

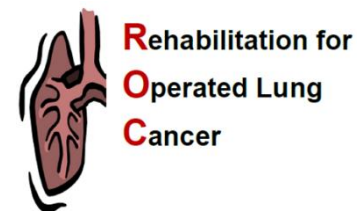
# Predicting Post-operative Pain in Lung Cancer Patients using Pre-operative Peak Alpha Frequency

**Samantha K Millard**, A Furman, D Seminowicz, F Gao-Smith, B Naidu, A Mazaheri

Pain IMPACT Centre, Neuroscience Research Australia (NeuRA)  
University of New South Wales (UNSW)

 [sammymillard.com](http://sammymillard.com)

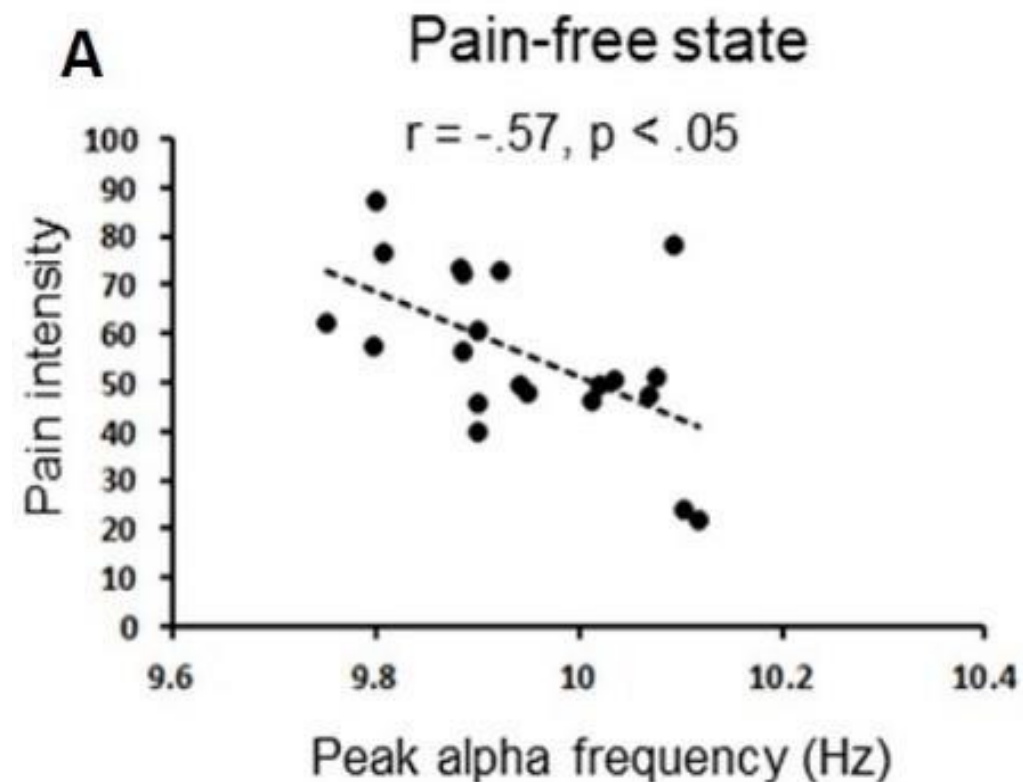
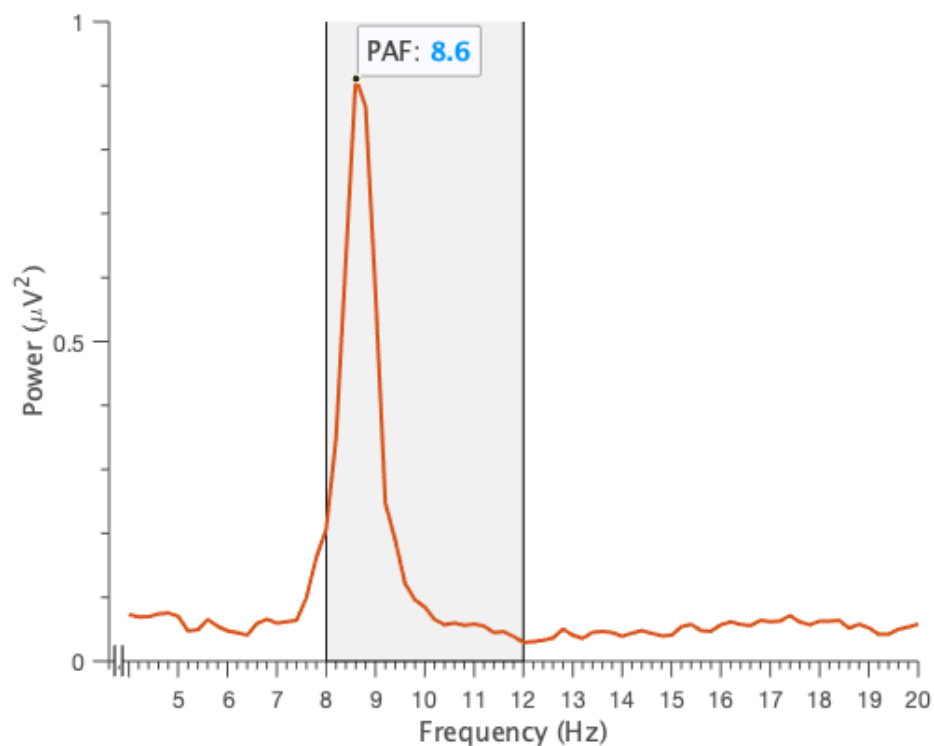
 [@millard\\_sammy](https://twitter.com/millard_sammy)



# Disclosures

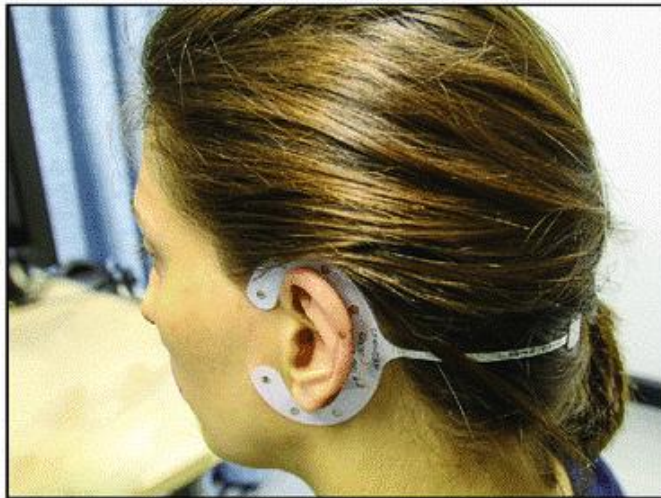
- The following authors have nothing to disclose:
  - SK Millard, F Gao-Smith, B Naidu
- The following authors have a patent PCT/US2018/058889)  
[“Methods for Predicting Pain Sensitivity”](#) (priority 11/2/17) related to the work presented today:
  - D Seminowicz, A Furman, A Mazaheri

# Peak Alpha Frequency (PAF) is predictive of future pain sensitivity



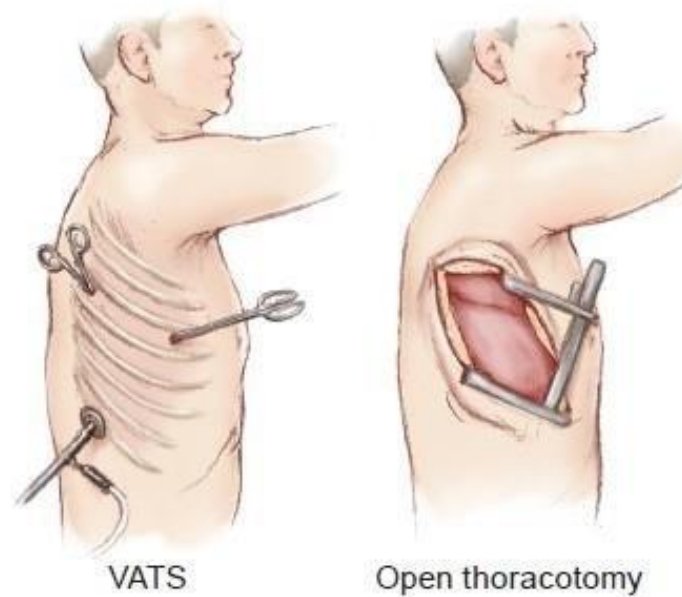
# Investigated whether PAF could be used as a biomarker to predict post-operative pain

1 Pre-operative

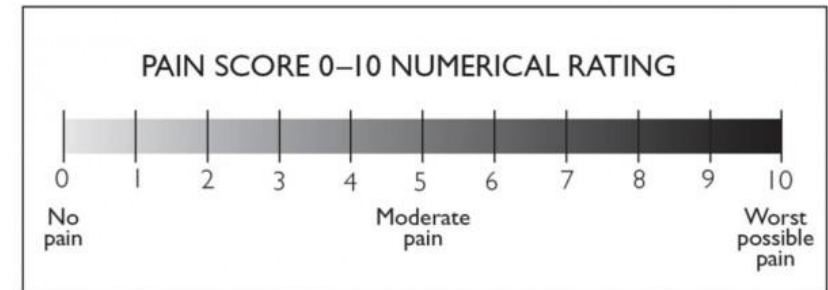


cEEGrids (TMSI, Oldenzaal, Netherlands) Pacharra et al., 2017

2 Operation



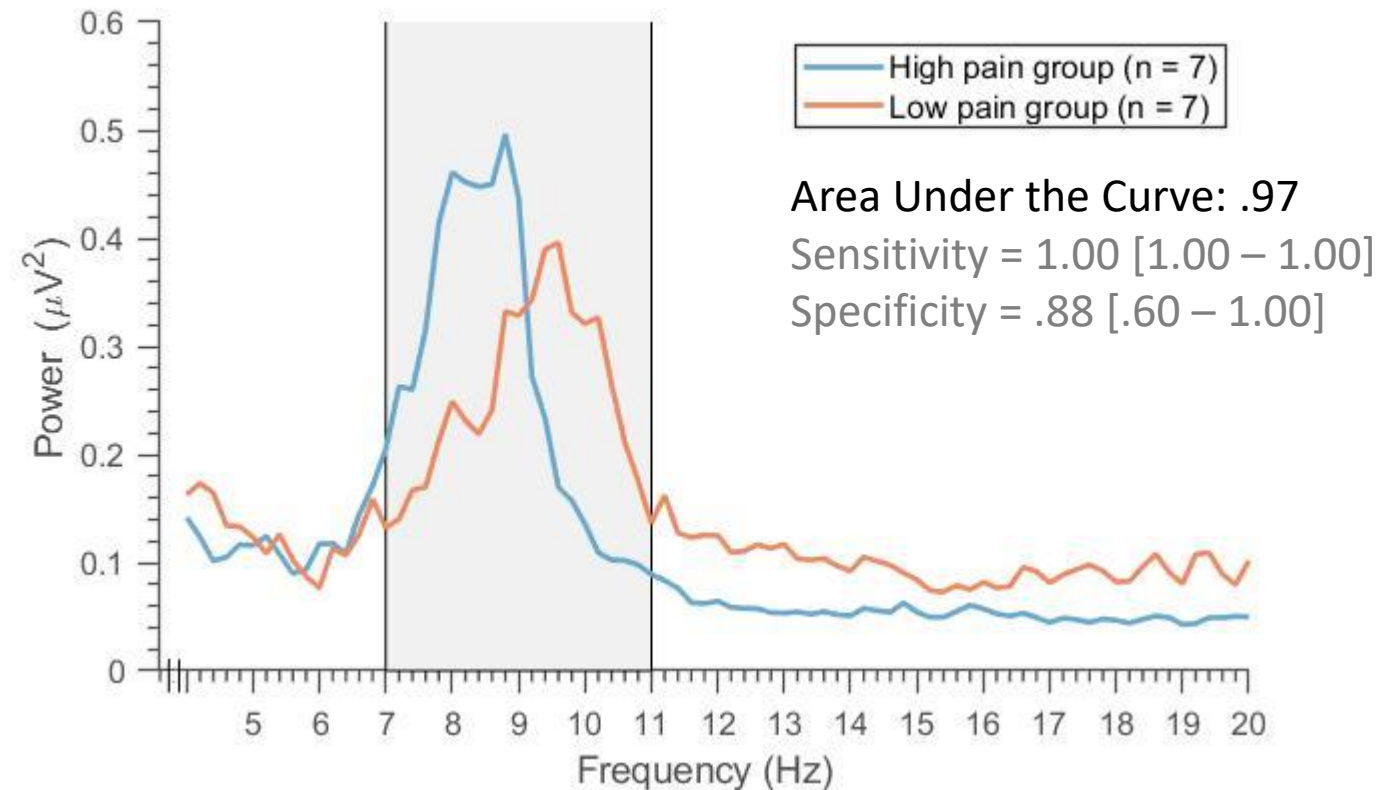
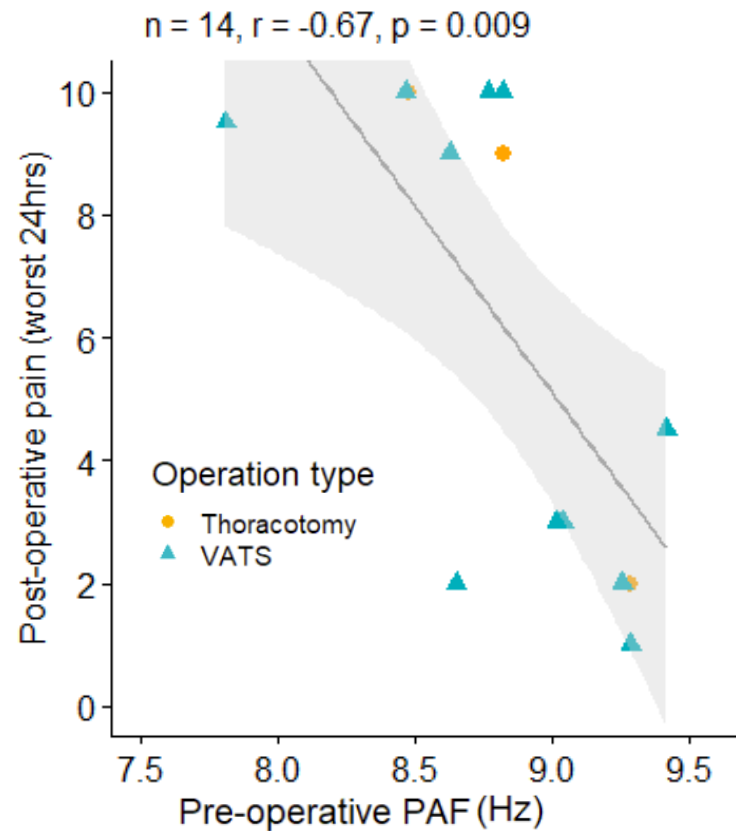
3 Post-operative (within 2 days)



[Katz et al., 1996; Kehlet et al., 2006; Maguire et al., 2006; Wildgaard et al., 2009]

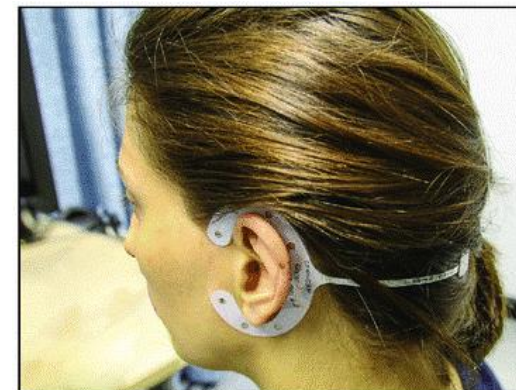
[https://www.physio-pedia.com/images/4/47/NRS\\_pain.jpg](https://www.physio-pedia.com/images/4/47/NRS_pain.jpg)

# PAF can distinguish between individuals with high or low severity of worst post-operative pain



# Findings and implications

High PAF



Low PAF



Pre-operative PAF, measured using cEEGrids, is a suitable biomarker candidate to predict susceptibility to severe pain in the immediate post-operative period.