



BRITISH
ASSOCIATION OF
CHARTERED
PHYSIOTHERAPISTS IN
AMPUTEE
REHABILITATION

AMPUTATION **REHABILITATION**

**A GUIDELINE FOR THE EDUCATION
OF UNDERGRADUATE
PHYSIOTHERAPY STUDENTS**

Updated March 2008



MEMBERS OF THE ORIGINAL WORKING PARTY

Carolyn Hale – Clinician and Clinical Educator
Robert Barnes Rehabilitation Centre
Central Manchester Healthcare NHS Trust

Robert Shepherd – Clinician and Clinical Educator
Chapel Allerton DSC
Leeds

Joanne McBrearty – Clinician and Clinical Educator
Newcastle DSC

Phyl Fletcher-Cooke – Physiotherapy Lecturer
Wakefield School of Physiotherapy

Additional Support from: -

Kathryn Heathcote – Physiotherapy Lecturer
Manchester School of Physiotherapy

Clive Lilles – Physiotherapy Lecturer
Birmingham School of Physiotherapy

Fiona McLeod – Clinical Link Tutor,
University of the West of England, Bristol.
(Previously of Aberdeen School of Physiotherapy)

All DSC based Physiotherapists in U.K.



UPDATED MARCH 2008

WITH CONTRIBUTIONS FROM

- Penny Broomhead - Clinical Specialist in Amputee Rehabilitation
Education Officer, BACPAR
- R.A. Shepherd - Clinician and Director
REHAB Prosthetics Ltd
- Jo Perry - Senior Lecturer (Physiotherapy)
Faculty of Health & Life Science
Coventry University
- Jennifer Newell - Lecturer in Physiotherapy
School of Health Studies
University of Bradford
- Mary-Jane Cole - Specialist Physiotherapist, Amputee Rehabilitation, ACE.
Queen Mary's Hospital, Roehampton
Chair of BACPAR
- Anne Berry - Clinical Specialist in Amputee Management

The recommendations in these guidelines are from the working party, on behalf of BACPAR, and not the Chartered Society of Physiotherapy.



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INTRODUCTION

The British Association of Chartered Physiotherapists in Amputee Rehabilitation (BACPAR) is a clinical interest group recognised by the Chartered Society of Physiotherapy (CSP). BACPAR aims to promote best practice in the field of amputee and prosthetic rehabilitation for the benefit of patients and the profession. It is committed to research and education, providing a network for the dissemination of best practice in pursuit of excellence and equity, whilst maintaining cost effectiveness.

BACPAR acknowledges that most higher education establishments have very limited time available for each topic. This necessitates that the material delivered should be as relevant as possible. It is not the intention of BACPAR to dictate what is delivered at undergraduate level as it is realised that not every school can accommodate amputation rehabilitation as core material.

Therefore, the purpose of these guidelines is to offer support and resources to those lecturers involved in delivering this area of the syllabus. BACPAR suggests that these guidelines, supported by further reading, should provide a sound theoretical basis to enable the student to work within the field of amputation rehabilitation. They can also serve as a valuable resource for clinical educators, to assist with the structure of the teaching elements within a placement and help to facilitate learning opportunities.

It is recommended that students complete the learning experience by clinical placements and/or visits to Disablement Services Centres (DSC's) or specialised amputee units.



PATHOLOGY

AIM

**To give the student an understanding of the major causes of amputation.
To appreciate how the process of rehabilitation may be influenced by the causative condition.**

Learning Outcomes

By the end of the learning experience, the student will be able to:

Peripheral Vascular Diseases (PVD)

- Demonstrate knowledge of the anatomy of the vascular system and the most common sites of occlusion,
- Discuss the pathophysiology of atherosclerosis and relate it to the clinical presentation of PVD,
- Discuss common salvage procedures,
- Discuss the prevalence of PVD in the amputation population.

Diabetes

- Discuss the presentation of the disease, its prognosis and its effect on the major systems of the body,
- Outline how diabetes can predispose to amputation,
- Appreciate the effect of exercise on blood sugar levels and show awareness of the symptoms of hypoglycaemia and its management.

Smoking

- Describe the short and long term pathological effects of smoking on tissue health, particularly in relation to circulation,
- Explain how smoking can influence the processes that lead to amputation.

Other Causes

- Outline how the other, less common, causes lead to amputation.



PRINCIPLES OF AMPUTATION

AIM

To provide an understanding of how, and why, different levels of amputation are performed, and the effect this has on the subsequent mobility and function of the patient.

Learning Outcomes

By the end of the learning experience, the student will be able to:

Investigations

- Show an awareness of the investigative procedures available to ascertain the viability of the tissues.

Levels of Amputation

- Discuss how tissue viability affects the decision on amputation level,
- Understand the importance to rehabilitation of the preservation of the knee and hip joints,
- Discuss how optimum stump length, shape and characteristics at different amputation levels can affect rehabilitation,
- Show awareness of different techniques for amputation,
- Discuss how the level of amputation may influence prosthetic provision.
- Show awareness of congenital/limb deficiency.



BIOMECHANICS

This topic should have been covered in other areas of the syllabus but the subject should be revised in order that it is understood in the context of prosthetic rehabilitation.

AIM

To give the student an introduction to the principles of biomechanics and to enable those principles to be applied to prosthetic rehabilitation.

Learning Outcomes

By the end of the learning experience, the student will be able to:

- Understand the principles of forces, centre of mass, moments, levers, equilibrium and work/energy as applied to the normal musculo-skeletal system,
- Describe the cycle of physiological walking using recognised terminology.

MULTIDISCIPLINARY MANAGEMENT

AIM

To provide an understanding of the importance of an holistic approach to rehabilitation following amputation and the role of the physiotherapist within the multidisciplinary environment.

Learning Outcomes

By the end of the learning experience, the student will be able to:

- Identify the key members of the multidisciplinary team and discuss their involvement in the rehabilitation process,
- Discuss pre and post operative multidisciplinary management,
- Discuss the role of the physiotherapist within the multidisciplinary team,
- Understand the principles of pre-prosthetic and prosthetic management,
- Appreciate the mechanisms and the importance of communication systems between agencies.



ASSESSMENT

AIM

To enable the student to assess a patient following amputation and have an understanding of the management of their physical, psychological and social needs.

Learning Outcomes

By the end of the learning experience, the student will be able to:

- Perform and discuss the content of a subjective and objective examination,
- Discuss how the patients' co-morbidities and prognosis may influence functional outcome,
- Discuss how the patients' psychological, social and economic circumstances may influence the rehabilitative process and outcome,
- Use clinical reasoning to formulate treatment goals and plan rehabilitation, based on the findings of the assessment,
- Keep appropriate records in accordance with CSP Core Standards.

Prosthetic assessment

- Demonstrate an understanding of the decision making process leading to prosthetic use,
- Understand why prosthetic use may not be appropriate and what alternatives may exist,
- Discuss the factors affecting successful prosthetic use.

PHYSIOTHERAPY MANAGEMENT

AIM

To develop the student's ability to apply the principles of physiotherapy management to prosthetic rehabilitation.

Learning Outcomes

By the end of the learning experience, the student will be able to:

- Discuss treatment options informed by evidence based practice,
- Understand the timely use of specialist equipment,
- Recognise that many core skills are applicable in this field of rehabilitation,
- Discuss alternatives for non prosthetic limb users,
- Identify common problems and their management.



EQUIPMENT

AIM

To familiarise the student with a range of equipment, and its use, in the rehabilitation of patients following lower limb amputation.

Learning Outcomes

By the end of the learning experience, the student will be able to:

Risk Assessment

- Recognise the inherent risk in the provision and use of equipment and patient handling,
- Understand the local regulations and current government legislation relating to Health and Safety and manual handling,
- Understand the professional responsibility of instructing others in the safe use of equipment,
- Discuss the indications and contraindications of equipment use,
- Recognise the advantages and disadvantages of the equipment provided.

Early Walking Aids

- Understand the importance of the early walking aid as an assessment and treatment tool,
- Identify and describe the different types of early walking aids,
- Discuss the different application of each type.

Wheelchairs

- Identify component parts of wheelchairs and explain their influences on posture, mobility, stability and performance,
- Appreciate the importance of pressure relief and the means of achieving it,
- Show awareness of the existence of guidelines and legislation relating to the provision of wheelchairs.

Manual Handling Equipment

- Identify the range of equipment which aids manual handling of patients and independent patient transfers.

Walking Aids

- Identify types of walking aids and evaluate their appropriate use within the rehabilitation process.



FURTHER RESOURCES

BACPAR

Departmental membership of BACPAR is available to Schools of Physiotherapy. Student membership is also available. For details contact the Honorary Membership Secretary.

BACPAR can arrange outside speakers for lectures, tutorials or workshops in college if requested. For details contact the Honorary Education officer.

The Honorary Research Officer holds the following resources:

- 'Bibliography and Reference list – recommended resources'
- 'Resources Available for Research, Audit and Information' – a list of useful website addresses e.g. professional societies, voluntary organisations; evidence based databases, and relevant journals.

The Honorary Membership Secretary, Honorary Education and Research officers can be contacted via the PRO on www.bacpar.org.uk.

THE CHARTERED SOCIETY OF PHYSIOTHERAPY

CSP Information Resource Centre

- Journal Holdings listings
- Dissertation & Theses listings
- Book list
- Evidence Based Clinical Guidelines

Available: CSP Education Department, 14 Bedford Row, London WC1R 4ED.

Tel: 020 7306 6666, email: enquires@csp.org.uk

Websites

BACPAR has a website, www.bacpar.org.uk, which provides basic information for people who are unfamiliar with its purpose. BACPAR also moderates the "Amputee Rehabilitation" network on interactive CSP www.interactivecsp.org.uk. This network is accessible to CSP members and students and associate members of BACPAR and provides a secure site for debate, information and peer support.



DISABLEMENT SERVICES CENTRES (DSC's)/ LIMB FITTING CENTRES (LFC's)/ PROSTHETIC CENTRES

The Chartered Society of Physiotherapy 'Curriculum of Study' (1996) outlines that "Clinical education is an essential and indispensable course element which provides the focus of the integration of the knowledge and skills learned at college base".

BACPAR highly recommends the practical experience gained by visiting a DSC, LFC or Specialised Amputee Unit. A list of centres able to offer clinical placements for students is attached in Appendix I, with contact names of physiotherapists and telephone numbers.

One day or half day visits (individuals or groups)

Offer the opportunity to see:

- Lower limb rehabilitation
- Upper limb rehabilitation
- Wheelchair and seating

They also provide the opportunity to meet the multidisciplinary team, which may include;

- Rehabilitation consultants
- Prosthetists
- Nurses
- Physiotherapists
- Occupational therapists
- Counsellors / Psychologists
- Social Workers
- Rehabilitation engineers s
- Orthotists
- Podiatrists
- Patients and carers

SCOTTISH PHYSIOTHERAPY AMPUTEE RESEARCH GROUP (SPARG)

The Scottish Physiotherapy Amputee Research Group (SPARG) was formed in 1991 and has an established network of Senior Physiotherapists with clinical responsibility for patients who have had lower limb amputations, in all 15 health regions in Scotland. SPARG audits the rehabilitation of these patients by collecting data using a standardised discharge summary form (DSF). The results are published annually and are available at a small charge from the following address. In addition, SPARG initiates and runs research projects in the field of amputation rehabilitation.



Contact-

Elizabeth Condie m.e.condie@strath.ac.uk

National Centre for Prosthetics & Orthotics, University of Strathclyde,
Curran Building, 131, St. James Road,
Glasgow G4 0LS
Scotland.

Tel: 0141 548 3297 fax 0141 552 1283

THE MURRAY FOUNDATION

The Murray foundation is a charitable organisation that produces videos, which are aimed at supporting patients and carers in Scotland. They produce five videos

- 'The Way Forward' – the rehabilitation process (both upper and lower limb).
- 'Going Home' – the physical and emotional challenges of returning home from hospital.
- 'Limbs with attitude' – sports and leisure activities.
- 'Manufacture' – the process of making an artificial limb.
- 'Living with limb loss' (set of three videos).

To obtain copies – telephone 0141 580 8564.

Email: info@murray-foundation.org.uk

Website: www.murrayfoundation.org.uk

VIDEOS

'Vessa Ppam-aid' Enquiries: Vessa Ltd, Mill Lane, Alton, Hampshire, GU34 2PX
Tel; 01420 83294, Fax; 01420 80068, www.vessaltd.uk

'Normal Walking – an overview based on gait analysis'
Oxford Metrics Limited, 14 Minns Estate, West Way, Oxford OX2 0JB
(Also other titles: Principles of Pathological Gait & Running and Sprinting.
Payment in advance)

'Fundamentals of Human Walking' (video in NTSC format)
Gait and Motion Analysis Laboratory, Moss Rehabilitation Hospital,
1200 West Tabor Road, Philadelphia, PA 19141, USA

'Gait Analysis and Training for the Transfemoral Amputee'
Available from: Rehabilitation Gymnasium, Queen Mary's Hospital, Douglas Bader
Centre, Roehampton Lane, London SW15 5PN.



SUGGESTED READING

Broomhead P, Dawes D, Hale C, Lambert A, Shepherd R, Quinliven D, (2003) Evidence Based Clinical Guidelines for the Physiotherapy Management of Adults with Lower Limb Prostheses, Chartered Society of Physiotherapy, London

Broomhead P, Dawes D, Hancock A, Unia P, Blundell A, Davies V (2006) Clinical guidelines for the pre and post operative physiotherapy management of adults with lower limb amputation. Chartered Society of Physiotherapy, London

Dawson I, Divers C, Furniss D. In print. Ppam-aid Clinical Guidelines for Physiotherapists. Scottish Physiotherapy Amputee Research Group. Glasgow

‘BACPAR’ Journal	published biannually
‘British Journal of Therapy & Rehabilitation’	published monthly
‘Physical Therapy’	published monthly
‘Physiotherapy’	published quarterly
‘Prosthetics and Orthotics International’	published three times per year



Appendix 1 Clinical centres

Details of contact names are correct at the time of amendment, March 2007.

Clinical Supervisor	Address	Contact details
Gail Croston	Clinical specialist in Amputee Rehabilitation Physiotherapy department, Blackpool Victoria Hospital Whinney Heys Rd, Blackpool. FY3 8NR	01253 300000 bleep 898 Fax: 01253 306720 email: gail.croston@bfwhospitals.nhs.uk
Linda Croft	Physiotherapy Department North Bristol NHS Trust DSC, Southmead Hospital Westbury – on – Trym, Bristol. BS10 5 NB	0117 959 5717 Fax 0117 9595730 Linda.croft@nbt.nhs.uk
Lysa Downing	Addenbrooke's Rehabilitation Clinic Clinic 9, Box 120 Addenbrooke's Hospital Cambridge University Hospitals NHS Foundation Trust Hills Road, Cambridge. CB2 0QQ	lysa.downing@addenbrookes.nhs.uk
Jo Burton	Physiotherapy Department Artificial Limb & Appliance Centre Rookwood Hospital, Fairwater Road, Llandaff, Cardiff. CF5 2YN	029 20313921 Fax 029 20567094 jo.burton@cardiffandvale.wales.nhs.uk
Karen Clark	Amputee Rehabilitation Centre, Derby Hospitals NHS Foundation Trust, Derbyshire Royal Infirmary, London Road, Derby. DE1 2QY.	01332 347141 - Ext 2975 Fax - 01332 254639 Email- karen.clark4@nhs.net



Eleanor Bacon /Anne Berry	Physiotherapy Department Harold Wood DSC, Harold Wood Hospital, Gubbins Lane, Romford, Essex. RM3 0AR	01708 796200 Fax 01708 796201 Eleanor.Bacon@haveringpct.nhs.uk
Helen Scott /Ian Dawson	Westmarc Therapy Gym, Southern General Hospital South Glasgow University Hospital NHS Trust, Govan Road, Glasgow G51 4TF	0141 201 2636/2639 Fax 0141 201 2649 westmarc.physiotherapy@sgl.scot.nhs.uk
Lynn Hirst	Prosthetics Physiotherapy Department Seacroft Hospital, York Road, Leeds LS10	0113 203 3638 Lynnhirst@leedsth.nhs.uk
Anne Blundell	Prosthetic and Wheelchair Centre, University Hospital Aintree, Lower Lane, Liverpool. L9 7AL	0151 529 8761. anne.blundell@aht.nwest.nhs.uk
Mary Jane Cole/ Sara Smith/ Maggie Uden	Rehabilitation Gymnasium, Douglas Bader Centre, Queen Mary's Hospital, Roehampton Lane, London SW15 5PN	020 8487 6042 Fax 020 8487 6907 maryjane.cole@wpct.nhs.uk
Amy Jones	Physiotherapy Department Southwark PCT Rehabilitation Centre Bowley Close, Farquhar Road, London SE19 1SZ	020 7346 5252 Fax 020 7346 5234 amy.jones@kingsch.nhs.uk
Sarah Bradbury	Vascular & General Rehabilitation Team Platt Rehabilitation Unit II, Manchester Royal Infirmary Oxford Road Manchester M13 9WL	0161 276 3642/3605 Fax 0161 276 3552 Sarah.Bradbury@cmmc.nhs.uk



Jane Greiller	Physiotherapy Department Prosthetic Service, Nuffield Orthopaedic Centre Windmill Road, Headington, Oxford OX3 7LD	01865 227272 Fax 01865 227463 Jane.Greiller@noc.anglox.nhs.uk
Jo Teesdale/ Jess Slater	Physiotherapy Department Peterborough District Hospital, Thorpe Road, Peterborough PE3 6DA	01733 874688 Fax 01733 874683 Jessica.Slater@pbh-tr.nhs.uk
Jean Sugden	Physiotherapy Plymouth Disablement Services Centre, 1 Brest Way, Derriford, Plymouth PL6 5XW	01752 792777 Fax 01752 769076 jean.sugden@pcs-tr.swest.nhs.uk
Helen Jones	Rehab Physiotherapy / Limb Fitting Clinic Camborne/Redruth Community Hospital Barncoose Terrace Redruth Cornwall TR14 3ER	01209 881647 (Therapy Dep/ Admin) 01209 881986 (Therapy Dep Fax) Helen.Jones@CIOSPCT.cornwall.nhs.uk
Ruth Woodruff	Physiotherapy Department North Midlands Limb Fitting Centre, Haywood Hospital, High Lane, Burslem, Stoke – on – Trent, Staffs ST6 7AG	01782 556262 Fax 01782 556120 ruth.woodruff@uhns.nhs.uk
Deborah Bow	Physiotherapy Department Wirral Limb Centre, Clatterbridge Hospital, Bebington, Wirral CH63 4JY	0151 482 7812 Fax 0151 482 7813 Deborah.Bow@whnt.nhs.uk
Tina Brown	Physiotherapy Department Maltings Mobility Centre, The Maltings, Herbert Street, Wolverhampton WV1 1NQ	01902 444041 x 4721 Fax 01902 444038 tina.brown@wolvespct.nhs.uk



APPENDIX II

The 'Cole Competency Tool' (physiotherapy)

Its purpose

The purpose of using this self-rating tool is to help guide you, the student or junior physiotherapist, with the learning process during your placement/rotation.

Please take a few minutes to consider the attached list of attributes (with reference to 'knowledge and understanding'; 'skills and ability') and, using the scale, make a note of how you currently judge your levels in these areas to be. Attributes have been listed in relation to published practice guidelines (BACPAR – British Association of Chartered Physiotherapists in Amputee Rehabilitation).

Reflecting on these different areas should help you identify specific learning objectives which you can discuss and plan with your educator/supervisor or line manager.

Please revisit this form (an identical but new proforma) at an agreed time e.g. at the half-way point of your placement; during supervision). Changes recorded via the scale will indicate where learning has occurred and where further learning needs are required.

This tool continues to develop – your feedback on its usefulness is appreciated.

Many thanks, and enjoy learning in the speciality of amputee rehabilitation!



The 'Cole Competency Tool' Amputees

CLINICIAN COMPETENCY – SELF- RATING

Name
 HEI
 Year of study
 Hospital/Trust
 Date

At this point in time rate your **knowledge** and **understanding** of:

	weak					strong				
	1	2	3	4	5	6	7	8	9	10
1. The causes of amputation	1	2	3	4	5	6	7	8	9	10
2. The principles of amputation e.g. investigations, levels, complications	1	2	3	4	5	6	7	8	9	10
3. The psycho-social aspects of amputation	1	2	3	4	5	6	7	8	9	10
4. The pre-operative management of the lower limb amputee e.g. assessment	1	2	3	4	5	6	7	8	9	10
5. The early post-operative management of the lower limb amputee e.g. assessment, oedema control, wound healing, prevention of infection, exercise therapy	1	2	3	4	5	6	7	8	9	10
6. Causes of pain, residual limb and phantom	1	2	3	4	5	6	7	8	9	10
7. The referral procedure to the limb fitting centre/DSC	1	2	3	4	5	6	7	8	9	10
8. The pre-prosthetic rehabilitation stage e.g. early walking aids, prosthetic prescription	1	2	3	4	5	6	7	8	9	10
9. The prosthetic rehabilitation of the lower limb amputee e.g. prostheses, gait analysis	1	2	3	4	5	6	7	8	9	10
10. The role (within the overall management of the amputee) of the										
Surgeon	1	2	3	4	5	6	7	8	9	10
Rehabilitation Consultant	1	2	3	4	5	6	7	8	9	10
Nurse	1	2	3	4	5	6	7	8	9	10
Physiotherapist	1	2	3	4	5	6	7	8	9	10
Prosthetist	1	2	3	4	5	6	7	8	9	10
Clinical Psychologist	1	2	3	4	5	6	7	8	9	10
Occupational Therapist	1	2	3	4	5	6	7	8	9	10
Social Worker	1	2	3	4	5	6	7	8	9	10
Dietician	1	2	3	4	5	6	7	8	9	10
11. Post-discharge management e.g. onward referral, review	1	2	3	4	5	6	7	8	9	10
12. Outcome measures (in relation to amputee rehabilitation)	1	2	3	4	5	6	7	8	9	10



At this point in time rate your **skills** and **ability** with:

	weak					strong				
1. Examination and assessment of patients:										
pre-operatively	1	2	3	4	5	6	7	8	9	10
post-operatively	1	2	3	4	5	6	7	8	9	10
pre-prosthetically	1	2	3	4	5	6	7	8	9	10
prosthetically	1	2	3	4	5	6	7	8	9	10
2. Setting appropriate and realistic goals of treatment	1	2	3	4	5	6	7	8	9	10
3. Recognising the indications for oedema control	1	2	3	4	5	6	7	8	9	10
4. Recognising the indications for early walking aids	1	2	3	4	5	6	7	8	9	10
5. Recognising complications	1	2	3	4	5	6	7	8	9	10
6. Evaluating and progressing patients	1	2	3	4	5	6	7	8	9	10
7. Equipment handling:										
Wheelchairs	1	2	3	4	5	6	7	8	9	10
Early walking aids e.g. ppam aid	1	2	3	4	5	6	7	8	9	10
Walking aids e.g. sticks	1	2	3	4	5	6	7	8	9	10
8. Patient handling:										
Transfers	1	2	3	4	5	6	7	8	9	10
Treatment	1	2	3	4	5	6	7	8	9	10
9. Pain and its management	1	2	3	4	5	6	7	8	9	10
10. Falls advice and strategies	1	2	3	4	5	6	7	8	9	10
11. Psychological support to patients and carers	1	2	3	4	5	6	7	8	9	10
12. Problem-solving e.g. challenging patients	1	2	3	4	5	6	7	8	9	10
13. Gait analysis	1	2	3	4	5	6	7	8	9	10
14. Advanced prosthetic rehabilitation e.g. 'free' knee componentry, running	1	2	3	4	5	6	7	8	9	10
15. Management of the bilateral lower limb amputee	1	2	3	4	5	6	7	8	9	10
16. Management of the non-prosthetic amputee	1	2	3	4	5	6	7	8	9	10
17. Management of the upper limb amputee	1	2	3	4	5	6	7	8	9	10
18. Effective communication with other members of the MDT	1	2	3	4	5	6	7	8	9	10
19. Discharge procedure	1	2	3	4	5	6	7	8	9	10
20. Information-giving to patients/clients and carers regards the rehabilitation process	1	2	3	4	5	6	7	8	9	10
21. Evaluating and developing the service for this patient/client group	1	2	3	4	5	6	7	8	9	10

Are there any other areas, related to the management of the amputee, in terms of knowledge, skills and ability, that you feel have the potential for change and improvement? Please state and rate accordingly.

1 2 3 4 5 6 7 8 9 10

1 2 3 4 5 6 7 8 9 10

1 2 3 4 5 6 7 8 9 10

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