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Physiotherapy  
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## Research interests

### Biography

I studied physiotherapy at Queen Margaret University, Edinburgh (2002-2006), where I became interested in pain and peripheral arterial disease. I was awarded a scholarship-funded PhD to study the laboratory and clinical ischaemic pain and the effects of TENS on measures of pain and walking performance (2007-2013) whilst working part time as a physiotherapist in NHS Tayside and NHS Lothian. I then secured a Lectureship at Glasgow Caledonian University in 2010 and promotion to Senior Lecturer in 2017.

I am a HCPC registered physiotherapist and a member of the Chartered Society of Physiotherapy. I am a member of British Pain Society, Physiotherapy Pain Association and Physiotherapy Research Society and an elected Executive Board Member for the British Pain Society Pain Education Special Interest Group and Physiotherapy Pain Association. I am Co-Editor in Chief for Pain and Rehabilitation.

### Research

I lead the **Council of Allied Health Professions Research (CAHPR) West of Scotland Hub** which is a network of clinicians, academics, researchers and students across the AHP disciplines in the West of Scotland. The aim of this collaboration is to deliver the CAHPR mission "to develop AHP research, strengthen evidence of the professions' value and impact for enhancing service user and community care, and enable the professions to speak with one voice on research issues, thereby raising their profile and increasing their influence."

I also lead the **Active Living Research Hub** based at Glasgow Caledonian University which is a collaboration of academics across disciplines and with the aim of knowledge sharing and research collaboration to support and develop research into physical activity, sedentary behaviour and health psychology / behaviour.

My interests are primarily in pain science, cardiac and vascular disease, amputee management, physical activity and the psychosocial aspects of health and disease. I have a particular expertise and interest in electrical stimulation, patient-centred education and other low-cost, non-invasive, patient-centred interventions and exploring the effects of these interventions on free-living physical activity, function, quality of life, secondary prevention and the psychosocial aspects of chronic conditions. Some examples of ongoing projects:

**Pain management and patient education for physical activity in people with intermittent claudication (PrPAID):** I am currently investigating the effects of Transcutaneous Electrical Nerve Stimulation (TENS) and patient-centred education on physical activity in patients with Peripheral Arterial Disease (PAD) and Intermittent Claudication (IC), funded by the Chief Scientist Office (CSO) <https://www.cso.scot.nhs.uk/wp-content/uploads/TCS1655-1.pdf>

**The physiological and clinical effects of electrical stimulation in patients with peripheral arterial disease:** Limb pain is a major barrier to physical activity and exercise uptake and there are currently limited effective treatments which can improve exercise tolerance in this patient group. Recent work has suggested, however, that the use of electrical stimulation applied to the lower limb during walking resulted in an increase in walking distance. This project will explore the nature of IC pain and the effects of TENS on measure of pain experience, physiology and function.

**Healthcare students' knowledge, confidence, attitudes and beliefs related to pain (The National Interprofessional Pre-Registration Pain Education (NIPPEd) project):** Investigation of pre-registration healthcare students' knowledge, understanding, confidence, attitudes and beliefs related to pain management. We are conducting a national survey and follow-up investigation of knowledge and confidence related to pain management in all medical, dentistry, nursing, midwifery, pharmacy, psychology and AHP students in Scotland. The ultimate aim of the project is to develop educational resources and implementation strategies to address the limitations in current educational provision for healthcare students.

**Pain Navigator Tool and Therapeutic Alliance:** This project will explore how implementation of the Pain Navigator Tool (<http://painconcern.org.uk/easing-pain-appointments/>) into a physiotherapy MSK outpatient setting affects the quality of the consultation and development of therapeutic alliance between physiotherapists and people presenting with pain.

**Models of care and use of PPAM aid in amputee rehabilitation:** Chartered Society of Physiotherapy (CSP) funded project (£20,000) in association with Scottish Physiotherapy Amputee Research Group (SPARG) and the NHS. This project will analyse two years of retrospective SPARG data specifically examining demographics, rehabilitation milestones and outcomes of patients following a unilateral trans-tibial amputation. Linking the SPARG data to the different models of care will allow for recommendations to be made regarding the optimum PPAM aid treatment program and which model of care best supports this in terms of clinical effectiveness and user friendliness.

**General areas of interest:** Pain, Peripheral Arterial Disease, Intermittent Claudication, Patient Education, TENS, Physical Activity, Psychosocial factors, Amputee management, Cardiovascular disease, Secondary prevention

**PhD Students:** I am currently supervising 3 PhD students (Cassandra MacGregor, Kantaphon Chueahor and Sean Paul Carroll)

## Teaching

I teach modules focused on: cardiorespiratory, research methods, research supervision, health promotion, Evidence Based Practice, advancing practice in physiotherapy and paramedicine, and philosophy.  
I am the Department Lead for Post-registration Programmes and Business Development.

## Employment

### Senior Lecturer

Physiotherapy

Glasgow Caledonian University

Glasgow, United Kingdom

1 Aug 2011 → present

## Research output

### **Charting physiotherapy students' attitudes toward people with chronic pain as they progress through their undergraduate programme: an observational study**

Mankelov, J., Ryan, C. G., Morris, H., Lauchlan, D., Seenan, C., Taylor, P. & Martin, D., 8 Sep 2021, (E-pub ahead of print) In: *Physiotherapy Theory and Practice*. p. 1-7 7 p.

### **How do the attitudes, confidence, knowledge and understanding differ in pre-registration healthcare students towards treating people with chronic pain: an observational, cross-sectional study**

Carroll, S. P., Augeward, N., Tennant, J. & Seenan, C., 3 Sep 2021, In: *European Journal of Physiotherapy*. 23, 5, p. 311-318 8 p.

### **Home-based versus outpatient-based cardiac rehabilitation post-coronary artery bypass graft surgery**

Takroni, M. A., Thow, M., Ellis, B. & Seenan, C., 1 Dec 2020, (E-pub ahead of print) In: *Journal of Cardiovascular Nursing*.

### **Exercise therapy in routine management of peripheral arterial disease and intermittent claudication: a scoping review**

Abaraogu, U. O., Duru, O. D., Dall, P. M., Tew, G., Wesley, S., Brittenden, J. & Seenan, C. A., 27 May 2020, In: *Therapeutic Advances in Cardiovascular Disease*. 14, 13 p., 138855.

### **Infographic. Exercise for intermittent claudication**

Tew, G. A., Allen, L., Askew, C. D., Chetter, I., Cucato, G., Doherty, P., Garnham, A., Harwood, A., Ingle, L., Jenkins, M., Michaels, J., Pittack, S., Seenan, C. & Trender, H., 12 Feb 2020, In: *British Journal of Sports Medicine*. 2 p.

### **Knowledge, attitudes, and the practice of health promotion among physiotherapists in Nigeria**

Abaraogu, U., Onah, U., Abaraogu, O. D., Fawole, H. O., Kalu, M. E. & Seenan, C. A., 1 Dec 2019, In: *Physiotherapy Canada*. 71, 1, p. 92-100 9 p., 9.

### **The effect of undergraduate education on pain-related attitudes and beliefs in healthcare students**

Augeward, N., Carroll, S. P., Tennant, J. & Seenan, C., 1 Dec 2019, In: *Pain and Rehabilitation: The Journal of Physiotherapy Pain Association*. 2019, 46, p. 8-18 11 p.

### **Relationship between models of care and key rehabilitation milestones following unilateral transtibial amputation: a national cross-sectional study**

Hebenton, J., Scott, H., Seenan, C. & Davie-Smith, F., Dec 2019, In: *Physiotherapy*. 105, 4, p. 476-482 7 p.

### **Efficacy and Feasibility of Pain management and Patient Education for Physical Activity in Intermittent claudication (PrEPaid): protocol for a randomised controlled trial**

Abaraogu, U., Dall, P. M., Brittenden, J., Stuart, W., Tew, G. A., Godwin, J. & Seenan, C. A., 16 Apr 2019, In: *Trials*.

### **Attitudes and confidence of pre-registration healthcare students toward treating people with chronic pain: an observational, cross sectional study**

Carroll, S. P., Augeward, N., Tennant, J. & Seenan, C., Jan 2019, In: *Physiotherapy*. 105, 1, p. e29-e30 2 p., O0038.

**Comparison of attitudes and beliefs related to chronic pain in BSc and MSc pre-registration physiotherapy students: an observational, cross-sectional study**

Tennant, J., Carroll, S. P., Augeard, N. & Seenan, C., Jan 2019, In: *Physiotherapy*. 105, 1, p. e157-161, P147.

**Does neurally adjusted ventilatory assist improve outcomes for critically ill adults during weaning from mechanical ventilation? A systematic review**

Bartholomew, A., Simms, K. & Seenan, C., Jan 2019, In: *Physiotherapy*. 105, 1, p. e50-e51, O0065.

**Effects of IMT on pulmonary function and health-related quality of life in adults with spinal cord injury: a systematic review**

Donnachie, J., Seenan, C. & Simms, K., Jan 2019, In: *Physiotherapy*. 105, 1, p. e207-e208, P217.

**Sex differences in the efficacy of burst TENS on experimentally induced ischaemic pain: a double-blinded, placebo-controlled, crossover trial**

Gassner, F., Kolb, C., Michaud, A. & Seenan, C., Jan 2019, In: *Physiotherapy*. 105, 1, p. e158-e159, P149.

**The effect of undergraduate education on pain-related attitudes and beliefs in healthcare students: an observational, cross-sectional study**

Augeard, N., Tennant, J., Carroll, S. P. & Seenan, C., Jan 2019, In: *Physiotherapy*. 105, 1, p. e156-161, P145.

**The beginnings of a revolution in pre-registration pain education**

Seenan, C., 1 Dec 2018, In: *Pain and Rehabilitation: The Journal of Physiotherapy Pain Association*. 2018, 44, p. 12-13, 2 p.

**Living a burdensome and demanding life: a qualitative systematic review of the patients experiences of peripheral arterial disease**

Abaraogu, U. O., Ezenwankwo, E. F., Dall, P. M. & Seenan, C. A., 15 Nov 2018, In: *PLoS ONE*. 13, 11, 21 p., e0207456.

**Barriers and enablers to walking in individuals with intermittent claudication: a systematic review to conceptualize a relevant and patient-centered program**

Abaraogu, U., Ezenwankwo, E., Dall, P., Tew, G., Stuart, W., Brittenden, J. & Seenan, C., 26 Jul 2018, In: *PLoS ONE*. 13, 7, 20 p., e0201095.

**National survey of knowledge and confidence related to pain management of final year physiotherapy students**

Seenan, C., Harrison, H., McParland, J., Clark, N., Serpell, M., Addison, B., Tan, C-W. & Gilbert, S., Dec 2017, In: *Physiotherapy*. 103, Supplement 1, p. e135-e136, P124.

**The effect of structured patient education on physical activity in patients with peripheral arterial disease and intermittent claudication: a systematic review**

Abaraogu, U. O., Dall, P. M. & Seenan, C. A., 1 Jul 2017, In: *European Journal of Vascular and Endovascular Surgery*. 54, 1, p. 58-68, 11 p.

**Early PPAM aid use post-unilateral transtibial amputation is associated with reduced time to prosthetic fitting and finishing rehabilitation**

Hebenton, J., Colvin, J., Seenan, C. & Scott, H., 1 Nov 2016, In: *Physiotherapy*. 102, Supplement 1, p. e147-e148, 2 p.

**Group peer teaching: a strategy for building confidence in communication and team working skills in physiotherapy students: The 4th European Congress of the European Region of the World Confederation of Physical Therapy (ER-WCPT) Abstracts, Liverpool, UK, 11-12 November 2016**

Seenan, C., Shanmugam, S. & Stewart, J., Nov 2016, In: *Physiotherapy*. 102, Supplement 1, p. e228, 1 p.

**Models of care are associated with time taken to achieve key rehabilitation milestones in patients undergoing lower limb amputation: The 4th European Congress of the European Region of the World Confederation of Physical Therapy (ER-WCPT) Abstracts, Liverpool, UK, 11-12 November 2016**

Hebenton, J., Colvin, J., Seenan, C. & Scott, H., Nov 2016, In: *Physiotherapy*. 102, p. e13, 1 p.

**Patient education interventions to improve physical activity in patients with intermittent claudication: a systematic literature review: The 4th European Congress of the European Region of the World Confederation of Physical Therapy (ER-WCPT) Abstracts, Liverpool, UK, 11-12 November 2016**

Abaraogu, U. O., Dall, P. M. & Seenan, C. A., Nov 2016, In: *Physiotherapy*. 102, Supplement 1, p. e10 1 p.

**Physiotherapist-led exercise classes for low back pain show changes in disability and fear of movement: a service evaluation**

MacKelvie, C. P., Seenan, C. & Ryan, C. G., 31 Aug 2016, In: *Pain and Rehabilitation: The Journal of Physiotherapy Pain Association*. 41, p. 31-36 6 p.

**Non-operative pain management interventions in patients with intermittent claudication: a protocol for a systematic mixed studies review with metaanalysis**

Abaraogu, U. O., Dall, P. M. & Seenan, C., 30 Aug 2016, In: *Pain and Rehabilitation: The Journal of Physiotherapy Pain Association*. 41, p. 17-24 8 p.

**Transcutaneous electrical nerve stimulation improves walking performance in patients with intermittent claudication**

Seenan, C., McSwiggan, S., Roche, P., Tan, C-W., Mercer, T. & Belch, J., Aug 2016, In: *Journal of Cardiovascular Nursing*. 31, 4, p. 323-330 8 p.

**Patient education interventions to improve physical activity in patients with intermittent claudication: a protocol for a systematic mixed-studies review**

Abaraogu, U. O., Dall, P. & Seenan, C., 20 May 2016, In: *BMJ Open*. 6, 5, e011405.

**Developing 21st century graduate attributes: incorporating novel teaching strategies in a physiotherapy curriculum**

Stewart, J., Shanmugam, S. & Seenan, C., May 2016, In: *European Journal of Physiotherapy*. 18, 3, p. 194-199 6 p.

**Group peer teaching: a strategy for building confidence in communication and teamwork skills in physical therapy students**

Seenan, C., Shanmugam, S. & Stewart, J., 2016, In: *Journal of Physical Therapy Education*. 30, 3

**Building and enhancing skills that empower level 1 students**

Shanmugam, S., Stewart, J. & Seenan, C., 13 Jun 2013.

**Empowerment through student led design of teaching, assessment and feedback practice**

Shanmugam, S., McDermott, J. & Seenan, C., 6 Jun 2013.

**Laboratory and clinical investigation into lower limb ischaemic pain, and the effect of transcutaneous electrical nerve stimulation (Tens) on measures of pain and walking performance**

Seenan, C., 2013

**Modification of experimental, lower limb ischemic pain with transcutaneous electrical nerve stimulation**

Seenan, C., Roche, P., Tan, C-W. & Mercer, T., Oct 2012, In: *Clinical Journal of Pain*. 28, 8, p. 693-699 7 p.

**Preparing students to work effectively in interprofessional health and social care teams**

Stevenson, K., Seenan, C., Morlan, G. & Smith, W., Jul 2012, In: *Quality in Primary Care*. 20, 3, p. 227-230

**Building skills: Enhancing Level 1 physiotherapy students' confidence and ability to provide feedback to peers**

Shanmugam, S., Stewart, J. & Seenan, C., 2012.

## **Activities**

**Physiotherapy Research International (Journal)**

Chris Seenan (Peer reviewer)

1 Jan 2019

**Vascular Medicine (Journal)**

Chris Seenan (Peer reviewer)

1 May 2018

**Pain and Rehabilitation (Journal)**

Chris Seenan (Editor)

1 Jan 2018

**Annals of Vascular Surgery (Journal)**

Chris Seenan (Peer reviewer)

13 Mar 2017

**Pain Research and Management (Journal)**

Chris Seenan (Peer reviewer)

2015 → ...

**Physiotherapy (Journal)**

Chris Seenan (Peer reviewer)

2015 → ...

**International Journal of Molecular Sciences (Journal)**

Chris Seenan (Peer reviewer)

12 Dec 2014

**International Journal of Molecular Sciences (Journal)**

Chris Seenan (Peer reviewer)

2014 → ...

**BMJ Open (Journal)**

Chris Seenan (Peer reviewer)

15 Nov 2013