Developing UK Defence Rehabilitation research priorities: a 2020 clinical practitioner engagement exercise

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ABSTRACT

Introduction Establishing research priorities help to address knowledge gaps and exploit emerging opportunities to develop a clinical evidence base. The previous clinical engagement exercise to determine UK Defence Rehabilitation practitioner-based research priorities was conducted in 2014. The aim of this article is to (1) describe how research priorities are established for UK Defence Rehabilitation; (2) review, reassess and rate the priorities highlighted and set by rehabilitation practitioners following the 2014 survey and (3) identify new rehabilitation research themes and topics reflecting 2020 priorities.

Methods Stage 1: delegates (n=72) at the October 2019 Defence Medical Services Rehabilitation Conference participated in a series of focus group workshops. Stage 2: an online survey circulated through the military chain of command to all Defence Primary Health Care clinical rehabilitation staff. Stage 3: a thematic analysis of all survey submissions yielding a ranked order of priority by topic.

Results 165 clinical rehabilitation staff completed an online survey. 'Rehabilitation outcomes', 'Psychological factors in rehabilitation' and 'Residential/Inpatient treatment paradigm' emerged as three clear research priorities across all three tiers of UK Defence Rehabilitation. New research priorities emerging from the 2020 survey were 'lifestyle factors during rehabilitation', 'management of pain during rehabilitation' and 'anterior knee pain'.

Conclusion It is essential that funding directed to musculoskeletal rehabilitation focuses on the highest research priorities in the field to ensure optimum health return on investment. The results of this survey will assist in guiding the clinical research being conducted within UK Defence Rehabilitation over the next five years.

Key messages

⇒ All UK Defence Rehabilitation Research applications are prescreened against the higher Defence Medical Services (DMS) research priorities and supported by rehabilitation practitioner-driven priorities.
⇒ The UK Defence Rehabilitation practitioner-based priorities and DMS research priorities were established in 2014/2017, respectively.
⇒ Following a clinical engagement exercise and completion of an online survey, a reprioritisation of rehabilitation practitioner-driven research priorities was established for 2020.
⇒ 'Rehabilitation outcomes,' 'psychological factors in rehabilitation' and 'residential/inpatient treatment paradigm' emerged as the three themes considered highest priorities among rehabilitation practitioners across Defence Rehabilitation.
⇒ New research priorities emerging from the 2020 survey were 'lifestyle factors during rehabilitation,' 'management of pain during rehabilitation' and 'anterior knee pain'.

INTRODUCTION

Research priorities are created to address identified gaps and exploit emerging opportunities in developing an evidence base.[1] Engagement from a wide range of relevant stakeholders is recognised as an essential component of research priority setting exercises, since priorities identified from different levels can be used to inform each other[2] and priorities considered relevant to all parties are more likely to be adopted into practice.[3]

For the UK Defence Medical Services (DMS) and in particular UK Defence Rehabilitation, broad stakeholder involvement in the research prioritisation process is crucial for several reasons: (1) Engagement in the priority setting exercise fosters ownership of the established priorities among those involved, increasing the likelihood of priority research being implemented and realised[2]; (2) Broad engagement ensures research priorities correspond to the needs of patients, rehabilitation practitioners and Defence Rehabilitation policy makers; (3) It minimises the possibility of research topics being overlooked and prevents unnecessary duplication of research effort; (4) It ensures that funding allocated to Defence Rehabilitation research focuses on the most important priorities in the field thereby securing the highest return on investment and impact on rehabilitation outcomes; (5) The research emerging from a priority setting exercise will better reflect the needs of UK Defence Rehabilitation, DMS and the UK Ministry of Defence, thereby optimising the impact of a systematic prioritisation process.

UK Defence Rehabilitation must respond to and incorporate an ever-evolving evidence base to meet the needs of its clinical practitioners and injured personnel. Therefore, Defence Rehabilitation research priorities, as determined by rehabilitation practitioners, should be periodically reviewed to ensure that priorities remain up to date while remaining sufficiently flexible to meet the dynamic/changing priorities of the DMS and UK Military.

The purpose of this article is to (1) describe how research priorities are established for Defence Rehabilitation; (2) review, reassess and rate the priorities highlighted and set by clinical rehabilitation practitioners following the 2014 survey and (3) identify new rehabilitation research themes and topics reflecting 2020 priorities

Establishing research priorities for UK Defence Rehabilitation

DMS priorities relevant to UK Defence Rehabilitation

Research priorities for UK Defence Rehabilitation are established by the Head of Research and Clinical Innovation on behalf of Director Medical Policy and Operational Capability and the Surgeon General. Maintenance of the research projects is through the Director of Research and the Defence Professor for Rehabilitation Medicine (via the Academic Department of Military Rehabilitation (ADMR)). In 2017, a mid-point strategic review of the *Health and Health Sciences Research Priorities for Defence 2015 to 2020*[4] was published. Aspirational research priorities were assigned by consensus into four tiers of priority. Tier one projects were considered the highest health and health sciences research priorities for defence voted for by key stakeholders representing all domains of the DMS organisation. At the top of these, tier one level priorities was 'Rehabilitation of Musculoskeletal Injury (MSKI)', which was also considered the most important component when research resources are finite. This tier one level research priority, identified by DMS, has been integral to shaping the research activity conducted by ADMR over the past five years.

Current UK Defence Rehabilitation practitioner research priorities

The ADMR Research Co-ordination Group (RCG) have a responsibility to promote, co-ordinate, support and direct Defence Rehabilitation research through all phases of activity from development to submission and publication. To meet this requirement, the RCG use a combination of balance and flexibility when coordinating a strategic 'top-down approach' (ensuring they align with higher DMS research priorities) and a responsive 'bottom-up approach' (reflecting UK Defence Rehabilitation practitioner-driven priorities). This approach to widen relevant stakeholder engagement is considered good practice when establishing research priorities.[2 3] RCG prescreen all Defence Rehabilitation research applications against the DMS and rehabilitation practitioner-driven priorities using the ADMR Research Programme Priorities Setting Criteria (Box 1), adapted from Jones *et al*.[5]

In 2014, as part of a clinical practitioner engagement exercise, ADMR performed a UK Defence Rehabilitation research priorities survey. Practitioners from across Defence Rehabilitation were asked to provide their views on the research questions and topics of central interest to their rehabilitation practice. This clinical engagement exercise was designed to complement, not replace, the higher level priorities established by DMS. Since 2014, the combined tier one DMS and Defence Rehabilitation practitioner-driven priorities have generated three large pan-defence randomised controlled trials. These are the Military Hip Rehabilitation Outcome (MILO)[6] study, the Chronic Tendinopathy Biomechanical Associations and Efficacy of Injectional Therapy (BeFit)[7] study and the ADAPTation to therapeutic resistance training (ADAPT) studies.[8 9] The ADAPT study has attracted internal and external stakeholder funding and meets a priority to exploit the potential of novel therapies for the benefit of military patients. The 2014 rehabilitation practitioner-based research priorities exercise also led to the completion of numerous research projects and service evaluations on topics of central interest to UK Defence Rehabilitation clinicians, including trauma outcomes,[10–13] psychological factors in rehabilitation,[14] injury prevention, biomechanical risk factors for MSKI and hip pain,[15] prearthritic hip pain outcomes,[16] MSKI outcomes[17] and inpatient rehabilitation for low back pain.[18 19] These studies are good examples of ADMR working alongside key stakeholders to develop an evidence base that directly informs clinical practice.

Box 1 ADMR research programme priorities setting criteria

A. Research programme is consistent with mission of the department, unit, Defence Rehabilitation, Ministry of Defence.
Considerations:
1. Accelerate the return of injured personnel back to their primary role.
2. Increase number of personnel fit for operations.
3. Advance scientific basis of military rehabilitation.

B. Importance of problem to health and readiness of armed forces.
Considerations:
1. Magnitude and severity of the problem.
2. High costs of problem.
3. Size and/or vulnerability of population at risk.
4. Degree of concern (command or public).
5. Gaps in knowledge of effective treatment strategies, or modifiable causes and/or risk factors exist.
6. Military uniqueness.

C. Potential value of research.
Considerations:
1. Cross-cutting (cuts across injury types).
2. Likelihood of identifying discrete modifiable risk factors.
3. Demonstrated/proven value in civilian populations.
4. Economic benefits/value.

D. Feasibility of research programme or project.
Considerations:
1. Medical/rehabilitation/logistics infrastructure exists to support research efforts.
2. Research partners exist.
3. Technologic feasibility of conducting the research (ie, ability to collect data).
4. Adequacy of resources.

ADMR, Academic Department of Military Rehabilitation.

METHODS FOR RESEARCH PRIORITISATION REFRESH

Between October 2019 and April 2020, ADMR scientific staff led a research prioritisation survey process across Defence Primary Health Care (DPHC). The survey had two primary aims: (1) reassess and rate the research priority themes highlighted and set by clinical rehabilitation staff following a 2014 survey, and (2) identify new rehabilitation research themes and topics reflecting 2020 priorities.

Stage 1: focus group workshop

Delegates (n=72) at the October 2019 DMS Rehabilitation Conference participated in a series of focus group workshops. Delegates provided an updated rating for each of the 2014 priority themes on a five-point scale ranging from 1 = 'very low priority' to 5 = 'very high priority'. New topics were also generated reflecting future research aspirations and priorities. The

priority themes and topics were considered and debated during open discussion and a broad consensus emerged that would form the basis of an electronic survey during stage 2.

Stage 2: electronic online survey

An online survey was circulated through the military chain of command to all DPHC clinical rehabilitation staff using the secure MODNET platform (Microsoft Office 365 Forms, using SharePoint) in February 2020. The survey content was the same as stage 1 seeking ratings for the 2014 topics and emerging priorities to be taken forward from 2020. The anonymous responses to this online survey were designed to update an existing policy document as part of a rolling five-year policy review and do not require formal ethical review.

Stage 3: survey analysis

ADMR staff conducted a thematic analysis of all survey submissions and ranked each topic in order of priority. Mean and SD scores for each topic were calculated and the frequency of practitioner ratings for each theme as 'high' or 'very high' priority determined. Finally, the research priorities for 2020 were ranked in accordance with the research theme scoring the greatest percentage of 'high' or 'very high' priority on the five-point scale. New research topics were identified based on their frequency of nomination across all responses.

SURVEY RESULTS

A total of 165 clinical staff completed the survey. Physiotherapists (65%) and exercise rehabilitation instructor's (ERI, 25%) were the professional groups submitting the most responses. Doctors, occupational therapists, podiatrists and research staff submitted the remaining survey responses (other: 10%). The breakdown of responses by rehabilitation location are as follows : primary care rehabilitation facility (PCRF, 39%), Defence Medical Rehabilitation Centre (DMRC) Stanford Hall (39%) and regional rehabilitation unit (RRU, 22%).

Table 1 summarises the results of the 2020 practitioner reprioritisation survey. 'Rehabilitation outcomes' and 'psychological factors in rehabilitation' emerged as two clear priorities with over 85% of all responses rating as 'high' or 'very high' priority. While 61% of all responses were from staff employed at units delivering residential rehabilitation courses (RRU/DMRC), a significant number of PCRF staff responses rated 'residential/inpatient treatment paradigm' a high research priority (75%). These three research themes were the only topics yielding a mean score ≥4 signifying a high priority for rehabilitation practitioners across all three tiers of UK Defence Rehabilitation (ie, PCRF, RRU and DMRC).

The three new priorities emerging from the 2020 survey were 'lifestyle factors during rehabilitation', 'management of pain during rehabilitation' and 'anterior knee pain'. A rating score was not applied to these topics but they do constitute the most

Table 1 Defence Primary Health Care (DPHC) clinical staff research priorities for 2020

Rating order	Research topic	Score (m±SD)	Scoring high or very high priority (%)
1	**Rehabilitation Outcomes** Examples: clinical vs PROM vs occupational outcomes; validity of military-specific outcomes (eg, the FAA); measurement of muscle strength in rehabilitation.	4.2±0.8	87
2	**Psychological Factors in Rehabilitation** Examples: patient motivation; adherence to exercise; mental health issues in rehabilitation.	4.3±0.7	86
3	**Residential/Inpatient Treatment Paradigm** Examples: periodisation of programme, monitoring training load, physical activity levels, acute: chronic workloads, heart rate variability, optimal training dose and duration, metabolic cost.	4.0±1.0	76
4	**Injury (MSKI) Prevention** Examples: occupational and biomechanical risk factors for MSKI; prevention of training injuries.	3.9±1.2	65
5	**Recovery Strategies in Rehabilitation** Examples: sleep hygiene; nutrition strategies, protein supplementation, probiotics, vitamins, minerals and immunity.	3.4±1.2	53
6	**Hip Pain** Examples: diagnosis; optimum treatment of intra-articular vs extra-articular hip pathology; surgical vs conservative management of FAIS; source of pain.	3.4±0.9	52
7	**Low Back Pain** Examples: efficacy of cognitive behavioural therapy and cognitive functional therapy; chronic vs acute care; diagnosis and optimum treatment in young adults; exercise efficacy.	3.5±0.9	49
8	**Novel and Innovative Treatments** Examples: blood flow restriction therapy; mindfulness in rehabilitation; virtual reality rehabilitation.*	3.0±1.0	33
-	**Lifestyle Factors in Rehabilitation** Examples: Physical inactivity (sedentary roles); smoking and alcohol consumption; sleep quality; healthy eating behaviours; obesity and cardiometabolic health.	New priority topic 2020	
-	**Pain Management in Rehabilitation** Examples: acute vs persistent pain management; pain education; training load monitoring; pain response to exercise.	New priority topic 2020	
-	**Anterior Knee Pain** Examples: optimal loading (monitoring and progressions); diagnosis; treatment outcome measurement; origin of pain.	New priority topic 2020	

*DMRC Stanford Hall specific research priority (only DMRC staff noted this as a priority).
DMRC, Defence Medical Rehabilitation Centre; FAA, functional activity assessment; FAIS, femoroacetabular impingement syndrome; MSKI, musculoskeletal injury; PROM, patient-reported outcome measure.

frequently nominated new research priorities by rehabilitation practitioners.

DISCUSSION

Adopting a methodological approach to the assessment of priority research topics provides a valuable opportunity for practitioner engagement and is good practice. The emerging themes do not constitute a definitive list of all research priorities; they merely reflect the feedback of a representative sample of clinical rehabilitation staff engaging in the survey process. This prioritisation survey compliments, but does not replace, the higher priority *Health and Health Sciences Research Priorities for Defence 2015 to 2020* published in 2017,[4] which identified the 'Rehabilitation of MSKI' as a tier one high priority project. The results of this workshop will assist the ADMR RCG in guiding the types of research being conducted within UK Defence Rehabilitation over the next five years. The current survey was conducted prior to the ongoing COVID-19 outbreak and it is not possible to speculate on how this may have influenced survey responses.

It is imperative that the funding directed to MSK rehabilitation focus on the most important research priorities in the field to ensure the highest health return on investment. Among the most notable findings in the 2020 reprioritisation survey (Table 1) is the lower rating for injury-specific research themes (eg, low back pain and hip pain) and an increase in broader topics germane to the rehabilitation of all injury conditions (eg, rehabilitation outcomes, psychological factors, residential rehabilitation and recovery strategies). Many UK Defence Rehabilitation staff complete undergraduate and postgraduate research each year, particularly within the specialist areas of sport medicine, musculoskeletal physiotherapy and strength and conditioning. In the absence of clear direction, the priority themes detailed in Table 1 can be used to guide personnel completing higher academic degrees towards a research topic of relevance to defence. We also recommend clinicians read a clinical commentary describing the importance and challenges of integrating strength training into UK Defence Rehabilitation practice.[20] The key messages from this commentary are nicely aligned with the research priorities identified in this article and should facilitate the creation of clinically meaningful research projects.

In an evolving and dynamic research base, research priorities are subject to change in response to new knowledge, new technologies, scientific opportunities and healthcare needs, necessitating regular redefinition.[1] Therefore, the next review of UK Defence Rehabilitation practitioner-driven research priorities will be conducted in 2025.

Correction notice This article has been corrected since it was published Online First. ORCID has been added for Russell J Coppack.

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