Abstract The present invention relates to the use of oxidized nicotinamide adenine dinucleotide (NAD.sup.+ or NADH, as sodium channel modulators. The present invention also relates to the use of compositions containing NAD.sup.+ or NADH to treat conditions associated with sodium channel current, such as arrhythmia. NAD.sup.+ is found to increase sodium channel current, while NADH is found to decrease sodium channel current. Thus, conditions that are associated with decreased sodium channel current can be treated with NAD.sup.+ while conditions that is associated with increased sodium channel current can be treated with NADH.