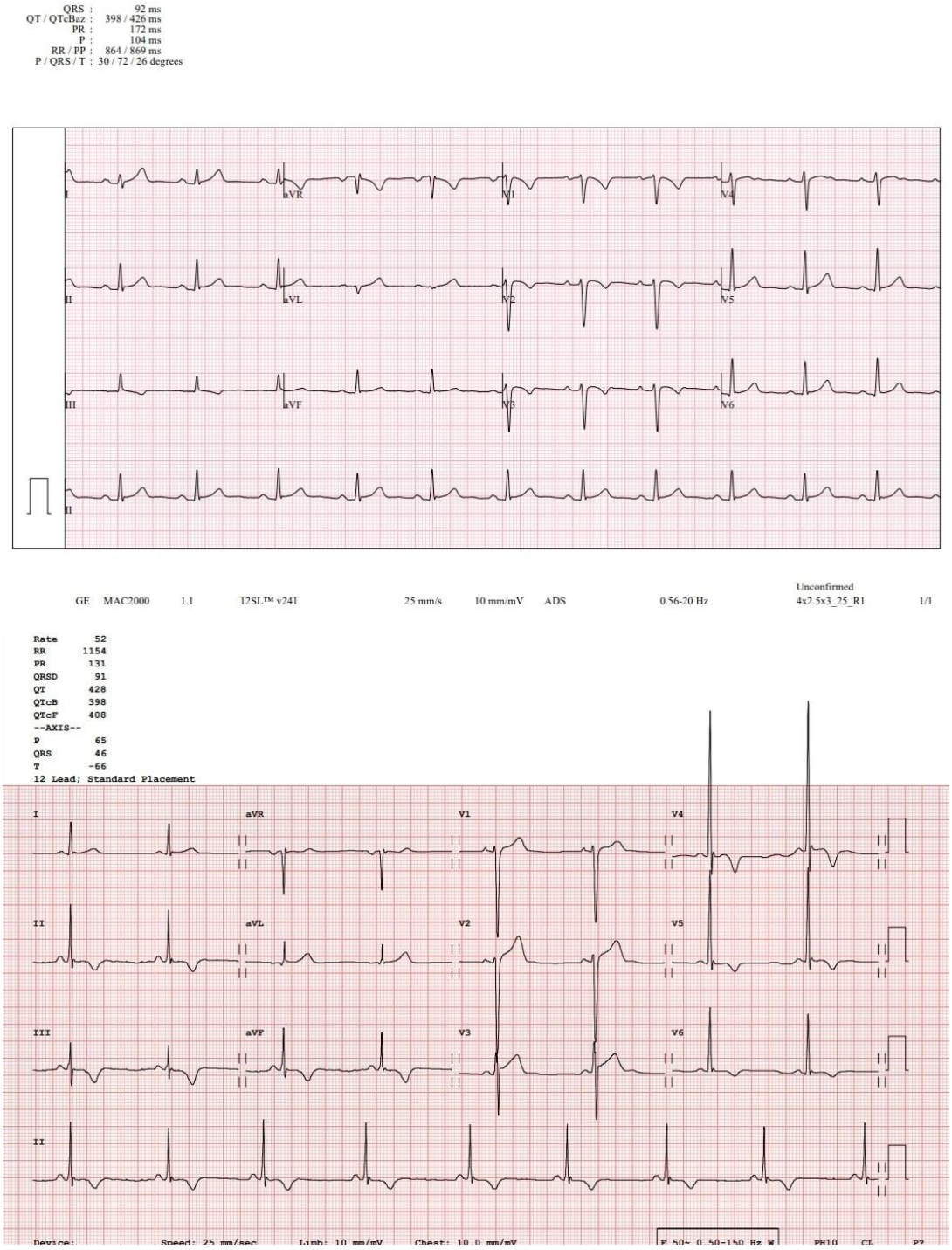
Supplementary Table S1: Comprehensive List and Definitions of ECG Criteria

ECG finding	Definition
Sinus bradycardia	<60 bpm
Sinus arrhythmia	Heart rate variation with respiration: rate increases during inspiration and decreases during expiration
Left atrial enlargement	Prolonged P wave duration of >120 ms in leads I or II with negative portion of the P wave ≥1 mm in depth and ≥40 ms in duration in lead V_1
Right atrial enlargement	P wave ≥2.5 mm in II, III or aVF
Ectopic atrial rhythm	P waves are a different morphology compared with the sinus P wave, such as negative P waves in the inferior leads (‘low atrial rhythm’)
1° AV block	PR interval >200ms
Mobitz type I (Wenckebach) 2° AV block	PR interval progressively lengthens until there is a non-conducted P wave with no QRS complex; the first PR interval after the dropped beat is shorter than the last conducted PR interval
Mobitz type II 2° AV block	Intermittently non-conducted P waves with a fixed PR interval
3° AV block	Complete heart block
Ventricular pre-excitation	PR interval <120 ms with a delta wave (slurred upstroke in the QRS complex) and wide QRS (≥120 ms)
Junctional escape rhythm	QRS rate is faster than the resting P wave or sinus rate and typically less than 100 beats/min with narrow QRS complex unless the baseline QRS is conducted with aberrancy
Left axis deviation	−30° to −90°
Right axis deviation	>120°
LV + RV hypertrophy	Isolated QRS voltage criteria for left (SV1 + RV5 or RV6 >3.5 mV) or right ventricular hypertrophy (RV1 + SV5 or SV6 >1.1 mV)
Premature ventricular contractions	≥2 premature ventricular contractions per 10 s tracing
Pathological Q waves	Q/R ratio ≥0.25 or ≥40 ms in duration in two or more leads (excluding III and aVR)
Incomplete RBBB	rSR’ pattern in lead V_1 and a qRS pattern in lead V_6 with QRS duration <120 ms
Complete RBBB	rSR′ pattern in lead V_1 and an S wave wider than R wave in lead V_6 with QRS duration ≥120 ms
Complete LBBB	QRS ≥120 ms, predominantly negative QRS complex in lead V_1 (QS or rS) and upright notched or slurred R wave in leads I and V_6
Profound non-specific intraventricular conduction delay	Any QRS duration ≥140 ms
Epsilon wave	Distinct low amplitude signal (small positive deflection or notch) between the end of the QRS complex and onset of the T wave in leads V_1-V_3
ST segment depression	≥0.5 mm in depth in two or more contiguous leads
Early repolarisation	J point elevation, ST elevation, J waves or terminal QRS slurring in the inferior and/or lateral leads
Brugada type 1 pattern	Coved pattern: initial ST elevation ≥2 mm (high take-off) with downsloping ST segment elevation followed by a negative symmetric T

ECG finding	Definition
	wave in ≥1 leads in V_1-V_3
Prolonged QT interval	QTc ≥470 ms (male) QTc ≥480 ms (female) QTc ≥500 ms (marked QT prolongation)
T wave inversion	≥1 mm in depth in two or more contiguous leads; excludes leads aVR, III and V_1
Anterior	V_2-V_4
	excludes: black athletes with J-point elevation and convex ST segment elevation followed by TWI in V_2-V_4; athletes < age 16 with TWI in V1-V_3; and biphasic T waves in only V_3
Lateral	I and aVL, V_5 and/or V_6 (only one lead of TWI required in V_5 or V_6)
Inferolateral	II and aVF, V_5-V_6, I and aVL
Inferior	II and aVF

AV = atrioventricular; bpm = beats per minute; ECG = electrocardiogram; LBBB = left bundle branch block; LV = left ventricle; RBBB = right bundle branch block; RV = right ventricle; TWI = T wave inversion.

Source: Drezner et al. (2017) [1]



Supplementary Figure S1: ECGs of Anterior and Inferolateral T Wave Inversion Among Para-Football Players

Reference

1. Drezner JA, Sharma S, Baggish A, Papadakis M, Wilson MG, Prutkin JM, Gerche A La, Ackerman MJ, Borjesson M, Salerno JC, et al. International criteria for electrocardiographic interpretation in athletes: Consensus statement. *Br J Sports Med*. 2017;51:704.