

Epilepsy and the defence forces

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WHEN PREPARING AN ARTICLE on epilepsy and the defence forces, it is worth revisiting earlier draft *Guidelines for Recruit Medical Examination Procedures* (GRMEP), which were prepared in January 1996.¹ These were endorsed by the guidelines subcommittee of the Australian Association of Neurologists¹ and sought to use the current knowledge and evidence to devise criteria relevant to a range of neurological disorders, including epilepsy.

It is also important to examine the relevant sections of the existing military guidelines, the *Australian Book of Reference* (ABR 1991). The section "Diseases of the Nervous System" includes both psychiatric disorders (such as psychosis, schizophrenia, neuroses and mental disorders) and epilepsy.² This clearly reflects a degree of bias, which the more recent draft RMEP guidelines¹ tried to counteract.

Chapter 7 of ABR 1991 acknowledges that epilepsy may preclude people holding driver's licences for heavy vehicles such as buses and trucks, and thus it was deduced that epilepsy would also preclude service requirements for some people with epilepsy.² Chapter 5 indicates that "many aspects of the shipboard environment are potentially hazardous to any person who may suffer from epilepsy" (para 962).² ABR 1991 requires absence of any neurological deficits, normal investigations (including electroencephalography [EEG]), 2 years freedom from symptoms, and being off all anti-epileptic medications (AEMs).²

Post-traumatic epilepsy is also recognised in ABR 1991 and even the potential of such risk requires special assessment.²

This article reviews what has been the situation concerning epilepsy within the Australian Defence Force (ADF) and considers a possible future direction in the face of developments in our understanding and management of the epilepsies, acknowledging that epilepsy is not a single clinical entity.

Abstract

- ◆ For people with epilepsy in the Australian Defence Force (ADF), current military guidelines, the *Australian Book of Reference* (ABR 1991), require absence of any neurological deficits, normal investigations (including electroencephalography), 2-year freedom from symptoms, and being off all anti-epileptic medications.
- ◆ Draft guidelines prepared in 1996 generally supported ABR 1991 and required 2 years seizure freedom without medication, but allowed exceptions subject to expert opinion and special circumstances.
- ◆ More than a decade ago, US researchers recommended a more individualised approach to assessing appropriate restrictions for people with epilepsy.
- ◆ Advances in treatment mean that more people will have their seizures well controlled.
- ◆ Attitudes to recruitment and retention of people with epilepsy in the ADF should be reviewed. With a more individualised approach, there is potential to recruit and retain motivated and committed members who pose little risk to themselves or others.

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The 1996 draft guidelines

Epilepsy was the first condition to be considered in the draft guidelines for neurological disorders,¹ which included recognition of the international classifications of seizures³ and epilepsy syndromes.⁴ The draft guidelines recognised a need to differentiate febrile convulsions from seizures provoked by fever, because febrile convulsions, specifically an illness of early childhood, do not necessarily support a diagnosis of epilepsy and should not constitute an obstacle to involvement in the ADF *per se*.

Recognising the wide variety of seizures and syndrome types,^{3,4} the draft guidelines proposed wider access to medical records, and investigations such as EEG (including enhanced studies with sleep deprivation and possibly telemetry), imaging, and specialist consultation in cases of doubt.

The draft guidelines singled out solitary seizures for special consideration. A single seizure does not constitute epilepsy,⁵⁻⁷ as the definition of epilepsy requires recurrence of seizures.⁵⁻⁷ However, it may indicate an ongoing propensity for further seizures, and hence may dictate equal need to access medical records, investigations and consultant opinion.



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The draft guidelines also examined confounding factors that may contribute to seizures by lowering seizure threshold, such as the use of psychotropic medications⁸ or excessive alcohol consumption.⁹ In such circumstances, it is mandatory to question the need for medication (such as psychotropic agents), and the need for such treatment may be more relevant to restricted involvement with the ADF than is any subsequently provoked seizure. Changes in lifestyle, applicable for anyone who has consumed sufficient alcohol to provoke seizures, might assume the primary importance relevant to any restrictions that should be imposed.

In general, the draft guidelines supported ABR 1991 and required 2 years seizure freedom without medication, but allowed exceptions subject to expert opinion and special circumstances. One such situation was juvenile myoclonic epilepsy, which is one of the most responsive forms of epilepsy, with a combination of lifestyle changes and compliance with medication (sodium valproate).⁸

Driving and epilepsy

ABR 1991 linked ADF acceptability to the capacity to hold a commercial driver's licence.² In 2003, Austroads, in conjunction with the National Road Transport Commission, published new guidelines for fitness to drive.¹⁰ These updated guidelines reviewed restrictions deemed to be appropriate for different medical conditions, including epilepsy.¹⁰

Estimates of relative casualty crash risk of drivers with epilepsy compared with other drivers range between 1.0 and 1.95.¹¹⁻¹³ About 11% of accidents involving drivers with epilepsy are seizure-related,^{10,11} and the prevalence of epilepsy-related crashes is in the order of 0.01%–0.3% of all crashes.¹⁴ The Austroads guidelines suggest an acceptable annual seizure risk of 20%–50% for private licence holders, and 1%–2% for commercial drivers. Judging by ABR 1991, 1%–2% may not be sufficiently restrictive for the ADF.

Perhaps the most salient aspect of the Austroads approach to epilepsy is the need for detailed evaluation by an appropriate specialist. Austroads also requires a specified period of seizure-freedom, which accommodates the specific circumstances of the person's epilepsy, and demands compliance with prescribed therapy and lifestyle changes.¹⁰

An unconditional licence for commercial driving cannot be issued to a person who has experienced any seizure.¹⁰ A conditional licence for a commercial driver is considered appropriate if the person has a single provoked seizure with easy avoidance of the provoking factors, a year's seizure-freedom without treatment with AEMs, and a normal EEG. The conditional licence guidelines allow latitude for "benign childhood epilepsy" and febrile seizures.

The Austroads guidelines also permit a person with epilepsy to hold a conditional commercial licence if they are

compliant with AEMs, have been seizure-free for 5 years and with no more than three seizures in the preceding 10 years, and have no features diagnostic of epilepsy on EEG.¹⁰ Depending on the vehicle to be driven, some latitude is allowed, but AEMs must be appropriately and compliantly maintained, plus there is need for periodical review, with 5-year seizure-freedom and absence of epilepsy on EEG.¹⁰

Within this framework, recurrence of seizure (for a commercial driver) results in immediate suspension of the licence and mandatory reporting to the driver-licensing authority.¹⁰ A commercial vehicle driver is not permitted to drive while withdrawing AEMs and may not drive unless complying with the other conditions of the licence.¹⁰

People with epilepsy in the armed forces

Epilepsy is the only chronic neurological condition to be singled out for special review by the Australian Human Rights Commission, which argued in favour of imposing fewer restrictions upon people with epilepsy.¹⁵ That review is almost 20 years old, but the prejudice encountered in 1985 has not changed very much for those with epilepsy. Attitudes remain tainted by bias and prejudice, as exemplified by the combining of psychosis and epilepsy in ABR 1991.²

Few published articles address the question of defence force personnel with epilepsy; none are specific to the Australian situation. Gunderson and Wortzel reviewed the "new" United States application of military fitness regulations more than a decade ago.¹⁶ They concluded that, for people who only had seizures at age 5 years or younger or whose seizures occurred after the age of 5 years but who were seizure-free for 5 years or more, off medication, and with no epileptiform features on their EEG, the absolute risk of separation from the forces due to a seizure in the first 1.5 years of service was no more than 0.6%. They found only two possible epilepsy-caused separations among 142 cases reviewed, and even these were less than absolute regarding the diagnosis of epilepsy as the cause for separation. Both cases "surfaced during the early days of basic training, therefore requiring a minimum of training or medical expense".¹⁶ They concluded that: "One hundred fifty three did well from an epilepsy standpoint, proving that this was a worthwhile pool of applicants for recruiting".¹⁶

Gunderson¹⁷ also reviewed how the military dealt with people with epilepsy already in the forces. The US Army has its own Neurological Services, established just before the Vietnam War, and requires neurological consultation before discharge of any soldier owing to epilepsy.¹⁷ Gunderson pointed out that there was:

... an opportunity for expert opinion on whether an attempt to keep the soldier on duty with anticonvulsants is worthwhile, which anticonvulsants would be

most promising and a review of the proper dosage and precautions.¹⁷

He further visited the question of pseudo-seizures (so-called non-epileptic seizures), claiming that their underlying psychopathology was often more disabling than the seizures (even in people who also experienced epileptic seizures).¹⁷ This echoes earlier comments regarding the provocative nature of psychotropic agents for people with epilepsy.

It must be appreciated that Gunderson was writing more than a decade ago, so his work reflects the knowledge and treatment modalities of the time. Our knowledge and management options for epilepsy have advanced since then.

Nevertheless, when reviewing the then “New provisions of AR 40-501 affecting the epileptic soldier”¹⁷ in the US, Gunderson reported that a single seizure was not a reason to disqualify a person and the diagnosis of epilepsy mandated consultant neurological input. For the purposes of determining fitness for duty, pseudo-seizures were treated as if they were epileptic seizures. Once a diagnosis of epilepsy was established and treatment initiated, there was a 6-month “window” in which to gain control of the condition. Failure to achieve control within 6 months required referral to a Physical Evaluation Board (PEB). Although neurological consultation was mandatory for diagnosis, any physician could treat the soldier with epilepsy once the diagnosis was confirmed.

During the 6 months initial treatment designed to gain seizure control, and for the next 12 months, the soldier was restricted from operating a motor vehicle, using live ammunition or working with certain machinery.¹⁷ Gunderson argued for a commonsense approach, as some risks are unavoidable, “such as climbing stairs or taking a bath”.¹⁷

In a survey of 40 neurological colleagues in 1989, Gunderson found a solitary military neurologist who “knew of an accident associated with the use of live ammunition during a seizure in an epileptic soldier”.¹⁷ Gunderson went on to write:

Based on this experience, if a soldier needs to qualify with his personal weapon, it seems reasonably safe to allow him to do so. Similarly, “moving machinery” need not include a dentist’s drill or an electric typewriter. Even with more potentially hazardous machinery, exposure need not be limited unless the soldier is likely to use it on a regular basis. Patients with simple partial seizures may need no restrictions at all of this type.¹⁷

Having shown such latitude, he did appreciate that certain career fields should be denied to soldiers with epilepsy, such as stringing telephone wires on poles, working underwater, or jumping from aircraft.¹⁷

He went on to report that after 1 year there should be a lessening of restriction,

... requiring assignment only to areas where medical care is available... supervision should remain close. ... After the patient has been seizure free for three years, profile restriction may be dropped entirely, even though the soldier may continue on medication.

Should seizures recur, the patient should be referred to a PEB unless the episode is related to an attempt to discontinue medication. In this case, medication should be restarted and the patient returned to duty.¹⁷

In conclusion, Gunderson recognised that many soldiers with controlled epilepsy fought in Vietnam and Korea. He wrote: “If the well controlled and well motivated epileptic soldier is needed in a combat zone, there is no reason why he should not go.”¹⁷

Much of the above commentary from Gunderson has been proffered by way of direct quotation. This was deliberate, as much of it flies in the face of current ADF attitude. It is important to unequivocally identify these comments as emanating from another source to ensure that the reader appreciates that the enlightened views that emerged from US experience, provided by US Army physicians, arose more than a decade ago, when understanding and management of epilepsy was less sophisticated than it is today.

This point is magnified by the experience of Whiteoak and Findley, reviewing experience in United Kingdom. They surveyed Army physicians in response to 10 case histories on epilepsy, and found wide inconsistency regarding potential grading and restriction of duty.¹⁸

As far back as 1986, the UK physicians argued for more definitive “guidelines concerning the diagnosis and administrative management of patients... to allow Service physicians to be consistent and fair to their patients”.

In the light of almost 20 years of minimal open debate and inconsistent application of administrative standards, in both the US and the UK, it is imperative to ensure that the reader appreciates that the call for a more individualised approach to each serviceman or servicewoman with epilepsy reflects the words of others, voiced almost two decades ago.

Epidemiological data taken strictly from a military base have not been proffered, as they gave no real indication of the true impact that epilepsy had on service activity,^{19,20} and failed to contribute to our better understanding of service consequences from epilepsy. Nevertheless, a suggestion to conduct a similarly detailed epidemiological survey within the ADF more than a decade ago was dismissed as a privacy intrusion.

Advances in epileptology

There has been a recent review of occupational evaluation of people with epilepsy, with the establishment of appropriate protocols based on individual needs and competencies of the employees.²¹ That study allowed application of chosen health protocols (not dissimilar to those discussed by Gunderson¹⁷) to provide acceptable evaluations of fitness for specific tasks. These evaluations recognised the needs of the proband employee, the safety of fellow workers, and the correct use of AEMs, and even accommodated capacity to drive.²¹ This individualised approach offers the most reasonable apprecia-

tion of the needs of all parties, while acknowledging the real limitations in specific areas of employment. Although that article²¹ evolved outside the context of military service, it reinforces the comments of Gunderson.¹⁷ It indicates that people with epilepsy can be appropriately accommodated, as long as the employer is prepared to develop suitable parameters that make the best use of the candidate's skills and knowledge.

Treatment of epilepsy has greatly advanced with the addition of newer AEMs, such as felbamate, gabapentin, lamotrigine, levetiracetam, oxcarbazepine, tiagabine, topiramate, vigabatrin and zonisamide (given in alphabetical order).^{22,23} All of these have been trialled in Australia, although felbamate and zonisamide currently are not available here.

These newer AEMs may be more efficacious, with broader spectrum of activity, fewer drug interactions and more favourable tolerability profile.^{22,23} Although head-to-head trials comparing newer with older AEMs have not demonstrated superior efficacy in broad statistical terms,^{22,24} it is impossible to predict which AEM will be better in which patient. What can be unequivocally stated is that trials in refractory patients have controlled seizures in patients who failed to respond to older AEMs.²²⁻²⁴

These newer AEMs may require more specialist involvement to decide which AEMs are to be used, in which dosages, with what precautions and in which type of epilepsy.²² The newer AEMs offer more therapeutic options, so more people with epilepsy can anticipate better control of their condition. If one AEM fails, another may prove beneficial.

Conclusion

This article has reviewed current ADF criteria applicable to people with epilepsy. It has examined guidelines submitted in 1996 and compared these to recent driving guidelines. Additionally, an examination of overseas military and non-military experience was presented.

The combination of these sources of experience and review indicate that it is time for a review of ADF attitudes towards the recruitment and retention of people with epilepsy. With judicious development of a more individualised approach, there is potential to consolidate available capacity within the ADF and to recruit and retain motivated and committed members who pose little risk to themselves or others.

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