

Curriculum Vitae **James J. Carollo**

Updated April 2022

1. BIOGRAPHICAL SKETCH

J. T. Tai Endowed Chair for the Center for Gait and Movement Analysis (CGMA)

Children's Hospital Colorado
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Associate Professor, University of Colorado Denver, Anschutz Medical Campus
Department of Physical Medicine and Rehabilitation, School of Medicine
Department of Orthopedics, School of Medicine
Department of Bioengineering, College of Engineering and Applied Science



Director, Center for Gait and Movement Analysis (CGMA), Children's Hospital Colorado

Director, Musculoskeletal Research Center (MRC), Children's Hospital Colorado

Dr. Carollo is the original designer and program director of the Center for Gait and Movement Analysis (CGMA), the first and only accredited clinical motion analysis laboratory in Colorado. Opened in July 1999, the Center's mission is to comprehensively analyze movement disorders associated with neuromuscular and musculoskeletal conditions, using advanced measurement tools and a unique multidisciplinary approach to care. The clinical goal of the laboratory is to identify critical gait abnormalities and recommend comprehensive treatment to improve and restore independent ambulation in any individual with less than optimal walking performance. Dr. Carollo was originally recruited to design this state-of-the-art facility after creating pediatric and adult facilities at Texas Scottish Rite Hospital for Children and the University of Texas Southwestern Medical Center, respectively; both in Dallas, Texas. Since then, he has led the ongoing development and operation of CGMA, including the complete redesign and clinical start-up following the move of Children's Hospital to the Anschutz Medical Campus in 2007, and the recent program expansions into adult assessment and adolescent sports medicine.

In 2017, Dr. Carollo was named the inaugural chairholder of the J. T. Tai Endowed Chair for the Center for Gait and Movement Analysis, to continue his work applying novel technologies and approaches to unravel the complexities of human motion, and study the impact of independent ambulation on the health and wellbeing of individuals with pediatric onset conditions, such as cerebral palsy, as they grow older.

Created in January 2006, Dr. Carollo also developed and currently serves as the Director (in collaboration with MRC Medical Director Dr. Nancy Miller) of the Musculoskeletal Research Center (MRC), a multidisciplinary research group established to promote and conduct advanced clinical outcomes research in the field of Pediatric Orthopedics. It draws upon the clinical excellence of Children's Hospital Colorado Orthopedic Surgery and Rehabilitation Medicine departments and the analytical expertise of clinical scientists and biomedical engineers, to create a clinical research infrastructure that can support research in spinal deformity, cerebral palsy, sports medicine, tumor, trauma, and other musculoskeletal disorders in children.

Dr. Carollo is an Associate Professor at University of Colorado (CU Denver) Anschutz Medical Campus, in the departments of Physical Medicine & Rehabilitation, Orthopedics, and Bioengineering. In that role, he leads intramurally and extramurally funded research teams, and provides mentorship to students from undergraduate to clinical residents and fellows, across a diverse spectrum of disciplines in medicine and engineering. Dr. Carollo also holds courtesy academic appointments at CU Boulder, CU Colorado Springs, Colorado School of Mines (CSM) and University of Denver and has served on graduate studies committees at each institution.

2. EDUCATION

Texas A&M University, College Station, TX	1979	B.S.	Bioengineering
Texas A&M University, College Station, TX	1982	M.S.	Bioengineering
University of Texas at Arlington	1998	Ph.D.	Biomedical Engineering
University of Texas Southwestern Medical Center at Dallas (joint program) Arlington and Dallas, TX			

Dissertation Title: *A Model of Gait Performance Based on Functional Sub-System Quantification*

1/80–12/80 **Bioengineering Clinical Internship**
Texas Scottish Rite Hospital (TSRH), Dallas, TX

1/86–12/88 **Rehabilitation Engineering Fellowship**
Center for Advanced Rehab Engineering (CARE), University of Texas, Arlington, TX
(Professor George Kondraske, Ph.D., Director)

3. ACADEMIC APPOINTMENTS (chronological)

- 9/90 - 12/94 **Research Faculty**, Bioengineering Internship Program, Texas A&M University: Supervised the activities of 4 biomedical engineering master's students during their 1-year internships at the lab; served as external committee member on their thesis committee
- 9/98 – 8/01 **Clinical Assistant Professor**, Rehabilitation Medicine and Orthopaedics Departments, UCHSC. Research collaboration and periodic lectures on gait analysis, biomechanics, and movement measurement instrumentation
- 9/00 - 4/05 **Graduate School Faculty (External member)**, Rocky Mountain School of Health Professions. Supervision and training of graduate students
- 9/00 - 6/05 **Graduate School Faculty (External member)**, University of Colorado at Boulder. Supervision and training of graduate students
- 9/01 – 6/11 **Graduate School Faculty (Regular member)**, University of Colorado at Denver and Health Sciences Center. Supervision and training of graduate students
- 9/01 – 3/07 **Assistant Professor**, Physical Medicine & Rehabilitation and Orthopaedics Departments, University of Colorado at Denver and Health Sciences Center. Research collaboration with faculty; periodic lectures on gait analysis, biomechanics, and movement measurement instrumentation; resident, graduate student, and medical student training; Engineering resource for the departments.
- 1/03 – 12/09 **Assistant Research Professor**, Division of Engineering, Colorado School of Mines. Supervision and training of graduate and undergraduate engineering students, research and bioengineering collaboration with CSM faculty; periodic lectures on gait analysis, biomechanics, and movement measurement instrumentation.
- 7/04 – 6/09 **Adjunct Assistant Professor**, School of Engineering, University of Denver. Research collaboration with DU faculty and students
- 9/08 – 6/18 **Adjunct Associate Professor**, Department of Computer Science, University of Colorado, Colorado Springs
- 11/09 – 6/17 **Adjunct Associate Professor**, Department of Integrative Physiology, University of Colorado Boulder

- 5/14 - 5/19 **Guest Professor**, Yueyang Hospital of Integrated Traditional Chinese & Western Medicine, Shanghai University of Traditional Chinese Medicine, Shanghai, China.
- 4/07 – present **Associate Professor**, Department of Physical Medicine & Rehabilitation, University of Colorado School of Medicine, Anschutz Medical Campus. Unanimously approved for promotion by School of Medicine, 7/07
- 4/07 – present **Associate Professor**, Department of Orthopedics, University of Colorado School of Medicine, Anschutz Medical Campus.
- 3/10 – present **Associate Professor (Affiliated Faculty)**, Department of Bioengineering, University of Colorado Denver, School of Engineering and Applied Sciences, Anschutz Medical Campus
- 11/15 – present **Associate Professor (Affiliated Faculty)**, Department of Epidemiology, University of Colorado Denver, Anschutz Medical Campus

4. HOSPITAL, GOVERNMENT, OR OTHER PROFESSIONAL POSITIONS (chronological)

- 1/80 - 12/80 **Bioengineering Clinical Intern**, Texas Scottish Rite Hospital for Children , Dallas, Texas. Designed, developed, and implemented the TSRH Gait Analysis Lab. With D. Wenger, developed research protocols for the comparative mechanical testing of scoliosis internal fixation devices in-vitro using Holstein calf spines as a physical model of the adolescent spine. With other interns, designed and developed a compression testing (displacement) machine for use in these studies. Developed skills for manuscript preparation and formal presentation.
- 10/81 - 1/86 **Director of Bioengineering**, Texas Scottish Rite Hospital for Children (TSRH), Dallas, Texas. Created the Bioengineering Dept. at TSRH, for the purpose of providing engineering support to the medical staff, and for developing devices and techniques to improve the lives of handicapped individuals. Implemented and further refined the TSRH Gait Analysis Lab as a clinical facility. Supervised the Graduate Bioengineering Internship Program and developed an undergraduate Co-op program for Texas A&M Bioengineering students. Served administratively as department director. Among other duties, participated in fund raising activities for the hospital, and served as a member of the in-house Research Committee.
- 1/86 - 1/89 **Rehabilitation Engineering Fellow**, Center for Advanced Rehabilitation Engineering / Human Performance Institute (HPI), The University of Texas at Arlington, Arlington, Texas. Worked with G. Kondraske to develop new research interests in the area of quantification of human performance; specifically, applied existing Institute techniques to develop a resource-based model for assessment of human locomotion. This work encompasses the doctoral dissertation. Designed a data base and computer network to support the Institute's activities. Also served as editor of the PARTNERS alumni newsletter and producer of a training video demonstrating proper use of assessment tools.
- 1/89 - 9/89 **Engineering Consultant**, Dallas Rehabilitation Foundation, Dallas, Texas. Supervised the design, development, and laboratory site preparation of a new gait analysis facility located in the Dallas area and sponsored by the Foundation. This became the Mobility Research and Assessment Laboratory. Responsible for planning and implementation of all engineering, technical, equipment procurement, and operational aspects of the new facility.
- 9/89 – 8/98 **Senior Research Scientist**, Mobility Research and Assessment Laboratory, Departments of Orthopedic Surgery and Physical Therapy, UT Southwestern Medical Center at Dallas. Supervised research and engineering operations of this modern gait analysis facility. Prepared and administered budgets, supervised technical and administrative staff, and in general assured proper operation of the laboratory. Prepared research proposals, designed experiments, and compiled technical reports for presentation or publication. Supervised and trained graduate

students in biomedical engineering and physical therapy during their clinical rotations. Supported all departmental computer resources. Worked with the Clinical Director (P. Winchester) and Medical Director (F. Gottschalk) to develop new programs and long term strategy.

- 9/98 – present **Director**, Center for Gait and Movement Analysis (CGMA), Children’s Hospital Colorado, Aurora CO. See page 1 of CV.
- 1/06 – present **Director**, Musculoskeletal Research Center (MRC), Children’s Hospital Colorado, Aurora CO. See page 1 of CV.

5. HONORS, SPECIAL RECOGNITIONS, AND AWARDS

- 1980 Bioengineering Clinical Internship Award, Third recipient
 Carl B. and Florence E. King Foundation
- 1986 Tau Beta Pi Engineering Honor Society (Texas eta chapter)
- 1986 Fellowship in Rehabilitation Engineering, First recipient (3-year award)
 Dallas Rehabilitation Foundation
- 1994 Outstanding Service Award
 IEEE Dallas Section, Engineering in Medicine and Biology Society
- 1994 Engineer of the Year Award
 Institute for Electrical and Electronics Engineers (IEEE), Dallas Section,
- 1994 Nominee for Engineer of the Year Award
 Texas Society of Professional Engineer
- 2001 Research Scholar Award
 The Children’s Hospital Research Institute
- 2007 IEEE Senior Member
 Institute for Electrical and Electronics Engineers
- 2014 “Certification of Honor” 3rd Zhangjiang International Forum on Traditional Chinese Medicine
 Shanghai University of Traditional Chinese Medicine
- 2017 J. T. Tai Endowed Chair for the Center for Gait and Movement Analysis (CGMA),
 Inaugural Chairholder

6. MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS

- 9/89-present IEEE Engineering in Medicine and Biology Society, Member
 Secretary /Treasurer, Dallas/Fort Worth Chapter, 1989-1991
 Chairman, Dallas/Fort Worth Chapter, 1991-1993
 Vice-Chairman, Dallas/Fort Worth Chapter, 1994.
- 1/98–present Gait and Clinical Movement Analysis Society (GCMAS), Member
 Accreditation committee member (11/00 – 4/08)
 GCMAS Representative to CMLA Board of Directors (5/03-present)
 GCMAS 2009, Denver, CO, March 10-13: Conference Chair
 GCMAS 2019, Frisco, TX, March 26-29: Program Co-Chair
 Nominated as GCMAS President, February 2019.
- 5/01–present American Society of Biomechanics (ASB), Member
- 11/13-present Orthopedic Research Society (ORS), Member
- 11/13-present American Congress of Rehabilitation Medicine (ACRM), Member
- 1/16-present American Academy of Cerebral Palsy and Developmental Medicine (AACPD), Fellow
- 5/19-present Pediatric Research in Sports Medicine Society (PRiSM), Member

Inaugural member, Motion Analysis Research Interest Group (RIG)

5/19-present Cochrane International, Member

Previous memberships

6/06-12/08 International Society of Electromyography and Kinesiology, Member

1/91 – 12/97 Rehabilitation Engineering and Assistive Technology Society of North America (RESNA)
Member

1/90 - 12/91 Biomedical Engineering Society, Member

7. COMMITTEE AND SERVICE RESPONSIBILITIES (Local and National)

10/99 – present National Sports Center for the Disabled (NSCD), Winter Park, CO
Volunteer Ski Instructor, Double Black Diamond (Platinum) Volunteer, earned lifetime pass

5/03 - present Commission for Motion Laboratory Accreditation, Inc. (CMLA), Wilmington, DE,
GCMAS representative, Board Member (4/03 – 7/21)
Vice president, (4/04 -3/09)
President, (3/09 - 4/15)
Past-President, (4/15–7/21)
Board Member, At-Large (7/21-present)

8/03 – present UC Denver School of Medicine, Department of Orthopedics, Aurora, CO
Orthopedics Resident Research Committee, member

10/15 – present Children’s Hospital Colorado Research Institute, Aurora, CO
Research Institute Scientific Steering Committee, member

4/18 – present UC Denver School of Medicine, Physical Medicine & Rehabilitation Department, Aurora, CO
PM&R Department Research Oversight Committee, member

5/18 – present UC Denver School of Medicine, Physical Medicine & Rehabilitation Department, Aurora, CO
PM&R Department Finance Committee, member

10/18 – present Children’s Hospital Colorado, Children’s Miracle Network / Helppie Family Chair in
Orthopaedic Movement Analysis, Aurora, CO
Endowed Chair Search Committee member

10/18 – present Shriners Hospitals for Children (SHC) Research Advisory Board, Tampa, FL
Board member

Previous appointments

10/94 – 12/98 Texas Physical Therapy Education & Research Foundation,
Foundation Trustee
Vice President, Chair of Grant Review Committee, 1995-1998

9/98 – 9/10 Rehab Science and Engineering Consortium (RSEC), Denver, CO,
Chairman, Goal: Developing a regional, multidisciplinary, research consortium working to
expand rehab medicine collaborations between clinical and academic sites in Colorado

10/00 – 8/02 UCHSC Bioengineering Steering Committee, Denver, CO, Member

- 7/04 – 6/14 UC Denver PM&R Department, Academic Enrichment Fund Steering Committee, member
- 7/04 – 3/05 UCDHSC, Department of PM&R, Physical Therapy Program, Denver, CO
PT Chair Search Committee Member
- 9/06 – 3/09 Gait and Clinical Movement Analysis Society (GCMAS), Chicago, IL
Conference Chair, 14th Annual Meeting, 2009, Denver, CO
GCMAS Executive Committee
- 6/08- 6/13 Interdisciplinary Movement Science Laboratory (IMSL), UC Denver PM&R Dept., Denver, CO
Member, Executive Committee
- 8/09 - 12/09 The Children’s Hospital, Denver, Research Strategic Planning Committee, Denver, CO
Research Themes and Priorities sub-committee
- 3/10-8/10 Chief Research Officer Search Committee, Children’s Hospital Colorado, Denver, CO
- 5/17 – 4/19 Gait and Clinical Movement Analysis Society (GCMAS), Chicago, IL
Program Co-Chair (with Dr. Tom Novacheck), 24th Annual Meeting, 2019, March 26-29, 2019
Frisco, TX
GCMAS Executive Committee and Board of Directors

8. LICENSURE

- 7/93-present Certification for Registration as a Professional Engineer (PE License)
Texas State Board of Registration for Professional Engineers

9. INVENTIONS, INTELLECTUAL PROPERTY, AND PATENTS HELD OR PENDING

Uterine Tone Intraoperative Measurement System (UTIMS): This measurement system was designed to provide real-time recording of electromyographic (EMG) signals from the myometrium of mothers undergoing complex fetal surgery, to provide a means for quantitative assessment of uterine smooth muscle tone intraoperatively. It was developed in response to a need identified by the Children’s Hospital Colorado Fetal Medicine team, and initially funded by a CCTSI Novel Methods Pilot Grant. IP and patent feasibility are currently being assessed by CU Innovations at CU Anschutz medical center.

- 8/17 *Multichannel Intraoperative EMG Recording of Myometrium for Continuous Monitoring of Uterine Tone.* University of Colorado CCTSI Novel Clinical and Translational Methods Development Grant Award.
PI: J. Carollo. Co-I: W. Boucharel, R. Pimentel
- 8/18 *Uterine Tone Intraoperative Measurement System (UTIMS) – G180172 – Investigational Device Exemption (IDE) Approval by FDA.*
PI: J. Carollo

10. REVIEW AND REFEREE WORK

12/04-present Scientific Program Committee and Paper/Poster Reviewer, Annual Meeting of the Gait and Clinical Movement Analysis Society (GCMAS)
10th Annual Meeting, Portland, 2005
12th Annual Meeting, Springfield, 2007
13th Annual Meeting, Richmond, 2008
14th Annual Meeting, Denver, 2009
17th Annual Meeting, Grand Rapids, 2012
20th Annual Meeting, Portland, 2015
22nd Annual Meeting, Salt Lake City, 2017
23rd Annual Meeting, Indianapolis, 2018
24th Annual Meeting, Frisco, TX, 2019
25th Annual Meeting, West Chester, PA, 2021
26th Annual Meeting, Houston, TX, 2022

4/06 – present Journal Reviewer, Archives of Physical Medicine and Rehabilitation,

6/06 – 6/10 Journal Reviewer, Journal of Biomechanics

4/07– present Journal Reviewer, Gait and Posture

10/09–12/11 Journal Reviewer, Journal of Rehabilitation Research and Development (JRRD)

11/10- present Journal Reviewer, Disability and Rehabilitation in Assistive Technology

9/18 – present Journal Reviewer, Developmental Medicine & Child Neurology (DMCN)

Previous appointments

4/93 – 8/98 United States Department of Education, Rehabilitation Services Administration
Grant Panel Reviewer, Physical Therapy Competitions
Grant Panel Reviewer, Rehabilitation Technology Competitions

10/94 – 12/98 Texas Physical Therapy Education & Research Foundation, Austin, TX
Foundation Trustee
Chairman of Grant Review Committee, 1995-1998

1/99-12/03 Texas Physical Therapy Education & Research Foundation, Austin, TX
External Grant Reviewer

3/06 ISEK 2006, Torino, Italy
Paper Review and Session Co-Chair, Posture and Balance Track

4/06 1st Joint ESMAC-GCMAS Meeting (JEGM06), Amsterdam, The Netherlands.
Scientific Committee, Paper Review,
Moderator, Examination of Methods II track

9/06 1st Joint ESMAC-GCMAS Meeting, (JEGM06), Amsterdam, The Netherlands.

3/05-12/07 Journal of Electromyography and Kinesiology, Editorial Committee

1/12 – 12/13 Journal of Orthopaedic Research, Reviewer

11. INVITED EXTRAMURAL LECTURES, PRESENTATIONS, AND VISITING PROFESSORSHIPS

International

- 1988 World Congress on Medical Physics and Biomedical Engineering, "A Task Analysis Strategy for Modeling and Assessment of Human Locomotion," **Carollo, JJ**, Kondraske, G, San Antonio, Texas, 1988.
- 2006 International Society of Electrophysiology and Kinesiology Annual Meeting, ISEK 2006, Postural Track, **Carollo, JJ**, Benvenuti, F, Session Chairs, Torino, Italy, June 2006.
- 2006 International Society of Electrophysiology and Kinesiology Annual Meeting, ISEK 2006, "Gait Initiation Differs Between Children with Hemiplegic Cerebral Palsy and Age-Matched Controls," **Carollo, JJ**, Dezman, ZD, Konieczny, A, Torino, Italy, June, 2006.
- 2006 1st Joint ESMAC-GCMAS Meeting (JEGM06), "Knee Extension at Terminal Swing: A Missing Critical Gait Event for Children with Spastic Cerebral Palsy," Valvano, J, **Carollo, JJ**, Lutz, B, Chang, F, Amsterdam, the Netherlands, September, 2006.
- 2008 17th Annual Meeting of the European Society of Movement Analysis for Adults and Children (ESMAC), "Workshop: SWOT Appraisal of Clinical Gait Analysis: The American Perspective," Panel Member, Antalya, Turkey, September 12, 2008.
- 2010 Joint ESMAC-GCMAS Meeting (JEGM), "*Relationship between Inter-Segmental Coordination and Gait Performance in Children with Spastic Cerebral Palsy and Stiff Knee Gait.*" Valvano J, Worster K, Pan Z, Flynn K, Chang FM, Carollo JJ: Podium Presentation. Podium Presentation. Miami FL, May 12-15, 2010.
- 2011 20th Annual Meeting of the European Society of Movement Analysis for Adults and Children (ESMAC), "*Changes in Inter-Segmental Coordination and Gait Performance after the Rectus Femoris Transfer Procedure in Children with Cerebral Palsy.*" Carollo JJ, Worster K, Pan Z, Chang F & Valvano J. Accepted for podium presentation. Vienna, Austria, September 2011
- 2014 3rd Zhangjiang International Forum on Traditional Chinese Medicine, Visiting Professor, *Instrumented Gait Analysis for Clinical Movement Assessment*, **Carollo JJ**, Shanghai, China, May 28, 2014.
- 2014 Yueyang Hospital of Integrated Traditional Chinese & Western Medicine, Visiting Professor, *Instrumented Movement Analysis & Clinical Motion Laboratory Accreditation*, Carollo JJ, Shanghai, China, May 29, 2014.
- 2014 Heyn, PC and **Carollo, JJ**. *Exercise is Medicine and We Need to Prescribe In Conjunction with Comprehensive Lifestyle Counseling*, Selected as Platform Lecture for the 91st American Congress of Rehabilitation Medicine, Quebec, Canada, October 7 -11, 2014.

National

- 1984 Sixth Annual Conference of the IEEE Engineering in Medicine and Biology Society, **Carollo, JJ**, "A Slow Motion Video/EMG System for Clinical Gait Analysis," Los Angeles, CA, 1984.
- 1985 Western Kinesiology Society Annual Meeting, **Carollo, JJ**, "A Video/EMG System for Clinical Gait Analysis," San Francisco, CA, 1985.
- 1985 Segmental Spinal Instrumentation Study Group, "Spinal Instrumentation Research: The Scottish Rite Experience," **Carollo, JJ**, Texas Scottish Rite Hospital, Dallas, TX, May, 1985.

- 1986 53rd Annual Meeting of the American Academy of Orthopedic Surgeons, "A Slow Motion Video/EMG System for Clinical Gait Analysis," **Carollo, JJ**, Johnston, C, Scientific Exhibit, New Orleans, LA, 1986.
- 1994 First Annual North American Clinical Gait Conference, "Intra-subject variability of dynamic EMG using surface and intramuscular electrodes," **Carollo, JJ**, Portland, OR. April, 1994.
- 1994 Assessment and Control of Spasticity in Upper Motor Neuron Disorders, a Restorative Neurology Short Course, **Carollo, JJ**, "Overview of Gait Analysis Instrumentation," Baylor College of Medicine, Houston, TX. August, 1994.
- 1998 3rd Annual Gait and Clinical Movement Analysis Society Meeting, "Predicting Overall Gait Performance from Measures of Strength, Balance, and Coordination: A Comparison of Multiple Regression and Threshold (NCRA) Models," **Carollo, JJ**, Poster Presentation, San Diego, CA.
- 2001 6th Annual Gait and Clinical Movement Analysis Society Meeting, "Use of Hidden Markov Models to Classify Gait Abnormalities in Cerebral Palsy," **Carollo, JJ**, Poster Presentation, Sacramento, CA, April 25, 2001.
- 2004 9th Annual Gait and Clinical Movement Analysis Society Meeting, "Gait Pattern Classification in Children With Cerebral Palsy: Results From A 12-State Hidden Markov Model Created With A Large Training Set," **Carollo, JJ**, He, Q, Debrunner, C, Lexington, KY, April 21-24, 2004.
- 2009 14th Annual Gait and Clinical Movement Analysis Society Meeting, "Grip Force Production in the Assisting Hand on Performance of a Bimanual Task: Applications to Hemiplegic Cerebral Palsy," Valvano J, Davis J, Denniston N, Boulter T, Nicklas T, Carollo JJ. Podium Presentation. Denver, CO. March 10-13, 2009.
- 2009 American Physical Therapy Association, "*Grip Force Production in the Assisting Upper Extremity of the Child with Hemiplegic Cerebral Palsy: A Complement to Kinematic Analysis.*" Valvano J, Davis J, Denniston N, Boulter T, Nicklas T, Carollo JJ. Poster Presentation. Pacific Grove, CA. August 12, 2009.
- 2010 The North American Society for the Psychology of Sport and Physical Activity Conference, "Use of Nonlinear Gait Analysis Methods to Elucidate Inter-Segmental Coordination Dynamics of Stiff Knee Gait in Children with Cerebral Palsy." Worster K, Valvano J & Carollo JJ. Podium Presentation. Tucson, AZ, June 10-12, 2010.
- 2011 16th Annual Gait and Clinical Movement Analysis Society Meeting, "Validity and Reliability of Kinematic Measures in Typically Developing Children during Partial Body Weight Support Treadmill Training". Denniston N, Welch J, Carollo JJ, Bodkin AW. Poster Presentation. Bethesda MD, April 26-29, 2011.
- 2011 16th Annual Gait and Clinical Movement Analysis Society Meeting, "Essential Segment Coordination Dynamics for Typical Gait: Applications to Pre-Swing." Worster K, Valvano J, Carollo JJ: Poster Presentation. Bethesda, MD, April 26-29, 2011.
- 2011 16th Annual Gait and Clinical Movement Analysis Society Meeting, "A Novel Automated Method for Detecting Heel-Off Using Only Foot Marker Trajectories. *Worster K, Carollo JJ.* Poster Presentation. Bethesda MD, April 26-29, 2011.

- 2012 Combined Sections Meeting of American Physical Therapy Association, "A Pilot Study Comparing Two Methods of Partial Body Weight Support Treadmill Training." Bodkin AW, Denniston N, Roybal J, Carollo JJ. Poster presentation. Chicago, IL, February, 2012.
- 2012 Pediatric Orthopedic Society of North America, "Comparison of Patellar Advancement Techniques in Children with Patella Alta and Cerebral Palsy." Rhodes J, Chen Q, Hotchkiss M, Worster K, McNair MS, Nguyen A, Chang F, Carollo JJ. Poster presentation. Denver, CO, May, 2012
- 2015 **Carollo, JJ.** *Balancing Risks and Benefits of Independent Ambulation in Cerebral Palsy Using an Adult Transition Program*, Selected as Platform Lecture for the 92st American Congress of Rehabilitation Medicine, Dallas, TX, October 25-30, 2015.
- 2015 **Carollo JJ.** *Clinical Motion Analysis, Laboratory Accreditation, and the Future of Instrumented Gait Analysis in the Rehab Setting*, Selected as Platform Lecture for the 92st American Congress of Rehabilitation Medicine, Dallas, TX, October 25-30, 2015.
- 2017 Annual Gait and Clinical Movement Analysis Society Meeting, "Successful Practices for Instrumented Gait Analysis: Insight for CMLA Accreditation." **Carollo JJ**, Henley J, Novacheck T, Rethlefsen S: Selected as Platform Lecture. Salt Lake, UT, May 23-26, 2017.
- 2021 Euker B, Bodkin A, Powel A, **Carollo J.** Evaluation of Plantar Pressure Automated Masking and Temporal Spatial Gait Parameters in Children with Spina Bifida. Annual Gait and Clinical Movement Analysis Society Meeting, West Chester, PA, June 1-5, 2021
- 2021 **Carollo, JJ.** University of California San Francisco (UCSF), Orthopedics and PM&R Joint Grand Rounds. "A Systematic Approach to Clinical Gait Analysis Based on The Critical Events in Walking." November 17, 2021. <https://www.youtube.com/watch?v=LpxuWK1j7V4>

Local

- 1987 Neural Networks Mini-Symposium, "A Systems Strategy for Characterization of Neuromuscular Performance," **Carollo, JJ**, Arlington, Texas, 1987.
- 1992 Dallas Short Course: Prosthetics and Orthotics, "Overview of Gait Analysis Instrumentation," **Carollo, JJ**, Orthopaedic Surgery Department, U T Southwestern, Dallas, Texas, 1992.
- 1993 Houston Society for Engineering in Medicine and Biology 11th Annual Meeting, "A System for Graphical Synchronization of Movement, Muscle Activity, and Ground Reaction Vectors," **Carollo, JJ**, Houston, Texas., 1993
- 1994 Houston Society for Engineering in Medicine and Biology 12th Annual Meeting, "Sensitivity of the EMG Linear Envelope to Low-Pass Filter Cutoff Frequency: An Investigation Using FIR Digital Filters," **Carollo, JJ**, Wrobbel, J, Houston, Texas, 1994.
- 1996 1st Annual Marge Barre Clinical Symposium, "Quantitative Gait Analysis and Its Clinical Application," **Carollo, JJ**, University of Texas Southwestern Medical Center at Dallas, Dallas, Texas
- 2000 Pills, Pokes, Plasters, and Pumps: Spasticity Management Update, "Computerized Gait and Movement Analysis at the CGMA," **Carollo, JJ**, Denver, CO, May 6, 2000.
- 2000 CU Medicine Ball, "Technology Advances in Rehabilitation Medicine," **Carollo, JJ**, Riegger-Krugh, C, Denver, CO, May 13, 2000.

- 2000 42nd Packard Memorial Lectureship, “Use of Quantitative Motion Analysis for Clinical Decision Making,” **Carollo, JJ**, Denver, CO, June 2, 2000.
- 2002 44th Packard Memorial Lectureship, “Idiopathic Scoliosis Alters the Trajectory of the Body’s Center of Mass During Normal Walking,” **Carollo, JJ**, Denver, CO, June 17, 2002.
- 2002 Rocky Mountain Rehab Society Meeting, “Movement Analysis and Clinical Decision Making,” **Carollo, JJ**, Denver, CO, October 9, 2002.
- 2003 12th Annual Jerome W. Gersten Lectureship, “Characterization of Whole Body Center of Mass Trajectory During Level Walking in Idiopathic Scoliosis,” **Carollo, JJ**, Denver, CO, June 20, 2003.
- 2004 TCH Orthopaedic Children’s Day, “Automated Pattern Recognition of Common Cerebral Palsy Gait Patterns,” **Carollo, JJ**, Debrunner, C., He, Q., Denver, CO, April 9, 2004.
- 2004 13th Annual Jerome W. Gersten Lectureship, “Computer Based Recognition of Common Gait Patterns in Cerebral Palsy,” **Carollo, JJ**, Denver, CO, June 16, 2004.
- 2004 5th Annual UCDHSC PT Program USA and Japan Health Sciences Conference, “Gait Pattern Classification in Children with Cerebral Palsy: Results From a 12-State Hidden Markov Model Created with a Large Training Set,” **Carollo, JJ**, He, Q, Debrunner, C, Aurora, CO, September 21, 2004
- 2005 14th Annual Jerome W. Gersten Lectureship, “Clinical Research Update: Center for Gait and Movement Analysis,” **Carollo, JJ**, Denver, CO, June 17, 2005.
- 2006 UCDHSC Orthopaedic Grand Rounds, “Instrumented Gait Analysis for Surgical Decision-Making: Brief Tutorial with Case Examples,” **Carollo, JJ**, Chang F, February, 2006
- 2006 Children’s Ortho Day 2006, “CGMA Research Update: New Research from the Gait Lab,” **Carollo, JJ**, Valvano, J, Dezman, ZD, Denver, CO, April, 2006.
- 2006 Children’s Hospital Ortho Day 2006, “Introduction to the Musculoskeletal Research Center at The Children’s Hospital,” **Carollo, JJ**, Erickson, M, Denver, CO, April, 2006.
- 2006 Grand Rounds, Regis University, Department of Physical Therapy, “CGMA Research Update,” Chang F and **Carollo, JJ**, September 2006.
- 2006 1st Annual Rocky Mountain Academic Spine Research Symposium, “Research Overview of the Musculoskeletal Research Center at The Children’s Hospital,” **Carollo, JJ**, UCDHSC, Aurora, CO, October 6, 2006.
- 2006 1st Annual Musculoskeletal Research Symposium, “Orthopaedic Research at the CGMA and the MRC at The Children’s Hospital,” **Carollo, JJ**, UCDHSC, Aurora, CO, October 28, 2006.
- 2008 Children’s Hospital Orthopaedic Day. “Knee Extension At Terminal Swing In Children With Spastic Cerebral Palsy” Valvano J. & **Carollo JJ**. The Children’s Hospital, Aurora, CO. April 18, 2008.
- 2009 UC Denver PM&R Department Grand Rounds, “Clinical Motion Analysis” **Carollo JJ**, UC Denver Anschutz Medical Campus, Aurora, CO, June 3, 2009.

- 2010 Children's Hospital Orthopedic Day. "Relative Phase as a Measure of Coordination Change after Rectus Femoris Transfer Surgery". Valvano J, Worster K, Flynn, K, Chang FM & **Carollo JJ**. The Children's Hospital, Aurora, CO. April 16, 2010.
- 2012 Children's Hospital Colorado Annual Orthopedic Day Conference, "Comparison of Patellar Advancement Techniques in Children with Cerebral Palsy" **Rhodes J**, Chen Q, Hotchkiss M, Worster K, McNair B, Nguyen A, **Chang F**, **Carollo J**, Aurora, Colorado, April 6, 2012.

12. TEACHING RECORD

- 9/95 – 8/98 **Scientific Inquiry:** Research support, Assisted with 1 to 3 senior research projects each year, primarily in data collection, statistical analysis, and video production
- 9/95 – 8/98 **Physical Agents II:** Lecturer, UT Southwestern, PT Program, Taught lecture on electrical stimulation instrumentation, including oscilloscope waveform demonstration
- 9/96 – 8/98 **Therapeutic Exercise:** Lecturer, UT Southwestern, PT Program, Taught safe use of isokinetic dynamometry, lecture and lab
- 9/95 – 8/98 **Pathokinesiology:** Lecturer, UT Southwestern, PT Program, Taught gait analysis instrumentation and normal gait lecture and lab
- 9/95 – 8/98 **Biomechanics:** Co-instructor, UT Southwestern, PT Program, Taught sections on biomaterials, viscoelasticity, material properties, and biomechanics instrumentation and measurement, lecture and lab
- 3/00 – 3/01 **MCEN 4228/5228 Special Topics: Biomechanics:** Lecturer, Mechanical Engineering Department, University of Colorado, Boulder. Gait analysis and gait analysis instrumentation lectures
- 9/00 – 11/02 **PHTR 6512 Biomechanics:** Laboratory Instructor, UCHSC PT Program, normal and pathologic gait demonstrations and laboratory exercises, conducted at CGMA
- 8/03–07/04 **PHTR 6570, Evaluation and Examination:** Co-instructor (with Dr. Riegger-Krugh), Developed and presented abnormal gait content. Shared course development responsibility starting in 2003.
- 8/03–07/04 **PHTR 6512, Biomechanics:** UCHSC PT Program, Co-instructor (with Dr. Riegger-Krugh). Developed and presented normal gait content. Shared course development responsibility starting in 2003.
- 1/07-2/08 **BELS 598A, Computational Biomechanics:** Lecturer, Engineering Division, Biomedical Engineering Track, Colorado School of Mines. Series of 2-4 lectures on computational methods in movement analysis and motion capture, focusing on their application to clinical movement analysis. Coordinated by Dr. Anthony Petrella, CSM. Class size: up to 15 graduate and senior engineering students, 3-6 class hours each spring semester.
- 8/04–1/07 **DPTR 5101, Movement Science I:** UCDHSC PT Program, Co-instructor (with Dr. Riegger-Krugh). Revised, expanded, and updated course for DPT program based on PHTR 6512 and PHTR 6570. Increased lecture and laboratory hours, and included normal and pathologic gait in the same course. Developed and presented instrumentation, and normal and abnormal gait content.
- 9/04-6/10 **EGGN 491, 492, Senior Design:** Mentor, Sponsor, Engineering Division, Biomedical Engineering Track, Colorado School of Mines. Provided projects, design ideas, supervision, and financial support to up to 2 student engineering design teams during their required senior year

design courses. Coordinated by Dr. Richard Burczyk, CSM Engineering division. Class size: up to 2 groups of 4 senior engineering students, both fall and spring semesters.

- 8/03-5/04 **BELS 430/530 Biomedical Instrumentation:** Lecturer, Engineering Division, Biomedical Engineering Track, Colorado School of Mines. Series of 2-4 lectures on gait analysis instrumentation and motion capture techniques to engineering students with a biomedical engineering specialty. Coordinated by Dr. Joel Bach.
- 8/03-5/06 **BELS 425/525 Musculoskeletal Biomechanics:** Lecturer, Engineering Division, Biomedical Engineering Track, Colorado School of Mines. Series of 2-4 lectures on gait analysis principles, and introduction to normal and pathologic gait for engineering students with a biomedical engineering specialty. Coordinated by Dr. Joel Bach.
- 8/04–8/10 **DPTR 6102, Movement Science II:** UCDHSC PT Program, Co-instructor (with Dr. Riegger-Krugh, Dr. Cory Christianson). Continuation of Movement Science I, with expanded pathologic gait instruction and laboratory demonstrations. Began summer 2005.
- 9/04–6/11 **PM&R Residency Training Program:** Orthotics & Prosthetics module, Co-Course Director (with Dr. Amit Jha). Developed and presented normal and abnormal gait content, with Dr. Jha, organized course, obtained guest speakers, attended all lectures, and contributed to the final exam.
- 8/06-6/09 **Orthopaedics Residency Training Program:** Introduction to Clinical Research Lecture Series, Co-Course Director (with Dr. Bennie Lindeque). Developed and presented a series of 3 lectures introducing fundamental research methods to orthopaedic residents. Lecture series offered every 6 months and presented to residents during their ortho tumor rotation at UCDHSC. Topics included formulating hypotheses, levels of evidence, scientific method, type I and II errors and power estimation. Complements biostatistics content taught by Dr. Allison Williams.
- 4/10-6/11 **ME 4238/5238, Intro to Sports Engineering:** Mechanical Engineering Department, UC Denver; Developed and presented a series of 4 lectures with associated laboratory session on clinical movement analysis adapted for sports performance assessment.
- 11/10-present **BIOE 5010, Life Sciences for Bioengineers:** Bioengineering Department UC Denver Anschutz Medical Campus, Instrumented Gait Analysis Module. Developed and presented a 3 session, 6 hour lecture/laboratory series within the BIOE 5010 course introducing the principles of instrumented motion analysis for the graduate level bioengineering students.
- 11/11- 6/15 **BIOE 5073, Neural Interfaces & Bionic Limbs:** Bioengineering Department UC Denver Anschutz Medical Campus, Co-Instructor, Lower extremity and gait content. Developed and presented a 6-week, 14-hour lecture/laboratory series with Dr. Richard Weir for graduate level bioengineering students. The LE and gait content covered lower extremity anatomy, and all aspects of instrumented gait analysis, including assessment, instrumentations, and analysis. Included homework assignments, exams, and laboratory projects.
- 11/10- present **BIOE 5041, Bioengineering Clinical Experience Seminar Series:** Bioengineering Department, UC Denver Anschutz Medical Campus, Instructor. Annually present a one week mini-course that includes lecture and lab, and introduces the principles of Instrumented Gait Analysis (IGA) to BIOE graduate students.

Student Mentorship and Supervision

Junior Faculty

10/09–6/15: Jason Rhodes, MD

Assistant Professor, Department of Orthopedics
University of Colorado, Anschutz Medical Campus, Aurora, CO

7/17–present: Aaron Powell, MD	Assistant Professor, Department of Physical Medicine & Rehabilitation University of Colorado, Anschutz Medical Campus, Aurora, CO
3/18–present: Sayan De, MD	Assistant Professor, Department of Orthopedics University of Colorado, Anschutz Medical Campus, Aurora, CO
3/18–present: Beth Warren, MD	Assistant Professor, Department of Pediatrics, Center for Cancer & Blood Disorders, University of Colorado, Anschutz Medical Campus, Aurora,
11/19–present: Mark Manago, PT PhD	Assistant Professor, Department of Physical Medicine & Rehabilitation, Physical Therapy Program, University of Colorado, Anschutz Medical Campus, Aurora, CO
3/18–present: Jessica Duis, MD	Assistant Professor, Department of Pediatrics, Clinical Genetics University of Colorado, Anschutz Medical Campus, Aurora, CO

Doctoral Students

9/00 –12/04: Laurie Hobbs	Degree: D.Sc. Physical Therapy, Rocky Mountain University for Health Professions, Provo, UT
5/01- 8/03: Qiang He	Degree: Ph.D., Electrical Engineering Colorado School of Mines, Golden, CO
1/02 - 5/06: Amy Winter-Bodkin	Degree: Ph.D., Clinical Science Program University of Colorado Health Sciences Center, Denver, CO
8/11- 5/15: Kate Worster	Degree: Ph.D., Bioengineering University of Colorado Denver Anschutz Medical Center, Aurora, CO

Residents and Fellows

8/05-6/06: Dr. Sam Laney	Degree: PM&R residency, Department of Physical Med. & Rehab University of Colorado Health Sciences Center, Denver, CO
3/05-6/08: Dr. Jason Rhodes	Degree: Orthopaedic residency, Department of Orthopaedics University of Colorado Health Sciences Center, Denver, CO
7/06-6/07: Dr. Peter D’Ambrosia	Degree: Orthopaedic residency, Department of Orthopaedics University of Colorado Health Sciences Center, Denver, CO
9/11-06/14: Dr. Adam Seidl	Degree: Orthopaedic residency, Department of Orthopaedics University of Colorado Health Sciences Center, Denver, CO
04/14-6/16: Dr. Meredith Mayo	Degree: Orthopaedic residency, Department of Orthopaedics
10/16-6/18: Dr. Sruthi Thomas	Degree: PM&R residency, Department of Physical Med. & Rehab University of Colorado Health Sciences Center, Denver, CO
10/17-6/19: Dr. Taron Davis	Degree: PM&R residency, Department of Physical Med. & Rehab University of Colorado Health Sciences Center, Denver, CO

Medical Students

1/06-4/06: Dr. Neda Afzali-Jones	Degree: M.D., School of Medicine (post-grad research) University of Colorado Health Sciences Center, Denver, CO
6/06-8/06: Adam Seidl	Degree: M.D. School of Medicine University of Southern California. Los Angeles, CA
04/14-6/16: Nicole Look	Degree: M.D. School of Medicine, Research Track mentor University of Colorado Anschutz Medical Campus, Aurora, CO
10/16-9/19: Michael Gracia	Degree: M.D. School of Medicine University of Colorado Anschutz Medical Campus, Aurora, CO
10/16-6/20: David Robertson	Degree: M.D. School of Medicine University of Colorado Anschutz Medical Campus, Aurora, CO
10/16-6/20: Colton Sauer	Degree: M.D. School of Medicine, Research Track mentor University of Colorado Anschutz Medical Campus, Aurora, CO

Masters Students

6/01–8/01: Renee Lake	Degree: M.S. (Graduate Bioengineering Certificate), Neuroscience, Colorado State University, Ft. Collins, CO
6/01-5/04: Timothy Nicklas	Degree: M.S., Mechanical Engineering, University of Colorado, Boulder, CO
6/03-05/06: Ann Konieczny	Degree: P.A., M.S. Graduate School, Physician’s Assistant Program University of Colorado Health Sciences Center, Denver, CO

6/05-05/06: Kerry Jones Degree: M.S., Mechanical Engineering (Biomedical option)
Colorado School of Mines, Golden, CO

6/05-6/08: Kristen Baulesh Degree: P.A., M.S. Graduate School, Physician's Assistant Program
University of Colorado Health Sciences Center, Denver, CO

5/10-5/11: Dominic Bravo Degree: M.S. Mechanical Engineering
Colorado School of Mines, Golden, CO

5/10-8/11: Sara Hogy Degree: M.S. Biomedical Engineering
Colorado State University, Ft. Collins, CO

6/12-05/14: Cassia Cucuel Degree: M.S. Biological Engineering
University of Colorado Denver Anschutz Medical Center, Aurora, CO

07/13 - 5/15: Kayla Burnim Degree: M.S. Biological Engineering
University of Colorado Denver Anschutz Medical Center, Aurora, CO

07/14 – 5/16: Patrick Carry Degree: M.S. Epidemiology, Colorado School of Public Health,
University of Colorado Denver Anschutz Medical Center, Aurora, CO

Graduate Bioengineering Internships

8/90-08/91: Glenn Blackwood, Degree: M.S., Bioengineering, (BME Intern)
Texas A&M University, College Station, TX

8/91-08/92: Rasesh Parekh, Degree: M.S., Bioengineering, (BME Intern)
Texas A&M University, College Station, TX

8/92-08/93: Sudha Thimmaraju Degree: M.S., Bioengineering, (BME Intern)
Texas A&M University, College Station, TX

8/92-12/94: Niranjana Manjeshwar Degree: M.S., Bioengineering, (BME Intern)
Texas A&M University, College Station, TX

6/01-5/02: Patrick Galinas Degree: M.S., Kinesiology, (Kinesiology Internship)
University of Colorado, Boulder, CO

6/01-6/03: Timothy Nicklas Degree: M.S., Mechanical Engineering, (BME Intern)
University of Colorado, Boulder, CO

6/03-12/04: Chris Kramer Degree: M.S., Electrical Engineering, (BME Intern)
Colorado School of Mines, Golden, CO

6/04-7/06: Zach Dezman Degree: M.S., Chemical Engineering (BME. Intern)
Colorado School of Mines, Golden, CO

7/05-5/07: Heather Angel Degree: B.S., M.S., Mechanical Engineering (BME Intern)
Colorado School of Mines, Golden, CO

5/10-4/11: Dominic Bravo Degree: B.S., M.S. Mechanical Engineering (BME Intern)
Colorado School of Mines, Golden, CO

5/10-8/11: Sara Hogy Degree: B.S., M.S. Biomedical Engineering (BME)
Colorado State University, Ft. Collins, CO

2/12-7/13: Cassi Cucuel Degree: B.S., M.S., Biomedical Engineering (BME Intern)
University of Colorado Denver Anschutz Medical Center, Aurora, CO

7/13-5/15: Kayla Burnim Degree: B.S., M.S., Biomedical Engineering (BME Intern)
University of Colorado Denver Anschutz Medical Center, Aurora, CO

8/16-5/17: Lucas Moore Degree: M.S., Engineering (BME Intern)
Colorado School of Mines, Golden, CO

1/19-5/20: Mali Glaister Degree: M.S., Engineering (BME Intern)
Colorado School of Mines, Golden, CO

Undergraduate Internships

2/00-11/00: Daniel Goodman Degree: B.S., Kinesiology (Kinesiology Internship),
University of Colorado, Boulder, CO

2/00-8/01: Meredith Rose Degree: B.S., Kinesiology (Kinesiology Internship),
University of Colorado, Boulder, CO

6/01–8/01: Mark Adams Degree: B.S., Kinesiology (Kinesiology internship),
University of Northern Colorado, Greeley, CO

6/02–8/02: Brett Fling Degree: B.S., Kinesiology (Kinesiology internship),
University of Northern Colorado, Greeley, CO

10/02-11/03: Megan Outcult	Degree: B.S., Kinesiology (Kinesiology internship), University of Southern California, Los Angeles, CA
6/03-12/03: Sara Read	Degree: B.S., Mechanical Engineering (BME Intern) Colorado School of Mines, Golden, CO
8/06-6/06: Kat (Muterspaugh) Steele	Degree: B.S., Mechanical Engineering (BME Intern) Colorado School of Mines, Golden, CO
7/11-6/12: Ryan Haun	Degree: B.S., Mechanical Engineering (BME Intern) UC Denver, Denver, CO
5/13-8/13: Ali Senz	Degree: B.S. Mechanical Engineering (Summer Intern) Texas A&M University, College Station, TX
5/14-8/16: Colton Sauer	Degree: B.S., Mechanical Engineering (Summer Intern) Colorado School of Mines, Golden, CO
5/16-3/19: Meghan Colip	Degree: B.S., Biology (Summer Intern) University of Colorado, Denver
<u>Physical Therapy Clinical Internships</u>	
11/99-4/00: Tatiana Favale	Degree: M.P.T., Laboratorio de Marcha AACD, Sao Paulo-SP, Brazil
6/02-8/02: Laura Dilling	Degree: M.S., Physical Therapy (Clinical internship) University of Colorado Health Sciences Center, Denver, CO
6/03-8/03: Lindsay Krause	Degree: M.S., Physical Therapy (Clinical internship) University of Colorado Health Sciences Center, Denver, CO
12/04-2/05: Meagan Caggiano	Degree: D.P.T, Physical Therapy (Clinical internship) Regis University, Denver, CO
2/05-04/05: Amanda Kocis	Degree: D.P.T, Physical Therapy (Clinical internship) Regis University, Denver, CO
6/05-09/05: Karie Allen	Degree: M.S., Physical Therapy (Clinical internship) University of Colorado Health Sciences Center, Denver, CO
11/05-1/06: Whitney Welsch	Degree: D.P.T, Physical Therapy (Clinical internship) Regis University, Denver, CO
10/06-02/07: Rachel Brink	Degree: M.S., Physical Therapy (Clinical internship) University of Colorado Health Sciences Center, Denver, CO

13. GRANT SUPPORT, GIFTS, & INVESTITURES (Funded)

Current Grant Support:

Oct. 2021	\$500,000	J. T. Tai & Company Foundation , “2021 Orthopedics Institute Research Initiatives,” J. Carollo, J. Dawe. Support for a Children’s Hospital Colorado interdepartmental research initiative between the Musculoskeletal Research Center (MRC) of the Orthopedics Institute, Pediatric Rehabilitation, and Pediatric Neurosurgery. Award supports 2 initiatives: (1) Optimizing acquisition of Patient Reported Outcome measures in orthopedic clinics (project lead: S. Garg) (2) Improving outcomes in people with cerebral palsy by establishing a multicenter, multidisciplinary research network (project lead: J. Oleszek) Site PI: J. Carollo, 2-year award.
Oct. 2020	\$500,000	J. T. Tai & Company Foundation , “2020 J. T. Tai Foundation Orthopedic and Musculoskeletal Research Initiatives,” J. Carollo, L. Schaffer. Support for the development of three developmental research programs at the Musculoskeletal Research Center (MRC), Orthopedics Institute, Children’s Hospital Colorado: (1) Improving Pediatric Concussion Outcomes (project lead: D. Howell) (2) Development of a Pediatric Orthopedic Biorepository (project lead: N. Miller)

(3) Evaluation of Limb Deformity Correction Program
 (project lead: J. Sanders, S. De)
 Site PI: J. Carollo, 2-year award.

Sept. 2020	\$50,000	<p>Foundation for Angelman Syndrome Therapeutics, “Translational Analysis of Gait as a Primary Outcome in Angelman Syndrome”, PI: J. Silverman, Co-PI J.Duis and J. Carollo. The major goal is to assess translationally understand motor development in Angelman Syndrome. We will be conducting a remote study on 40 patients to follow up the findings of a small study completed on the use of ActiMyo® in Angelman Syndrome.</p>
Prior Grant Support:		
Jan 1989	\$200,000	<p>Mobility Foundation, "A Proposal for the Establishment of the Mobility Research and Assessment Laboratory," J. Carollo and J. W. Aston</p>
June 1989	\$120,900	<p>Hoblitzelle Foundation, "A Proposal for Capital Equipment for the Mobility Research and Assessment Laboratory," J. W. Aston and J. Carollo</p>
Jan 1990	\$187,763	<p>Texas Higher Education Coordinating Board, Advanced Technology Program, "Development of a Computer Controlled Gait Assist Device for the Spinal Cord Injured," J. W. Aston and J. Carollo</p>
Feb 1990	\$40,000	<p>Aston Foundation, "A Glass Top Force Platform for use in Clinical Gait Analysis," J. W. Aston and J. Carollo</p>
Jan 1991	\$15,085	<p>Rehab Hospital Services Corp. Foundation, "Visual Feedback of Motor Speech Components in Patients with Communication Impairments: Therapeutic Applications," D. Bradley and J. Carollo</p>
Jan 1991	\$8,300	<p>Rehab Hospital Services Corp. Foundation, "Use of Afferent Electrical Stimulation to Reduce Calf Hypertonia," J.W. Aston and J. Carollo</p>
June 1991	\$70,382	<p>Whitaker Foundation, "Study of Gait Stability of Normals and Post-Polio Patients Using Non-Linear Theory," Y. Hurmuzlu, J. Carollo, J.W. Aston.</p>
Sept 1992	\$6,030	<p>Autry Industries, Inc., "Comparison of Ground Reaction Forces and Pressure Distribution in Non-Pathologic Subjects Wearing commercially Available Shoes," J. Carollo,</p>
Nov. 1997	\$47,570	<p>U. S. Department of Defense, MTP-H1, “Measurement of Joint Proprioception,” Part of a larger grant to study Gulf War Syndrome, PI: Dr. Robert Haley, J. J. Carollo and P. Winchester, (first year funding, total for 3 years \$112,584)</p>
July 2000	\$49,974	<p>United Cerebral Palsy Research and Education Foundation, “The Effects of Verbal and Physical Guidance on the Learning of a Novel Gross Motor Skill by Children with Spastic Cerebral Palsy,” C. B. Heriza, J. Valvano, J. Carollo,</p>

Feb. 2001	\$69,868	The Children's Hospital Research Institute , "Development and Clinical Validation of New Measures of Dynamic Balance Based on Center of Mass (COM) and Center of Pressure (COP) Determination," J. Carollo.
Oct. 2001	\$94,500	NICHDD , #R21-HD41585-01, "Developing Clinical Trials in Assistive Technology," D. J. Matthews, C. Bodine, J. Carollo.
Jan. 2001	\$75,000	Low Fund of the Denver Foundation , "Operations Support for the Center for Gait and Movement Analysis," J. Carollo, B. Wills
Dec. 2001	\$100,000	J. T. Tai & Co. Foundation , "A Proposal for Expansion of CGMA," J. Carollo, F. M. Chang, B. Wills
Mar. 2002	\$100,000	Low Fund of the Denver Foundation , "Development of the Next Generation Movement Laboratory at The Children's Hospital," J. Carollo, B. Wills
Dec. 2002	\$100,000	J. T. Tai & Co. Foundation , "Creation of a Cerebral Palsy Center of Excellence," J. Carollo, F. M. Chang, B. Wills
Dec. 2003	\$100,000	J. T. Tai & Co. Foundation , "Research Training for Graduate and Medical Student at CGMA," J. Carollo, F. M. Chang, B. Wills
Mar. 2004	\$100,000	Low Fund of the Denver Foundation , "Capital Equipment Support of the Center for Gait and Movement Analysis (CGMA) in The Children's Hospital at Fitzsimons," S. Morrison, J. Carollo
Dec. 2004	\$100,000	J. T. Tai & Co. Foundation , "Support of Research and Education Opportunities at CGMA," J. Carollo, F. M. Chang, L. Schaffer
Sep. 2004	\$100,000	Low Fund of the Denver Foundation , "Capital Equipment Support of the Center for Gait and Movement Analysis (CGMA) in The Children's Hospital at Fitzsimons," S. Morrison, J. Carollo
Dec. 2005	\$100,000	J. T. Tai & Co. Foundation , "2004 Progress Report and 2005 Proposal for the Center for Gait and Movement Analysis (CGMA)," J. Carollo
Jan. 2006	\$600,000	UCDHSC School of Medicine, Dean's Academic Enrichment Fund , "Musculoskeletal Research Center (MRC): Preliminary Overview and Business Plan," M. Erickson and J. Carollo
Jan. 2006	\$41,500	Low Fund of the Denver Foundation , "Capital Equipment Support of the Center for Gait and Movement Analysis (CGMA): Portable Oxygen Consumption Measurement System," K. Crawley, J. Carollo
Dec. 2006	\$100,000	J. T. Tai & Co. Foundation , "2005 Progress Report and 2006 Proposal for the Center for Gait and Movement Analysis (CGMA)," J. Carollo
Dec. 2007	\$100,000	J.T. Tai & Co. Foundation , "2006 Progress Report and 2007 Proposal for the Center for Gait and Movement Analysis (CGMA)," J. Carollo
Dec. 2007	\$30,000	The Children's Hospital Research Institute , "Rhythmic

		Auditory Stimulation as a Gait Intervention for Children with CP,” . Thaut, J. Carollo
Mar. 2008	\$6,000	UC Colorado Springs (UCCS) , “International Cooperation on Human Motion Analysis Project: Laban Notation,” J. Carollo
Dec. 2008	\$100,000	J.T. Tai & Co. Foundation , “2007 Progress Report and 2008 Proposal for the Center for Gait and Movement Analysis (CGMA),” J. Carollo
Sept. 2008	\$126,535	Medtronic , “Impact of Spinal Fusion Construct with Sacro-pelvic Fixation on Gait Dynamics,” M. Erickson, J. Carollo
Aug. 2008	\$45,661	Low Fund of the Denver Foundation , “Research Infrastructure Support CGMA,” K. Crawley, J. Carollo
Dec. 2009	\$100,000	J.T. Tai & Co. Foundation , “2008 Progress Report and 2009 Proposal for the Center for Gait and Movement Analysis (CGMA),” J. Carollo, J. Valvano
Oct. 2009	\$48,417	Low Fund of the Denver Foundation , “Research Infrastructure Support CGMA,” J. Carollo, J. Dawes
Jan. 2006	\$300,000	UC Denver School of Medicine, Dean’s Academic Enrichment Fund , “Musculoskeletal Research Center (MRC): Progress Report and Continued Funding Request,” M. Erickson, J. Carollo, N. Miller
Jun. 2010	\$30,510	Tensegrity Prosthetics, Inc. , “Clinical Trials Evaluation of the Tensegrity K3 Promoter Prosthetic Foot”, J. Carollo
Dec. 2010	\$100,000	J.T. Tai & Co. Foundation , “2009 Progress Report and 2010 Proposal for the Center for Gait and Movement Analysis (CGMA),” J. Carollo, J. Valvano
Jan. 2011	\$48,000	Low Fund of the Denver Foundation , “Research Infrastructure Support CGMA,” J. J. Carollo, J. Dawes
Nov. 2011	\$120,000	J.T. Tai & Co. Foundation , “2010 Progress Report and 2011 Proposal for the Center for Gait and Movement Analysis (CGMA),” J. Carollo, J. Valvano
Apr. 2012	\$1,000,000	J.T. Tai & Co., Inc. , “Endowed Program Fund for the Center for Gait and Movement Analysis (CGMA),” J. Carollo, F. M. Chang
Jan. 2013	\$120,000	J.T. Tai & Co. Foundation , “Infrastructure Support for the Center for Gait and Movement Analysis (CGMA),” J. Carollo, J. Valvano
Oct. 2013	\$199,999	National Institute on Disability and Rehabilitation Research (NIDRR) , FY2013 Field Initiated Research Program, 84.133G, (H133G130200), “Walking and its Effect on Health and Function in Individuals with Cerebral Palsy as they Transition to Adulthood: A Health Outcomes Study.” PI: J. Carollo; duration: 3-year award (\$598,501), Year 1, annually renewed.

Nov. 2013	\$120,000	J.T. Tai & Co. Foundation , “Continuing Infrastructure Support for the Center for Gait and Movement Analysis (CGMA)”, PI: J. Carollo
Nov. 2014	\$150,000	J.T. Tai & Co. Foundation , “Continuing Infrastructure Support for the Center for Gait and Movement Analysis (CGMA)”, PI: J. Carollo
Dec. 2014	\$200,000	J.T. Tai & Co., Inc. , “Endowed Program Fund for the Center for Gait and Movement Analysis (CGMA)”, J. Carollo, F. M. Chang
Oct. 2014	\$199,530	National Institute on Disability and Rehabilitation Research (NIDRR) , FY2013 Field Initiated Research Program, 84.133G, (H133G130200), “Walking and its Effect on Health and Function in Individuals with Cerebral Palsy as they Transition to Adulthood: A Health Outcomes Study.” PI: J. Carollo; duration: 3-year award (\$598,501), Year 2, annually renewed.
Sep. 2015	\$104,211	National Institute of Neurological Disorders and Stroke (NINDS/NIH) , SBIR R43 Phase I, PA-14-071, 1R43NS090756-01, “Instrumented Movement Analysis to Quantify Gait in Cerebral Palsy (IMove)” PI: M El-Gohary (APDM, Portland, OR), Co-I, UC Denver Site PI: J. Carollo; duration: 2-year award (\$207,031), Year 1, annually renewed.
Sep. 2015	\$150,000	J.T. Tai & Co. Foundation , “Continuing Infrastructure Support for the Center for Gait and Movement Analysis (CGMA) 2015”, PI: J. Carollo
Oct. 2015	\$199,948	National Institute on Disability, Independent Living, and Rehabilitation Research (NIDILRR), Administration for Community Living (ACL), HHS (NIDRR reorganization under HHS in 2015) Field Initiated Research Program, 84.133G, (90IF0055-02), “Walking and its Effect on Health and Function in Individuals with Cerebral Palsy as they Transition to Adulthood: A Health Outcomes Study.” PI: J. Carollo; duration: 3-year award (\$598,501), Year 3, annually renewed.
Sep. 2015	\$102,820	National Institute of Neurological Disorders and Stroke (NINDS/NIH) , SBIR R43 Phase I, PA-14-071, 1R43NS090756-02, “Instrumented Movement Analysis to Quantify Gait in Cerebral Palsy (IMove)” PI: M El-Gohary (APDM, Portland, OR), Co-I, UC Denver Site PI: J. Carollo; duration: 2-year award (\$207,031), Year 2, annually renewed.
Oct. 2016	\$150,000	J.T. Tai & Co. Foundation , “2016 Research Infrastructure Proposal for Continuing Support of the Center for Gait and Movement Analysis (CGMA)”, PI: J. Carollo
Oct. 2017	\$200,000	J.T. Tai & Co. Foundation , “2017 Research Infrastructure Proposal for Continuing Support of the Center for Gait and Movement Analysis (CGMA)”, PI: J. Carollo; 2-year award
Dec. 2018	\$25,000	National Center for Advancing Translational Science (NCATS/NIH) and CCTSI Novel Clinical and Translational Methods Development , CTSA Grant UL1-TR001082, “Multichannel Intraoperative EMG Recording of Myometrium for Continuous Monitoring of Uterine Tone”, PI: J. Carollo; duration 1.5 year award.

Oct. 2019	\$500,000	<p>J. T. Tai & Company Foundation, “2019 J. T. Tai Foundation Orthopedic and Musculoskeletal Research and Training Initiatives,” J. Carollo, L. Schaffer. Support for the development of two developmental research programs at the Musculoskeletal Research Center (MRC), Orthopedics Institute, Children’s Hospital Colorado:</p> <p>(1) Activity Monitoring of Orthopedic Patients Following Acute and Corrective Surgery (project lead: J. Carollo)</p> <p>(2) Establishment of an Evidence-Based Medicine Pediatric Orthopedics Core (project lead: N. Miller)</p> <p>PI: J. Carollo, 2-year award; submitted March 2019.</p>
Aug. 2020	\$25,152	<p>Smith & Nephew Investigator Imitated Study, “Are TAN nails safe and effective for femur fracture in adolescents?” Support for the investigators to analyze whether the TAN nails created by Smith and Nephew are safe and effective. PI: J. Rhodes, Co-PI J. Carollo.</p>
Pending Grant Support:		
Jan. 2022	\$591,505	<p>National Institute on Disability, Independent Living, and Rehabilitation Research (NIDILRR), Administration for Community Living (ACL), HHS (NIDRR reorganization under HHS in 2015) Field Initiated Research Program, HHS-2022-ACL-NIDILRR-IFRE-0009, “<i>Cerebral Palsy Aging Study (CPAS): Evaluating health and function in adults with CP</i>”. Co-PIs J. Carollo & P. Heyn; duration: 3-year award; submitted January 2022</p>
Jan. 2022	\$500,000	<p>J. T. Tai & Company Foundation, “Fueling Discovery for the Body and the Brain” J. Carollo, J. Dawe. Support for a Children’s Hospital Colorado interdepartmental research initiative between the Musculoskeletal Research Center (MRC) of the Orthopedics Institute and Pediatric Rehabilitation. Grant supports 2 projects directed by non-physician clinical researchers.</p> <p>(1) Cervical Spine Dysfunction Following Adolescent Mild Traumatic Brain Injury (project lead: D. Howell)</p> <p>(2) Pediatric Functional Neurologic Disorder: Understanding the Incidence and Evaluating a Novel Intervention (project lead: M. Kirkwood)</p> <p>Site PI: J. Carollo, 2-year award.</p>

14. SCIENTIFIC CONTRIBUTIONS & BIBLIOGRAPHY (Chronologic Order)

Research Summary:

1. **Spine Biomechanics:** My early work was focused in 2 main areas (1) laboratory testing and theoretical descriptions of segmental spinal instrumentation used for the surgical management of scoliosis, and (2) design and evaluation of hybrid orthosis / functional electrical stimulation (FES) systems for upright ambulation for individuals with spinal cord injury. The spine biomechanics studies advanced both the experimental and theoretical justification for multilevel internal fixation in scoliosis, at a time where the dominant surgical intervention was distraction using Harrington rods and hook fixation. This work was the foundation for the design of multi-level pedicle screws and contoured rods that culminated in the original TSRH scoliosis instrumentation system.
 - a. Wenger, DR, **Carollo, JJ**, Wilkerson, JA, Wauters, K, and Herring, JA: Laboratory testing of segmental spinal instrumentation for scoliosis treatment. *Spine*, 7:265-269, 1982.
 - b. Wenger, DR. and **Carollo, JJ**: Unstable thoracolumbar fractures: Mechanics of stabilization by segmental fixation. *Clinical Orthopedics*, 189:89-96, 1984.
 - c. Wenger, DR and **Carollo, JJ**: Biomechanics of segmental spinal instrumentation. In: Segmental Spinal Instrumentation. E.R. Luque (Ed.) Thorofare, NJ: Slack, Inc., 1984.

2. **Gait Assist Devices for Spinal Cord Injury (SCI):** After designing an adult gait assessment facility at an acute SCI rehabilitation hospital, our team developed hybrid systems that employed hip guidance orthoses combined with FES, and evaluated these systems using gait performance and oxygen consumption measurements for complete and incomplete SCI patients. These studies demonstrated the efficacy of combining FES with orthoses for upright bipedal ambulation as an exercise modality in SCI, and provided an assessment protocol that was later used to evaluate a commercial system. While walking speed in these systems was too slow to use as a true mobility alternative, the physiologic benefits showed promise as a fitness protocol for individuals with chronic spinal cord injury.
 - a. Winchester, PK, **Carollo, JJ**, Parekh, RN: A comparison of paraplegic gait performance using two types of reciprocating gait orthoses. *Pros Orth Internat* 17:101-106, September 1993.
 - b. Winchester, P, **Carollo, JJ**, and Habasevich, R: Physiologic costs of reciprocal gait in FES assisted walking. *Paraplegia* 32:680, 1994.

3. **Clinical Movement Analysis in Cerebral Palsy:** Since 1998, my primary focus has been on the application of clinical movement analysis to individuals with cerebral palsy (CP), as a methodology to evaluate movement performance and a tool to facilitate clinical decision-making. The work has included team science with orthopedic and physical medicine collaborators related to outcomes of Single Event Multi-Level Surgery (SEMLS), and more analytical projects that focused on the science of gait analysis in general, or the application of analytical tools to enhance gait and movement performance measurement in individuals with pediatric onset conditions. This work has involved my own research, our clinical team, and trainees in medicine and engineering.
 - a. **Carollo, JJ** and Matthews, D.: Strategies for Clinical Motion Analysis Based on Functional Decomposition of the Gait Cycle; *Physical Medicine and Rehabilitation Clinics of North America*, 13: 949-977, 2002.
 - b. Chang FM, Seidl AJ, Muthusamy K, Meininger AK, and **Carollo, JJ**: Effectiveness of Instrumented Gait Analysis in Children with Cerebral Palsy: Comparison of Outcomes. *Journal of Pediatric Orthopaedics*, 26(5):612-16, 2006.
 - c. Muthusamy, K, Seidl, AJ, Friesen, RM, **Carollo, JJ**, Pan, Z, Chang, FM: Rectus Femoris Transfer in Children with Cerebral Palsy: Evaluation of Transfer Site and Preoperative Indicators. *Journal of Pediatric Orthopaedics*, 28(6):674-678, September 2008.
 - d. Chang FM, Rhodes J, Flynn K & **Carollo JJ**: The Role of Gait Analysis in Treating Gait Abnormalities in Cerebral Palsy. *Orthopaedic Clinics of North America*, 41 (October 2010), 489-506.
 - e. **Carollo, JJ** and Matthews, D: Quantitative Assessment of Gait: A Systematic Approach. In *Pediatric Rehabilitation: Principles & Practice, Fifth Edition*, M. Alexander & D. Matthews D (Eds.) Demos Medical Publishers, New York, pp. 78-112, 2015.
 - f. Worster K, Valvano J, **Carollo JJ**: Sagittal Plane Coordination Dynamics of Typically Developing Gait. *Clinical Biomechanics*, 30(4), February 2015.
 - g. Valvano J, Hogy S, Worster K, Ma J, Denniston N, Winders P, Rapport MJ, **Carollo JJ**: Analysis of Reach to Grasp by School-Aged Children with Down Syndrome Elucidates Limitations in Upper Extremity Motor Control. *Physical and Occupational Therapy in Pediatrics*, Feb (03), 2017, pp1-15, PMID: 28157417.
 - h. **Carollo JJ**, Worster K, Pan Z, Chang F, Ma J, Valvano J. Relative Phase Measures of Inter-Segmental Coordination Describe Motor Control Impairments in Children with Spastic Cerebral Palsy Who Exhibit Stiff Knee Gait. *Clinical Biomechanics*. Aug; 6(59): 40-46, 2018. PMID:30145412

4. **Cerebral Palsy Adult Transition Study (CPAT):** In more recent years, my research has focused on understanding the relationship between walking ability and risk for future health conditions in young adults with cerebral palsy, with specific attention to the transition period when they must migrate from the pediatric health system to adult health care providers. We have conducted a comprehensive cross-sectional outcome

study of young adults with CP who had been tested at our gait analysis facility as children, to determine the prevalence of risk factors for common conditions associated with aging that appear to occur at an earlier age in this population. In the same cohort, we also have collected longitudinal data of gait pattern and gait performance, to determine if individuals with persistent gait abnormalities associated with CP show a propensity for a more sedentary lifestyle, leading to reductions in overall health, fitness, and quality of life. We have found that young adults with CP are at greater risk for developing secondary health conditions than the general population, and that gait patterns remain remarkably stable over time. These findings suggest that there are health, fitness and QoL benefits to maintaining independent ambulation, and supports the use of aggressive intervention when children with a pediatric onset condition are young and to maximize walking ability before skeletal maturity. This work is ongoing, as we follow the same cohort over time.

- a. Heyn P, Thomas S, Tagawa A, Pan Z, **Carollo JJ**. Prevalence of Metabolic Syndrome and Cardiovascular Disease Risk Factors in Young Adults with Cerebral Palsy. *Developmental Medicine & Child Neurology*. Apr; 61(4):477-483, 2019. doi: 10.1111/dmcn. 14148. Epub 2019 Jan 20. PMID: 30663044
- b. Baer H, Thomas S, Pan Z, Tagawa A, **Carollo JJ**, Heyn P. Self-reported physical function is associated with walking speed in adults with cerebral palsy. *Journal of Pediatric Rehabilitation Medicine*. (Accepted May 2019).
- c. **Carollo JJ**, Colip M, Heyn P: Rate of Force Development in Isometric Strength Tests are Related to Self-Reported Physical Activity in Adults with Cerebral Palsy. Annual Gait and Clinical Movement Analysis Society Meeting, Salt Lake, UT, May 23-26, 2017. [Podium]
- d. **Carollo JJ**, Tagawa A, Pan, Z, Bodkin A, Heyn P: Walking Speed and Gait Pattern Consistency in People with Cerebral Palsy Transitioning to Adulthood: Results from the CPAT Longitudinal Study. Annual American Academy for Cerebral Palsy and Developmental Medicine Meeting, Cincinnati, OH, October 9-13, 2018. [Podium L6].
- e. **Carollo JJ**, Heyn PC, Tagawa A, Pan Z. Aging with a physical disability: findings and implications from the cerebral palsy adult transition study (CPAT). **Innovation in Aging**, Volume 2, Issue suppl_1, 1 November 2018, Pages 587–588, <https://doi.org/10.1093/geroni/igy023.2179> (Published Abstract)

5. Sensor-Based Movement Analysis: As we further understand the clinical implications of pathologic gait, the need to measure gait performance outside the laboratory becomes increasingly important. Sensor-based technology, particularly Inertial Measurement Units (IMUs) have evolved and now offer increased measurement accuracy with decreasing cost, and could provide kinematic and temporal-spatial measures of walking and movement outside the laboratory. My work in this area focuses on evaluating and validating commercial IMU devices for gait measurement, and developing simple systems to quantify motion using inexpensive devices.

- a. Pimentel R, Sauer C, El-Gohary M, **Carollo J**: Validation of Gait Cycle Timing Using Wearable Sensors in Individuals with Cerebral Palsy. 94th American Congress of Rehabilitation Medicine (ACRM), Atlanta, GA, October 23-October 28, 2017. [Poster]
- b. Sauer C, **Carollo JJ**, Rhodes J: Comparison of Rotational and Clinical Outcomes in Femoral Derotation Osteotomies between Blade Plate and Intramedullary Nail. Annual Gait and Clinical Movement Analysis Society Meeting, Indianapolis, IN May 22-25, 2018. [Podium] **Kevin Granata Young Investigator Award**
- c. Pimentel R, Sauer C, El-Gohary M, **Carollo J**: Kinematic Accuracy of Two Generations of Inertial Measurement Units During Gait in Children with Cerebral Palsy. GCMAS 2019: Annual Gait and Clinical Movement Analysis Society Meeting, Frisco, TX, March 26-29, 2019. [Podium]

Peer Reviewed Journals

1. Wenger, DR, **Carollo, JJ**, Wilkerson, JA, Wauters, K, and Herring, JA: Laboratory testing of segmental spinal instrumentation for scoliosis treatment. *Spine*, 7:265-269, 1982.
2. Wenger, DR, **Carollo, JJ**, and Wilkerson, JA: Biomechanics of scoliosis correction by segmental spinal instrumentation. *Spine*, 7:260-264, 1982.

3. Wenger, DR. and **Carollo, JJ**: Unstable thoracolumbar fractures: Mechanics of stabilization by segmental fixation. *Clinical Orthopedics*, 189:89-96, 1984.
4. Szalay, EA, **Carollo, JJ**, and Roach, JW: Sensitivity of spinal cord monitoring to intraoperative events. *Journal of Pediatric Orthopedics*, 6:437-441, 1986.
5. Aston, JW, Williams, S, Allard R, Sawamura, S and **Carollo, JJ**: A new canine cruciate ligament formed through distraction histogenesis. *Clinical Orthopaedics and Related Research*, 280:30-36, July 1992.
6. Winchester, PK, **Carollo, JJ**, Parekh, RN: A comparison of paraplegic gait performance using two types of reciprocating gait orthoses. *Pros Orth Internat* 17:101-106, September 1993.
7. Hurmuzlu, Y, Basdogan, C, and **Carollo, JJ**: Presenting Joint Kinematics of Human Locomotion Using Phase Plane Portraits and Poincare Maps. *Journal of Biomechanics*, 27(12):1495-1499, 1994.
8. Winchester, P, **Carollo, JJ**, and Habasevich, R: Physiologic costs of reciprocal gait in FES assisted walking. *Paraplegia* 32:680, 1994.
9. Winchester, PK, **Carollo, JJ**, and Wrobbel, J: Reliability of gait temporal distance measures in normal subjects with and without EMG electrodes. *Gait and Posture*, 4: 21-25, 1995.
10. Martin, M, Shinberg, M, Kuchibhatla, M, Ray, L, **Carollo, JJ**, Schenkman, M: Gait Initiation in Community-Dwelling Adults with Parkinson's Disease: Comparison with Older and Younger Adults without the Disease; *Physical Therapy*, 82(6):566-577, June 2002.
11. **Carollo, JJ** and Matthews, D.: Strategies for Clinical Motion Analysis Based on Functional Decomposition of the Gait Cycle; *Physical Medicine and Rehabilitation Clinics of North America*, 13: 949-977, 2002.
12. Chang FM, Seidl AJ, Muthusamy K, Meininger AK, and **Carollo, JJ**: Effectiveness of Instrumented Gait Analysis in Children with Cerebral Palsy: Comparison of Outcomes. *Journal of Pediatric Orthopaedics*, 26(5):612-16, 2006.
13. Muthusamy, K, Seidl, AJ, Friesen, RM, **Carollo, JJ**, Pan, Z, Chang, FM: Rectus Femoris Transfer in Children with Cerebral Palsy: Evaluation of Transfer Site and Preoperative Indicators. *Journal of Pediatric Orthopaedics*, 28(6):674-678, September 2008.
14. Chang FM, Rhodes J, Flynn K & **Carollo JJ**: The Role of Gait Analysis in Treating Gait Abnormalities in Cerebral Palsy. *Orthopaedic Clinics of North America*, 41 (October 2010), 489-506.
15. Chang, F, Rhodes, J, Davies K, and **Carollo, J**: The Role of Gait Analysis in Children with Cerebral Palsy. *Lower Extremity Reviews*, 3(8): August 2011, pp 47-51.
16. Biedermann R, Dammerer D, Kaufmann G, Fischler S, **Carollo JJ**, Reinthaler A, Huber DG, Braitto M: Are our Expectations Bigger than the Results we Achieve? A Comparative Study Analyzing Potential Advantages of Ankle Arthroplasty over Arthrodesis. *International Orthopaedics*. April 2014.
17. Oliveira T, **Carollo JJ**, Robertson D, Pan Z, Heyn P: Incidence of Epilepsy in Adults with Cerebral Palsy and Secondary Health Outcomes: A Review and Proposed Feasibility Study. *Journal of Neurological Disorders*, 2(6), October 2014.
18. Provance AJ, James D, Carry P, Kanai S, Miller N, Worster K, Polousky JD, **Carollo JJ**: Functional, Kinematic, and Isokinetic Strength outcomes of a Hip Strengthening Program among Adolescent Females with Idiopathic Patellofemoral Pain. *Journal of Athletic Enhancement* 3(6), December 2014.

19. Krughoff K, Shapiro J, Baldini T, Seidl A, **Carollo J**: Biomechanical Assessment of Three Patellar Advancement Procedures for the Treatment of Patella Alta, *Journal of Investigative Medicine*, 63(1): 128-129, January 2015.
20. Worster K, Valvano J, **Carollo JJ**: Sagittal Plane Coordination Dynamics of Typically Developing Gait. *Clinical Biomechanics*, 30(4), February 2015.
21. Seidl A, Baldini T, Krughoff K, Shapiro J, Lindeque B, Rhodes J, **Carollo J**: Biomechanical Assessment of Patellar Advancement Procedures for Patella Alta. *Orthopedics*, 39 (3), May/June 2016, pp e492-97.
22. Valvano J, Hogy S, Worster K, Ma J, Denniston N, Winders P, Rapport MJ, **Carollo JJ**: Analysis of Reach to Grasp by School-Aged Children with Down Syndrome Elucidates Limitations in Upper Extremity Motor Control. *Physical and Occupational Therapy in Pediatrics*, Feb (03), 2017, pp1-15, PMID: 28157417.
23. Carry PM, Gala R, Worster K, Kanai S, Miller NH, James D, Provance AJ, **Carollo JJ**: Postural Stability and Kinetic Change in Subjects with Patellofemoral Pain after a Nine-Week Hip and Core Strengthening Intervention. *Int J Sports Phys Ther*. 2017;12(3):314-323. PMID: 28593085
24. **Carollo JJ**, Worster K, Pan Z, Chang F, Ma J, Valvano J: Relative Phase Measures of Inter-Segmental Coordination Describe Motor Control Impairments in Children with Spastic Cerebral Palsy Who Exhibit Stiff Knee Gait. *Clin Biomech*. Aug; 6(59): 40-46, 2018. PMID:30145412
25. Heyn P, Thomas S, Tagawa A, Pan Z, **Carollo JJ**: Prevalence of Metabolic Syndrome and Cardiovascular Disease Risk Factors in Young Adults with Cerebral Palsy. *Developmental Medicine & Child Neurology*. Apr; 61(4):477-483, 2019. doi: 10.1111/dmcn. 14148. Epub 2019 Jan 20. PMID: 30663044
26. Baer H, Thomas S, Pan Z, Tagawa A, **Carollo JJ**, Heyn P: Self-reported physical function is associated with walking speed in adults with cerebral palsy. *Journal of Pediatric Rehabilitation Medicine*. Jun: doi: 10.3233/PRM-180585. Epub 2019 Jun 10. PMID: 31227669
27. **Carollo J**, De S, Akuthota V: Evidence-Based Physiatry: Clinical Decision Making with Instrumental Gait Analysis. *American Journal of Physical Medicine and Rehabilitation*. Dec: DIO: [0.1097/PHM.0000000000001376](https://doi.org/10.1097/PHM.0000000000001376). Epub 2019 Dec 19. PMID 31860588.
28. Pimentel R, Potter MN, **Carollo JJ**, Howell DR, Sweeney EA: Peak sagittal plane spine kinematics in female gymnasts with and without a history of low back pain. *Clin Biomech*. Jun; (76) 105019, 2020 DOI:<https://doi.org/10.1016/j.clinbiomech.2020.105019>, Epub 2020 May 6.
29. Alderink, GJ, **Carollo JJ**: Enhancing the Quality of Clinical Movement Analysis through Instrumented Gait and Motion Analysis - Best Practices and Laboratory Accreditation. *Gait & Posture*. Aug; 82: 52-53, 2020. PMID 32892100. <http://www.sciencedirect.com/science/article/pii/S0966636220304914>
30. Ng TKS, Tagawa A, Chun-Man Ho R, Larbi A, Kua EH, Mahendran R, **Carollo JJ**, Heyn PC. Commonality in Biomarkers and Phenotypes between Mild Cognitive Impairment and Cerebral Palsy: A Pilot Exploratory Study. *Aging (Albany NY)*. 2021 Jan 26;13(2):1773-1816. doi: 10.18632/aging.202563. Epub 2021 Jan 26. PMID: 33497355; PMCID: PMC7880365.
31. Look N, Autruong P, Pan Z, Chang FM, **Carollo JJ**. Radiographic and plantar pressure assessment of pes planovalgus severity in children with cerebral palsy. *Clin Biomech (Bristol, Avon)*. 2021 Apr 27;85:105364. doi: 10.1016/j.clinbiomech.2021.105364. Epub ahead of print. PMID: 33940478.

32. Ng TKS, Coughlan C, Heyn PC, Tagawa A, Carollo JJ, Kua EH, Mahendran R. Increased plasma brain-derived neurotrophic factor (BDNF) as a potential biomarker for and compensatory mechanism in mild cognitive impairment: a case-control study. *Aging (Albany NY)*. 2021 Oct 15;13(19):22666-22689. doi: 10.18632/aging.203598. Epub 2021 Oct 15. PMID: 34607976; PMCID: PMC8544315.
33. MacCarthy M, Heyn P, Tagawa A, **Carollo J**. Walking Speed and Patient Reported Outcomes in Young Adults with Cerebral Palsy. *Dev Med Child Neurol*. Apr. 2022. doi: 10.1111/dmcn.15225; PMID: 35366333.

Manuscript in progress

1. **Carollo JJ**, Tagawa A, Colip M, Pan Z, Bodkin A, Robertson D, Heyn P. Rate of Force Development in Isometric Strength Test is correlated with Physical Function and Activity in Adults with Cerebral Palsy. *Gait and Posture*.
2. Heyn P, Tagawa A, Colip M, Pan Z, Bodkin A, Robertson D, **Carollo JJ**. The Association between Rate of Force Development in Isometric Strength Test, Grip Strength, and Cognitive Function. *Archives of Physical Medicine and Rehabilitation*. (In Review)
3. **Carollo JJ**, Tagawa A, Pan Z, Bodkin A, Heyn P. Gait Function and its Association with Cognitive Function and Brain-Derived Neurotrophic Factor in Young Adults with Cerebral Palsy. *Gait and Posture*.
4. Davis T, Gracia M, **Carollo J**, Tagawa A, Pan Z, Heyn P. The Importance of Surgical Intervention as Children with Cerebral Palsy become Adults. *Developmental Medicine and Child Neurology*.
5. **Carollo JJ**, Robertson D, Tagawa A, Pan Z, Heyn P. Increasing Health span in Patients with Complex Health Conditions with Wellness and Self-Health Empowerment Approaches. *Developmental Medicine and Child Neurology*.
6. Sauer CD, Carry PM, **Carollo JJ**, Rhodes JT. Comparison of Rotational and Clinical Outcomes between Trochanteric Intramedullary Nails and Blade Plate Fixation for Femoral Derotation Osteotomies. *Journal of Pediatric Orthopedics*.
7. Skinner A, Tagawa A, Carson R, Phibbs F, Gouelle A, Eggenspieler D, Annoussamy M, Moore L, **Carollo J**, Servais L, Apkon S, Duis J. Gait as an Outcome Measure in Neurodevelopmental Disorders. (In Review)
8. Tagawa A, Heyn PC, Pan Z, Carollo J. Is Walking Ability or Rate of Force Development associated with Fall History in Adults with Cerebral Palsy? *Journal of Physical Therapy*.
9. Janicki M, Hendrix J, McCallion P, Neuroatypical Conditional Expert Consultative Panel. Examining Adults with Neuroatypical Conditions for MCI/Dementia During Cognitive Impairment Assessments: Report of the Neuroatypical Conditions Expert Consultative Panel. *LINC-AD Alzheimer's Association's journals Special Edition*. (In Review)

Book Chapters, Invited Articles, & Reviews

1. **Carollo, JJ**: Clinical gait analysis. *Medical Electronics*. 68:95-99, 1981
2. **Carollo, JJ**: Development of an effective system for the clinical analysis of gait. Masters Thesis, Bioengineering Program, Texas A & M University, 1982.
3. Wenger, DR and **Carollo, JJ**: Biomechanics of segmental spinal instrumentation. In: Segmental Spinal Instrumentation. E.R. Luque (Ed.) Thorofare, NJ: Slack, Inc., 1984.

4. **Carollo, JJ:** Book Review of Electronic Devices for Rehabilitation. J.G. Webster (Ed.), In: Annals of Biomedical Engineering, 15(5):528-530, 1987.
5. Kondraske, GV, Jafari M, and **Carollo JJ:** Human performance measurement: Some perspectives. IEEE EMBS Magazine, 7(1):11-16, 1988.
6. Aston, JW and **Carollo, JJ:** Biomechanics of walking and running. In: Sports Medicine of the Lower Extremity. S. Subotnick (Ed.) Churchill-Livingstone Inc., 1988.
7. **Carollo, JJ:** A Model of Gait Performance Based on Functional Sub-System Quantification. Doctoral Dissertation, Joint Program in Biomedical Engineering, University of Texas at Arlington, University of Texas Southwestern Medical Center at Dallas, 1998.
8. **Carollo, JJ:** Clinical Gait Analysis Comes to Colorado; The Standard, 10(1): 1-3, 2000.
9. **Carollo, JJ** and Matthews, D: The Assessment of Human Gait, Motion, and Motor Function. In Pediatric Rehabilitation: Principles & Practice. M. Alexander & D. Matthews D (Eds.) Demos Medical Publishers, pp 461-491, 2009.
10. Chang, F, Rhodes, J, Davies K, and **Carollo, J:** The Role of Gait Analysis in Children with Cerebral Palsy. Lower Extremity Reviews, 3(8): August 2011, pp 47-51.
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12. Schwabe, AL and **Carollo, JJ:** Chapter 1, Quantitative Assessment of Gait: A Systematic Approach. In Pediatric Rehabilitation: Principles & Practice, Sixth Edition, K. Murphy (Ed.) Demos Medical Publishers, New York, in press, 2020.
13. Heyn P, Terhune E, Tagawa A, Carollo J. Chapter 18, Metabolic Syndrome in Adult Cerebral Palsy: Implications for Diet. In Diet and Nutrition in Neurological Disorders, First Edition, Arsava E (Ed.) Elsevier Publisher, in press, 2022.

Refereed Scientific Abstracts

1. Wenger, DR., Wauters, K, Herring, JA, and **Carollo, JJ:** Comparative mechanics of segmental spinal instrumentation versus traditional Harrington instrumentation in scoliosis treatment-laboratory analysis. 15th Annual Meeting of the Scoliosis Research Society, Chicago; Transactions, 1980. [Podium]
2. Johnston, CE, Ashman, RB, and **Carollo, JJ:** Comparative stiffness of Zielke and Dwyer: instrumentation in three point bending. 18th Annual Meeting of the Scoliosis Research Society, New Orleans; Transactions, 1983. [Podium]
3. **Carollo, JJ,** and Kondraske, GV: The role of quantification in FES: A preliminary survey. 8th Annual IEEE Engineering in Medicine and Biology Society Conference; Fort Worth, Proceedings, 1986. [Podium]
4. **Carollo, JJ,** and Kondraske, GV: The prerequisite resources for walking: Characterization using a task analysis strategy. 9th Annual IEEE Engineering in Medicine and Biology Society Conference; Boston, Proceedings, 1987. [Podium]

5. **Carollo, JJ**, and Kondraske, GV: Biped model for determining selected performance resource requirements during gait. 10th Annual IEEE Engineering in Medicine and Biology Society Conference; New Orleans, Proceedings, 1988. [Podium]
6. **Carollo, JJ**, Kondraske, GV: A task analysis strategy for modeling and assessment of human locomotion. World Congress on Medical Physics and Biomedical Engineering, San Antonio, Texas, 1988. [Podium]
7. **Carollo, JJ**: A video system for real-time synchronization of muscle activity and joint moments during gait. RESNA International 1992; Toronto, Proceedings, June 6-11, 1992. [Podium]
8. Winchester, P and **Carollo, JJ**: Afferent stimulation of the S1, S2 dermatomes for calf spasticity in hemiparetic patients. RESNA '93; Las Vegas, Proceedings, June 12-17, 1993. [Podium]
9. Basdogan, C and **Carollo, JJ**: Variability of the physiologic cost index during free and forced walking. Southern Biomedical Engineering Conference, 1993. [Podium]
10. **Carollo, JJ**, Parekh, R, and Winchester, P: Calibration and force correction of the F-Scan™ foot pressure measurement system. RESNA '93; Las Vegas, Proceedings, June 12-17, 1993. [Podium]
11. **Carollo, JJ**, Wrobbel, J, and Winchester, P: Sensitivity of the EMG linear envelope to low-pass filter cut off frequency. 12th Annual Houston Conference on Biomedical Engineering, Houston Society for Engineering in Medicine and Biology, 12:136, February 1994. [Podium]
12. Winchester, P, **Carollo, JJ**, and Wrobbel, J: The effect of surface and intramuscular EMG electrodes on the temporal distance measures of gait. First Annual North American Clinical Gait Conference, Portland, OR, April, 1994, Published in: *Gait & Posture*, 2(1): 66, 1994. [Podium]
13. **Carollo, JJ**, Winchester, P, and Wrobbel, J: Intra-subject variability of dynamic EMG using surface and intramuscular electrodes. First Annual North American Clinical Gait Conference, Portland, OR, April, 1994, Published in: *Gait & Posture*, 2(1): 52, 1994. [Podium]
14. Winchester, P, **Carollo, JJ**, and Habasevich, R: Physiologic costs of reciprocal gait in paraplegic subjects using the Parastep® system. American College of Sports Medicine 1994 Annual Meeting, Indianapolis, IN, June, 1994, Published in: *Medical Science Sports and Exercise*, 26(5): S48, 1994. [Poster]
15. Gottschalk, F, **Carollo JJ**: Influence of prosthetic alignment on ground reaction forces and temporal distance measures of below knee amputees. International Society for Prosthetics and Orthotics 8th World Conference, Melbourne, Australia, October, 1995. [Podium]
16. **Carollo, JJ**, Williamson, J, Winchester, P: Comparison of Oxygen Uptake and Physiologic Cost Index (PCI) at Submaximal Walking Velocities; RESNA '96, Proceedings, Salt Lake City, UT, June 7-12, 1996. [Podium]
17. **Carollo, JJ**: Predicting overall gait performance from measures of strength, balance, and coordination: a comparison of multiple regression and threshold models; Third Annual Meeting of the North American Society of Gait and Clinical Movement Analysis, San Diego, CA, April, 1998, Published in: *Gait & Posture*, 7:187, 1998. [Poster]
18. Kondraske, GV, **Carollo, JJ**: Performance theory based performance prediction and limiting resource determination. In A.M. Sherwood (Ed), Seventeenth Annual Houston Conference on Biomedical Engineering Research, Houston, (pp 152), 1999. [Podium]

19. **Carollo, JJ**, Debrunner, C, He, Q, and Chang, F: Use of Hidden Markov Models to Classify Gait Abnormalities in Cerebral Palsy. 6th Annual Meeting of the Gait and Clinical Movement Analysis Society (GCMAS), Sacramento, CA, April, 2001, Published in: *Gait & Posture*, 13(3): 279, May, 2001. [Poster]
20. **Carollo, JJ**, Nicklas, T, and Chang, FM: Validation of whole body COM calculation in children using the gait initiation task. 8th Annual Meeting of the Gait and Clinical Movement Analysis Society (GCMAS), Wilmington, DE, May 7-10, 2003. [Poster]
21. **Carollo, JJ**, He, Q, Debrunner, C: Gait pattern classification in children with cerebral palsy: results from a 12-state hidden Markov model created with a large training set. 9th Annual Meeting of the Gait and Clinical Movement Analysis Society (GCMAS), Lexington, KY, April 21-24, 2004. [Podium]
22. Chang F, Meininger, AK, **Carollo JJ**: Comparison of outcomes in children with cerebral palsy when the recommendations from gait analysis are observed. 9th Annual Meeting of the Gait and Clinical Movement Analysis Society (GCMAS), Lexington, KY, April 21-24, 2004. [Podium]
23. Threlkeld, J, **Carollo JJ**, Denniston, N, Kumar, R, Schenkman, M: EMG activity of anti-gravity muscles during treadmill walking with support in people with Parkinson's disease and deep brain stimulators. 9th Annual Meeting of the Gait and Clinical Movement Analysis Society (GCMAS), Lexington, KY, April 21-24, 2004. [Poster]
24. Chang FM, Seidl AJ, **Carollo JJ**: Comparison of surgical recommendations for children with cerebral palsy and known outcomes with and without comprehensive gait analysis. 10th Annual Meeting of the Gait and Clinical Movement Analysis Society (GCMAS), Portland, OR. April, 2005. [Podium]
25. Chang FM, Seidl AJ, **Carollo JJ**: Comparison of outcomes in children with cerebral palsy when the recommendations from gait analysis are observed. Pediatric Orthopaedic Society of North America (POSNA), Ottawa, Canada, May, 2005. [Podium]
26. Valvano J, **Carollo JJ**, Heriza CG: Motor learning by children with cerebral palsy: Kinematic indicators of change associated with practice and physical guidance. III Step Conference: Symposium on Translating Evidence into Practice: Linking Movement, Science and Intervention, Sponsored by Section on Neurology and Pediatrics, American Physical Therapy Association, Salt Lake City, UT, July, 2005. [Podium]
27. Chang FM, Seidl AJ, Muthusamy K, Pan Z, and **Carollo JJ**: Outcome of rectus femoris transfer in children with cerebral palsy: evaluation of pre-operative indications and transfer site. 59th Annual Meeting of the American Academy for Cerebral Palsy and Developmental Medicine (AACPD), Orlando, FL, September, 2005. [Poster]
28. Threlkeld, AJ, **Carollo JJ**, Kumar, R, Denniston, NL, Pan, Z, Schenkman, ML: Biomechanical vs. neurological influences on hypokinetic gait in Parkinson's disease. World Parkinson Congress, Washington, DC, February 22-26, 2006. [Podium]
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52. Provance A, Carry P, James D, Kanai S, Worster K, Polousky J, **Carollo J**: Results of a Hip Strengthening Intervention Among Adolescent Females with Idiopathic Patellofemoral Pain: American Medical Society for Sports Medicine (AMSSM), Atlanta, Georgia, April 20-25, 2012. [Poster]
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54. Gala R, Carry P, Worster K, Kanai S, Provance A, Miller NH, **Carollo J**: Stability During Single Limb Squat in Adolescent Females with Patellofemoral Pain. Pediatric Academic Society (PAS), Boston, MA, April 28-May 1, 2012. [Poster]
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56. **Carollo JJ**, Robertson D, Nicklas T, Erickson M. Poster 134 Spinal Fusion Impacts Range-of-Motion and Walking Ability in Adolescents with Scoliosis. *Archives of Physical Medicine and Rehabilitation*.94(10):e59.
57. Heyn P, **Carollo J**, Robertson D. Poster 165 Transition to Adulthood in Cerebral Palsy: Does Independent Walking Make a Difference? *Archives of Physical Medicine and Rehabilitation*.94(10):e68.

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71. Worster K, Valvano J, **Carollo JJ**: An Index for Coordination Dynamics. Gait and Clinical Movement Analysis Society, Portland OR, March 18-21, 2015. [Podium]
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89. Pimentel R, **Carollo JJ**: Ensemble Average vs Representative Cycle: How Should Gait Kinematics be Presented? Annual Gait and Clinical Movement Analysis Society Meeting, Salt Lake, UT, May 23-26, 2017. [Podium]
90. Tagawa A, Rhodes J, Chang F, **Carollo JJ**: Comparison of Patellar Advancement Techniques in Children with Patella Alta and Cerebral Palsy. Annual Gait and Clinical Movement Analysis Society Meeting, Salt Lake, UT, May 23-26, 2017. [Podium]
91. **Carollo JJ**, Colip M, Heyn P: Rate of Force Development in Isometric Strength Tests are Related to Self-Reported Physical Activity in Adults with Cerebral Palsy. Annual Gait and Clinical Movement Analysis Society Meeting, Salt Lake, UT, May 23-26, 2017. [Podium]
92. Pimentel RE, Sauer CE, **Carollo JJ**. American Society of Biomechanics Annual Meeting Are Gait Kinematics Similar Between Ensemble Average and Representative Cycle? Boulder, CO. August 8-11, 2017. [Poster]
93. Heyn P, Tagawa A, Pan Z, Robertson D, **Carollo JJ**: The Cerebral Palsy Adult Transition Longitudinal Study: Common Metabolic Markers and Functional Level. Annual meeting of the American Academy for Cerebral Palsy and Development Medicine (AACPDMD), September 13-16, 2017, Montreal, Canada. [Podium].

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96. Heyn PC, Tagawa A, Pan Z, Bodkin A, **Carollo JJ**: Association Between Gait Speed and Cognitive Function in Adults with Cerebral Palsy. 94th American Congress of Rehabilitation Medicine (ACRM), Atlanta, GA, October 23-October 28, 2017. Volume 98, Issue 10, e35 - e36. DOI: <https://doi.org/10.1016/j.apmr.2017.08.110> [Poster]
97. Eustice A, Carry P, Tagawa A, Chang F, **Carollo JJ**, Rhodes J: Static Limb Length as Measured by Physical Exam or Three-Dimensional Kinematic Analysis is not Interchangeable with Radiographic Based Measures of Limb Length. Annual Gait and Clinical Movement Analysis Society Meeting, Indianapolis, IN May 22-25, 2018. [Podium]
98. **Carollo JJ**, Carry P, Eustice A, Chang F, Tagawa A, Rhodes J: Dynamic Limb Length Discrepancy at Heel Strike is a Better Indicator of Walking Performance than Static Limb Length Discrepancy among patients with Hemiplegic Cerebral Palsy. Annual Gait and Clinical Movement Analysis Society Meeting, Indianapolis, IN May 22-25, 2018. [Podium]
99. Sauer C, **Carollo JJ**, Rhodes J: Comparison of Rotational and Clinical Outcomes in Femoral Derotation Osteotomies between Blade Plate and Intramedullary Nail. Annual Gait and Clinical Movement Analysis Society Meeting, Indianapolis, IN May 22-25, 2018. [Podium] **Kevin Granata Young Investigator Award**
100. Pimentel R, Powell A, Wilson P, **Carollo JJ**, Bodkin A: Plantar Pressure Measurements of Temporal-Spatial Gait Parameters Are More Variable than 3D Motion Capture Measures in Children with Spinal Defects. Annual Gait and Clinical Movement Analysis Society Meeting, Indianapolis, IN May 22-25, 2018. [Poster] **Best Poster Award**
101. Miller NH, Carry PM, Baschal RM, Baschal EE, **Carollo JJ**, Erickson MA: A Pediatric Orthopedic Faculty-Funded Model Improves Research Productivity: The Musculoskeletal Research Center Experiment. The Inaugural Center for Children's Surgery Research Symposium, Aurora, CO, August 17th, 2018 [Podium].
102. Pimentel RE, Tagawa A, Moore L, Colip M, Bodkin AW, Heyn P, **Carollo JJ**. Rate of Force Development of the Knee Extensor Moment During Loading Phase of Gait is Not Associated with Physical Function. American Society of Biomechanics Annual Meeting. Rochester, MN. August 8-11, 2018. [Poster]
103. **Carollo JJ**, Bodkin A, Tagawa A, Pan Z, Heyn P: Analysis of Walking in Individuals With CP During Transition to Adulthood: From The CPAT Study. 95th American Congress of Rehabilitation Medicine (ACRM), Dallas, TX, September 30-October 3, 2018. [Poster]
104. Heyn P, Tagawa A, Bodkin A, Pan Z, **Carollo JJ**: The Association between grip strength and cognitive function in Adults with Cerebral Palsy from the CPAT Study. 95th American Congress of Rehabilitation Medicine (ACRM), Dallas, TX, September 30-October 3, 2018. [Poster]
105. Tagawa A, **Carollo JJ**, Bodkin A, Pan Z, Heyn P: Association between Peak Rate of Force Development and Cognitive Function in Adults with Cerebral Palsy from the CPAT Study. 95th American Congress of

Rehabilitation Medicine (ACRM), Dallas, TX, September 30-October 3, 2018. [Poster] *Early Career Poster Award*

106. Heyn P, Tagawa A, Bodkin A, **Carollo JJ**: Stronger Hand Grip is Linked to Better Thinking Skills in Adults with Cerebral Palsy. 95th American Congress of Rehabilitation Medicine (ACRM), Dallas, TX, September 30-October 3, 2018. [Podium]
107. **Carollo JJ**, Tagawa A, Pan, Z, Bodkin A, Heyn P: Walking Speed and Gait Pattern Consistency in People with Cerebral Palsy Transitioning to Adulthood: Results from the CPAT Longitudinal Study. Annual American Academy for Cerebral Palsy and Developmental Medicine Meeting, Cincinnati, OH, October 9-13, 2018. [Podium L6].
108. Thomas SP, Baer H, Pan Z, Tagawa A, **Carollo JJ**, Heyn P: Current perceived pain interference plays a small role in determining physical function in young adults with cerebral palsy: The CPAT cohort. Annual American Academy for Cerebral Palsy and Developmental Medicine Meeting, Cincinnati, OH, October 9-13, 2018. [Podium]
109. MacCarthy M, Tagawa A, Heyn P, **Carollo JJ**: Walking Speed and Patient Reported Outcomes in adults with Cerebral Palsy: The CPAT Cohort. Annual American Academy for Cerebral Palsy and Developmental Medicine Meeting, Cincinnati, OH, October 9-13, 2018. [Podium]
110. Eustice A, Carry P, Tagawa A, Chang F, **Carollo JJ**, Rhodes J: Static Limb Length as Measured by Physical Exam or Three-Dimensional Kinematic Analysis is not Interchangeable with Radiographic Based Measures of Limb Length. Annual American Academy for Cerebral Palsy and Developmental Medicine Meeting, Cincinnati, OH, October 9-13, 2018. [Podium]
111. **Carollo JJ**, Carry P, Eustice A, Chang F, Tagawa A, Rhodes J: Dynamic Limb Length Discrepancy at Heel Strike is a Better Indicator of Walking Performance than Static Limb Length Discrepancy among patients with Hemiplegic Cerebral Palsy. Annual American Academy for Cerebral Palsy and Developmental Medicine Meeting, Cincinnati, OH, October 9-13, 2018. [Podium]
112. Heyn PC, Tagawa A, Pan Z, **J Carollo**. A person-focused health promotion and wellness approach to extend healthspan in adults with disabilities: the CHAMP-D. *Innovation in Aging*, Volume 2, Issue suppl_1, 1 November 2018, Pages 857. <https://doi.org/10.1093/geroni/igy023.3193> (Published Abstract)
113. **Carollo JJ**, Heyn PC, Tagawa A, Pan Z. Aging with a physical disability: findings and implications from the cerebral palsy adult transition study (CPAT). *Innovation in Aging*, Volume 2, Issue suppl_1, 1 November 2018, Pages 587–588, <https://doi.org/10.1093/geroni/igy023.2179> (Published Abstract)
114. Heyn PC, Tagawa A, Pan Z, **J Carollo**. A self-health empowerment and wellness management approach for individuals aging with complex health conditions. *Innovation in Aging*, Volume 2, Issue suppl_1, 1 November 2018, Pages 371, <https://doi.org/10.1093/geroni/igy023.1373> (Published Abstract)
115. Rhodes J, Carry P, Tagawa A, Holcomb A, **Carollo J**. Changes in Hip Kinematics as a result of Rectus Femoris Transfer With and Without Hamstring Lengthening in Children with Cerebral Palsy. Annual Gait and Clinical Movement Analysis Society Meeting, Frisco, TX, March 26-29, 2019. [Podium]
116. **Carollo J**, Pan Z, Tagawa A, Bodkin A, Heyn P. Long-Term Gait Changes in Young Adults with Cerebral Palsy Explored by Latent Class Analysis: Results from the CPAT Study. Annual Gait and Clinical Movement Analysis Society Meeting, Frisco, TX, March 26-29, 2019. [Podium]

117. Pimentel R, Sauer C, El-Gohary M, **Carollo J**. Using Inertial Measurement Units to Estimate Gait Deviation Index in Children with Cerebral Palsy and Healthy Controls. Annual Gait and Clinical Movement Analysis Society Meeting, Frisco, TX, March 26-29, 2019. [Poster]
118. Tomes E, Pimentel R, Bodkin A, **Carollo J**. Plantar Pressure Validation of Temporal-Spatial Gait Parameters. Annual Gait and Clinical Movement Analysis Society Meeting, Frisco, TX, March 26-29, 2019. [Poster]
119. Carry P, Sauer C, Sontag M, Pan Z, **Carollo J**. Performance of Wearable Inertial Measurement Unit as a Reproducible and Measurement System for Assessing Dynamic Postural Stability. Annual Gait and Clinical Movement Analysis Society Meeting, Frisco, TX, March 26-29, 2019. [Thematic Poster]
120. Pimentel R, Sauer C, El-Gohary M, **Carollo J**. Kinematic Accuracy of Two Generations of Inertial Measurement Units During Gait in Children with Cerebral Palsy. Annual Gait and Clinical Movement Analysis Society Meeting, Frisco, TX, March 26-29, 2019. [Thematic Poster]
121. Carry P, Sauer C, Sontag M, Pan Z, **Carollo J**. Activity level and Maximum Knee Flexion Angle Are Associated with Dynamic Postural Stability During a Single Limb Squat Task. Annual Gait and Clinical Movement Analysis Society Meeting, Frisco, TX, March 26-29, 2019. [Poster]
122. Pimentel RE, Tomes EL, Bodkin AW, **Carollo JJ**. Evaluation of Automated Plantar Pressure Masking: Comparing Foot Progression Angle to Optical Motion Capture. Rocky Mountain American Society of Biomechanics, Estes Park CO, April 5-6 2019. [Podiums]
123. Pimentel RE, Tomes EL, Bodkin AW, **Carollo JJ**. Evaluation of Automated Plantar Pressure Masking: Comparing Foot Progression Angle to Optical Motion Capture. International Society of Biomechanics / American Society of Biomechanics Annual Conference, Calgary Canada, July 31 – August 4 2019. [Podiums]
124. Davis T, De S, Gracia M, Tagawa A, Colip M, Pan Z, **Carollo J**, Heyn P. Childhood Surgical Procedures Impact on Function and Quality of Life of Adults with Cerebral Palsy. American Congress of Rehabilitation Medicine (ACRM), Chicago IL, November 3-8, 2019. [Podium]
125. Heyn P, Tagawa A, Pan Z, Davis T, Boyd T, Coughlan C, Reistetter T, **Carollo J**. The Impact of Diagnosis Type on Inflammatory and Brain Markers in Adults with Cerebral Palsy. American Congress of Rehabilitation Medicine (ACRM), Chicago IL, November 3-8, 2019. [Poster]
126. Sweeney EA, Potter MN, Pimentel RE, **Carollo JJ**, Howell DR. Spinal Range of Motion and Back Pain in Female Artistic Gymnasts During Back Walkovers and Back Handsprings. *Pediatric Research in Sports Medicine Annual Meeting*. January 24, 2020. Glendale, AZ. Oral Presentation.
127. Potter MN, Pimentel RE, Kilijanek K, **Carollo JJ**, Howell DR, Sweeney EA. Spinal Biomechanics and Back Pain Among Female Gymnasts During Extension-Based Skills: A Feasibility Study. *Combined Sections Meeting of American Physical Therapy Association*. Denver, CO. Poster Presentation.
128. Sweeney EA, Potter MN, Pimentel RE, **Carollo JJ**, Howell DR. Spinal Range of Motion And Back Pain In Female Artistic Adolescent Gymnasts. *American College of Sports Medicine*. May 27, 2020. San Francisco, CA. Poster Presentation.

129. Euker B, Bodkin A, Powel A, **Carollo J**. Evaluation of Plantar Pressure Automated Masking and Temporal Spatial Gait Parameters in Children with Spina Bifida. Annual Gait and Clinical Movement Analysis Society Meeting, West Chester, PA, June 1-5, 2020 [Podium]
130. **Carollo J**, MacCarthy M, Tagawa A, Bodkin A, Heyn P. Walking Speed is Related to Patients Reported Outcomes of Physical Function in Adults with Cerebral Palsy. Annual Gait and Clinical Movement Analysis Society Meeting, West Chester, PA, June 1-5, 2020. [Podium]
131. Ng TK, Tagawa A, **Carollo J**, Heyn P. Insulin-like Growth Factor-1 (IGF-1) is a Biomarker of Objective Cognitive Impairment but not Subjective Cognitive Complaint in Cerebral Palsy. Alzheimer's Association International Conference. 7/24/2020 [Poster].
132. Heyn PC, Tagawa A, Pan Z, **Carollo J**. Greater non-dominant handgrip strength is associated with better cognitive function in adults with cerebral palsy. The National Institute of Health Rehabilitation Research 2020: Envisioning a Functional Future Conference, Virtual, October 15-16, 2020. [Poster].
133. Ng TK, Tagawa A, **Carollo J**, Heyn P. Insulin-like Growth Factor-1 (IGF-1) is a Biomarker of Objective Cognitive Impairment but not Subjective Cognitive Complaint in Cerebral Palsy. Part of the cross-cutting symposium entitled: Biomarkers, Disability and the Pace of Aging. American Congress of Rehabilitation Medicine (ACRM), Virtual, October 24, 2020. [Poster]
134. MacCarthy M, Tagawa A, Bodkin A, Heyn P, **Carollo J**. Walking Speed and Patient Reported Outcomes in adults with Cerebral Palsy: The CPAT Cohort. University of Colorado 2nd Annual Orthopedic Research Symposium & D'Ambrosia Diversity Lectureship, Virtual, November 11, 2020. [Podium].
135. Ng, T.K.S., Tagawa, A., Larbi, A., Kua, E.-H., Mahendran, R., Carollo, J. and Heyn, P.C. (2020), Distinct and common biomarkers and phenotypes in cerebral palsy and mild cognitive impairment: An exploratory study. *Alzheimer's Dementia*. 16: e046655. <https://doi.org/10.1002/alz.046655>
136. Skinner A, Tagawa A, Silveira L, De S, **Carollo J**, Rhodes J. Are Sime & Nephew Trochanter Antegrade Intramedullary Nails Safe and Effective for Use in Adolescents? Center for Children's Surgery (CCS) at Children's Hospital Colorado, Virtual, February 19th, 2021. [Poster]
137. Tagawa A, **Carollo J**, Pan Z, Heyn P. The Association Between Gait Performance and Cognitive Function, Physical Activity, and Functional Ability in Adults with Cerebral Palsy. Annual Gait and Clinical Movement Analysis Society Meeting, Virtual, June 8-9, 2021. [Accepted Podium]
138. Ng TK, Heyn, PC, Tagawa A, Pan Z, **Carollo J**. Comparing Sex And Markers Of Cardiovascular Disease And BDNF Levels Between Adults With Cerebral Palsy And Older Adults With MCI. American Congress of Rehabilitation Medicine (ACRM), Virtual, September 28, 2021. [Poster]
139. Heyn, PC, Tagawa A, **Carollo J**. Gender Differences In Functional Outcomes From The Cerebral Palsy Adult Transition Study Cohort (CPAT). American Congress of Rehabilitation Medicine (ACRM), Virtual, September 27, 2021. [Poster]
140. Ng T, Carollo J, Tagawa A, Pan Z, Heyn PC. Sex Differences in Cardiovascular Markers and BDNF between Cerebral Palsy and Mild Cognitive Impairment. Gerontology Society of America (GSA), Virtual, November 10, 2021. [Late Breaking Poster] *Innovation in Aging*. 5. 1055-1055. 10.1093/geroni/igab046.3731.

141. Tagawa A, Heyn PC, Pan Z, **Carollo J**. Is Overall Gait Performance Or Rate Of Force Development Associated With Fall History in Adults With Cerebral Palsy? Virtual, June 7-8, 2022. [Pending Podium]

Symposiums and Instructional Courses

1. He Q, Debrunner C, **Carollo JJ**: Classification of Gait Patterns Combining Their Spatial and Temporal Properties. Proceedings 2002 International Conference on Machine Learning and Cybernetics, Volume 4, December 2002.
2. Komistek, R, Kane, T, Mahfouz, M, **Carollo, JJ**, Langer, T, and Dennis, D: In vivo determination of joint and muscle forces in the human leg. 70th Annual Meeting, American Academy of Orthopaedic Surgeons, Scientific Exhibit SE510, New Orleans, LA, February 5-9, 2003. [Exhibit]
3. Rhodes J, Qing-Min C, Hotchkiss M, Worster K, McNair B, Nguyen A, Chang F, **Carollo J**: Comparison of Patellar Advancement Techniques in Children with Patella Alta and Cerebral Palsy. Pediatric Orthopedic Society of North America (POSNA), Denver, Colorado, May 16-19, 2012. [Symposium]
4. **Carollo JJ**, McMillin C, Thomas S, Heyn PC: Cerebral Palsy Adult Transition Study (CPAT): To *Walk* or *Not to Walk*: Balancing the Risks and Benefits of Independent Ambulation in People with Cerebral Palsy Using an Adult-Transition Program. 92nd American Congress of Rehabilitation Medicine, Dallas, TX, October 25-30, 2015. [Symposium #3265]
5. **Carollo JJ**: Clinical Motion Analysis, Laboratory Accreditation, and the Future of Instrumented Gait Analysis in the Rehab Setting. 92nd American Congress of Rehabilitation Medicine, Dallas, TX, October 25-30, 2015. [Symposium]
6. Hirsch M, Newman M, Wegen E, Heyn PC, **Carollo JJ**: Quantification of Gait and Gait Related Activities in Neurodegenerative Conditions Using Mobile Technology. 93rd American Congress of Rehabilitation Medicine (ACRM), Chicago, IL, October 30-November 4, 2016. [Symposium]
7. Heyn PC, Hirsch M, Iyer S, **Carollo JJ**: Patient Empowerment by a Person-Focused Health & Wellness Approach to Research Service. 93rd American Congress of Rehabilitation Medicine (ACRM), Chicago, IL, October 30-November 4, 2016. [Symposium]
8. Hirsch M, Newman M, Hebert J, Wegan E, Peindl R, **Carollo JJ**, Heyn PC: Objective Assessment of Gait Function In People Living with Neurodegenerative Conditions Using Mobile Technology. 94th American Congress of Rehabilitation Medicine (ACRM), Atlanta, GA, October 23-28, 2017. [Symposium]
9. Heyn PC, **Carollo JJ**, Hirsch M: With Self-Health Empowerment and Wellness Approaches. 94th American Congress of Rehabilitation Medicine (ACRM), Atlanta, GA, October 23-28, 2017. [Symposium]
10. Nalder E, Campbell M, **Carollo J**, Caplan L: Supporting Individuals Aging with Disability Through Bridging Divides in Knowledge, Policies, and Practices. 95th American Congress of Rehabilitation Medicine (ACRM), Dallas TX, October 30- November 4, 2018. [Symposium]
11. Hirsch M, Heyn P, **Carollo J**, Kahya M, Hannes D: SPECIAL SYMPOSIUM: Intricate Association Between Motor & Cognition: Evidence of Neurophysiological and Behavioral Outcomes. 95th American Congress of Rehabilitation Medicine (ACRM), Dallas TX, October 30- November 4, 2018. [Symposium]

12. Ciccia A, **Carollo J**: Hot Topics in Pediatric Rehabilitation – Critical Transitions: Clinical and Research Blitz. 95th American Congress of Rehabilitation Medicine (ACRM), Dallas TX, October 30- November 4, 2018. [Symposium]
13. Thomas S, MacCarthy M, Tow S, **Carollo J**: Overcoming Pain and Disability in Cerebral Palsy: A mentored Clinical Scientist Symposium. 95th American Congress of Rehabilitation Medicine (ACRM), Dallas TX, October 30- November 4, 2018. [Symposium]
14. York M, Krishnan S, Backus D, Van Wegen E, Blanton S, **Carollo J**, Heyn P Hirsch M: Patient Engagement Approaches for Improving Patient-Centered Outcomes Research and Healthcare Outcomes. 95th American Congress of Rehabilitation Medicine (ACRM), Dallas TX, October 30- November 4, 2018. [Symposium]
15. Nalder E, Ruiz S, Davis T, **Carollo J**. Disability, Health and Aging. American Congress of Rehabilitation Medicine (ACRM), Chicago IL, November 3-8, 2018. [Symposium]
16. Van Wegen E, Heyn P, Ng T, **Carollo J**. SPECIAL SYMPOSIUM: Are We Ready for Brain Derived Neurotrophic Factor as a Clinical Outcome Biomarker. American Congress of Rehabilitation Medicine (ACRM), Chicago IL, November 3-8, 2019. [Symposium]
17. Ng TK, Tagawa A, Tan CT, Ho RC, Larbi A, Kua EH, Mahendran R, **Carollo J**, Heyn P. Distinct and Shared Biomarkers and Phenotypes in Mild Cognitive Impairment and Cerebral Palsy: An Exploratory Study. American Congress of Rehabilitation Medicine (ACRM), Virtual, October 24, 2020. [Symposium]
18. Heyn P, Thomas S, MacCarthy M, Davis T, Ng T, **Carollo JJ**. The Pearls of the Cerebral Palsy Adult Transition Study: What We Learned and How to Proceed. American Congress of Rehabilitation Medicine (ACRM), Virtual, October 24, 2020. [Symposium]
19. Heyn P, Ng T, Tagawa A, **Carollo JJ**. Biomarkers, Disability, and the Pace of Aging, Virtual, October 24, 2020. [Symposium]

Non-refereed Scientific Abstracts

1. **Carollo, JJ**: Design alternatives for the clinical engineer: Session overview. 18th Annual Meeting of the Association for the Advancement of Medical Instrumentation, Dallas; Proceedings, 1983. [Podium]
2. Debrunner, C, **Carollo, JJ**, and He, Q: Classification of gait abnormalities using continuous hidden Markov models. World Multiconference on Systemics, Cybernetics and Informatics, Orlando, Florida, 2002 [Podium].
3. Nicklas, T, **Carollo, JJ**: Novel whole body center of mass calculation during functional gait tasks for clinical balance assessment. Biowest 2003, Aurora, CO, October 22, 2003. [Poster]
4. Seidl AJ, Muthusamy K, Chang F, **Carollo JJ**: Evidence for the efficacy of gait analysis in surgical decision making for children with cerebral palsy. Children’s Hospital Research Institute Winter Poster Session, January, 2005. [Poster]
5. Dezman Z, Kramer C, Konieczny A, **Carollo JJ**: A method for detecting asymmetry in gait using signal analysis. Children’s Hospital Research Institute Spring Poster Session, May, 2005. [Poster]

6. Muthusamy K, Seidl AJ, Pan Z, **Carollo JJ**, and Chang FM: outcome of iliopsoas lengthening in children with cerebral palsy: evaluation of pre-operative indications. Children's Hospital Research Institute Spring Poster Session, May, 2005. [Poster]
7. Seidl AJ, Muthusamy K, Pan Z, **Carollo JJ**, and Chang FM: Outcome of rectus femoris transfer in children with cerebral palsy: evaluation of pre-operative indications and transfer site. Children's Hospital Research Institute Spring Poster Session, May, 2005. [Poster]
8. Dezman, ZD, Konieczny, A, **Carollo, JJ**: Event reliability and COM-COP distances during gait initiation in children with cerebral palsy and age-matched controls. Children's Hospital Research Institute Winter Poster Session, January, 2006. [Poster]
9. **Carollo, JJ**, Lutz, B, Valvano, J, Chang, F: Is apparent equines your Achilles heel? The role of knee extension at terminal swing. 12th Annual Meeting of the Gait and Clinical Movement Analysis Society (GCMAS), Springfield, MA. April, 2006. [Podium]
10. **Carollo, JJ**, Nicklas T, Miller, N, Chang F, & Erickson M: "Does spinal fusion for the treatment of scoliosis affect gait performance?" 2nd Musculoskeletal Research Symposium, University of Colorado, Denver, Aurora, CO, April 10, 2010. [Podium]
11. Ma J, Novais E, Ingram D, Pan Z, **Carollo J**, Chang F: Acetabular Remodeling Following Varus Derotational Osteotomy in Children with Cerebral Palsy. Children's Hospital Colorado Research Spring Poster Session, May 17, 2013. [Poster]
12. **Carollo JJ**, Robertson D, Nicklas TS, Erickson MA: Impact of Spinal Fusion for Scoliosis Correction on Gait. Thirteenth Annual Coleman Institute National Conference, Broomfield, CO, October 2, 2013. [Poster]
13. **Carollo JJ**, Robertson D, Heyn P: Walking and its Effect on Health and Function in Individuals with Cerebral Palsy as they Transition to Adulthood: A Health Outcomes Study (NIDRR). Thirteenth Annual Coleman Institute National Conference, Broomfield, CO, October 2, 2013. [Poster]
14. Oliveira T, Heyn PC, Robertson DM, **Carollo JJ**: Incidence of Epilepsy in Adults with Cerebral Palsy: A Longitudinal Study. Rocky Mountain Regional Neuroscience Group Annual Meeting (RMRNG). May 1, 2014 [Poster Presentation]
15. Oliveira T, Heyn P, Pan Z, Robertson D, **Carollo JJ**: Incidence of Epilepsy in persons with Cerebral Palsy: CPAT Preliminary Findings and Proposed Ancillary Study. Annual Coleman Institute National Conference, Broomfield, CO, 2016. [Poster]
16. **Carollo, JJ**: Insight into Gait Sustainability and Risk for Future Health Conditions after Kids Leave the Children Health System. Children's Hospital Research Institute Orthopedics Day, April, 2017. [Podium]
17. Heyn P, Robertson D, Tagawa A, Pan Z, **Carollo JJ**: The importance of Early Health Assessment in Individuals with Complex Disabilities and at Risk for Premature Aging. Children's Hospital Colorado Research Spring Poster Session, April, 2017. [Poster]
18. **Carollo, JJ**, Henley J, Novacheck T, Rethlefsen S: Successful Practices for Instrumented Gait Analysis Insight from CMLA. 25th Annual Meeting of the Gait and Clinical Movement Analysis Society (GCMAS), Springfield, MA. May, 2017. [Podium]

19. **Carollo, JJ**: Increasing Healthspan in Patients with Complex Health Conditions with Wellness and Self-Health Empowerment Approaches. 94th American Congress of Rehabilitation Medicine (ACRM), Chicago, IL, October 23-October 28, 2017. [Podium]
20. Heyn PC, Tagawa A, Zhaoxing P, Bodkin A, **Carollo JJ** (2017). The Cerebral Palsy Adults Transition Study (CPAT): Metabolic Syndrome and Cardiovascular Disease Risk Factors Prevalence. The 17th Annual Coleman Institute Conference on Cognitive Disability and Technology, November 02, 2017, Broomfield, Colorado.
21. Heyn PC, Tagawa A, Zhaoxing P, Bodkin A, **Carollo JJ** (2017). The Cerebral Palsy Adults Transition Study (CPAT): Metabolic Syndrome and Cardiovascular Disease Risk Factors Prevalence. The Annual Barbara Davis Center Diabetes Day Symposium, March 09, 2018, Aurora, CO. [Poster]

Outside Activities:

Disabled Ski Instructor (Volunteer): National Sports Center for the Disabled (NSCD), Winter Park, CO
2014: Double Black Diamond Volunteer, 15-year service award, 2020: 20th consecutive year.

Disabled Sailing Instructor (Volunteer): National Sports Center for the Disabled (NSCD), Winter Park, CO

US Sailing Certification: Basic Keelboat

US Sailing Certification: Basic Cruising

US Sailing Certification: Bareboat Cruising

Amateur sailboat racing since 1987 (J24, Santana 20, Soling, J22, Nacra 5.2, Apollo 16)