Present knowledge is COMBATEDGE (CE) and Advance technology Anti-G suit (ATAGS) provide +9Gz with minimal to no straining. Six subjects were subjected to three different seat back angles (13, 30 and 55 degrees from the vertical) using the following combination of protective equipments.

1. The standard CSU-13B/P anti-G suit (STD).
2. The STD suit with CE
3. The ATAGS
4. The ATAGS with CE

Relaxed followed by straining + Gz tolerance was determined using 15s ROR runs to the maximum of +12 Gz. The subjects were under medical surveillance studies before and after the run.

Results: All six subject were able to achieve +12 Gz with various combinations of +Gz-protective equipment, seatback angle and various amount of straining for none to maximum. It was concluded that effortless protection to +9Gz is available using ATAGS / CE with 13 and 30 degree seat back angle and to +10.5 Gz with a 55 degree seat back angle. With moderate straining, +12 Gz is available using ATAGS / CE with 55 degree seat back angle. With additional straining +12Gz is available using ATAGS / CE with 13 and 30 degree seat back angle.

Golding JF, Mueller AG Gresty MA. A motion sickness maximum around the 0.2 Hz frequency range of horizontal translatory oscillation. Aviat Space Environ Med 2001; 72:188-92

It is known that low frequency oscillation occurs in land vehicles, ships and in aircraft. Few data is available on the existence of maximum nauseogenic potential of motion sickness around 0.2 Hz. 12 subjects were selected and exposed to horizontal sinusoidal motion (1 m/s at three different frequencies 0.1, 0.2 and 0.4 Hz). The motion was fore- aft and end point was nausea or after 30 minutes. The proportion of subjects experiencing moderate nausea were maximal at 0.2 Hz (12/12) at a mean time of 11.2 minutes.


It is known that the exposure to 35,000 ft without pre-oxygenation can result in severe DCS. Exercise increases this incidence. The objective of this study was to determine the effect of exercise intensity on DCS incidence and severity at 35,000 ft. After 75 to 90 minutes of pre-oxygenation, the subjects were exposed to 35,000 ft for 3 hr at three different activity levels - strenuous, mild exercise and at rest. The subjects were monitored for venous gas embolism and observed for signs and symptoms of DCS. Incidence after 30 min exposure was 8% at rest and 23% while exercising. Mild to strenuous exercise during exposure did not differ in incidence, or rate of onset. Results showed DCS risk is <10% at rest on exposure to 35,000 ft and exercise increase it.