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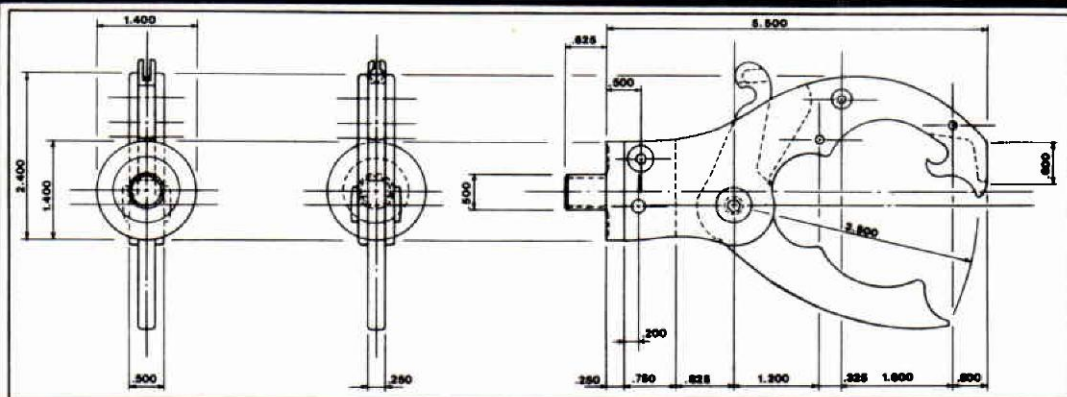
Summer, 1984

Volume 38

Number 2

Orthotics and Prosthetics

Journal of the American Orthotic and Prosthetic Association



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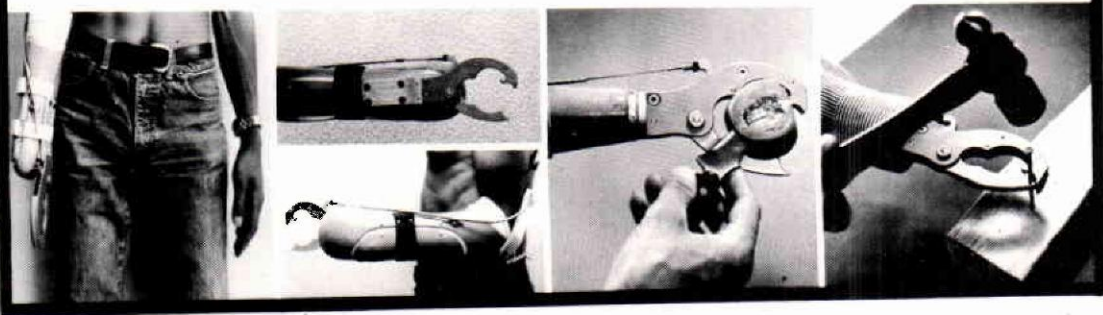
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Orthotics and Prosthetics

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Volume 38, Number 2

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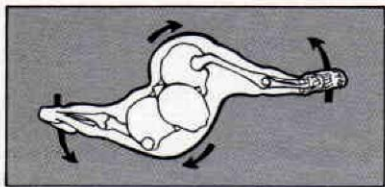
4R39 - 4R40 Torque Absorber for OTTO BOCK Modular Leg Prostheses

The addition of the 4R39 - 4R40 Torque Absorber assists the amputee in achieving a more natural and efficient gait, by replacing the functional loss of transverse rotation.

The Torque Absorber allows transverse rotation to take place distal to and separate from the socket, thus reducing shear forces on the residual limb.

Biomechanics of Human Gait:

Through the study of kinesiology we have learned that walking is a complicated process, combining six basic determinants of gait - pelvic rotation, pelvic tilt, knee flexion after heel strike, foot and ankle motion, knee motion and lateral pelvic motion. Viewed from above, the anatomical components of the lower limb also rotate in relation to one another about the long axis of the limb in the transverse plane.



Progressive spiral **INTERNAL ROTATION** of the lower limb starts in swing phase and continues to midstance, followed by a reversal of direction into **EXTERNAL ROTATION** as the foot prepares to leave the ground.

Effects of Amputation:

As a result of amputation, the torsion generated by the transverse rotations is no longer completely absorbed by the remaining joints of the lower limb. Some of this torsion is therefore transferred to the interaction of the socket interface and the residual limb, causing shear forces on the skin.

To avoid the shearing effect, the amputee may compensate with a pathological gait. The higher the amputation, the greater is the potential for deviation from the normal gait pattern. This gait deviation causes fatigue due to its inefficiency.



Patient Benefits:

The addition of the Torque Absorber can reduce the magnitude of the shear forces on the residual limb, and the abruptness of these forces. This is particularly important for patients with scar tissue and prosthetic-related skin problems.

By providing an additional degree of freedom of motion, the Torque Absorber allows a smoother shift of the patient's weight over the prosthesis. This also helps to improve the ap-

pearance and efficiency of the amputee's gait. An efficient gait reduces fatigue and allows the patient to wear the prosthesis a longer period of time.

The turning and twisting activities of daily living are made easier and smoother by the use of the Torque Absorber. It allows the active amputee to perform a wider range of activities such as tennis, bowling, and dancing. Less strain is placed on the sound limb during these activities, and the residual limb should be in much better condition after a busy day.



Design Advantages For The Prosthetist:

- Compact - only 25 mm overall height, 45 mm diameter.
- A wide range of Torque adjustability.
- Two types are available to fit many levels of amputation.
- Coupled with the connection module design, it is easy to install, and it offers alignment adjustability.



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Sturdy Toe

A foot with extra sole reinforcement and stiffer-than-normal toe resistance.

Special Litefoot

Kingsley Mfg. Co. stocks Litefeet in three styles: Low Profile, Flatfoot and Casual. On special order, any style of Kingsley foot can be molded as a Litefoot.

Special Litefoot Throughout

The normal Kingsley Litefoot, with medium heel density, may be ordered "Litefoot Throughout", so that it is molded with a soft heel.

Special Symes

Any style of Kingsley Sach foot can be molded in the Symes configuration.

Solid Aluminum Keel

Any Kingsley Sach Foot style can be molded with a solid aluminum keel.

Plain Toes

Any Kingsley foot normally supplied with Natural Toes™ is also available with plain toes.

Stainless Steel Symes Keel

The normal aluminum keel reinforcement in the Kingsley Symes Foot can be molded with a replacement stainless steel keel.

Symes Without Wood

The normal wood portion of the Kingsley Syme

keel can be omitted, leaving only the aluminum portion (or stainless steel, if ordered).

Firm Post-Op

The post-op Flatfoot can be made with an overall density similar to that of normal molded feet.

Special Heel

Heel cushions are available in extra-soft, extra-firm and solid-firm.

Toe Break Variation

The toe lever arm can be altered by making the keel longer or shorter than normal.

Tiny Juvenile

A Kingsley Juvenile Foot, with plain toes, can be supplied shaped down to 10, 11, 12 or 13 Cm length.

Solid Foam Foot

Any Kingsley molded foot can be supplied without a keel. (This Special has been used for Chopart applications; the absence of the keel enables the prosthetist to cut the foot to any configuration necessary.)

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This is a foot normally molded with a quick release keel. After molding is complete, the keel is removed leaving only the beiting imbedded in the foot and a void space instead of a keel.

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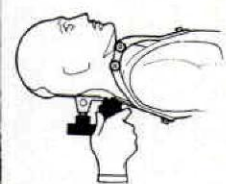


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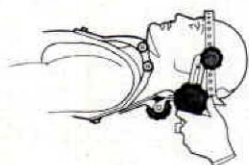
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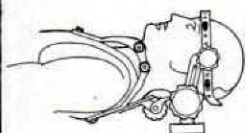
DURR-FILLAUER halo system



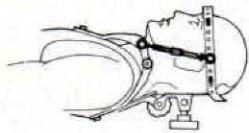
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#2 Position Ring



#3 Apply Skull Pins



#4 Secure Head Ring to superstructure

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Meetings and Events

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

1984

September 8, AOPA Regions I, II, and III BPDC Meeting, Philadelphia Marriott Airport Hotel, Philadelphia, Pennsylvania.

September 12-14, Fourth Annual *Advanced Course in Lower Extremity Amputation and Prosthetics*, Nassau County Medical Center, East Meadow, New York. Contact: Lawrence W. Friedman, M.D., Chairman, Dept. of Physical Medicine and Rehabilitation, Nassau County Medical Center, 2201 Hempstead Turnpike, East Meadow, NY 11554; (516) 542-0123.

September 14-15, Ohio Chapter of the Academy Meeting, in conjunction with the Ohio Orthotics and Prosthetics Association, Columbus, Ohio.

September 20-22, American Academy of Orthotists and Prosthetists seminar, "Current Clinical Concepts of Electrically Powered Upper Limb Prostheses," Alumni Hall, Northwestern University Medical School, Chicago, Illinois.

September 22, Combined Meeting of the Southern and Northern California Chapters of the Academy, Miramar Hotel, Santa Barbara, California.

September 29, New York State Chapter of the Academy Seminar, Columbia Presbyterian Medical Center, New York, New York. Contact: Glenn F. Hutnick, CP, 212-781-6900.

September 30-October 5, 16th Congress of the International Society for Orthopaedic Surgery and Traumatology (SICOT), London, England. Contact: Conference Services, Ltd., 3 Bute Street, London, SW7 3EY, United Kingdom.

October 1-3, Discovery '84: Technology for Disabled Persons, McCormick Inn, Chicago, Illinois. Sponsored by University of Wisconsin-Stout. Contact: Office of Continuing Education, University of Wisconsin-Stout, Menomonie, Wisconsin 54751.

October 4-6, Osaka International Medical Show, Minato International Trade Fair Ground, Osaka, Japan. Organized by Osaka Medical Instrument Association, Japan Pharmaceutical Equipment and Machinery Organization, and Japan Industries Association of Radiation Apparatus (JIRA). Contact: Richard Russell Craig, Manager, International Marketing, Clapp & Poliak International, 7315 Wisconsin Ave., P.O. Box 70007, Washington, DC 20088; tel. 301-657-3090.

October 15-21, AOPA General Assembly and International Congress, Fontainebleau Hotel, Miami Beach, Florida. Contact: AOPA National Headquarters, 703-836-7116.

October 21-23, "Certification for Rehabilitation Nurses: Applying Advanced Concepts to Practice," a seminar offered by the Rehabilitation Nursing Institute, Cincinnati, Ohio. Contact: RNI Seminar Department, 2506 Gross Point Road, Evanston, Illinois 60201; tel. 312-475-7300.

October 23-27, IFAS '84, the 18th International Trade Fair for Hospital and Medical Supplies, Zurich, Switzerland. Contact: Joachim Schafer, Executive Director, TEAM, P.O. Box 3092, 265 Varsity Avenue, Princeton, New Jersey 08540. Telephone: 609-452-2895.

November 3, Midwest Chapter of the Academy Fall Seminar, Northwestern University, Chicago, Illinois.

1985

January 24-29, American Academy of Orthopedic Surgeons Annual Meeting, Las Vegas, Nevada.

January 30-February 3, Academy Annual Meeting and Scientific Seminar, Cathedral Hill Hotel, San Francisco, California. Contact: Academy National Headquarters, 703-836-7118.

February 9, Midwest Chapter of the Academy Prosthetics Workshop, Northwestern University, Chicago, Illinois.

April 12-13, New York State Chapter of the Academy seminar, The Hotels at Syracuse Square, Syracuse, New York.

April 18-20, AOPA Region IV Annual Meeting, Wilmington Hilton Hotel, Wilmington, North Carolina.

April 20, Midwest Chapter of the Academy Spring Seminar/Social Event.

May 2-4, AOPA Region V Annual Meeting, Holiday Inn, Cleveland, Ohio.

May 8-11, AOPA Regions VII, VIII, X, and XI Combined Annual Meeting, Tucson, Arizona.

May 16-19, AOPA Regions I, II, and III Combined Annual Meeting, Hyatt Regency Inner Harbor, Baltimore, Maryland.

June 4-8, Orthopädie & Rehn-Technik 85 International Trade Fair and Congress, Messe Essen, W. Germany.

June 7-9, AOPA Region IX, COPA, and the California Chapters of the Academy Combined Annual Meeting, Reno, Nevada.

June 20-23, AOPA Region VI and Academy Midwest Chapter Combined Annual Meeting, Arlington Park Hilton, Arlington Heights, Illinois.

June 24-28, RESNA 8th Annual Conference on Rehabilitation Technology, "Technology—A Bridge to Independence," Peabody Hotel, Memphis, Tennessee. Contact: RESNA, Suite 402, 4405 East-West Highway, Bethesda, MD 20814, 301-657-4142.

September 13-15, Fifth Annual *Advanced Course in Lower Extremity Amputation and Prosthetics*, Nassau County Medical Center, East Meadow, New York. Contact: Lawrence W. Friedmann, M.D., Chairman, Dept. of Physical Medicine and Rehabilitation, Nassau County Medical Center, 2201 Hempstead Turnpike, East Meadow, NY 11554; (516) 542-0123.

October 15-20, AOPA Annual National Assembly, Town and Country Hotel, San Diego, California. Contact: AOPA National Headquarters, 703-836-7116.

1986

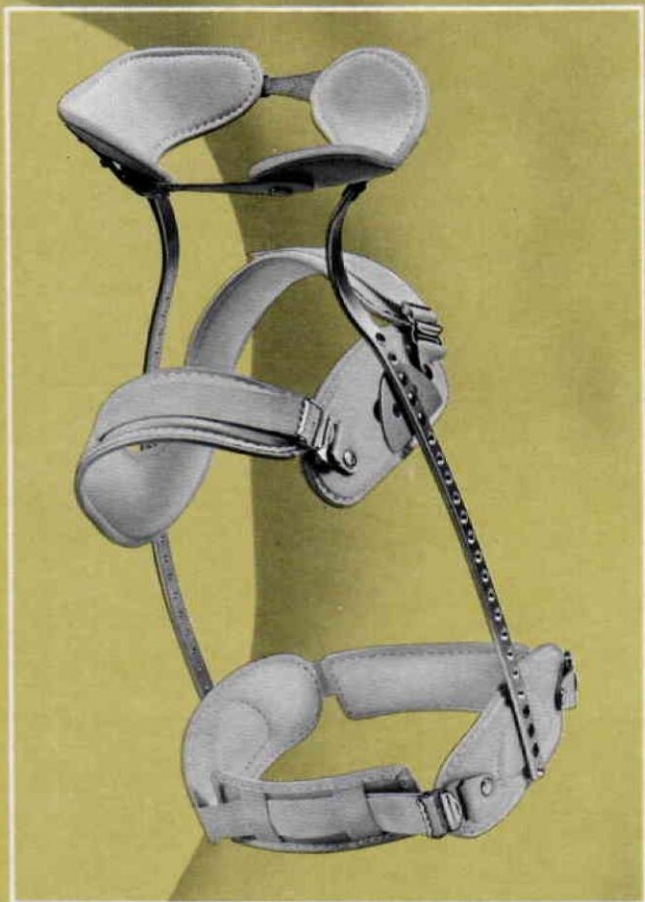
January 27-February 2, Academy Annual Meeting and Scientific Seminar, MGM Grand, Las Vegas, Nevada. Contact: Academy National Headquarters, 703-836-7118.

February 20-25, American Academy of Orthopedic Surgeons Annual Meeting, New Orleans, Louisiana.

Ad Index and Hotline

Advertisers are encouraged to submit names of contact persons for inclusion in the Ad Index and Hotline.

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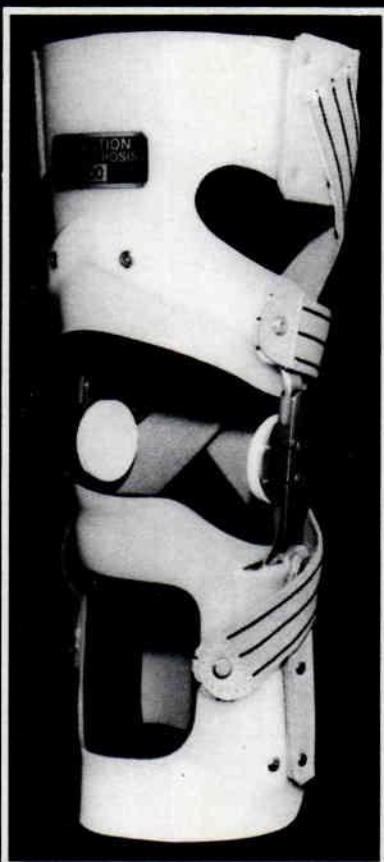
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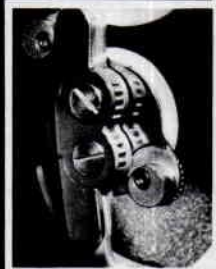
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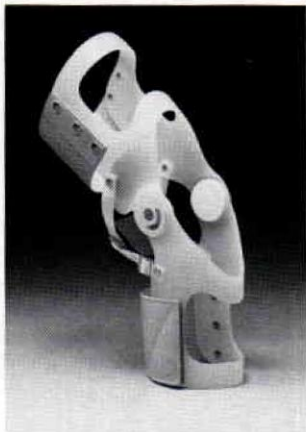
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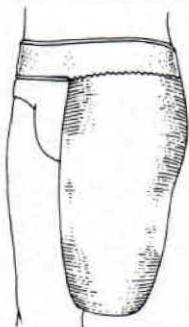
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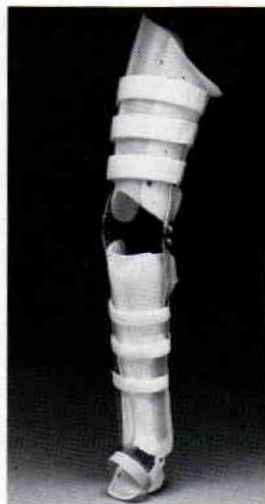
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All products on this page are in stock and ready for fast immediate delivery.



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The Orthotics and Prosthetics Profession

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.

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 patient records; all in confor-

mity 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 Rehabilitation Team

The orthotist and prosthetist are members of the allied health care rehabilitation team. Together with the physician, surgeon, physical and occupational therapist, social worker and counselor, the orthotist and prosthetist determines the needs of the patient. In consultation with the physician, the orthotist/prosthetist designs, constructs, and fits the patient with an orthosis or prosthesis.

The responsibility of the trained orthotist and prosthetist begins with the evaluation of the patient. Once the medical prescription is prepared by the physician, the orthotist or prosthetist examines the patient and makes careful and accurate measurements of the patient's physical condition. Using that information, the orthotist/prosthetist designs a device that will meet that patient's individual needs and fabricates the device from various materials such as plastic, leather, wood, steel, and aluminum.

Once the patient has been fit with the prosthesis or orthosis, the prosthetist or

orthotist provides the patient with basic instruction in its use and evaluates function, fit, and comfort. The physical therapist then takes over and works with the patient to help him/her adjust to the use of the device correctly. Depending on the extent of the disability, the device may need adjustment or replacement by the orthotist or prosthetist as the patient's age, physical condition, or life-style changes.

When Orthotics and Prosthetics Began

The years 1983-1992 have been proclaimed as the international "Decade of the Disabled," yet care for the disabled goes back to the 5th Egyptian Dynasty (2750-2625 B.C.), according to archeologists who unearthed the oldest known splint—a primitive brace. Likewise, the earliest known reference to an artificial limb was made about 500 B.C. by Herodotus, who wrote of a prisoner who escaped from the stocks by cutting off his foot—which he later replaced with a wooden substitute. History tells us that man has always had an urge to preserve himself in the best physical form possible. This urge has served as a constant stimulus to perfect and improve orthotic and prosthetic devices, and today technology and research have given us access to much more sophisticated orthoses and prostheses.

The Demand for Trained Practitioners

Approximately 2,100 certified prosthetists and orthotists are on the rolls of the American Board for Certification in Orthotics and Prosthetics, but this is not enough to meet the needs of the disabled

population. As the average age of the population increases, the demand for certified practitioners is expected to increase even more. As a result, the employment opportunities for prosthetists and orthotists in the United States and overseas are many.

Orthotists and prosthetists work in privately owned facilities, laboratories, hospitals, and government agencies such as the Veterans Administration. Depending on the size and scope of the facility, the orthotist's and prosthetist's duties will vary. In small organizations, the orthotist or prosthetist may measure the patient and design, fabricate, and fit the device. In larger facilities, the orthotist or prosthetist will employ one or more trainees or technicians to do the actual fabrication, while they remain responsible for measuring, designing, fitting, and adjusting the device.

Technology in Orthotics and Prosthetics

Orthotic and prosthetic research includes the development of better materials, designs, and methods of fitting to meet the needs of individual patients. Essentially, the prosthetist or orthotist conducts research for each patient, because no two patients have the exact same needs.

Although constructing a brace for a polio patient is as equally important as constructing an artificial leg for an amputee, the technology involved in making artificial limbs is often more complex. As a result, a larger percentage of federal and private grants has been approved for prosthetic research than for orthotic research in recent years. Keep in mind, however, that this trend can change as all research is approved based on its relevance to the needs of the disabled population.

Orthotics/Prosthetics Education— A Guide to this Issue

More formal education programs in orthotics and prosthetics exist in the United States now than at any time in history. Many new programs are being initiated, and established programs continue to change their curricula and priorities to meet the needs of today's society. Prospective students are often confused about which programs offer what. We hope that this issue of *Orthotics and Prosthetics* will help make decisions easier for the prospective O&P student.

The success of prosthetic and orthotic educational programs depends on how well they provide students with the insight and understanding required of practitioners and technicians today. The successful program should enable the student to meet the responsibilities of the profession. These responsibilities are reflected in the high standards of patient care required by the American Board for Certification in Orthotics and Prosthetics. Although the programs continue to progress, they have not lost sight of the basic responsibilities of the professional practitioner and technician:

- To provide prosthetic-orthotic service to the disabled population, including the application of necessary intellectual and manual skills (design, measure, cast, fit, and align) required to supply care of the highest quality.

- To serve as an equal member of the prosthetic-orthotic facility or clinic, provide consultative advice, participate in discussions, and share in decisions regarding prescription, evaluation, and formulation of the prosthetic-orthotic treatment program.

- To contribute to the progress and growth of the profession through research and development activities, contributing knowledge to the profession, exercising leadership, and recruiting and training new entrants into the field.

In order to meet these responsibilities, students should be trained in the following six 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. Each of these areas comprises a major portion of the formal education of the student of prosthetics and orthotics.

Practitioner Education

Practitioner programs prepare the student for patient management responsibilities 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 formal 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.

Practitioner Certification

The American Board for Certification in Orthotics and Prosthetics, Incorporated (ABC) was established in 1948 to set standards in the field of orthotics and prosthetics. In order to qualify as a certified orthotist (C.O.), certified prosthetist (C.P.), or certified prosthetist-orthotist (C.P.O.) a student must successfully complete the ABC Practitioner Certification Examination in one or both disciplines.

ABC is a recognized class "A" member of the National Commission for Health Certifying Agencies (NCHCA). This membership testifies that ABC's credentialing effort is valid, that the testing procedures are fair and equitable, and that ABC offers various routes to achieve certification.

There are three basic routes an individual can follow to become eligible to sit for the American Board for Certification in Orthotics and Prosthetics (ABC) certification examination. They are as follows:

- A. The candidate must 1) possess a Bachelor of Science degree in orthotics and prosthetics from a program accredited by ABC, and 2) have acquired a minimum of one year of acceptable experience after completion of the degree. This experience must be obtained under an ABC certified practitioner in the discipline (i.e. orthotics or prosthetics) for which the candidate is applying, or
- B. The candidate must 1) possess a bachelors degree in *any* field, 2) have successfully completed an ABC accredited long-term (certificate) educational program in orthotics and/or prosthetics

(these programs can be found under the list of colleges and universities) and 3) have acquired a minimum of one year acceptable experience in each discipline (i.e. orthotics or prosthetics) after successful completion of the certificate program. As stated previously, this experience must be obtained under an ABC certified practitioner in the discipline for which the candidate is applying, or

- C. The candidate must 1) possess an associate degree in *any* field, 2) have successfully completed an ABC accredited long-term (certificate) educational program in orthotics and/or prosthetics (these programs can be found under the list of colleges and universities) and 3) have acquired a minimum of four years of orthotic and/or prosthetic experience. At least one year of this experience must be obtained after successful completion of the long-term certificate program and must be in the discipline (i.e. orthotics or prosthetics) for which they are applying.

The above stated requirements can often be hard to understand. A flow chart on the following pages may help to better explain the methods of certification.

If you are interested in pursuing the profession of orthotics and/or prosthetics, don't hesitate to contact the examination coordinator at the ABC National Headquarters:

717 Pendleton Street
Alexandria, VA 22314
(703) 836-7114

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.

The registered technician provides essential support to the orthotist and/or prosthetist in various ways. The orthotics technician supports the orthotist in providing care to patients with disabling conditions of the limbs and spine by fabricating orthoses and their components. The prosthetics technician similarly supports the prosthetist in providing care to patients with partial or total absence of a limb by fabricating prosthetic devices and/or components.

The orthotics technician, as a result of his skills, fabricates orthoses in such a manner as to provide maximum fit, function, cosmesis, and workmanship. He also performs repairs to, and maintenance of, orthoses as assigned.

The prosthetics technician may make positive molds, and, as a result of his skills, fabricates prostheses in such a manner to provide maximum fit, function, cosmesis, and workmanship. As does the orthotics technician, the prosthetics technician also performs the repairs to, and maintenance of, prostheses as assigned.

The registered technician can be considered the backbone of the orthotics/prosthetics profession. Many individuals are given full recognition of their skills by achieving *registered technician* status. The qualifications for obtaining this status are as follows:

a. Applicants for technician recognition must possess at least a tenth grade education from an accredited educational institution in the United States, or must have obtained at least a tenth grade level on the General Education Development Test.

b. Applicants must possess a minimum of two years of acceptable experience in the fabrication of orthoses, prostheses, and/or their components. Such experience must be obtained under the direction of a certified practitioner in the applicant's field of specialty (prosthetics or orthotics).

c. Applicants who qualify for technician recognition by virtue of their education and/or work experience may be admitted to an examination designed to test their knowledge and application of tools, mate-

rials, and fabricating techniques for orthoses and/or prostheses.

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 per se is not required in order to take the examination.

Accreditation

In addition to setting standards for practitioner certification, ABC offers accreditation to educational institutions which meet ABC standards.

Educational Accreditation Commission

In 1972, ABC developed the Educational Accreditation Commission (EAC). It was determined that the Commission's membership would consist of three certified practitioners nominated by ABC, three representatives of the educational community nominated by the University Council on Orthotic-Prosthetic Education (UCOPE), and one member who would be an orthopedic surgeon jointly selected by ABC and UCOPE. At the present time, Dr. Robert E. Tooms is the appointed orthopedic surgeon and acts as chairman of the Commission.

The functions of the EAC are as follows: 1) to develop guidelines for educational programs in orthotics and prosthetics at various levels of professional endeavor and, as a corollary, to assist interested educational institutions in developing appropriate orthotic and prosthetic educational programs; and 2) to accredit educational programs in orthotics and prosthetics according to established and approved guidelines.

President's Message

by Ben Pulizzi, C.P.

President, 1983-84

**American Board for Certification
in Orthotics and Prosthetics, Inc.**

The purpose of the American Board for Certification in Orthotics and Prosthetics, Inc. (ABC) is to raise standards of patient care in the field of orthotics and prosthetics. Specifically, the Board is dedicated to insuring that those practitioners who treat the orthopedically handicapped have met accepted standards for orthotic and prosthetic patient care.

ABC was established in August, 1948 by the American Orthotic and Prosthetic Association in cooperation with the American Academy of Orthopedic Surgeons. These organizations recognized the need to institute a credentialing program designed to identify those practitioners, as well as facilities, qualified to render essential public health services in orthotics and prosthetics. Since its inception, ABC has been dedicated to advancing the levels of competency and ethics in the practice of these disciplines. The founding of ABC represented a voluntary joining together of persons dedicated to upgrading the profession of orthotics and prosthetics.

As an indication of the close relationship the organization has with the medical community, three of the ten members of the Board are orthopedic surgeons. Three other directors each are named by the American Orthotic and Prosthetic Association and the American Academy of Orthotists and Prosthetists. A tenth member of the Board is a consumer advocate.

The Board requires adherence to strict standards prior to conferring certification on a practitioner. There are academic and scientific/technical educational standards to be met, and experience under the supervision of a certified practitioner is required prior to taking the final test. That examination consists of a written portion, which is followed by a comprehensive practical examination, conducted as nearly as possible in a clinical setting. The prosthetic



practical examination covers above knee, below knee and upper extremity prostheses. The orthotic practical examination includes upper extremity, lower extremity and spinal orthoses. ABC strives to insure that every individual certified can furnish all types of custom orthoses and prostheses fabricated in accordance with the prescription of a physician.

ABC is a full category A member of the National Commission for Health Certifying Agencies (NCHCA). This organization is itself a certifying body, created to raise and apply meaningful standards for individual certifying organizations in the health care field. Although NCHCA is a voluntary non-governmental commission, the federal government recognized the need for such a standard setting body, and played a lead role in bringing the Commission into being. The federal government supplied start-up costs and continues to support it financially. NCHCA advocates certification of health professionals based on competence. Its premise is that recognition of competence serves the public and professional interests and can be done effectively by voluntary means.

In order for a credentialing body to attain membership in the Commission, it must meet a lengthy and comprehensive set of

criteria that covers such areas as examination validity and reliability, safeguards to protect the public interest, and the establishment of qualifications for certification that are appropriate to the certified occupation. We take pride in the fact that ABC has met these strict standards.

ABC has been recognized by many federal and state agencies, such as the Veterans Administration, for its establishment of standards for practitioners and facilities in the orthotic/prosthetic field. An increasing number of government and third party

agencies use ABC certification and accreditation as the criterion for insuring that patients receive essential orthotic and prosthetic services.

We are proud of our profession and would encourage young people who are interested in helping disabled persons to join with us in this endeavor. Students and others interested in our profession are encouraged to write to the National Headquarters of ABC, 717 Pendleton Street, Alexandria, Virginia 22314, to obtain information on such programs.

What Accreditation Means

The following is an explanation of the terminology being used in this issue for the category of ABC Accreditation. These terms are used: **N/A; No; To be applied for; Provisionally accredited** and **Fully accredited**.

N/A or No—Self explanatory.

To be applied for indicates that an institution is in the initial stages of structuring its program and intends to make formal application for accreditation to the Educational Accreditation Commission (EAC).

A **Provisionally accredited** institution is one which has been evaluated by the Educational Accreditation Commission (EAC) for its paper presentation. This means that the EAC has determined that the educational institution, on paper, has met the requirements as stipulated by the *Essen-*

tials of Acceptable Educational Programs for Orthotics and Prosthetics.^{*} At this stage of application, three on-site appraisers (one orthotic/prosthetic educator and two certified practitioners) are assigned to evaluate the educational institution's program.

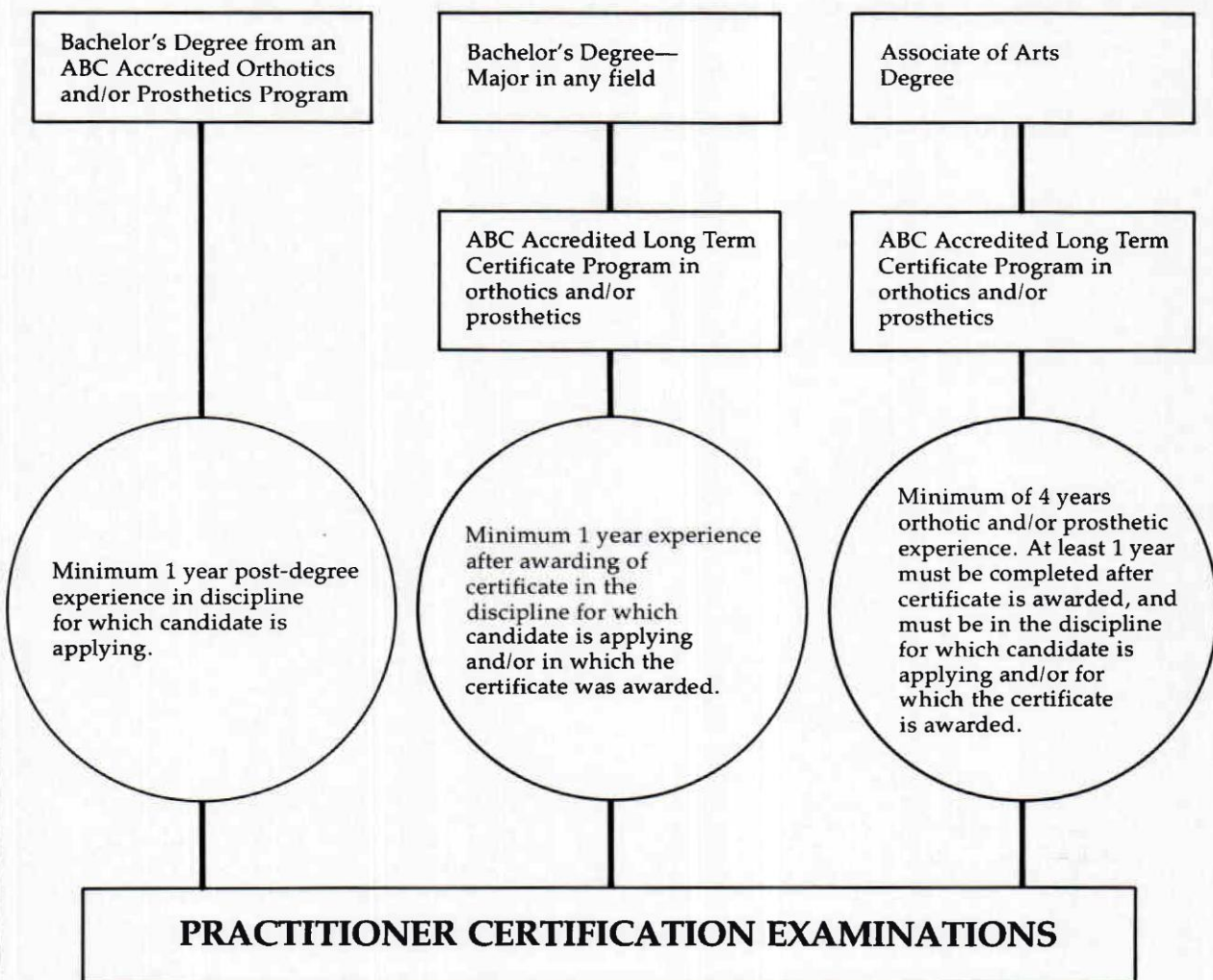
An institution is **fully accredited** once it has successfully submitted its paper presentation, completed the three required on-site evaluations, and the EAC determines that the institution has met all requirements as stipulated by the *Essentials of Acceptable Educational Programs for Orthotics and Prosthetics*.

^{*}There are currently three different Essentials: Essentials for Certificate Programs for Orthotists and Prosthetists; Essentials for the Education of Orthotists and Prosthetists at the Baccalaureate Level; and Essentials of Acceptable Technician Programs for Orthotists and Prosthetists.

*American Board for Certification
in Orthotics and Prosthetics, Inc.*

Practitioner Certification Examination Eligibility Chart

Applicants must be of good moral character and professional reputation. Applicants must have acquired the stipulated education in their discipline of interest from an institution of higher learning which is recognized by the American Council on Education and the ABC. Applicants must have gained actual work experience in their discipline of interest. The majority of that experience must have been devoted to patient care services performed under the supervision of an ABC certified practitioner in that discipline. Such experience must be attested to by two certified practitioners in that discipline, one of whom is the supervisor of the applicant.



Practitioner Baccalaureate Programs

- California State University—Dominguez Hills
- New York University
- University of Texas Prosthetics/Orthotics Program
- University of Washington



California State University— Dominguez Hills

Orthotics/Prosthetics Department
Health Sciences Department
1000 E. Victoria
Carson, CA 90747

Year Program Initiated: 1983

**Degree or Certificate
Awarded:** Bachelor of Science in Health Sciences

Level of Training: Practitioner

ABC Accreditation: Provisionally accredited

**Prerequisites, Entrance
Requirements:** Contact school

Medical School Affiliation: Rancho los Amigos Hospital

**Number of New Students
Admitted, Each Discipline:** 18

Faculty/Student Ratio: 1:6

Length of Courses: Two years, junior and senior year levels

Dates of Courses: September–August on the quarter system

Application Deadline: Contact school

Address of Registrar: Cal. State University, Dominguez Hills, 1000 Victoria
Street, Carson, CA 90747; Debbie Sutton, Program
Coordinator

PROGRAM DESCRIPTION

This Orthotic-Prosthetic program is an option in the Health Science School, and consists of the upper division course work in a curriculum leading to a Bachelor of Science degree. Lower division work may

be taken at the University, or transferred from another university or college.

The Dominguez Hills campus is one of the newest in the California state system and is centrally located within the Los Angeles area. Nearby Rancho los Amigos

Hospital is also utilized for didactic instruction and clinical affiliation. Technical instruction takes place in a well-equipped laboratory.

Dominguez Hills has the distinction of being one of the first state-supported universities to offer a B.S. degree in orthotics-prosthetics. Low state tuition helps make this one of the most attractive options for orthotic-prosthetic education in the nation.

The curriculum is designed to exceed the requirements set forth by the American Board for Certification in Orthotics and Prosthetics in both the lab and didactic segments. Students will be well prepared for entry into the field at the practitioner level.

NATURE AND SCOPE OF CURRICULUM

Requirements at the university ensure that students develop a broad foundation in humanities, natural sciences, and social/behavioral sciences. These general studies requirements include:

Basic Skills

Composition	8 units
Quantitative Reasoning	4 units
Logic/Critical Reasoning	4 units
Oral Communication	2 units

Lower Division General Education

Humanities	12 units
Natural Science	12 units
Social Science	16 units
The Whole Person	2-4 units

Upper Division Integrative Studies

Humanities	4 units
Natural Science	4 units
Cultural Pluralism	4 units

BASIC CURRICULUM IN ORTHOTICS AND PROSTHETICS

General University breadth requirements, in combination with Health Science and the Orthotic and Prosthetic prerequisite requirements, ensure that entering students have basic college level science

courses in biology, math, chemistry, physics, psychology, and anatomy and physiology. Specialized courses include pathology, kinesiology, biomechanics, gait analysis, properties of materials, system design concepts, and physical disabilities related to orthotics-prosthetics.

In addition, there are other basic requirements for all Health Science majors. These include the following core courses:

- Health Care Delivery Systems
- Medical Science
- Health Communications
- Disease and Society
- Health Behavior

By requiring these courses, we are integrating into the technical curriculum our educational philosophies regarding the development of well-rounded professional graduates.

SPECIFIC CURRICULUM IN ORTHOTICS AND PROSTHETICS

The sequence of courses requires seven quarters. The courses in any given quarter are designed to cover specific areas. Each quarters' offering builds upon the knowledge and skills developed in previous quarters. The courses for Quarter One exemplify the integrative nature of the program: the didactic material offered in Neuromusculoskeletal Pathomechanics I is applied in Normal and Pathological Gait. The lessons from both of these courses are applied in the concurrent O/P lecture and laboratory courses in lower limb orthotics and below knee prosthetics. The second quarter continues to focus on the lower limb, with the introduction of above knee concepts, and so on.

During the first two quarters, O/P students focus solely upon specific O/P subject matter. Beginning with the third quarter, and thereafter, courses from the Health Science Core are integrated into the curriculum. The final two quarters include opportunities for preceptorships, development of research skills, and for more advanced lower limb courses.



Administration Building at Rancho los Amigos Hospital.



A student shown fabricating a wrist orthosis.

Orthotics

The Orthotics portion of the program includes specialized classes in lower limb, upper limb, and spinal concepts. Laboratory classes include fabrication of the required orthoses as outlined by the American Board for Certification in Orthotics and Prosthetics. In addition, other non-required orthoses are fabricated. A total of 571 hours of class time is devoted to Orthotics as follows:

	<i>Lecture</i>	<i>Lab</i>	<i>Total</i>
Lower	99	168	267
Spine	41	81	122
Upper	59	123	182
			<u>571</u>

Prosthetics

The Prosthetics portion of the program includes lecture and laboratory classes dealing with upper and lower limb prostheses, disease processes which necessitate prosthetic use, and a preceptorship. Students participate in all phases of the treatment process including patient evaluation, casting and measurements, cast modification, lamination, bench alignment, test socket fittings, and performance analysis. Classroom hours are allotted as follows:

	<i>Lecture</i>	<i>Lab</i>	<i>Total</i>
Upper	58	94	152
Below Knee	66	160	226
Above Knee	65	160	225
			<u>603</u>

CLINICAL EXPERIENCE

Clinical Attendance: Students are required to attend various clinics at Rancho los Amigos Hospital each quarter during the first five quarters of study. The ten service areas include pediatrics, arthritis, problem joint, spinal injury, neurology, diabetes, post polio, spinal deformity, muscle disease, and myelodysplasia. A written report must be submitted for each clinic visit.

Preceptorship: Students will complete the requirement for clinical experience by enrollment in Orthotic/Prosthetic Preceptorship during the last two quarters of study. Each preceptorship will last ten

weeks (2.5 days per week). Sites are chosen based on their ability to offer high quality learning experiences that will strengthen and broaden the student's professional skills.

SUMMARY

Course content is designed to build competency in such areas as patient management, system design and fabrication, interaction with other members of the allied health team, problem-solving, and research. Balance between theory and practice is provided in several ways. The primary O&P courses are taught by clinical practitioners and frequent reference is made to actual patient situations. In addition, lecture time is set aside for the treatment approach to specific types of disabilities. Clinic attendance and preceptorship time also provide integration of theory into practical situations, and in preceptorships students participate in all phases of patient management, including evaluation, fabrication, fit, and critique.

COURSE DESCRIPTIONS

HEA 200—Health Care Delivery Systems

An in-depth examination of the key issues, organizational structures, and various methods of health services delivery as an emerging system. Course will further investigate the impact of political, technological, and social structures upon the direction and development of new health manpower.

HEA 242—Medical Science

An examination of diseases and conditions which cause the disabilities that orthotists and prosthetists commonly treat. The etiology, clinical signs and symptoms, treatment, and prognosis of afflictions are discussed.

HEA 260—Lower Limb Orthotics I

Patient evaluation, prescription recommendation, measurement, fabrication, and fitting. Lower limb biomechanics, gait analysis, and motor disability. Fabrication and fitting of several orthoses including

arch supports, UCBL foot orthosis, and ankle-foot orthoses (metal and plastic).

HEA 261—Below Knee Prosthetics I

Fabrication, fitting and dynamic alignment of four patellar-tendon-bearing below-knee prostheses, including test sockets and condylar suspension. Below knee biomechanics, locomotion, and motor disabilities. Medical management and prescription considerations.

HEA 262—Neuromusculoskeletal Pathomechanics I (BK)

Neuromusculoskeletal systems as they apply to the lower limb for both normal function and in the presence of pathology. Examples of specific weaknesses and deformities will be studied from the kinesiology perspective and the potential for orthotic and prosthetic management.

HEA 263—Normal and Pathological Gait

Instruction in recognizing gait and postural deviations, determining the cause of such deviations, and suggesting remedies for such pathologies. Students will evaluate patients and videotapes of patients, review EMG and forceplate recordings, and compare results of surgery, therapy, and mechanical aids that were used on patients.

HEA 264—Lower Limb Orthotics II

Patient evaluation, prescription recommendation, measurements, fabrication and fitting. Lower limb biomechanics, gait analysis, and motor disability. Fabrication and fitting of several knee-ankle-foot orthoses.

HEA 265—Below-Knee Prosthetics I

Fabrication, fitting, and dynamic alignment of two below-knee prostheses including test sockets, joints, and thigh lacers. Apply one post-op fitting with cast and pylon.

HEA 266—Neuromusculoskeletal Pathomechanics II (AK)

Similar to NMSP I (BK), except as applied to above-knee concepts.

HEA 267—Spinal Orthotics

Spinal biomechanics and motor disability. Patient evaluation, prescription recommendation, measurement, fabrication, and fitting of five spinal orthoses. Also lecture and fitting of various cervical orthoses.

HEA 268—Above-Knee Prosthetics I

Measurements and fitting of patients with above-knee prostheses. Evaluation, casting, fitting, and dynamic alignment of patients. Fabrication and fitting of two quadrilateral sockets, including suction and pelvic suspension. SACH and articulated feet, fluid control, and linkage mechanisms.

HEA 269—Neuromusculoskeletal Pathomechanics III (Spine)

Neuromusculoskeletal systems as they apply to the spine for both normal function and in the presence of pathology. Examples of specific weakness and deformity will be studied. The impact of spinal muscles on gait substitution, and the effect of spinal anatomy on respiratory function.

HEA 270—Above-Knee Prosthetics II

Endoskeletal componentry will be demonstrated. Each prosthesis will include a transparent test socket fitting. Exo- and endoskeletal knee mechanisms.

HEA 271—Upper-Limb Orthotics I

Evaluation, prescription recommendations, measurement, fabrication, and fitting. Anatomy, biomechanics, and motor disability of upper limb orthotics. Special attention will be given to deformity control, tissue protection, and restored function. Fabrication and fitting of several orthoses including basic static hand and wrist-hand orthoses.

HEA 272—Upper Limb Prosthetics I

Patient evaluation, prescription recommendation, casting, measurement, fabrication, harnessing and myoelectric powered systems. Each student will fabricate two below-elbow prostheses with additional time spent on harnessing variations. The principles of powered prostheses,

identification of myoelectric control electrode sites, trouble-shooting, and prosthesis maintenance.

HEA 273—Neuromusculoskeletal Pathomechanics IV (Upper Limb)

Similar to other NMSP courses, with principles applied to upper limb.

HEA 274—Upper Limb Orthotics II

Orthoses include wrist-driven and external powered systems.

HEA 275—Upper Limb Prosthetics II

Lecture and demonstration of fabrication and fitting of shoulder disarticulation prostheses.

HEA 276—Strength of Materials and Fastening Technology

Principles of stress, strain, Young's modulus. Plastic/metal choices. Preferred metal alloys, heat treatment, and plastic polymers. Introduction to polymer chemistry and mechanical properties of plastics. Meaning of materials designators and relationship of alloys to material properties; selection of most appropriate materials for orthoses and prostheses.

HEA 277—Hip and Symes Prosthetics

Biomechanics, fabrication, fitting, and dynamic alignment of Canadian hip and Symes prostheses. Hip disarticulation and hemipelvectomy amputations with relation to the prostheses. Lecture on other foot prostheses for mid-tarsal, Chopart, and partial foot amputations.

HEA 278—Preceptorship

Provides actual clinical experience in a private orthotic-prosthetic facility. Designed to build on previously acquired clinical skills and professionalism.

HEA 279—Lower Limb Orthotics III

Advanced concepts involving more complex KAFO's and AFO's.

HEA 321—Dynamics of Health Communication

Fundamentals, principles, and skills of interpersonal and group processes utilized

in health related occupations. Special emphasis is placed on the theory and techniques of writing, oral skills, interviewing, small group dynamics, and crisis intervention.

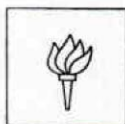
HEA 340—Disease and Society

An overview of the nature, causes and related factors for the leading causes of death and disability. Relationships between the affected individual and en-

vironmental, genetic, and psychological factors pertaining to disease states. To include health information to promote desirable attitudes and practices, i.e., healthful living.

HEA 342—Health Behavior

A course designed to sensitize the health care professional to the social, psychological, and cultural aspects of health care problems.



New York University Orthotics/Prosthetics Baccalaureate Program

Department of Prosthetics and Orthotics
School of Education, Health, Nursing and Arts Professions
317 East 34th Street, New York, NY 10016

Year Program Initiated: 1962

Degree or Certificate

Awarded: Bachelor of Science—Prosthetics and Orthotics are included in the same course

Level of Training: Practitioner

ABC Accreditation: Fully accredited

Prerequisites, Entrance

Requirements: High School graduate with college preparatory courses; applicants with some college accepted as transfer students

Medical School Affiliation: New York University Medical Center

Number of New Students

Admitted, Each Discipline: 12—only combined prosthetics and orthotic instruction

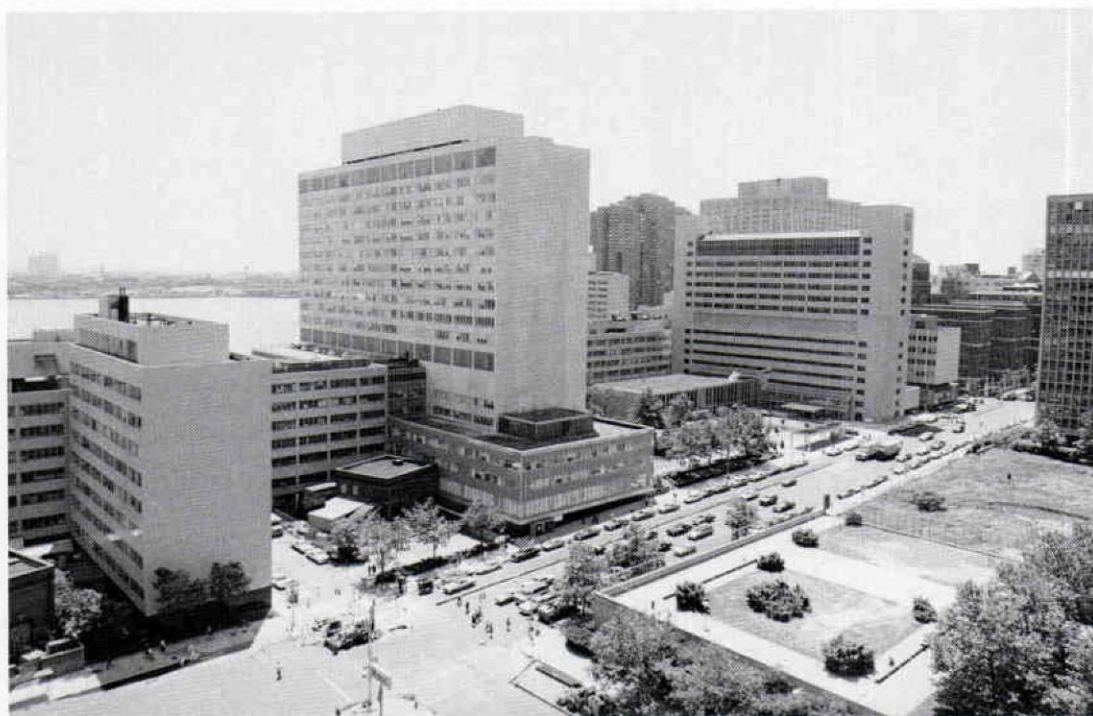
Faculty/Student Ratio: 1:6-8 (in laboratories)

Length of Courses: Four years, of which two are specialization training

Dates of Courses: September to May each year, with one summer's clinical affiliation after junior year

Application Deadline: June 1st

Address of Registrar: New York University, Office of Undergraduate Admissions, 25 West 4th Street, 3rd Floor, Washington Square, New York, NY 10003



New York University.

Baccalaureate Program Suggested Course Sequence

Freshman Year

Course	Points
<i>Fall</i>	
Writing Workshop I	4
Precalculus Mathematics	4
Introduction to Psychology	4
Humanities Elective	4
Total	16

<i>Spring</i>	
The Biological World	4
Writing Workshop II	4
Introduction to Physics	5
Liberal Arts Elective	4
Total	17

Sophomore Year

Course	Points
<i>Fall</i>	
Introduction to Modern Chemistry	5
Biostatistics	3
Speech Communication	4
Social Science Elective	4
Total	16

<i>Spring</i>	
Independent Study (Psychology of the Disabled)	3
Social Science Elective	4
Liberal Arts Electives	8
Total	15

Junior Year

Course	Points
<i>Fall</i>	
Human Anatomy (lecture-demo)	3
Prosthetic and Orthotic Techniques	6
Biomechanics	2
Mechanics	3
Unrestricted Elective	2
Total	16

<i>Spring</i>	
Physiology	2
Properties of Materials	2
Below-Knee Orthotics	4
Below-Knee Prosthetics	6
Clinical Affiliation (P&O)	2
Total	16

Senior Year

Course			<i>Spring</i>	
	<i>Fall</i>	<i>Points</i>		
Survey of Orthopedic and Neuromuscular Conditions		2	Human Anatomy (laboratory)	1
Upper-Limb Prosthetics		5	Above-Knee Orthotics	4
Upper-Limb Orthotics		4	Above-Knee Prosthetics	8
Spinal Orthotics		5	Professional Aspects of Prosthetics and Orthotics	2
Clinical Affiliation (P&O)		1	Clinical Affiliation (P&O)	2
			Total	17
Total		17	FOUR YEAR TOTAL	130

NYU Baccalaureate and Certificate Course Descriptions

Human Anatomy Lecture*45 Hours: 2 Points*

Lectures on human anatomy of the skeletal, muscular, nervous, and circulatory systems. Demonstration on models.

Human Anatomy Laboratory*45 Hours: 1 Point*

Dissection and demonstration of human cadaver for purpose of learning relationships of skeletal, muscular, circulatory, and nervous systems. Complements lectures in human anatomy.

Physiology*60 Hours: 2 Points*

The skeletal, muscular, nervous endocrine, circulatory, respiratory, digestive, and urogenital systems are presented, and the laboratory reinforces the lecture material.

Physically Disabled:**A Psychological Approach***45 Hours: 3 Points*

Psychological factors that are prominent in the process of adjustment to a physical disability. Emphasis on understanding the psychological conditions of patients and the interaction between patient and health worker to foster optimum working relations between them.

Survey of Orthopedic and Neuromuscular Conditions*30 Hours: 2 Points*

Covers the etiology, pathology, treatment, and sequelae of common conditions

associated with the skeletal and neuromuscular systems.

Biostatistics*45 Hours: 3 Points*

The collection, tabulation, and elementary analysis of vital statistics. Sources and uses of population, mortality, and morbidity data. Classification and tabulation, frequency distribution, measures of location and variation, rates and ratios, correlations and regression, and tests of significance.

Prosthetic and Orthotic Techniques*210 Hours: 6 Points*

Use of specialized prosthetic and orthotic shop equipment and tools; techniques and procedures for working with plaster, thermoset and thermoform plastics, wood, metal, and leather utilized in prostheses and orthoses.

Biomechanics*30 Hours: 2 Points*

Basic anthropometric data; physical properties of tissues; analysis of forces acting on the skeletal structures and torques developed around body joints; kinetic and kinematic analysis of prostheses and orthoses; and techniques of gathering biomechanical data for research and clinical applications.

Mechanics*45 Hours: 3 Points*

Statics: forces, pressure, moments,

free-body analysis, center of gravity, and friction. Dynamics: linear and angular displacement, velocity, and acceleration. Work, power, and efficiency. Emphasis on prosthetic and orthotic applications.

Properties of Materials

30 Hours: 2 Points

Behavior of materials subjected to tensile, compressive, shear, torsion, and bending stresses. Description of physical and mechanical properties of metals, plastics, woods, and laminates as related to prosthetic and orthotic design considerations.

Below-Knee Orthotics

120 Hours: 4 Points

Lectures, demonstrations, and laboratory practice in the fabrication and fitting of various designs of metal and plastic below-knee orthoses. Lectures also cover pertinent anatomy, pathomechanics, motor disabilities, and prescription considerations.

Above-Knee Orthotics

120 Hours: 4 Points

Lectures, demonstrations, and laboratory practice in the fabrication and fitting of various designs of above-knee orthoses. Lectures also cover pertinent anatomy, pathomechanics, motor disabilities, and prescription considerations.

Above-Knee Prosthetics

240 Hours: 8 Points

Principles and practices of above-knee and hip-disarticulation prosthetic fabrication, fitting and alignment, use of adjustable alignment devices, and methods of suspension. Experience in fabrication is supplemented by lectures pertaining to the comprehensive management of above-knee amputees and a review of anatomy and biomechanics.

Below-Knee Prosthetics

180 Hours: 6 Points

Principles of fabrication, fitting, suspension, and alignment of prostheses for below-knee amputations with special em-

phasis on the patellar-tendon-bearing prosthesis. Experience in fabrication is supplemented by lectures pertaining to the comprehensive management of below-knee amputees and a review of anatomy and biomechanics.

Upper-Limb Prosthetics

135 Hours: 5 Points

Instruction in the techniques and principles of prosthetic fabrication, fitting, and harnessing for a variety of upper-limb amputations. Prosthetic components, check-out and training procedures, and prescription considerations are also included.

Upper-Limb Orthotics

105 Hours: 4 Points

Lecture and laboratory practice in the basic principles of upper-limb bracing. Includes consideration of a variety of upper-limb disabilities, orthotic components, techniques of fabrication, as well as check-out and prescription considerations.

Spinal Orthotics

135 Hours: 5 Points

Survey of neurological, muscular, and skeletal anatomy and pathomechanics of the neck and trunk; principles of bracing to provide maximum function and comfort; laboratory practice in the fabrication and fitting of selected orthoses.

Professional Aspects of Prosthetics and Orthotics

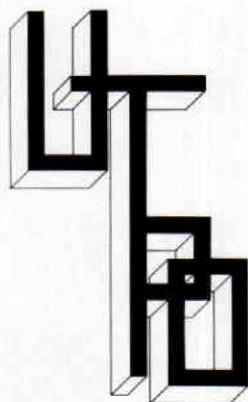
30 Hours: 2 Points

Relationships between the prosthetist-orthotist and members of the other rehabilitation specialties, psychological considerations in patient care, current educational and research developments, and ethical responsibilities of the prosthetist-orthotist.

Clinical Affiliation—Prosthetics and Orthotics

1,000 Hours: 5 Points

Supervised clinical practice in certified prosthetics and orthotics facilities designed to expand the student's experience and skill.



University of Texas

Prosthetics & Orthotics Baccalaureate

Health Science Center at Dallas
 School of Allied Health Sciences
 Prosthetic-Orthotic Department
 5323 Harry Hines Boulevard, Dallas, TX 75235

Year Program Initiated: 1982

Degree or Certificate

Awarded: Bachelor of Science in Prosthetics & Orthotics

Level of Training: Practitioner

ABC Accreditation: Provisionally accredited

Prerequisites, Entrance

Requirements: See program description

Medical School Affiliation: Southwestern Medical School

Number of New Students

Admitted, Each Discipline: 12 maximum

Faculty/Student Ratio: 1:5

Length of Courses: 2 years (following prerequisites) at junior & senior level

Dates of Courses: Classes begin in June of each year, with junior and senior levels each consisting of 3 semesters within the 2 year period

Application Deadline: December 15

Address of Registrar: Office of Student Affairs, 5323 Harry Hines Blvd., Dallas, Texas 75235

PROGRAM DESCRIPTION

The University of Texas Prosthetic and Orthotic Program was established at The University of Texas Health Science Center at Dallas in 1982. Prosthetics and Orthotics is one of ten curricula offered by The School of Allied Health Science and is fully accredited by the University at the baccalaureate level. The program has the distinction of being the first state supported baccalaureate level Prosthetic and Orthotic Program in the nation.

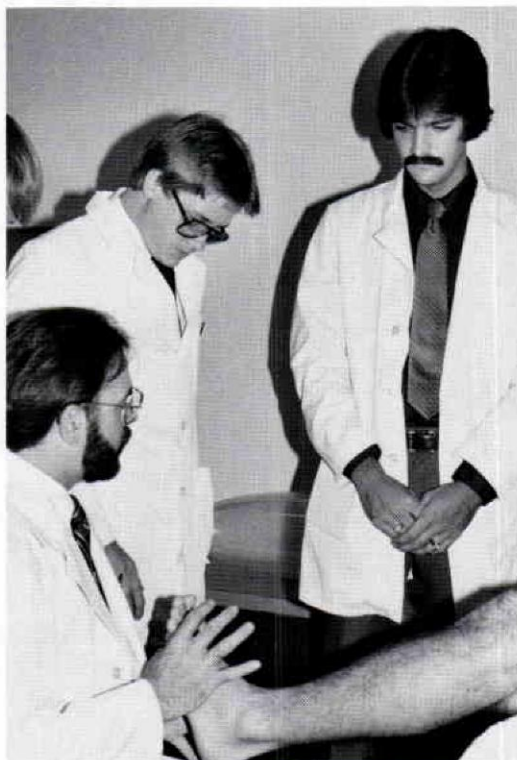
The course of instruction covers four years. The first two years, which are completed prior to admission to the Health Science Center, compose the prerequisite phase. Specific courses have been selected to appropriately prepare the student for the second part of the program, the two year professional phase. The professional phase consists of prosthetic and orthotic didactic, laboratory, and clinical experiences coupled with advanced courses in anatomy, physiology, and psychology of the handicapped individual, among others.

At the successful completion of the program, students are awarded a Bachelor of Science Degree in Prosthetics and Orthotics, which academically qualifies them to stand for certification in both disciplines in accordance with the regulations of the American Board for Certification in Orthotics and Prosthetics.

Students are admitted to the program in June of each calendar year, after meeting the required prerequisite courses with a minimum earned 2.0 GPA on a 4 point system. Anticipated class sizes each year include approximately twelve (12) students per year with a cumulative total of twenty-four (24) juniors and seniors. A list of required prerequisites and suggested electives follows:

Prerequisite Courses:

Course	Hours
English (Composition of 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 the Texas constitution)	6



The instructor discusses orthotic assessment with his students.

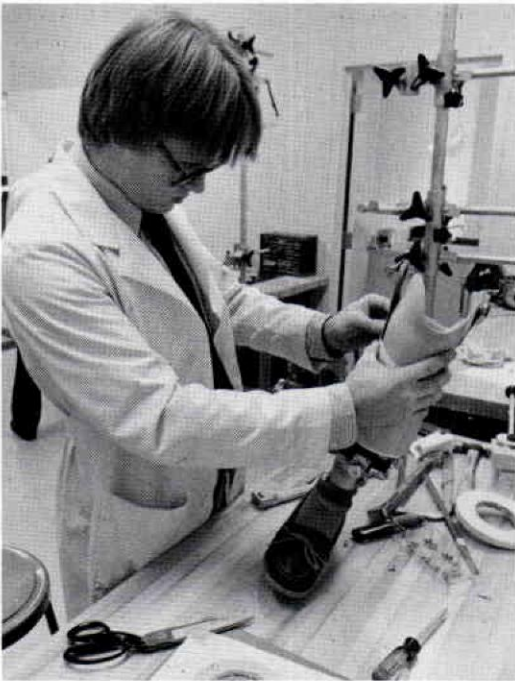
Biological Science with lab*	6
Physics with lab	6
Chemistry with lab (General Chemistry)	5
Mathematics (Algebra or higher)	3
Psychology (General)	3
Psychology (Human Development recommended)	3
Humanities or Social Studies	3
Electives	13
Total	60

*Courses for non-science majors are not acceptable.

Suggested Electives:

Human Anatomy	Wood/Metal Shop
Physiology	Art (sculpting)
Drafting	Business/Management
Mechanical Engineering	Economics
Welding	Philosophy

Students are strongly advised to volunteer to work in or visit a number of facilities offering prosthetic/orthotic services. This is seen as an important step in affirming an interest in this profession prior to pursuing it as a career.



A student completes a below-knee prosthesis. Laboratory fabrication comprises a significant part of the program.



Once the prosthesis is complete, the student describes the fitting process to the patient.

FACILITIES

The Health Science Center is located on a 69 acre campus at Harry Hines Blvd. and Inwood Rd., 3.5 miles northwest of downtown Dallas, and consists of 13 major buildings, with an area of approximately 1.8 million sq. ft. The center is connected to Parkland Memorial Hospital and Children's Medical Center, two of the Center's principal teaching institution facilities.

The offices and patient treatment areas of the Prosthetic and Orthotic Program are housed in the Locke Medical Building where much of the didactic and patient interactive sessions are held. Modern laboratory facilities are located on the grounds of The Scottish Rite Hospital and are completely equipped for both prosthetic and orthotic device fabrication. The Scottish Rite Hospital for Crippled Children also serves as a valuable clinical outlet for the program both in prosthetics and orthotics.

PROGRAM OF INSTRUCTION

The UTHSCD Prosthetic-Orthotic curriculum provides the student with basic knowledge in related sciences and the technical skills necessary to practice as a prosthetist and/or orthotist. In addition to classroom lectures and demonstrations, a significant amount of time is spent in laboratory sessions learning skills in gait analysis, patient evaluation, measuring, casting, modification, and fabrication of orthoses and prostheses.

Schedules are designed to allow three to four hours each day (a total of approximately 850 clinical hours) for students to have direct patient contact under the supervision of certified practitioners in both disciplines.

Students assist in an appropriate capacity in the fabrication, fitting, and evalua-

tion of the devices for patients in the clinical settings. This component affords UTHSCD students the opportunity to fabricate devices well above the minimum

number required by ABC. Students are also involved in selected research projects during the latter part of the professional phase of instruction.

Schedule of Courses

Junior Year

Course		Hours
<i>Summer</i>		
HCS 4408	Human Anatomy	4
HCS 4209	Anatomy Lab	2
HCS 3407	Human Physiology	4
PO 3101	Prosthetic/Orthotic Techniques	1
Total		11
<i>Fall</i>		
PO 3011	Orthopedics	1
PO 3013	Lower Limb Orthotics	10
PO 3415	Applied Prosthetics, Orthotics & Rehab. Technology I	4
PO 3117	Seminar in Prosthetics and Orthotics I	1
HCS 3206	Introduction to Pathology	2
Total		18
<i>Spring</i>		
PO 3021	Lower Limb Prosthetics I	10
PO 3423	Applied Prosthetics, Orthotics & Rehab. Technology II	4
PO 3125	Seminar in Prosthetics and Orthotics II	1
PO 3127	Clinical Education I	1
HCS 4306	Psychological Aspects of Chronic Illness and Disability	3
Total		19

Senior Year

Course		Hours
<i>Fall</i>		
PO 4001	Lower Limb Prosthetics II	10
PO 4403	Applied Prosthetics, Orthotics & Rehab. Technology III	4
PO 4105	Seminar in Prosthetics & Orthotics III	1
HCS 3322	Interpersonal Skills & Communication	3
Total		18
<i>Spring</i>		
PO 4611	Spinal Orthotics	6
PO 4413	Upper Limb Orthotics	4
PO 4415	Applied Prosthetics, Orthotics & Rehab. Technology IV	4
PO 4117	Seminar in Prosthetics and Orthotics IV	1
Total		15
<i>Summer</i>		
PO 4621	Upper Limb Prosthetics	6
PO 4123	Applied Prosthetics, Orthotics & Rehab. Technology V	1
PO 4425	Clinical Education II	4
Total		11

COURSE DESCRIPTIONS

Prosthetic Orthotic Techniques

1 Semester Hour

This introductory course is designed to familiarize the student with mechanical properties of materials, hand and power tools, and specialized equipment used in the fabrication of prostheses and orthoses. Proper safety techniques and operating procedures in the laboratory environment are stressed.

Orthopedics

1-3 Semester Hours

Lectures are provided by orthopedists on the etiology, evaluation, and management of orthopedic conditions during

various stages of recovery: acute, pre- and post-operative, and long-term care.

Lower Limb Orthotics

10 Semester Hours

Lectures are given covering anatomy, kinesiology, biomechanics, pathomechanics, neurology, and vascular supplies of the lower extremities. Additionally, evaluation of physical and functional deficits is presented. Methods of fabricating and evaluating orthotic devices are included, as well as instruction in fitting criteria of 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.

Applied Prosthetics, Orthotics and Rehabilitation Technology I*4 Semester Hours*

This course is based upon clinical observations and supervised application of prosthetic-orthotic principles as they relate to patient assessment, device recommendation, and fabrication techniques.

Seminar in Prosthetics and Orthotics I*1 Semester Hour*

An introduction to prosthetics and orthotics is provided. Lectures cover history, ethics, roles of health professionals within the multi-disciplinary team, and medical terminology. Evaluation of current journal articles is also an integral part of this course.

Lower Limb Prosthetics I*10 Semester Hours*

Lectures address physical and functional deficits that result from limb loss following below knee (BK) amputation. Differing levels of amputation, medical management, pre- and post-operative prosthetic care, prescription considerations, prosthetic materials and components and principles of fabrication, fit, and dynamic alignment are also covered. Techniques of evaluation and training for all below-knee types of amputations, in addition to instruction in fitting the juvenile and geriatric populations, complete this course.

Applied Prosthetics, Orthotics and Rehabilitation Technology II*3 Semester Hours*

This course is based upon clinical observations and supervised application of prosthetic-orthotic principles as they relate to patient assessment, device recommendation, and fabrication techniques.

Seminar in Prosthetics and Orthotics II*1 Semester Hour*

This course includes effective methods of keeping medical records, interdisciplinary oral and written communications, and new concepts and developments in prosthetics and orthotics. A review of classic and current journal articles and discussions of clinical experiences are also included.

Clinical Education I*1 Semester Hour*

Area clinical facilities provide supervised application of prosthetic-orthotic techniques within their own setting.

Lower Limb Prosthetics II*10 Semester Hours*

This course includes the study of physical and functional deficits that result from limb loss following above-knee (AK) amputation. Levels of amputation, medical management, pre- and post-operative prosthetic care, prescription considerations, materials and components, principles of fabrication, fitting, and dynamic alignment are presented. Evaluation and training for all above-knee types of amputations are given with special attention to the juvenile and geriatric populations. Instruction is also given in the use of fluid control mechanisms as well as various other types of knee units. In addition, methods of fitting hip and knee disarticulations are demonstrated.

Applied Prosthetics, Orthotics and Rehabilitation Technology III*4 Semester Hours*

This course is based upon clinical observations and supervised application of prosthetic-orthotic principles as they relate to patient assessment, device recommendation, and fabrication techniques.

Seminar in Prosthetics and Orthotics III*1 Semester Hour*

This course covers administration and management techniques for a prosthetic-orthotic service, new developments and concepts in prosthetics and orthotics, a Journal Club, and discussions of clinical experiences.

Spinal Orthotics*6 Semester Hours*

Instruction includes 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 is given to fitting the juvenile and geriatric

populations. Students immediately apply the principles and techniques presented in lecture during supervised laboratory practices.

Upper Limb Orthotics

4 Semester Hours

Lectures relating to anatomy, kinesiology, biomechanics, pathomechanics, neurology and vascular supplies of the upper extremity are given. Additionally, instruction includes a section in orthotic components and materials as they pertain to shoulder, arm, wrist, and hand disabilities. Special attention is 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. Laboratory sessions include the evaluation of physical and functional deficits, recommendation of orthotic devices, selection of appropriate components, measurement, fabrication, fitting, and evaluation of devices.

Applied Prosthetics, Orthotics and Rehabilitation Technology IV

4 Semester Hours

This course is based upon clinical observation and supervised application of prosthetic-orthotic principles as they relate to patient assessment, device recommendation, and fabrication techniques.

Seminar in Prosthetics and Orthotics IV

1 Semester Hour

Styles of learning and methods of instruction in patient education are presented. New concepts and developments in prosthetics and orthotics, as well as a Journal Club, and discussions of clinical experiences complete the course.

Upper Limb Prosthetics

6 Semester Hours

Course content includes a review of anatomy, kinesiology, biomechanics, pathomechanics, neurology, and vascular supplies as they relate to the upper extremity. Lectures are presented covering all levels of amputation, medical management, pre- and post-operative prosthetic care,

and prescription consideration. Conventional components and principles of fabrication and harnessing are covered, as are above- and below-elbow external power components and techniques of evaluation for each device. Special consideration is given to fitting the juvenile and geriatric populations.

Applied Prosthetics, Orthotics and Rehabilitation Technology V

1 Semester Hour

This course is based upon clinical observation and supervised application of prosthetic-orthotic principles as they relate to patient assessment, device recommendation, and fabrication techniques.

Clinical Education II

4 Semester Hours

Area clinical facilities provide directed experience and practical application with increasing student responsibilities in prosthetic and orthotic care.

FINANCIAL AID

Prospective students may apply to the student financial aid office for grants or loans. Awards are made based on individual student need. Additionally, a limited number of student stipends are available through the Prosthetic-Orthotic Program on a competitive basis.

The UTHSCD program offers a coordinated approach to the academic and clinical aspects of prosthetic-orthotic education, reinforcing the basic competencies necessary for entry level prosthetists and orthotists. In keeping with our desire to expand our horizons in the future, a residency program in prosthetics will be initiated as of September, 1984. A similar program in orthotics is being considered.

The University of Texas Health Science Center is an equal educational opportunity institution and welcomes all qualified students to apply for admission to the program. The faculty and staff of The University of Texas Program are singularly dedicated to offering the best educational experience possible to the practitioners of tomorrow.



University of Washington Prosthetics-Orthotics Bachelor of Science Program

Division of Prosthetics and Orthotics
Department of Rehabilitation Medicine
School of Medicine RJ-30
University of Washington
Seattle, WA 98195

Year Program Initiated: September 1970—first graduating class 1972

Degree or Certificate

Awarded: Bachelor of Science—Prosthetics and Orthotics are taught in the same course

Level of Training: Practitioner

ABC Accreditation: Fully accredited

**Prerequisites, Entrance
Requirements:**

Biology (general) 10 credits; Physics (general) 10 credits;
Biological Structures (Human Physiology) 5 credits;
Zoology 118 or 208 (Human Physiology) 5 credits;
Psychology 100 or 101 (general) 5 credits; plus proficiency
and distribution requirements.

Medical School Affiliation: University of Washington School of Medicine

**Number of New Students
Admitted, Each Discipline:** 12 total

Faculty/Student Ratio: 1:6

Length of Courses: Two academic years plus a 12-week clinical affiliation

Dates of Courses: Students admitted Autumn quarter (September) only

Application Deadline: February 15

Address of Registrar: Office of Admissions, 320 Schmitz Hall, PC-30 University
of Washington, Seattle, WA 98195



The University of Washington prosthetics/orthotics program is housed at the University's Medical School.

PROGRAM DESCRIPTION

The course of study leading to a Bachelor of Science in Prosthetics-Orthotics requires a minimum of four academic years plus twelve 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 twelve 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 pro-

fessional 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.

APPLICATION PROCEDURE

- A. To the University: For information on admission to the University of Washington, students should contact:

Office of Admissions
320 Schmitz Hall, PC-30
Seattle, Washington 98195

Requirements are outlined in the University of Washington Bulletin available from the University Book Store:

University Book Store
4326 University Way N.E.
Seattle, Washington 98105

All students who plan to enter the University of Washington in order to complete their pre-selection requirements should request admission into the college of Arts and Sciences. Students who are transferring from another institution and who have completed all pre-selection requirements should request admission into the School of Medicine as a Prosthetics-Orthotics major after they have been accepted into the professional phase of the curriculum.

Because of enrollment limitations at the University, transfer students are wise to submit their applications to the Office of Admissions early, in the event they wish to attend the University of Washington, whether accepted into the professional phase of the Prosthetics-Orthotics curriculum or not. Otherwise, they may wish to wait for an acceptance notice to the professional phase of the Prosthetics-Orthotics curriculum before submitting a University application. Upon notice of acceptance, immediate application to the University is necessary, as the deadline for University admission for the Autumn Quarter is approximately July 1. The University Office of Admissions may deny admission to any student who fails to meet University requirements.

- B. To the Professional Phase of the Prosthetic-Orthotic Curriculum: Application information is available from the curriculum secretary in Room CC902, University Hospital.

The following is an outline of the application procedure for prospective prosthetic-orthotic students (please note deadlines):

1. Submit an application form, academic record summary (contained in the application material) and attach working copies of transcript(s) to the curriculum office no later than February 15.
2. Arrange to have three (3) references completed and returned to the curriculum office by February 15. These should be from persons

whom the applicant feels can best judge his/her abilities. Only those references received on or before February 15 will be included in the applicant's folder, since rating begins shortly after that time.

3. Sign release on application form to allow members of the Advisory and Evaluation Committee access to information contained in transcripts and other application documents.
4. A personal interview is highly recommended and may be required.

PRE-SELECTION REQUIREMENTS

- A. Coursework prerequisite to professional phase: By the end of the Autumn Quarter or semester of the year prior to expected admission, the student must have completed a minimum of 22 quarter credits of the 29-34 credits in required courses (see list following) or their equivalents at other schools, with a minimum prerequisite grade point average of 2.5 on a 4.0 scale.

All students must submit a reasonable plan for completing any remaining unsatisfied prerequisite courses during Winter, Spring and/or Summer quarters or semesters prior to the Autumn Quarter the applicant plans to enroll, and must continue to maintain a cumulative grade point average of 2.5 in prerequisite courses. Specific required prerequisite courses are (total = 29-34 credits):

1. Biology 101-102: General (10 credits) of Microbiology 301-302: General (3 and 2 credits)
NOTE: Chemistry 102 is prerequisite to Microbiology
2. Physics 114, 115, 117, 118: General (10 credits)
3. Biological Structure 301: Human Anatomy (4 credits)
4. Zoology 118 or 208: Human Physiology (5 credits)
5. Psychology 100 or 101: General (5 credits)

- B. **Proficiency Requirements:** During the pre-professional program, University of Washington students are required to complete the Arts and Sciences proficiency requirements of 15 credits in English composition, mathematics and/or foreign language. (Students whose high school preparation included four years of English, three years of a single foreign language, and three years of college preparatory mathematics are considered to have satisfied this requirement.) In addition, students transferring with 85 credits or more from another institution are not required to complete additional work under this requirement.
- C. **Distribution Requirements:** Students must complete 60 credits, with 20 credits each from Humanities, Social Sciences and Natural Sciences. Coursework taken to satisfy the proficiency requirement cannot be counted in the distribution credits, however, courses taken to satisfy the prerequisites above may count toward distribution credits.
- D. **Total Cumulative Grade Point Requirement:** Students must have achieved a cumulative grade point average of 2.0 on all college work by the end of the Autumn quarter or semester prior to admission in order to be considered for admission to the program. This grade point average must be maintained during any remaining coursework completed prior to the point of entry into the professional phase of the program.

SELECTION CRITERIA

Five criteria are used to rate students during the preliminary faculty rating of applicants. These are: academic ability, knowledge of the field, service orientation, communication skills, and potential for contribution to the field.

Students from Washington, Oregon, Idaho, Montana, and Alaska receive the highest priority in the selection process. Re-applicants have no advantage or disadvantage

over new applicants. Ratings are based strictly on merit.

SELECTION PROCESS

- A. Each Prosthetic-Orthotic faculty member will independently rate all eligible applicants as number 1, 2, and so forth. The sum of the ratings of the faculty members will determine the rank position of each applicant.
- B. Results of the rating system will be presented to the Prosthetics-Orthotics Advisory and Evaluation Committee which will make the final recommendation regarding admission to the program, taking into account residency or other special considerations.
- C. Each applicant will be notified of final acceptance, provisional acceptance, alternative status, or denial on or about March 25 following the meeting of the Advisory and Evaluation Committee.
- D. Those applicants who receive final acceptance or provisional acceptance letters must notify the curriculum office in writing within two (2) weeks of the receipt of the letter from the Advisory and Evaluation Committee of their acceptance of a position in the curriculum.
- E. Provisional acceptance will be converted to final acceptance when evidence has been received that all requirements (prerequisite, proficiency, and distribution credits) have been met. Written verification must reach the curriculum office by September 1.
- F. Provisional acceptance will convert to denial if the above conditions have not been met by September 1.

STUDENT ACHIEVEMENT AND PROMOTION

Students must maintain a 2.5 curriculum grade point average based on a 4.0 scale in the required courses as listed above in order to be in satisfactory standing in the professional phase of the Prosthetics-Or-

thotics curriculum. At the end of any quarter when a student's performance falls below that point, he/she is placed on academic probation. Students are allowed two additional consecutive quarters to bring the professional phase grade point average to a 2.5. During this period they remain on academic probation. Those students not meeting the above standard will be dropped from the curriculum and advised to transfer to an alternative major within the University or to withdraw from the University.

The grade of 0.7 or less in a required course is not acceptable toward graduation. Students must re-enroll and satisfactorily complete the course prior to graduation. Under rules promulgated by the Faculty of the Department of Rehabilitation Medicine, a course may be repeated only one time. A student receiving a grade of less than 2.0 in a professional phase course will be required to repeat the course upon the recommendation of the faculty and the Advisory and Evaluation Committee. The Advisory and Evaluation Committee reserves the right to dismiss a student from the curriculum if for any reason he/she fails to complete admission requirements or requirements relating to scholastic progress in the Prosthetic and Orthotic curriculum.

All students are reviewed by the Advisory and Evaluation Committee at the end of the first year of the professional phase of the program or whenever necessary to determine their fitness for progression in the program.

SCHOLARSHIP AND FINANCIAL AID

Information on scholarships and financial assistance may be obtained from: Office of Financial Aid, 105 Schmitz Hall, University of Washington, Seattle, Washington 98195.

The University of Washington, as a standing policy, does not discriminate against individuals because of their race, color, religion, age, sex, national origin, handicap, or status as a disabled veteran or Vietnam era veteran. Any discriminatory action can be a cause for disciplinary action. This policy applies to all University programs and facilities, including, but not limited to, admissions, educational programs, and employment. Such discrimination is prohibited by Titles VI and VII of the Civil Rights Act of 1964, and Title IX of the Education Amendments of 1972, Section 503 and 504 of the Rehabilitation Act of 1973, Age Discrimination in Employment Act Amendments of 1978, Vietnam Era Veterans' Readjustment Assistance Act of 1974, and other federal and state statutes and regulations. Coordination of the compliance efforts of the University of Washington with respect to all of these laws and regulations is under the direction of the Equal Employment Officer, Dr. Philip W. Cartwright, 140 Administration, AF-16, Seattle, Washington 98195.

PROFESSIONAL PHASE CURRICULUM

The following schedule is the quarter by quarter sequence of courses in which all prosthetics-orthotics students enroll at the beginning of the Autumn Quarter. Only University of Washington coursework is accepted toward professional phase requirements.

Third Year

Course		Hours					
Autumn				Winter			
REHAB 332	Pathologic Physiology	5		REHAB 320	Medical Sciences	4	
REHAB 343	Upper Extremity Orthotics	6		REHAB 341	Upper Extremity Prosthetics I	4	
REHAB 444	Function of the Locomotor System	4		REHAB 445	Function of the Locomotor System	4	
REHAB 451	Anatomy Laboratory	1		REHAB 452	Anatomy Laboratory	1	
		Total	16			Total	13

<i>Spring</i>			<i>Summer</i>		
REHAB 321	Medical Sciences	4	REHAB 420	Lower Extremity Prosthetics I	8
REHAB 342	Upper Extremity Prosthetics II	4	REHAB 427	Applied Prosthetics and Orthotics	1
REHAB 442	Clinical Biomechanics and Kinesiology	6	REHAB 430	Advanced Limb Prosthetics and Engineering Concepts	4
REHAB 443	Kinesiology Laboratory	2			
		Total			Total
		16			13

Fourth Year

<i>Course</i>	<i>Hours</i>				
	<i>Autumn</i>			<i>Winter</i>	
REHAB 414	Psychological Aspects of Physical Disabilities	3	REHAB 340	Spinal Orthotics	3
REHAB 421	Lower Extremity Prosthetics II	11	REHAB 423	Lower Extremity Orthotics	8
REHAB 427	Applied Prosthetics and Orthotics I	1	REHAB 427	Applied Prosthetics and Orthotics I	1
		Total	REHAB 429	Immediate Post-Operative and Early Fitting	3
		15			Total
					15

<i>Spring</i>		
REHAB 428	Applied Prosthetics and Orthotics I	5
		Total
		5

Summary of Credits— Professional Phase

Third Year	58 credits
Fourth Year	35 credits
Total	93 credits

Practitioner Certificate Programs

- U.S. Department of the Army
- University of California at Los Angeles
- Florida International University
- New York University
- Northwestern University
- 916 Area Vo-Tech—University of Minnesota
- Shelby State Community College
(A.A.S. combined)
- University of Strathclyde



U.S. Department of the Army Orthotics Certificate Program

Academy of Health Sciences, United States Army
Fort Sam Houston
San Antonio, TX 78234

Year Program Initiated: 1977

Degree or Certificate

Awarded: Certificate, Department of Defense

Level of Training: Practitioner—Orthotics

ABC Accreditation: Fully accredited

Prerequisites, Entrance

Requirements: See program description

School Affiliation: Incarnate Word College

Number of New Students

Admitted, Each Discipline: 30 per year

Faculty/Student Ratio: 1:5

Length of Courses: One year

Dates of Courses: March 28; September 13

Application Deadline: N/A

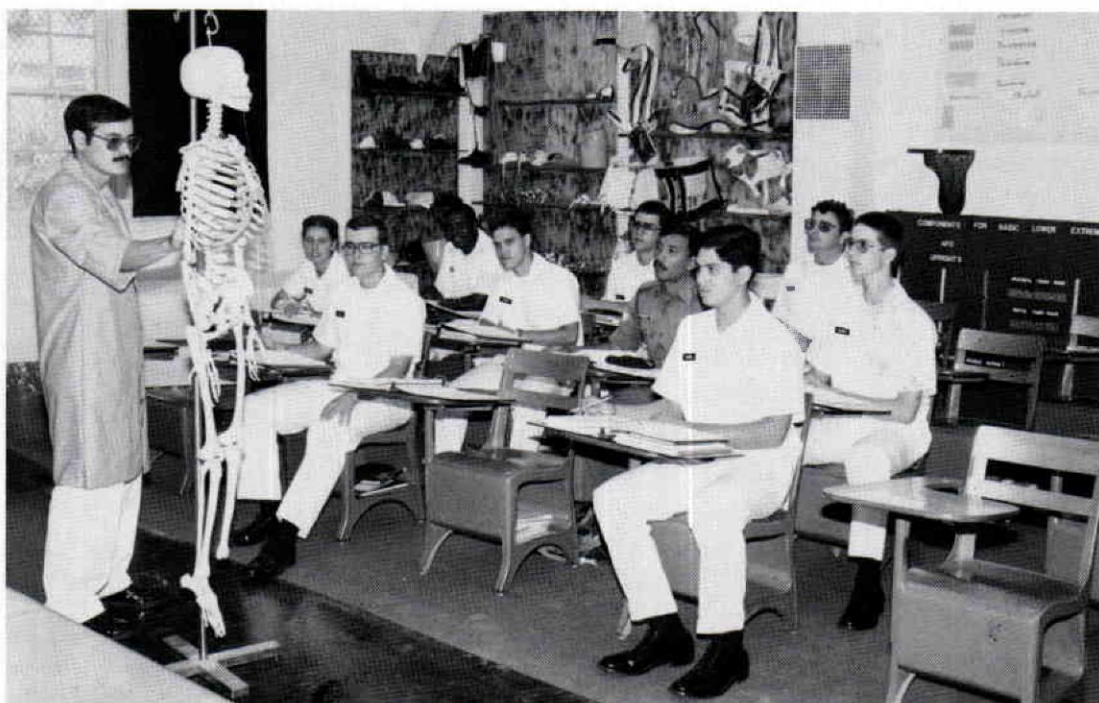
Address of Registrar: AHS, U.S. Army, Fort Sam Houston, TX 78234

PROGRAM DESCRIPTION

The Orthotic Specialist Course (42C) is a two phase program for military personnel only, established in September of 1977 at the Academy of Health Sciences, Fort Sam Houston, Texas. The Academy of Health Sciences is the largest school of allied health in the free world. It trains nearly 35,000 students in Resident Courses and

another 25,000 in correspondence work annually. In addition to its facilities at Fort Sam Houston, the Academy operates the U.S. Army Medical Equipment and Optical School, which is located in Denver, Colorado.

The program is affiliated with Incarnate Word College, 4301 Broadway, San Antonio, Texas 78209.



An instructor reviews the skeletal system with students.

PREREQUISITES, ENTRANCE REQUIREMENTS

Active or Reserve Components E-5 and below. Completion of 300-F10, General Medical Orientation (GMO) Course or 91B MOS. Physical and Mental Standards IAW AR 611-201, Height and Weight Standards IAW AR 600-9. Capacity to stand for long periods, high school diploma, or GED. Minimum Aptitude Area Score 95GM. Minimum service time remaining requirement for Active Components is 30 months. Service remaining for Reserve Components governed by NGR 350-1 or 35-200.

COURSE OUTLINE

During Phase I of the orthotic program the following subjects are taught:

- Anatomy and physiology (92 hours)
- Upper extremity orthotics (120 hours)
- Lower extremity orthotics (224 hours)
- Spinal orthotics (135 hours)
- Professional and administrative subjects (51 hours)
- Shop equipment and materials (45 hours)
- Orientation (7 hours)
- 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 Army medical centers and Army hospitals for 32 weeks. Phase II consists of on-the-job type training under highly qualified orthotists and orthopedic surgeons. The following is a list of subjects taught in Phase II:

- Shoe modification and arch supports (280 hours)
- Upper extremity orthotics (280 hours)
- Lower extremity orthotics (280 hours)
- Spinal orthotics (280 hours)
- Administration and supply procedures (40 hours)
- Reinforcement (80 hours)

Upon successful completion of the 52 week course the students receive 46 semester hours of college credit. Course description breakdown is as follows:

ORTHOTIC SPECIALIST COURSES

OS 1301—Anatomy & Physiology

3 Semester Hours

Course is designed to familiarize the orthotic specialist with the anatomic and physiologic principles that relate to his field.

OS 1302—Introduction to Orthotic Lab

3 Semester Hours

This course provides the basic introduction to the equipment that the student will be using to conduct his further training and the material he will employ in the fabrication of his orthoses.

OS 1602—Orthotic Procedures and Techniques

6 Semester Hours

This course will provide the student with an understanding of prescriptions, their indications, and limitations. It provides a working knowledge of the procedures and techniques used in the fabrication of orthotic components and molded orthoses. It provides a working knowledge of shoes and modifications for foot and ankle disorders.

OS 1504—Spinal Orthotics

5 Semester Hours

This course gives an introduction to the spinal disorders which are treated and the fabrication of the orthoses to correct or to alleviate them.



A student in the Army's orthotic specialist program practices contouring metal to a schematic.

OS 1605—Upper and Lower Extremity Orthotics

6 Semester Hours

The student is trained in the interpretation of the prescription and measurement for the upper and lower extremities.

OS 1206—Professional Subjects, Administration, and Supply

2 Semester Hours

This course provides the professional medical, administrative, and supply information needed to enable the student to function in his field.

OS 2501—Corrective Footwear Preceptorship

5 Semester Hours

Under direct supervision this preceptorship provides the student, in a one-to-one relationship with a certified instructor, with the detailed laboratory instruction and experience needed to successfully apply the knowledge which he has learned in the previous academic portion of the course to the day to day care of patients.

OS 2502—Upper Extremity Orthotic Preceptorship

5 Semester Hours

Under the direct supervision of a certified orthotic preceptor, the student will receive instruction in measuring, fitting, construction, and patient application of

upper extremity appliances. He will receive 280 hours of instruction and direct contact time with the instructor, who is responsible for the approval of his orthoses and the continuation of his instruction to improve his proficiency in the making and fitting of upper extremity orthoses.

OS 2503—Lower Extremity Orthotic Preceptorship

5 Semester Hours

The student is instructed in the manufacture of lower extremity orthoses. The student will receive 280 contact hours in this field during which time he will be expected to be proficient in the construction of no less than ten different lower extremity orthoses. The student will be responsible, under supervision, for their fitting, after having secured measurements and constructing the orthoses, and will be responsible for the successful instruction of the patient in the use of these orthoses.

OS 2504—Spinal Orthotic Preceptorship

5 Semester Hours

In this course the student will receive 280 contact hours in direct one to one relationship with a certified orthotist who will instruct the student in measuring, fitting, and constructing any one of seven different spinal orthoses to professional certification standards.

OS 1205—Administration Preceptorship

1 Semester Hour

During this period of time the student will, under direct supervision of the shop foreman, be responsible for the management decisions and procedures conducted by the shop.



Instructor supervises a student using a shoe finisher.

During this period of time the student will be responsible, under supervision, for the operation of the laboratory to include its scheduling, its supply ordering, its issue of materials, its safety, and its maintenance. Students will be given direct practical application of the skills which have been taught in the academic portion of the course to enable students to run their own orthotic facility with a maximum of economy and efficiency.

Commandant of the Academy of Health Sciences: Major General William Winkler, MD.

Course Director: Colonel Jack C. Fitzpatrick, M.D., Chief, Medicine and Surgery Division.

Class Advisor: Colonel Ole A. Lindefeld
Course Coordinator: Specialist Six John P. Rodman, C.O.

Course NCO: Sergeant First Class Marvin E. Mangham.

Instructor: Ronald W. Warren, C.O., DAC.



University of California at Los Angeles

Prosthetics/Orthotics Certificate Program

Prosthetics/Orthotics Education Program
UCLA Rehabilitation Center
Room 22-46
1000 Veterans Avenue
Los Angeles, CA 90024

Year Program Initiated: 1964

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

Level of Training: Post-graduate

ABC Accreditation: Provisionally accredited

**Prerequisites, Entrance
Requirements:** Baccalaureate Degree; Selection of students based on educational background and work experience.

Medical School Affiliation: UCLA School of Medicine

**Number of New Students
Admitted, Each Discipline:** 12-14 per year

Faculty/Student Ratio: 1:7

Length of Courses: Ten months

Dates of Courses: September through June

Application Deadline: March 1st

Address of Registrar: Prosthetics/Orthotics Education Program, UCLA Rehabilitation Center, Room 22-46, 1000 Veterans Avenue, Los Angeles, CA 90024



UCLA Rehabilitation Center.

PROGRAM 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, and pose 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 away 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 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

200 Hours: 8 Units

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.

Below Knee Prosthetics × 480

160 Hours: 8 Units

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 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

120 Hours: 4 Units

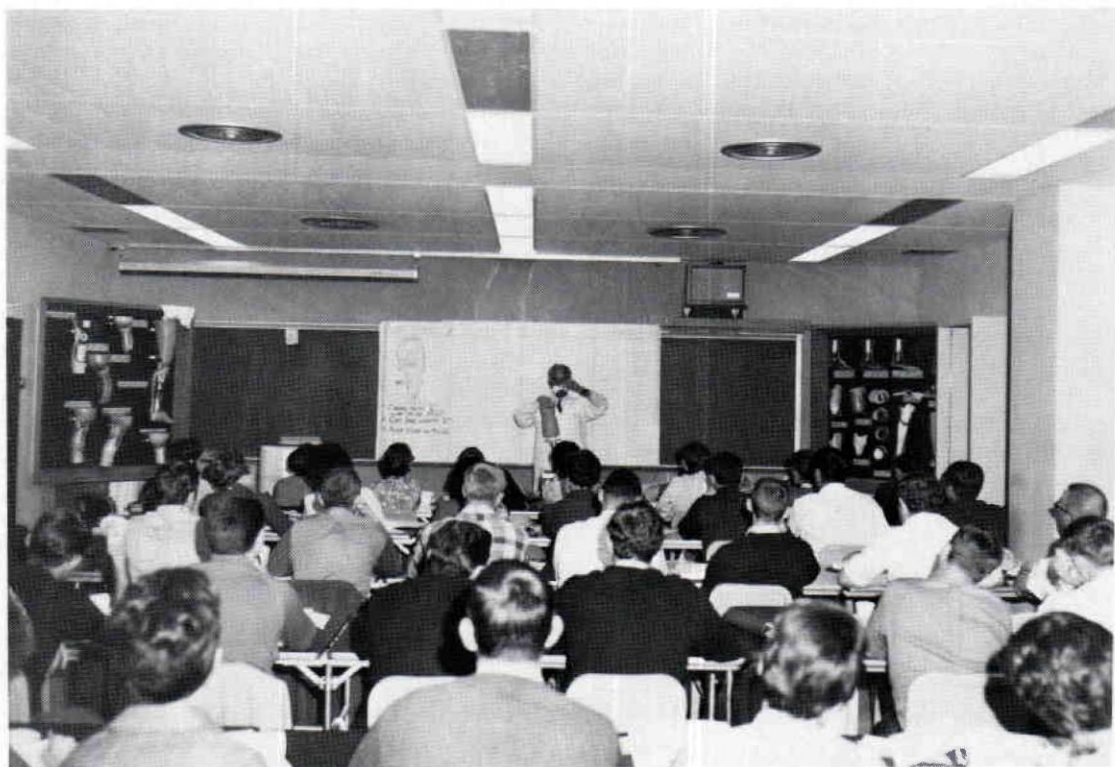
In this three-week course, lower-extremity prosthetic principles are applied to the problems of the hip disarticulation and hemipelvectomy amputee. The Canadian Hip Disarticulation Prosthesis is emphasized along with the UCLA modification which includes the adjustable split type socket with the HydraCadence 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 prosthesis and one Symes prosthesis for a clinical subject as part of the course.

Lower Extremity Orthotics × 485

160 Hours: 8 Units

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.



Students attend a prosthetics lecture.

Advanced Lower Extremity Orthotics × 485.2

40 Hours: 2 Units

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

40 Hours: 2 Units

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

64 Hours: 3 Units

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

24 Hours: 2 Units

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.

External Power for Upper Extremity Prosthetics

Physicians × 493

16 Hours: 2 Units

Prosthetists × 492

80 Hours: 4 Units

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

16 Hours: 2 Units

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 post-surgical 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 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 prosthetists or orthotists is certification by the American Board for Certification in Orthotics and Prosthetics.



Florida International University Prosthetics/Orthotics Certificate Program

Tamiami Campus
Miami, FL 33199

Year Program Initiated: 1984

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

Level of Training: Practitioner

ABC Accreditation: To be applied for

**Prerequisites, Entrance
Requirements:** Baccalaureate (BS, BA) or Associate (AA) degree

Medical School Affiliation: University of Miami, Department of Orthopaedics

**Number of New Students
Admitted, Each Discipline:** 12 in prosthetics and orthotics

Length of Courses: Two years

Address of Registrar: Florida International University, Tamiami Campus,
Miami, FL 33199.

PROGRAM DESCRIPTION

Florida International University's Certificate Program in Prosthetics/Orthotics is an intensive two-year program of theoretical, practical, and clinical education.

The content of the certificate program

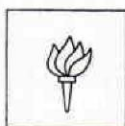
consists of didactic and laboratory instruction in prosthetics and orthotics. Topics include: anatomy, kinesiology, gait analysis, physiology, pathology, biomechanics, patient evaluation, prosthetic-orthotic components, principles of prescription, measurement, casting, cast modification,



The campus of Florida International University.

alignments, and fabrication and fitting of upper and lower limb prosthetics, and upper, lower and spinal orthotics. Area clinical facilities will provide directed clinical experiences and application with increasing student responsibilities in prosthetic and orthotic care.

Prerequisites for admission into the certificate program include a Baccalaureate Degree (BA, BS) or an Associate Degree (AA). Recommended undergraduate courses of study include: mathematics, biology, chemistry, physics, and psychology.



New York University Prosthetics and Orthotics Certificate Program

New York University Post Graduate Medical School
317 East 34th Street, New York, NY 10016
(212) 340-6686

- Year Program Initiated:** 1979
- Degree or Certificate Awarded:** Professional Certificate—Orthotics and Prosthetics
- Level of Training:** Practitioner
- ABC Accreditation:** Fully accredited
- 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 New Students Admitted, Each Discipline:** 18—only combined prosthetic and orthotic instruction
- Faculty/Student Ratio:** 1:6-8 (in laboratories)
- Length of Courses:** Four semesters, including the intervening summer
- Dates of Courses:** September to May each year, as well as clinical affiliation in the intervening summer
- Application Deadline:** June 1st
- Address of Registrar:** 317 East 34th Street, New York, NY 10016

PROGRAM DESCRIPTION

The Certificate Program at the New York University Post-Graduate Medical School consists of 19 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 1,000 hours (25 full-time weeks) of clinical practice. This work experience, in addition to our increased emphasis on theoretical and di-

dactic instruction, makes this program unique.

Needless to say, these additional time-consuming experiences would not be included if they did not significantly strengthen the professional preparation of the students. The academic and laboratory courses, together with the required field experience, 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.

First Year

Course	Points
<i>Fall</i>	
Biomechanics	2
Mechanics	3
Prosthetic and Orthotic Techniques	6
Biostatistics	3
Human Anatomy	3
Total	17

Spring

Below-Knee Orthotics	4
Below-Knee Prosthetics	6
Psychology of the Physically Disabled	2
Properties of Materials	2
Clinical Affiliation	1
Physiology	2
Total	17

Summer

Clinical Affiliation	13 weeks
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Second Year

Course	Points
<i>Fall</i>	
Spinal Orthotics	5
Upper-Limb Orthotics	4
Upper-Limb Prosthetics	5
Clinical Affiliation	1
Survey of Orthopedic and Neuromuscular Conditions	2
Total	17

Spring

Above-Knee Orthotics	4
Above-Knee Prosthetics	8
Professional Aspects of Prosthetics and Orthotics	2
Clinical Affiliation	2
Human Anatomy (laboratory)	1
Total	17

TWO YEAR TOTAL 68

For a listing of course descriptions, see NYU Baccalaureate Program, p. 28.



The NYU prosthetic laboratory, used in both the certificate and baccalaureate programs.



Northwestern University

Certificate Program

Prosthetic-Orthotic Center
345 E. Superior Street, 17th Floor
Chicago, IL 60611

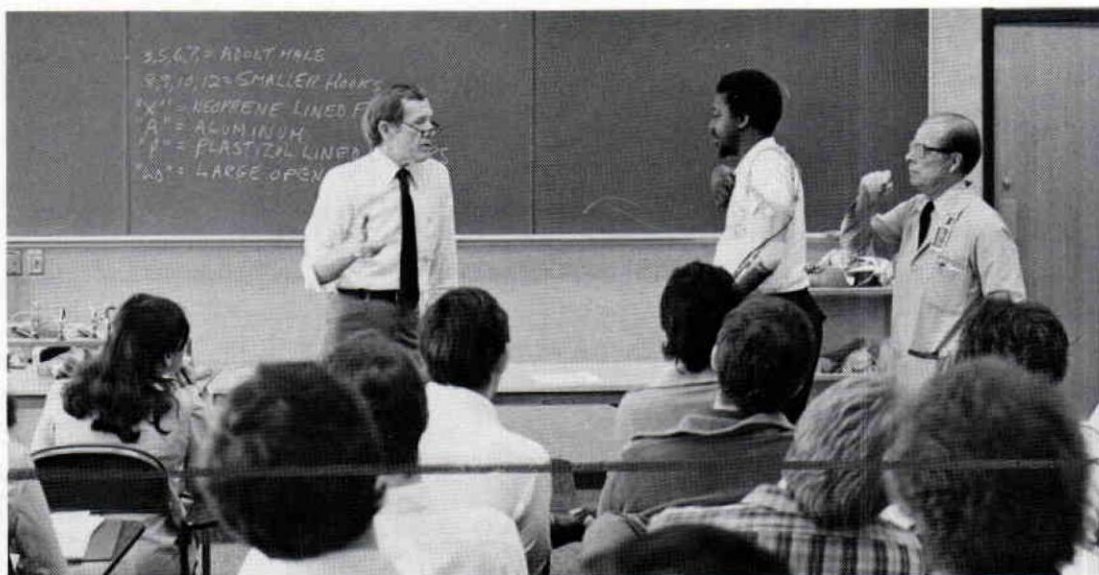
- Year Program Initiated:** 1957
- Degree or Certificate Awarded:** Certificate in Prosthetics
 Certificate in Orthotics
- Level of Training:** Practitioner
- ABC Accreditation:** Fully accredited
- Prerequisites, Entrance Requirements:** Bachelor of Science, Bachelor of Arts, preferably in a health-science field
- Medical School Affiliation:** Northwestern University, Department of Orthopaedic Surgery
- Number of New Students Admitted, Each Discipline:** 18
- Faculty/Student Ratio:** 1:6
- Length of Courses:** 4½ months
- Dates of Courses:** January–May; July–December
- Application Deadline:** 6 months prior to the start of the program
- Address of Registrar:** Northwestern University, Prosthetic-Orthotic Center
 345 E. Superior St., Room 1723, Chicago, IL 60611

PROGRAM DESCRIPTION

Northwestern University's Prosthetic-Orthotic Center functions as a division of the Medical School's Department of Orthopaedic Surgery. Located within the McGaw Medical Center of Northwestern University and housed in the Rehabilitation Institute of Chicago, NUPOC is ideally

situated to provide its prosthetic-orthotic trainees with unique educational opportunities. NUPOC's students participate in prosthetic-orthotic clinics and orthopedic conferences on a weekly basis.

The Center offers separate certificate programs for persons interested in pursuing careers as prosthetic or orthotic practitioners.



Instructors demonstrate the use of a prosthesis with the help of a volunteer.

THE PROSTHETIC CERTIFICATE PROGRAM

The content of the prosthetic certificate program consists of didactic and laboratory instruction in prosthetics. Topics include: 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.

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.

PREREQUISITES

For admission to the certificate programs in prosthetics-orthotics, priority is given to individuals holding a baccalaureate or higher degree in a related field. Examples

of curricula considered to be "related" are: occupational and physical therapy, biology, physiology, kinesiology, physical science, biomedical engineering, and engineering sciences. Applicants should have some basic knowledge in plaster work, laminating, and general laboratory experience. Actual patient contact is strongly suggested. It is desirable, but not mandatory, that applicants have prior work experience in a prosthetic-orthotic facility which is certified by the American Board for Certification. Additionally, the faculty strongly recommends that a student not attempt to complete two separate certificate programs in a single calendar year.

Faculty

Charles M. Fryer, *Director*
 May Cotterman, M.S., R.P.T., *Assistant Director*
 James C. Russ, C.O., *Director, Orthotic Education*
 Gunter Gehl, C.P., *Director, Prosthetic Education*
 William Beiswenger, B.S., C.P.O., *Instructor*
 Michael Brncick, M.S., C.P.O., *Instructor*
 Donna Leung, M.S., C.O., *Instructor*
 David Mueller, B.S., R.P.T., *Instructor*
 Robert Picken, B.S., C.P., *Instructor*
 Jack Uellendahl, A.A., C.P., *Instructor*



916 Area Vo-Tech Institute (AVTI)— University of Minnesota Certificate Program

**Orthotics and Prosthetics Training Program
916 Area Vocational Technical Institute
3300 Century Avenue
White Bear Lake, MN 55110**

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

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

Level of Training: Orthotic Practitioner/Prosthetic Practitioner

ABC Accreditation: Fully accredited

**Prerequisites, Entrance
Requirements:** One year fabrication experience in intended area of study
and a minimum of an Associate Degree. Technician
course or special basic lab skills.

Medical School Affiliation: University of Minnesota Medical School

**Number of New Students
Admitted, Each Discipline:** 12 each course offering

Faculty/Student Ratio: 1:6

Length of Courses: Orthotics Practitioner: Nine months
Prosthetics Practitioner: Nine months

Dates of Courses: September and June

Application Deadline: May and February

PROGRAM DESCRIPTION

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 nine-month Prosthetic Practitioner Program 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 audio-visual 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 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.



Students in the prosthetic practitioner program align a transparent check socket.

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 environment. 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, write:

Prosthetic Practitioner Program
Attention: Steve Stolberg, C.P.

Orthotic Practitioner Program
Attention: Stewart Crenshaw



Shelby State Community College

A.A.S. and Certificate Programs

Orthotics/Prosthetics Program
 Dept. of Rehabilitation Technologies
 737 Union
 P.O. Box 40568
 Memphis, Tennessee 38174

- Year Program Initiated:** 1982
- Degree or Certificate Awarded:** Associate of Applied Science—Long Term Certificate
- Level of Training:** Undergraduate-graduate
- ABC Accreditation:** Fully accredited
- Prerequisites, Entrance Requirements:** High school diploma for Associate admission. Associate in progress or complete for Certificate admission.
- Medical School Affiliation:** University of Tennessee
- Number of New Students Admitted, Each Discipline:** 12 each
- Faculty/Student Ratio:** 1:6
- Length of Courses:** Two years Associate; ten and one-half months Certificate
- Dates of Courses:** Associate begins each September; Certificate begins each July
- Application Deadline:** May 15; applications may be accepted up to the start of class, on a space available basis
- Address of Registrar:** 737 Union, P.O. Box 40568, Memphis, Tennessee 38174-0568

PROGRAM DESCRIPTION

The Orthotics-Prosthetics program at Shelby State Community College is designed to meet the every-growing demand for professionally trained orthotics-prosthetics practitioners. At present, accredited schools and universities in North America are unable to replace those practitioners lost to attrition. Several schools and universities throughout the United States have certified orthotic-prosthetic practitioner programs. SSCC is one of the youngest of these programs, having been granted accreditation by the American Board for Certification in 1982.

The two year Orthotic/Prosthetic Clinician program is designed to prepare students for employment in commercial or government facilities. Upon successful completion of the program the student will be awarded an Associate of Applied Science Degree and a Long Term Certificate in Orthotics or Prosthetics.

LOCATION

Orthotic-Prosthetic Technology students will take all their required courses at Shelby State's mid-town campus, which is less than a mile from the mighty Mississippi River and the hustle and bustle of a rejuvenated downtown Memphis. Professional courses are offered in the Allied Health building, which is one of 11 ultra-modern buildings that make up the mid-town complex. The Orthotic and Prosthetic department has its own classrooms, library, and well-equipped laboratories for both orthotics and prosthetics. The 17 acre campus is located across the street from The University of Tennessee Center for the Health Sciences with easy access to several major medical facilities. Some of these offer clinical affiliation for Orthotic-Prosthetic students. The Allied Health building is located directly across from the gymnasium which seats 2,500 and features a sauna, weight room, racquetball courts and dressing rooms for men and women. Four tennis courts are located adjacent to the gym. A modern cafeteria serving hot meals, short orders, and snacks is located in the heart of

the campus, as is a full-service bookstore. Most Shelby State facilities are easily accessible to handicapped students.

ACCREDITATION

Shelby State Community College is accredited by the Southern Association of Colleges and Schools as a two year degree-granting institution. Also, accreditation has been granted in both orthotics and prosthetics by the American Board for Certification in Orthotics and Prosthetics, Incorporated.

APPLICATION PROCEDURE

A prospective student must submit an Allied Health Application by May 1, and be interviewed by the Coordinator of the Orthotics-Prosthetics Clinician program, for programs beginning Spring Quarter. The selection of the students for admission to the second year of the program will be determined by the end of the first summer session.

CURRICULUM PLAN

Summary of Degree Requirements:

- Language and Literature
- Speech
- Comparative, Analytic, and Methodological Studies
- College Algebra
- Natural Sciences: Anatomy and Physiology I, II, and III
- Chemistry for the Health Sciences
- Historical Perspectives
- Social Sciences
- Psychological Behavior
- Philosophic Alternatives
- Aesthetic Experience and the Arts
- Physical Education

Core Requirements:

First Year

- Introduction to Orthotics/Prosthetics
- Methods and Materials
- Orthotics and Prosthetics Clinical Experience I
- Anatomical Drawing

Second Year

Kinesiology
Pathophysiological Conditions

Orthotics

Spinal Orthotics
Lower Extremity Orthotics I
Lower Extremity Orthotics II
Upper Extremity Orthotics
Orthotics Clinical Experience I

Prosthetics

Upper Extremity Prosthetics
Below Knee Prosthetics
Above Knee Prosthetics I
Above Knee Prosthetics II
Prosthetics Clinical Experience II

Students seeking a Bachelor of Professional Studies degree in Orthotics and Prosthetics from Memphis State University first earn the Associate of Applied Science degree in Orthotics/Prosthetics from Shelby State Community College. (Students with O/P training from another institution should consult with the department before applying to this program.)

For further information and for a copy of the complete guidelines, write to the Division of Allied Health at Shelby State Community College.

To request an Allied Health Application for the program and an entrance application for the College, please write the Admissions Office.

RECOMMENDED COURSE SEQUENCE

First Year

(Same for Orthotics and Prosthetics)

Course		Hours
	<i>Fall</i>	
111	Language and Literature, Group A	3
133-131	Anatomy and Physiology I, Group E	4
125-142	College Algebra, Group D	5
415-141	Introduction to Orthotics/Prosthetics	4
118	Speech, Group B	3
348	Physical Education, Group K	1
	TOTAL	20

Interession

415-190	Orthotics Prosthetics Clinical Experience I	3
	TOTAL	3

Winter

111	Language and Literature, Group A	3
133-132	Anatomy and Physiology II, Group E	4
415-144	Orthotics/Prosthetics Materials and Methods	4
400-118	Chemistry for the Health Sciences Arts, Group J	3
348	Physical Education, Group K	1
	TOTAL	19

Spring

111	Language and Literature, Group A	3
133-133	Anatomy and Physiology III Group E	4
400-121	Physics for the Health Sciences	4
145	History, Group F	3
	Social Sciences, Group G	3
415-251	Anatomical Drawing	3
	TOTAL	20

Second Year— Orthotics Technology

Course		Hours
	<i>Second Summer Session</i>	
415-268	Spinal Orthotics	7
	TOTAL	7
	<i>Fall</i>	
415-261	Lower Extremity Orthotics I	8
148	Psychological Behavior, Group H	3
400-202	Kinesiology	4
348	Physical Education, Group K	1
	TOTAL	16

Interession

415-262	Lower Extremity Orthotics II	4
	TOTAL	4

Winter

	Comparative Analytic and Methodological Studies, Group C	3
415-265	Upper Extremity Orthotics	6
400-201	Pathophysiological Conditions	4
400-251	Medical Ethics, Group I	3
	TOTAL	16

Spring

415-192	Orthotics Clinical Experience II	12
	TOTAL	12

Second Year— Prosthetics Technology

Course		Hours
	<i>Second Summer Session</i>	
415-278	Upper Extremity Prosthetics	7
	TOTAL	7

Fall

148	Psychological Behavior, Group H	3
415-270	Below Knee Prosthetics	12
400-202	Kinesiology	4
	TOTAL	19

Intersession

415-276	Above Knee Prosthetics I	4
	TOTAL	4

Winter

	Comparative, Analytic and Methodological Studies, Group C	3
415-277	Above Knee Prosthetics II	8
400-201	Pathophysiological Conditions	4
400-251	Medical Ethics, Group I	3
348	Physical Education, Group K	1
	TOTAL	19

Spring

415-182	Prosthetics Clinical Experience II	12
	TOTAL	12



University of Strathclyde

National Centre for Training and Education in Prosthetics and Orthotics

Curran Building
131 St. James' Road
Glasgow G4 OLS, Scotland

- Year Program Initiated:** 1973
- Degree or Certificate Awarded:** Higher diploma of the Scottish Technical Education Council
- Level of Training:** First degree level
- ABC Accreditation:** N/A
- Prerequisites, Entrance Requirements:** Scottish University level—science based, or academic equivalent
- Medical School Affiliation:** Area and national clinical units
- Number of New Students Admitted, Each Discipline:** 14 combined prosthetics/orthotics
- Faculty/Student Ratio:** 1:6
- Length of Courses:** 3 years (44-week year)
- Dates of Courses:** Commencement mid-September
- Application Deadline:** June
- Address of Registrar:** National Centre for Training & Education in Prosthetics & Orthotics, University of Strathclyde, Curran Building, 131 St. James' Road, Glasgow G4 OLS, Scotland

PROGRAM DESCRIPTION

The Center, in conjunction with the Glasgow College of Technology and under the auspices of the Scottish Technical Education Council, offers a three year full-time course leading to the award of a Higher Diploma in Prosthetics/Orthotics.

The program covers all aspects of education and training in both prosthetics and orthotics. It recognizes that the common elements between orthotics and prosthetics makes it educationally indefensible to separate them. The essential ingredients of the program are:

- Academic studies
- Practical training
- Clinical experience

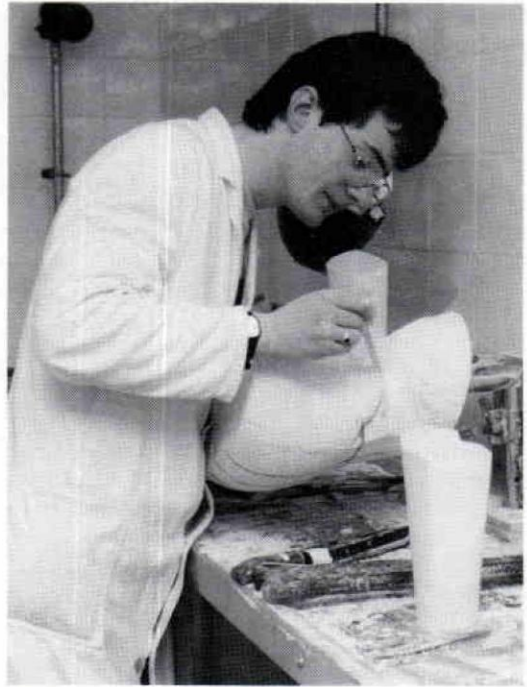
Each year for the first three years is divided into two parts. The first part is devoted to academic studies and the second to practical training in the fitting and fabrication of prosthetic and orthotic devices. Successful completion of the first three years leads to the award of the Higher Education Diploma in Prosthetics and Orthotics in respect of the theoretical aspects of the curriculum. The associated clinical work is certified separately by the University.

Graduates who intend to work in the Scottish Health Service must then undertake an internship within the hospital environment, during which they are exposed to a structured broadening of their clinical experience under appropriate supervision.

PRACTICAL TRAINING

The practical training is provided or supervised by the National Centre for Training and Education in Prosthetics and Orthotics during the three years of the Higher Diploma Course. The period of practical training is 23 weeks in each year. There are the following elements:

Prosthetic and Orthotic Practice	1,750 hrs.
Workshop Practice and Technical Drawing	350 hrs.
Essay and Project Work	315 hrs.
Total	2,415 hrs.



Student at work in the lab.

Prosthetic and Orthotic Practice

The trainee receives closely supervised instruction in the fitting and manufacture of prosthetic and orthotic devices. The instruction takes the form of lectures and demonstrations followed by fitting and fabrication by the trainee under the close supervision of a trained instructor. Emphasis throughout is on measurement, casting, fitting and adjustment—as opposed to fabrication techniques—although at some point the trainee must perform each of the operations required of technicians. The practical course is related throughout to the Prosthetic and Orthotic Science course.

The time allocated to the different aspects of prosthetic and orthotic practice is:

Lower limb prosthetics	710 hrs.
Upper limb prosthetics	275 hrs.
Lower limb orthotics	430 hrs.
Upper limb orthotics	120 hrs.
Spinal orthotics	215 hrs.
Total	1,750 hrs.

QUALIFICATIONS FOR ENTRY

The entry qualification to the first stage of the course is normally one of the following:

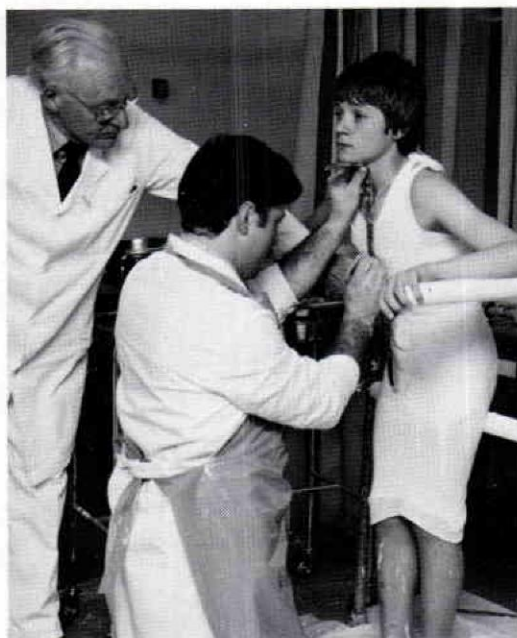
- A. Possession of the Scottish Certificate of Education with passes in five different subjects as follows:
 1. two subjects at Higher Grade at least one of which would normally be taken from the following list of subjects: Biology, Chemistry, Mathematics, Physics, and;
 2. three subjects at Ordinary Grade with an award of band A, B or C (the subjects passed at either Higher Grade or Ordinary Grade standard must include English, Math and one of the following groups: Biology, Chemistry, or Physics).
- B. Satisfactory completion of the 01 stage of the Ordinary National Certificate Course in Biology, Stage II of the SCOTEC Certificate Course in Mechanical and Production Engineering, or in an appropriate related course.
- C. Any other academic qualification which is acceptable to the Scottish Technical Education Council.

SELECTION OF TRAINEE PROSTHETIST/ORTHOTISTS

Trainees are selected from suitably qualified applicants by means of interview. The interviewing panel comprises representatives of the Scottish Health Service, the National Centre for Training and Education in Prosthetics and Orthotics, and Glasgow College of Technology.

ACADEMIC STUDIES

The subjects included in the prosthetic/orthotic curriculum range over the basic physical and life sciences and the application of these to prosthetics and orthotics and related medical and social topics. Each



Under the watchful eye of his instructor, a student measures a patient.

year of the academic programme consists of two twelve-week terms. The relevant time allocation to the different subjects and activities is indicated below:

Life Sciences	460 hrs.
Physical Sciences	350 hrs.
Clinical Studies and Human Relations	328 hrs.
Prosthetic and Orthotic Science	330 hrs.
Biomechanics	285 hrs.
Student Activity and Library Study	407 hrs.
Total	2,160 hrs.

Of the academic studies, all the professional subjects—Biomechanics, Clinical Studies and Prosthetic/Orthotic Science—are provided by the National Centre. The Clinical Studies lectures and demonstrations take place in collaborating hospitals throughout Scotland and are undertaken by senior clinicians drawn from the list of Clinical Associates. Practical training is conducted within the Centre's own clinical facilities and consists of closely controlled and supervised instruction in all aspects of fitting and fabrication of the major types of prosthetic and orthotic devices.

Requests for further information relating to this course should be addressed to the Director of the Centre, Professor J. Hughes.

Associate of Arts Degree Program

- Dutchess Community College



Dutchess Community College

A.A.S. Degree in Orthotics Program

State University of New York
Pendell Road
Poughkeepsie, NY 12601

Year Program Initiated: 1974

Degree or Certificate

Awarded: A.A.S. Degree—Orthotics Assisting Technology

Level of Training: Associate in Applied Science

ABC Accreditation: No

Prerequisites, Entrance

Requirements: 11th grade high school math (algebra-trig.) with a grade of 75 or better—high school physics preferred

Medical School Affiliation:

None—affiliated with Veterans Admin. Orthotics Lab at Castle Point V.A. Medical Center, Beacon, NY 12508

Number of New Students

Admitted, Each Discipline: 1–4 each year

Faculty/Student Ratio:

General: 1:20
Orthotics Courses: 1:1–4

Length of Courses:

Orthotics Lab I: 7 cr. hr.
Orthotics Lab II: 10 cr. hr.

Dates of Courses:

Normal fall semester Sept.–Dec.
Normal spring semester Jan.–May

Application Deadline:

September

Address of Registrar:

Dutchess Community College, Pendell Road,
Poughkeepsie, NY 12601

PROGRAM DESCRIPTION

Orthotics Assisting Technology (ORT)

The orthotics assistant serves as a member of a team of medical specialists, assisting in the design, construction, and fitting of orthotic devices for the physically handicapped. These orthoses help restore lost function and enable the patient to carry on the normal activities of daily living.

Employment opportunities for graduates of the orthotics assistant technology program are available in private companies, certain hospitals, government agencies such as the Veterans Administration, and some educational institutions.

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 receive 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 (A.A.S.) degree is awarded upon completion of requirements for this program.

First Semester

Course	Hours
ENG 101 Composition I	3
BIO 109 Anatomy and Physiology I	4
*MAT 132 Technical Mathematics II	3
ENT 105 Drafting for Engineering Technology	13
MAS 102 Medical Terminology	2
Total	15

Second Semester

Course	Hours
ENG 102 Composition II	3
or ENG 103 or Composition II	3
BHS 103 Social Problems in Today's World	3
BIO 110 Anatomy and Physiology II	4
ENT 103 Applied Mechanics	4
EMS 204 Manufacturing Mat. and Processes	3
Total	17

Third Semester

Course	Hours
PSY 111 Psychological Principles I	3
ORT 101 Orthotics Laboratory I	7
MED 104 Applied Mechanics of Materials	3
†HED 123 Contemporary Health Problems	2
**PED 223 Dynamics of Physical Health	2
Total	17

Fourth Semester

Course	Hours
GOV 121, HIS 102, HIS 104 or HGE 101	3
ORT 102 Orthotics Laboratory II	10
‡Elective	3-4
Total	6-17

*Students whose mathematics background does not include intermediate algebra and trigonometry must first take MAT 131. Qualified students may take a more advanced mathematics course.

†HED 133 may be substituted for HED 123.

‡Elective course: Any applicable courses (BUS 104, CHE 111, PSY 201, and similar courses are recommended), except MAT 131.

**All students are required to earn two credit hours of physical education. Students cannot repeat the same physical education activity at the same level; PED 223 satisfies the two-credit hour requirement. Students may use only two 100-level PED courses toward graduation.

Courses applicable in this program are: (a) specific courses listed above; (b) courses applicable in all programs.

Courses should be selected in consultation with student's advisor.

Technician Programs

- 916 Area Vo-Tech—University of Minnesota
- Spokane Falls Community College



916 Area Vo-Tech Institute (AVTI)— University of Minnesota Orthotics/Prosthetics Technician Program

3300 Century Avenue
White Bear Lake, MN 55110

Year Program Initiated: 1974

Degree or Certificate

Awarded: Degree of Occupational Proficiency in Orthotics and Prosthetics Technician

Level of Training: Orthotic Technician/Prosthetic Technician

ABC Accreditation: Fully accredited

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 New Students

Admitted, Each Discipline: 30 total

Faculty/Student Ratio: 1:12

Length of Courses:

Orthotics Technician: One year
Prosthetics Technician: One year

Dates of Courses:

Monthly start times, based on graduate completion

Application Deadline:

Openings filled numerically from a waiting list

PROGRAM DESCRIPTION

916 Vo-Tech offers American Board for Certification in Orthotics and Prosthetics (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

Area 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 practi-



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

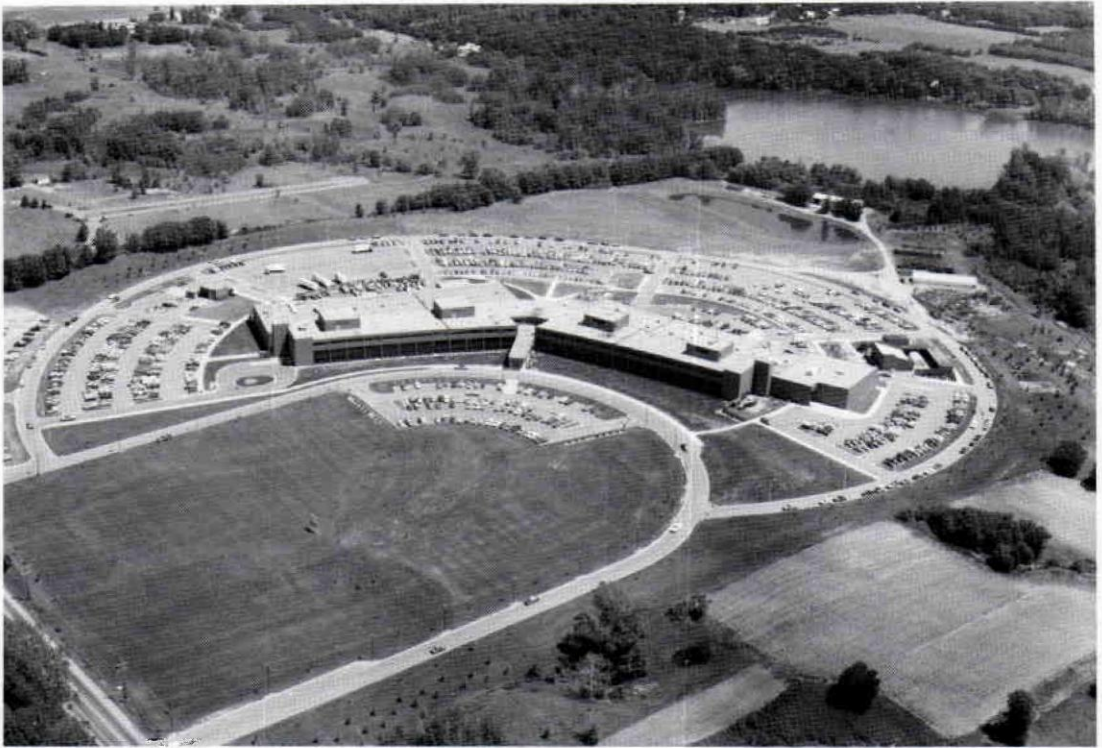
tioner level can take additional work at Lakewood Community College to receive their Associate of applied science degree, and course work at the University of Minnesota to receive Baccalaureate Degrees.

Active Staff

The staff is professionally active in orthotics and prosthetics regional and national events. The program regularly hosts regional seminars and administers the ABC 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 facilities include the newly designed patient fitting areas and a cheer-



916 Area Vo-Tech Institute in White Bear Lake, Minnesota.

ful 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, write:

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



Spokane Falls Community College Orthotics and Prosthetics Technician Program

W3410 Fort George Wright Drive
Spokane, WA 99204 MS3060
Walter H. Caleson, C.P., Instructor

Year Program Initiated: 1984

**Degree or Certificate
Awarded:** A.A.S Degree in Orthotics-Prosthetics Technology

Level of Training: Orthotic/Prosthetic Technician

ABC Accreditation: To be applied for

**Prerequisites, Entrance
Requirements:** High school graduate or GED. Experience in orthotics and/or prosthetics will be helpful.

Medical School Affiliation: N/A

**Number of New Students
Admitted, Each Discipline:** 12 each discipline

Faculty/Student Ratio: 1:12

Length of Courses: Two years

Dates of Courses: SFCC is on the quarter system; students admitted each quarter as space allows

Application Deadline: Fall quarter: August; Winter quarter: November; Spring quarter: March

Address of Registrar: SFCC, W3410 Ft. George Wright Drive, Spokane, WA 99204 (Admissions Office, MS3011)



The SFCC campus and surrounding community.

PROGRAM DESCRIPTION

Spokane Falls Community College is one of two colleges of the Community Colleges of Spokane serving the six counties of northeastern Washington state. Opened in the fall of 1967, its 15 modern buildings are housed on a 113-acre site adjacent to the Spokane River. Emphasis at SFCC is on liberal arts and preprofessional training, as well as associate in applied science degree programs.

The campus accommodates classrooms, laboratories, a theater, art gallery, television and radio broadcasting studios, a music/performing arts center, a photo lab, a physical education facility/gymnasium, and a 3,500-seat athletics stadium. Enrollment in the on-campus day and evening credit programs totals 5,258.

The primary objective of the Orthotics and Prosthetics Technology Program is to

train technicians who are knowledgeable in general laboratory procedures, wood-working, metal, leather, plastic, and plaster to assemble components with the skill that the orthotics-prosthetics profession requires. Subjects include: basic knowledge of related math and chemistry, basic anatomy and physiology, technology of materials, use of tools and machinery, theory and techniques of plaster, suspension systems, and laboratory safety and maintenance.

A certificate is awarded at the completion of the orthotics program and at the completion of the prosthetics program. The A.A.S. Degree in Orthotics and Prosthetics Technology is granted to students who successfully complete both programs. Clinical experience entails five weeks at the end of each program in orthotics and prosthetics—10 weeks total.

Orthotics: SFCC Suggested Course Program*

Course		Hours
<i>First Quarter</i>		
ORTHO 41	Orthopedic Equipment & Material	5
ORTHO 42	Spinal Anatomy Related to Orthotics	3
ORTHO 44	Spinal Orthotics	12
Total		20
<i>Second Quarter</i>		
ORTHO 52	Foot and Ankle Skeletal Structures	3
ORTHO 54	Orthotic Shoe Fabrications	5
ORTHO 56	Ankle-Foot Orthosis (AFO)	12
Total		20
<i>Third Quarter</i>		
ORTHO 62	Related Anatomy for the Above Knee Orthotics	1
ORTHO 64	Above the Knee Orthotics (KAFO)	9
ORTHO 72	Upper Extremity Anatomy Related to Orthotics	1
ORTHO 74	Upper Extremity Orthotics	9
Total		20
<i>Summer Quarter</i>		
ORTHO 78	Clinical Orthotics	4
Total		4
TOTAL		64

Prosthetics: SFCC Suggested Course Program*

Course		Hours
<i>First Quarter</i>		
PROS 11	Prosthetic Tools and Materials	5
PROS 12	Related Human Anatomy	3
PROS 14	Below Knee Prosthetics	12
Total		20
<i>Second Quarter</i>		
PROS 22	Related Anatomy of the Above Knee Amputation	3
PROS 24	Advanced Below Knee Prosthetics	6
PROS 26	Above-the-Knee Prosthetics	11
Total		20
<i>Third Quarter</i>		
PROS 32	Related Anatomy (upper extremity)	3
PROS 34	Below Elbow Prosthetics	9
PROS 36	Above Elbow Prosthetics	8
Total		20
<i>Summer Quarter</i>		
PROS 38	Clinical Prosthetics	4
Total		4
TOTAL		64

*One year of two year A.A.S. Degree in SFCC Orthotic/Prosthetic Technician Program

Residency Programs

(At present, ABC does not accredit residency programs)

- **Newington Children's Hospital**
- **University of Oklahoma**
- **Shriners Hospital for Crippled Children**



Newington Children's Hospital Orthotics and Prosthetics Residency Program

181 E. Cedar Street
Newington, CT 06111

Year Program Initiated: 1980

**Degree or Certificate
Awarded:** Residency

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.

ABC Accreditation: N/A

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

Medical School Affiliation: None

**Number of Students
Admitted, Each Discipline:** 2

Faculty/Student Ratio: 1:1

Length of Course: One year

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

Application Deadline: March for the July 1 starting date
November for the January 1 starting date
Attention—Robert S. Lin, C.P.O.

PROGRAM 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 important 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.

ROLE OF THE ORTHOTIC RESIDENT

The initial role of the Orthotic Resident entails a rather light patient load, with the Resident assuming full responsibility for the technical work associated with his patients. This includes initial patient review, measurement (either casting or delineation), filling the cast, modification, fabrication, delivery, and follow-up. During the initial two to three months, technical and fabrication duties consume a good percentage of the Resident's time.

Eventually, as the individual displays a basic level of technical understanding and competence, these technical responsibilities are assumed by the technical staff. Within the last three to four months of the program, the Resident should be managing a patient load on an equal level with other Staff Orthotists, with full technical backup.

INSTRUCTION

The Resident Orthotist will be assigned to the Resident Advisor on the staff, who

may be considered an immediate supervisor-instructor. The Resident will accompany the Advisor on patient visits, castings, and deliveries.

Initially, the Advisor shall assign regular duties at his discretion, and will serve to review or critique the Resident's work. As the Resident's performance warrants, the instructor-supervisor's role will diminish. At any point, the Resident may be assigned additional duties by the Director or Coordinator of Patient Services, as deemed necessary.

REQUIRED PAPER

Shortly after the beginning of the Residency, the resident should submit to the Director for his approval the subject of a paper of his choice. The paper shall be submitted for publication. The Director will give to the Resident the various dates for submission of the topic, etc.

HOSPITAL FACILITIES

The Hospital Medical Library is available for the Resident's use at all times.

Ambulatory Services, and X-Rays are available for the Orthotist's use.

The Photography Department is available for prints, slides, and a variety of audio-visual aids. In addition, the Orthotics/Prosthetics Department has a limited amount of photography equipment at its disposal.

ATTENDANCE: AOPA, AAOP REGIONALS AND SEMINARS

The Orthotic Residency staff has attended various meetings of the American Orthotic and Prosthetic Association and American Academy of Orthotists and Prosthetists during the program's existence. The staff has also participated in panel discussions at educational seminars. Attendance at regular meetings can be a highly valuable experience for the Orthotic Resident.



The University of Oklahoma Orthotic Residency

Oklahoma City Campus—Health Sciences Center
Department of Orthopedic Surgery and Rehabilitation
P.O. Box 26307
Oklahoma City, OK 73126

Year Program Initiated: 1982

Degree or Certificate

Awarded: Certificate of completion of clinical affiliation

Level of Training: Post-graduate (Practitioner)—Residency

ABC Accreditation: N/A

Prerequisites, Entrance

Requirements: Completion of long term orthotic program plus at least a Bachelor of Science degree, or completion of a Bachelor of Science degree in orthotics & prosthetics

Medical School Affiliation: University of Oklahoma

Number of Students

Admitted, Each Discipline: 2—Orthotics

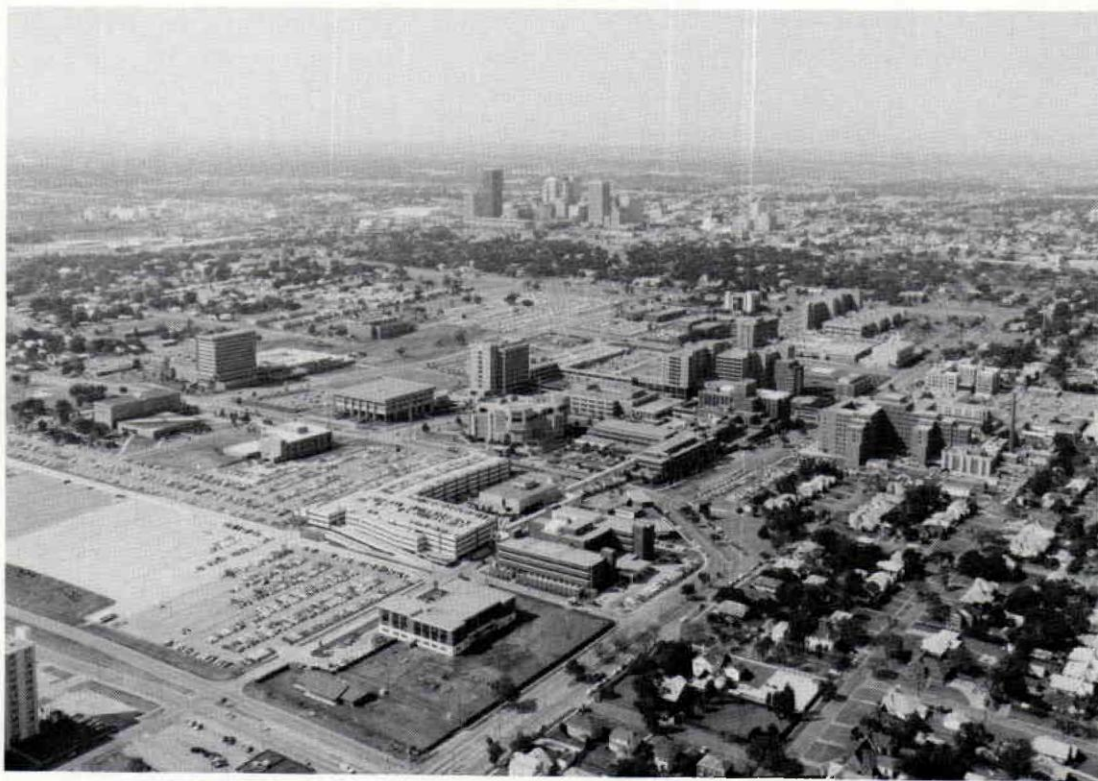
Student/Faculty Ratio: 1:1

Length of Courses: 1 year

Dates of Courses: July 1 to June 30

Application Deadline: January 1 to April 1

Address of Registrar: O'Donoghue Rehabilitation Institute, Post Office Box 26307, Oklahoma City, OK 73126.



The University of Oklahoma Health Sciences Center on the Oklahoma City Campus.

PROGRAM DESCRIPTION

This residency program is supervised by the Department of Orthopedic Surgery and Rehabilitation at the University of Oklahoma Health Sciences Center. The one year program will enable residents to meet examination requirements in compliance with the regulations established by the American Board for Certification in Orthotics and Prosthetics.

Each resident will receive experience in both adult and pediatric treatment concepts, as well as a variety of clinical and technical experiences. The program will include direct patient contact and interaction with physicians and other health care professionals.

The Orthotic Department is located in the O'Donoghue Rehabilitation Institute which is centered on the campus of the University of Oklahoma, College of Medicine, in Oklahoma City. Also located on this campus is Oklahoma Children's

Memorial Hospital and Oklahoma Memorial Hospital.

The program involves all three teaching hospitals and provides a wide variety of experiences for the student. The program's objective is to graduate orthotists with a well-rounded background in the medical field and a high degree of competency. The Orthotic Department utilizes the most up-to-date management techniques and strives to stay abreast of the latest research. Our staff is highly professional and is regarded as an integral part of the Department of Orthopedic Surgery. The Orthotic Department is accredited by the American Board for Certification. We are also a member of the American Orthotic and Prosthetic Association and the Association of Children's Orthotic and Prosthetic Clinics.

The program was initiated during 1982 and has now graduated two classes. Each class has two residents. Our program begins on July 1, and is one year in length.

CANDIDATE REQUIREMENTS FOR ORTHOTIC RESIDENCY PROGRAM

1. Each candidate must possess at least a Bachelor of Science degree.
2. Each candidate will have successfully completed either a long-term certificate course in orthotics at an accredited university or have successfully completed a four year program in orthotics from an accredited university.
3. Each candidate should plan to participate in the program for the one year duration, July 1 through June 30.

APPLICATION PROCEDURE

The following items should accompany each candidate's letter of application:

1. Comprehensive curriculum vitae.
2. Two letters of professional recommendation.
3. A written statement outlining your goals as a future certified orthotic practitioner.
4. Recent photograph.

Upon receipt of the aforementioned information, your letter of application will be considered by the orthotic resident program acceptance committee. Letters of application will not be accepted after March 30. Notice of acceptance into the program will be made after April 15.

Letters of application should be sent to:

William J. Barringer, CO
O'Donoghue Rehab. Inst.
Post Office Box 26307
Oklahoma City, OK 73126



Shriners Hospital For Crippled Children—Philadelphia Unit Orthotics/Prosthetics Residency Program

8400 Roosevelt Boulevard
Philadelphia, PA 19152

Year Program Initiated: 1984

Degree or Certificate

Awarded: Residency Certificate in Pediatric Orthotics and/or Prosthetics

Level of Training: This program is directed towards graduates of ABC accredited programs in orthotics and prosthetics

ABC Accreditation: N/A

**Prerequisites, Entrance
Requirements:**

Entrants are expected to have successfully completed training at an ABC accredited institution in prosthetics and orthotics

Medical School Affiliation: Temple University School of Medicine

**Number of New Students
Admitted, Each Discipline:** One for both disciplines

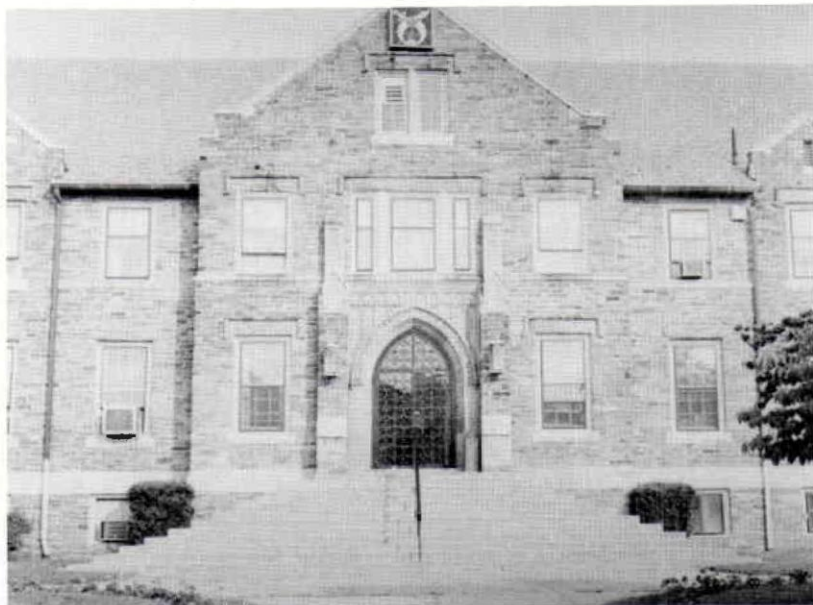
Faculty/Student Ratio: 1:2

Length of Courses: One year

Dates of Courses: July 1 to June 30

Application Deadline: May 15th of the year to be serving

Address of Registrar: 8400 Roosevelt Boulevard, Philadelphia, PA 19152, Attention: Lawrence R. Lange, C.P.O., Director, Prosthetics and Orthotics



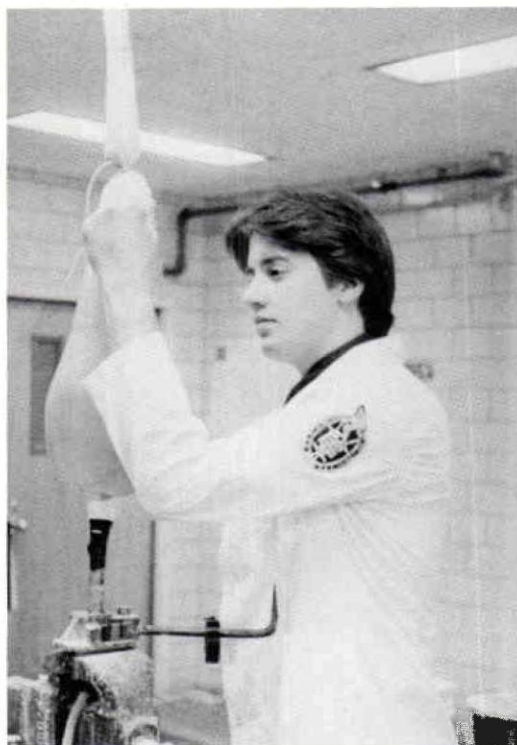
The main entrance to the Philadelphia Unit, Shriners Hospital for Crippled Children.

PROGRAM DESCRIPTION

Eighteen of the twenty-one Shriners Hospitals for Crippled Children located throughout the continental United States, Hawaii, Mexico, and Canada provide specialized care in orthopedics, and continue to offer the finest personalized and professional care for which Shriners Hospitals have been known since 1922.

Due to the increasing need for orthopedic services in the Southeast region of the country, a nineteenth Shriners Orthopedic Hospital was scheduled for opening in Tampa, Florida by 1984.

These Orthopedic centers are specialized pediatric hospitals equipped and staffed to care for children afflicted with congenital deformities, orthopedic injuries and/or diseases of the bones, joints, and muscles. Among the problems treated are the orthopedic aspects of the following: scoliosis, osteogenesis imperfecta, back problems, limb problems or deficiencies, myelodysplasia, clubfoot, leg length discrepancies, neuro-muscular problems, osteoporosis and vitamin D resistant rickets. In addition, they treat patients with "healed"



Program director Lawrence R. Lange, C.P.O., fabricating an expandable Syme's prosthesis.



William Yeck, C.O. at work on a molded plastic knee ankle foot orthosis.

burns, whose later complications can often include the loss of function or part of the body.

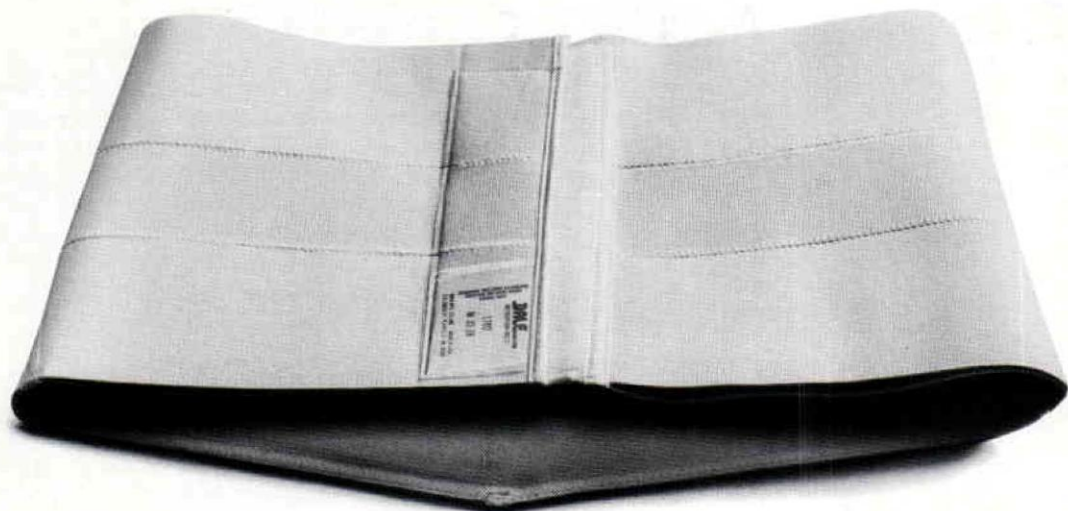
Shriners Hospitals for Crippled Children are open to all children, up to their eighteenth birthday, regardless of race or religion, for whom treatment would place an undue financial burden on his or her family. There is no charge to the patient, parent, or any third party for anything received at Shriners Hospital. This includes all outpatient and inpatient care, diagnostic services, surgery, medical care, casts, orthoses, prostheses, x-rays, therapy, recreation, clothing, and in-hospital schooling.

Residents in training at the Shriners Hospital, Philadelphia Unit have the op-

portunity to experience all aspects of pediatric orthotic and prosthetic treatment. They will be involved in the measurement, fabrication, fitting, and follow-up care of patients under the supervision of board certified orthotists and prosthetists.

While the emphasis at Shriners Hospital is on pediatric care, the hospital also follows a large adolescent to adult orthosis and prosthesis user population. The one year program is designed to equip the resident orthotist/prosthetist with the skills necessary to enter the public or private sector and to prepare them for the board certification exams.

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ORTHOTIST

Certified or Board Eligible, Midwest facility, Chicago area. Active lab requires orthotist to do patient handling, clinics, and fabrication. Medium sized company with good reputation. Salary and benefits commensurate with experience. All replies held in confidence. Write to: AOPA Box 68401, 717 Pendleton Street, Alexandria, VA 22314.

Board Eligible or CPO to work in progressive private practice located in New York's beautiful Hudson Valley. Convenient to midtown Manhattan and outdoor activities such as skiing and fishing. Submit resumes to Michael Lefton, M&M Prosthetic Assoc., Route 28, Kingston, NY 12401.

Experienced CPO for modern facility to manage or for possible partnership. Reply to Birmingham Limb & Brace Co., 3020 4th Avenue South, Birmingham, Alabama 35233.

CO or CPO—Position of Assistant Director in progressive pediatric orthopedic hospital. Management experience helpful. Love of children & knowledge of pediatric rehabilitation a MUST. Good salary and benefits. Contact: Lou Ekus, CPO, Director, Shriners Hospital for Crippled Children, 516 Carew Street, Springfield, MA 01104; tel. 413-787-2078.

For Sale: Well equipped O&P facility in NW. Owner & employees interested in staying on. Reply to AOPA Box 78406, 717 Pendleton Street, Alexandria, VA 22314.

Certified or Board Eligible Prosthetist—

Full-time position for skilled practitioner. Duties include patient management, fabrication, and clinical work. Growing facility with fringe benefits. Midwest area. Send resume with salary requirements to: AOPA Box 48406, 717 Pendleton Street, Alexandria, VA 22314.

ORTHOTIST

Excellent opportunity for certified or board eligible orthotist in a new, progressive hospital, working chiefly in pediatrics. Research and development in orthotic devices; a constant need allowing opportunity for advancement. Submit resume to:

Orthotics Department
Texas Scottish Rite Hospital for
Crippled Children
2222 Welborn Street
Dallas, TX 75219

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Need not be certified. Experienced in patient care/fabrication. Immediate opening. Resumes only to Artificial Limb & Brace Center, Inc., 2323 N. 7th Street, Phoenix, AZ 85006. Attn: Personnel.

CP, CPO—To manage or *buy* modern facility; own new, specially designed building, 27 years of practice (high income); East Coast. *Experienced* and qualified person only need apply. Write to: AOPA Box 68402, 717 Pendleton Street, Alexandria, VA 22314.

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 benefit package as well as advancement opportunity with a growing hospital corporation. Forward resume in confidence to: Betty Martin, Employment Manager, NKC, Inc., P.O. Box 35070, Louisville, KY 40232.

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Opportunity for aggressive, knowledgeable CPO with at least 3-5 years experience—offering part- and eventually full-ownership of modern P&O facility—Midwest location—medium to upper size—serious individuals only please reply in strictest confidence to AOPA Box 78409, 717 Pendleton Street, Alexandria, VA 22314.

PROSTHETIC/ORTHOTIC TECHNICIAN NEEDED

Immediate opening with a small, growing facility located in Anchorage. Close to hunting, fishing & skiing! Please send resume to ALASKA P&O SERVICE, 4050 Lake Otis Parkway, Suite 101, Anchorage, Alaska 99508, Attn: Paul McGuire, CP.

Certified Prosthetist to head Prosthetic Dept. for expanding central Pennsylvania firm. Management ability and outgoing personality a requirement. Chance to grow, salary and benefits, leading to possible partnership for right person. All replies are strictly confidential. Send resume to: AOPA Box 48407, 717 Pendleton Street, Alexandria, VA 22314.

Board Eligible, CO, CP, or CPO—Experienced in all phases of fabrication and patient contact, to be an integral part of a growing facility in New York/Long Island area. Salary and commission commensurate with work experience, educational background and total capabilities. Send resume to Andrew Meyers, P&O Svs., 151 Hempstead Tpke., W. Hemp., NY 11552.

BOARD ELIGIBLE OR CERTIFIED ORTHOTIST

Immediate opening in a modern certified facility. Please do not reply if you are not willing to work or learn. I have a pleasant staff who loves patients. This is a prime requirement. Geographically, the area is great. Abundant mountains, lakes, colleges, and nice people.

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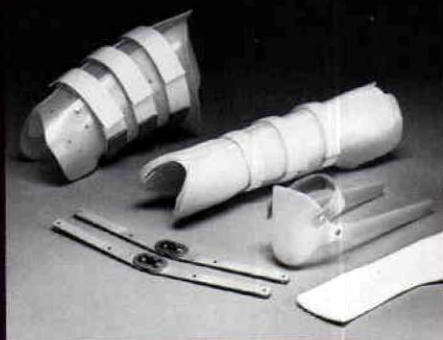
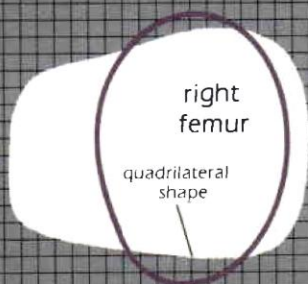
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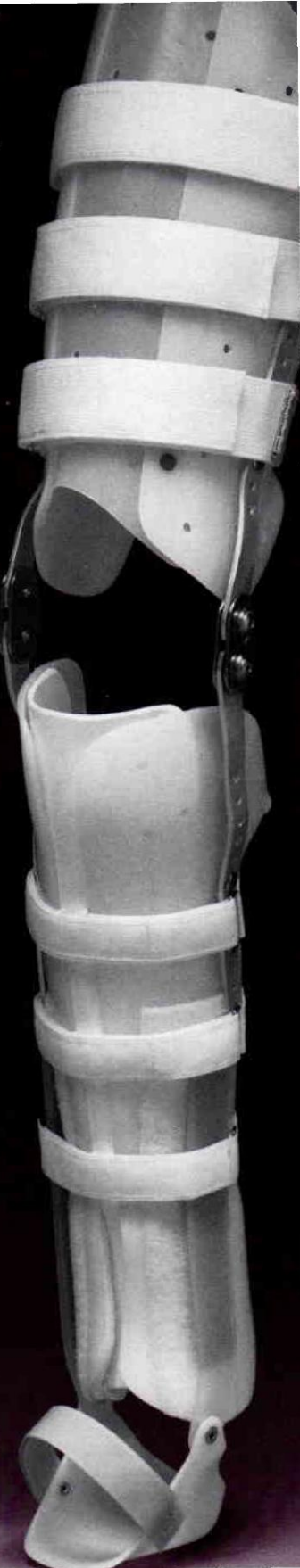
*U.S. Patent 4,320,748

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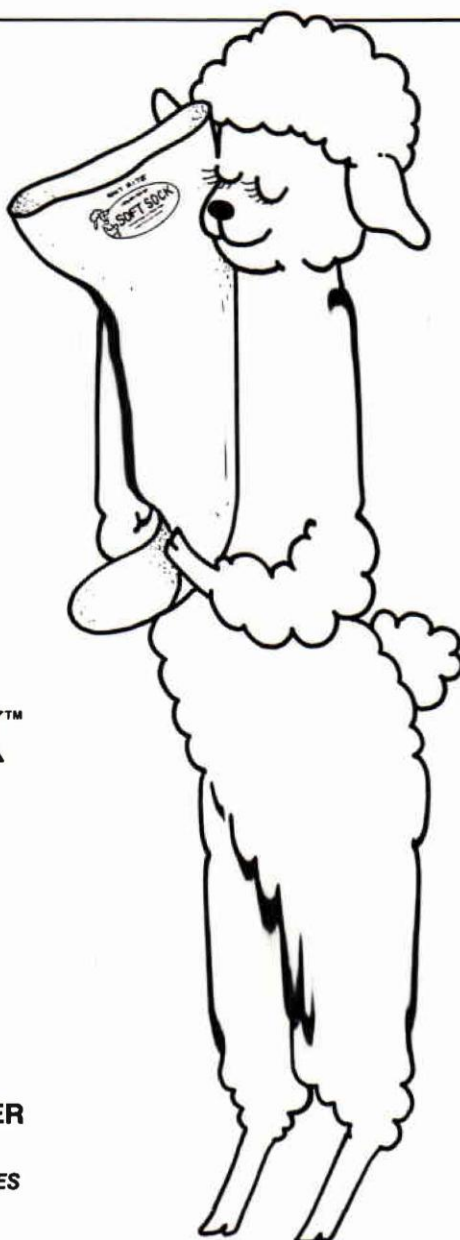
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PRODUCT CODE

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1SP1-RG-SH			
1SP1-RG-MD			
1SP1-RG-LG			
1SP1-WD-MD			

Child Short
Narrow Short
Narrow Medium
Narrow Long
Regular Short
Regular Medium
Regular Long
Wide Medium

Sock Size #A
Sock Sizes #B, #O, #1, Length 10"-14"/15"
Sock Sizes #B, #O, #1, Length 16"-20"
Sock Sizes #B, #O, #1, Length 22"-28"
Sock Sizes #1, #2, Length 10"-14"/15"
Sock Sizes #1, #2, Length 16"-20"
Sock Sizes #1, #2, Length 22"-28"
Sock Sizes #3 & Above, Length 16"-20"

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Lightweight, with just enough Lycra® to provide the stretch needed for excellent fitting qualities. Eight sizes are all that are required to fit with most regular sock sizes. (#A through #4 or #5). May be worn as a liner, a filler, or a spacer sock.

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