



**2015 AOPA National Assembly  
Clinical Education Program**

**Thursday, October 8**

7:15 AM	<b>Breakfast</b>
7:30 – 10:00 AM	<b>General Session</b> <b>Keynote Presentation by Lieutenant Colonel Donald Gajewski (invited)</b> <b>Thranhardt Presentations (C1)</b>
10:00 – 11:00 AM	<b>Break in Exhibit Hall</b>
11:00 AM - 12:00 PM	<b>Prosthetic Symposium: New Findings in the Treatment of Dysvascular Foot Disease (C2)</b> <i>Michael Dillon, PhD</i> <i>Luigi Pascarella, MD</i> <i>Donald Shurr, CPO, PT</i> This symposium focuses on the recent research on the care and treatment of dysvascular foot disease. The speakers will discuss classic functional teachings in light of the recent research about dysvascular foot disease and wound healing.
11:00 AM - 12:00 PM	<b>Orthotic Symposium: Contemporary Orthotic Management of Muscle Weakness (C3)</b> <i>Rahila Ansari, MD</i> <i>Gary Bedard, CO, FAAOP</i> <i>Andreas Kannenberg, MD, PhD</i> Our panel of experts will discuss contemporary orthotic treatment methods for muscle weakness.
Noon – 1:00 PM	<b>Lunch in Exhibit Hall</b>
Noon – 1:30 PM	<b>TCAAOP Membership Business Meeting</b>
1:00 – 2:00 PM	<b>Poster Presentations</b>
2:00 PM - 3:15 PM	<b>Prosthetic Symposium: Next Generation Transfemoral Sockets (C4)</b> <i>Randall Alley, CP</i> <i>Jay Martin, CP, LP, FAAOP</i> This course examines the latest in transfemoral socket research and development. There are a number of currently funded research projects focused on the development of transfemoral sockets that radically depart from conventional socket design approaches. We are seeing the beginnings of a fundamental shift in how transfemoral sockets can be fit to users, including new materials and new socket shapes.

<p>2:00 PM - 3:15 PM</p>	<p><b>Outcomes Symposium (C5)</b>  <i>Lee Childers, PhD, MSPO, CP</i>  <i>Goeran Fiedler, PhD</i>  <i>Keith Frost, CPO/Michael Winingar, PhD</i>  <i>Jason Kahle, MSMS, CPO, FAAOP/Tyler Klenow, MSOP, CPT</i>  <i>Cara Negri, CP</i>  <i>Robert Engelen, DO</i></p> <p>Top researchers and practitioners share their experiences with:</p> <ul style="list-style-type: none"> <li>• classifying lower limb amputees into the Medicare K levels;</li> <li>• the dartfish Express iPad application for gait analysis;</li> <li>• comparative analysis of quality of life approaches in O&amp;P;</li> <li>• outcome measures resource for the orthotic and prosthetic clinician;</li> <li>• step-by-step variability as an outcome variable for lower limb prosthesis alignment;</li> <li>• observational gait scores as outcome measures in O&amp;P.</li> </ul>
<p>3:30 PM - 5:00 PM</p>	<p><b>Prosthetic Free Paper Session: Caring for the Transfemoral Amputee (C6)</b>  (The following presentations run consecutively within this program.)</p> <hr/> <p><b>Predictors of Receiving a Prosthesis for Adults with Above-knee Amputations: A Population-based Study (C6A/B)</b>  <i>Kenton Kaufman, PhD</i></p> <p>A retrospective, population-based cohort study of 93 adults who had an above-knee amputation (AKA) between 1987 and 2013 was performed to identify pre-amputation characteristics that predicted the likelihood of receiving a prosthesis. Characteristics affecting prosthesis receipt were analyzed using logistic regression and a random forest algorithm for classification trees. The odds of receiving a prosthesis were almost 30 times higher in those able to walk independently prior to an amputation relative to those who could not walk independently. A 10-year increase in age was associated with a 54% decrease in the likelihood of being fit for a prosthesis (odds ratio=0.462, p-value =0.030). Time lapse between surgery and the prosthesis decision was associated with a rise in probability of receiving a prosthesis for the first three months in the random forest algorithm.</p> <hr/> <p><b>Prediction of the Skeletal ML to Improve Accuracy of Ischial Containment Sockets (C6C)</b>  <i>Michael Dillon, PhD</i></p> <p>Accurate measurement of the transfemoral residuum and pelvis is critical for well-fitting and comfortable ischial containment sockets. Unfortunately, measuring the Skeletal ML dimension is invasive and unreliable. This research demonstrates that the Skeletal ML can be predicted using simple anthropometric measurements (e.g., sex, body mass) with an average error of 1/4".</p> <hr/> <p><b>Changes to Limb Kinetics Using a Microprocessor Controlled Ankle-Foot System (C6D)</b>  <i>David Moser, PhD</i></p> <p>This presentation will compare the effect of with and without microprocessor controlled ankle-foot function on residual limb and intact limb joining kinetics for inclined walking.</p> <hr/> <p><b>Biomechanical Principles of Load Transfer in Transfemoral Sockets:</b></p>

	<p><b>Ischial Containment Versus Subischial Technique (C6E)</b>  <i>Malte Bellmann, Dipl.-Ing</i>  A novel study design has been developed to objectify force transmission principles in three types of transfemoral sockets (CAT-CAM, MAS, and subischial socket). First results suggest that the general force transmission does not differ significantly between ischium/ramus containment sockets (MAS and CATCAM) during standing and walking in different gait situations. However, with the subischial socket that does not contact the pelvis, significant differences can be identified compared to ischium/ramus containment sockets.</p> <hr/> <p><b>Perception of Functional Change After a Microprocessor Knee Trial is Related to Improved Motor Performance (C6F)</b>  <i>Charla Howard, Research Associate</i>  The impact of switching from a mechanical to a microprocessor knee (MPK) was evaluated. The objective clinical outcomes and subjective reports were assessed in 4 novice MPK users with a BAB design. After wearing MPK for 4 weeks twice (B1 and B2 phases), we found largely improved motor performance that correlated within subjects with their perception of functional changes in several domains.</p> <hr/> <p><b>Transfemoral Vacuum: An Innovation In Advancing Amputee Clinical Care (C6G)</b>  <i>Lori Pipinich, CP</i>  Hear innovative and comprehensive approaches to successfully apply TF vacuum technologies in a practical and systematic methodology that can be easily applied in any clinical setting. The uniqueness of what will be taught in this session is its flexibility in technical approaches and the breadth of patient applicability.</p> <hr/> <p><b>Power Knee Extended User Profile: Learnings from Multiple Fittings of Powered Microprocessor Knee Technology for Persons with Bilateral Transfemoral and Hip Disarticulation Level Amputations (C6H)</b>  <i>Kurt Gruben, MSBE, CPO</i>  Review various aspects of the extended user profile application of the power knee, including characteristics of the existing user population, current best practices of rehabilitation, challenges faced, and the general user perception of function.</p> <hr/> <p><b>Bone Capture and Control in High-Fidelity Transfemoral Interface Using X-Rays (C6I)</b>  <i>Randall Alley, BSc, CP</i>  The use of X-rays will demonstrate the ability of High-Fidelity Interface to minimize bone motion within the socket and the importance of this control to the patient’s comfort, confidence and performance.</p>
3:30 PM - 5:00 PM	<p><b>Orthotic Free Papers: Improving Clinical Outcomes for Better Patient Care (C7)</b>  (The following presentations run consecutively within this program.)</p> <hr/> <p><b>Immediate Effects on Gait and Static Standing Balance of SureStep BigShot SMOs (C7A)</b>  <i>Megan Smith, CO</i>  Hear a case study that examines the effects of an SMO on the gait and single limb balance of a 7-year old child. Gait and single limb stability improved with the SureStep BigShot SMO.</p> <hr/> <p><b>Characteristics of Ankle Foot Orthoses in the Management of Neuromuscular Disorders (C7B)</b></p>

	<p><i>Beatrice Janka, MPO, CO</i> Review preliminary data from a pilot study that indicates that AFOs, when carefully selected and customized, can be used to successfully manage pathologic neuromuscular conditions.</p> <hr/> <p><b>Physical Therapists' Clinical Decision Making Regarding Orthotic Utilization in Persons with Hemiplegia following Stroke (C7C)</b> <i>Carolyn Utsey, PT, PhD</i> Learn the results of a qualitative research study which utilized semi-structured interviews to investigate the physical therapists' perceptions of the analysis and treatment of hemiparetic gait.</p> <hr/> <p><b>Functional Outcomes of a Custom AFO (C7D)</b> <i>Noel Chladek, CO</i> Review the functional outcomes of 1,969 patients fit with custom AFOs collected over a four-year period from post-fitting surveys completed by practitioners at the time of initial fitting.</p> <hr/> <p><b>Custom Carbon AFO for Plantarflexor Augmentation (C7E)</b> <i>Michael Dailey, CO, MBA</i> While a molded thermoplastic ankle foot orthosis (AFO) will control ankle motion through swing phase to prevent foot drop, it does not possess responsive attributes to assist in pushoff to propel the body into the next gait cycle. In fact, the thermoplastics used in the fabrication of AFOs have response characteristics that decrease as flexion increases. Since the dynamic response characteristics of a brace built of carbon increases with flexion, the carbon ankle foot orthosis (CAFO) has demonstrated not only to prevent foot drop but also to store and return energy at push off. The CAFO is also lighter in weight, lower profile and easier to hide under clothing. It has little of the stigma attached to wearing bulkier plastic or metal braces, and patient compliance seems to improve.</p> <hr/> <p><b>Comparing Plantarflexor Power and Function using Carbon Fiber Versus Traditional Thermoplastic Ankle Foot Orthoses (C7F)</b> <i>Michael Dailey, CO, MBA</i> Hear results that suggest improved plantarflexor power to improve activities of daily living. This case report shows, for the first time, that wearing CAFOs allowed increased plantarflexor power that was associated with improved walking ability in an adult.</p>
5:00 – 6:30 PM	<b>Happy Hour in Exhibit Hall</b>
6:30 – 8:00 PM	<b>Wine Auction</b>

**Friday, October 9**

7:15 AM	<b>Breakfast</b>
7:30 – 10:00 AM	<b>General Session</b> <b>AOPA Business Meeting</b> <b>Hamontree Lectures</b>
9:00 AM – 10:00 AM	<b>Innovative Prosthetic Care (C8)</b> (The following presentations run consecutively within this program.) <b>An Innovative Prosthetic Foot Leads to Increased Ankle Power in Trans-</b>

	<p><b>tibial Amputees, Preliminary Results (C8A)</b>  <i>Daniel Heitzmann, Dipl. Ing. (FH)</i>  An innovative prosthetic foot was analysed by means of conventional 3D gait analysis. Results were compared to a conventional energy storing and returning foot. We determined an increase in peak ankle power with the innovative foot with an associated reduction of sound side vertical GRF.</p> <hr/> <p><b>Powered Hip Joint: Unexplored Clinical Opportunity of Powered Prosthetics (C8B)</b>  <i>David Langlois, MASc, Jr. Eng.</i>  As powered lower-limb prosthetic technology slowly becomes the standard offering for ankles and knees, other clinical applications of this technology remain unexplored. This presentation describes development, test methods and main outcomes associated with the first application of powered prosthetic technology to the hip joint.</p> <hr/> <p><b>The Effectiveness of the Ertl Osteomyoplastic Bone Bridge Transtibial Amputation Procedure: A Systematic Review (C8C)</b>  <i>Janos Ertl, MD</i>  <i>Jason Kahle, MSMS, CPO, FAAOP</i>  The Ertl bone bridge procedure may have physiological and functional merit. Formal level one and two clinical trials will need to be considered in the future to guide clinical practice. Review all high quality studies that have been conducted, summarize the conclusions, and discuss the need for future research.</p> <hr/> <p><b>The Metabolic Demand of Walking for Young, Active Individuals with Transfemoral Amputation (C8D)</b>  <i>Elizabeth Russell-Esposito, PhD</i>  Young, active individuals with below knee amputations can attain equivalent metabolic costs as able-bodied individuals when walking or running at the same speed. This study evaluates the metabolic cost of walking for individuals with above knee amputations across a wide range of speeds.</p> <hr/> <p><b>A Virtual Reality Rehabilitation Program Improves Mediolateral Stability in a Patient with Unilateral Transfemoral Amputation (C8E)</b>  <i>Riley Sheehan, PhD</i>  <i>Jason Wilken, PT, PhD</i>  A virtual reality rehabilitation program was successfully used to improve lateral stability in an individual with unilateral transfemoral amputation. The program consisted of increasing magnitudes of continuous changes to walking speed and the pitch-and-roll of the treadmill platform. Find out if the stability improvements were consistent and retained during normal walking and perturbed walking.</p>
10:00 – 11:00 AM	<b>Break in Exhibit Hall</b>
11:00 AM - 12:00 PM	<p><b>Prosthetic Sports Symposium: Wrestling with Limb Deficiencies (C9)</b>  <i>Michael Baria, MD</i>  <i>Nick Ackerman, CPO</i>  <i>John Ferguson, CPO</i>  Join us for an inspirational and motivational symposium focusing on real-life experiences from an amputee wrestler, practitioner and physician. Help your patients gain the confidence to succeed in their personal goal by providing the most appropriate prosthetic care.</p>

11:00 AM - 12:00 PM	<p><b>Orthotic Symposium: Exoskeleton Systems and Applications (C10)</b>  <i>Bernard Budaker, Dr. –Ing.</i>  <i>Kevin Hollander, PhD</i>  <i>Homayoon Kazerooni, PhD</i>  <i>Urs Schneider, PhD, MD</i></p> <p>Exoskeletal power assist in orthopedic rehabilitation and treatment in neurologic deficiencies will change quality of life and training intensities in the near future. New actuation approaches, control inputs from movement kinetics and kinematic but also biosignals are shown and controversially discussed in a German American session.</p>
Noon – 1:00 PM	<p><b>Lunch in Exhibit Hall</b></p>
1:00 – 2:00 PM	<p><b>Poster Presentations</b></p>
2:00 PM - 3:15 PM	<p><b>Prosthetic Symposium: Management of the Partial Hand Amputee (C11)</b>  <i>Jack Uellendahl, CPO</i>  <i>Matt Mikosz, CP</i>  <i>Elaine Uellendahl, CP</i></p> <p>Partial hand amputations have many possible presentations due to the vast number of possible hand configurations that result from traumatic injury. Limited joint range of motion, hypersensitivity, scarring, and a lack of strength in the remaining portions of the hand may be complicating factors. This course will review the current prosthetic options and indications for use of the following: opposition prostheses, which are usually strong and robust and well suited for manual tasks, body-powered devices driven by proximal joints appropriate for fitting partial fingers through carpal/metacarpal levels, and powered fingers. Powered fingers provide many of the desirable features of multi-functional hands including conformable grasp with the ability to rotate the powered thumb from an opposed to non-opposed position. Prosthesis design and construction techniques will conclude the presentation.</p>
2:00 PM - 3:15 PM	<p><b>O&amp;P Symposium: Enhancing Your Clinical Practice by Applying a Combined Approach of Evidence and Experience (C12)</b>  <i>John Ferguson, L/CPO</i>  <i>Jason Wilken, PhD, MPT</i></p> <p>Recent advances in prosthetic/orthotic technology and therapeutic interventions have great potential to improve the function for individuals who have experienced lower extremity trauma. These advances have wide ranging implications for prosthetists/orthotists, physical therapists and physicians. The following topics will be addressed in the context of completed and ongoing research from the Center for the Intrepid at San Antonio Military Medical Center including the experience of caring for injured service members.</p> <ul style="list-style-type: none"> <li>• Rapid translation of research findings from the Military Performance Laboratory into the clinical care of patients.</li> <li>• Benefits and limitations of the latest prosthetic devices, and how device choice can impact an individual’s ability to perform specific activities.</li> <li>• Compare and contrast how conventional carbon fiber feet, powered prosthetic devices and dynamic carbon fiber ankle foot orthoses differ in the way they restore limb function.</li> <li>• Costs and benefits of implementing objective outcomes assessments as part of clinical care.</li> </ul>

	<ul style="list-style-type: none"> <li>• Importance of device specific physical therapy training on resulting outcomes for advanced orthotics like the Intrepid Dynamic Exoskeletal Orthosis.</li> </ul>
3:30 PM - 5:00 PM	<p><b>Prosthetic Free Papers: Treating the Transtibial Amputee (C13)</b> Join us for a free paper session to review case studies, research and clinical evidence on treating the Transtibial amputee. (The following sessions run consecutively within this program.)</p> <hr/> <p><b>Comparison of Quality of Life in People with Partial Foot or Transtibial Amputation (C13A)</b> <i>Michael Dillon, PhD</i> Hear a study showing that quality of life was comparable in people with partial foot and transtibial amputation. Quality of life was influenced by advancing age, time living with diabetes and the presence of diabetic complications (e.g., retinopathy), not amputation at either the partial foot or transtibial level.</p> <hr/> <p><b>Case Study Comparison of Powered Ankle Foot and Energy Storing and Returning Foot in Traumatic Transtibial Amputee Using Patient-reported and Performance based Outcome Measures (C13B)</b> <i>Brian Kaluf, BSE, CP</i> Review a case study that highlights how patient-reported and performancebased outcome measures can be used to document the benefits of a powered ankle-foot prosthesis. The poweredankle foot prosthesis improved straight line walking but the energy storing and returning foot performed better in high impact multi-directional ambulation.</p> <hr/> <p><b>The World is Not Flat: Justifying Prosthetic Feet with Multi-Axial Features Being Used on Uneven Terrain (C13C)</b> <i>Lee Childers, PhD, MSPO, CP</i> Feet incorporating “multi-axial” features have a Medicare L-Code (L-5986) and are traditionally prescribed to individuals expected to negotiate uneven environments. However, there is limited evidence that links multiaxial prosthetic ankle stiffness to gait stability. This presentation will define the effect of multi-axial stiffness on gait stability.</p> <hr/> <p><b>Review of Prosthetic Hydraulic Ankles—Clinical Evidence, Benefits and Research up to 2015 (C13D)</b> <i>Saeed Zahedi, PhD, FREng, RDI</i> <i>David Moser, PhD</i> This presentation provides the latest literature review of all studies carried out during the past 7 years, aimed at determining the clinical outcome measures in using a prosthetic hydraulic ankle.</p> <hr/> <p><b>A Novel Approach in Biomechanical Investigation of Terrain Adaptation Capability of Microprocessor Controlled Feet (C13E)</b> <i>Björn Altenburg, Dipl.-Ing.(FH)</i> Review a novel measuring track that helps to objectively measure gait with abrupt terrain changes, and expanding the range of biomechanical test scenarios. Tests with different microprocessor controlled feet showed functional gain for MPF with real time control and high range of motion. However, most available MPFs do not have real time control and cannot adjust in time to fully extend.</p> <hr/> <p><b>A Novel Prosthetic Foot Design Shows Anatomical like Stiffness Properties (C13F)</b> <i>Gudfinna Halldorsdottir, MSc</i></p>

	<p>A novel prosthetic foot design and its mechanical properties are presented and its relation to clinical function are discussed.</p> <hr/> <p><b>Voluntary Adjustment of Ankle Neutral Position when Performing Predefined Activities of Daily Living (C13G)</b>  <i>Magnus Oddsson, MSc</i>          Uncover the potential of mind controlled prosthetics and view a direct comparison with today’s technology. Direct user control of prosthetics may lead to more accurate control and increase compliance using the prosthesis.</p> <hr/> <p><b>Comparing Functional Design Characteristics of Dynamic Response Prosthetic Feet in K-Level-3 Unilateral Lower Limb Amputees (C13H)</b>  <i>Vibhor Agrawal, PhD</i>  <i>Robert Gailey, PhD</i>          This novel research describes the functional differences between various designs of dynamic response prosthetic feet in unilateral transtibial and transfemoral amputees. Additionally, it measures the outcome that can be utilized in a clinic for documenting prosthetic foot choices.</p> <hr/> <p><b>Biomechanical Analysis to Show the Use of Hydraulic Ankles Compared to Passive Ankles for K2 Users (C13I)</b>  <i>Jeroen Nijman, MSc</i>          The goal of this pilot study was to find the advantages of using a hydraulic ankle for K2 users. Findings on loading, balance, and toe clearance are presented.</p>
<p>3:30 PM - 5:00 PM</p>	<p><b>Orthotic Free Papers: Treatment Considerations from Top to Bottom (C14)</b>          Join us for a free paper session to review clinical data, case studies and treatment protocols. (The following sessions run consecutively within this program.)</p> <hr/> <p><b>Report on a User’s Experiences with Bilateral Upper Limb Myoelectric Custom Orthoses (C14A)</b>  <i>Haley Branch, CPO</i>  <i>Brandon Sampson, CP</i>          This case study will describe, present, and discuss the experiences of a user who was fit with the orthosis following a bilateral brachial plexus injury (BPI) which was sustained in June 2013 following a motorcycle accident.</p> <hr/> <p><b>Functional Benefits of a Custom Upper Limb Myoelectric Orthosis on Brachial Plexus Injury, Following 12 Months of Use (C14B)</b>  <i>Stefanie Dunaway, MS, OTR/L</i>  <i>Haley Branch, CPO</i>          This case study examines the experiences and functional outcomes of an end-user, with a Brachial Plexus Injury (BPI), over his first year of using an upper extremity (UE) custom myoelectric elbow-wrist-hand orthosis (EWHO).</p> <hr/> <p><b>Success of the IDEO Device in Reducing Severe Lower Limb Weight Bearing Pain: A Case Report (C14C)</b>  <i>Andrea Ikeda, MS, CP</i>          Review a case study that shows how a custom designed dynamic response device was used to reduce lower extremity weight bearing pain in a severely injured individual.</p> <hr/> <p><b>The Effect of Implementing Unloader Braces in Treatment Protocols for Knee Osteoarthritis (C14C)</b></p>

	<p><i>Marjorie Albohm, MS, ATC</i> This presentation provides a practical recommendation on how to implement unloader braces into the guideline recommended treatment algorithm of symptomatic knee OA.</p> <hr/> <p><b>A Randomized Controlled Cross-Over Trial to Investigate Locomotor Capacities when Using an Electronic Stance Control Orthosis (C14E)</b> <i>Thomas Schmalz, PhD</i> This presentation demonstrates the biomechanical and clinical patient benefits of the SCO mode of E-MAG Active as compared to the locked knee mode.</p> <hr/> <p><b>Perceived Orthotic Function and Difficulty of Activities of Daily Living with the C-Brace and Conventional KAFOs (C14F)</b> <i>Andreas Kannenberg, PhD, MD</i> This study shows that the microprocessor controlled C-Brace improves perceived orthotic function, easing the execution of many activities of daily living as compared to conventional KAFOs (locked and stance control).</p>
3:30 PM - 5:00 PM	<p><b>Specializing in Upper Limb Prosthetics (C15)</b> Fitting upper-limb prostheses is complicated and challenging. Learn the latest techniques in upper-limb prosthetic rehabilitation from experienced prosthetists. (The following sessions run consecutively within this program.)</p> <hr/> <p><b>Activities of Daily Living with the Multi-functional Michelangelo Hand as Compared to Conventional Myoelectric Hands (C15A)</b> <i>Andreas Kannenberg, MD, PhD</i> This study shows that multi-functional myoelectric hands may reduce perceived difficulty of performing activities of daily living, especially bi-manual activities in individuals with a transradial amputation.</p> <hr/> <p><b>Is There a Difference Between Voluntary Opening or Voluntary Closing Terminal Devices in Lift Capacity and Manipulation? (C15B)</b> <i>M. Jason Highsmith, PT, DPT, PhD, CP, FAAOP</i> This study compares the differences in lift capacity and the manipulative performance between voluntary opening and voluntary closing, body powered upper-limb prostheses in a sample of persons with unilateral transradial amputation.</p> <hr/> <p><b>Comparison of Two Physically Similar 5 Digit Partial Hand Presentations (C15C)</b> <i>Nathan Wagner, LPO, CPO, OTR/L</i> This comparative analysis of two similar partial hand presentations highlights the importance of an individualized approach. Functional outcomes will be described with regard to individualized goals and standardized assessments.</p> <hr/> <p><b>Is There A Correlation Between Activity Monitoring Recorded In Multi-Grip Myoelectric Hands and Functional Performance? (C15D)</b> <i>Andrea Giovanni Cutti, MEng, PhD</i> <i>Gennaro Verni, MEng, CPO</i> New upper-limb prosthetic technologies record the number of opening and closing cycles performed by a patient. Does this measure have clinical implications? The aim of this presentation is to provide preliminary evidences about the existence of this relationship.</p> <hr/> <p><b>Surveying the Interest of Individuals with Upper Limb Loss in Novel Prosthetic Control Techniques (C15E)</b></p>

	<p><i>Susannah Engdahl, BS</i> Novel prosthetic control techniques require interfacing directly with an individual's nervous system. Given the surgically invasive nature of these techniques, it is important to understand whether individuals with upper limb loss are willing to try them. The goal of this work was to evaluate general interest in surgically invasive and noninvasive prosthetic control techniques.</p> <hr/> <p><b>Cabling and Activation of Body Power Upper Limb Prostheses (C15F)</b> <i>Gerald Stark, MSEM, CPO/L, FAAOP</i> Review the role of cabling and body power activation in design and available literature. Discover the material options, biomechanical placement, and optimization of body power activation.</p> <hr/> <p><b>Physiologic Function and Prosthetic Emulation of the Human Hand (C15G)</b> <i>Gerald Stark, MSEM, CPO/L, FAAOP</i> Not only does the human hand play a critical functional role, but it also serves as an often-overlooked instrument of human social communication, sensing, exploration, and learning. Examine the technical parameters of the hand, as well as control feedback, functional priorities, and cognitive engagement within the prosthesis.</p>
6:30 PM – 9:30 PM	<b>Topgolf Event (Benefiting OPAF)</b>

### Saturday, October 10

7:00 AM	<b>Exhibitors Forum</b>
7:15 AM	<b>Breakfast</b>
8:00 – 9:00 AM	<p><b>General Session: The Brave New World of 3-D Printed Devices: Challenges and Opportunities (C16)</b> Orthotists, prosthetists, pedorthists, technicians and business managers all need to be aware of the latest technology that may affect how patients are cared for today and tomorrow. This session will provide an overview of all aspects of 3-D printing. Attendees will have an opportunity during the afternoon workshop programming to try their hand at 3-D printing.</p>
7:30 – 8:00 AM	<p><b>General Session: Projecting the Adequacy of Workforce Supply to Meet Patient Demand - Analysis of the Orthotics and Prosthetics (O&amp;P) Profession</b> <i>Audrey El-Gamil</i></p>
9:00 AM - 10:00 AM	<p><b>Prosthetic Free Papers: Advancing Prosthetic Care (C17)</b> Treatment options, improved outcomes, patient comfort and more will be discussed during this free paper session. (The following presentations run consecutively within this program.)</p> <hr/> <p><b>The SmartTemp Liner Significantly Reduces Skin Temperature and Perspiration of the Residual Limb (C17A)</b> <i>Matthew Wernke, PhD</i> Heat and perspiration are common issues among amputee prosthetic</p>

	<p>users. Recently the SmartTemp liner became commercially available to address these issues. Review the results collected during a double blind randomized clinical trial (N=16 transtibial amputees) evaluating the performance of the SmartTemp liner to a placebo.</p> <hr/> <p><b>Assessing the Effect of a Vacuum Assisted Suspension System on the Subcutaneous Tissue Perfusion in Trans-tibial Residual Limbs by Radioactive Tracer Injection and the Isotope Clearance Rate (C17B)</b>  <i>Kristleifur Kristjansson, MD</i>  <i>Knut Lechler, CPO</i></p> <p>The blood flow in five trans-tibial residual limbs was assessed by isotope washout under different exercise conditions, with and without an active vacuum. The results indicated this to be a valid method for perfusion assessment under active prosthesis and suspension system use. Assisted vacuum may improve blood flow in dysvascular subjects.</p> <hr/> <p><b>Elevated Vacuum Socket Suspension Improves Balance and Gait (C17C)</b>  <i>Andreas Kannenberg, MD, PhD</i></p> <p>This study was able to demonstrate that dysvascular transtibial amputees can benefit from using elevated vacuum suspension to improve their risk of falling, balance, and walking capacity. Subjects with MFCL-3 mobility improved their safety, balance, and walking performance in almost all outcome measures assessed. The smaller subgroup with MFCL-2 mobility showed similar trends, but differences attained statistical significance in only two outcome measures.</p> <hr/> <p><b>Joint Moment Adaptations to Running Velocity in Individuals with Unilateral Transtibial Amputation Using Running-Specific Prosthesis (C17D)</b>  <i>Brian Baum, PhD</i></p> <p>Altered joint kinetics (forces, moments, and powers) during running may be required to accommodate for physical deficiencies caused by lower extremity amputation and could place runners at increased risk of injury. Investigating the joint moments of runners using running specific prostheses across a range of running velocities can provide insight into these adaptations and potential injury risks. We will investigate lower extremity stance phase sagittal joint moments in individuals with unilateral transtibial amputations using running-specific prostheses at different velocities.</p> <hr/> <p><b>Thermal Comfort in the Prosthetic Socket (C17E)</b>  <i>Michael Lang</i></p> <p>Micro-climate conditions (temperature, humidity, and sweat retention) in the prosthetic socket are of large importance for patient satisfaction, comfort and safety. The climate socket is a novel approach to improve comfort by using temperature controlling materials and technology in the prosthetic socket.</p>
9:00 AM - 10:00 AM	<p><b>O&amp;P Care: A Free Paper Session (C18)</b></p> <p>Rehabilitation training, patient expectations, education methodologies and incorporating the OT into the rehab team will be discussed during this session. (The following presentations run consecutively within this program.)</p> <hr/> <p><b>Prosthetic Training Across Borders (C18A)</b>  <i>Diana Veneri, EdD, PT</i></p> <p>Hear an overview of the development and pilot study of educational prosthetic rehabilitation materials developed for persons with trans-</p>

	<p>femoral amputation in developing nations.</p> <p><b>Patient Centered Care: Patient Expectations and Impact on O&amp;P Practice (C18B)</b>  <i>George Gondo, MA</i>  <i>Sarah Hoover, MA</i>          Patient centered care is a much discussed topic in healthcare. Little is known if O&amp;P patients desire this approach to healthcare delivery and if delivering this type of care affects their behavior in the O&amp;P healthcare arena. This discussion seeks to provide insight on these questions.</p> <p><b>O&amp;P Clinical Education: Trends in Related Healthcare Professions (C18C)</b>  <i>Ashley Mullen, MSAT, CPO</i>          A review of the literature pertaining to clinical education methodology in other related healthcare fields will provide a basis for current clinical education models and a platform for maintaining or creating changes that will enhance orthotic and prosthetic education.</p> <p><b>Integration of a V-C/V-0 Prosthesis Simulator in Education of Occupational Therapy Practitioners as Effective Clinical Team Members (C18D)</b>  <i>Debra Latour, MEd, OTR/L</i>          This discussion includes how students of occupational therapy can develop an understanding of the diverse prosthetic technology, attributes and mechanisms involved in skills development, and the actual functional skills including social integration.</p> <p><b>Limb Loss Model System of Care: Proven Means to Improve Care of the Population We Serve! (C18E)</b>  <i>George Gondo, MA</i>  <i>Jason Highsmith, PT, DPT, PhD, CP, FAAOP</i>          Discuss why the time is now to create a much needed Model System of Care for people with limb loss. This presentation will describe the Model Systems Care approach, review its value to clinicians and stake holders, describe the process of creating a Limb Loss Model System of Care, and how the prosthetic profession will be a major system partner.</p>
11:00 AM - 12:00 PM	<p><b>Prosthetic Symposium: Socket Fit Measurement to Improve Patient Outcomes and Promote Residual Limb Health (C19)</b>  <i>Jeffrey Denune, CP</i>  <i>Todd Farrell, PhD</i>  <i>Cameron Rink, PhD</i>  <i>Matthew Wernke, PhD</i>          The purpose of this symposium is to provide clinicians with an understanding of the physiological pathways leading to skin breakdown and ulceration. The research will examine the latest developments in quantifying how well a socket fits the residual limb, so that clinicians can make the best decisions about socket designs.</p>
11:00 AM - 12:30 PM	<p><b>Evolution and Clinical Application of the Composite AFO</b>  <i>Thomas V. DiBello, CO, FAAOP</i></p>



Questions?

Contact AOPA headquarters at [assembly@aopanet.org](mailto:assembly@aopanet.org) or (571) 431-0876

Registration and travel information is available at [www.AOPAnet.org](http://www.AOPAnet.org)

We look forward to seeing you in San Antonio, October 7-10 at the Henry B. Gonzalez Convention Center, 200 Market Street, San Antonio, Texas.