Brigadier General (retired) Donald Bolduc United States Army

After 36 years in the US army, General Bolduc is now promoting awareness of Veterans suffering from PTSD, mTBI and neurotoxicity. In his time in the military, he experienced service worldwide, and had numerous tours to Iraq and Afghanistan where he survived explosions and a helicopter crash. His last command was Commander of the US Special Operations Forces AFRICOM based in Stuttgart 2015 – 2017. In 2016, he made it public that he suffers from PTSD and a mTBI. As Commander, he put in place a programme for mental health, which highlighted to all serving personnel, Veterans and their families that there is no stigma to ask for help. He ensured the experts in all fields of mental health were available to treat everyone.

His submission is both personal and pertinent and is relevant to serving personnel and Veterans, in the US, the UK, and many other countries.

Submission

The following comments come from a number of sources, but my wife and I assess that based on the research and my personal symptoms of taking medications and exposure to environments this has had a significant negative effect on my health. The Chronic, excessive exposure, and accumulation of neurotoxic agents from heavy metals (lead, mercury, cadmium), mefloquine (Lariam) has significant negative effects and must be accounted for by the military and government. As you know, according to experts this chemical-induced brain damage closely resembles the pathophysiology of classical traumatic brain injury (TBI) with decreased cognitive function, neurodegeneration, and increased psychiatric manifestations (depression, anxiety, sleep disturbances, and irritability). Current evidence supports a strong causal relationship between military-related


2 https://spiritofamerica.org/staff/brigadier-general-donald-bolduc
exposure to specific neurotoxins, and the development of serious medical conditions and higher rates of suicide among service members. To address this current deficit in military healthcare, it is recommended, that non-toxic medications be immediately employed as a “protective shield” and to support critical healing processes in the brain and nervous system. The changes in behaviour can include negative effects on cognition, memory, mood, and sleep along with increased sensitivity to emotional and physiological stress. Experts have concluded we are continuously exposed to toxins from multiple sources in the environment, diet, certain drugs, heavy metals, oxidative stress, and occupational hazards. While all people are at risk of toxicity, military service members are a population with some of the highest rates of occupational exposure to neurotoxic agents such as heavy metals (e.g. lead, mercury, cadmium), prescription drugs (e.g. mefloquine), blast waves, and dietary neurotoxins such as aspartame from food sources commonly consumed by military service members. Nutritional deficiencies play a fundamental role in the progression and severity of the injury – and directly impact on healing. A 2014 study published in *Nutritional Neuroscience* found that important brain nutrients (e.g. magnesium, vitamin C, folate) were frequently deficient in the diets of patients being treated for traumatic brain injury, which resulted in the “worst mean neurobehavioral scores for those patients not meeting the estimated average requirements.”

Particulate pollution is also a major concern. Dust and air quality studies in both Iraq and Afghanistan have shown unsafe levels of lead, other heavy metals, industrial pollutants, and depleted uranium. Other countries where service members are deployed to such as Pakistan, Yemen, Saudi Arabia, and African Countries are known for being some of the most polluted areas in the world. Many service members are suffering from unexplained illness – also known as “Gulf War Syndrome” – and health care providers repeatedly fail to perform the proper tests for these well-known toxic influences. There is also a concern of thyroid dysfunction that requires further research. Service members are frequently exposed to unsafe levels of toxic substances from constant immersion into highly polluted, austere environments under extreme stress conditions with inadequate sleep, poor nutrition, along with chronic and continual use of antibiotics putting the service member at a higher risk of toxin exposure.

Another source of heavy metal exposure is the dirt and dust at firing ranges and shoot houses. Service members who train with explosives in these highly contaminated areas are at greater risk of heavy metal poisoning, and neurotoxicity. These toxins build up on equipment and uniforms which soldiers take home and wash with their family members’
clothing – potentially contaminating the home and affecting the entire family. As the human
brain is not designed to take concussive hits neither was the human body designed to
protect itself from the extremely high lead levels service members are routinely exposed to
in their occupational environment. Heavy metals such as lead, cadmium, and mercury
induce oxidative stress, and deposit in the brain and nervous system where they promote
tissue injury, and increased systemic and neural inflammation.