

INTRODUCTION

Prosthetic arm research predominantly focuses on “bionic” but not body-powered arms. However, any research orientation along user needs requires sufficiently precise workplace specifications and sufficiently hard testing. Forensic medicine is a demanding environment, also physically, also for non-disabled people, on several dimensions (e.g., distances, weights, size, temperature, time).

Bionic prosthetic hands are rapidly evolving. An in-depth knowledge of this field of medicine is currently only required by a small number of individuals working in highly specialist units. However, with improving technology it is likely that the demand for and application of bionic hands will continue to increase and a wider understanding will be necessary.

We review the literature and summarise the important advances in medicine, computing and engineering that have led to the development of currently available bionic hand prostheses.

The bionic limb of today has progressed greatly since the hook prostheses that were introduced centuries ago. We discuss the ways that major functions of the human hand are being replicated artificially in modern bionic hands. Despite the impressive advances bionic prostheses remain an inferior replacement to their biological counterparts. Finally, we discuss some of the key areas of research that could lead to vast improvements in bionic limb functionality that may one day be able to fully replicate the biological hand or perhaps even surpass its innate capabilities.

BLOCK DIAGRAM

The fig. below shows the descriptive block diagram of the project:

