DEVELOPING WORLD PROSTHETICS

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DOES CHARITY HELP?

BBC FILM – ‘WHERE ANGELS FEAR TO TREAD’
UNIQUE PROBLEMS NEED UNIQUE SOLUTIONS

PATIENT PROFILE

- AGE
- ETIOLOGY OF AMPUTATION
- ECONOMIC STATUS
- LIFESTYLE

- AVAILABILITY OF PROSTHETIC SERVICES
- ACCESS TO PROSTHETIC SERVICES
PATIENT PROFILE

AGE
PEDINATRIC AMPUTEES

• OVER 300 000 CHILDREN ARE SEVERLY DISABLED BECAUSE OF LANDMINES

SIGNIFICANT ADDITION EVERY YEAR
PATIENT PROFILE

ETIOLOGY OF AMPUTATION
DEVELOPING WORLD

SINGLE LARGEST CAUSE

?
IMPLICATIONS OF AGE & ETIOLOGY

- NORMAL VASCULATURE
- GOOD MUSCLE TONE
- SENSATE SKIN
- NO CO MORBIDITY
- EXTREME FUNCTIONAL DEMANDS
- WAGE EARNERS
COUNTRIES WITH THE LARGEST NUMBER OF LANDMINES

- AFGANISTAN 9 500 000
- ANGOLA 9 000 000
- IRAQ 7 500 000
- KUWAIT 5 000 000
- CAMBODIA 5 500 000
- WESTERN SAHARA 1 500 000
- MOZAMBIQUE 1 500 000
- SOMALIA 1 000 000
- BOSNIA 1 000 000
- CROATIA 1 000 000
IMPLICATIONS OF THE NUMBERS

RAPID FIT TECHNOLOGY
PATIENT PROFILE

ECONOMIC STATUS
IMPLICATIONS OF ECONOMIC STATUS

- AFFORDABLE
- DURABLE
- ACCESSIBLE PROSTHETIC SERVICES
PATIENT PROFILE

LIFESTYLE
FUNCTIONAL REQUIREMENTS

- SQUATTING
- SITTING CROSS LEGGED
- NEGOTIATING UNEVEN TERRAIN
- WALKING BAREFOOT
- WORKING IN WATER
CONSIDERATIONS IN THE DESIGN PROCESS

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>MECH.REQUIREMENT</th>
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<tbody>
<tr>
<td>Squatting</td>
<td>Dorsiflexion</td>
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<tr>
<td>Cross legged</td>
<td>Transverse rotation</td>
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<td>Uneven terrain</td>
<td>Inversion–Eversion</td>
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<tr>
<td>Barefoot</td>
<td>Robust &amp; Cosmetically like N foot</td>
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<tr>
<td>Farming</td>
<td>Waterproof</td>
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AVAILABILITY OF PROSTHETIC SERVICES

DEMAND >>>>>>> SUPPLY
LACK OF AWARENESS
ACCESSIBILITY

SYSTEM OF MULTIPLE SEQUENTIAL APPOINTMENTS

LONG DRAWN PERIOD OF FITTING
CONSIDERATIONS IN MATERIAL SELECTION

- MATERIAL PROPERTIES
- COST
- LOCAL AVAILABILITY
- FAMILIARITY OF LOCAL PEOPLE
TECHNOLOGY

- APPROPRIATE
- LOW COST
- SIMPLE
- RAPID FIT
- DURABLE
PURPOSE OF RESEARCH

REGARDLESS OF ALL COMPARISON, PROSTHETICS IN BOTH DEVELOPED & DEVELOPING COUNTRIES ARE EXPENSIVE LEAVING A SIZABLE NUMBER OF AMPUTEES UNABLE TO AFFORD THEM
SOCIAL, CULTURAL & ECONOMIC CONSIDERATIONS ARE AS IMPORTANT AS TECHNOLOGICAL ISSUES
IT’S OK TO BE DIFFERENT!
EC.722 Special Topics at Edgerton Center: Developing World Prosthetics
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