

**To the skydiver (sport parachutist):**

Having read British Skydiving Form 115C, if you have doubts about your fitness to do a solo jump, please discuss this with your doctor. They should read this form before giving the advice. The National Health Service does not provide this advice and you may be charged for it. You may also have to pay for any additional tests or referrals needed to clarify your risk.

Your GP, or the specialist treating you, will usually be the doctors who know most about you and so are in the best position to give advice. If they prefer not to be involved, you can approach any other doctor for private sports medical advice. Doctors approved for aviation medical assessments (AMEs) are particularly suited to this work and can be located at <https://www.caa.co.uk/medical>. See also Student Medical FAQs at <http://www.britishskydiving/staysafe>

**To the doctor:**

**SOLO STUDENT SKYDIVER REQUEST FOR MEDICAL ADVICE**

Skydiving (sport parachuting) is a "risk sport" where there is always a small but persistent chance of injury or death. Some medical conditions may increase this risk. Skydiving itself may exacerbate some medical conditions. Your patient is approaching you for advice on their level of risk.

Risk can be categorized as:

1. **No Extra Risk.** No significant medical risk factors. There is still the normal risk of the skydive itself.
2. **Acceptable Extra Risk.** Some medical risk factors with moderate acceptable increase in risk to the individual concerned and the individual has been advised of this increase in risk. They can still jump if they wish to accept this extra risk.
3. **Acceptable Risk if their Instructor is Informed.** Some medical risk factors can be mitigated by the individual informing their skydiving instructor before training commences.
4. **Unacceptable Risk.** High risk of injury. Increased risk of major or incapacitating injury. Increased risk of death. Significant or unquantifiable risk to other skydivers. You should advise your patient not to jump.

Solo Student skydivers make descents from unpressurised aircraft at heights of 2,500 to 15,000 feet above sea level without supplementary oxygen. At 15,000 feet there is a 40% reduction in available oxygen. A tachycardia of 120 - 160 bpm is common in experienced skydivers and 200 bpm is not unusual in novices. The tachycardia may be present at the same time as relative hypoxia. The skydiver will not normally be able to access medication or inhalers during the aircraft flight or skydiving descent. Solo skydivers wear their own individual parachute system. They must be able to monitor their height above the ground, activate their parachute at the correct altitude, take emergency action if necessary, steer their parachute to a safe landing area, avoid collisions with other skydivers and not display behaviour that would put others at risk.

The minimum acceptable binocular visual acuity is Snellen 6/12 (or maximum impairment Logmar 0.3), with a full visual field in at least one eye. When glasses or lenses are required to achieve this, they must be used on all descents. Blindness in one eye is acceptable provided the other eye has a full field and the candidate has adapted to monocular vision. There is divided opinion on whether skydiving may affect the risk of recurrence of a previous retinal detachment, but there appears to be little good evidence for or against. An unquantifiable risk of loss of vision will be an unacceptable risk for many people, unless the treating ophthalmologist is prepared to give specific reassurance.

Normal mental development and a stable mental state are important. The candidate must be alert, must respond to simple orders without hesitation or distraction, and their behaviour must not pose a risk to others around them. The candidate must be able to understand what they are about to do and have capacity to give fully informed consent.

Musculoskeletal fitness is required. Each hand should be able to operate the equipment and be able to exert a pull of 30 lbs / 13.5kg in any direction. During the parachute deployment there is a brisk deceleration, usually about 4g but occasionally up to 15g. The landing impact typically involves a descent rate equivalent to jumping from a wall 4 feet high, with a horizontal speed of 0 - 15mph. Occasionally the landing impact may be considerably greater than this. Pre-existing spinal or joint injuries may be exacerbated. Unstable spinal injuries or subluxation may be exacerbated by parachute opening forces or landing impact and are an unacceptable risk. Previous joint, tendon, cartilage or ligament repairs can be damaged and the risk of this is highest on the first jump. Osteoporosis increases the risk of injury both during parachute deployment and during landing. Previous fragility fractures of the spine or hip are unacceptable risk factors. Previous traumatic fractures should have healed and if any metalwork has been removed, time should be allowed for holes to fill and ossify for risk to be acceptable. Normal peripheral sensation and co-ordination are required to activate the parachute but may be impaired by disorders of the nervous system or peripheral vasculature. Isolated reduced limb strength or lower limb loss in an otherwise healthy candidate may sometimes be acceptable after taking further advice, but the instructor must be made aware so that a functional risk assessment can be made.

Unstable or dislocatable shoulders are particularly likely to dislocate again while skydiving. This is not only painful but risks further serious injury due to difficulty activating the parachute or controlling the parachute during landing. A dislocatable shoulder is an unacceptable risk factor for solo skydiving unless the candidate has had successful stabilisation of the

shoulder and retains good power and range of movement.

Obesity increases the likelihood of lower limb or spinal injuries. Novices should be aware that if they undertake their 1<sup>st</sup> jump as a solo descent and their BMI exceeds 27.5, they stand a greater risk of landing injury than a person below 27.5 (approximately double the risk for a male and even greater for a female). A BMI above 30 is usually unacceptable. This does not apply to the few obviously very fit candidates who have a raised BMI due to a large muscle mass. Exceptions may apply to those who have recent relevant experience (e.g. Tandem jumps).

Cardiac and respiratory fitness is important. Ischaemic heart disease, cerebro-vascular disease, aneurysmal disease and uncontrolled hypertension are usually unacceptable risk factors. Hypertension controlled at or below 140/90 is acceptable. Postural hypotension, either spontaneous or related to treatment, is an unacceptable risk factor. Recurrent unprovoked loss of consciousness or impaired consciousness is unacceptable. Recurrent fainting occurring only with specific provocation (eg phlebotomy or dental treatment) is acceptable. Cardiac pacemakers used to treat isolated heart block do not necessarily constitute unacceptable risk. However, where the heart block is just part of significant ischaemic heart disease, then the ischaemic heart disease itself will usually be an unacceptable risk.

Stable, well controlled asthma is usually acceptable provided the treatment enables the candidate to exercise in cold air without significant symptoms (see more detailed advice at [www.britishskydiving.org/forms/](http://www.britishskydiving.org/forms/)). COPD limiting rate or distance of walking at ground level is usually unacceptable unless formal assessment by a respiratory physician has shown otherwise. In borderline cases, risk may be mitigated by restricting the maximum altitude to a specified lower level. If a candidate is not felt fit to go to at least 8,000 ft above sea level, the risk is unacceptable. A history of spontaneous pneumothorax is unacceptable unless successfully treated by pleurodesis or pleurectomy. A history of traumatic pneumothorax is acceptable provided recovery is complete.

Middle ear or sinus disease may cause severe otalgia or sinus pain due to the rapid changes in ambient air pressure. The rate of descent in freefall may exceed 10,000 ft/min and under an open canopy 1,000 ft/min. Severe pain can distract a skydiver from essential survival actions. Tympanic grommets or ventilation tubes are not a contraindication - they actually relieve pressure differentials as long as they remain in place. Otosclerosis treated surgically by stapedotomy is an unacceptable risk unless the ENT specialist specifically advises otherwise.

Impaired hearing need not be a barrier to Solo Student skydiving, but the instructor must be informed of the impairment before training commences.

Stable and well controlled diabetes with no tendency to hypoglycaemia is acceptable (eg diabetes controlled by diet or by metformin alone). Treatments with a tendency to symptomatic hypoglycaemia put a solo student skydiver at risk and are usually unacceptable. Other chronic endocrine conditions, once fully controlled, are normally acceptable.

Epilepsy occurring after the age of 5 years is an unacceptable risk. Normal peripheral sensation, co-ordination, power and immediacy of response are required for safe skydiving. Thus, many chronic or degenerative diseases of the nervous system are unacceptable risk factors. Lower limb rigidity (whether due to arthropathy, spasticity, obesity or any other cause) greatly increases the risk of fracture and is an unacceptable risk. The presence of a surgical CSF shunt on its own is not an unacceptable risk. However, if accompanied by cerebral atrophy or a markedly enlarged head, specialist advice should be sought.

Current neurosis requiring active treatment, history of psychosis, mental impairment, significant learning difficulties, cognitive impairment, frontal lobe syndrome, pathological euphoria, impulsive self-harming, drug addiction and alcohol dependence all constitute an unacceptable risk. Similarly, use of medication causing sedative or psychotropic side effects or impairing concentration is unacceptable. When an individual does not have capacity to consent to risk but is nonetheless intending to proceed or is being encouraged by others to proceed, local safeguarding procedures should be initiated. Sometimes individuals with psychological difficulties plan to jump in the hope of boosting low self-esteem. If the candidate refuses to jump, often in front of relatives and friends, there can be a devastating impact on already poor self-esteem.

Expansion of gas in a viscus during the ascent to altitude can cause overfilling or separation of stoma bags. Starting with an empty bag and/or pre-emptive colonic lavage can reduce the risk of this social embarrassment. The candidate should inform their instructor of the position of the stoma and its bag, so that traction from the parachute harness can be avoided. Urinary catheters with leg drainage bags are unsuitable for use with a parachute harness. Removal of the drainage bag and spigotting of the catheter for the duration of the flight and jump may be acceptable provided there is still bladder capacity.

Recent surgery is an unacceptable risk until all wounds have healed enough to withstand rough treatment. If you feel the wound is not ready for a contact sport such as Rugby football, it is probably not acceptable for skydiving. Particular caution is required after cranial, ophthalmic or thoracic procedures since any residual trapped gas will almost double in volume during the ascent to altitude but has no ready means of escape. Such residual gas is an unacceptable risk.

A history of malignant disease, particularly if well localised and outside critical areas, may not add significant risk. However, bony metastasis may cause an unacceptable risk of fracture. Cerebral primaries or secondaries may affect behaviour or even capacity to consent. Symptoms from treatments causing cardiac or pulmonary toxicity suggest unacceptable risk. Debility of widespread malignant disease is an unacceptable risk.

Even without skydiving, pregnancy inherently carries a risk of back problems, miscarriage, maternal haemorrhage and a risk of birth defects in the baby including brain damage. There are no published trials looking at whether the physical stresses of skydiving or the altitude hypoxia in the presence of asymptomatic placental insufficiency could alter the level of these risks significantly. Since any risk is unquantifiable, temporary and could affect not just the skydiver but also the person growing in the uterus, it should be assessed as unacceptable during the pregnancy.

Skydivers in perfect health are already at the limit of their physiological envelope when at 15,000 ft. Mild anaemia, causing no symptoms at ground level, may still cause light headedness or lack of stamina and reduced ability to obey commands when at altitude. Most blood donors will recover their normal haemoglobin levels within weeks of donation, but a few individuals with low iron stores may have a prolonged reduction. Donors should have a post donation blood count confirming normal haemoglobin before jumping at 15,000ft. Alternatively, they can jump at up to 8,000ft without a blood count, provided they are asymptomatic and at least 48hrs have passed since donation.

Organ transplantation itself is not a major risk. However, long term steroid treatment as part of immunosuppression may affect the likelihood of osteoporosis and fracture. Immunosuppressed patients should consider whether they wish to accept the risks of infection to a compound fracture contaminated by soil and animal faeces in a field.

Active or poorly controlled haemophilia, ITP, other bleeding disorders, coumarin anticoagulants or novel oral anticoagulants may increase the risk of haemarthrosis, haematoma, extensive bruising or other significant haemorrhage even in the course of a normal skydive. They may exacerbate simple injuries and also increase the risk of a skydiver succumbing to an otherwise survivable injury. They are usually an unacceptable risk.

Chronic infectious conditions such as open TB, Hepatitis or HIV may place 1<sup>st</sup> aiders at risk in the event of an injury requiring 1<sup>st</sup> aid or resuscitation. Please discuss with the British Skydiving medical adviser before issuing the medical certificate.

Increasing age often brings a combination of risk factors. Any one of these on its own might seem acceptable, but a combination of a number of individually acceptable risks may still amount to an unacceptable overall level of risk. Older student skydivers are injured more often and are more likely to die from an injury, which a younger skydiver may survive. No person under the age of 16 years, or aged 55 years or over, will normally be permitted to carry out 'solo' student skydiver training. Exceptions to the higher age limit may be permitted if the person has previous recorded solo experience on ram-air parachutes. Therefore, it is unusual for a candidate of 55 years of age or older to be accepted for novice training. Unless such a candidate is exceptionally fit, both mentally and physically, they should be advised that their risk level is unacceptable.

**The advising doctor is not stating that a candidate will remain free of injury during skydiving but is simply giving a qualitative assessment of risk.** The preferred level of skill is usually that of a GP without specialist knowledge of skydiving but usually with access to the candidate's records, or a specialist responsible for the patient's care. Other doctors completing the certificate should remain aware that lack of access to the medical record can result in important conditions being overlooked. In cases of doubt, or where further information is required, the Medical Adviser to the British Skydiving or the Safety & Technical Officer will be pleased to help and may be contacted at the address at the start of this form.

Any medical certificate issued may be valid for a maximum of three years. The issuing doctor can specify any shorter period of validity that they consider clinically appropriate.

