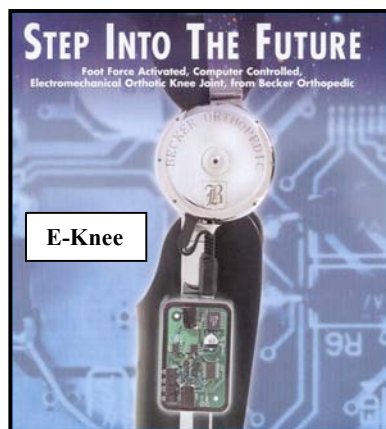


ORTHOTICS

Stance Control Knee/Ankle/Foot Orthoses

One of the biggest challenges in orthotics is to provide knee stability to a weak lower extremity, while conserving energy during ambulation. Polio, spinal cord injury, stroke, and numerous other diagnoses have



difficulty stabilizing a weak or paralyzed knee. A **stance control prosthetic knee joint** has been available for many years in a prosthesis. The challenge has been to design a joint that could fit into an orthosis and be both lightweight and strong. The orthosis of choice up

until recently has been a metal or plastic knee ankle foot orthosis (KAFO), where the knee is locked in complete extension. In this scenario the knee is stabilized when walking and will not buckle when weight is applied. This design will allow the individual to walk, but at a very high energy expense and with marginal gait habits. In order to clear the ground the leg must be circumducted, or excessive hip hiking must be learned to keep from catching the toe.

In 1992 during the NIDRR (National Institute on Disability and Rehabilitation Research) conference, clinicians, engineers, researchers and funding sources came together to discuss the needs relating to a stance control KAFO. Following this conference, an alternative design was developed by NASA with the help of Gary Horton, CO. This design proved to be too costly but started further development in the orthotics profession. Currently there are at least 5 different designs of stance control KAFO's available.

Mary Free Bed uses 2 designs provided by Becker Orthopedic in Detroit. One design, the UTX, uses a cable system between the knee and ankle joint (enclosed

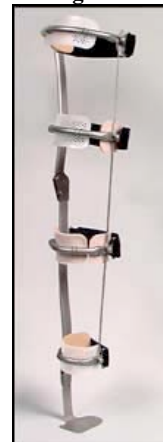
in a tubular sidebar), which allows the knee to lock at heel strike, and remain locked until a certain angle of ankle dorsiflexion is achieved. Along with the ankle dorsiflexion, a hip extension movement is needed to trigger the knee to release allowing free knee during swing phase. The second design, the E-Knee, uses an electronic sensor in the footplate which activates a magnetic locking knee joint. In this design the patient contacts the ground with their foot, the knee remains locked when weight is removed, and the joint unlocks allowing free swing phase.

These knee joints attempt to solve one of our toughest challenges, but they are not for every patient. A thorough patient evaluation is required to confirm the strength, range of motion, and coordination required to operate the system. After the fitting process is complete an intense physical therapy program is required to ensure that patients get the full benefit of this new technology. The final hurdle to cross is payment. Although this design has been available for several years, no billing codes were assigned for reimbursement until this past January. We now have a billing code to cover one design, and hope that other codes will be available soon.

UTX Design



UTX Design with Cable



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For information on these designs, or a product in-service, contact Mary Free Bed Orthotics and Prosthetics at (616) 242-0315 or 1 (800) 474-0325.

PROSTHETICS

Continuing Education

Mary Free Bed Prosthetic staff recently attended a training seminar on the fit and function of the Ossur custom silicone liner. These liners are for the transtibial and transfemoral patient populations. Our clinicians were trained on different casting and fitting techniques using silicone liners. The clinical staff is now certified in fitting patients with custom silicone liners. Ossur is a prosthetic manufacturer based in Iceland, who manufactures custom silicone liners, prosthetic feet and knee units.

New Prosthetic Technology

Mary Free Bed Prosthetics has recently explored alternatives to the C-Leg, a Microprocessor swing and stance phase knee unit. The Rheo Knee unit is manufactured by Ossur, and was introduced to the Mary Free Bed Prosthetic Department by an Ossur representative. The entire staff is now trained and educated on using this new component.



Rheo Knee
By Ossur

ORTHO.S.E.A.T.

New Seating Technology

The Ortho.S.E.A.T. program is the first site in Michigan to become a certified supplier for the **Ride Designs Custom Seat Cushion**. This cushion incorporates the newest technology in lightweight porous materials, and uses the physics of force isolation to completely remove pressure and shear from high-risk areas and to reduce heat and moisture buildup. The cushion is firm, lightweight and comfortable for active and passive wheelchair users. It is fabricated by taking a simulation mold while seated in the wheelchair. The mold is sent to the manufacturer and returned within 14 days for the final cushion fitting and adjustment. Unlike other contoured cushions, the Ride Design Cushion includes an adjustable CAM strap system to allow fine adjustments of the pressure distribution, providing for minor changes in weight, function and pressure relief. The cushion requires use of a cover at all times. The covers are washable and breathable.



Ortho.S.E.A.T. therapists view this cushion as the highest level of customized pressure relief available. It is appropriate for use when other commercial or custom approaches have proven unsuccessful. The cushion actually allows pressure prone areas to be suspended without pressure, similar to the concept of a well fitting prosthetic limb.

Ride Design Custom Seat Cushion

© 2004 Ride Designs, a division of Aspen Seating

SATELLITES

Muskegon

Our new Muskegon location is working out very well for patients. With easy access on Sternberg Road off US-31, patients have found our new location in "The Pointes" center more convenient.

Mary Free Bed Orthotics and Prosthetics
1078 E. Sternberg Rd.
Muskegon, MI 49444
(231) 798-0047 or (800) 474-0325

Mary Free Bed Orthotics and Prosthetics continues to expand its staff to allow quicker scheduling times for you and your patients.

Big Rapids

Mark Bennett, CPO is the clinician assigned to the Big Rapids office. The number of patients we see in Big Rapids continues to increase. To address this need, we have expanded our time slots for scheduling patients in the Big Rapids satellite office.

Patients at this office are seen by appointment only.



Mary Free Bed Orthotics and Prosthetics
Big Rapids
(800) 474-0324

SATELLITES – cont.

Hastings

Rex Brown, CO and Krista Markley, CPed are the clinicians assigned to the Hastings office. We are using office space in Hastings Orthopedic Clinic to provide patient care in this area.

Patients at this office are seen by appointment only.

Mary Free Bed
Orthotics and
Prosthetics
Hastings
(800) 474-0324



STAFF UPDATES AND NEWS

The Cannonsburg Challenged Ski Association (CCSA) is a volunteer program that strives to teach people with wide ranging disabilities how to ski. Ski lessons are held weekly for a seven week period, with a final trip to Crystal Mountain. Children and adults of all ages participate in this program. The following Mary Free Bed employees are ski instructors with the CCSA: Michael Shedd, RTP; Becky Meyer, C.O.; Krista Markley, Orthotic Technician and CPed; Ellie Boomer, CO and Prosthetic Resident; Lindsay Homrich, Prosthetic Resident; John Flynn CPO; and Anthony Hill, Orthotic Technician.



Pictured from left to right: Lindsay Homrich, Prosthetic Resident (Mary Free Bed Rehabilitation Hospital); Raymond Vargas (Mary Free Bed Prosthetic patient); John Flynn, CPO (Mary Free Bed Rehabilitation Hospital); and Abby Kate Karafa (Mary Free Bed Prosthetic patient).

Lisa Gerard is our new Business Office Manager. Lisa has worked as the business office manager for Mary Free Bed's Outpatient Therapy Center program for the past 2 years. We are excited to welcome her to the Orthotics and Prosthetics division.

Orthotics

Jim Storms, Orthotic Resident, will be completing his residency in February 2005, and will be taking his Boards in Orthotics in May 2005

Brent Tuinstra has joined Mary Free Bed as an orthotic resident. Brent is moving back to the Grand Rapids area from Detroit.

Sandy Jobse joined our staff in September 2005, working in the business office. Sandy handles prior authorizations for insurance billing, and assists in the afternoon as our operator. Sandy worked previously at Forest View Hospital as a unit secretary / mental health worker.



Pictured from left to right: Sandra Jobse, Brent Tuinstra, and Lisa Gerard.

Prosthetics

Michael Shedd R.T.P participated in a 10 day mission trip to Ecuador in January, 2005. The trips focus was to provide amputee patients with prosthetic devices. Michael assisted in the fabrication of prosthetic devices at an on site laboratory.

Lindsay Homrich, Prosthetic Resident has recently completed the second quarter of her prosthetic residency, and will be taking her Boards in Prosthetics upon the completion of a one year residency in March 2005.

Jennifer Essex, R.T.O. and Carl Kirby, Prosthetic Technician Trainee will be sitting for the ABC Prosthetic Technical Exam in October, 2005 in Spokane, Washington. This exam will test their skills in the fabrication of prosthetic devices by a national board. If successful they will earn the title of registered prosthetic technician.

Ellie Boomer, a Certified Orthotist, will be completing her residency in Prosthetics in February 2005. Ellie will be taking her Boards in Prosthetics in May 2005, and plans to return to Mary Free Bed Rehabilitation Hospital as a certified Orthotist and Prosthetist.



Orthotics Staff Contacts: John Flynn CPO (Clinical Manager 616-459-1810), Rex Brown CO (Pediatrics 616-356-1886), Gina Corazza CO (Plagiocepholy 616-356-1887), Mark Bennett CPO (Scoliosis 616-242-0457), Doug Richardson CO (Contracture Management 616-356-1883), Larry Dubinshak CPed (616-356-1884), Becky DeLongpre CPed (616-356-1894).

OrthoS.E.A.T.: Karen Gora (Manager 616-242-0347), Steve Anderson (Production Supervisor 616-456-4847).

Prosthetics: Patrick Nimphie CPO (Clinical Manager 616-356-1865), David Firlirk CP (Upper Extremity 616-242-0453), Tony VanEss CP (Pediatrics 616-242-0461), John King CP (Trans Femoral 616-242-9240).

Rehab Technology Center: Karen Gora (Manager 616-242-0347), Sister Kathryn Mullarkey (Assistive Tech Coordinator 616-242-9253).

Orthotics & Prosthetics Muskegon / Holland Satellites: Mark Porth (Clinical Manager 616-392-6240).