



PLATFORM OF LABORATORIES FOR ADVANCES IN CARDIAC EXPERIENCE

ROMA

Centro Congressi
di Confindustria

**Auditorium
della Tecnica**

9^a Edizione

**30 Settembre
1 Ottobre
2022**

DIAGNOSTICA IN CARDIOLOGIA DELLO SPORT II

RM CARDIACA

Viviana Maestrini

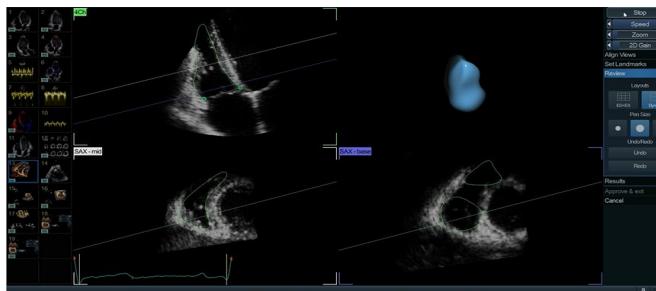
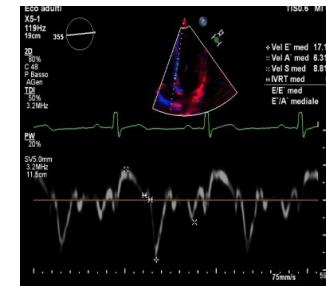
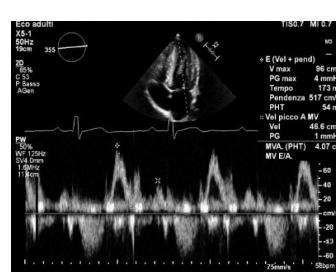
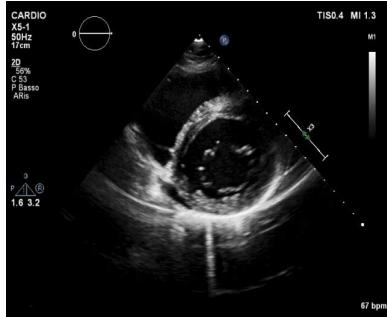
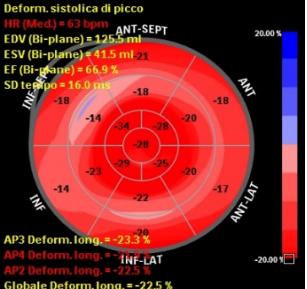
DIPARTIMENTO DI SCIENZE CLINICHE INTERNISTICHE, ANESTESIOLOGICHE E CARDIOVASCOLARI
SAPIENZA UNIVERSITÀ DI ROMA

ISTITUTO DI SCIENZA DELLO SPORT, CONI, ROMA

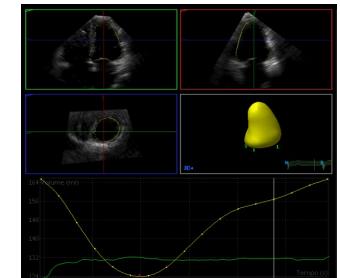




INCLUDING CORONARY ARTERIES ORIGIN !!!



Echo first





Cardiovascular Magnetic Resonance

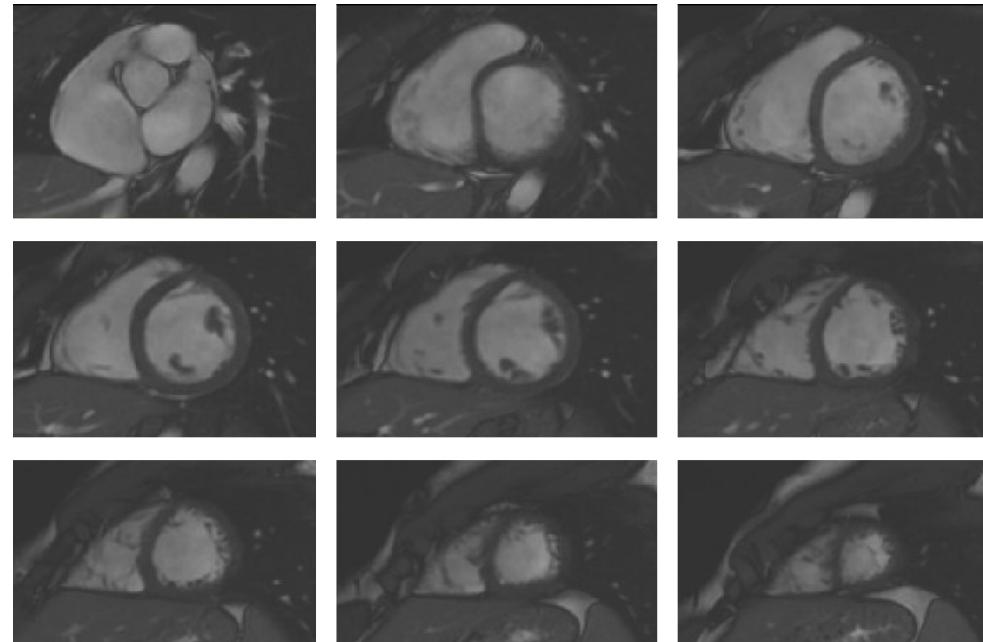
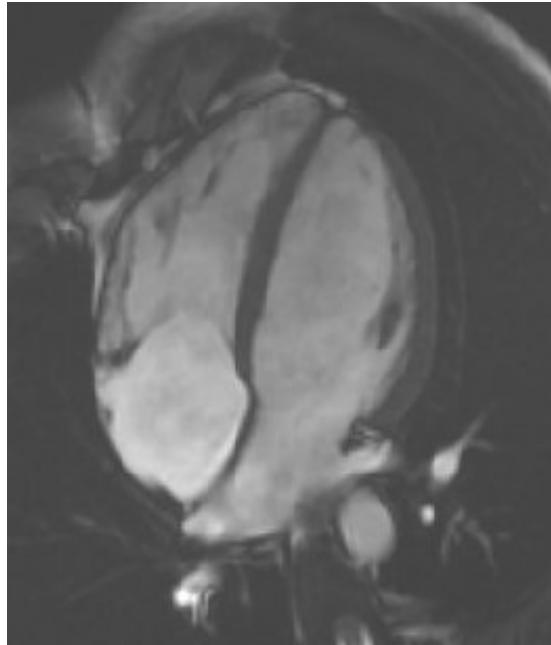


Morfo-functional evaluation

Ventricles



CMR - cine





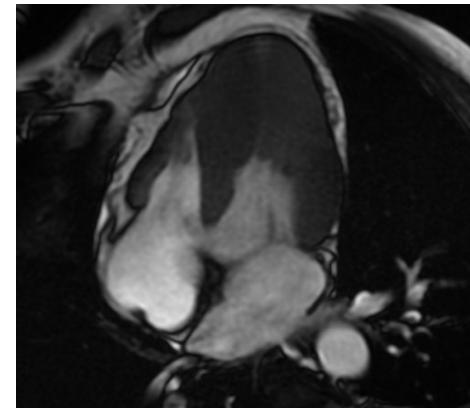
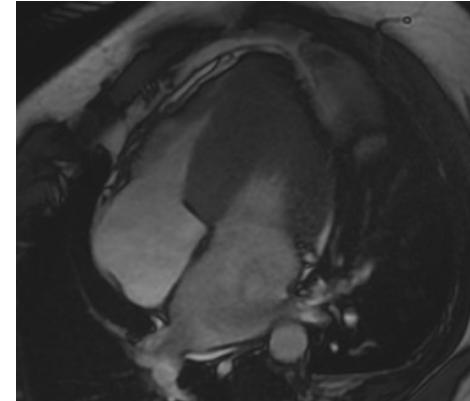
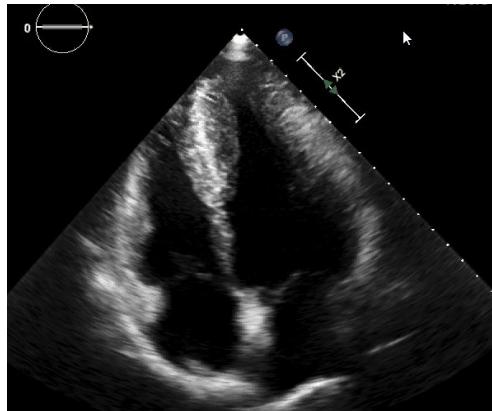
ECO

Pt 1

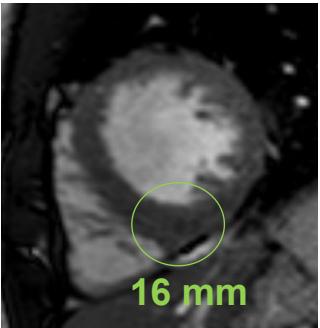
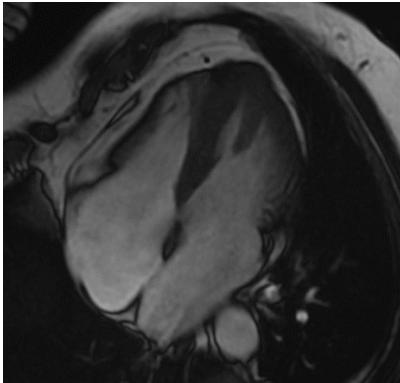


CMR

Pt 2

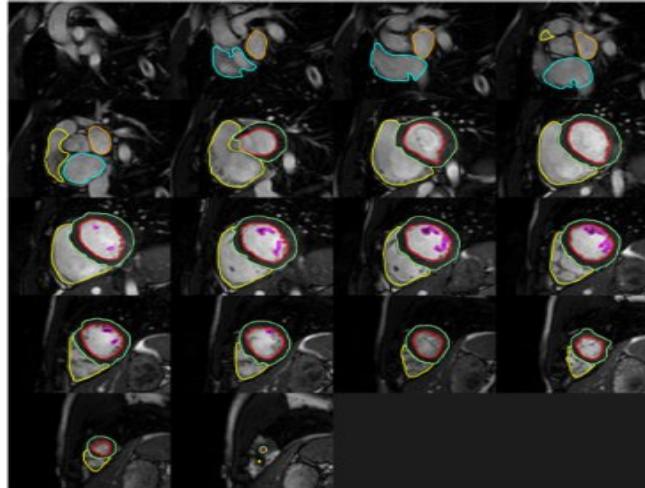


REGIONS POTENTIALLY MISSED by ECHO

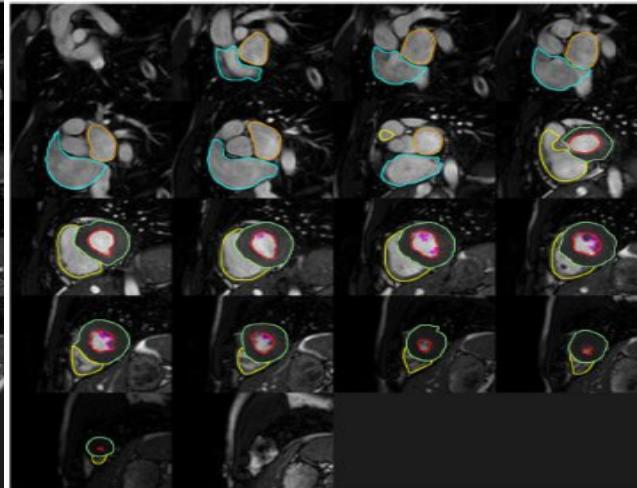




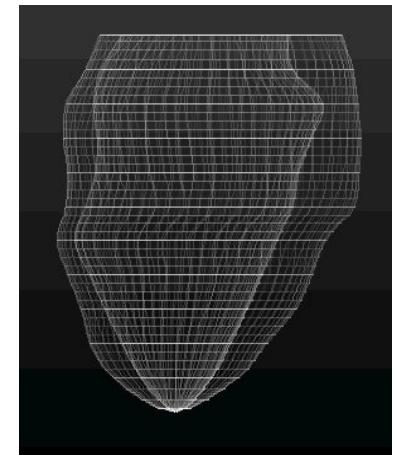
Gold standard for volume, function, mass.

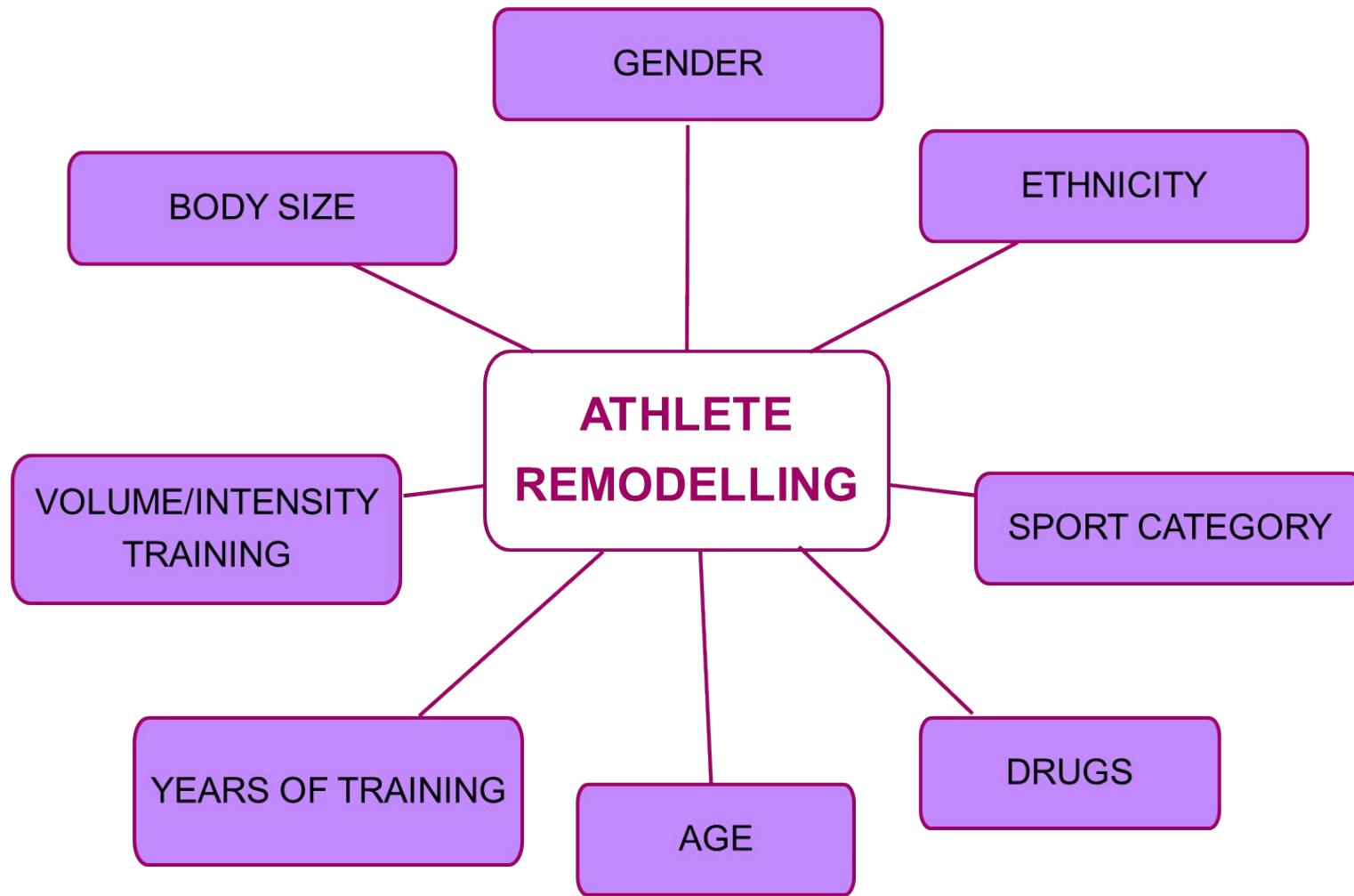


End-diastole



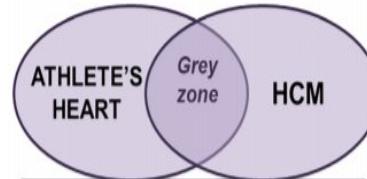
End-systole



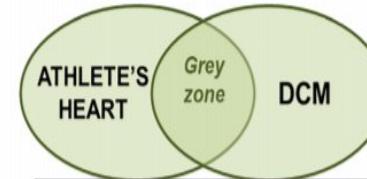




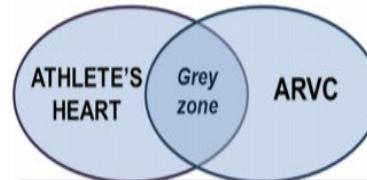
Grey zone: overlapping phenotypes



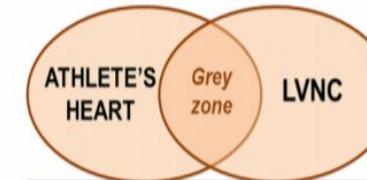
- Asymmetric LVH +
- Relative apical hypertrophy +
- RV involvement +
- LGE +
- High Native Myocardial T1 +
- High ECV +



- Unbalanced LV dilatation +
- LV dysfunction +
- RWMA +
- Low SV +
- LGE +
- High Native Myocardial T1 +
- High ECV +



- Unbalanced RV dilatation +
- RV/LV RWMA +
- RV and/or LV LGE +
- RV and/or LV fat +



- Unbalanced LV dilatation +
- LV dysfunction +
- Trabeculation + wall thinning +
- LGE +



Cardiovascular Magnetic Resonance



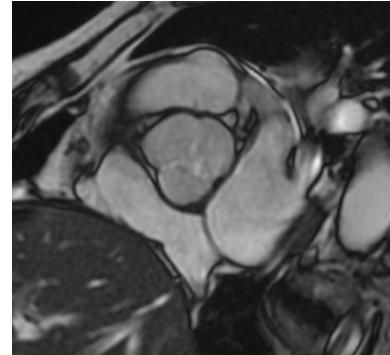
Morfo-functional evaluation

Ventricles

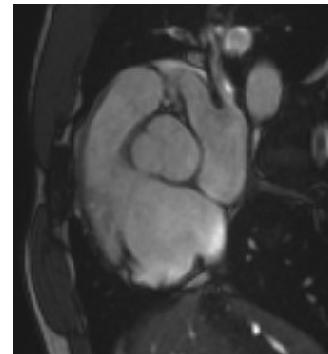
Valve and vessels



Valves and great vessels



**BICUSPID
AORTIC VALVE**





Cardiovascular Magnetic Resonance



Morfo-functional evaluation

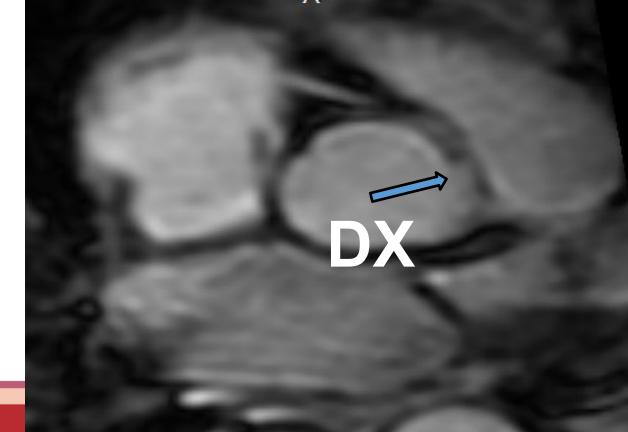
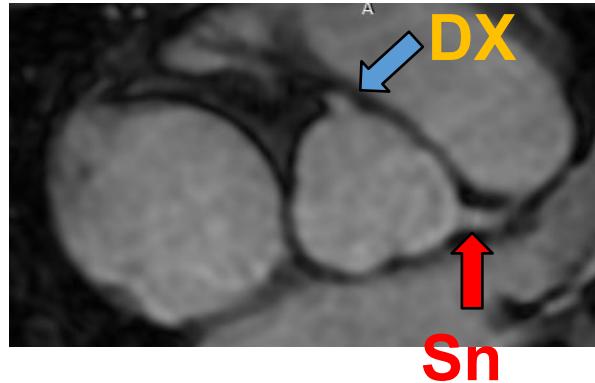
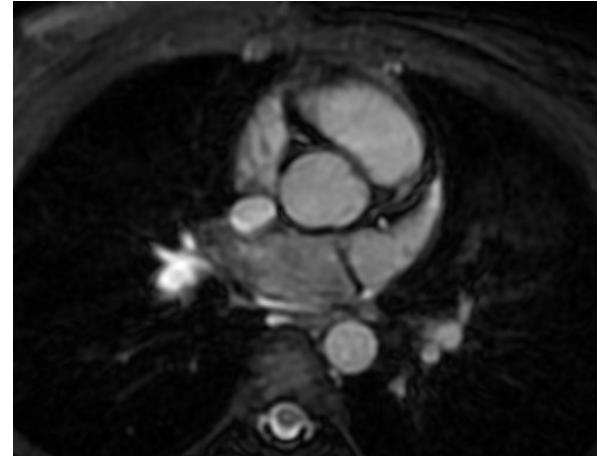
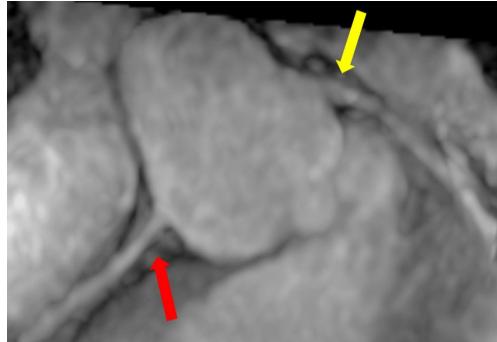
Ventricles

Valve and vessels

Coronary artery origins



Coronary arteries origin





Cardiovascular Magnetic Resonance

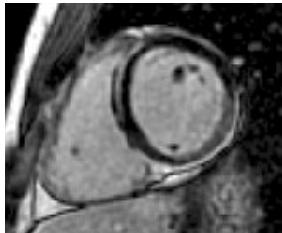
 Morfo-functional evaluation

Ventricles

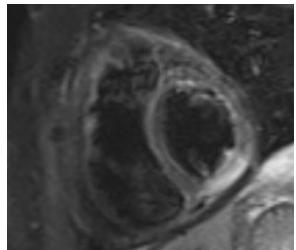
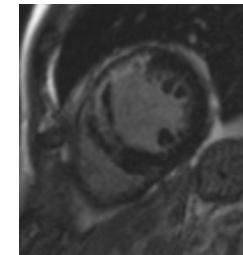
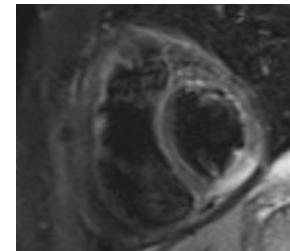
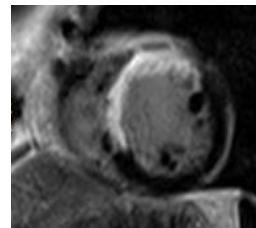
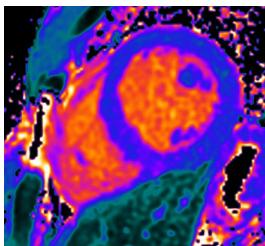
Valve and great vasses

Coronary arteries origine

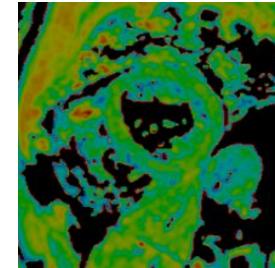
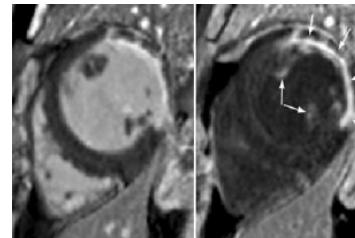
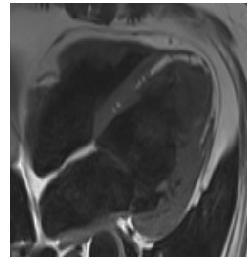
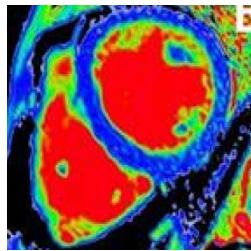
 Tissue characterization



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ADDED VALUE OF CMR: TISSUE CHARACTERIZATION

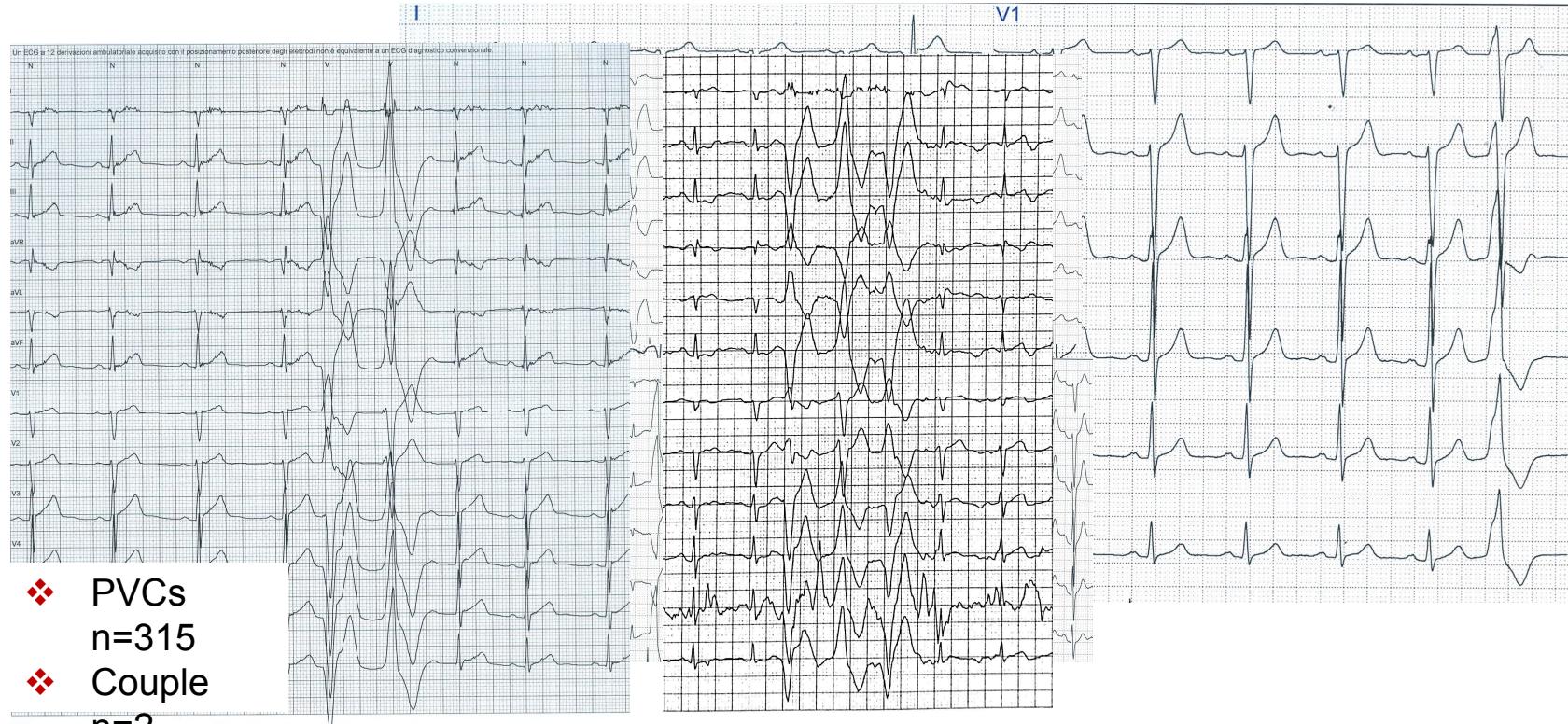


Case #, 22 yo

Echo normal

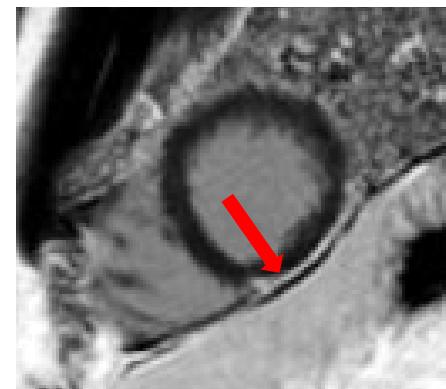
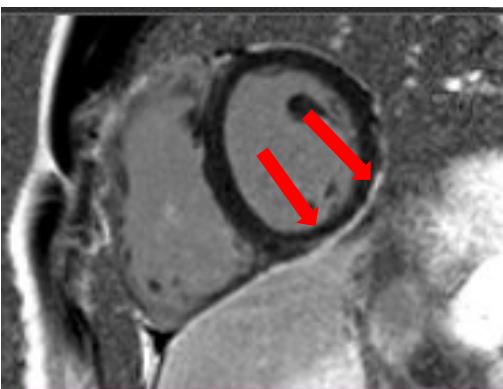


- Syncope during football match



Case #, 22 yo

Echo normal





	Common	Uncommon
PVB characteristics		
Ectopic QRS morphology	LBBB/inferior axis, typical RBBB and narrow QRS (<130 ms)	LBBB/intermediate or superior axis, atypical RBBB and wide QRS (≥ 130 ms)
Response to exercise testing	Decrease/suppression	Persistence/increase
Complexity of PVBs	Isolated, monomorphic	Repetitive‡, polymorphic
Short coupling interval*	No	Yes
Clinical findings		
Symptoms	No	Yes
Family history of premature SCD† or cardiomyopathy	No	Yes
Other ECG abnormalities	No	Yes
Imaging abnormalities	No	Yes

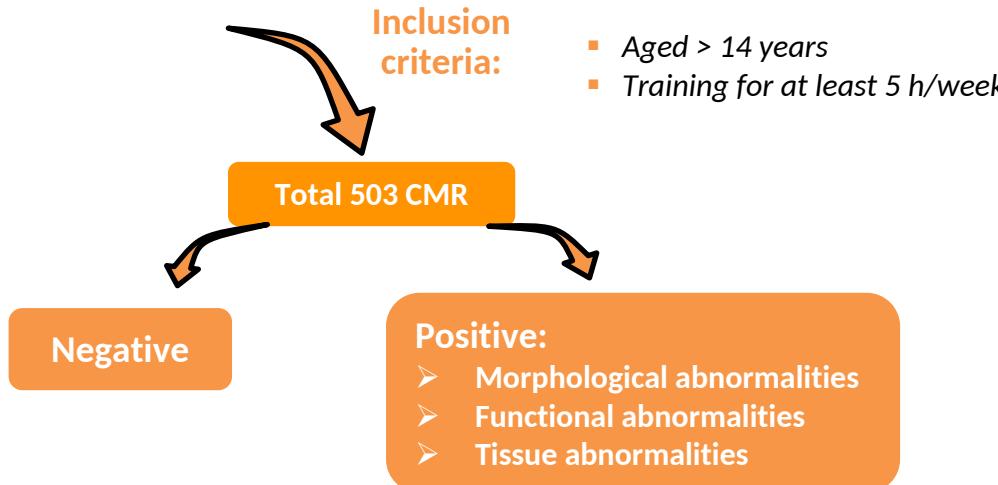


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SPORT CARDIOLOGY

Methods-1

Retrospective analysis of CMR performed by the Institute of medicine and sport science in Rome

CMR performed between Jan-2019 and July-2021



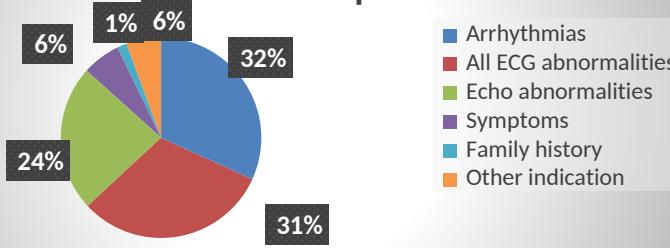
Clinical indication for CMR:

- Arrhythmias
- Echo abnormalities
- ECG abnormalities
- CV symptoms
- Familiarity for CMP/SCD
- Other abnormalities

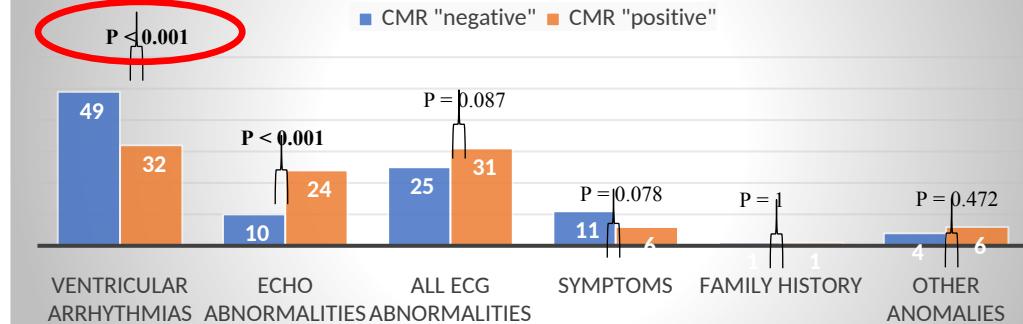


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Clinical indications in “positive” CMR



Clinical indications





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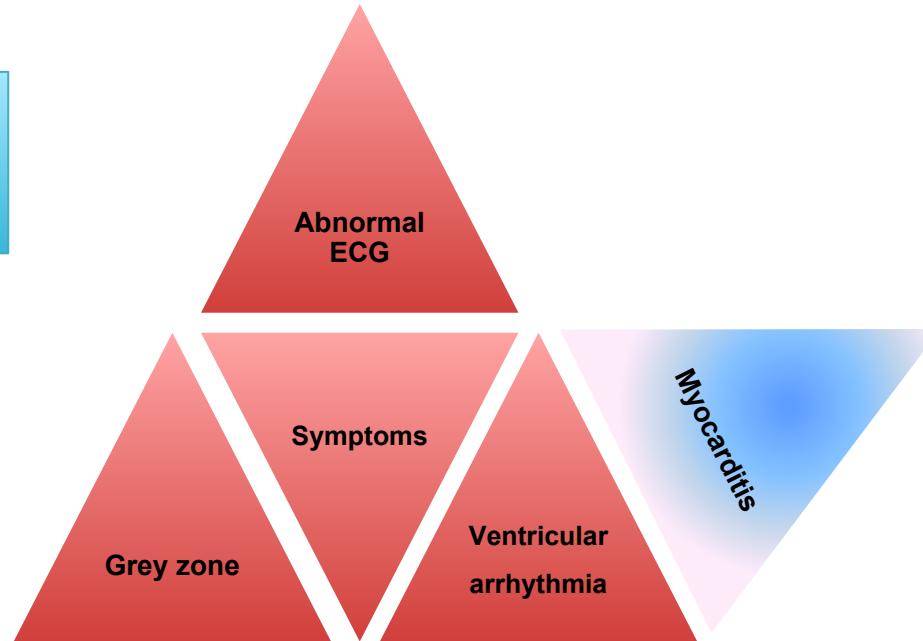
Results

RBBB, n(%)	27(22)	18 (25)	0.63 PVBs n (%)	39 (50)	123(29)	0.02
LBBB, n(%)	50 (41)	15 (21)	< 0.05 LBBB/inferior axis, n (%)	3(7)	31(23)	0.02
Superior/intermediate axis (LBBB and RBBB), n(%)	37 (31)	20 (28)	0.20 LBBB Intermediate/superior axis, n(%)	4(10)	19(14)	0.51
			RBBB inferior axis, n(%)	4(10)	5(4)	0.15
Inferior axis (LBBB and RBBB), n(%)	40 (32)	13 (18)	0.03 RBBB intermediate/superior axis, n(%)	5(14)	22(16)	0.76
Polymorphic, n(%)	46 (37)	38 (54)	0.02 Polymorphic, n(%)	23(59)	46(37)	0.01
Couplet, n(%)	61 (49)	40 (56)	0.36 Isolated PVBs, n(%)	15(38)	59(47)	0.32
TWI, n(%)	76(24)	67(34)	0.02 Couplets, n(%)	25(64)	39(31)	0.02
TWI lateral/infero-lateral, n(%)	31(41)	38(57)	0.05 Non sustained VT, n(%)	9(23)	25(20)	0.68



Most comprehensive imaging modality to exclude cardiac structural pathology

Normal or not
conclusive echo
Not adequate window





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