



Safety Management System

Safety Bulletin

No. 07/22

31 August 2022

Managing Risks of Long Covid in Gliding

This Safety Bulletin discusses risks associated with members suffering symptoms of Long Covid, affecting fitness to fly and perform safety-critical tasks in maintenance and gliding support. Options for extending personal safety and fitness via the IMSAFE check to longer term assessments, and collective safety strategies such as “WE ARE SAFE” are discussed. The value of expert medical advice and assessment is explored.

Note: This bulletin does not make any assumptions about pilot choices regarding vaccinations and other Covid defences. Existing glider pilot medical standards are acknowledged.

Note: Whilst this bulletin discusses risks and medical issues concerning lasting effects of Long Covid, which can be compounded by underlying health conditions, this should not be interpreted as health advice; rather it is general safety management advice that must be supported by professional advice from members medical practitioners.

EXAMPLES OF RISK SCENARIOS

Consider these scenarios and their potential application to your members and clubs.

Healthy Ageing Pilot A – An active, experienced, skilful pilot has enjoyed years of club gliding activity, with no major episodes of illness or disease. Their normal medical clearances have been provided by a GP with no major concerns, other than gradual effects of having had “too many birthdays”. They see optical and hearing specialists regularly. The pilot is gradually slowing, has less strength and stamina, takes appropriate rests, flies and works within sensible self-imposed limits.

Ageing Long Covid Symptomatic Pilot B – An active, experienced, skilful pilot has enjoyed years of gliding activity, with no major episodes of illness until a recent Covid infection. The pilot shows signs of accelerated degeneration, weakness, low stamina, bouts of fatigue and loss of mental focus. Error rates and attention lapses, even with familiar simple tasks, are noticeably higher. Members notice uncharacteristic errors and small mishaps. The pilot’s level of frustration is higher, with tighter limits on what they can do safely.

POSSIBLE SYMPTOMS OF LONG COVID

Covid and Long Covid have and continue to cause major disruptions to societies, lives and communities, including aviation communities. Airlines, commercial operators, armed services,

aviation dependent industries are grappling with immediate impacts and long-term safety implications of these conditions.

Irrespective of vaccinations and Covid defences, many people are being affected by Covid, with at least 15-20%, possibly more of these suffering some form of lasting Long-Covid symptoms. Study teams are gathering evidence about these symptoms and treatment options. Scientific evidence strongly suggests rapid antiviral treatments are important in reducing impacts of Covid infection.

From an aviation safety perspective, more concerning Long-Covid impacts include:

- “Brain fog” and related difficulties with concentration, memory, calculation errors, complex task disruption, higher error rates with previously routine tasks
- Fatigue, particularly sudden loss of energy, reduced endurance and stamina
- Depression and anxiety, with intrusive effects on state of mind, ability to focus attention
- Sleep disruptions, accentuating fatigue and focus difficulties
- Cardiovascular impacts, heart palpitations, breathlessness, low fitness, high O2 demand
- Higher susceptibility to conditions accentuated by blood clots, micro-clots

Appendix 1 provides some summary figures from published papers¹ illustrating possible Long Covid symptoms, and data on mental effects. UK-based studies with a large group of previously uninfected people, comparing post-Covid with uninfected patients across wide age ranges, are providing more reliable data on observable thinking and mental impacts, plus changes visible in CT scans. These studies show concerning trends *particularly among older patients* indicating slower thinking, higher error rates, and visible changes to brain structures.

Fatigue is more profound than being overtired; it is unrelenting exhaustion and a constant state of weariness that reduces a person’s energy, motivation, and concentration. Many patients have reported ongoing fatigue at 9-12 months following recovery from the acute illness.

Neurological symptoms associated with Covid are common and diverse. “Brain fog” is often described as a debilitating symptom. Some have reported cardiovascular symptoms, such as breathlessness and increased susceptibility to hypoxia.

Whilst Long-Covid has many types of impacts, across all age groups, there is much evidence that older patients are most severely affected; there are compounding effects with age-related degeneration, as well as with underlying conditions. See SB 06/22 Managing Risks of Ageing Pilots.

For affected pilots and members, caution is needed in undertaking local and cross-country flying, glider maintenance, ground movements, and on-aerodrome tasks. IMSAFE takes on much greater significance, each flying day, plus in a long-term context.

SELF-ASSESSMENT AND THE IMSAFE CHECKLIST

As discussed in SB 06/22, IMSAFE is a personal fitness to fly checklist, adopted by CASA and Gliding Australia. It forms part of our gliding training system, covered in GPC [Unit 24](#) Human Factors and Limitations and [Unit 25](#) Threat and Error Management.

It applies to all aviation safety-critical activities, flying, airworthiness, and on-aerodrome support.

¹ Nature 604, 697-707 (2022)– “SARS-CoV-2 is associated with changes in brain structure in UK Biobank”, Douard et al, <https://rdcu.be/cUAB3>. Also BMJ 2021;374:n1648 “Long Covid – Mechanisms, Risk Factors, and Management” <https://www.bmj.com/content/374/bmj.n1648> and : <https://doi.org/10.1136/bmj.n1648>

I – ILLNESS M – MEDICATION S – STRESS A – ALCOHOL and other DRUGS F – FATIGUE E – EATING and nutrition levels.

IMSAFE relies upon *objective self-assessment and pilot honesty* about their safe limits on a given day. For any pilot suffering any Long Covid symptoms, or new medications to assist in recovery, the ILLNESS, MEDICATION and FATIGUE aspects are particularly important. In practice, we will normally limit the work demands and stresses we put ourselves under.

That assumes all goes well; we may *unintentionally find ourselves in more stressful conditions* than planned, for longer. Flying, ground support and maintenance tasks may be more difficult and strenuous than anticipated, in more demanding environments. Murphy's Law might bite!

Unfortunately, when fatigued, low on nutrition, when concentration and focus is hard to maintain, *we are probably less able to comprehend and react appropriately* to our own degraded state.

EXPERT PROFESSIONAL ADVICE

Understanding our own real limits and risk factors is therefore crucial. The golden rule is this: If we are in any doubt about our symptoms, level of degradation, compounding effects, then *we must seek expert professional advice from medical practitioners, GPs or Specialists*. That advice should be considered in our long-term IMSAFE assessment.

This should apply regardless of the type of medical clearance we use: self-declaration, or through GP certification to AUSROADS standards, or CASA medical.

COLLECTIVE SAFETY – BEYOND IMSAFE TO WE ARE SAFE

SB 06/22 on Managing Risks of Ageing Pilots discusses several approaches to collective safety. Core concepts include:

- Recognising that we all make errors
- Listening to the “inner voice” of self-doubt, that all is not well
- Listening to the “friendly voice” of peers and gliding colleagues, that all is not well
- Recognising our collective obligations to look after each other
- Extending personal IMSAFE to the WE ARE SAFE state of mind
- Accepting advice from others, countering our own confirmation bias
- ARE WE SAFE can extend to stopping launches in any circumstances where members may put themselves or others at unnecessary risk, operations, airworthiness, or fitness to fly
- Applying a “three stuff-ups” rule of thumb
- Safety pauses and conversations, safety dialogue on errors and emerging risks

Given the strong correlation between advancing years and severity of Long Covid impacts, these approaches take on greater significance. Respectful dialogue, rather than draconian behaviour, is recommended.

WHERE TO FROM HERE?

Further dialogue and feedback on these issues will be welcomed. There may be a long period of elevated risks of adverse health impacts from Long Covid, affecting fitness to fly. We cannot escape insidious gradual effects of ageing, so *we must be mindful of the risk of these being compounded by complex mental and physical effects of Long Covid*.

We need to do all we can to prevent Covid infection (the best way to prevent Long Covid). If affected, we should actively seek professional medical advice on risks and potential limitations, regardless of the type of medical declaration we use. We should apply IMSAFE in both a daily and long-term context.

We should adopt collective approaches to our safety, extend the model to WE ARE SAFE. In many cases, an early inner voice, or a friendly voice from colleagues may avert problems and allow mutually beneficial precautionary limitations. We might extend the “safe to launch” model beyond operations to airworthiness and pilot fitness to fly. With increased “brain fog” risks, we should more openly apply rules of thumb like “three stuff-ups” as preventive measures, in a culture that openly encourages safety conversations.

We should be open about personal fitness to fly factors potentially contributing to occurrences and near misses in confidential SOAR reports. Better data may assist in developing better preventive strategies and understanding the types of incidents with elevated risks. The entire aviation community is grappling with this evolving threat; information sharing with aviation and medical colleagues must inform how we deal with this. Gliding Australia remains committed to defending members’ freedom to fly, safely, with best guidance and lower bureaucratic overheads.



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Appendix 1 to SB 07/22 – BACKGROUND SCIENTIFIC DATA ON LONG COVID IMPACTS

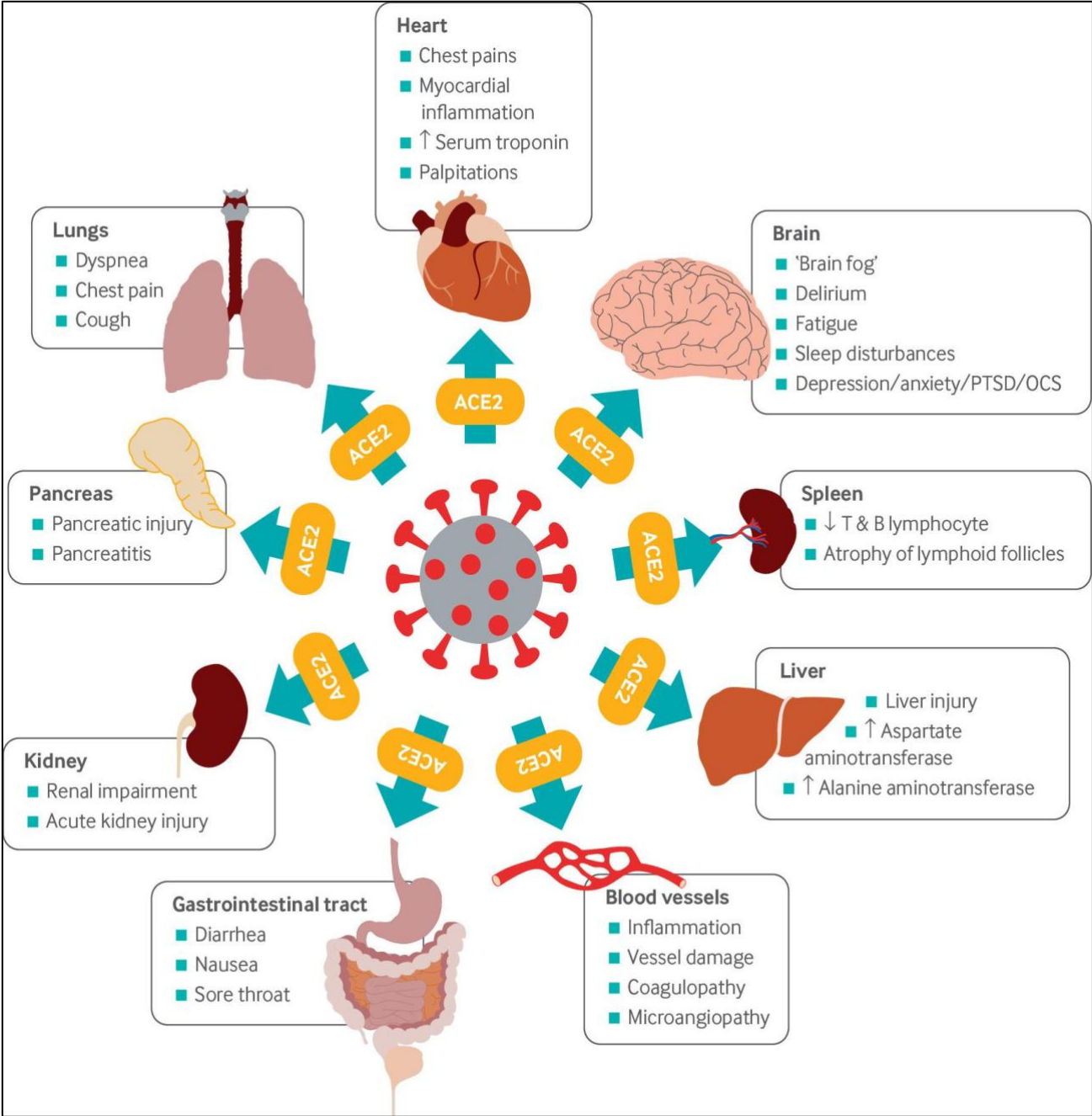


Figure 1: Simplified Summary of Long Covid Symptoms

Long-term effects of COVID-19

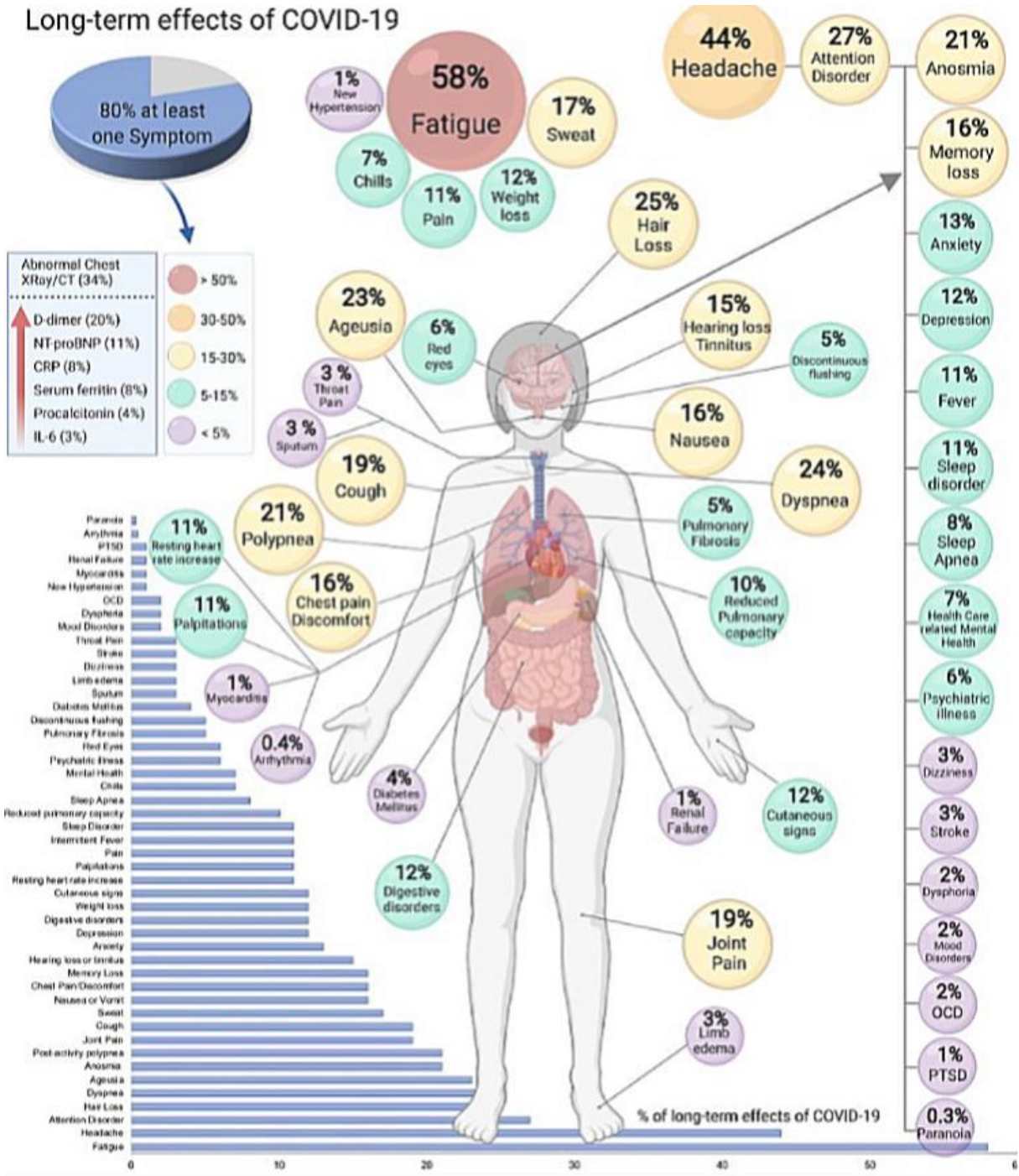


Figure 2: Detailed Summary of Covid Long Term Effects

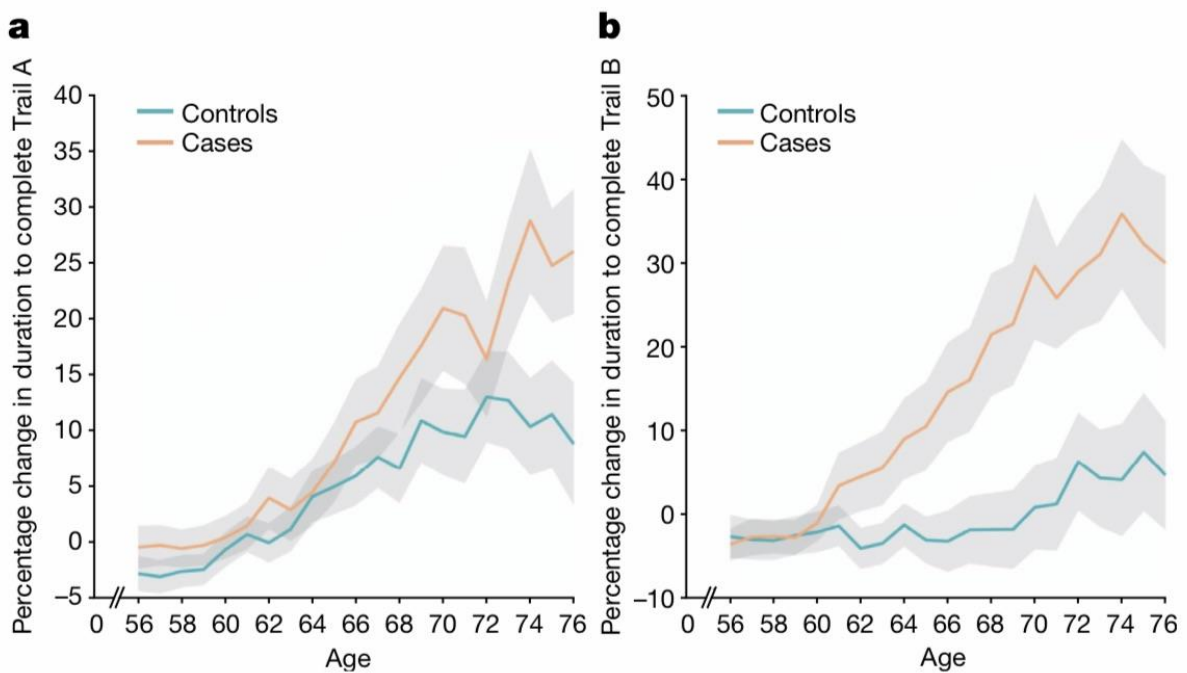


Fig. 3 | Significant longitudinal differences in cognition. a, b, The percentage longitudinal change for SARS-CoV-2-positive cases and controls in the duration to complete trails A (a) and B (b) of the UK Biobank Trail Making Test. The absolute baseline (used to convert longitudinal change into percentage change) was estimated across the 785 participants. These curves were created using a ten-year sliding window across cases and controls (s.e. values are shown in grey).

Figure 3: Impact of Covid Positive Cases versus Uninfected Controls in Trail-Making Cognitive Tests, across Age Profiles, showing Significant Increased Test Durations

References:

BMJ 2021;374:n1648 “Long Covid – Mechanisms, Risk Factors, and Management”
<https://www.bmj.com/content/374/bmj.n1648> and : <https://doi.org/10.1136/bmj.n1648>

Also Nature 604, 697-707 (2022)– “SARS-CoV-2 is associated with changes in brain structure in UK Biobank”, Douard et al, <https://rdcu.be/cUAB3>.