

Electrocardiographic J-Wave causes: Classification proposal

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I) Hypothermic J-wave (Osborn wave) ([doi: 10.1002/clc.4960170511](#)) (core body temperature ≤ 95 degrees F. 95 degrees Fahrenheit = 35 degrees Celsius). The amplitude and duration of Osborn waves is inversely related to core temperature.

II) Non-hypothermic conditions: The "normothermic" Osborn wave

➤ **Physiological:** prevalent among healthy young male athletes, which displays an early repolarization pattern(ERP) predominantly in the lateral precordial leads. *Physiological* ERP is named type 1 ERP.

➤ **Pathological**

A) Inherited arrhythmia syndromes

- Brugada Syndrome (BrS)
- Early Repolarization Syndromes (ERS) or JWS ([doi: 10.1016/j.hrthm.2015.04.014.](#))
- J-Wave Syndromes (JWS): BrS + ERS or type 3 ERS: Overlapping between BrS and ERS Highest risk ([doi: 10.1016/j.hrthm.2015.04.014.](#)) ([doi: 10.1093/europace/euw235.](#)) ()
- Congenital Short QT Syndrome (SQTS) ([doi: 10.1016/j.jelectrocard.2018.06.005](#))

Why don't we include idiopathic ventricular fibrillation? Answer: because a recent publication suggests that IVF should not have a phenotype (negative phenotype) Polemic? ([doi: 10.1016/j.jacep.2020.03.010](#))

B) Acquired

- **Ischemic:**
- ST segment elevation Acute Myocardial Infarction ([doi: 10.1016/j.jjcc.2018.11.005.](#))

- Vasospastic angina, variant angina, or Prinzmetal angina (doi: 10.1046/j.1540-8167.2002.00486.x. Indian Pacing Electrophysiol J. 2004 Jan 1;4(1):33-9)
- Takotsubo Cardiomyopathy (TTC) doi: 10.1253/circj.cj-13-1296.)(doi: 10.1016/j.jelectrocard.2012.04.004.)
- Cardiopulmonary arrest from over sedation (doi: 10.1111/j.1540-8159.2007.00760.x.)
- Accessory third papillary muscle with a prominent J-wave (doi: 10.1186/1476-7120-7-50.)
- **Severe hypercalcemia** (doi: 10.1016/0002-9149(84)90273-x.)(doi: 10.1016/0002-9149(84)90274-1.)(doi: 10.1002/clc.4960170511.) (doi: 10.1536/jhj.44.1033.) (Abdul doi: 10.1093/ehjcr/ytz174.) (doi: 10.7759/cureus.9001.) (J Otero 1, D J Lenihan The "normothermic" Osborn wave induced by severe hypercalcemia Tex Heart Inst J. 2000;27(3):316-7.)
- **Neurological insults**
 - Subarachnoid hemorrhage (SAH) (doi: 10.1161/01.cir.23.6.853) (doi: 10.1016/j.jelectrocard.2016.09.010.) (doi: 10.1161/01.cir.23.6.853) (DeSweit J: Changes simulating hypothermia Changes simulating hypothermia in the electrocardiogram in subarachnoid hemorrhage J Electrocardiol. 1972;5(2): 93-5.)
 - Brain/head injuries
 - Transient postictal hemiplegia (Todd's paralysis) (O'Connell 2013) (doi: 10.1159/000346444.)
 - Sympathetic nerves in the neck damage (doi: 10.1080/10790268.2002.11753599.) (DOI: 10.1007/s10286-012-0166-6) (doi: 10.1080/10790268.2007.11754580.)
- **Severe myocarditis** (doi: 10.1161/CIRCEP.118.006969.)
- **Left ventricular hypertrophy due to hypertension** (doi: 10.1002/clc.4960170511.)

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