

# WRAPPING UP ANOTHER YEAR OF ADVANCE



## IN MEMORY OF ADMIRAL OF THE FLEET THE LORD BOYCE

In November 2022 we received the sad news of the passing of Admiral of the Fleet the Lord Boyce, who was the first ever Chairman of the ADVANCE Charity - among his numerous other charitable roles. He will be greatly missed by everyone at ADVANCE, and his huge contribution to the ADVANCE Charity and the Study will not be forgotten. Scroll down to page 4 to find out more about his remarkable life and career.

## THE ADVANCE POST-TRAUMATIC GROWTH FINDINGS GET PUBLISHED

Seems like since the first publication on ADVANCE baseline findings came out, we can't stop more papers being published! Most recently, our findings on post-traumatic growth (PTG) were published in the scientific journal *Psychological Medicine*. You can read more about these findings on page 2. If you want the full details and don't mind the science jargon, you can find the full scientific publication [here](#). Thank you, as ever, to all our participants.

## HEAR IT FROM THE PARTICIPANTS

We recently had the pleasure of interviewing ADVANCE participant James Murphy, who is also the CEO of TechVets. Read the full interview on page 3, and find out what TechVets is all about on page 4.

The ADVANCE Participant Panel held another meeting in October 2022. A summary of what was discussed can be found on page 7.

## IN OTHER NEWS...

In this newsletter we also explain why spirometry is included in the tests when you come for your ADVANCE visit. Spirometry measures an individual's lung function. Read more about it on page 6.

**Huge thanks to all our participants for another great year of ADVANCE. We wish you all the best for the festive season and look forward to seeing you in 2023!**

Find us on  
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# ADVANCE post-traumatic growth (PTG) findings in short



Watch the brief video on the left for a summary of the recently published ADVANCE baseline findings on post-traumatic growth (PTG).

PTG is a collection of beneficial psychological changes that have been noted in those exposed to trauma, like injury or warzone experiences. The aim of this piece of ADVANCE research was to investigate the experience of PTG amongst the ADVANCE cohort and assess the role of combat injury, mental illness and pain.

Psychological changes that can occur after exposure to trauma can include, but are not limited to: appreciating your life more, seeing new possibilities in your life,

relating to others better, a greater understanding of your own personal strength and a greater spiritual understanding.

Our findings showed that those who have experienced a combat injury were more likely to report PTG compared to the uninjured. However, the type of injury is important - those who experienced amputation-related injuries were more likely to report PTG compared to the uninjured group, but those who experienced non-amputation injuries were not. In addition, pain and discomfort were associated with a greater likelihood of reporting a large degree of PTG.

The more we understand about why some people experience this growth whilst others experience mental illness, the more likely it is we can develop targeted interventions that might help elicit growth amongst the most vulnerable.

**You can read more about the post-traumatic growth findings in our blog post [here](#).**

## They would walk 500 miles, or at least 75...

**Let's go on a journey with Sam Paul, ADVANCE radiographer, and Grace Blissitt, ADVANCE research assistant, who recently took on a 75-mile challenge to raise money for charity. Buckle up and read below Sam's account of the hike...**

'In September, Grace and I embarked on The National Forest Trek starting at Beacon Hills and finishing at the National Memorial Arboretum, raising just over £1,500 for three charities - the National Memorial Arboretum, The National Forest and the DMRC Benevolent Fund. Inspired by the ADVANCE participants' determination and challenge-driven personalities, we took on this hike, advertised as 75 miles of glorious nature with a variety of landscapes, from volcanic rock to ancient woodland. What could go wrong?

We were against the odds of finishing the challenge, as neither of us had trained, and I was wearing new unworn walking boots. After 30 miles on day one, we felt we would not be able to complete the challenge, with painful stiff hips, particularly Grace's which got no better when faced with 50+ styles to climb over each day. Both our toes blistered, and I had to have mine taped and bandaged up by the medical team. The 75 miles turned into an 80-mile trek, and the appealing landscape was haunted by charging bulls (my biggest fear!), muddy steep hills and bad weather.



However, after all the moaning we realised the pain was temporary, and the feeling we both had crossing the finish line was incredible. We made many memories we look back at fondly. We are so grateful for the experience and the opportunity to raise money for such good causes. The DMRC Benevolent Fund enhances the rehabilitation process of serving military patients, keeping motivation and support at high levels. The National Memorial Arboretum is part of the Royal British Legion; they exist to ensure that the unique contribution of those who have served and sacrificed is never forgotten.'

# PARTICIPANT VIEW: James Murphy

**When and where were you deployed?** My last deployment was in the British Embassy, Beijing. I provided intelligence support to the UK's Defence Engagement in South East Asia, working directly for the Defence Attaché.

**Why did you choose to take part in ADVANCE?** I have always felt drawn to significant activities, especially those that can have a greater opportunity to make a difference. Having been impacted by injury, it seemed like a perfect chance to learn more about my own health too.

**How did you find your ADVANCE visits?** The ADVANCE Team have always been an incredibly friendly bunch, and from the moment you arrive, you are made to feel like they are really chuffed you are there. On the tests – it would be remiss of me if I didn't mention the level of anticipation wondering if my health is worsening or less likely... improving!

**What impact has ADVANCE had on your life?** Throughout your military career, you never receive a medical exam as thorough as the ADVANCE Study examinations, and you certainly don't get the same medical support once you leave the Service, so this has really made a difference to me. I have minor injuries from multiple shrapnel wounds up both lower legs from a rocket propelled grenade during operations in Helmand Province. I am constantly in discomfort, and this is worsened when exercising, so I stopped any impact work after getting injured. But at my previous ADVANCE visit, my test results revealed an issue with bone density – I have osteopenia. So, despite the pain, I have started running again. At the moment I am up to 6 miles at a time for the first time since getting a spot in the British Army Cross Country Team back in the early 2000's.

“

*Throughout your military career, you never receive a medical exam as thorough as the ADVANCE Study examinations.*

”

**What have you been up to since you left active service?** When I left in 2018 I first joined Government Digital Services (GDS) as Head of Cyber Threat Intelligence, which I found through networking as a TechVets member. When the very first Chief Executive Officer role at TechVets opened up in 2020, I was fortunate to land the role. Since then, I have grown the team, adding four team members – three of whom are veterans. It has certainly been a passion of mine, and our work has led to me being invited as a member of the Veterans' Employment Group, hosted by the Office for Veterans' Affairs and chaired by the Minister for Veterans. (Read more on TechVets on the following page.)

**Have you got any words of wisdom for your fellow ADVANCE participants?** The veterans' community is incredibly strong. At TechVets we have built our success on the power of community, so I would recommend that others leverage the various veteran or Forces community networks for support and advice.



James at 10 Downing Street (although apparently not considering a career change).

The early warning from my ADVANCE test results has really given me a chance to make a positive impact on these health issues which would not have been picked up otherwise.

**Is there anything more you would like to see from ADVANCE?** I know I would like to see LESS of my DEXA scans. The image manages to show a wonderful colourful silhouette of my figure, but seems to really highlight how my shorts cut into my now slightly more generous waistline! I know the ADVANCE team are working away to ensure that the participants' experience is constantly reviewed and improved where required, but honestly at this stage it is on point.

**What are your top film and book of all time?** Top film has to be *Interstellar* – pushed the boundaries on real scientific concepts, and I am a fan of space and Christopher Nolan films. My favourite book is *Black Box Thinking*, as I love failing fast and learning from failure.

**What's your favourite way to spend your weekends?** Generally, walking with my family and pretend dog... pretend because he is a yorkie-poo, so more of a floop teddy than dog. I am also a keen gamer and find that sometimes gaming can provide a nice mental break from work, as the hours are pretty long.



Watch the short video above to find out what advice James has for his fellow ADVANCE participants. The full interview can be found [here](#).





## In remembrance of Admiral of the Fleet the Lord Boyce

We were extremely saddened to hear about the passing of Admiral of the Fleet the Lord Boyce in early November 2022, after a courageous battle with a long illness.

Among his many other charitable roles, he was the first ever Chairman of the ADVANCE Charity, which he combined with his Chairmanship of the Advisory Board for the Centre for Blast Injuries Studies at Imperial College London. There is no doubt that his leadership has put the ADVANCE Charity and the ADVANCE Study into a very strong position for the future.

We are hugely grateful for Lord Boyce's significant contribution to ADVANCE, and we will greatly miss his commitment, leadership and wisdom.

You can read about Lord Boyce's remarkable life, career and achievements in his [obituary](#) in the Guardian.

### TECHVETS

TechVets empowers the British Forces community to retrain, upskill and successfully break into information technology careers.

With a powerhouse of 30+ strategic partnerships, including Immersive Labs, Fortinet, Splunk, Google, SANS, CREST, Pega and StratCom, the not-for-profit supported over 16 people per month directly into cybersecurity and tech roles in the last year alone. As a Forces Employment Charity programme, TechVets provides a seamless transition for the Forces community to secure gainful employment, while supporting the UK government's strategic intent to grow cyber and tech skills amongst underrepresented societal groups.

Find out more about the amazing work they do on the [TechVets website](#).

## ADVANCE around the world

As more of the ADVANCE data are getting published, we have been lucky to have had the chance to present ADVANCE findings at meetings and conferences.



Dan Dyball, a research assistant in the Study, gave two presentations at the CIMVHR (Canadian Institute for Military and Veteran Health Research) Forum in Halifax, Canada, in October. His first talk was on mental health outcomes in injured Armed Forces personnel, and the second one was on PTSD symptoms associated with cardiovascular risk.

**On the left: Dan presenting his work.**

**On the right: Dan with Prof Nicola Fear, King's College lead for ADVANCE, and Susie Schofield, ADVANCE statistician.**

In addition, ADVANCE Chief Investigator Group Captain Alex Bennett presented on advances in military trauma rehabilitation at the 2022 Trauma Care Conference in October.



### Have your contact details changed?

Let us know by contacting us directly or by completing our online Contact Form via this QR code:



# MEET THE TEAM - PROF ANTHONY BULL

Professor of Musculoskeletal Mechanics, Imperial College London

**What is your role within ADVANCE?** I am a member of the Project Board and bring my engineering expertise to everything in the Study.

**Apart from ADVANCE, what else does your research work include?** I lead the Centre for Blast Injury Studies (established 2008) at Imperial College that conducts translational research on protection, mitigation, treatment and rehabilitation of blast injuries for the benefit of serving military personnel and veterans.

**What is the best thing about working within ADVANCE?** First and foremost it's all about the participants, and I really feel that what we are doing is now making a difference for them and will certainly do so even more in the future. Secondly, I am working with the most amazing colleagues who are the engine behind ADVANCE. I won't name them all here, but they know who they are!

**What are the biggest challenges of your ADVANCE role?** Balancing the very long-term aims of ADVANCE with day-to-day pressures and priorities is hard for everyone and is a challenge for me. Thankfully ADVANCE is a team effort, so we all carry each other along.

**If you could see all our participants together, what would you say to them?** Thank you - for your service to the nation, and for giving your time to this important study.

**What are your favourite meal and drink?** Steak and stout with whiskey to follow. Always tastes better after having played for my Wasps Vets Rugby team. (Note that we're the amateur, original 1867 rugby club, not the professional team that's gone into administration!)



Anthony in rugby action for the Wasps Vets Rugby team.

**What's the last book you read?** I'm not a great book reader but love crime novels and managed to read a couple of Val McDermid books while on holiday this summer.

**What three words would your friends or partner use to describe you?** Loyal, hard-working, direct (and that includes a strong hand-off).

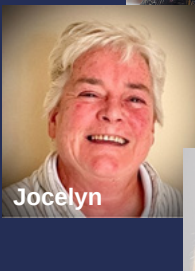
**What was no. 1 in the UK charts on the day you were born?** Lee Marvin's *Wand'rin' Star* (and, no, I had never heard of this before, but if you see me soon you might hear me humming it...).



Steven



Owen



Jocelyn



Fraje



Laura

## Hello and goodbye

We are sad to say goodbye to Lalji Varsani, our brilliant database analyst, who is leaving the Study at the end of the year. We thank him for all his hard work and wish him all the best in whatever adventures come next!

But yet again, the ADVANCE team is growing. We are excited to welcome Fraje Watson, Laura Grover, Jocelyn Keshet-Price, Steven Parkes and Owen Walker.

Fraje has joined us as a research assistant and will be looking at musculoskeletal health outcomes in the ADVANCE cohort, whereas Laura is a PhD student exploring the relationship between social support and mental health outcomes.

Jocelyn is our new senior research nurse, so you will be seeing her at Stanford Hall. Steven is the newest member of the participant recruitment and admin team, and Owen has joined the data team as a data manager.





# YOUR ADVANCE DAY EXPLAINED: Spirometry

Spirometry is a test of an individual's lung function using a machine called a spirometer.



## What does spirometry involve?

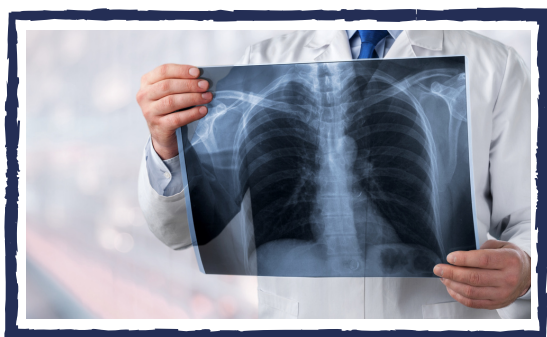
Spirometry involves breathing in until you are completely full (at your *total lung capacity*) and then rapidly exhaling into the mouthpiece of the spirometer. You will be encouraged by the staff to blow as hard as you can and to keep blowing until your lungs are completely empty (at *residual volume*) – this ensures we have measured your full lung capacity and aren't underestimating it.

The 'encouragement' from our staff is quite vigorous, and you might feel that there's no more air left in your lungs at the end, but the spirometer is very sensitive, and you probably have more air in your lungs than you may realise! Some people can feel a little dizzy at the end of the blow, so we let you rest in between efforts.

We will ask you to perform a minimum of three blows so that we achieve a consistent (and therefore, accurate) measurement. Some people need a few goes to get 'warmed up' and get the hang of the technique, so you may be asked to do extra blows if your measurements are a bit variable.

## What are we measuring with spirometry?

We measure two main things with spirometry: your lung capacity, known as your *forced vital capacity* (FVC), and the amount of air you can push out in the first second of a forced blow – this is known as your  $FEV_1$ . We also look at the ratio of these two measurements ( $FEV_1/FVC$ ). Your FVC tells us about the size of your lungs, and your  $FEV_1$  tells us about your airways (the tubes inside your lungs). Certain lung conditions can change these measurements, and the ratio can help us see if a condition is affecting the airways (such as asthma), or the lung tissue (such as pulmonary fibrosis).



We measure your volumes in litres and compare them to your 'predicted' values. These are taken from huge population studies of tens of thousands of people and are related to your age, height and gender: men and taller people tend to have larger lungs. Your lung capacity increases with age until your mid-20s, but as with many things, it's all downhill after that! However, you should only lose around 1-2% or about 200ml per year. Provided you don't develop any lung diseases, this doesn't have a significant effect on your exercise capacity. And keeping fit and active can help preserve your lung function.

## What affects lung function and why are we interested in it?

We tend to find that ADVANCE participants have good lung capacity, probably as a result of being physically active during your service career. Even if you are no longer serving and are much less active now, being physically fit when young can put your lung capacity at a higher starting point, meaning you are likely to have good lung function throughout your life.

However, many service personnel also smoke, which is well known to damage the lungs. Long-term smoking can lead to chronic obstructive pulmonary disease (COPD) where the airways become swollen and narrowed, and airflow is reduced. Lung tissue may also lose its elasticity. This is shown as reduced  $FEV_1$  and a normal to high FVC. Asthma affects the airways in a similar way, so both can result in an increased  $FEV_1/FVC$  ratio (lower than 0.7).

Other conditions, such as pulmonary fibrosis, can reduce lung capacity (FVC). In pulmonary fibrosis scar tissue forms in the lungs, making them stiff and difficult to expand. We see this as a reduced FVC and a higher  $FEV_1/FVC$  ratio (higher than 0.8). Pulmonary fibrosis has many causes, including exposure to organic dusts (e.g. mining/quarrying, farming, bird-keeping, wood and textile working) in combination with smoking and/or a genetic susceptibility. The condition is progressive and irreversible, so protecting your lungs from dust exposure is important.

In the ADVANCE Study we look at differences in lung function between the injured and uninjured groups, with a particular focus on those with blast injury. We don't yet know what the long-term effects will be, but measuring your lung function over the course of the Study will provide this valuable information.

# ADVANCE PARTICIPANT PANEL MEETING OCT 2022

The ADVANCE Participant Panel met over Zoom on 19th of October. The panel plays a vital role in how the Study is conducted, and it was another productive meeting with lots of useful feedback for the ADVANCE team.

On the agenda this time were ADVANCE research on bone mineral density, communications and raising awareness of the Study, and an update on ADVANCE-INVEST, which focused on literature review findings on employment and the effects of pain, mobility and amputation.

Feedback from the panel is reported back to the ADVANCE Project Board.

## Would you like to be involved in shaping the ADVANCE Study?

If you would like to join the ADVANCE Participant Panel, please get in touch with the ADVANCE team directly (contact details below) or by completing our online Contact Form via the QR code on the right.

Would you like to join  
the ADVANCE  
Participant Panel?

Let us know by contacting us  
directly or by completing our online  
Contact Form via this QR code:



*Season's Greetings from  
the ADVANCE Team*



**HEADLEY COURT  
CHARITY**

*Facilitated by the ADVANCE Charity.*

## We look forward to speaking to you soon!

E-mail us at:

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