

Activity reference number	HFM-ET-126	Activity Title Neck Pain Aircrew	Approval 2012
Type and serial number	ET		Start January 2013 is
Location(s) and Dates		TBD	End January 2014
Coordination with other bodies	, COMEDS, Aerospace-WG		
NATO Classification of activity		UU	Non NATO Invited No
Publication Data		MISC	UU
Keywords	Aircrew, , pilot, engineer, neck, back, pain, helicopter, fighter, aircraft, NVG, HMD, helmet		

I. Background and Justification (Relevance to NATO):

With the increasing head mass imposed on helicopter and fixed wing aircrew as a result of night vision goggles and helmet mounted displays, and given the prevalence to longer missions, more aircrew are suffering from neck pain to the point that they are precluded from flying. This is costly both in terms of the loss of highly trained aircrew and the cost generally associated with medical pensions and premature release from the military. Although different communities have tried to solve the problem independently they have concluded that neck pain is a complex, multi-factorial and difficult problem to solve. Neck pain and disability in these military aerospace communities is only expected to escalate in both the fixed and rotary wing aircrew communities, and needs an integrated, coordinated multinational effort that brings an interdisciplinary team to bear. Neck pain is prevalent in the general aircrew population at all ages. At present a clinical diagnosis is exceedingly difficult yet there are several documented pain generators such as surrounding soft tissue, discs, facet joints and the cervicocranial junction and there is a poor association between pain and disc degeneration. Furthermore, there is no rapid objective test to define and measure pain, and no simple method to dynamically image/monitor the neck structures in a complex flying environment. Finally, there might be limited ergonomic and functional cockpit modifications that would be financially and operationally feasible in the near and mid-term that could mitigate strain on the neck during operations. Since all NATO nations have aircrew the problem is not limited to only a few nations. Therefore, to study the problem from a NATO perspective, the Human Factors and Medicine panel are recommending that an RTG study tackle the problem by leveraging the NATO S&T community and help coordinate the different NATO efforts that are already at play.

II. Objective(s):

The objectives of this ET are to catalogue from a NATO perspective the prevalence of neck pain in aircrew, to determine if other nations have adopted solutions or have hypothesized about the nature of the problem, to collectively determine the most injurious in-flight contributors to neck pain, and to seek other creative solutions including administrative, procedural and ergonomic/engineering measures. Additionally, the nature of the problem is such that a multi-disciplinary team including engineers, human system integration/ergonomics, medical officers and aircrew will be engaged. The ET will be a joint effort between the HSI and HMP areas.

III. Topic To Be Covered:

In the course of this ET the team will investigate existing static and dynamic anatomical models, look for and report on existing solutions, if any, study the prevalence of the problem, investigate promising light-weight helmet-mounted/integrated technologies for both NVG and HMD.

IV. Deliverable (e.g. S/W Engagement Model, Database,...) and/or end product (e.g. Final Report):

Miscellaneous, other deliverable(s) : none

V. Technical Team Leader And Lead Nation:

Chair : Dr Leonard GOODMAN Canada

Lead Nation: United States



Technical Activity Proposal (TAP)



VI. Nations Willing/Invited to Participate:

NATO Nations and Bodies : Belgium, Canada, France, Germany, Netherlands, United States

PfP Nations : none

MD Nations : none

ICI Nations : none

Global Partners : none

Contact / Other Nations : none

VII. National And/Or NATO Resources Needed (Physical and non-physical Assets):

Adequate fundign for members to particpate the meeting(s)

VIII. STO/CSO Resources Needed:

None

Additional Information

Panel Mentor:

Col Gerald ROTS, Netherlands

Limited Participation Technical Team:

No

Comments:

This ET has to write a TAP and ToR for a follow-on activity.

Approved at the 30 HFM-PBM, Fall 2012

Terms Of Reference (TOR)**HFM-ET-126, ET
on
Neck Pain Aircrew****I. Origin****A. Background****B. Justification (Relevance for NATO)****II. Objectives****III. Resources****A. Membership**

Chair : Dr Leonard GOODMAN Canada

Lead Nation: United States

Nations Willing/Invited to Participate: Belgium, Canada, France, Germany, Netherlands, United States

B. National And/Or NATO Resources Needed :

Adequate fundign for members to particpate the meeting(s)

C. STO/CSO resources needed

None

IV. Security Classification Level

The security level will be Unclassified/Unlimited

V. Participation By Partner Nations

PfP Nations : none

MD Nations : none

ICI Nations : none

Global Partners : none

Contact / Other Nations : none

VI. Liaison