

Recommendations for competitive sports <sup>(1,2)</sup> and underwater activities participation in subjects with arrhythmia or cardiac block					
Lesion	Evaluation	Criteria for eligibility	Follow-up	Competitive sports	Diving
<b>Supraventricular arrhythmias</b>					
Supraventricular premature beats.	ECG, Thyroid function.	No symptoms, No cardiac disease.		All sports	Yes
Paroxysmal supraventricular tachycardia without pre-excitation (AVNRT or AVRT), <b>Ventricular Pre-excitation</b> with tachycardia (WPW) or asymptomatic.	ECG, Echocardiography, Electrophysiologic study.	<b>After catheter ablation</b> : if no recurrences for > 3 months and no cardiac disease.		All sports	Yes after 6 months (PSC if PFO)
		If ablation is not performed and AVNRT is sporadic, without cardiac disease, without hemodynamic consequence and without relation with exercise.		All sports except those with increased risk	<b>NO</b>
Paroxysmal atrial fibrillation (AF).	ECG, Echocardiography, Holter, Exercise testing, thyroid function.	If no cardiac disease, no WPW and stable sinus rhythm > 3 months.	Yearly	Temporary interruption of sport	PSC after 6 to 12 months
Permanent atrial fibrillation (AF).		Pas d'Insuffisance Cardiaque (IC), pas de pré-excitation, bonne adaptation à l'effort, bon contrôle de la fréquence cardiaque.	Every 6 months	Assessed on individual basis	PSC
Atrial flutter.	ECG, Echocardiography, Electrophysiologic study.	<b>After catheter ablation</b> : if no symptoms for > 3 months, no cardiac disease or WPW, and off therapy.	Yearly	All sports	Yes after 6 months (PSC if PFO)
<b>Ventricular arrhythmias</b>					
Ventricular premature beats (PVBs).	ECG, Echocardiography.  In selected cases : Holter, exercise testing, Invasive tests.	<b>No cardiac disease</b> , no family history of SD, no symptom in relation with exercise, no frequent or polymorphic PVBs or frequent couplets with short RR interval.  <b>No symptom</b> , no cardiac disease or arrhythmogenic condition, no family history of SD.	Yearly	All sports	Yes
Nonsustained ventricular tachycardia (<30s) <sup>(1)</sup> . Slow ventricular tachycardia <sup>(2)</sup> .			Every 6 months		
Benign idiopathic Ventricular Tachycardia (VT) : Fascicular ventricular tachycardia, RV outflow tachycardia.			Every 6 months		
Long QT syndrom, Brugada syndrom, Arrhythmogenic Right Ventricular Dysplasia.	ECG, Holter, specific tests.	Positive		No competitive sport	<b>NO</b>
Symptomatic VT, malignant VT, <i>torsade de pointe</i> Ventricular Fibrillation, sudden death (SD).	See ICD's criteria if implanted.				<b>NO</b>
<b>Marked sinus bradycardia (&lt;40 bpm) or sinus pauses &gt; 3s</b>					
Well-trained athletes <b>without symptom</b> .	ECG			All sports	Yes
Symptomatic or non-trained subject (pre-syncope, lightheadedness, exertional fatigue...)	ECG, Echocardiography Holter, exercise testing.	After 3 months from resolution of symptoms or off therapy.	Yearly	Temporary interruption	PSC after 6 months
<b>Cardiac blocks</b>					
Atrioventricular (AV) block first and second degree type 1 (Wenckebach). Well-trained athletes <b>without symptom</b> .	ECG, Echocardiography Holter, exercise testing,	No cardiac disease, with resolution during exercise.	Yearly	All sports	Yes
AV block second degree type 2 or advanced <b>without symptom</b> .		No cardiac disease, no ventricular arrhythmias during exercise and if resting heart rate is > 40 bpm	Yearly	Low-moderate dynamic and low-moderate static sports.	<b>NO</b> PSC if PM
Symptomatic AV blocks Complete AV blocks even without symptom.	Cardiac pacing recommendation : see PM's criteria if implanted.				
Right bundle-branch block without or with left-axis deviation, <b>Congenital</b> left bundle-branch block.	ECG, Echocardiography, exercise testing. In selected cases : Holter.	No symptom or AV block during exercise, no ventricular arrhythmia, no cardiac disease	Yearly	All sports	Yes
Acquired complete left bundle-branch block, permanent or exercise induced.	ECG, exercise testing Echocardiography, . In selected cases : Holter, coronary artery study.	No symptom or AV block during exercise, no ventricular arrhythmia, no cardiac disease, no coronary artery disease.	Yearly	All sports	Yes
<b>Implanted cardioverter stimulator or defibrillator</b>					
Pacemaker (PM).	ECG, Echocardiography, Holter, Exercise testing.	Normal heart rate increase during exercise, no arrhythmias, normal cardiac function. <b>pas d'arythmie, pas d'IC.</b>	Yearly	Low-moderate dynamic and low static sports except those with risk of body collision	<b>PSC<sup>(3)</sup></b> after 6 months <b>limited depth 30 m (100 ft)</b>
Implantable cardioverter defibrillator (ICD).		No malignant VTs, normal cardiac function, at least 6 month after the implantation or the last ICD intervention	Yearly		<b>NO</b>
<b>Repetitive syncope</b>					
Neurocardiogenic (vasovagal, sino-carotid, environmental or situational) or orthostatic.	ECG, Echocardiography, Holter, exercise testing, tilting test.		Yearly	All sports except those with increased risk	<b>NO</b>
Other	See specific criterias according to disease.				

**Diving :** **Yes** = No restriction for underwater sports, free diving or scuba diving participation **if all eligibility criteria are met**,  
**NO** = Contraindication is definite for all underwater activities,  
**PSC** = Personalised Specific Conditions must be assessed on an individual basis.

(2) European Society of Cardiology study group of Sports cardiology : Recommendations for competitive sports participation in athletes with cardiovascular disease. Eur Heart J, 2005, 26 (14) : 1422-1445.

(1) Zipes DP, Ackerman MJ, Frant AO, Van Hare G. Task force 7 : Arrhythmias. 36<sup>th</sup> Bethesda conference, Eligibility recommendations for competitive athletes with cardiovascular abnormalities. J Am Coll Cardiol, 2005, vol 45 (8) : 1354-1363.

(3) Lafay V, Trigano JA, Gardette B, Micoli C, Carré F. Effects of hyperbaric exposure on cardiac pacemakers. Br J Sports Med 2008, 42 : 212-2  
**in the absence of more restrictive recommendation of the manufacturer's model.**