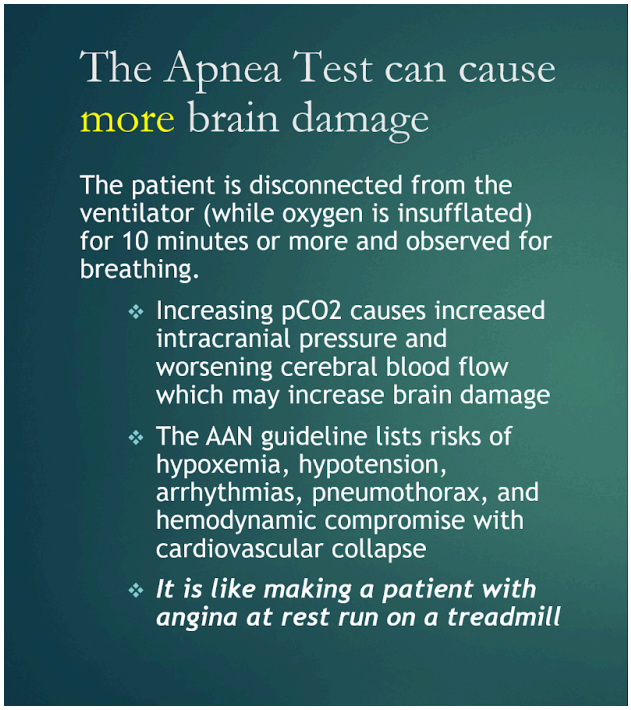

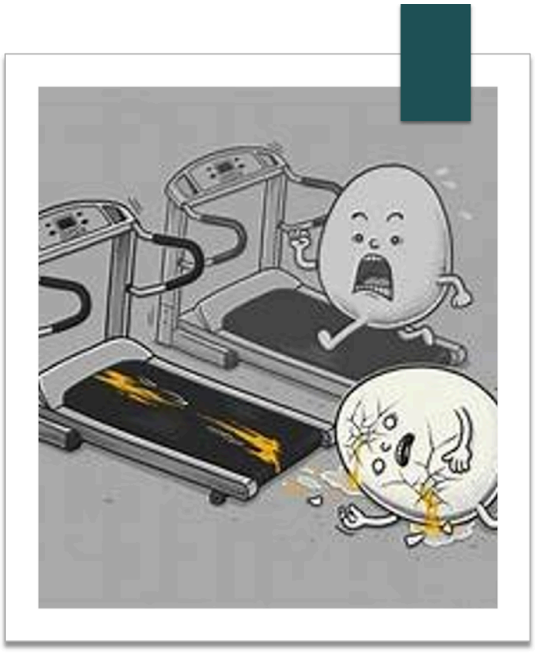

The Apnea Test: unverified, unsafe, and unnecessary

By Heidi Klessig MD, Respect for Human Life, March 23, 2026

Apnea testing is a component of the American Academy of Neurology's guideline for the diagnosis of brain death/death by neurologic criteria. The intent of the apnea test is to evaluate for spontaneous breathing, but the test itself is unverified, has no benefit for the patient, and entails significant risks. In fact, the Guideline itself states that there is a lack of scientific evidence to support the recommended parameters of the apnea test.

The procedure begins by preoxygenating the patient and then discontinuing the ventilator while oxygen is insufflated. The patient is observed for spontaneous breathing for ten minutes or more while arterial blood gas parameters are monitored. But in describing the parameters for the apnea test, the Guideline states: "Selection of targets for this challenge is **arbitrary** [emphasis added] because no scientific data demonstrate specific $PaCO_2$ above which medullary chemoreceptors would prompt respiration if they were functional."[1] The standard used in much of the world is a $PaCO_2 \geq 60$ mmHg, but this is based on consensus, not evidence. Dr. Alan Shewmon has published reports of breathing resumption at $PaCO_2$ levels of 71, 77, 91, and 112; he has also published six cases in which breathing resumed spontaneously despite being absent during apnea testing.[2] Shewmon points out that these cases of resumed breathing may be due to the fact that the preoxygenation used during the apnea test suppresses the patient's own hypoxic drive to breathe.

In addition to being scientifically unverified, the apnea test poses risks for a patient not yet known to be brain dead. The Guideline lists the following risks of the apnea test: hypoxemia,

hypotension, arrhythmias, pneumothorax, and hemodynamic compromise with cardiovascular collapse requiring cardiopulmonary resuscitation. These types of complications are extremely detrimental for a neurologically injured patient with tenuous cerebral blood flow, and can in fact cause further brain damage. An injured brain is already suffering from decreased blood flow, yet the apnea test routinely causes lowered blood pressure. The most basic principles of neuro-intensive care include maintaining normal $PaCO_2$, neutral pH, and normal oxygen tensions, yet all of these principles are violated during the apnea test. Withdrawing these neuroprotective measures for even the 10-15 minute duration of the apnea test is counter-productive in a neurologically injured patient and is likely to cause more brain damage. Incredibly, despite these facts, the Guideline states, "clinicians do not need to obtain informed consent," for the apnea test except as required by local jurisdictions.[3]

Lastly, according to the Guideline, if the apnea test cannot be performed, its absence can be filled by an otherwise optional, low risk ancillary test.[4] Thus, the apnea test is not even strictly necessary for a determination of death by neurologic criteria.

The apnea test has no benefit for the patient, does not accomplish its purpose, can only cause harm (including brain damage and death), and is unnecessary. No patient with a neurological injury should undergo this unethical and unnecessary test.

[1]Greer DM, Kirschen MP, Lewis A, et al. Pediatric and adult brain death/death by neurologic criteria consensus guideline: report of the AAN guidelines subcommittee, AAP, CNS, and SCCM. *Neurology*. 2023;101(24):1122.

[2]https://journal.chestnet.org/article/S0012-3692(21)04428-7/pdf

[3]Greer DM, Kirschen MP, Lewis A, et al. Pediatric and adult brain death/death by neurologic criteria consensus guideline: report of the AAN guidelines subcommittee, AAP, CNS, and SCCM. *Neurology*. 2023;101(24):1127.

[4]Greer DM, Kirschen MP, Lewis A, et al. Pediatric and adult brain death/death by neurologic criteria consensus guideline: report of the AAN guidelines subcommittee, AAP, CNS, and SCCM. *Neurology*. 2023;101(24):1125.