



*Special Education Issue*

Fall 1982  
Volume 36  
Number 3

# Orthotics and Prosthetics

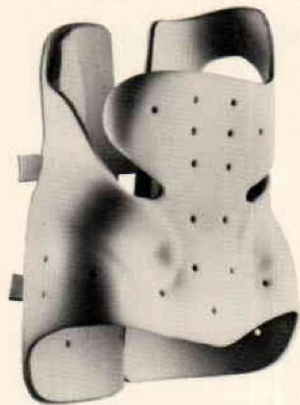
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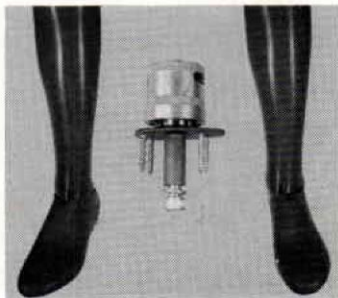




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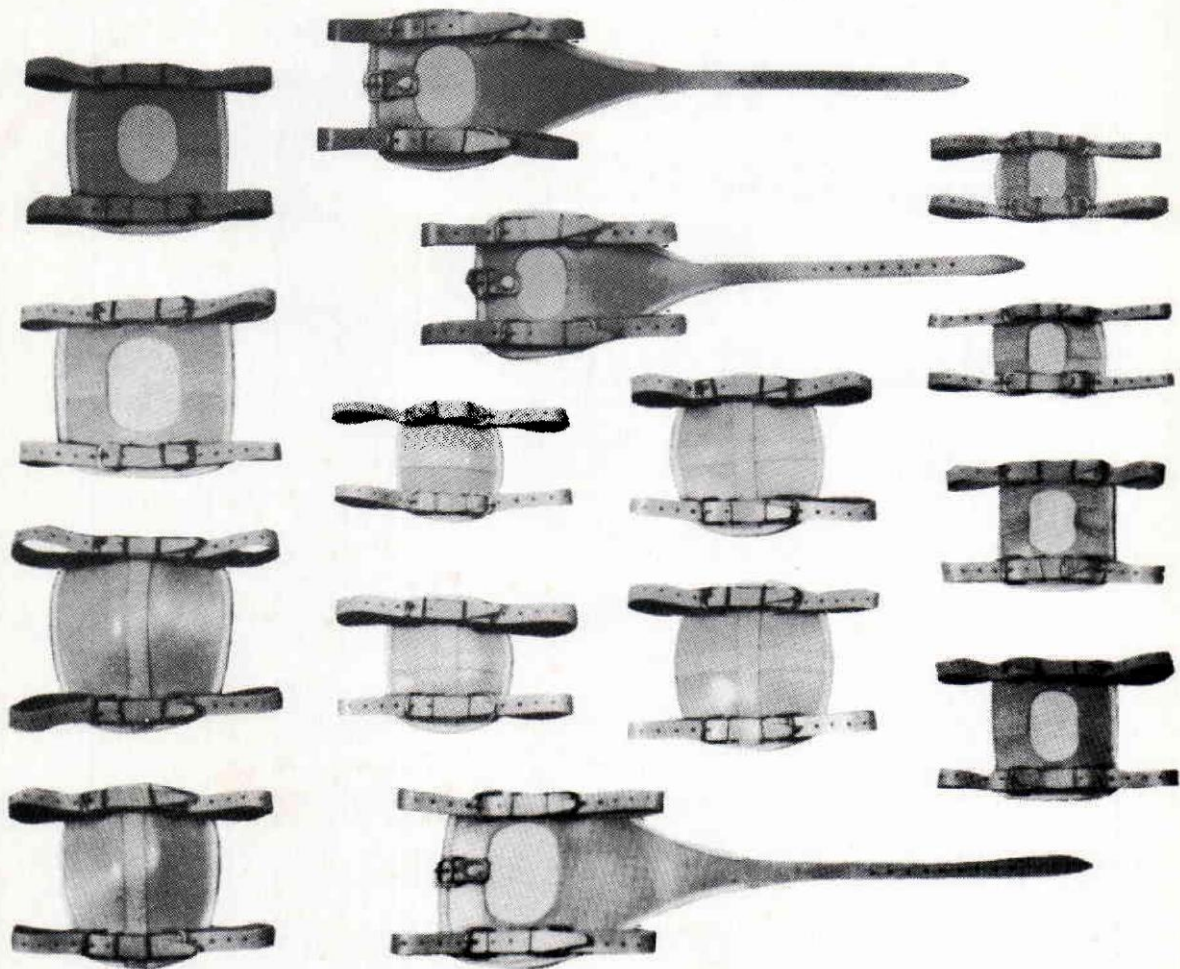


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Fall, 1982 Journal

Volume 36, No. 3

## CONTENTS

<b>Preface</b>	13
<i>Sidney Fishman, Ph.D.</i>	
<b>Guide to Using the Education Issue</b>	15
<i>Michael J. Quigley, C.P.O.</i>	
<b>Practitioner Level Education Programs</b>	
<i>New York University Baccalaureate Program</i>	18
<i>New York University Certificate Program</i>	20
<i>Northwestern University Certificate Program</i>	22
<i>University of California at Los Angeles Certificate Program</i>	24
<i>University of Washington Baccalaureate Program</i>	29
<i>Rancho los Amigos Hospital—Cal State University, Dominguez Hills Certificate Program</i>	32
<i>916 Area Vocational Technical Institute Certificate Program</i>	34
<i>Institute of Rehabilitation Medicine, NYU Medical Center Certificate Program</i>	37
<i>University of Texas Baccalaureate Program</i>	38
<i>Department of Army—Fort Sam Houston Certificate Program</i>	44
<i>Shelby State Community College Associate of Arts Certificate Program</i>	46
<i>California State University—Rancho los Amigos Hospital Baccalaureate Program</i>	47
<b>Technician Level Education Programs</b>	
<i>916 Area Vocational Technical Institute</i>	49
<i>Cerritos College</i>	52
<i>Dutchess Community College</i>	54
<i>University of Michigan University Hospital</i>	56
<b>Residency Programs</b>	
<i>Newington Children's Hospital</i>	58
<b>The American Board for Certification; Definitions, Requirements for Practitioner Certification and Technician Registration</b>	
<i>James Fenton, C.P.O.</i>	60
<b>Classified Ads</b>	66

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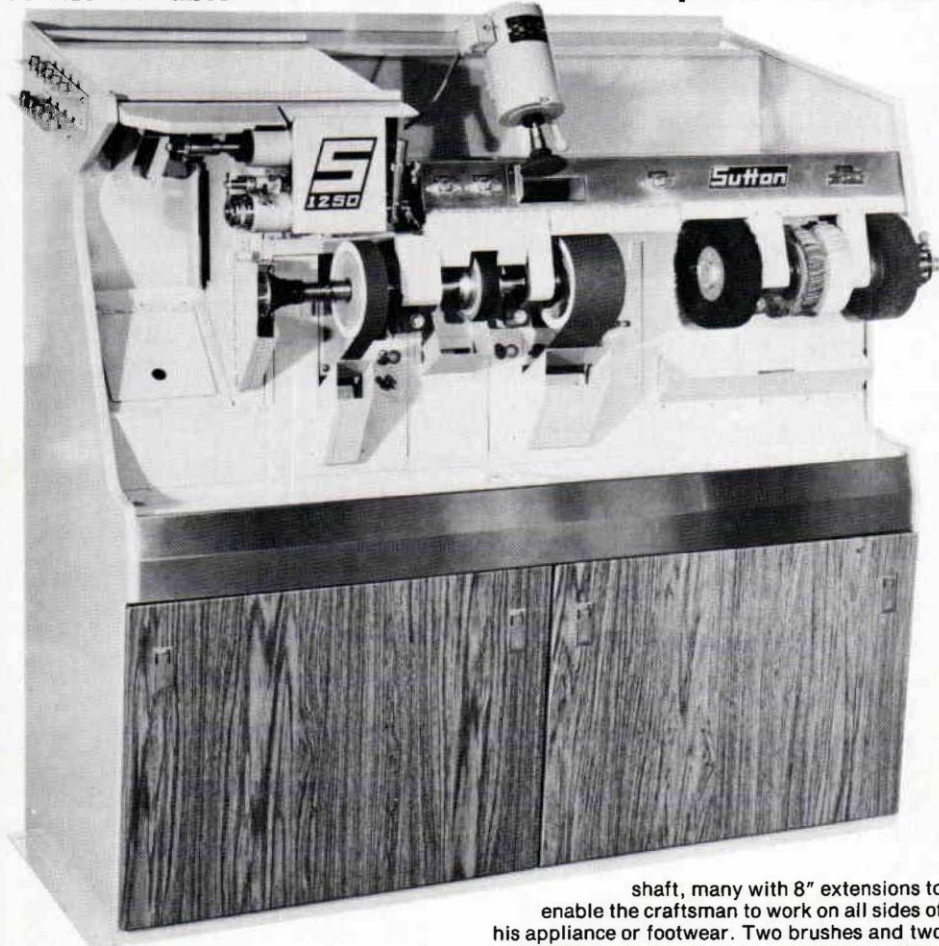
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**Please notify the National office immediately concerning additional meeting dates. It is important to get meeting notices in as early as possible. In the case of Regional Meetings, check with the National Office prior to confirming date to avoid conflicts in scheduling.**

- 1982, November 12-13**, Third Southern California Course on the "Current Concepts—the Diagnosis and Care of the Patient with Neuromuscular Disorder," Rancho Los Amigos Hospital, Downey, California.
- 1982, November 12-13**, Workshop, sponsored by Freeman Manufacturing Company, Century Airport Inn, Atlanta, Georgia.
- 1982, December 5-8**, American Medical Association's Interim Meeting of the House of Delegates, Fountainbleu Hilton, Miami, Florida.
- 1982, December 6-8**, Department of Orthopaedics and Rehabilitation, University of Miami Medical School Post Graduate Course "New Technology in Orthopaedics and Rehabilitation," Sheraton Bal Harour, Miami Beach, Florida.
- 1982, December 10-11**, Florida Association of Orthotics and Prosthetics Hands On Computer Workshop, Hilton Inn Florida Center, Orlando, Florida.
- 1983, January 26-30**, AAOP Annual Meeting, Hyatt Islandia, San Diego, California.
- 1983, February 17-19**, "Seating the Handicapped Child," International Seating Symposium, Instructional Resources Centre, University of British Columbia, Vancouver, British Columbia, Canada.
- 1983, April 6-8**, First European Conference on Research in Rehabilitation, Edinburgh, Scotland, United Kingdom.
- 1983, May 5-7**, AOPA Region IV Annual Meeting, Downtown Holiday Inn, Jackson, Mississippi.
- 1983, May 12-14**, AOPA Regions II and III Combined Meeting, Colonial Williamsburg, Williamsburg, Virginia.
- 1983, May 25-28**, AOPA Regions VII, VIII, X and XI Combined Meeting, Hotel El Tropicano, San Antonio, Texas.
- 1983, June 3-5**, AOPA Region IX, COPA, and the California Chapters of the AAOP Combined Annual Meeting, Harrah's, South Lake Tahoe, Nevada.
- 1983, June 16-19**, AOPA Region VI and AAOP Midwest Chapter Combined Annual Meeting, Olympia Resort and Spa, Oconomowoc, Wisconsin.
- 1983, June 19-23**, American Medical Association's Annual Meeting of the House of Delegates, Chicago Marriott Hotel, Chicago, Illinois.
- 1983, September 5-9**, The IV World Congress of the International Society for Prosthetics and Orthotics, Imperial College of Science and Technology, London, England.
- 1983, October 25-30**, AOPA National Assembly, Hyatt Regency, Phoenix, Arizona.
- 1984, May 3-4**, AOPA Regions II and III Combined Annual Meeting, Concord Hotel, Kramesha Lake, New York.
- 1984, June 1-3**, AOPA Region IX Meeting, Harrah's, South Lake Tahoe, Nevada.
- 1984, June 28-30**, AOPA Regions VII, X and XI Combined Meeting, North Shore Convention Center, Lake Coeur d'Alene, Idaho.

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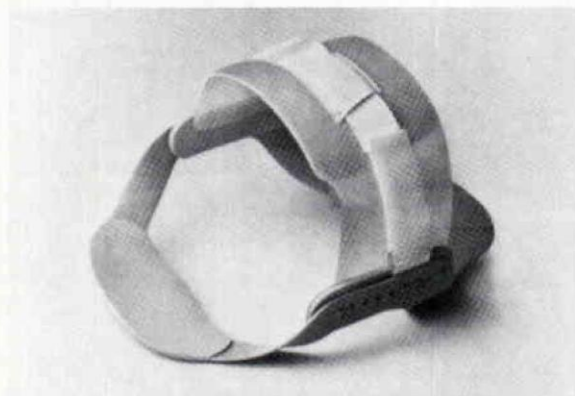
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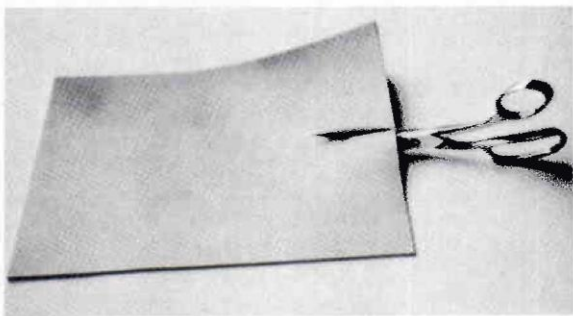
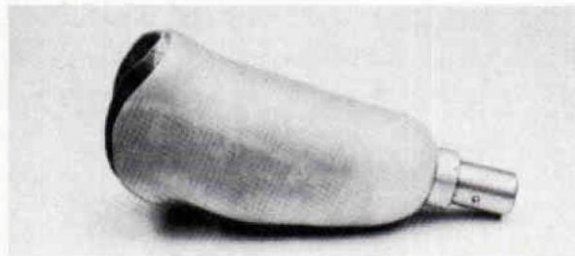
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# Preface

**Sidney Fishman, Ph.D.**  
**Chairman**  
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In order to place our discussions of orthotic-prosthetic education in historical perspective, it is well to recall that the American Board for Certification in Orthotics and Prosthetics (ABC) was established in 1948. As might be expected, the initial standards were considerably below any ideal or even acceptable level, requiring only some years of experience in the field to obtain certification. Progress on the matter of raising standards was at first slow and reticent, but, in recent years, encouraging and significant.

During the 1960's, almost automatic certification ended with the introduction of an examination procedure consisting of written, oral, and practical segments. Needless to say, the quality and difficulty of the examination increased with each passing year. Nonetheless, it was not until 1968 that the first specific educational requirement was introduced by the ABC, specifically, completion of a secondary school education. In 1972 the certification rules were further changed to require that, in addition to the secondary school education, each prosthetist or orthotist applicant must have successfully completed three basic short-term courses in his or her specialty—a

period of about two months training. Therefore, during the period 1972-75 the minimum requirements for taking the certification examination were high school graduation, successful completion of the three short-term courses and four years of acceptable experience in the prosthetics-orthotics field. In 1975 the educational requirement was upgraded to require at least two years of post-secondary (college level) school education in addition to the short-term courses, and these matters have remained until 1983, at which time only bachelors or long-term certificate professional training will be acceptable.

One only has to look briefly at the functions of the prosthetist-orthotist to be persuaded that these longer-term educational programs are mandatory. In short, there are three pervasive responsibilities of the professional practitioner:

- To serve as a coequal member of the prosthetic-orthotic clinic providing consultative advice, participating in discussions, and sharing in decisions regarding prescription, evaluation, and formulation of the prosthetic-orthotic treatment program.
- To provide prosthetic-orthotic service

to patients, including the application of the necessary intellectual and manual skills (design, measure, cast, fit, and alignment) required to supply an appliance of excellent quality.

- To contribute to the progress and growth of the profession through research and development activities, writing of articles, participating and exercising leadership in professional associations, and recruiting and training new entrants into the field.

In order to fulfill these responsibilities, there are six indispensable prerequisite areas of skill and knowledge: a) physical sciences and mathematics, b) biological sciences, c) psychological sciences, d) mechanical skills and crafts, e) communication skills, f) personal and cultural qualifications. The success of our educational programs naturally depends on how well they provide students with insights and understandings in these areas.

In 1983 it will be 30 years since formal prosthetic-orthotic education started in the United States; first at U.C.L.A., joined shortly thereafter by N.Y.U. and, several years later, by Northwestern University. On this 30th anniversary, and after 11 years of recognition by the ABC, the traditional introductory short-term courses will finally terminate as a means of qualifying for certification, being replaced by bachelors degree and certificate programs, the latter varying in length from one calendar year to four academic semesters. There is no doubt that, with the adoption of these new higher educational requirements, this will be a landmark year for the prosthetic-orthotic profession.

Some years ago the various schools engaged in prosthetic-orthotic educational activities organized themselves into the Council on Orthotic-Prosthetic Education (COPE). In 1973 the ABC, together with this group, established the Educational Accreditation Commission (EAC), with a membership consisting of equal numbers of practitioners and representatives from the educational institutions. This Commission has been of inestimable value in establishing standards and serving as the accreditation agency for schools offering prosthetic-orthotic programs.

Today there are two institutions offering accredited bachelors-degree training (University of Washington and N.Y.U.), five institutions offering certificates (University of Minnesota—Voc Tech 916, N.Y.U., Northwestern University, Shelby State Junior College, and U.C.L.A.), and three or four new institutions seeking to activate bachelors programs. With all of these colleges and universities functioning, there will be a reasonable opportunity for young people who wish to enter the prosthetic-orthotic field to seek enrollment in an institution in their region of the country. Although there always remains much to be done in improving the quality and efficiency of the training, even more important is the need to publicize these programs of instruction and the opportunities they offer to young people. Thirty years may be along or a short time, depending on one's perspective but, in any case, 1983 is most certainly a watershed year for prosthetic-orthotic education in the United States.



# A Guide To The Education Issue Of Orthotics and Prosthetics

Michael J. Quigley, C.P.O.  
Editor

## PURPOSE

In 1982, more formal education programs in orthotics and prosthetics exist in the United States than at any time in history. Many new programs are beginning, and other established programs are changing their curriculums and priorities. Prospective students in these programs become confused because a complete description of all programs has not been available in one publication until now. Hopefully, recipients of this issue will use it as a reference to help guide capable young men and women into the proper education program. A wide variety of programs are available; it is therefore important to know of the type of education desired before deciding on a particular program.

**The inclusion of a program in this issue does not imply that the program is accredited by any accrediting body unless specifically stated.**

## PRACTITIONER EDUCATION

Practitioner programs prepare the student for patient management respon-

sibilities and for the American Board for Certification (ABC) Practitioner Certification Examination.

Practitioner courses usually result in a baccalaureate degree or have that degree as a prerequisite. More stress is placed on patient management, science and communications than in technician courses although technical skills are also taught in practitioner courses. Practitioner education courses must be approved by the Education Accreditation Commission of ABC.

The prospective student should also be aware that the format and entrance requirements for the practitioner programs vary widely from school to school. Some schools require the student learn both orthotics and prosthetics, while other schools offer the option of learning either orthotics or prosthetics. One school may require a baccalaureate degree as a prerequisite while another admits students at the junior level and awards a baccalaureate degree after two years of specialized education. Degree awarding programs teach orthotics and prosthetics as major courses taken with other electives. Certificate courses generally concentrate only on orthotics and prosthetics education.

## TECHNICIAN TRAINING PROGRAMS

These programs prepare the student to assume important technical responsibilities in the fabrication of prostheses and orthoses. While the technician is not responsible for patient management, his duties require much knowledge and skill. Technicians may be registered by the American Board for Certification if they pass a technician's examination, although registration is not required to be employed as a technician.

## RESIDENCY PROGRAMS

A residency program is one which provides formal, structured experience in prosthetics and orthotics *after the individual has completed an accredited practitioner level program*. A residency program is designed to fulfill the experience requirement for the ABC Practitioner Examination, although attendance in a residency program is not required in order to take the examination.

Newington Children's Hospital offers the only residency program listed here, although others may become available in the near future.



## **Practitioner Level Education Programs**

*New York University Baccalaureate Program*

*New York University Certificate Program*

*Northwestern University Certificate Program*

*University of California at Los Angeles Certificate Program*

*University of Washington Baccalaureate Program*

*Rancho los Amigos Hospital—Cal State University, Dominguez Hills  
Certificate Program*

*916 Area Vocational Technical Institute Certificate Program*

*Institute of Rehabilitation Medicine, NYU Medical Center Certificate  
Program*

*University of Texas Baccalaureate Program*

*Department of Army—Fort Sam Houston Certificate Program*

*Shelby State Community College Associate of Arts Certificate Program*

*California State University—Rancho los Amigos Hospital Baccalaureate  
Program*



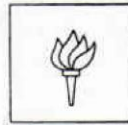
**New York University Baccalaureate Program**  
**Department of Prosthetics and Orthotics**  
**School of Education, Health,**  
**Nursing and Arts Professions**  
**317 East 34th Street, New York, NY 10016**  
**(212) 340-6676**

- Level of Training:** Practitioner
- Degree or Certificate Awarded:** Bachelor of Science—Prosthetics and Orthotics are taught in the same course
- ABC Accreditation:** Yes
- Length of Course:** Four years, of which two are specialization training
- Prerequisites, Entrance Requirements:** High School graduate with a college preparatory course
- Medical School Affiliation:** New York University Medical School
- Number of Students Admitted for each discipline:** 12 prosthetics and orthotics
- Faculty to Student Ratio:** 1:6-8
- General Dates of each Course:** September to May each year, with one summer's clinical affiliation after Junior year
- General Application Deadline:** June 1
- Address of Registrar:** New York University, Office of Undergraduate Admissions, 25 West 4th Street, 3rd floor, Washington Square, New York, NY 10003
- Program Initiated:** 1962



## NYU COURSE REQUIREMENTS—1982–1983

	<b>Points</b>
<b>I. Liberal Arts</b>	
<b>A. Science and Mathematics</b>	
A23.0002 The Biological World	4
A25.0002 Introduction to Modern Chemistry	5
A63.0009 Precalculus Mathematics	4
A85.0001 Introduction to Physics	5
	18
<b>B. Humanities</b>	
A41.0001 Writing Workshop I	4
A41.0002 Writing Workshop II	4
E21.0033 Speech Communication (to be selected)	4
	16
<b>C. Social Science</b>	
A89.0001 Introduction to Psychology (to be selected)	4
	8
	12
<b>D. Liberal Arts Electives</b> (to be selected)	12
<b>E. Unrestricted Electives</b>	2
	60
<b>II. Specialization</b>	
E14.1044 Physiology	2
E16.1995 Biostatistics (or E16.1085 Basic Statistics)	3
E35.1025 Physically Disabled: A Psychological Approach	3
E40.1715 Survey of Orthopedic and Neuromuscular Conditions	2
E44.1401-2 Human Anatomy	4
E48.0907 Prosthetic and Orthotic Techniques	6
E48.1901 Biomechanics	2
E48.1903 Mechanics	3
E48.1905 Properties of Materials	2
E48.1906 Below-Knee Orthotics	4
E48.1907 Above-Knee Orthotics	4
E48.1908 Above-Knee Prosthetics	8
E48.1909 Below-Knee Prosthetics	6
E48.1911 Upper-Limb Prosthetics	5
E48.1912 Upper-Limb Orthotics	4
E48.1913 Spinal Orthotics	5
E48.1915 Professional Aspects of Prosthetics and Orthotics	2
E48.1916 Clinical Affiliation—Prosthetics and Orthotics	5
	70
<b>TOTAL</b>	<b>130</b>



**New York University Certificate Program  
Prosthetics and Orthotics  
New York University Post Graduate Medical School  
317 East 34th Street, New York 10016  
(212) 340-6676**

**Level of Training:** Practitioner

**Degree or Certificate  
Awarded:** Certificate—Orthotics and Prosthetics

**ABC Accreditation:** Yes

**Length of Course:** Four semesters, including the intervening summer

**Prerequisites, Entrance  
Requirements:** Baccalaureate Degree from an accredited institution, including prerequisite introductory courses in biology, mathematics (algebra and trigonometry), physics psychology and chemistry

**Medical School Affiliation:** New York University Post-Graduate Medical School

**Number of Students  
Admitted for each discipline:** 18—only combined prosthetic and orthotic instruction

**Faculty to Student Ratio:** 1:6-8

**General Dates of each  
Course:** September–May year each as well as intervening summer

**General Application  
Deadline:** June 1

**Program Initiated:** 1979



## GENERAL DESCRIPTION

The Certificate Program at the New York University Post-Graduate Medical School consists of 17 courses offered over a period of four 15-week semesters and the intervening 13-week summer session—this latter period being devoted exclusively to clinical affiliation in accredited prosthetic and orthotic facilities. In comparison to other certificate programs, it is noteworthy that this is the only one with a requirement of 1,000 hours (equivalent to 25 full-time weeks) of clinical practice. This work experience, in addition to our increased em-

phasis on theoretical and didactic instruction, makes the program measurably longer than others.

Needless to say, these additional time-consuming experiences would not be included if we did not feel that they significantly strengthen the professional preparation of the students. The academic and laboratory courses, together with the required field experiences, provide a high degree of entry-level professional competency and establish the strongest possible foundation upon which to build a career in prosthetics and orthotics.



**Northwestern University Certificate Program**  
**Prosthetic-Orthotic Center**  
**345 E. Superior Street, 17th Floor**  
**Chicago, IL 60611**  
**(312) 649-8006**

**Level of Training:** Practitioner

**Degree or Certificate Awarded:** Certificate—Prosthetics and orthotics are each taught as separate certificate programs

**ABC Accreditation:** Yes

**Length of Course:** Five months

**Prerequisites, Entrance Requirements:** Associate (AA) or Baccalaureate (BS, BA) degree preferably in a field related to prosthetics and orthotics

**Medical School Affiliation:** Northwestern University Department of Orthopedics

**Number of Students Admitted for each discipline:** 18

**Faculty to Student Ratio:** 1:6

**General Dates of each Course:** August–December, January–May

**General Application Deadline:** July 15 and December 15 prior to starting dates

**Program Initiated:** 1957

## GENERAL DESCRIPTION

Northwestern University Prosthetic-Orthotic Center offers separate certificate programs for persons interested in pursuing careers as prosthetic or orthotic practitioners.

## The Prosthetic Certificate Program

The content of the prosthetic certificate program consists of didactic and laboratory instruction in prosthetics. Topics included are anatomy, kinesiology, gait analysis,



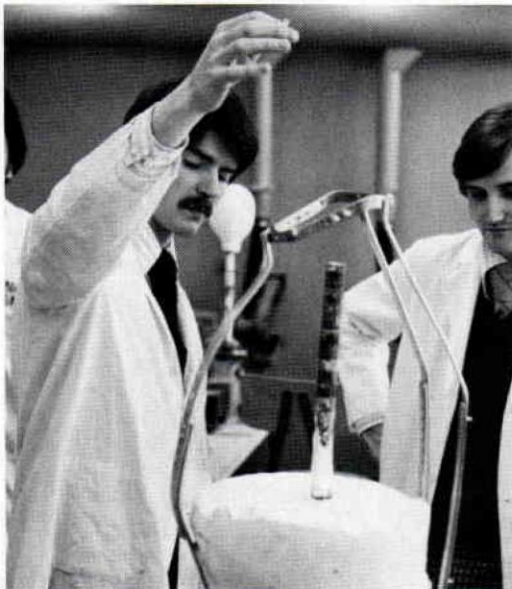
patient evaluation, prosthetic components, principles of prescription, measurement, casting, cast modification, alignment, and fabrication and fitting of upper-and lower-limb amputees.

Enrollment is limited to 18 students. The deadline for receiving completed applications for the January through June program is July 15. The deadline for the August through December program is December 15.

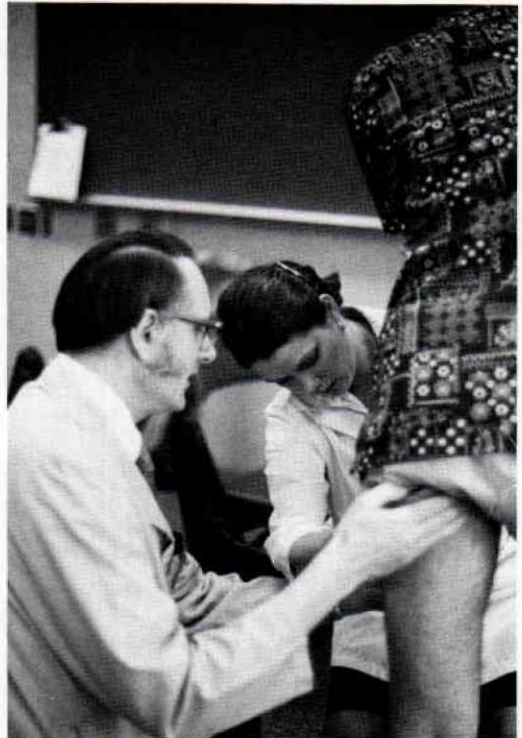
### The Orthotic Certificate Program

The content of the orthotic certificate program consists of didactic and laboratory instruction in orthotics. Course work includes anatomy and physiology, pathology, normal and pathological gait, biomechanics, measurement, casting, cast modification, fabrication and fitting of upper-limb, lower-limb and spinal orthotics.

Enrollment is limited to 18 students. The deadline for receiving completed applications for the January through June program is July 15. The deadline for the August through December program is December 15.



Students align a Milwaukee Scoliosis Orthosis at Northwestern.



Gunter Gehl, C.P., Director of Prosthetic Education at Northwestern instructs a student in patient evaluation.

### Prerequisites

Prerequisites for either certificate program include the possession of an Associate Degree (AA) or a Baccalaureate Degree (BS, BA) in a field related to prosthetics and/or orthotics. Suggested undergraduate courses of study should include biology, physiology, kinesiology, physical science, biomedical sciences and engineering sciences. Applicants should have some basic knowledge in plaster work, laminating and general laboratory experience. Actual patient contact is strongly suggested. The curriculum is directed towards the relatively inexperienced person, but one who has some background.

The faculty strongly recommends that a student not attempt to complete two separate certificate programs in one calendar year. Exceptions may be allowed for extenuating circumstances.



## University of California at Los Angeles Certificate Program

**Prosthetics, Orthotics Education Program**  
**UCLA Rehabilitation Center, Room 22-46**  
**1000 Veterans Avenue**  
**Los Angeles, CA 90024**  
**(213) 825-6341**

**Level of Training:** Practitioner

**Degree or Certificate Awarded:** Certificate and 58 credit units—Prosthetics and orthotics are taught in the same course

**ABC Accreditation:** Yes

**Length of Course:** Ten months

**Prerequisites, Entrance Requirements:** Selection of students is based on educational background and work experience. Applicants must have a Baccalaureate Degree.

**Medical School Affiliation:** UCLA School of Medicine

**Number of Students Admitted for each discipline:** 12

**Faculty to Student Ratio:** 1:6

**General Dates of each Course:** September–June

**General Application Deadline:** April 15—students will be notified of acceptance in June

**Program Initiated:** 1964



## GENERAL DESCRIPTION

This program is a 10 month, two term program in prosthetics-orthotics designed to prepare the student for the professional level. The curriculum contains over 2,000 hours of classroom lectures, demonstrations and clinical practice in prosthetics and orthotics. The student, in addition to participating in the intensive short-term courses in the major subjects, also receives training in Special Clinical Problems in Prosthetics and Orthotics designed to give the students clinical experience in the application of the various prosthetic orthotic devices. As each special problem course directly follows a major course unit, the knowledge gained in course work is applied in practical situations.

Clinical practice is essential in the students' development of professional ethics, patient rapport and clinical responsibility. Affiliation in local facilities under the guidance of Certified Prosthetists-Orthotists is also provided.

Work opportunities are many at present, no problem to the qualified graduate in this highly specialized field. Many of our students take positions in research, education, private practice or industry. Others have responsible positions at medical centers engaged in rehabilitation.

## Program Facilities

All classes in the Prosthetics-Orthotics Education Program meet in the Rehabilitation Center, West Medical Campus, which is located a few blocks from the main UCLA Campus and within walking distance of the UCLA School of Medicine and Hospital. There are several other major hospitals within a five-mile radius.

The teaching areas contain complete prosthetic and orthotic laboratories with modern equipment, patient fitting and training rooms, classrooms, a machinist laboratory, and a biomechanical laboratory with advanced electronic recording and telemetry equipment. A complete closed



UCLA Rehabilitation Center



circuit television system with recording capabilities has recently been added. Extensive research, development and clinical evaluations are carried on in conjunction with the educational program.

## Course Descriptions

### Upper Extremity Prosthetics × 468 (8 units 200 hours)

This course is designed to develop the ability to evaluate and fit prostheses for upper extremity amputees. Through a combination of lectures, demonstrations and laboratory practice, each prosthetist is given the opportunity to fabricate and fit two below-elbow, two above-elbow, one shoulder disarticulation and one partial-hand prosthesis.

The course includes anatomy, biomechanics, and the principles of upper-extremity harnessing and control systems, as well as fabrication procedures with all of the various mechanical and electrical components. Through the experience of clinic team practice, the student learns evaluation, checkout, and training procedures.



An instructor explains gait training with an above knee prosthesis.

### Below Knee Prosthetics × 480 (8 units 160 hours)

The course offers intensive training in the management of below-knee amputees. The student is instructed in normal human locomotion as well as biomechanics and gait analysis of the below-knee prosthesis wearers.

The student is required to fabricate and fit four below-knee prostheses using the latest techniques in socket fabrication and suspension. The various supracondylar suspension systems are integrated with appropriate socket types, such as the air cushion socket, the hard plastic socket and the standard soft insert type. Clear check socket techniques are also taught.

Critique sessions are conducted for each prosthetic fitting, utilizing a practical systematic approach of problem-solving through the use of gait and alignment analysis, gait analysis, and biomechanics of above-knee prostheses: mechanics of prosthetic knee joints (including hydraulic and polycentric types), and various types of prosthetic feet. Lectures and demonstrations followed by laboratory practice with clinical subjects include: evaluation of the above-knee patient for prosthetic information; taking the wrap cast using the various casting machines for preforming the brim, modification of the plaster model, plastic lamination of the total-contact plastic socket, static and dynamic alignment, gait analysis, alignment duplication and prosthetic evaluation of the completed prosthesis.

Each student is required to complete prostheses for four patients, each presenting different problems such as flexion and abduction contractures, short amputations and gait abnormalities. Students successfully completing the work on hydraulics given in the seminar are eligible to bid on these units for the Veterans Administration.

### Hip Disarticulation and Symes × 486 (4 units 120 hours)

In this three-week course, lower-extremity prosthetic principles are applied to the problems of the hip disarticulation and



hemipelvectomy amputee. The Canadian Hip Disarticulation Prosthesis is emphasized along with the UCLA modification which includes the adjustable split type socket with the HydraCadence hydraulic knee and foot unit. The biomechanics of these prostheses are thoroughly analyzed. The design and application of the Canadian Symes Prosthesis are given primary consideration in the study of the Symes amputation. Each student is required to satisfactorily complete one hip disarticulation and one Symes prosthesis for a clinical subject as part of the course.

**Lower Extremity Orthotics × 485**  
(8 units 160 hours)

The basic principles of lower-extremity orthotic function, design and application are taught in this four-week course.

Included in the curriculum are: lower extremity anatomy, kinesiology and analysis of muscle dysfunction, the relationship of the analysis to orthosis design, and the use of hydraulic controls on the ankle joints. Other problems such as trunk musculature involvement, bilateral bracing, excessive knee extension, mediolateral knee instability, compensating for unilateral foot and leg atrophy, orthopedic shoe problems and corrective foot supports are analyzed. Extensive use of thermoplastic vacuum forming techniques are included.

**Advanced Lower Extremity Orthotics × 485.2 (2 units 40 hours)**

UCLA is introducing a short intensive course on the latest research developments in the field of lower extremity orthotics. Lectures, demonstrations and laboratory practice include UCB insert, the NYU ankle insert orthoses, the TIRR Brace and the VAPC single bar long leg orthoses. The special technical methods required to fabricate these orthotic variations are demonstrated and discussed.

**Spinal Orthotics × 488**

A comprehensive study of the spinal column relating to the anatomy, kinesiology and pathomechanics of the spine.

The biomechanics of the spinal column

are studied in relation to application of spinal orthoses. Clinical applications include a wide variety of spinal orthoses, the Milwaukee Brace and the Boston TLSO.

**Child Amputee Prosthetics × 469**  
(2 units 40 hours)

A one-week course of lectures, demonstrations, conferences and laboratory sessions. Presented by the staff of the UCLA Child Amputee Project, this course covers significant research developments in the area of prosthetic management of congenital and acquired amputations of children.

**Upper Extremity Orthotics × 476**  
(3 units 64 hours)

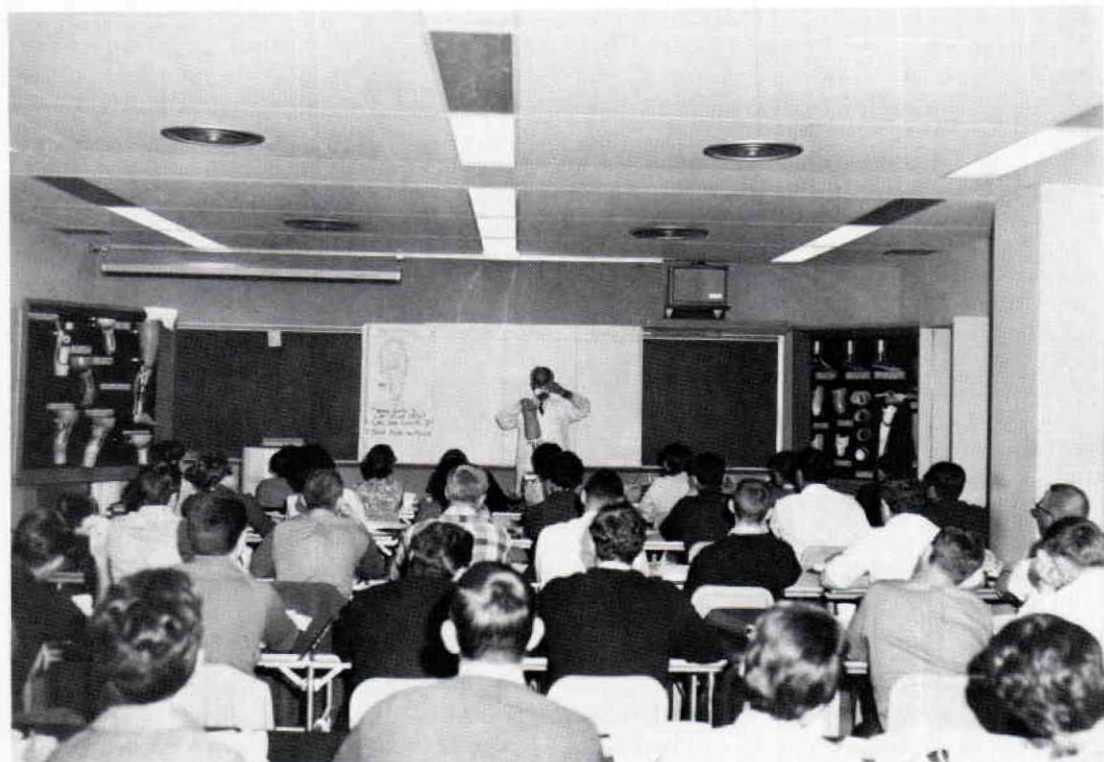
The purpose of the course is to develop in the orthotics student the ability to evaluate a patient suffering from some degree of paralysis of the upper extremity and to determine what device or devices offer the greatest potential for improving the patient's function.

Lectures include intensive study of functional anatomy and kinesiology of the hand, principles of operation for all orthoses and splint components. Laboratory practice provides the opportunity to make and fit each type of device including the short and long opponens splints with their various functional attachments and several types of flexor hinge splints-muscle driven, power driven and wrist driven. The Engen modular plastic type and the Rancho type orthoses are included in this course.

**Immediate Post-Surgical Prosthetic Fitting × 466 (2 units 24 hours)**

This is a three-day course in the theory and practice of applying an artificial limb to the leg immediately following surgery. Experience has shown that this procedure is most successful when carried out by a physician and prosthetist who attend the course together and subsequently work as a team, but it is not a prerequisite. The course is open to prosthetists who have completed the courses in Above-Knee and Below-Knee Prosthetics at UCLA, Northwestern or New York University.





A lecture on above knee prostheses at UCLA.

### **External Power for Upper Extremity Prosthetics**

**Physicians (2 units 16 hours) × 493**

**Prosthetists (4 units 80 hours) × 492**

This course is designed to introduce new concepts in the treatment of upper extremity amputees.

Myoelectric as well as switch control systems applied to electrically powered terminal devices and elbow units are studied. Each student is required to fabricate and fit a myoelectric prosthesis in this course.

### **Courses for Physicians, Prosthetists-Orthotists**

**Fracture Bracing for Lower Extremities × 487 (2 units 16 hours)**

The UCLA Prosthetics-Orthotics Education Program offers a series of two-day seminars on Fracture Cast Bracing for Surgeons, Orthotists and Prosthetists. These

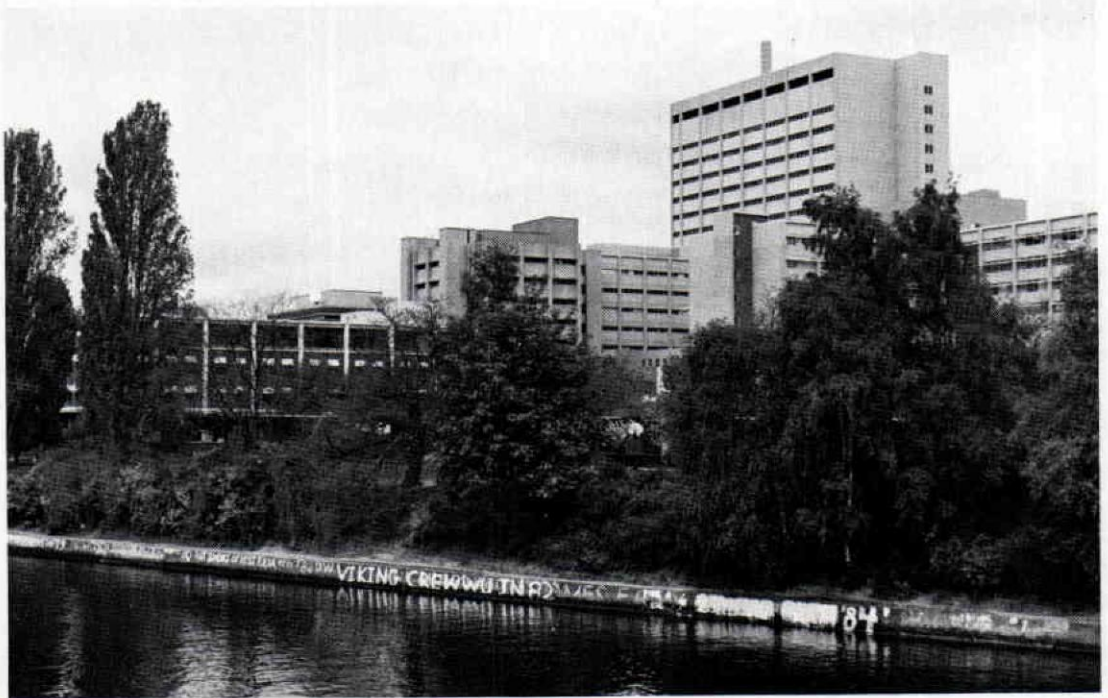
special courses feature lectures on the Orthopedic management of fracture bracing by the eminent physicians who were primarily responsible for the development of the technique. Results of the research have been similar to the immediate postsurgical fitting program for amputations. A significant shortening of the convalescent time and acceleration of wound healing, maintained joint motion and early ambulation have significant benefits in selected cases.

Laboratory practice by the students in the application of both femoral and tibial fracture braces are included. Applications using plaster of paris incorporating the plastic quadrilateral brim and metal knee joints as well as the orthoplast short leg brace with ankle motion are made. Team participation by surgeons and prosthetists and orthotists is suggested but not required. Prerequisite for prosthetist or orthotists personnel is ABC certification.

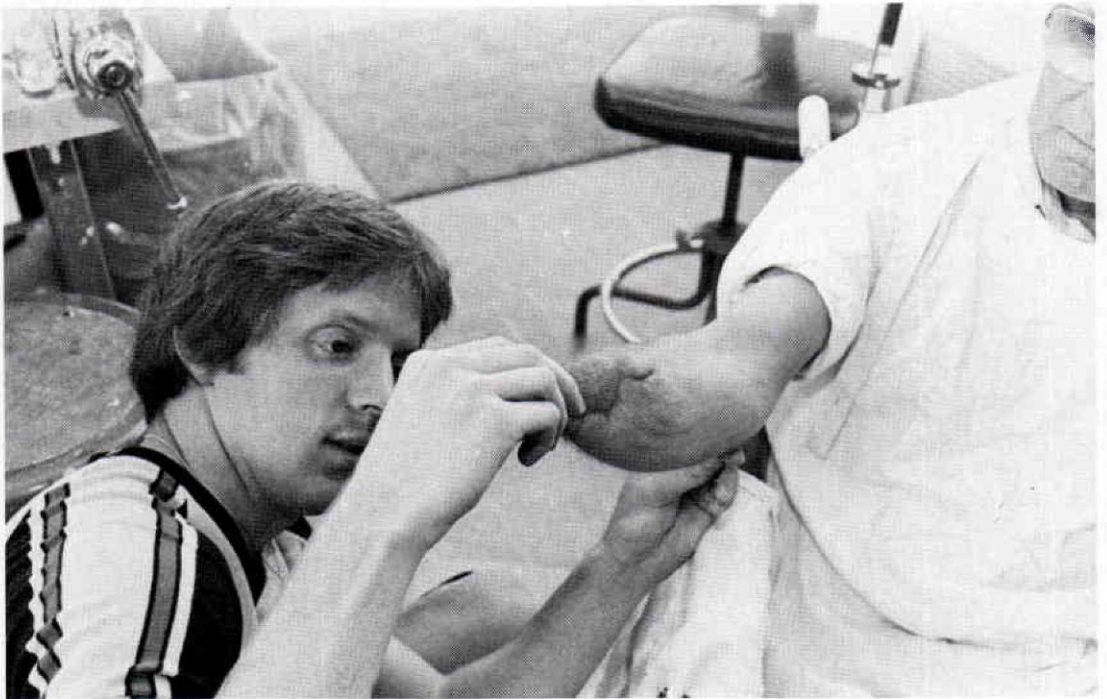


**University of Washington Baccalaureate Program**  
**Prosthetics and Orthotics**  
**Department of Rehabilitation Medicine RJ-30**  
**School of Medicine**  
**University of Washington**  
**Seattle, WA 98195**  
**(206) 543-7272**

- Level of Training:** Practitioner
- Degree or Certificate Awarded:** Bachelor of Science—Prosthetics and orthotics are taught in the same course
- ABC Accreditation:** Yes
- Length of Course:** Two academic years plus a final 11 week full-time clinical affiliation
- Prerequisites, Entrance Requirements:** Biology (General) 10 credits  
Physics (General) 10 credits  
Biological Structure (Human Physiology) 5 credits  
Zoology 118 or 208 (Human Physiology) 5 credits  
Psychology 100 or 101 (General) 5 credits  
Plus proficiency and distribution requirements for graduation
- Medical School Affiliation:** University of Washington School of Medicine
- Number of Students Admitted for each discipline:** 12
- Faculty to Student Ratio:** 1:6
- General Dates of each Course:** Students admitted Autumn quarter (September) only
- General Application Deadline:** February 15
- Address of Registrar:** Office of Admissions  
320 Schmitz Hall, PC-30  
University of Washington  
Seattle, WA 98195  
(206) 543-9686
- Program Initiated:** September, 1970. First graduating class, 1972



The University of Washington School of Medicine houses the undergraduate curriculum in prosthetics and orthotics.



A student evaluates a patient in the University of Washington's program.



## GENERAL DESCRIPTION

The course of study leading to a Bachelor of Science in Prosthetics-Orthotics requires a minimum of four academic years plus 11 weeks of clinical affiliation. This program is divided into two parts: a preparatory phase and a professional phase.

During the preparatory phase students are enrolled in the College of Arts and Sciences. All proficiency requirements, all prerequisite courses and the distribution requirements must be completed during this phase. Completion of part or all of the preparatory phase at another college or university is acceptable. Students who elect to enroll in other institutions should compare the catalog descriptions of the prerequisite courses to assure equivalency of content.

The professional phase requires two academic years plus a final 11 weeks of full-time clinical affiliation. This phase must be taken in sequence, beginning Autumn Quarter, and only at the University of Washington. Admission into this phase of the program is competitive.

Applications for admission to the professional phase of this curriculum are due February 15. Applications received after the deadline will not be considered until a decision has been made on all applications which had been received on time. Students selected for admission into this phase are enrolled in the School of Medicine as Prosthetics-Orthotics majors.

Upon successful completion of the entire program, students are awarded a Bachelor of Science degree by the School of Medicine, University of Washington.

**Rancho los Amigos Hospital—Cal State University  
Dominquez Hills Certificate Program  
Orthotics Department  
Rancho los Amigos Hospital  
7450 Leeds Street, Downey, CA 90242  
(213) 922-7655**

**Level of Training:** Practitioner—Orthotics only

**Degree or Certificate  
Awarded:** Certificate and 32 upper division college credits

**ABC Accreditation:** Yes

**Length of Course:** One year

**Prerequisites, Entrance  
Requirements:** Baccalaureate degree preferred; Associate in Arts degree minimum

**Medical School Affiliation:** None

**Number of Students  
Admitted for each discipline:** 6

**Faculty to Student Ratio:** 1:6

**General Dates of each  
Course:** July–June

**General Application  
Deadline:** January

**Program Initiated:** 1979—This program was previously accredited as a short term course for 18 years.

## GENERAL DESCRIPTION

The Orthotic Department at Rancho Los Amigos Hospital in conjunction with Cal State University Dominquez Hills offers an accredited long-term certificate course in orthotics. Interested students with an associates degree or higher education may apply. The course spans one calendar

year beginning July 1. Students receive a mixture of practical laboratory instruction, classroom didactics, and exposure to patients in a wide variety of clinical settings. There are 10 service rotations designed to acquaint each student with the more prevalent pathologies and treatment philosophies. These include diabetes, spinal injury, neuro, spine deformity, myelodys-



plasia, arthritis, muscular dystrophy, post polio, cerebral palsy, and problem fracture.

Classes are scheduled for 1-2 hours each day. The content of each of the didactic instruction is as follows: Anatomy, Normal Function, Pathology, Pathomechanics, Interpretation of Impaired Performance, and Orthotic Design and Development.

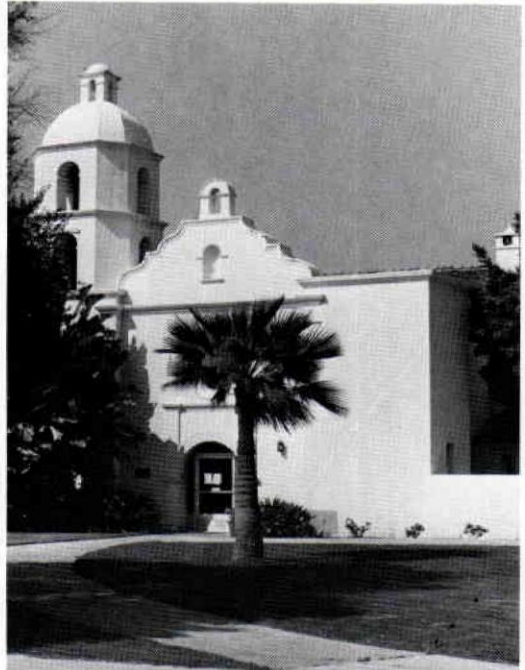
In addition, students attend several specialized courses including basic gait analysis, interpretative gait analysis, patient strength and functional evaluation, biomechanics, and strength of materials.

After each of the three lecture series on anatomy, a one-hour mid-term written exam is given. This is followed by a practical exam in the cadaver laboratory which includes tag identification, palpation, joint motion and muscle action demonstration, and bony landmark identification. The next major examination is the "final" exam given in each of the three main course categories.

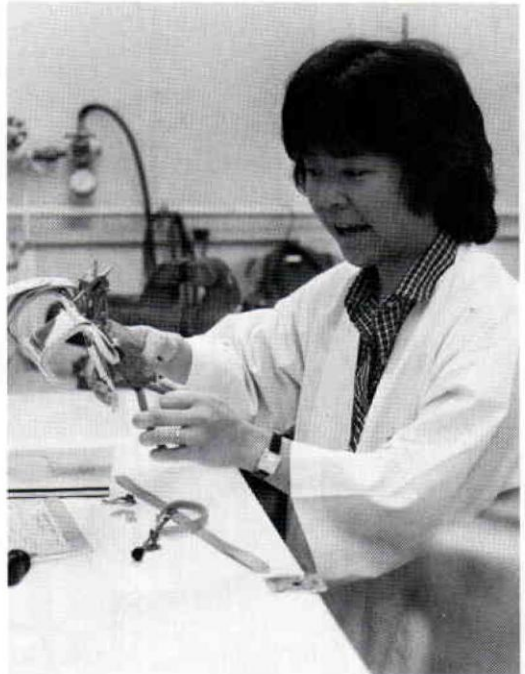
In addition to the formal, structured classroom lectures, each student receives 2,000 hours of practical experience. This practical experience includes not only device fabrication but new-patient conference, rounds, clinics, and special rehabilitation conferences.

Because the certificate program includes 2,000 hours of orthosis design, layout, fabrication, assembly, fitting and critiquing, the instructional portion is concentrated with anatomy and normal and abnormal (pathology) function. The incorporation of "Pathomechanics" and "The Interpretation of Impaired Performance" provides the student with a crucial bridge between evaluation and specification of corrective orthoses. For example, most orthotists can observe impaired gait during swing or stance phase and note discrepancies from normal. However the ability to suggest assistance or compensating measures is not always included in their didactic training.

All instruction is given or supervised by Certified practitioners. Students are assigned to a staff orthotist for each service rotation. Students who successfully complete the course receive a certificate and 32 upper division credits.



Administration Building at Rancho los Amigos Hospital.



A student at Rancho los Amigos Hospital fabricates a wrist-hand orthosis.



**916 Area Vo-Tech Institute (AVTI)  
Certificate Program  
Orthotics and Prosthetics Training Program  
916 Area Vocational Technical Institute  
3300 Century Avenue  
White Bear Lake, MN 55110  
O/P Practitioner: (612) 770-2351, Ext. 305**

**Level of Training:** Orthotic Practitioner  
Prosthetic Practitioner

**Degree or Certificate  
Awarded:** Joint Certificate of Completion from 916 AVTI and the  
University of Minnesota Medical School

**ABC Accreditation:** Yes

**Length of Course:** Orthotics Practitioner: 22 weeks  
Prosthetics Practitioner: 22 weeks

**Prerequisite, Entrance  
Requirements:** One year fabrication experience in intended area of study  
and a minimum of an Associate Degree

**Medical School Affiliation:** University of Minnesota Medical School

**Number of Students  
Admitted for each discipline:** 10 each offering

**Faculty to Student Ratio:** 1:6

**General Dates for each  
Course:** January and July

**General Application  
Deadlines:** March and September

**Program Initiated:** Prosthetic Practitioner Program: 1980  
Orthotic Practitioner Program: 1982



## INTRODUCTION

916 Vo-Tech offers ABC accredited programs in Orthotics and Prosthetics on both technician and practitioner levels. The programs are integrated into a career ladder concept enabling students to earn Associate and Bachelor degrees of Applied Science.

The curriculum is up-to-date and innovative based on national surveys of experts in the field. A fully developed library and an individualized training approach allow students greater freedom in their learning experience.

## PRACTITIONER PROGRAMS

As an outgrowth of the successful technician training programs, 916 AVTI offers the accredited Prosthetic and Orthotic Practitioner Programs jointly with the University of Minnesota Medical School.

The six month Prosthetic Practitioner course covers below knee, above knee, and upper limb patient management techniques and fitting skills. Actual practice fitting amputees is critiqued by instructors and students in group settings. Transparent check sockets are used to increase socket interface understanding during patient fittings. Modular prosthetics, fluid and myoelectric control are all part of the curriculum.

The Orthotic Practitioner Program is designed to provide the student with the fundamental knowledge of patient management and standard techniques for measurement, fabrication and fitting in the area of lower, upper and spinal orthotics. In conjunction with written and audiovisual materials, lecture demonstrations and lab work, students receive instruction by University of Minnesota medical staff as a regular part of the curriculum.

In both practitioner programs, students attend clinics at major medical health care centers. These affiliations provide students with essential off-campus training experience where clinical team cooperation may be observed. Instruction is personalized



A student evaluates the fit of a plastic ankle-foot orthosis.

and competency based, and classes are in session six hours per day, with provisions made for students to use the Learning Resource Center beyond the six hours.

### Active Staff

The staff is professionally active in orthotics and prosthetics regional and national events. The program regularly hosts regional seminars and administers the American Board for Certification Technician Registration Examination. Nationally recognized orthotists and prosthetists and registered technicians serve on all the program's advisory committees.

### Environment

In addition to the professionally active program, students will find a modern, well lit and climate controlled working envi-

ronment. Highlights include the newly designed patient fitting areas and a cheerful laboratory with specialty wood, metal, plastic, plaster and sewing rooms. These rooms are well ventilated and noise controlled work areas. Special effort has been made to simulate as closely as possible the "real job" situation. Learning resource centers and libraries provide the student and instructional staff with ample standard and contemporary materials pertaining to the field.

### Location

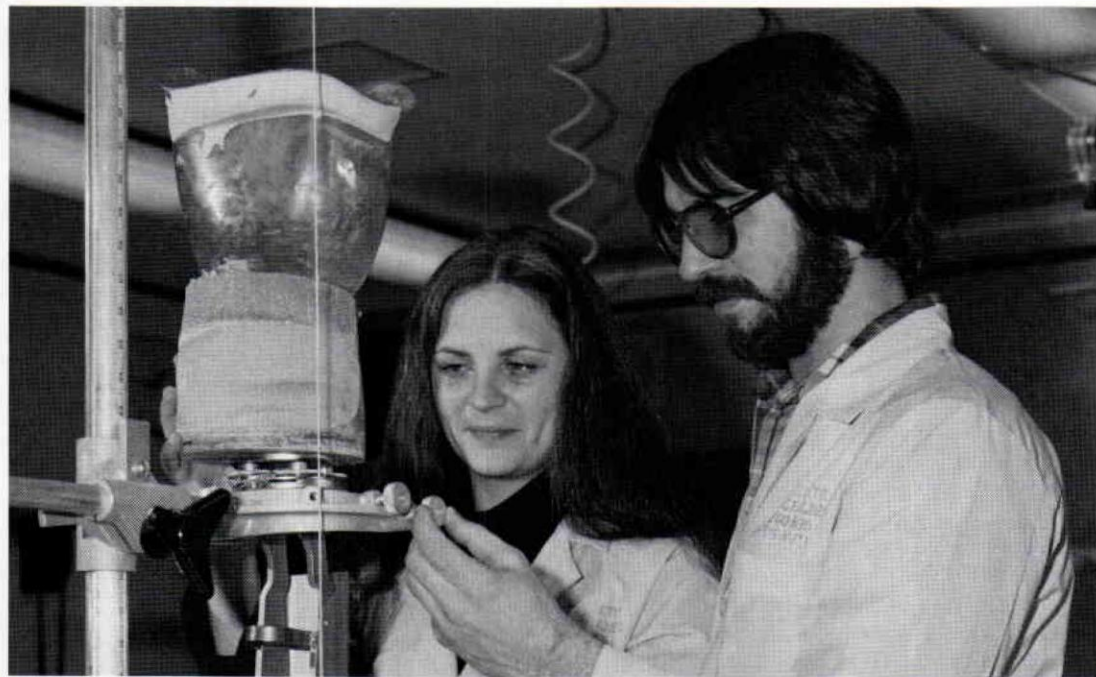
916 AVTI is located in beautiful White Bear Lake, a lakeside suburb of the Twin Cities, Minneapolis-St. Paul. Students take

advantage of the many available cultural and recreational activities in the metro area throughout the year while attending 916 AVTI.

The staff welcomes any questions you may have. Start dates for the Practitioner programs are January and July. Processing of applications takes three months before start dates. For further information on the Prosthetic or Orthotic Programs regarding tuition, fees, course content, housing, application forms and entrance requirements, call (612) 770-2351, ext. 305 or write:

Prosthetic Practitioner Program  
Attention: David Harris

Orthotic Practitioner Program  
Attention: Stewart Crenshaw



Student prosthetic practitioners align a transparent check socket.



**Institute of Rehabilitation Medicine**  
**New York University Medical Center**  
**400 East 34th Street, New York, NY 10016**  
**(212) 340-6115**

**Level of Training:** Practitioner

**Degree of Certificate**  
**Awarded:** Certificate of Completion

**ABC Accreditation:** Will be applied for

**Length of Course:** Two years

**Prerequisites, Entrance**  
**Requirements:** Baccalaureate Degree. In some cases, students with AA Degrees are admitted. Applicants must be employed at least one year at a New York League of Voluntary Hospitals member institution to be admitted.

**Medical School Affiliation:** New York University Medical Center

**Number of Students**  
**Admitted for each discipline:** Three

**Faculty to Student Ratio:** 1:2

**Dates of Course:** Two years continuous education, beginning each September

**General Application**  
**Deadline:** Mid-March

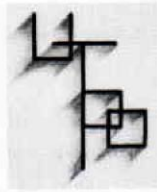
**Address of Registrar:** Institute of Rehabilitation Medicine, New York University Medical Center, 400 East 34th Street, New York, NY 10016, Attn: Richard Conceicao, C.P.

**Program Initiated:** 1975

## GENERAL DESCRIPTION

The long-term orthotics and prosthetics program at New York University's Institute of Rehabilitation Medicine is an intensive two-year program of practical and theoretical education. Students are asked to choose their discipline of concentration (either orthotics or prosthetics) after their first year.

Textbooks and tool kits are free for graduating students. The program is funded jointly by the local Hospital Workers Union and the New York League of Voluntary Hospitals—students are paid for their 37½ hour weeks of training through the fund. Graduates average about 300 lab hours of hands-on work in each aspect of their chosen discipline.



**University of Texas Bacalaureate Program**  
**Health Science Center at Dallas**  
**School of Allied Health Sciences**  
**Prosthetic-Orthotic Department**  
**5323 Harry Hines Boulevard, Dallas, TX 75235**  
**(214) 688-2880**

<b>Level of Training:</b>	Practitioner
<b>Degree or Certificate Awarded:</b>	Bachelor of Science in Prosthetics and Orthotics
<b>ABC Accreditation:</b>	Pending
<b>Length of Course:</b>	Administered at junior and senior level
<b>Prerequisites, Entrance Requirements:</b>	Refer to text
<b>Medical School Affiliation:</b>	Southwestern Medical School (Dallas)
<b>Number of Students Admitted for each discipline:</b>	6-initial class and will increase yearly to 12 maximum per year
<b>Faculty to Student Ratio:</b>	Presently anticipated ratio 1:2
<b>General Dates of each Course:</b>	Not set at time of publication
<b>General Application Deadline:</b>	July 31
<b>Address of Registrar:</b>	Student Affairs Office, same address as above (214) 688-3606
<b>Program Initiated:</b>	August 30, 1982

## GENERAL DESCRIPTION

The prosthetics and orthotics program is the most recently established Bacalaureate Degree Program in the School of Allied Health Sciences at The University of Texas

Health Science Center at Dallas. The Health Science Center is located on a 69-acre campus at Harry Hines Boulevard, and Inwood Road, 3.5 miles northwest of downtown Dallas and consists of 13 major buildings, of approximately 1.8 million-square-feet





Aerial view, University of Texas, Health Science Center, Dallas.

and is physically connected to Parkland Memorial Hospital and Children's Medical Center, two of the center's principal teaching institutions.

The Prosthetics and Orthotics Curriculum at The University of Texas Health Science Center at Dallas (UTHSCD) is designed to prepare professionals to practice orthotics and prosthetics. These professionals provide care to persons requiring the replacement of a partially or totally absent limb or the fitting of a brace to a disabled spine or limb.

The course of study requires a minimum of four academic years and is comprised of two phases: a prerequisite phase and a professional phase.

During the prerequisite phase, the student completes 60 semester hours of required and elective courses in liberal arts, physical and biological sciences. The professional phase is completed on the UTHSCD campus. This

portion of the curriculum provides the student with the knowledge base in related sciences in addition to professional and technical skills necessary to practice as a prosthetist and/or orthotist. A coordinated approach to the academic and clinical aspects of the student's education reinforces the basic competencies necessary for the entry level prosthetist-orthotist.

Students will spend a significant amount of time in laboratory sessions involving cadaver dissection, gait analysis, patient evaluation, measuring, casting and modification, and fabrication of orthoses and prostheses.

A clinical component is scheduled daily in the University of Texas Prosthetics and Orthotics Clinical Services to provide valuable patient contact and to allow the student to relate immediately didactic and laboratory experiences. Additionally, clinical facilities

within the Dallas-Fort Worth metroplex will also contribute experiences in the clinical preparation of students. Such diverse clinical exposure offers the student opportunities to examine differing approaches to prosthetic-orthotic practice and to participate in the treatment of persons with a variety of diseases and disabilities.

Following successful completion of the program, the student prosthetist-orthotist will receive a Bachelor of Science Degree from UTHSCD with academic eligibility to take the certification examination of the American Board for Certification in Orthotics and Prosthetics.

### Prerequisites

Prior to entering the professional phase of the prosthetics-orthotics curriculum, the student is required to complete the following courses,\* maintaining a minimum 2.0 grade point average on a four-point system.

	Semester Hours
English (composition or technical writing skills)	3
English (elective)	3
U.S. History (may include 3 hours of Texas History)	6
U.S. Government (must include a study of Texas Constitution)	6
General Biology or Zoology with lab	6
Physics with lab	6
Chemistry with lab (general chemistry)	6
Mathematics (algebra or higher)	3
Psychology (general)	3
Psychology (human development recommended)	3
Humanity or Social Science	3
Electives	12
Minimum	60

\*students may request the program director to petition the Dean for possible waiver of certain basic requirements.

*Suggested Electives:* drafting, mechanical engineering, welding, art (sculpting), business administration, economics, philosophy

The student is strongly advised to volunteer in or visit a number of facilities offering prosthetic and orthotic services to gain knowledge of and affirm career interest in the field.

### Program Requirements

To qualify for graduation, the student must fulfill all requirements of each course and maintain an average GPA of 2.0 on a four-point system. A minimum of 151 semester hours is required to graduate with a Bachelor of Science degree in Prosthetics and Orthotics.

Fall	Third Year	
PO 3001	Lower Limb Orthotics	10
PO 3402	Applied Prosthetics, Orthotics and Rehabilitation Technology I	4
PO 3103	Seminar in Prosthetics and Orthotics I	1
HCS 3206	Intro. to Pathology	2
		17
<b>Spring</b>		
PO 3004	Lower Limb Prosthetics I	10
HCS 4306	Psychological Aspects of Chronic Illness and Disability	3
PO 3405	Applied Prosthetics, and Rehabilitation Technology II	4
PO 3106	Seminar in Prosthetics and Orthotics II	1
PO 3107	Clinical Education I	1
		19
<b>Summer</b>		
HCS 4408	Human Anatomy	4
HCS 4209	Anatomy Lab	2
HCS 3407	Human Physiology	4
PO 3108	Applied Prosthetics, Orthotics and Rehabilitation Technology III	1
		11



**Fourth Year**

PO 4001	Lower Limb Prosthetics II	10
PO 4402	Applied Prosthetics, Orthotics and Rehabilitation Technology IV	4
PO 4103	Seminar in Prosthetics & Orthotics III	1
HCS 3322	Interpersonal Skills and Communication	3
		<hr/> 18
PO 4604	Spinal Orthotics	6
PO 4405	Upper Limb Orthotics	4
PO 4406	Applied Prosthetics, Orthotics and Rehabilitation Technology V	4
PO 4107	Seminar in Prosthetics and Orthotics IV	1
		<hr/> 15
PO 4608	Upper Limb Prosthetics	6
PO 4109	Applied Prosthetics, Orthotics and Rehabilitation Technology VI	1
PO 4410	Clinical Education II	4
		<hr/> 11

**PO 3001 Lower Limb Orthotics  
(10 semester hours)**

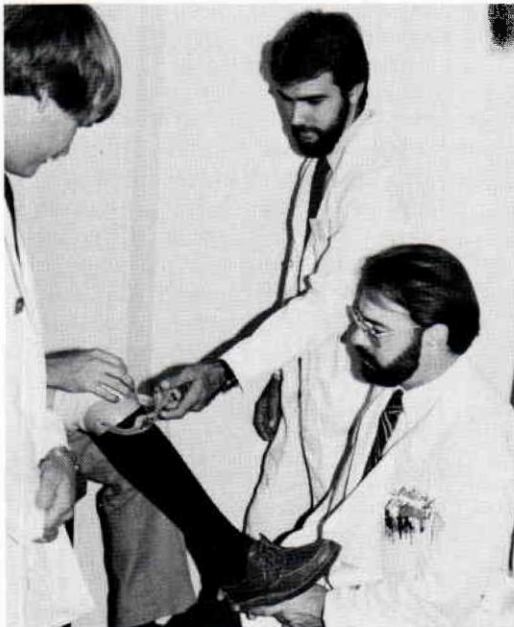
Lectures relating to anatomy, kinesiology, biomechanics, pathomechanics, neurological and vascular supplies of the lower extremity as well as techniques to evaluate physical and functional deficits will be presented. Methods of fabricating and evaluating the devices are also included as well as instruction in fitting the juvenile and geriatric populations. Laboratory practice is integrated throughout the semester in such a way that the student immediately applies the techniques described in the lecture.

**PO 3402 Applied Prosthetics, Orthotics  
and Rehabilitation Technology I  
(4 semester hours)**

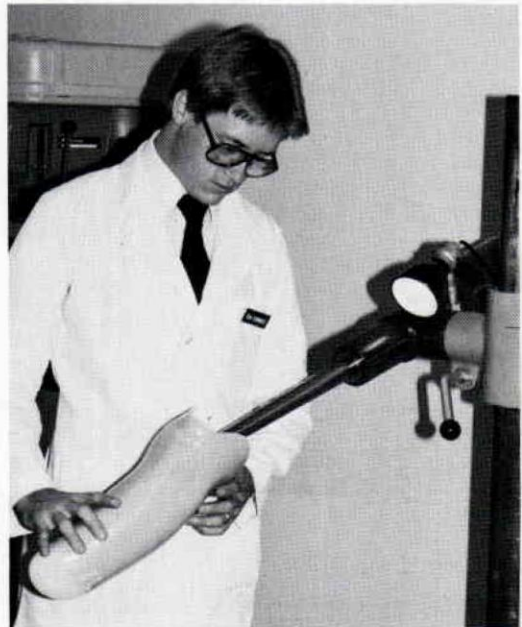
Guided observation in a clinical setting providing multidisciplinary patient care.

**PO 3103 Seminar in Prosthetics and  
Orthotics I (1 semester hour)**

An introduction to prosthetics and orthotics including history, ethics, roles of health professionals with the multidisci-



Left: Taed Studor; center: Hector Rodriguez; seated: Bruce McClellan, C.P.O., Program Director



Don Cummings

plinary team, medical terminology is also included.

**PO 3004 Lower Limb Prosthetics I  
(10 semester hours)**

Lectures will include physical and functional deficits which result in limb loss following below-knee (BK) amputation, levels of amputation, medical management, pre and post operative prosthetic care, prescription considerations, prosthetic materials and components, principles of fabrication, fit and dynamic alignment, techniques of evaluation and training for all below knee types of amputations as well as instruction in fitting the juvenile and geriatric populations.

**PO 3405 Applied Prosthetics, Orthotics and Rehabilitation Technology II  
(3 semester hours)**

Observation and supervised application of P/O patient assessment, device recommendation and fabrication techniques.



Left: Bruce McClellan, C.P.O., Program Director; center: Don Cummings; right: Mark Ashford.

**PO 3106 Seminar in Prosthetics and Orthotics II (1 semester hour)**

Effective methods of keeping medical records, oral and written communication; new concepts and developments in prosthetics and orthotics Journal Club and discussions of clinical experiences will comprise course content.

**PO 3107 Clinical Education I  
(1 semester hour)**

Supervised application of prosthetic-orthotic techniques in area clinical facilities.

**PO 3108 Applied Prosthetics, Orthotics and Rehabilitation Technology III  
(1 semester hour)**

Observation and supervised application of prosthetics-orthotics patient assessment, device recommendation and fabrication techniques.

**PO 4001 Lower Limb Prosthetics II  
(10 semester hours)**

Lectures will include physical and functional deficits which result with limb loss following above-knee (AK) amputation, levels of amputation, medical management, pre and post operative prosthetic care, prescription considerations, prosthetic materials and components, principles of fabrication, fit and dynamic alignment, techniques of evaluation and training for all above knee types of amputations as well as instruction in fitting the juvenile and geriatric populations. Special instruction will be given in the use of fluid control and linkage mechanisms as well as various other types of knee units. In addition, instruction in fitting hip and knee disarticulations will be included.

**PO 4402 Applied Prosthetics, Orthotics and Rehabilitation Technology IV  
(4 semester hours)**

Observation and supervised application of prosthetics-orthotics patient assessment, device recommendation and fabrication techniques.



**PO 4103 Seminar in Prosthetics and Orthotics III (1 semester hour)**

Administration and management of a Prosthetics-Orthotics Service; new concepts and developments in prosthetics and orthotics; Journal Club and discussions of clinical experiences will comprise course content.

**PO 4604 Spinal Orthotics (6 semester hours)**

Instruction will include a review of spinal and pelvic anatomy, biomechanics and pathomechanics of the spine, materials and orthotic components, prescription considerations and principles of fabrication of spinal orthoses. Special attention will be given to fitting the juvenile and geriatric populations. Students will immediately apply the principles and techniques presented in lecture during supervised laboratory practice.

**PO 4405 Upper Limb Orthotics (4 semester hours)**

Lecture relating to anatomy, kinesiology, biomechanics, pathomechanics, neurological and vascular supplies of the upper extremity are included as well as instruction in orthotic components and materials as they pertain to shoulder, arm, wrist and hand disabilities. Special attention will be given to fitting the juvenile and geriatric populations.

Laboratory practice is scheduled to allow the student to immediately perform the techniques and procedures described in lecture. Included in laboratory sessions will be evaluation of physical and functional deficits, recommendation of orthotic devices, selection of appropriate components, measurement, fabrication, fitting, and evaluation of devices.

**PO 4406 Applied Prosthetics, Orthotics and Rehabilitation Technology V (4 semester hours)**

Observation and supervised application of P/O patient assessment, device recommendation and fabrication techniques.

**PO 4107 Seminar in Prosthetics and Orthotics IV (1 semester hour)**

Styles of learning, methods of instruction and patient education techniques; new concepts and developments in prosthetics and orthotics; Journal Club and discussions of clinical experiences will comprise course content.

**PO 4608 Upper Limb Prosthetics (6 semester hours)**

Instruction will include a review of anatomy, kinesiology, biomechanics, pathomechanics, neurological and vascular supplies of the upper extremity; lectures covering levels of amputation, medical management, pre and post operative prosthetic care, prescription considerations, prosthetic components, principles of fabrication and harnessing, above and below elbow external power components, techniques of evaluation and training for all levels and types of amputation will be included. Special consideration will be given to fitting the juvenile and geriatric populations.

**PO 4109 Applied Prosthetics, Orthotics and Rehabilitation Technology VI (1 semester hour)**

Observation and supervised application of prosthetic-orthotic patient assessment, device recommendation and fabrication techniques.

**Conclusion****PO 4410 Clinical Education II**

Area clinical facilities will provide directed experiences and application with increasing student responsibilities in prosthetics and orthotics care.

The University of Texas is dedicated to the pursuit of excellence in the training of health care professionals and is proud to be the third university in the nation to provide a Baccalaureate Degree program in Prosthetics and Orthotics.



**Department of the Army Certificate Program**  
**Academy of Health Sciences, United States Army**  
**Fort Sam Houston, San Antonio, TX 78234**  
**(512) 221-5773/5015**

**Level of Training:** Orthotic Practitioner

**Degree or Certificate Awarded:** Certificate, Department of Defense (Personnel Only)

**ABC Accreditation:** Provisional

**Length of Course:** One year

**Prerequisites, Entrance Requirements:** High School graduate  
 General mechanics test score 100 or higher  
 Successful completion of Medical Corpman (91B) School  
 Military rank of E5 or below  
 Individual must have 34 months of active duty time remaining after completion of the course

**Medical School Affiliation:** Incarnate Word College  
 4301 Broadway  
 San Antonio, TX 78209  
 (512) 828-1261

**Number of Students Admitted for each discipline:** 30

**Faculty to Student Ratio:** 1:5

**General Dates of each Course:** March 29  
 September 13

**General Application Deadline:** Not applicable

**Program Initiated:** September 28, 1977, approved by the Surgeon General of the Army



## GENERAL DESCRIPTION

The Orthotic Specialist Course is a two phase program for military personnel only with the first 20 weeks (phase I) being conducted at the Academy of Health Sciences, Fort Sam Houston, San Antonio, Texas.

During phase I the following subjects are taught:

- a. Anatomy and physiology (92 hours)
- b. Upper limb orthotics (120 hours)
- c. Lower limb orthotics (224 hours)
- d. Spinal orthotics (135 hours)
- e. Professional and administrative subjects (51 hours)
- f. Shop equipment and materials (45 hours)
- g. Orientation (7 hours)
- h. Examination and critiques (49 hours)

All phase I subjects are taught by qualified personnel i.e. Anatomy (anatomists), Physiology (occupational and physical therapists), Professional subjects (medical doctors), Orthotic subjects (certified practitioners and registered technicians).

Phase II is taught at selected medical centers and Army hospitals. Phase II con-

sists of on the job type training. The following is a list of subjects taught in Phase II:

- a. Shoe modification and arch supports (280 hours)
- b. Upper limb orthotics (280 hours)
- c. Lower limb orthotics (280 hours)
- d. Spinal orthotics (280 hours)
- e. Administration and supply procedures (40 hours)
- f. Reinforcement (80 hours)

The program is affiliated with Incarnate Word College of San Antonio. Upon successful completion of the 52 week course the students receive 46 semester hours from the above mentioned college.

Commandant of the Academy of Health Sciences: Brigadier General Robert H. Buker.

Course Director: Colonel Jack C. Fitzpatrick.

Class Advisor: Mr. Johnnie L. Yocham, C.P.O.

Instructors: Sergeant First Class Ernest W. Askins, Jr., C.P.O.; Specialist Six Kermit E. Bryant.



## Shelby State Community College Certificate Program

737 Union Avenue, Memphis, TX 38104

(901) 528-6825

**Level of Training:** Practitioner

**Degree or Certificate**

**Awarded:** Associate of Applied Science with a long term certificate

**ABC Accreditation:** Provisional as 1982 is the first year of the program

**Length of Course:** Two years

**Prerequisites, Entrance**

**Requirements:** Background in relevant general sciences and/or experience in orthotics and/or prosthetics

**Medical School Affiliation:**

Memphis State University, University of Tennessee, Baptist Memorial Hospital

**Number of Students**

**Admitted for each discipline:**

24 total in Freshman year; 12 in orthotics and 12 in prosthetics in Sophomore year

**Faculty to Student Ratio:** 1:6

**General Dates for each**

**Course:** Freshman year: September–May  
Sophomore year: July –May

**General Application**

**Deadline:** May 1

**Program Initiated:** 1982

### GENERAL DESCRIPTION

An expanded Associate of Applied Sciences program which includes certificate level training in orthotics or prosthetics.

Students completing this program may interface with a Bachelor of Professional Sciences program at Memphis State University.





**California State University Dominguez Hills**  
**Rancho los Amigos Hospital Baccalaureate Program**  
**California State University Dominguez Hills**  
**Health Sciences Department**  
**1000 E. Victoria, Carson, CA 90747**  
**(213) 516-3818**

**Level of Training:** Practitioner—proposed to begin in early 1983

**Degree of Certificate**

**Awarded:** Bachelor of Science in Health Sciences

**ABC Accreditation:** Will be requested upon starting of course

**Length of Course:** Two years—junior and senior year levels

**Prerequisites, Entrance**

**Requirements:** Contact the school

**Medical School Affiliation:** None

**Number of Students**

**Admitted for each discipline:** 18

**Faculty to Student Ratio:** 1:6

**General Dates of each**

**Course:** September–August on the quarter system

**General Application**

**Deadline:** Contact the school

**Program Initiated:** Proposed for early 1983

## GENERAL DESCRIPTION

This program will utilize the resources of the Rancho los Amigos Hospital Orthotics and Prosthetics Department for clinical and technical instruction. Rancho los Amigos Hospital is a large county hospital serving Los Angeles County and is internationally known for rehabilitation research. Cal State Dominguez Hills is located in nearby Carson, California. The curriculum of this course is largely modeled after the cur-

riculums of other successful Baccalaureate programs at New York University and the University of Washington. The clinical instructors include experienced and well known prosthetists and orthotists in private practice in California, as well as the staff at Rancho los Amigos Hospital. Students will be required to take a wide number of general health related courses. Tuition for this program is relatively low because it is a state supported university.

# **Technician Level Education Programs**

*916 Area Vocational Technical Institute*

*Cerritos College*

*Dutchess College*

*University of Michigan University Hospital*





**916 Area Vo-Tech Institute (AVTI)**  
**Orthotics and Prosthetics Training Program**  
**3300 Century Avenue**  
**White Bear Lake, MN 55110**  
**O/P Technician: (612) 770-2351, Ext. 256**

**Level of Training:** Orthotic Technician  
 Prosthetic Technician

**Degree or Certificate**  
**Awarded:** Degree of Occupational Proficiency in Orthotics and  
 Prosthetics Technician

**ABC Accreditation:** Yes

**Length of Course:** Orthotics Technician: One year  
 Prosthetics Technician: One year

**Prerequisites, Entrance**  
**Requirements:** Persons interested in a career as a Prosthetics and Orthotics  
 Technician must have a high degree of manual dexterity  
 and good eyesight. Some artistic ability is helpful and an  
 ability to work with many types of machines and  
 equipment plus a variety of materials is necessary. Persons  
 who are allergic to dust or fumes from lacquers, resins or  
 plasters may react unfavorably in this profession

**Medical School Affiliation:** University of Minnesota Medical School

**Number of Students**  
**Admitted for each discipline:** 30 total

**Faculty to Student Ratio:** 1:10

**General Dates of each**  
**Course:** Monthly start times, based on graduate completion

**General Application**  
**Deadline:** Openings filled numerically from a waiting list

**Program Initiated:** 1974



Aerial view of 916 Vo-Tech Institute.

## INTRODUCTION

916 Vo-Tech offers ABC accredited programs in Orthotics and Prosthetics on both technician and practitioner levels. The programs are integrated into a career ladder concept enabling students to earn Associate and Bachelor degrees in Applied Science.

The curriculum is up-to-date and innovative based on national surveys of experts in the field. A fully developed library and an individualized training approach allow students greater freedom in their learning experience.

## TECHNICIAN PROGRAMS

916 offers a 12 month prosthetic technician program. Students receive training in anatomy, terminology, technology of materials, mathematics, general lab procedures, prosthetic componentry, and fabrication procedures for below knee, above

knee, below elbow and above elbow prostheses. They become proficient in working with wood, metal, leather, plastic, and plaster. Students also work in prosthetic facilities for 180 hours as a clinical experience.

The orthotics technician course is also 12 months in length. Students become experienced in fabrication of basic orthoses. Students are instructed in and practice fabrication techniques for plastic and metal systems, upper limb, lower limb, and spinal orthoses. Other related areas of studies include terminology, technology of materials, chemistry, mathematics, anatomy and physiology, use of special orthotic equipment, theory and techniques of plaster work, leather work, technical drawing, orthopedic footwear modification, foot support, and performance as an aid to the orthotist. As a transition from the classroom to their first job in the field, students work in an orthotic facility for 180 hours as a clinical experience.



## Career Ladder Concept

The program has a career ladder concept. Students who choose to go on to the practitioner level can take additional work at Lakewood Community College to receive their Associate of Applied Science degree and course work at the University of Minnesota to receive Baccalaureate Degrees.

## Active Staff

The staff is professionally active in orthotics and prosthetics regional and national events. The program regularly hosts regional seminars and administers the American Board for Certification Technician Registration Examinations. Nationally recognized orthotists and prosthetists and registered technicians serve on all the program's advisory committees.

## Environment

In addition to the professionally active program, students will find a modern, well lit and climate controlled working environment. The photos illustrate the newly designed patient fitting areas and a cheerful laboratory with specialty wood, metal,

plastic, plaster and sewing rooms. These rooms are well ventilated and noise controlled work areas. Special effort has been made to simulate as closely as possible the "real job" situation. Learning resource centers and libraries provide the student and instructional staff with ample standard and contemporary materials pertaining to the field.

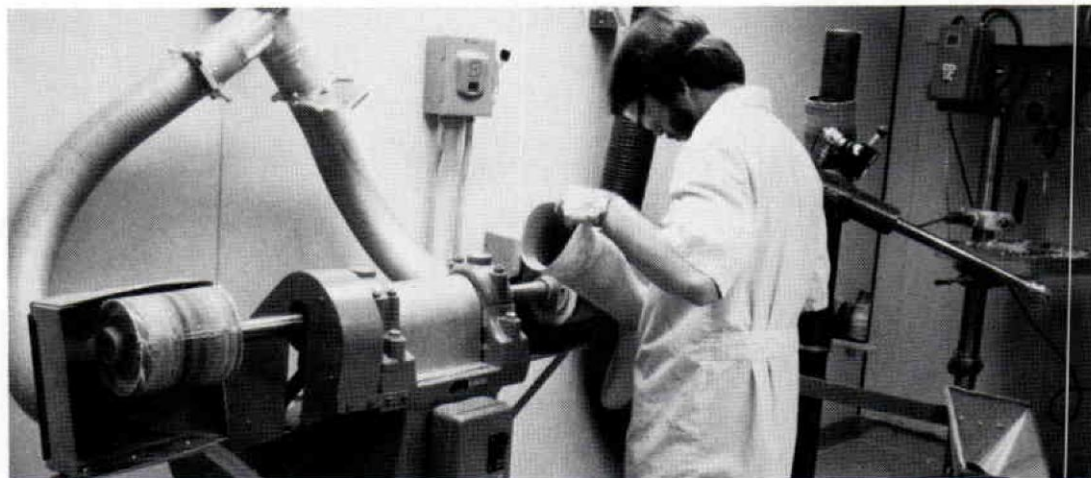
## Location

916 AVTI is located in beautiful White Bear Lake, a lakeside suburb of the Twin Cities, Minneapolis-St. Paul. Students take advantage of the many available cultural and recreational activities in the metro area throughout the year while attending 916 AVTI.

The staff welcomes any questions you may have.

For information on the Orthotics and Prosthetics Technician Program, call (612) 770-2351, ext. 377 or write:

Attention:  
Admissions and Counseling  
916 Vo-Tech Institute  
3300 Century Avenue North  
White Bear Lake, MN 55110



Students work in a noise and dust controlled wood room with a complete compliment of modern power tools.



**Cerritos College**  
**Prosthetic/Orthotic Program**  
**11110 E. Alondra Boulevard**  
**Norwalk, CA 90650**  
**(213) 860-2451, Ext. 551, 428**

**Level of Training:** Technician\*

**Degree or Certificate**

**Awarded:** Certificate of Achievement. Students may still matriculate for AA degree with the completion of P/O curriculum

**ABC Accreditation:** No

**Length of Course:** One year (two semesters)

**Prerequisites, Entrance**

**Requirements:** High School graduate or 18 years of age

**Medical School Affiliation:** None

**Number of Students**

**Admitted for each discipline:** Open enrollment, laboratory classes 15 desirable, 18 maximum

**Faculty to Student Ratio:** 1:15-18 lab; lecture-open

**General Dates of each**

**Course:** September-June

**General Application**

**Deadline:** August prior to September enrollment  
 Personal interview with P/O counselor and staff highly desirable

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**\*Matriculation in this course does not satisfy ABC practitioner technical/scientific educational requirements.**



## GENERAL DESCRIPTION

Cerritos College implemented the orthotic and prosthetic program in September, 1965. Funding was provided continuously through 1980. The program offers an Associate of Arts degree in prosthetics and orthotics, which provides the students with the basic fundamentals for job entry level. One hundred and ninety students have completed the two year program of which 134 are certified in one or both disciplines. Also working in the profession are 23 persons, who as students completed one to three semesters.

Due to the termination of funding and changing trends towards emphasis for technician training, Cerritos implemented the one year program into the College's curriculum in September, 1981. The Cerritos College District is now funding the program and has made a commitment to do so as long as it is economically practical.

For the 1982-83 school year, a laboratory fee is projected. Out of state students are charged per unit for the first year of residency. At the present time, a debate is underway in the California State Legislature in regards to a fee for all state residents enrolled in the community college.



**Dutchess Community College**  
**Orthotics Technology**  
**Poughkeepsie, NY 12601**  
**(914) 471-4500**

**Level of Training:** Technician\*

**Degree or Certificate**  
**Awarded:** AAS in orthotics

**ABC Accreditation:** No

**Length of Course:** Three semesters and a summer

**Prerequisites, Entrance**  
**Requirements:** High School graduate

**Medical School Affiliation:** VA Medical Center, Castle Point, NY

**Number of Students**  
**Admitted for each discipline:** 6

**Faculty to Student Ratio:** 1:1

**General Dates of each**  
**Course:** September and January

**General Application**  
**Deadline:** None

**Program Initiated:** 1970

## GENERAL DESCRIPTION

The program offered by Dutchess Community College in affiliation with the Veterans Administration Medical Center, Castle Point, New York is intended to train individuals in the design, fabrication,

alignment and fitting of various types of orthoses.

The orthotics assistant serves as member of a team of medical specialists, assisting a certified orthotist in the design, construction, and fitting of orthotic devices for the physically handicapped. These orthoses

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\*Matriculation in this course does not satisfy ABC practitioner technical/scientific educational requirements.



help restore lost function and enable the patient to carry on the normal activities of daily living.

The orthotics laboratory courses (ORT 101 and ORT 102) are not conducted on campus but in qualified off-campus facilities. Depending on enrollment, facilities may be widely scattered and located at some distance from the College. Students must provide their own transportation to and from the location where they will re-

ceive training.

Students entering this program should have completed high school intermediate algebra and trigonometry with a grade of 75 or better or show evidence of equivalent achievement. A high school physics course is also recommended.

The Associate in Applied Science (AAS) degree is awarded upon completion of requirements for this program.

### College Required Courses

Students are encouraged to take the College Required Courses early in their program.

Course No.	Title	Credits
ENG 101	Composition I	3
ENG 102	Composition II	
or 103	or Composition III	3
BHS 103	Social Problems in Today's World	3
HGE 101	Introduction to Contemporary Society	3
HED 123	Contemporary Health Problems or	
or 133	Healthful Living: Principles & Problems	2
PED 223	Dynamics of Physical Health	2
BIO 109/110	Anatomy and Physiology I & II	8

English placement is dependent upon demonstrated ability on a Placement Test given during registration.

### Curriculum Required Courses

Course No.	Title	Credits
ORT 101/102	Orthotics Laboratory I & II	17
EMS 204	Manufacturing Materials and Processes	3
ENT 103	Applied Mechanics	4
ENT 105	Drafting for Engineering Technology I	3
MAS 102	Medical Terminology	2
MAT 132	Technical Mathematics II	3
MED 104	Applied Mechanics of Materials	3
PSY 111	Psychological Principles I	3

### Electives

Course No.	Title	Credits
Select one of the following courses:		
BUS 104	Business Management Principles	3
CHE 111	Introduction to Chemistry	4
PSY 201	Abnormal Psychology	3
. . . and similar courses are recommended.		

All courses should be chosen in consultation with a college advisor.



**University of Michigan  
University Hospital  
Orthotics and Prosthetics Department  
1405 East Ann Street  
Box 55 E-3544 Main  
Ann Arbor, MI 48109**

**Level of Training:** Technician

**Degree or Certificate  
Awarded:** Certificate

**ABC Accreditation:** Pending

**Length of Course:** One year

**Prerequisites, Entrance  
Requirements:** High School diploma or GED equivalency  
Mechanical aptitude  
Basic knowledge of tools and their use  
Manual dexterity  
Adaptable to close contact with patients  
Mature attitude and professional appearance

**Medical School Affiliation:** Not applicable

**Number of Students  
Admitted for each discipline:** 1-prosthetics, 4-orthotics

**Faculty to Student Ratio:** 1:1

**General Dates of each  
Course:** November 1–October 30

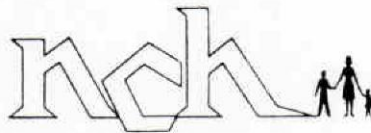
**General Application  
Deadline:** October 1

**Course Initiated:** 1965



# **Residency Programs**

*Newington Children's Hospital*



**Newington Children's Hospital**  
**Orthotics and Prosthetics Residency Program**  
 181 E. Cedar Street  
 Newington, CT 06111  
 (203) 666-2461, Ext. 208

**Level of Training:** This program is intended for graduates of ABC accredited orthotics and prosthetics practitioner education programs who require one year of experience before taking the ABC Practitioner Certification Examination.

**Degree or Certificate Awarded:** Residency

**ABC Accreditation:** Not Applicable

**Length of Course:** One year

**Prerequisites, Entrance Requirements:** Graduate from ABC accredited practitioner education program, requiring one year of experience

**Medical School Affiliation:** None

**Number of Students Admitted for each discipline:** 2

**Faculty to Student Ratio:** 1:3

**General Dates of each Course:** July 1–June 30; January 1–December 30

**General Application Deadline:** March for the July 1 starting date  
 November for the January 1 starting date

**Program Initiated:** 1980

## GENERAL DESCRIPTION

In 1980 Newington Children's Hospital Orthotic & Prosthetic Department established the post-graduate resident orthotist program. This program is a one-year certificate program designed to meet the ABC experience requirements for certification.

As the professional education of the orthotist/prosthetist becomes more consistent and more concise, it is vitally impor-

tant to focus on that most important time, the post-graduate year in preparation for certification.

This program is a broad-based professional/technical experience for the graduate orthotist that is deliberately filled with experiences of all kinds—from the most fundamental aspects of our profession, to what we all regard as the higher levels of professional participation: clinics, rounds, and participation in forums and seminars.



# **The American Board for Certification in Orthotics and Prosthetics**

## ***Definitions***

### ***Requirements for Practitioner Certification and Technician Registration***



# The American Board for Certification in Orthotics and Prosthetics

**James Fenton, C.P.O.  
President, ABC**

*ABC practitioner certification or technician registration is the culmination of the education process. ABC's President James Fenton, CPO, has briefly outlined ABC's purpose and requirements for certification or registration.*

*Students interested in ABC practitioner certification or technician are encouraged to contact the National Office and to refer to the ABC Book of Rules before applying to take the required exams.*

—Editor

In 1947, many individuals working in orthotics and prosthetics felt it was necessary for the orthotics/prosthetics field to become more professional and less commercial. To achieve this desired level of professionalism, they developed a concept of a credentialing body to certify practitioners who had attained a certain minimum level of education and clinical experience. The following year this concept became a reality when the American Board for Certification of the Prosthetics and Orthopedic Appliance Industry, Inc. was chartered.

Originally, the Board sent applications to members of OALMA (AOPA's predecessor). A candidate completed the application and returned it to the Board along with attestations of two physicians as to his experience. When this process was completed, the candidate was certified.

Since 1948, the concept of certification has not changed, but the process by which a candidate becomes certified has changed radically. Beginning in 1951 and continuing

today, a candidate must pass a written examination of his knowledge and an oral/practical examination to test his skills. In 1981, the Board added a video portion to the Practitioner Certification Exam.

As the curricula in orthotics and prosthetics offered by educational institutions began to develop, the Board changed the requirements to include courses in orthotics and prosthetics as prerequisites for eligibility to take the Exam. Today, a college degree in orthotics and prosthetics or in a related field with additional courses in O/P is required to be eligible for certification. Along with these educational requirements, a candidate must also complete a certain amount of experience. All of these requirements are described in detail in "The Book of Rules For The Practitioner Certification Program," which is available from the National Office in Alexandria, Virginia.

UCLA, New York University and Northwestern University were the first and only educational institutions to offer orthotic and



prosthetic courses on a short term basis at the post-graduate level in the early 1980's. These courses were only open to those persons who already had many years of experience in orthotics and prosthetics.

Today, in addition to these educational institutions, The University of Washington, the University of Minnesota in conjunction with Area 916 Vo-Tech; the University of Southern California in conjunction with Rancho los Amigos Hospital; and Shelby State Community College offer programs in orthotics and prosthetics. Fort Sam Houston offers a military program in orthotics and prosthetics.

The above mentioned programs are accredited by the ABC Educational Accreditation Committee (EAC), which is charged with determining that the quality of orthotic and prosthetic education at the various educational institutions is kept at or above ABC established standards. The EAC also offers assistance to educational institutions who are developing educational programs in orthotics and prosthetics. To become accredited, an educational institution must be evaluated first on its paper presentation to the Committee, and then an on-site evaluation is conducted to finalize the process.

Some educational institutions teach orthotics and prosthetics only one level while others offer a choice. A person wishing to enter the profession may plot a course of

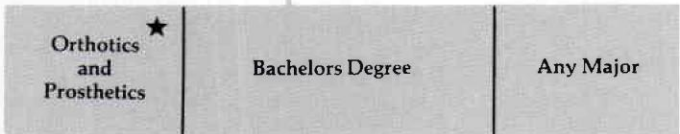
study and pick an appropriate school by using the ABC Flow Chart of Routes to Certification, and the list of accredited educational institutions showing the various levels of education offered.

ABC continues to grow and improve. Most recently, ABC received a class "A" membership in the National Commission for Health Certifying Agencies. NCHCA, funded by the federal government, evaluates the functions of various health certifying agencies. This membership recognizes that ABC's credentialing effort is a valid one, that the testing procedures are fair and equitable, and that ABC offers various routes to achieve certification.

This is by no means a stopping point for ABC. There is still a huge task ahead; not the least of which is concerned with the continuing of educational upgrading. ABC recognizes that because of the federal cut backs in funding all of the orthotics and prosthetics educational programs are in a continual state of flux. Should funding be discontinued, there would be no possible way for the schools to continue to provide the education required to maintain their accreditation or for students to meet credentialing requirements. ABC's Ad Hoc Committee on Education has begun to address this problem. From this effort, alternative routes may be implemented that will result in a substantive education without having to rely so heavily on the federal subsidy.

# Practitioner Certification

Applicants must be of good moral character and professional reputation. Applicants must have a degree recognized by American Council on Education and ABC. Applicants must have gained experience in the discipline for which the certificate is being applied for. Such experience must be attested to by two certified practitioners in that discipline, one of whom is the supervisor of the applicant.



Ending with 1983

Completion of 3 Short Term O & P Courses

Orthotics and Prosthetics

Minimum of 1 year experience after the awarding of certificate and in the discipline for which you are applying.

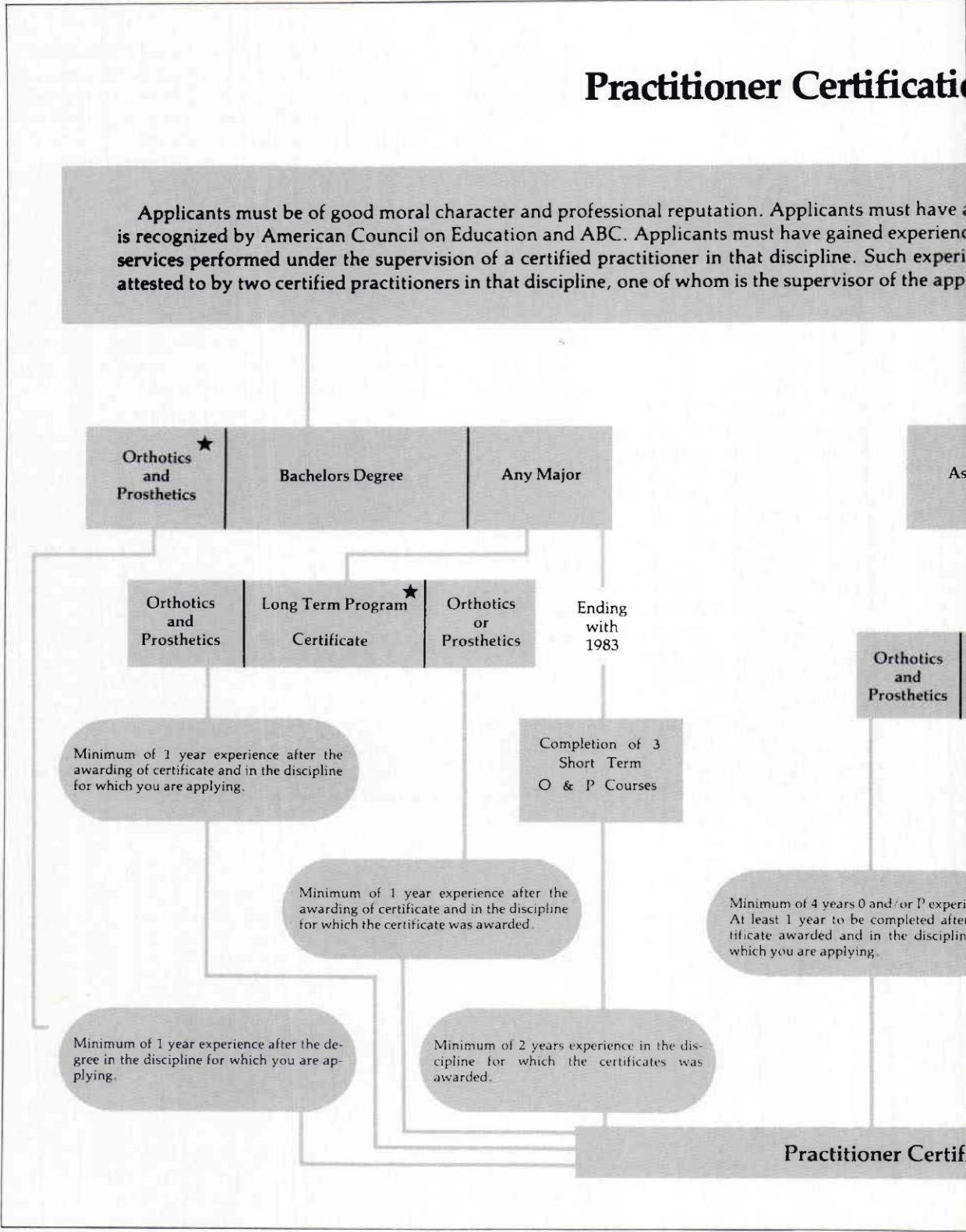
Minimum of 1 year experience after the awarding of certificate and in the discipline for which the certificate was awarded.

Minimum of 4 years O and/or P experience. At least 1 year to be completed after certificate awarded and in the discipline for which you are applying.

Minimum of 1 year experience after the degree in the discipline for which you are applying.

Minimum of 2 years experience in the discipline for which the certificates was awarded.

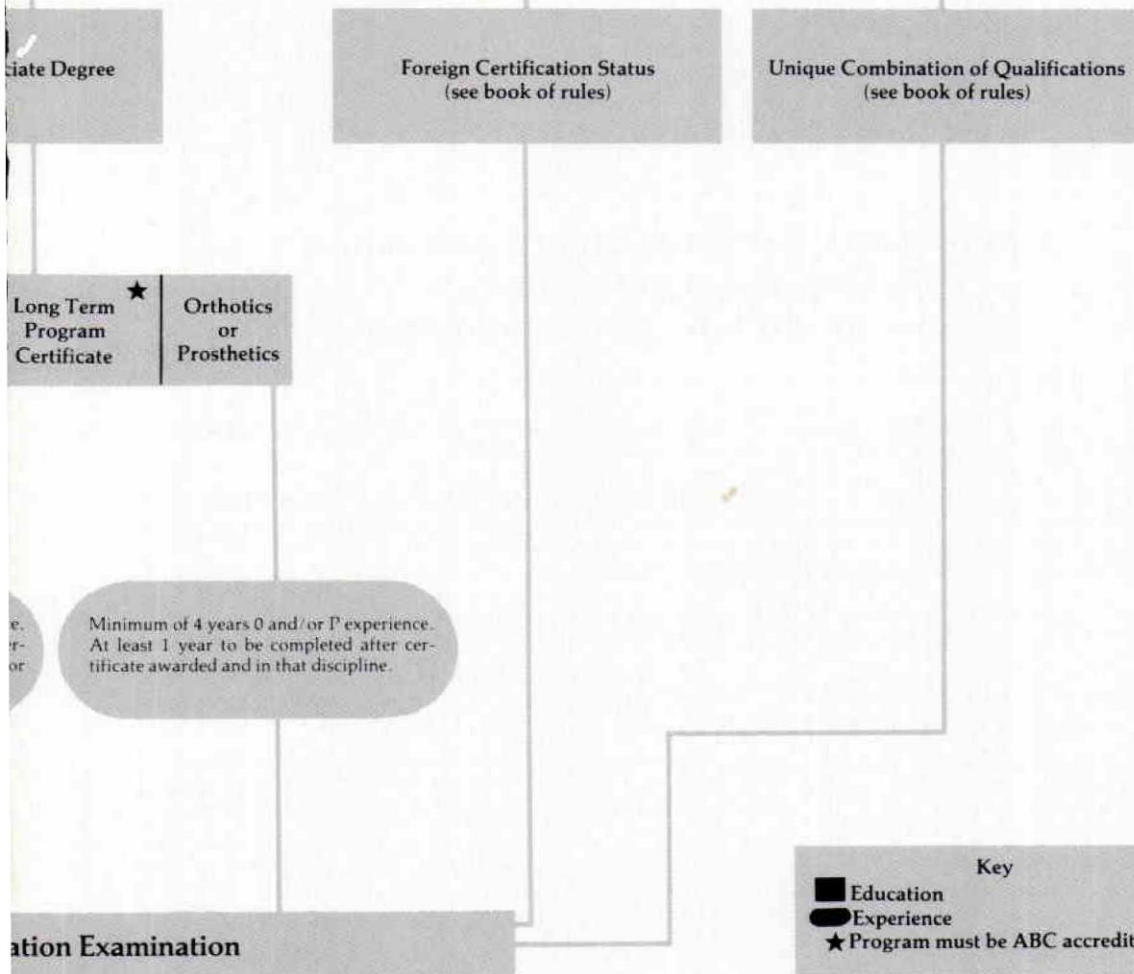
Practitioner Certificate





# Exam Eligibility Chart

Required stipulated education in their discipline of interest from an institution of higher learning which in their discipline of interest. The majority of that experience must have been devoted to patient care and must be completed on or before July 1 of the year in which application is made, and it must be relevant.



# Definitions—Orthotist and Prosthetist

Orthotist is the term for the practitioner who provides care to patients with disabling conditions of the limb and spine by designing, fabricating and fitting the patient with an orthosis (brace or strengthening device). In providing the orthosis, the orthotist is responsible for formulating its design, including the selection of materials; making all necessary casts, measurements, model modifications, and layouts; performing fittings, including static and dynamic alignments; evaluating the orthosis on the patient; instructing the patient in its use; and maintaining patient records; all in conformity with the attending physician's prescription. At the request of and in consultation with the physician, the orthotist assists in the formulation of the prescription for the orthosis, and examines and evaluates the patient's orthotic needs.

The orthotist is expected to keep abreast of new developments concerning orthotic patient care. He is

required to supervise the functions of support personnel and laboratory activities related to the development of the orthosis.

The title Certified Orthotist (CO) is awarded to the practitioner who successfully completes the ABC Practitioner Certification Examination in this discipline.

Prosthetist is the term for the practitioner who provides care to patients with partial or total absence of a limb by designing, fabricating and fitting the patient with a prosthesis (artificial limb). In providing the prosthesis, the prosthetist is responsible for formulating its design, including selection of materials and components, making all necessary casts, measurements, and model modifications, including static and dynamic alignments; evaluating the prosthesis on the patient; instructing the patient in its use; and maintaining patients records; all in conformity with the attending physician's prescription. At the request of and in

consultation with the physician, the prosthetist assists in the formulation of the prescription for the prosthesis, and examines and evaluates the patient's prosthetic needs.

A prosthetist is expected to keep abreast of new developments concerning prosthetic patient care. He is required to supervise the functions of support personnel and laboratory activities related to the development of the prosthesis.

The title Certified Prosthetist (CP) is awarded to the practitioner who successfully completes the ABC Practitioner Certification Examination in this discipline.

A prosthetist/orthotist is the term for the practitioner whose responsibilities and functions conform to those of the orthotist and the prosthetist as defined above. The title Certified Prosthetist—Orthotist (CPO) is awarded to the practitioner who successfully completes the ABC Practitioner Certification Examination in both of these disciplines.

## Requirements for Practitioner Certification in Orthotics and Prosthetics Beginning with the 1980 Examination

- Applicants must be of good moral character and professional reputation.
- Applicants must have acquired stipulated education in their discipline of interest from an institution of higher learning which is recognized by the American Council on Education and ABC.
- Applicants must have gained experience in their discipline of interest. The majority of that experience must have been devoted to patient care services performed under the supervision of a certified practitioner in that discipline. Such experience must be completed on or before July 1 of the year in which application is made, and it must be attested to by two certified practitioners in that discipline, one of whom is the supervisor of the applicant.
- Applicants for practitioner certification must be admitted to examination, provided they make proper application to the Board of Directors, pay the prevailing fees, and otherwise conform with one of the following criteria:
  - (a) They must (1) possess a bachelors degree with a major emphasis in orthotics and prosthetics from a program accredited by ABC, and, (2) must also have acquired a minimum of one year acceptable experience (as defined above) subsequent to the degree, in the discipline for which they are applying.
  - (b) They must (1) possess a bachelors degree, (2) have successfully completed an ABC accredited long-term (certificate) educational program in orthotics *or* prosthetics, and (3) have acquired a minimum of one year of acceptable experience subsequent to the successful completion of the certificate program and in the discipline for which the certificate was awarded.
  - (c) They must (1) possess a bachelors degree, (2) have successfully completed an ABC accredited long-term (certificate) educational program in orthotics *and* prosthetics, and, (3) have acquired a minimum of one year of acceptable experience subsequent to the successful completion of the certificate program and in the discipline for which they are applying.



## Requirements for Practitioner Certification

(d) They must (1) possess an associate degree, (2) have successfully completed an ABC accredited long-term (certificate) educational program in orthotics *or* prosthetics, and, (3) have acquired a minimum of four years of orthotic and/or prosthetic experience. At least one year of experience must be subsequent to the successful completion of the certificate program, and must be in the discipline for which the certificate was awarded.

(e) They must (1) possess an associate degree, (2) have successfully completed an ABC accredited long-term (certificate) educational program in orthotics *and* prosthetics, and, (3) have acquired a minimum of four years of orthotic and/or prosthetic experience. At least one year of experience must be subsequent to successful completion of the certificate program, and must be in the discipline for which they are applying.

(f) They must (1) have been certified to practice orthotics and/or prosthetics in a country other than the United States, and (2) have worked at least five years since the certification in that country in orthotics and/or prosthetics. Such applicants shall only be eligible for examination in the discipline certified by the foreign country.

(g) For a period ending with the 1983 examinations, they must (1) possess a bachelors degree, (2) successfully completed the three required short-term courses in orthotics *or* prosthetics, and (3) have acquired a minimum of two years of acceptable experience in the discipline for which the certificates were awarded.

# Classified Ads

In order to properly calculate the number of words in (and the cost of) a classified advertisement according to the method used by AOPA, the advertiser should do the following. Add up every character in the ad, including commas, hyphens, etc. Divide the sum by five (we consider a word to consist of five characters) to find the total number of words. Then figure the cost based on these rates: MEMBERS—first 30 words \$32.00. Each additional word \$1.50. NON-MEMBERS—first 30 words \$78.00. Each additional word \$4.00. Responses to AOPA Box numbers are forwarded unopened free of charge. Advertisements are to be paid in advance. Checks should be made payable to AOPA. Send to AOPA, 717 Pendleton Street, Alexandria, VA 22314. No classified ads will be taken by phone.

**Ownership/Partnership** desired by Board eligible prosthetist with experience and cash. AOPA Box 108207, 717 Pendleton St., Alexandria, VA 22314.

**Prosthetist/Orthotist, Cambodia**—Help establish a National Rehabilitation Center in Phnom Penh; provide additional prosthetics/orthotics training to rehabilitation paraprofessionals working in six provinces. Qualified prosthetist/orthotist with significant clinical experience. Fluent French or basic Khmer. Quaker, pacifist organization. Full maintenance, 1–2 years. Send letter/resume, American Friends Service Committee, Boardman, Personnel, 1501 Cherry Street, Philadelphia, PA 19102. Affirmative Action Employer.

**Manager needed for Midwest O&P facility**—We are looking for a dynamic CPO or CP with orthotic eligibility to grow with our new facility. You will be responsible for daily activities as well as clinic and patient exposure. Salary arrangements include a wide range of benefits as well as a percentage. Send complete resume and salary history to AOPA Box 108202, 717 Pendleton St., Alexandria, VA 22314.

**Certified Orthotist**—Excellent opportunity for certified or board eligible orthotist to work in a modern and progressive facility. Send resume and salary requirements to Orthopedic Services, Inc., 1302 N. Stanton, El Paso, TX 79902.

## International Opportunity Orthotist Technician

A unique opportunity exists for a qualified and experienced Orthotist Technician at the King Faisal Specialist Hospital and Research Centre in Riyadh, Saudi Arabia. This 250 bed tertiary referral facility, with 150 bed minimal care unit to open in the fall of 1982, is one of the leading medical centers in the Middle East.

Requirements: Successful completion of a formal program of study leading to certification as an orthotist technician. Must be eligible for membership in the International Association of Technicians in Orthotics and Prosthetics. Minimum of 3 years experience including pediatric bracing.

Benefit package includes attractive salary, 30 day annual leave, free transportation, furnished lodging, bonus pay and bonus leave.

Interested candidates should forward resumes to: Kathleen Langan, Personnel Consultant, Hospital Corporation of America-International Division, P.O. Box 550, Nashville, TN 37202. An Equal Opportunity Employer.

## HCA International Division



**Orthotic Technician Registered**—Two years of experience under a certified orthotist or one year of formal training in an accredited program plus some experience, especially with plastic braces and working with molding equipment. Good benefits/retirement plan. Send resume to: T. Mitchell, UNIVERSITY OF CALIFORNIA, SAN FRANCISCO, Room U414, San Francisco, CA 94143. Telephone: (415) 666-2228. University of California, San Francisco AA EOE M/W/H/V.

**N.Y.C.**—P&O Technicians, immediate openings. Part-time & full-time hours. Contact: Matthew Mirones C.P.O., 287 Livingston Street, Brooklyn, N.Y. 11217, (212) 875-4292.

**Experienced, qualified C.P.O.** to manage modern prosthetic & orthopedic facility. Later partnership possible. Excellent financial terms. Replies: AOPA Box 108205, 717 Pendleton St., Alexandria, VA 22314.

**Prosthetist**—Certified or Board eligible to work in progressive, orthopedic/pediatric hospital. Good salary and benefits. Submit resume with references to Louis Ekus, C.P.O., Director of O&P, Shriners Hospital, 516 Carew St., Springfield, MA 01104.

**Director (CP or CO) and Chief Prosthetist (CP)** needed to manage multi-facilities in a regional hospital setting. Preferred candidates will have previous managerial experience. Excellent compensation and benefits package as well as advancement opportunity with a growing hospital corporation. Forward resume in confidence to Mickey Melton, Employment Manager, NKC, Inc., P.O. Box 30570, Louisville, KY 40202. EOE

**R.T.P.**—Highly skilled technician, seeking position. Resume and excellent references available upon request. Replies to: AOPA Box 108206, 717 Pendleton Street, Alexandria, VA 22314.

## FOOT AND ARCH PRODUCTS



*Apex sneaker support*



*UCBL shoe insert*



*Shaffer-Mayer type  
foot orthosis*



*"Contour" moulded rubber  
shell, Morton type*



*Metatarsal pad*



*Plastazote sandal*

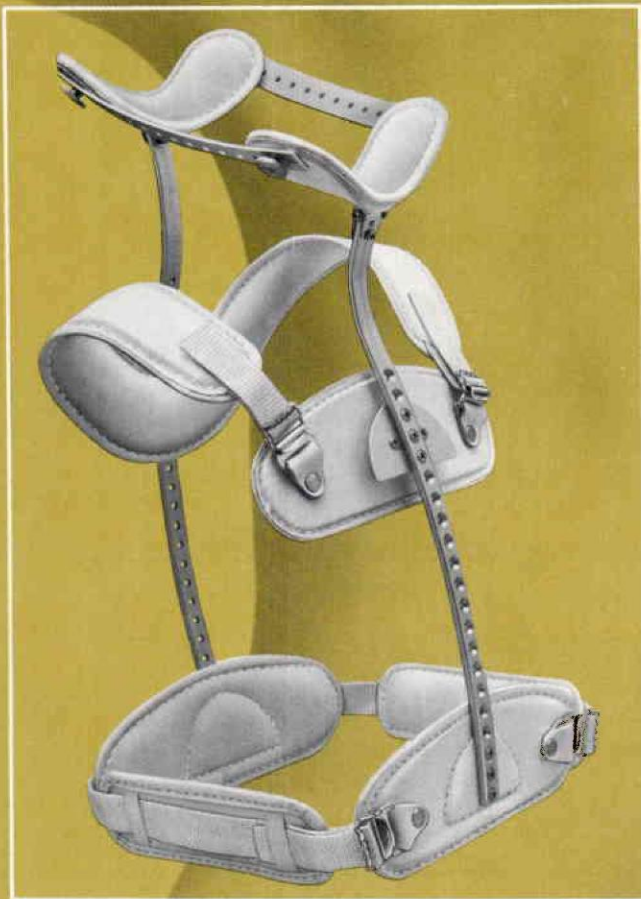


**SUPPLY CO.**

4868 Manufacturing Rd.  
Cleveland, Ohio 44135

Phone: a.c. 216-267-5775  
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Orthotic & Prosthetic Parts & Supplies  
Paul E. Leimkuhler, C.P. president



**J-22** Our Two-Post Orthosis (J-22) provides indicated stabilization of the cervical and upper thoracic regions with optimum patient comfort. Prescribe it by name, "Florida Brace J-22," to be sure your patient receives the correct orthosis with the results you want. Most ethical dispensing orthotists throughout the country can supply and fit the J-22 to your prescription in a matter of hours. Florida Brace Corporation, P.O. Box 1299, Winter Park, Florida 32789.

**Florida  
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**BODY IMAGE — to look whole again and to function normally affects the psychological rehabilitation of the amputee.**



**Can you tell this patient is wearing an OTTO BOCK Modular Prosthesis ?**

**OTTO BOCK** realizes the significant role cosmesis plays in building a positive self-image. That is why our goal in designing the Modular System Prosthesis was to give the amputee the best possible component variety for optimal function, and a more life-like prosthesis.

The use of the **OTTO BOCK** Modular Prosthesis not only promotes physical rehabilitation but psychological rehabilitation as well.

**Otto Bock**  
ORTHOPEDIC INDUSTRY INC.  
UNITED STATES OF AMERICA  
4130 Highway 55  
Minneapolis • Minnesota 55422

**OTTO BOCK IS PROUD TO HAVE DEVELOPED THE MODULAR SYSTEM PROSTHESIS FOR OPTIMAL FUNCTION AND COSMESIS.**

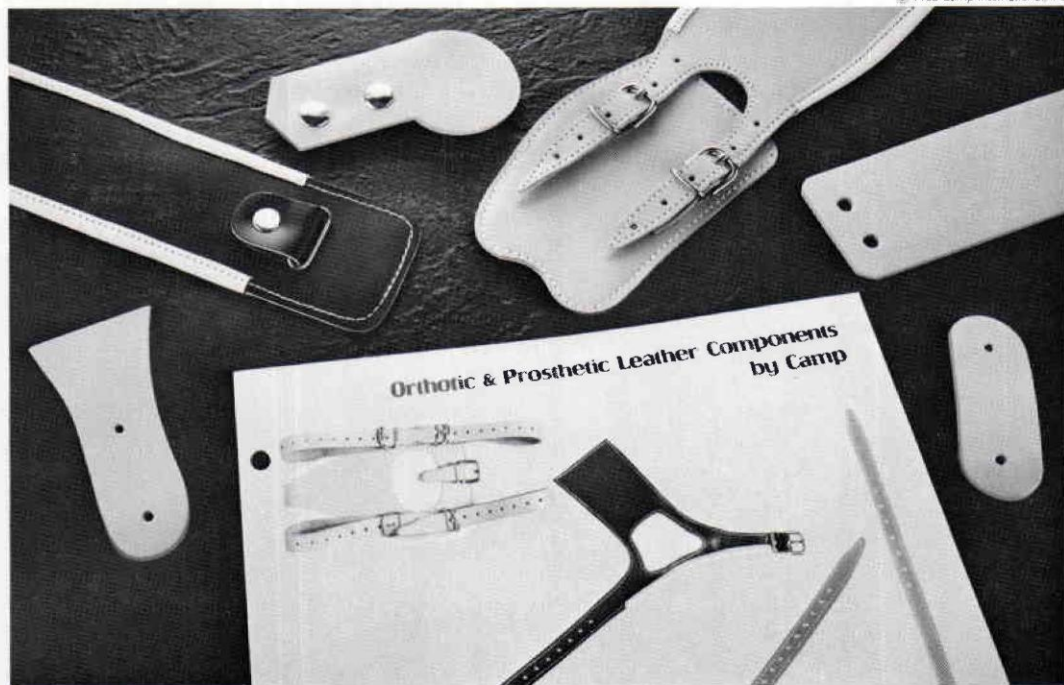
## ORTHOTIC AND PROSTHETIC LEATHER COMPONENTS

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# HOW CAMP'S IN-STOCK AVAILABILITY CAN SAVE YOU MONEY

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Lost time means higher costs and lost profits.

In today's market it is increasingly important to cut the high costs of doing business. Prefabricated leather components from CAMP can substantially decrease your delivery time and also allow you to more effectively use your technicians' time in the actual fabrication of orthoses and prostheses.

CAMP offers an all-new line of prefabricated leather components that combines the highest grade natural leathers and the most comprehensive range of colors and sizes.

In addition to offering this extensive inventory of standard leather components, CAMP will also fabricate your special requirements in material and design on a special request basis.

So either way, in-stock prefabricated components or special order, CAMP once again offers Leadership Through Innovation.

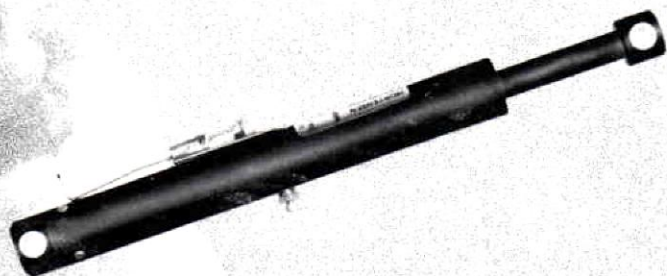
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Camp International, Inc.  
P.O. Box 89  
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**CAMP**<sup>®</sup>



# The Confidence Builder



## Model HL Mortensen Hydra Nu-Matic Knee Control Unit

With a rising average age of the amputee population, older active above knee amputees are recognizing the advantages of Mortensen Hydra Nu-Matic HL (hydraulic lock) knee control units. These lightweight, low cost and easy to maintain units were designed specifically for older people who desire greater control of the leg flexor and extensor groups.

When the restricting valve is closed, the knee is virtually locked at full extension, thereby resisting buckling. Additionally, from the sitting position, with the restricting valve closed, extension is unaffected while flexion is resisted at any angle. The ease and security of exiting an automobile, rising out of a chair or walking on uneven terrain gives older and geriatric patients the confidence to regain their more active roles.

The HL unit is lightweight, (9.2 ounces), only 11-3/8" long, at full excursion, and 1" in diameter. Order the Model HL, Hydra Nu-Matic, installed in a conventional knee-shin setup, by either knee or calf circumference dimensions. Your older or geriatric patient will thank you for the ease and confidence with which you have helped him up on his feet.



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World's leading manufacturer of prosthetic feet with Natural Toes™.

# CASH Manufacturing Co.



## The A-F™ Orthosis

A brand new wire AFO!

Fully adjustable  
Variable dorsiflexion  
Telescoping height adjustment  
Universal size (right or left)  
No need to drill shoe or remove heel  
Can be applied and transferred in seconds!

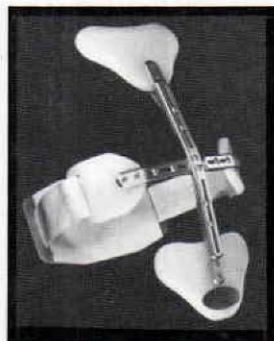
Packed in a white box complete with fitting tool and instructions.

## The CASH™ Orthosis

“New — Improved”

Comfortable  
Light weight  
Cosmetic  
Simple

“Unequivocally paramount among anterior hyperextension orthoses!”



**1-800-447-3546**  
**Illinois call collect 309-829-0673**

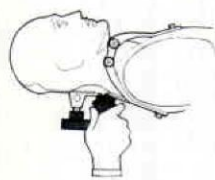
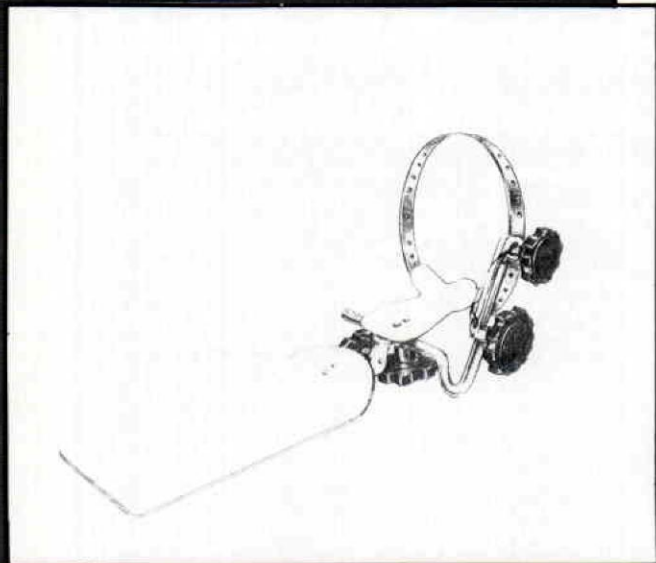
CASH Manufacturing Co.  
205 South Evans Street  
Bloomington, IL 61701

*Looking forward  
to seeing you  
at our booth  
in Houston!  
Sue & Dave*

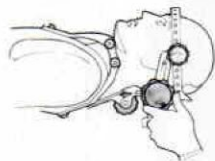


# halo system

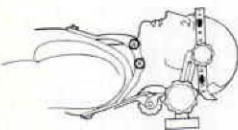
DURR-FILLAUER



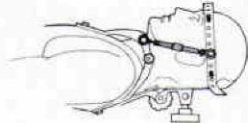
**#1 Position Neck**



**#2 Position Ring**



**#3 Apply Skull Pins**



**#4 Secure Head Ring to superstructure**

## Durr-Fillauer Halo System Advantages

The Halo System - including our ring positioner which accurately, securely and safely positions patient with ring - is constructed lightweight and low profile. The adjustable turnbuckles - aluminum over shoulder bars - optional sheepskin jacket lining - and serrated lock joints are all for patient comfort and safety. Speed of application, four ring sizes, multiple pin location holes, and only eighteen fasteners to complete assembly, make our Halo System the best and most efficient for you and your patient.



**DURR-FILLAUER MEDICAL, INC.**

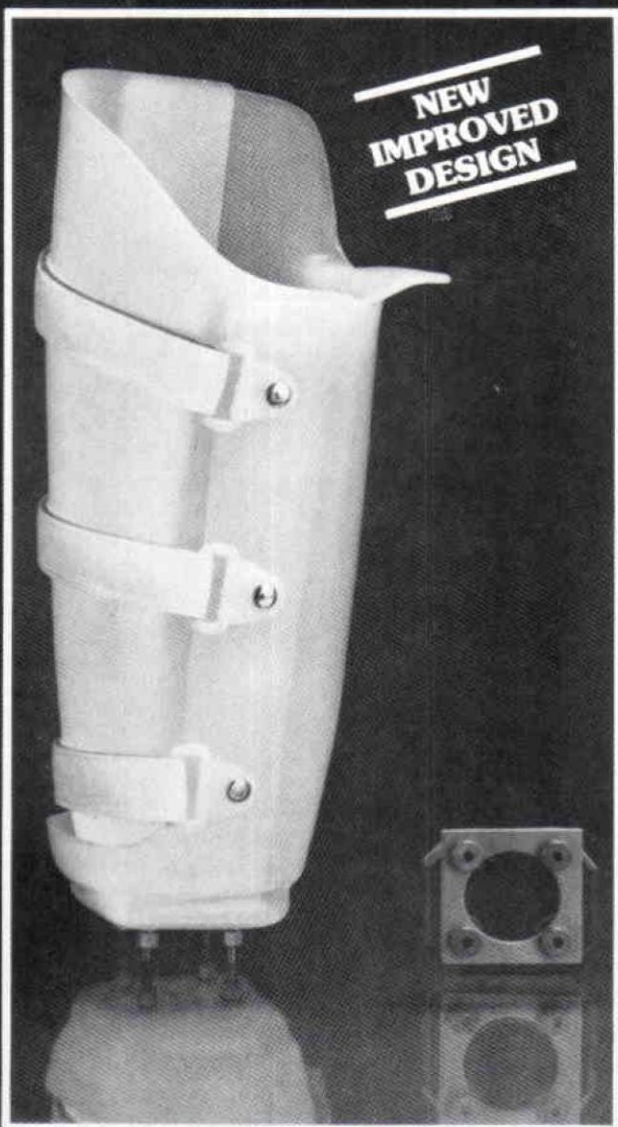
Orthopedic Division

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(800) 251-6398 (615) 624-0946 (800) 572-7650 (TN WA'S)

# PREFABRICATED A/K ADJUSTABLE SOCKET

for the geriatric and new amputee

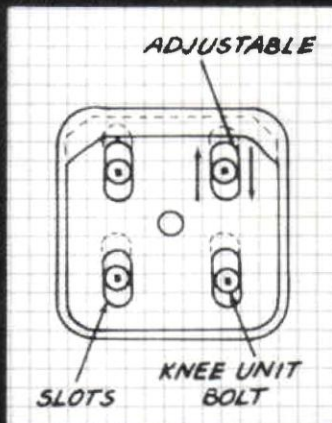


**NEW  
IMPROVED  
DESIGN**

- Lowered medial wall
- Equal adjustment distally and proximally
- Attachment components provided to fit either Otto Bock 4R-37 and 4R-22 or USMC systems
- Slight flexion provided in each socket
- Lightweight Polypropylene with Velcro® straps
- Facilitates early ambulation of the above knee amputee

#### NEW LOWERED MEDIAL WALL

The medial wall has been lowered approximately 5/8", contoured and flared to provide more clearance.



#### NEW DISTAL ADJUSTABILITY

A modification of the anterior/distal panel provides adjustability to the socket distally as well as proximally as limb volume changes.



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\* Patent Pending



**NEW**

# FAN KNEE STABILIZER

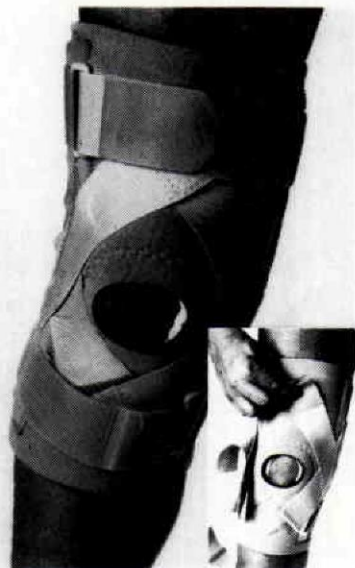
PATENT PENDING

The FAN KNEE STABILIZER™ was designed by people involved in sports medicine who recognized the need to provide the patient with a new form of knee stabilization. The concept of the inside-outside fan as used in adhesive strapping provides the needed stability to the joint. Two inch wide elastic straps attaching above and below the joint and crossing at the joint line duplicate the pattern of the double fan tape job. This design provides medial and lateral support along with helping in patella alignment.

The No. 1004-F is available with Horseshoe Felt Pad regular or inverted. 1004F & 1004FI



The No. 1004-F is also available with a Lateral Pad LEFT and RIGHT 1004FL & 1004FR



Sports supports has the most complete line of high quality neoprene supports available to the orthotist today. Sports Supports will custom make special neoprene products to your specifications upon request.

As well as having fourteen knee supports we also make supports for the wrist, elbow, ankle, calf, thigh and back.

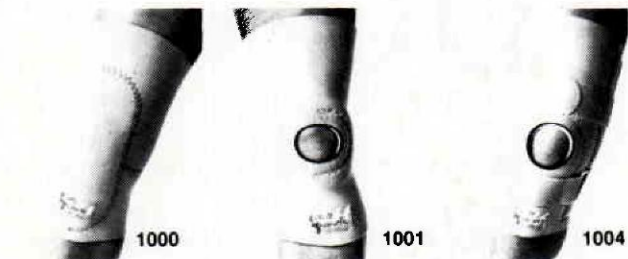
All Sports Supports are available in 1/4 or 1/8" thickness and nylon 1 or 2 sides.

## A NEW Option to an Old Problem

**No. 1000 KNEE SUPPORT**  
(1/8" Neoprene-Nylon 1 or 2 sides)  
This knee support is used for the treatment of strains, sprains, post surgically (reduce adema) or where heat and compression are indicated.

**No. 1001 CARTILAGE KNEE SUPPORT — R & L**  
(1/4" Neoprene-Nylon 2 sides)  
This much thicker support gives more compression and has greater heat retention than the 1000 series (uses 1/4" Lateral Pad to help stabilize the patella).

**No. 1004 PATELLAR KNEE SUPPORT**  
(1/4" Neoprene-Nylon 2 sides)  
This very popular support is widely used for Patellar tendonitis and in stabilizing the patellar. This support has stays medially and laterally and velcro® straps proximal and distal to patellar opening.



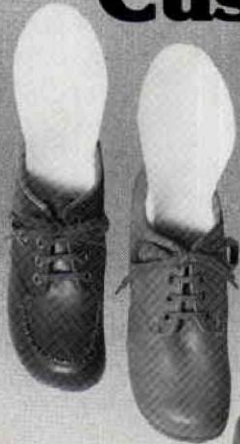
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