safarzadeh O., Karabuk, (TR)

P-16 AI-Enhanced Markerless 2D Gait Analysis in Japan and Germany: A Multicenter Study Across Ethnic, Gender, and Age Groups
Feodoroff B., Lenz R., Köln

Freitag, 28. März 2025 – Session 5: Neuroorthopädie

Session 5: Neuroorthopädie	
16.45	*V-17 Does Electromyography (EMG) Remain Unchanged as a Fingerprint in Patients with Cerebral Palsy (CP) After Orthopedic Surgery? <u>Davoudi M.</u>¹, Salami F.¹, Reisig R.¹, Patikas D. A.², Beckmann N. A.¹, Gather K. S.¹, Wolf S. I.¹, ¹Heidelberg, ²Thessaloniki (GR)
16.55	*V-18 Functional Electrical Stimulation (FES) and its effects on gait and cognitive performance <u>Bleichner N.</u>¹, Alimusaj M.¹, Nees F.², Flor H.³, Wolf S. I.¹, ¹Heidelberg, ²Kiel, ³Mannheim
17.05	V-19 Impact of adjusting shoe sole height for leg length discrepancy on gait abnormalities and asymmetries in children with unilateral spastic Cerebral Palsy <u>Hösl M.</u>¹, Thamm A.¹, Berweck S.^{1,2}, Herberhold T.¹, Nader S.¹, ¹Vogtareuth, ²München
17.15	V-20 Simplifying Parkinson's disease-related movement features based on the neurophysiological origin of pathological movement <u>Mei Z.</u>, Salzmann L., Taylor W. R., Gassert R., Ravi D., Zürich
17.25	V-21 Functional Mobility Assessment in Parkinson's (FMA-P): A pilot feasibility study of a novel methodological approach <u>Köchli S.</u>¹, Casso I.², Whyatt C.³, Schmid S.^{4,5}, Delevoye-Turrell Y.^{2,6}, Rose D.¹, ¹Luzern, ²Lille, ³Hatfield (UK), ⁴Bern, ⁵Basel, ⁶Lyon

Samstag, 29. März 2025 – Session 6: Neue digitale Technologien

Session 6: Neue digitale Technologien	
9.00	*V-22 A multicenter evaluation of a machine learning-based gait event detection algorithm <u>Dumphart B.</u>^{1,2}, Slijepcevic D.¹, Unglaube F.², Kranzl A.², Alexander N.³, Dobler F.³, Franco-Carvalho M.⁴, Armand S.⁴, Leboeuf F.⁵, Baca A.², Horsak B.¹, ¹St. Pölten, ²Wien, ³St. Gallen, ⁴Genf, ⁵Nantes (FR)
9.10	V-23 Feasibility of fully automated and semi-personalized musculoskeletal simulations to process large-scale gait datasets <u>Horsak B.</u>¹, Krondorfer P.¹, Unglaube F.², Slijepčević D.¹, Kranzl A.², ¹St. Pölten, ²Wien
9.20	V-24 Marker-less motion capture – Differences to conventional 3D gait analysis in a clinical setting <u>Spiess T.</u>¹, Willwacher S.², Wolf S.¹, Heitzmann D.¹, ¹Heidelberg, ²Offenburg
9.30	V-25 Validation of a Smartphone Video-Based Gait-Analysis-System on Stroke Patients with and without Walking Aid <u>Schwenk M.</u>¹, Boden A.-S.¹, Barzyk P.¹, Stuermer J.², Zimmermann P.¹, Seebacher D.¹, Stein M.¹, Liepert J.², Gruber M.¹, ¹Konstanz, ²Allensbach
9.40	V-26 The use of 'Open Research Data Guidelines for Movement Laboratories' for sharing normative gait data <u>Sommer B.</u>, Haas M., van Rekum S., Moerman F., Graf E., Winterthur
9.50	V-27 Fostering the potential of Open Research Data in movement analysis by means of guidelines for data sharing <u>Haas M.</u>, Sommer B., Moerman F., van Rekum S., Graf E., Winterthur

Samstag, 29. März 2025 – Session 7: Sportbiomechanik

Session 7: Sportbiomechanik	
11.15	V-28 Do frontal plane perturbations affect sagittal plane stability? <u>Neumann S.</u> ¹ , <u>Sizaret A.</u> ¹ , <u>Schulte F.</u> ² , <u>Ravi D. K.</u> ² , <u>Awai C.</u> ¹ , ¹ Vitznau, ² Zürich
11.25	V-29 Kinematic hip and knee variables in CMJs: Are there changes due to the menstrual cycle? – Preliminary results of a pilot study <u>Holder J.</u> , <u>Feik C.</u> , <u>Fessler I.</u> , <u>Groß C.</u> , <u>Huthöfer M.</u> , <u>Schwameder H.</u> , Salzburg
11.35	V-30 Intra- and inter-individual variability of lower limb kinematics of ski jumping athletes performing vertical jumps <u>Fessler I.</u> , <u>Hemetsberger S.</u> , <u>Groß C.</u> , <u>Huthöfer M.</u> , <u>Schwameder H.</u> , <u>Holder J.</u> , Salzburg
11.45	V-31 Physical activity does not affect frontal knee angle control in healthy people performing split lunges <u>Widhalm K.</u> ^{1,2} , <u>Durstberger S.</u> ¹ , <u>Penasso H.</u> ¹ , <u>Putz P.</u> ¹ , <u>Kainz H.</u> ¹ , <u>Augat P.</u> ^{2,3} , ¹ Wien ² Salzburg, ³ Murnau
11.55	V-32 Effects of competitive sports and obesity in childhood and adolescence on the knee joint cartilage <u>Böker E.</u> , <u>Witt M.</u> , <u>Roth C.</u> , Leipzig
12.05	V-33 Loading of the cervical spine in German police helicopter pilots <u>Goldmann J.-P.</u> , <u>Zedler M.</u> , Köln
12.15	V-34 Loading at the hip joint during an occupational one-handed weight lifting task <u>Hoch J.</u> ¹ , <u>Sikeler L.</u> ² , <u>Kohler H.</u> ¹ , <u>Trinler U.</u> ¹ , ¹ Ludwigshafen, ² Offenburg

Samstag, 29. März 2025 – GAMMA Wissenschaftspreis sponsored by prophysics

GAMMA Wissenschaftspreis sponsored by prophysics	
12.30	Bernhard Guggenberger Patient-specific gait pattern in individuals with patellofemoral instability reduces knee joint loads
12.40	Offizielle Verleihung des Wissenschaftspreises an die ersten 3 durch prophysics

KEYNOTES



Prof. Kaat Desloovere

Unraveling the gait decline in Duchenne Muscular Dystrophy: Insights from 3D motion analysis

How does gait deteriorate in Duchenne Muscular Dystrophy (DMD), and what drives its progression? This lecture will explore the longitudinal development of gait pathology in DMD, revealing how increasing muscle weakness and stiffness shape movement patterns.

Kaat Desloovere is a full professor at KU Leuven and the research manager of the Clinical Motion Analysis Laboratory at the University Hospitals Leuven, Belgium. She obtained her Master's degree in Physical Education and Kinesiology in 1989 and her Doctoral degree in 1996 from the KU Leuven. During her early postdoctoral years, she established the Clinical Motion Analysis Laboratory and worked there full-time as an expert in clinical motion analysis, as well as the service and research manager. Her research focuses on clinical motion analysis across various patient groups, with a particular emphasis on the relationship between clinical motion data (primarily gait) and underlying neuromuscular impairments.

Her research is organized into three main areas: (1) Methodological studies on assessments of neuromuscular symptoms and pathological function; (2) Fundamental studies on the underlying mechanisms of neuromuscular symptoms and pathological gait; and (3) Intervention studies aimed at validating novel methods and ensuring their clinical applicability.

Kaat Desloovere leads a multidisciplinary team of > 15 researchers, including PhD students, postdoctoral fellows, and scientific co-workers with both technical and clinical expertise. Additionally, she guides a clinical team of 5 to 8 co-workers at the Clinical Motion Analysis Laboratory. She has established extensive national and international collaborations with leading research centers in clinical movement analysis and has published over 270 peer-reviewed scientific papers.



Prof. Jörg Spörri

Unravelling successful long-term athlete development pathways - why motion analysis matters?!

Naturally, the overarching goal in competitive sport is success. However, successful long-term athlete development pathways are much more than just performance-driven training and testing regimes, as in most cases only healthy athletes can fully exploit their individual potential and contextual adaptations are crucial. This keynote lecture summarises the existing scientific evidence on successful long-term athlete development pathways using the example of competitive alpine skiing and particularly discusses the added value that motion analysis can bring to the search for appropriate athlete development and protection strategies. Be part of it!

Jörg Spörri is a titular professor and the Head of Sports Medical Research at Balgrist University Hospital, within the Department of Orthopaedics at the University of Zurich. He earned his Master's degree in «Human Movement Sciences» from ETH Zurich in 2009. Jörg Spörri then moved to the University of Salzburg, where he completed his Doctoral degree in 2012 and habilitated with *venia legendi* in «Biomechanics» in 2017. In 2022, he then received the *venia legendi* in «Experimental Sports Medicine» at the Faculty of Medicine of the University of Zurich in 2022, before being given the titular professorship in 2023.

He and his research group focus on protecting the health of elite athletes and developing innovative diagnostic and rehabilitation concepts in sports medicine, ultimately benefiting recreational athletes and orthopedic patients. Their main research areas include the prevention and rehabilitation of sports injuries, with an emphasis on health monitoring and load management, early detection of injury-relevant physical deficits, objectification and individualization of diagnoses and «return-to-sport» decisions, and the development of sport-specific training and therapy concepts.

Jörg Spörri, is a former athlete of the Swiss-Ski team and works closely together with national and international sport organizations. He has an excellent methodological background in epidemiology, performance diagnostics, sports biomechanics and musculoskeletal imaging, as well as many years of experience in the management of translational research projects, and has published over 120 peer-reviewed scientific papers to date.

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