

# Physiotherapy support to the Carrier Strike Group

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## Abstract

The recent First of Class Flying Trials for the F-35 Lightning 2 took place on HMS QUEEN ELIZABETH (QNLZ) during the WESTLANT 18 deployment. WESTLANT 18 took place over four months off the eastern seaboard of the United States of America and involved a busy daily flying programme. The deployment was supported by a full Role 2 Afloat (R2A) team. The Role 1 team onboard was augmented during WESTLANT 18 with a physiotherapist. Data collected during WESTLANT 18 suggests that provision of a physiotherapist to support the Carrier Strike Group (CSG) is a force enabler and force protection asset, as they are able to keep patients on board who would otherwise require aeromedical evacuation back to the United Kingdom. The deployed physiotherapist was well employed and, when complemented by plain radiography and supported by an embarked orthopaedic surgeon, saved a significant amount of lost working hours and the associated costs of investigations and treatment in the host nation. This reduces the risk to operational capability due to musculoskeletal injury to the aircrew or to the ship's company and embarked forces.

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## Introduction

The recent First of Class Flying Trials (Fixed Wing) (FO-CFT(FW)) for the F-35 Lightning 2 took place on HMS QUEEN ELIZABETH (QNLZ) during the WESTLANT 18 deployment. The deployment also offered opportunities to develop the secondary Landing Platform Helicopter (LPH) role of the QUEEN ELIZABETH Class (QEC) platform and Tactical Development (TACDEV). WESTLANT 18 took place over four months off the Eastern seaboard of the United States of America involving an intensive daily flying programme, testing not only the QEC capabilities but also the personnel on board.

WESTLANT 18 was supported by a full Role 2 Afloat (R2A) clinical team with a damage control resuscitation capability including damage control surgery if needed. The R2A capability included plain radiography and an orthopaedic surgeon. The Role 1 team onboard were augmented during WESTLANT 18 with a Royal Air Force physiotherapist. Recent operational experience from R2A deployments has shown that a significant musculoskeletal workload was encountered and several post-operational reports<sup>1,2</sup> have suggested the consideration of physiotherapy support to supplement the R2A ca-

pability, particularly in taskings involving large attachments of Royal Marine personnel. A physiotherapist deployed on HMS OCEAN during Op RUMAN, but otherwise maritime physiotherapy deployments have been limited to Role 3 (Op GRITROCK)<sup>3</sup> and have not been a routine addition on recent R2A operations.

The aim of this article is to define the presentations to a deployed physiotherapy service supporting the Carrier Strike Group (CSG).

## Methods

The physiotherapist was embarked during the entire 118 days of the deployment. Typically, clinics ran from 0800-1200 and then again 1300-1700, six days a week. On Sundays there was a morning clinic, to allow the physiotherapist time to catch up on any paperwork in the afternoon before taking a weekly Pilates class for the ship's company.

Data were collected using a secure MS Excel spreadsheet. Data included injury details and Functional Activity Assessment (FAA), which were collated on initial assessment and on

FAA SCORE	Functional Activity Assessment (Deployed) Description	Admission	Discharge
1	Fully fit for deployed role	2	123
2	Fit for deployed role with either pain or minor functional impairment	134	12
3	Unfit for deployed role, but fit for general military duties		
4	Unfit for all but sedentary duties		1
5	Off all duties		

Table 1: Functional Activity Assessment scores.

discharge. The FAA is a patient reported score which allows the multidisciplinary team to determine the effectiveness of clinical intervention.

### Results

136 new patients were seen by the physiotherapist during WESTLANT 18 along with 305 follow-up consultations, making a total of 441 patient contacts.

The most common specific injury presentation was a soft tissue lesion to the upper limb (n=25), followed by mechanical disorders of the lumbosacral spine (n=24).

However, the different specific knee injury presentations, when combined, resulted in the most presentations (n=35).

A minority of the patients seen were aircrew (n=11). All aircrew presentations were with mechanical disorders of the cervical spine and lumbar spine. All the aircrew seen were able to continue flying as a result of their treatment.

Of the 136 patients assessed, 98.5% (n=134) of the patients presented at initial appointment with an FAA of 2. 1 patient who presented at the initial appointment with an FAA of 2 was evacuated to the United Kingdom (UK) (having deteriorated to an FAA of 4).

41 plain radiographs were performed onboard QNLZ during WESTLANT 18. Six resulted in aeromedical evacuation to the UK for surgical intervention. One patient needed aeromedical evacuation for ongoing treatment. 17 patients remained fit for full duties and 16 needed physiotherapy treatment for their injuries.

### Discussion

Injuries on board QNLZ during WESTLANT 18 requiring physiotherapy input involved almost 10% of the personnel at risk (PAR) on the ship. A previous paper describing the experience on Operation GRITROCK highlighted the significant burden of musculoskeletal injury during a contingency operation and showed the value of a supported deployed physiotherapist as a force protection asset and force enabler.<sup>3</sup> Experience from WESTLANT 18 provides further evidence of this. Soft tissue lesions to the upper limb were the most common presentation, mainly due to individual gym training and a small number due to environmental factors. Second most common were mechanical

disorders of the lumbosacral spine with many of these being exacerbated by environmental and work-related factors.

The embarked physiotherapist was an aviation qualified specialist and offered a 'direct access' referral service to all aircrew on board. Although only 8.1% of personnel injured on board were aircrew, 22.4% of the total aircrew on board suffered an injury requiring physiotherapy input. Despite this, all aircrew had an FAA of 2 on initial assessment and continued to fly throughout treatment. This may be due to the patients having referred themselves early to physiotherapy before the injuries started to impact on their flying.

Many of the patients would have benefitted from the input of an Exercise Rehabilitation Instructor (ERI), and this lesson has now been addressed for WESTLANT 19, on which the deployed physiotherapist is now being supported by an embarked ERI.

The R2A facility had a plain x-ray capability and a consultant in orthopaedic surgery on board. 16 patients who had sustained fractures which could be managed conservatively with regular rehabilitation and monitoring by the physiotherapist, were kept deployed. Under normal circumstances, in an operational theatre not supported in this way, patients would have been sent back to the UK for further assessment and management. Subjectively, all but one of the patients seen on WESTLANT 18 reported that physiotherapy prevented their injuries getting worse, allowing them to remain on board the ship and continue with their jobs.

### Conclusion

Data collected on this deployment supports the need for a full-time physiotherapist on similar operations. The physiotherapist (with radiography and orthopaedic support) is a force enabler, keeping patients operationally fit and in theatre who would otherwise need aeromedical evacuation to the UK. As well as the substantial reduction in the number of lost working hours there was also a considerable financial saving of the associated costs of investigations and treatment in the Host Nation, due to the deployment of the physiotherapist with R2A support.

We recommend that the addition of a physiotherapist to any operational commitment supported by R2A should be considered, depending on the mission and casualty estimate.

Outcome Code	Description	Number
1	Discharged, fully fit	123
2	Treatment complete, not fully fit	
3	Treatment not required / advice and guidance only	
4	Administrative discharge (e.g. DNA)	
5	Aeromedical evacuation	1
6	Non-aeromed, referred for ongoing treatment elsewhere	12

Table 2: Disposal of discharged patients.

**References**

1. 20160712 Post Operational Report: Role 2 Afloat (R2A) RFA Mounts Bay (MNTS 16 Phase 3) 14 May – 15 Jul 16.
2. 20171006 Post Operational Report: Role 2 afloat (R2A) RFA Mounts Bay (Op RUMAN) 11 Sep – 10 Oct 17.
3. Scott PJ. Non-Battle Injuries presenting to the Force Medical Rehabilitation on Operation GRITROCK. *J R Nav Med Serv* 2016;102(1):14-8.

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