



Participant Information for BFR Reserve Deployment Study

January 2019

As part of the BFR, we would like to invite you to participate in a research study on the deployment of reserve parachutes.

Before you decide if you wish to take part, we would like you to understand why the research is being done and what it would involve for you. We explain this in the following document, but please ask us, either by email (m.wilkes@ucl.ac.uk) or on the day, if there are any points that you would like to clarify.

Summary

Reserve parachutes and harnesses vary. However, research in aviation and other fields has indicated that safety equipment should be standardised where possible, with design based on the likely actions of a typical user in an emergency. Reserve testing is usually conducted by professional test pilots, who throw their parachutes many more times during their career than a typical recreational pilot.

We would like to film BFR pilots to look at the process of deployment in more detail. In addition to filming, we have also added some elements to the zipline to make the experience more realistic, including a task to occupy the mind and hands prior to descending the line. We hope that this will make the experience better training for you. Once the data has been collected, it will be reviewed by an expert focus group, and then the results published in the scientific literature, on the Free Flight Physiology website and in Cross Country Magazine. We will also send a copy of our report to the Paraglider Manufacturers' Association and to designers from the main equipment brands.

What is the purpose of the study?

We would like to study the process of reserve parachute deployment, to improve training, equipment design and pilot safety.

Previous research has indicated that under conditions of stress, our ability to think clearly is reduced. As a result, safety equipment should be designed to minimise the demands on the operator during the emergency. As you know, there is considerable variation in the position of paragliding reserve parachute containers and, to a lesser extent, in the movements required to deploy them.

Though deployment procedures are tested by harness manufactures, we would like to film the deployment sequences of a broad range of paraglider pilots to better understand the movements and cognitive processes involved in throwing a reserve parachute.

The primary aims of the study are to optimise harness design and pilot training. The research will also contribute to a PhD by doctor and paraglider pilot Matt Wilkes on the physical and cognitive stressors of flying paragliders. The PhD is being undertaken at the Extreme Environment Laboratory, University of Portsmouth, supervised by Professor Mike Tipton. Some of the work from the PhD to date has already been published in the scientific literature, Cross Country magazine and on the Free Flight Physiology Project Website (www.freeflightphysiology.org).

Do I have to take part?

No, taking part in this research is entirely voluntary and will not affect your chance to use the zipline or your participation in the rest of the BFR event. It is up to you to decide if you would like to volunteer for the study, which we will describe in this information sheet. If you feel that you have received sufficient information and agree to take part, then we will then ask you to fill in a consent form to join the study.

What is involved and what data will be collected?

On the day of the BFR we will ask you to complete a short questionnaire on your experience of reserve deployment. We will add this to the information you provided at BFR registration (flying experience, reserve and repack history), linking them together with your BHPA number. Then, while you are queueing for the zipline, we will brief you again on the experiment and give you a chance to practice the memory test. We'll write your BHPA number on a piece of tape, stuck to the front of your helmet, to link up all your information to the videos. We'll weigh you and your harness (to calculate deployment rate) and measure the angle of your elbow when you are grasping the reserve handle, as well as the distance between your elbow to shoulder and elbow to wrist.

Once you are on the platform, you will be helped into your harness and be lowered over the side of the platform. We will have dummy brake lines for your hands and two lights above your head. When one switches on, you gently apply input with brake line on the same side. At the same time, we will ask you to complete a short memory test. The zipline will then release and you should try to deploy your reserve as fast as possible. The purposes of the lights and memory test are to keep your eyes looking upwards at your 'wing' and to occupy your mind as it would be during a real deployment. To see pictures of past years' BFR setup, please visit their website: <http://www.bigfatrepack.org/>.

We will film the deployment from a number of angles for analysis.

What are the possible disadvantages and risks of taking part?

There are no additional physical risks involved in taking part in the experiment beyond the existing risks of the zipline deployment. The extra study equipment has already been tested by the experimental team on an outdoor zipline at GoApe, Glentress. You will not receive any payments for participating in this study.

What are the possible benefits of taking part?

We hope that the study setup, including hands in dummy brake lines, eyes looking upwards and your brain being occupied will make the experience of reserve deployment more realistic. We realise that the zipline is an important training opportunity, so all elements of the study have been designed to enhance, not detract, from your training. Your contribution will also help to advance safety and performance in our sport. However, there will be no direct financial or other benefits from taking part in the study.

Will my taking part in the study be kept confidential?

The raw data, which identifies you, will be kept securely by the Principal Investigator (Dr Matt Wilkes). The data, with identifiers removed, may be presented to others at scientific meetings, or published as a project report, academic dissertation or scientific paper or book. You can request that video footage of you is not shared outside the study. With your permission, we may also use video footage of you for illustrative purposes, though this may be harder (or impossible) to anonymise. We also intend to write about the study and its results in *Cross Country* magazine and on the Free Flight Physiology Project website. Anonymous data, which does not identify you, may be used in future research studies approved by an appropriate Research Ethics Committee. The raw data, which would identify you, will not be passed to anyone outside the study team without your express permission. The exception to this will be a regulatory authority with a legal right to access the data for the purposes of conducting an investigation in exceptional cases.

The raw data will be retained for up to 30 years in accordance with university regulations. When it is no longer required, the data will be disposed of securely (*e.g.* electronic media and paper records / images) destroyed.

It is worth bearing in mind that paragliding is a small sport. While all efforts will be made to anonymise your data according to your wishes, it may be harder for us to achieve the level

of anonymity found in large laboratory studies, especially if the videos are used for demonstration purposes.

What will happen if I don't want to carry on with the study?

As a volunteer, you can stop any test at any time, or withdraw from the study at any time before finishing the experiment, without giving a reason. Once the experiment is completed and the data collected, you may still withdraw up to two days later (ie. by 29 January 2019), and ask for your data to be destroyed.

What if there is a problem?

If you have a query, concern or complaint about any aspect of this study, in the first instance you should contact the Principal Investigator (Dr Matt Wilkes).

If your concern or complaint is not resolved by the Principal Investigator, you should contact the Head of Department: Professor Richard Thelwell, Department of Sport and Exercise Science, University of Portsmouth, Spinnaker Building, Cambridge Road, Portsmouth PO1 2ER or richard.thelwell@port.ac.uk. If the complaint remains unresolved, please contact the University Complaints Officer: 02392 843642 (complaintsadvise@port.ac.uk).

Who is funding the research?

This research is being supported by Dr Matt Wilkes and the Free Flight Physiology Project, the organisers of the BFR, the Department of Sport and Exercise Science at the University of Portsmouth, the Lanarkshire and Lothian Soaring Club and the Royal Aeronautical Society. None of the researchers or study staff will receive any financial reward by conducting this study, other than their normal salary / bursary as an employee / student of the University.

Who has reviewed the study?

This study has been scientifically reviewed within the submitting Department and then ethically reviewed and been given favourable ethical opinion by the University of Portsmouth Science Faculty Ethics Committee.

Thank you for taking time to read this information sheet and for considering volunteering for this experiment. If you do volunteer for this experiment your consent will be sought [on the following page/on the day of the event]. You may print of a copy of this information for reference if you wish.

A handwritten signature in black ink, appearing to read 'Matt Wilkes', with a long horizontal stroke extending to the right.

Dr Matt Wilkes
MSc MCEM FRCA FAWM FRGS