



# Ministry of Defence

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Dear members of PETA,

I have recently received a number of emails, sent via the PETA website, on the subject of the twice-yearly surgical training exercises in Denmark, during which live but fully anaesthetised pigs are given bullet and blast wounds which are then treated in real-time exercises by surgical teams, including members of the UK Defence Medical Services (DMS). While the Government recognises that some people may hold moral objections to these exercises, we believe that these are outweighed by their surgical value.

As you will appreciate, the Ministry of Defence takes very seriously its own moral obligation to provide the best possible medical care for Service personnel wounded on operational service. The quality of care delivered by the DMS is directly related to the thoroughness with which we prepare our deployed surgical teams for the sorts of serious injuries they will encounter. We provide this training through a range of different courses, many of which do make extensive use of simulation models such as programmable mannequins. For example, the award-winning Military Operational Surgical Training (MOST) course, which is attended by regular military and reserve service clinicians preparing for operational deployment, uses state-of-the-art simulation facilities to train surgical teams in decision making, resuscitation, operative and post-operative care.

However, simulators are currently unable to replace all trauma training. Even the most sophisticated of them are not sufficiently technologically advanced to respond physiologically to complex surgical procedures. At present, the only means for our surgical teams to get the necessary training in the control of real-time internal haemorrhage from combat injury is through live tissue training (LTT) using pigs.

Although anatomically different, the comparative anatomy of a pig is sufficiently close to a human to permit the realistic practice of Damage Control Surgery (DCS). DCS is a surgical approach to restore physiology, rather than anatomy, and hence the anatomical differences between a pig and a human are of secondary importance to the realism of the pig's physiological response to blast and ballistic trauma and to subsequent surgical intervention to save life. Additionally, but very importantly, LTT also creates an adrenergic response in the treating surgeons and anaesthetists that is not found in, and cannot be replicated by, synthetic models.

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I can also assure you that the animals are not conscious during any part of the exercises, and feel no pain. They are attended at all times by veterinary staff, who may withdraw them at any time for any reason, and are humanely put down at the end of the training procedures without recovering consciousness.

LTT is recognised as “best practice” in terms of operational preparedness by those other NATO and non-NATO nations which also undertake this training. The UK has a proud and successful history of providing deployed surgical teams to NATO-led military operations (a commitment and capability which is not shared by all our NATO allies) and this commitment impacts on the medical training we need to provide for our surgical teams. I can also assure you that the Danish exercises are fully compliant with national and international legislation, including the UK Animals (Scientific Procedures) Act 1986 and EU Directive 2010/63/EU. By participating in the existing Danish exercises instead of replicating them in the UK, we are actually minimising the overall number of animals used.

The Defence Medical Services have collaborated on a number of research programmes into simulator technology, and we constantly monitor the latest developments, especially where they might in future offer an alternative means of providing this training. For example, a 2016 article in “Military Medicine”<sup>1</sup> discussed a particular surgical anatomy model (SAM) for pelvic disruption and haemorrhagic trauma. While noting the sophistication of the SAM, the article concluded that further research would be required in order to demonstrate its utility for training in an objective manner, including in comparison with animal-based techniques.

In 2017 the UK Surgeon General asked for a review to be carried out into the continued requirement for live tissue training, in view of recent technological advances in simulation and simulator technology. The review, carried out by the Defence Medical Services Medical Director, concluded that current synthetic and cadaveric models were unable to replicate either the environmental conditions or the physiological response of the animal with sufficiently high fidelity. The review’s recommendation was that live tissue training was clinically justified and should therefore continue.

I would be grateful if you could place this letter on your website for the information of your members and supporters.

*Yours sincerely,*

*Frederick Howe*

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<sup>1</sup> Naumann et al; High Fidelity simulation model of pelvic haemorrhagic trauma: the future for military surgical skills training? Mil. Med. 2016; 181(11): 1407-1409