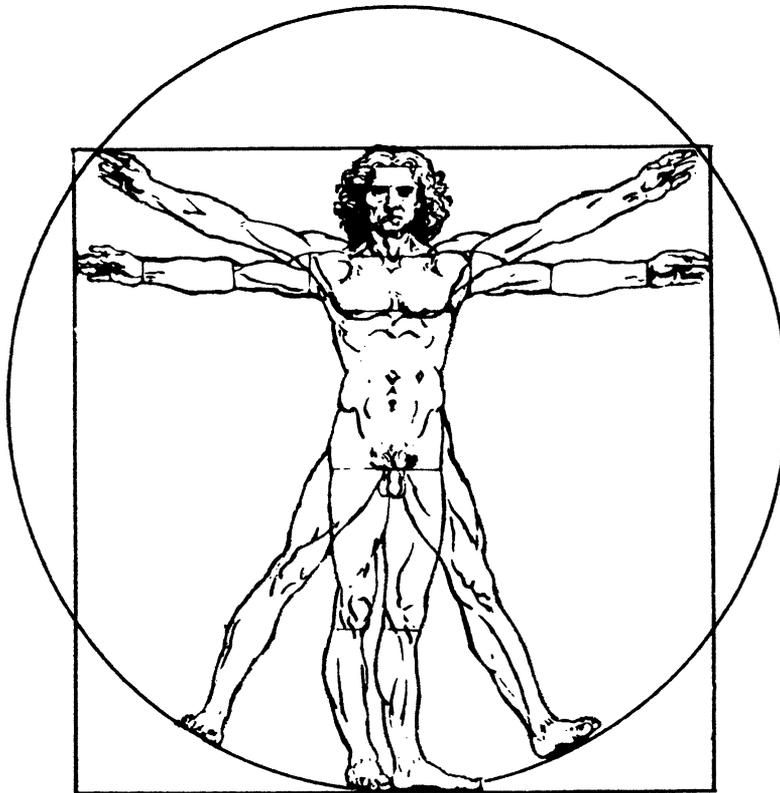


PROSTHETIC PRINCIPLES UPPER EXTREMITY AMPUTATIONS

Fabrication and Fitting Principles



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Prosthetics-Orthotics Education Program -- Division of Orthopedic Surgery
University of California, Los Angeles

PROSTHETIC PRINCIPLES

UPPER EXTREMITY AMPUTATIONS

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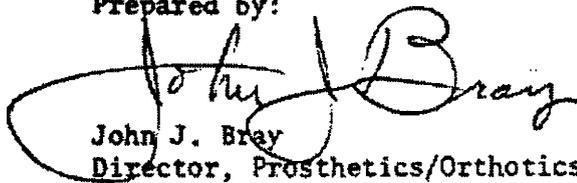
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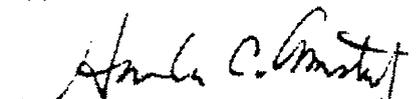
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I. INTRODUCTION

Prior to the completion of this research, the only published data available on Upper Extremity Prosthetics was published by the University of California at Los Angeles with a publication date of **1958**. Obviously many advances in the state of the art have occurred since that time. Vast improvements in materials, **hardware** and techniques have been made as well as improvements in the methods of presenting the materials for maximum utilization.

The work is now complete and makes available for the first time a comprehensive test covering **all phases of Upper Extremity Prosthetics.**

II. METHODOLOGY

The preparation of the material was approached using basic information sources.

1. An extensive review of literature and publication in the field of Upper Extremity Prosthetics. This research formed the reference information which insured that the data presented was representative of the current state of the art.
2. Review all commercially available materials and hardware and include descriptive data and instructions for application on all items where usage rates indicated substantial distribution.
3. Conduct a series of clinical application studies covering all levels of amputations to verify fitting and fabrication techniques and to establish photographic references for the step by step procedures to be used in the text.
4. A series of review conferences were conducted in which educators and other recognized authorities review the compiled data.

The data compiled was carefully reviewed. As theory was substantiated by practice, the information was incorporated into the manuscript section by section.

Each section was further validated by repeated actual classroom use by the students of prosthetics at the University of California Prosthetics/Orthotics Project.

Several review sessions by faculty members of the UCOPE proved to be extremely valuable.

New materials such as the various polyurethanes, polysar acrylics and silastics were carefully tested in applications where they seemed most suitable.

Those which proved to be useful either as a replacement or substitute material are reported in the manuscript.

All commercially available components were reviewed and applied to prostheses for clinical evaluation with careful patient follow-up to confirm results.

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This final report represents the completion of 5 years of research and compilation. It was originally undertaken by Doctor Charles O. Bechtol, Principle Investigator and Miles A. Anderson, E.ed., past Director of the Prosthetics-Orthotics Program. The initial outline and preliminary layout were accomplished by Maurice **LeBlanc** with the cooperation of the review committees of CPRD and the University Council on Orthotic-Prosthetic Education (**UCOPE**).

We wish to thank Mr. A. Bennett Wilson, Executive Director of CPRD for the support and coordination of special committees on Upper Extremity Prosthetics.

We are also indebted to Mr. Joseph E. Traub as agency representative to UCOPE in providing his knowledge and expertise in the field of Prosthetics Education and Research.

Recognition of the many professional prosthetists who participated in the discussions and review sessions is also acknowledged with appreciation.

We wish to especially acknowledge the technical assistance and instructional backup of Mr. Alvin Muilenberg.

The final report represents mainly the efforts of Mr. John Bray, the present Director of the Prosthetics-Orthotics Program. **He** was assisted by Mary Louise **Histon**, photographer, Charles Scott, B.S.M.E., Associate Director, Keith Vinnecour, Timothy **Staats** and Bruce Nelson, **Instructors of** the Prosthetics-Orthotics Program who participated in the research and writing of **portions of** the text. The report was edited by Mrs. Flick **Conat**.