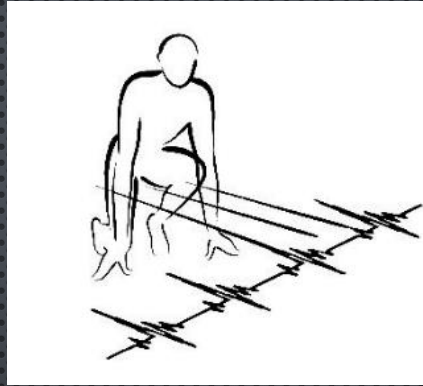




LA SINCOPE INDOTTA DALLO SFORZO E LA SINCOPE NON
INDOTTA DALLO SFORZO

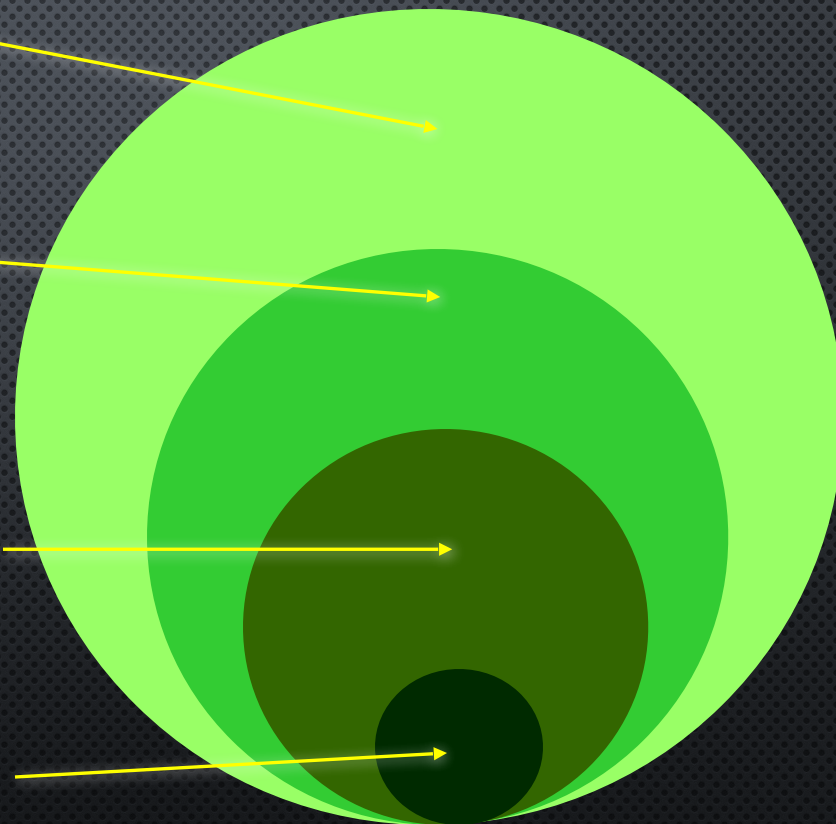
TRA PATOLOGIA E FISILOGIA

60 Milioni
Italiani

24 Milioni
fanno sport occasionalmente

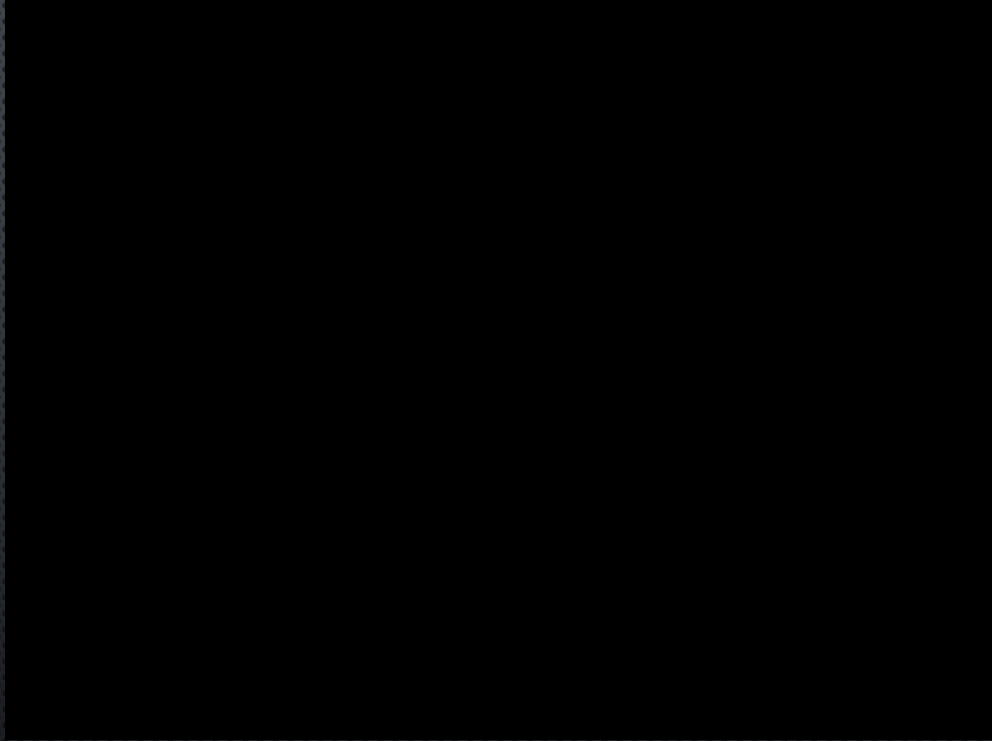
10 Milioni
S'allenano regolarmente e
gareggiano

~ 2.000
Atleti di alto livello

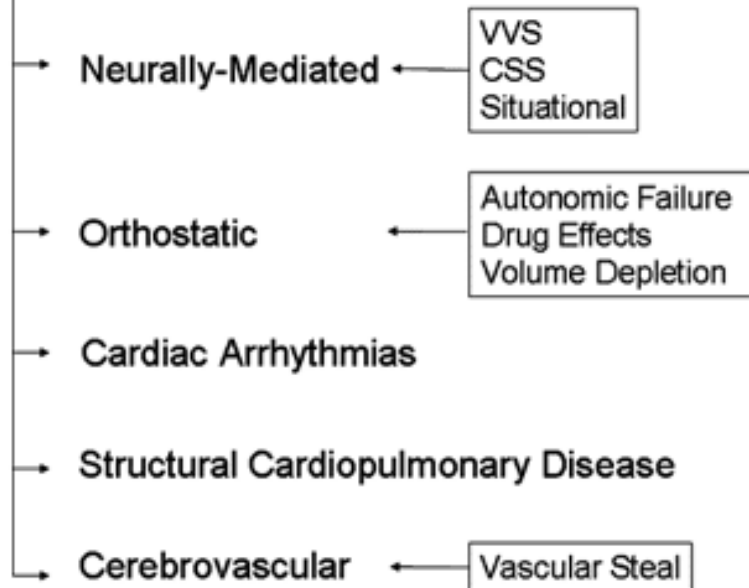


La sincope durante sport non e' mai un processo naturale

E come tale deve essere indagata

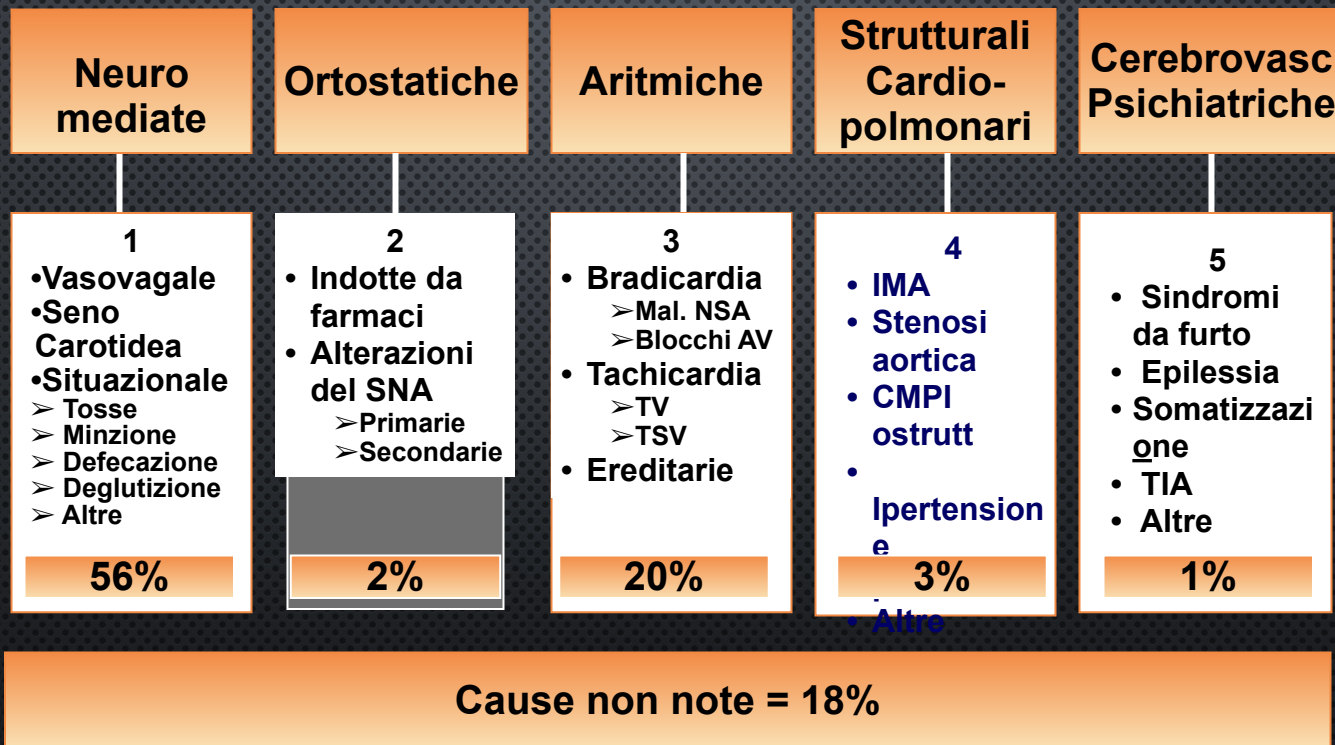


Syncope Classifications





CAUSE DI PERDITA DI COSCIENZA IN PAZIENTI CHE AFFERISCONO A SYNCOPE UNIT





Sindrome pre agonistica



PREVALENZA DI SINCOPE

- ATLETI ELEVATO LIVELLO (+ 10%)
- ATLETI LIVELLO INFERIORE (3,6%)
- FORMA VASO VAGALE (30-60%) DI TUTTE LE SINCOPI
- SINCOPE PRECEDE NEL 17-33% MI
- AMBITO MILITARE E SFORZO FISICO T LOC 86%
NELLA MI

SINCOPE NELLO SPORTIVO

- **SINCOPE DURANTE SFORZO**
 - IN GENERE DI TIPO MISTO (IPOTENSIONE + BRADICARDIA)
 - RIPRODUCIBILE CON SFORZO O TILT TEST
- **SINCOPE DOPO SFORZO** → ANALOGIE CON TILT TEST
 - RARA IN ATLETI ASINTOMATICI E BEN ALLENATI
 - SITUAZIONI STRAORDINARIE
 - TEMPERATURA
 - UMIDITÀ
 - DISIDRATAZIONE
 - STRESS PSICHICO
 - ACCELERAZIONI G

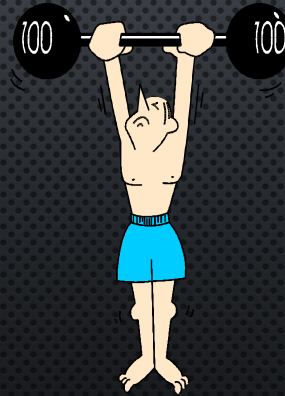
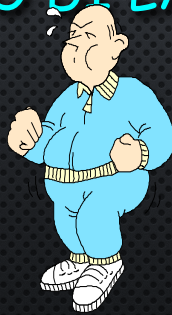
FATTORI SCATENANTI SINCOPE

TIPOLOGIA DELLO SPORT

CONDIZIONI AMBIENTALI

CARICO DI LAVORO

ETA'



STRESS TERMICO
STRESS PSICHICO
AMBIENTE
ALTA QUOTA
NUOTO
IMMERSIONE

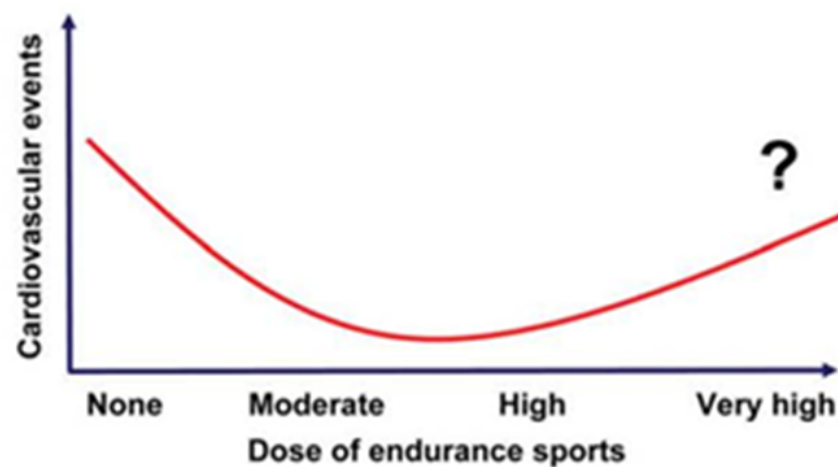


Figure 1 Potential association between dose of endurance sports and cardiovascular events (modified from La Gerche *et al.*³⁸).

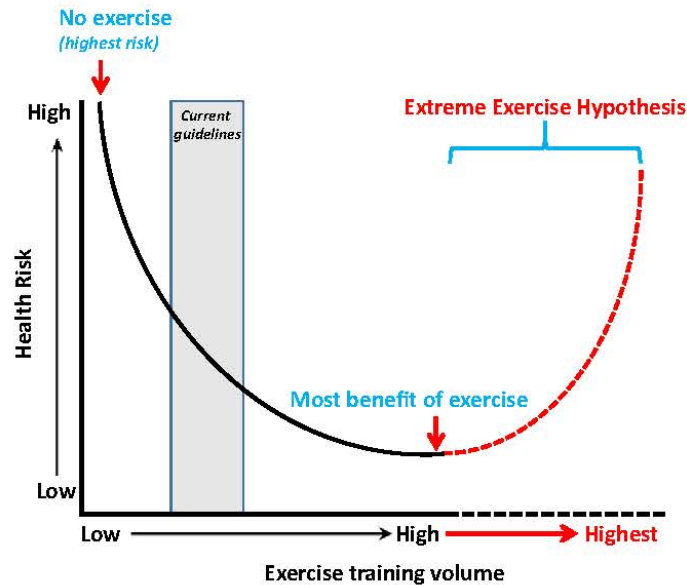
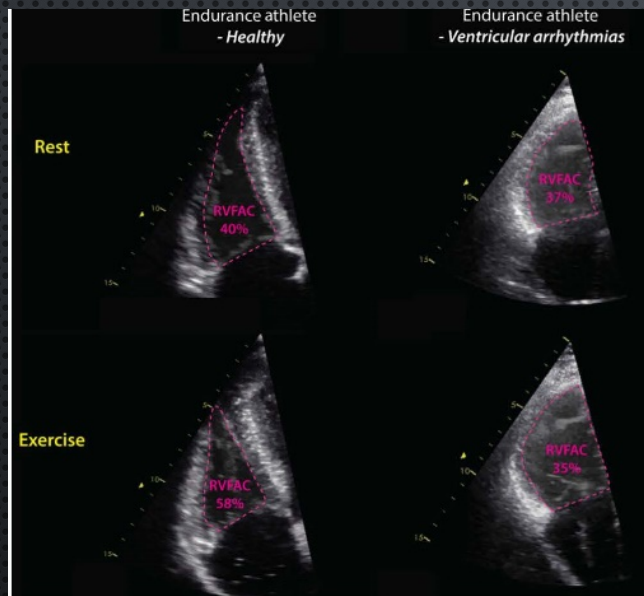


Fig. 1. Conceptual overview of the “Extreme Exercise Hypothesis.” Increasing volumes of exercise lead to a curvilinear decrease in health risks, but these health benefits may be partially lost once an individual performs exercise training beyond the optimal exercise dose.

Exercise-induced right ventricular dysfunction is associated with ventricular arrhythmias in endurance athletes

Andre La Gerche^{1,2,3,*}, Guido Claessen^{1†}, Steven Dymarkowski⁴, Jens-Uwe Voigt¹, Frederik De Buck⁵, Luc Vanhees⁶, Walter Droogne¹, Johan Van Cleemput¹, Piet Claus⁷, and Hein Heidbuchel⁸



Subjects

Endurance athletes with ventricular arrhythmias were recruited from an existing cohort at our institution in addition to new cases presenting over 36 months. The following inclusion criteria had to be fulfilled: (i) current or previous participation in competitive sport and an intensive exercise training regime (at least 3×2 h per week); (ii) RV arrhythmias excluding idiopathic RVOT-VT, required to have a monomorphic left bundle branch block morphology (a) sustained or (b) non-sustained for ≥ 3 beats at a rate of ≥ 120 b.p.m., or (c) frequent isolated premature ventricular beats ≥ 2000 /day. Athletes were included if the heart appeared morphologically normal or had appearances consistent with 'athlete's heart', which was considered to include mild structural or functional abnormalities of the RV given that such changes have previously been described in healthy endurance athletes.^{5,7,11} Many of the

We have developed evidence supporting a hypothesis that the RV may be an 'Achilles' heel' of the endurance athlete's heart. While the LV remains relatively unaffected, the RV has to withstand a disproportionate haemodynamic load during intense exercise⁵

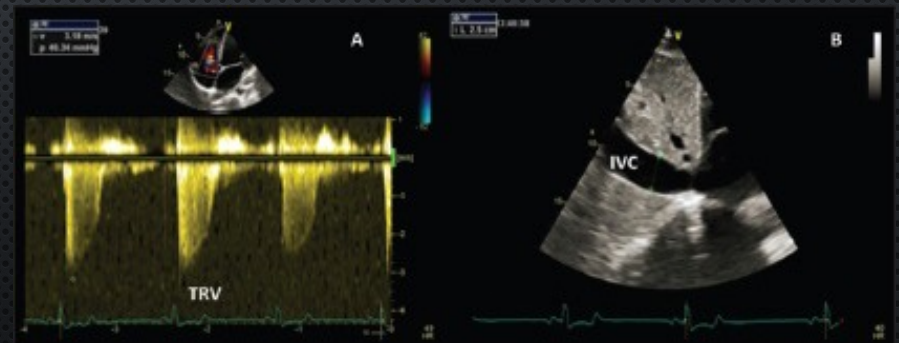
- La capacità del sistema polmonare ad adattarsi all'aumento della portata risulta un elemento critico. Lewis et al hanno osservato un aumento di 1.5mmHg nella pressione polmonare media per ogni lt di aumento della portata.

Un aumento della portata di 30lt/min determinerà dei valori di PAP di 50mmHg cioè almeno 3 volte i valori normali.

Anche l'aumento di stress di parete del VD risulta maggiore del VS durante esercizio : 125% vs 14%

Si potrebbe arguire che lo stress, il lavoro e le richieste metaboliche del VD durante esercizio siano relativamente molto più grandi rispetto a quelle del VS.

La massa del VD è circa 1/4 di quella del VS



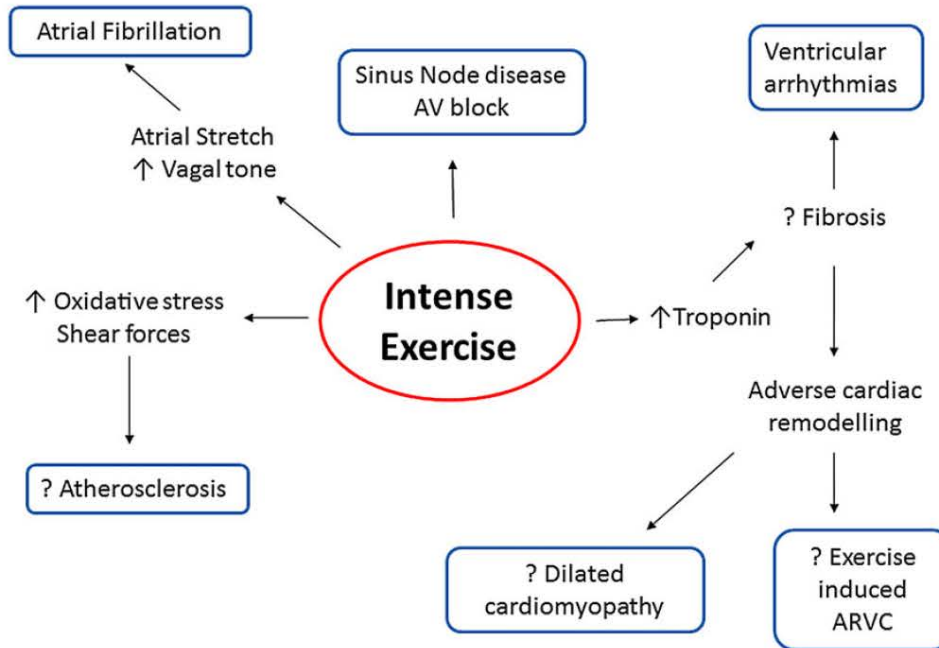


Figure 6 Speculated mechanisms for the detrimental effects of exercise. ARVC, arrhythmogenic right ventricular cardiomyopathy; AV, atrioventricular; DCM, dilated cardiomyopathy.

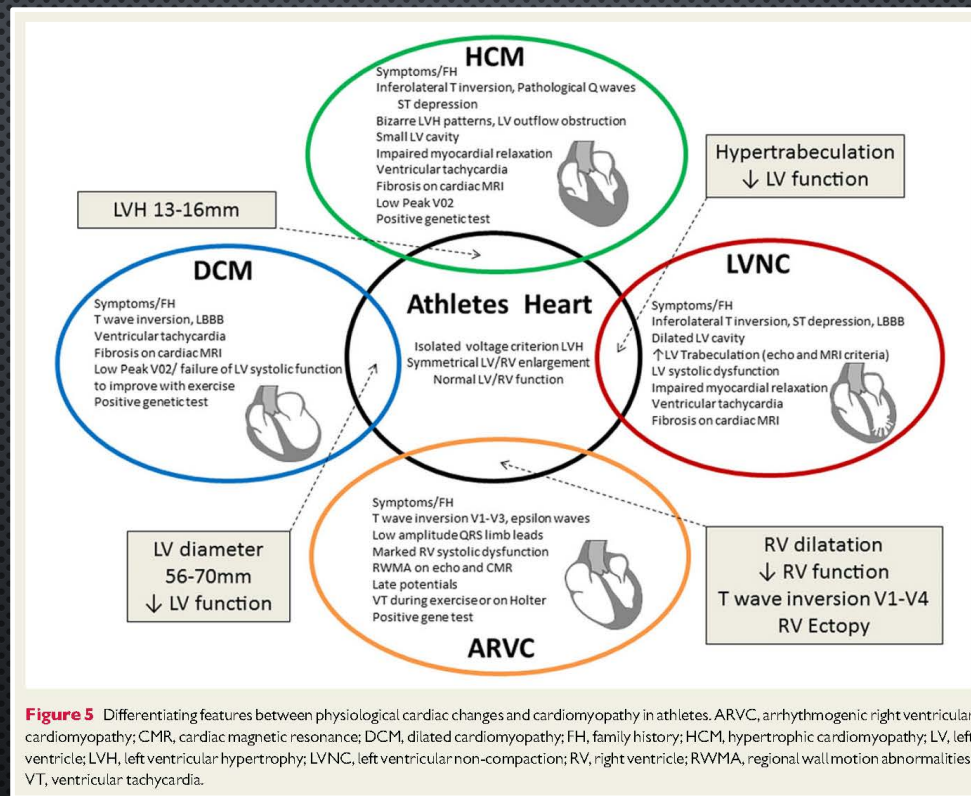
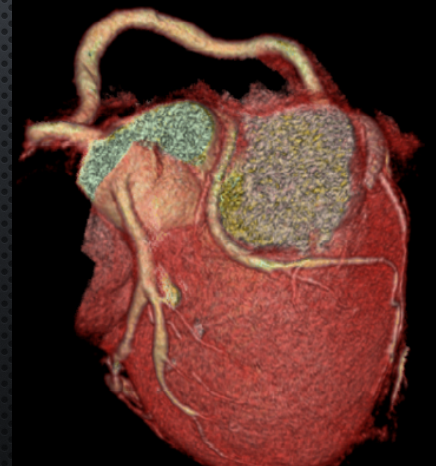
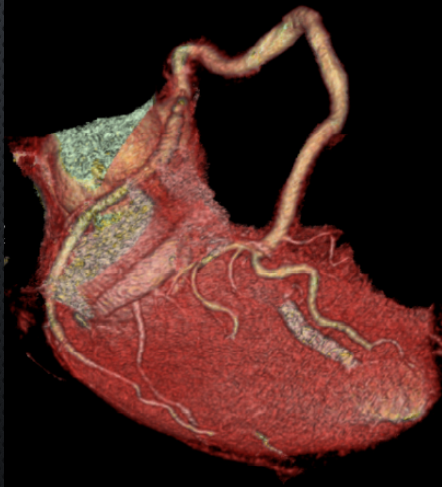
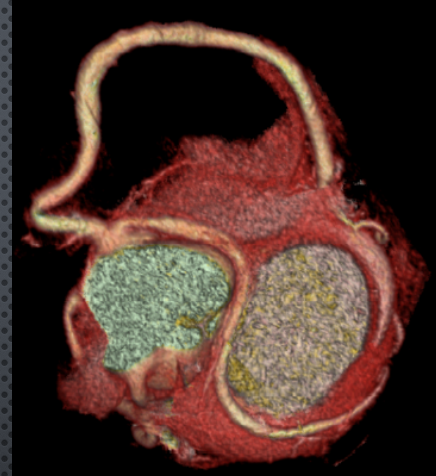
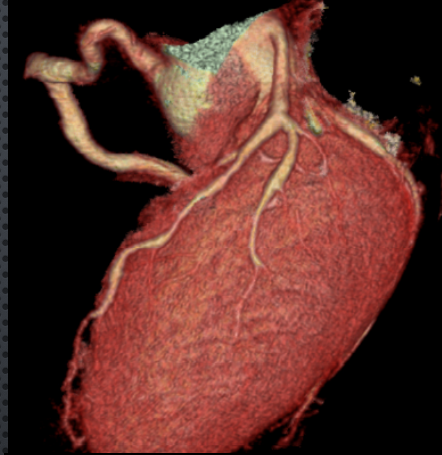


Figure 5 Differentiating features between physiological cardiac changes and cardiomyopathy in athletes. ARVC, arrhythmogenic right ventricular cardiomyopathy; CMR, cardiac magnetic resonance; DCM, dilated cardiomyopathy; FH, family history; HCM, hypertrophic cardiomyopathy; LV, left ventricle; LVH, left ventricular hypertrophy; LVNC, left ventricular non-compaction; RV, right ventricle; RWMA, regional wall motion abnormalities; VT, ventricular tachycardia.

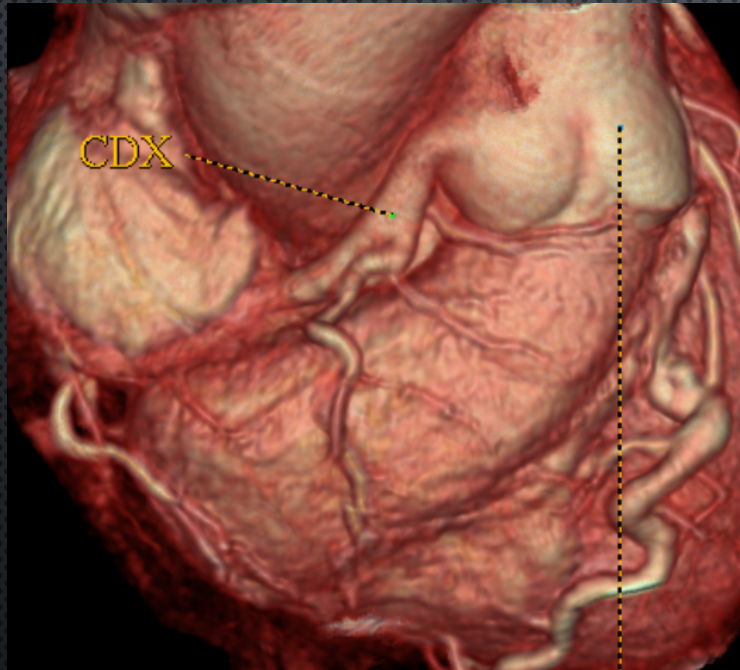
Angio TC coronarica



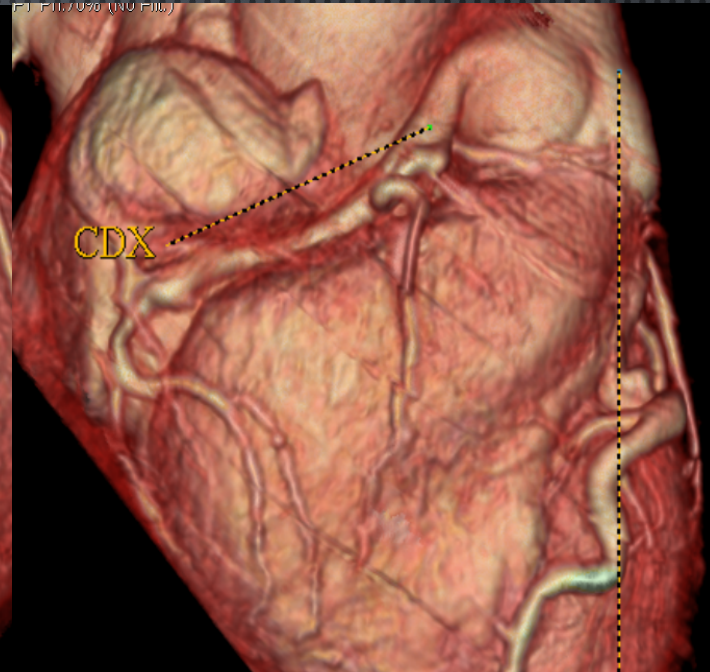
Origine arteria circonflessa dalla coronaria destra



Origine coronaria destra dall'arteria polmonare



Art. polmonare

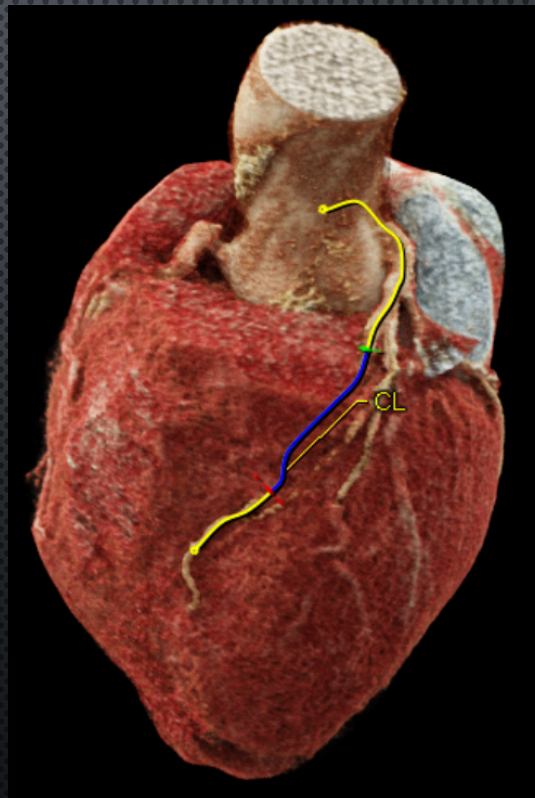


Art. polmonare

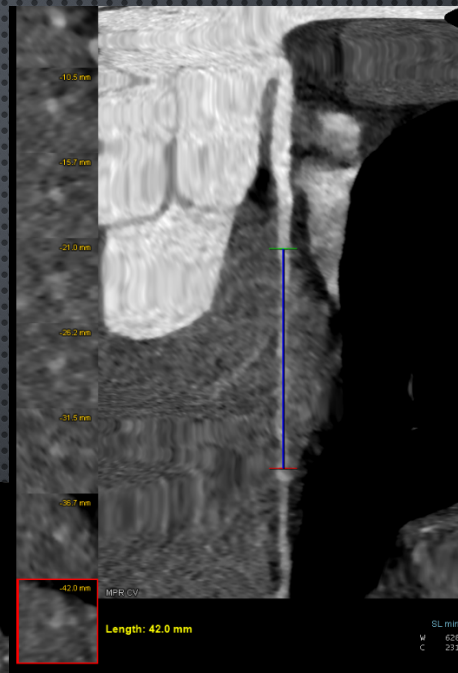
Esposizione Rx 1 millisievert

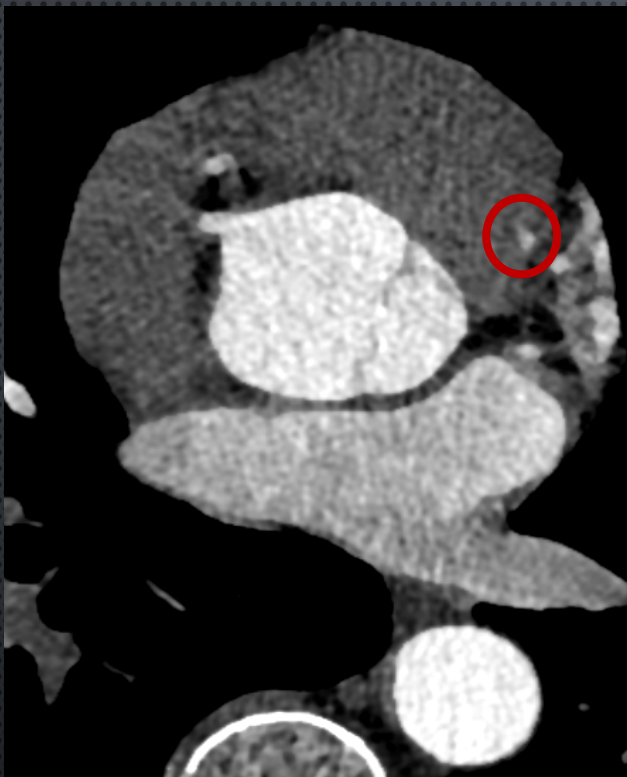


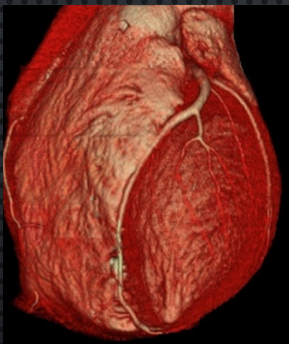




LAD







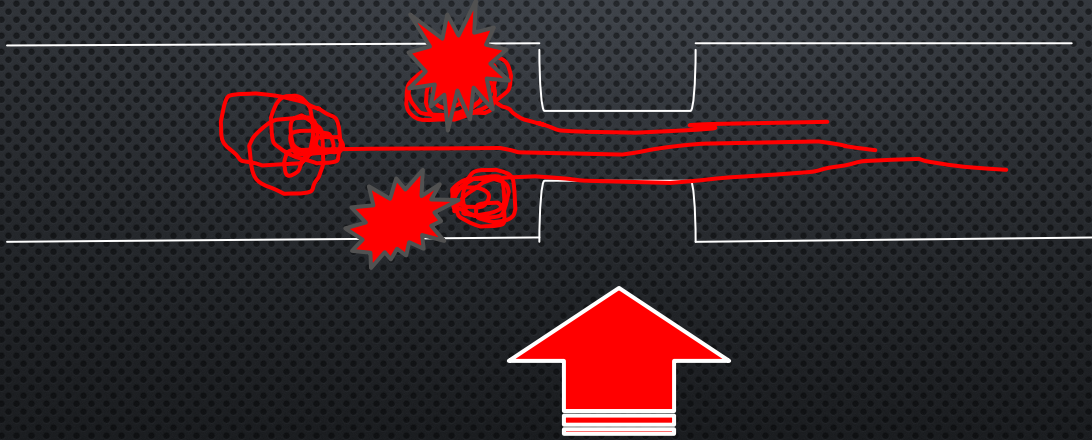
Nicolò Schicchi

*Dipartimento di Scienze Radiologiche
S.O.D. Radiologia Pediatrica e Specialistica
Direttore: Prof. A. Giovagnoni
Azienda Ospedaliero Universitaria
Ospedali Riuniti di Ancona*

Cardio-TC Atleta professionista :
Ponte muscolare miocardico
completo su IVA media

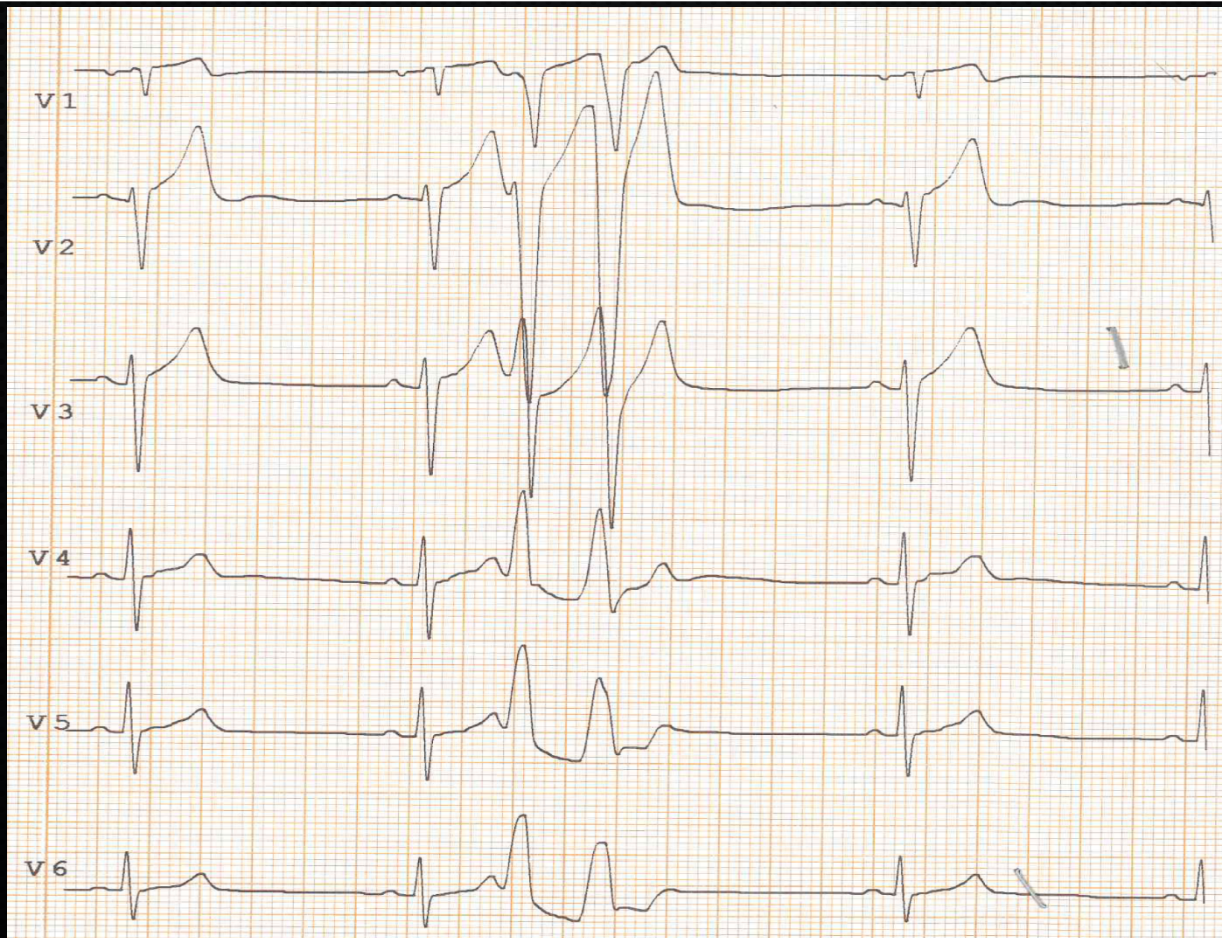
Formazione di placca su ponte miocardico

Effetto Venturi



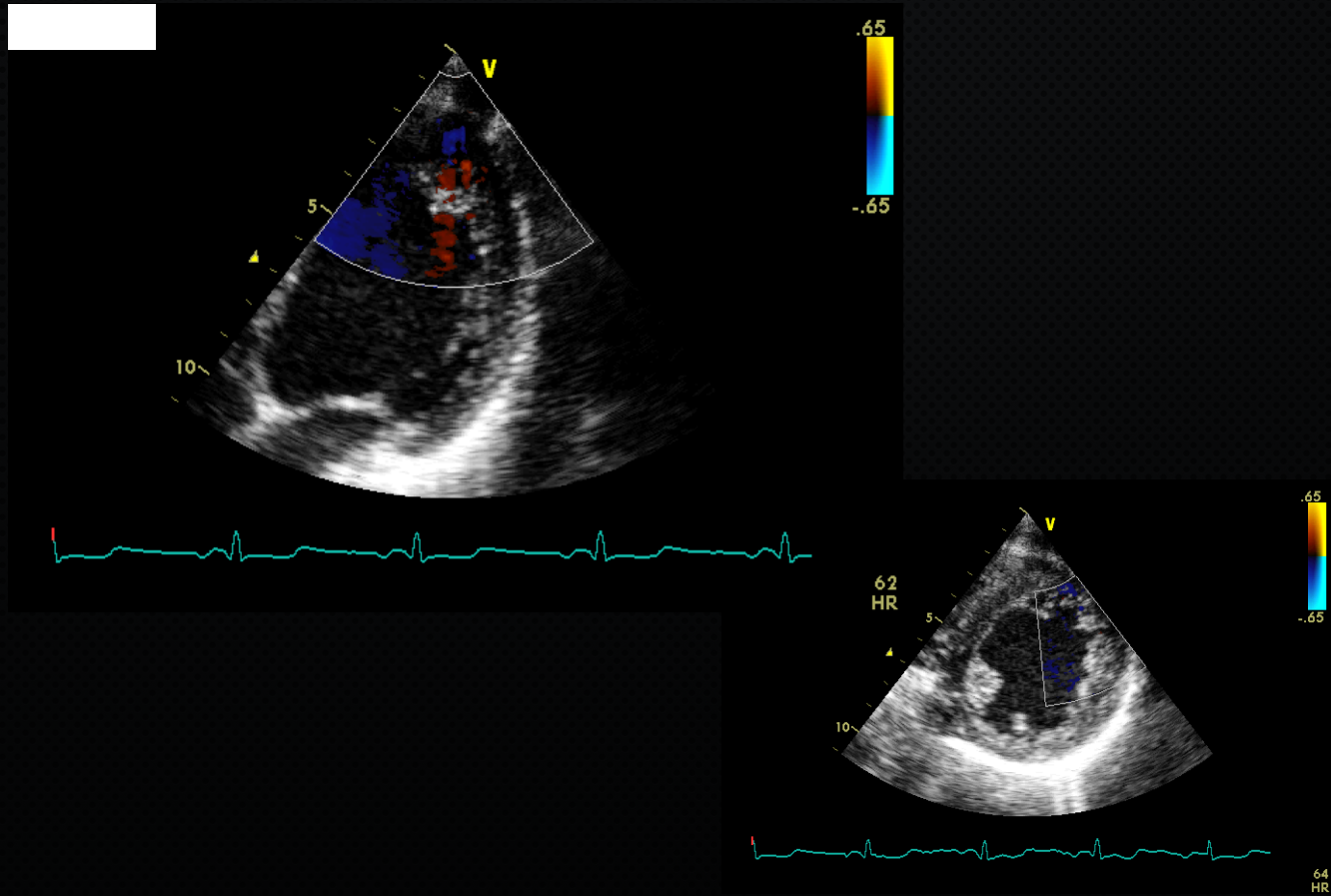
Affondamento della coronaria nel muscolo cardiaco

ECG all'ingresso



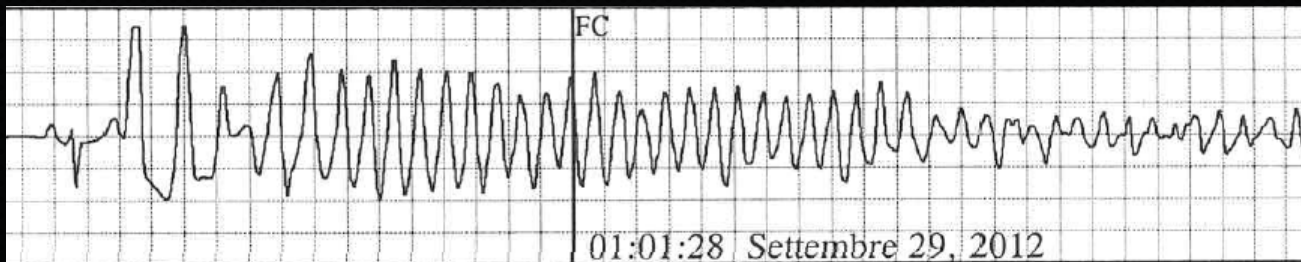
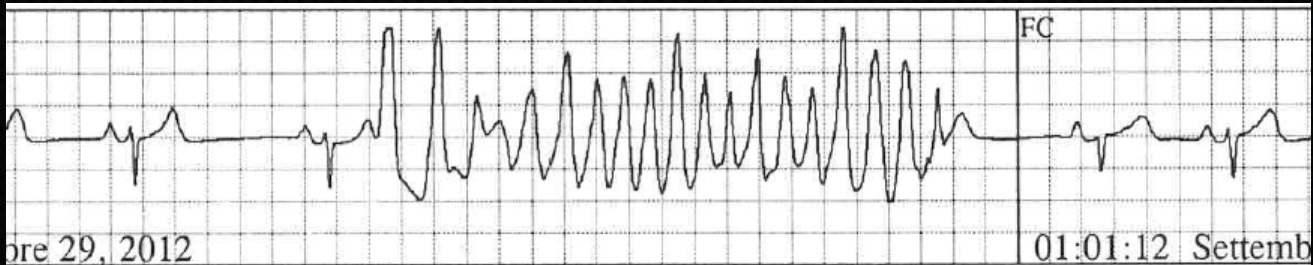
28 settembre

Ecocardiogramma



28 settembre

...la notte dell'ingresso



29 settembre

Risonanza magnetica



2 ottobre



SPORTV

FUTEBOL DE
PRIMEIRA

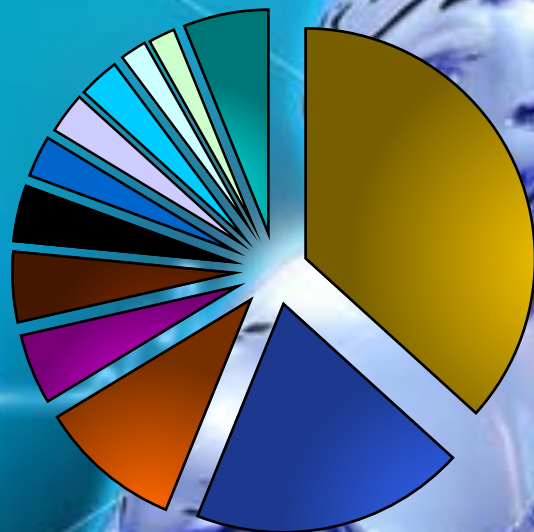
Domingos Gomes

Médico UEFA

(Ao telefone)

DEIXEMOS
FIEIS PA
DESISTI

Morte improvvisa atleti <35 aa



- CMPI
- Anom. Coron.
- Masse
- Rottura AO
- Ponte Mioc
- Stenosi AO
- Miocardite
- CMPD
- DAVD
- MVP
- CAD
- Altro



atleti <35 aa (Veneto 1979-1996)



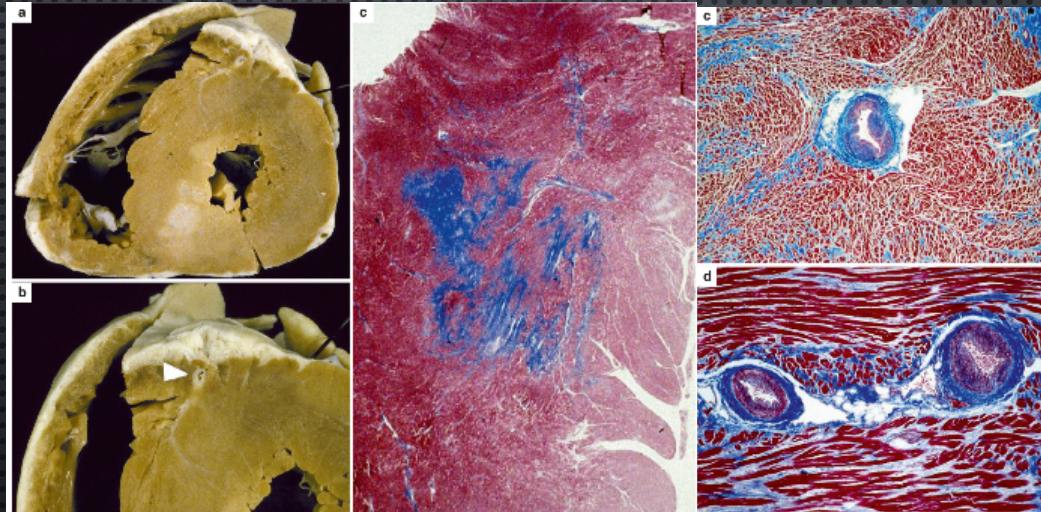
- CMPI
- Anom. Coron
- Emb. Polm
- Rottura AO
- Ponte Mioc
- Sist. Conduz.
- Miocardite
- CMPD
- DAVD
- MVP
- CAD
- Altro



MORTE IMPROVVISA

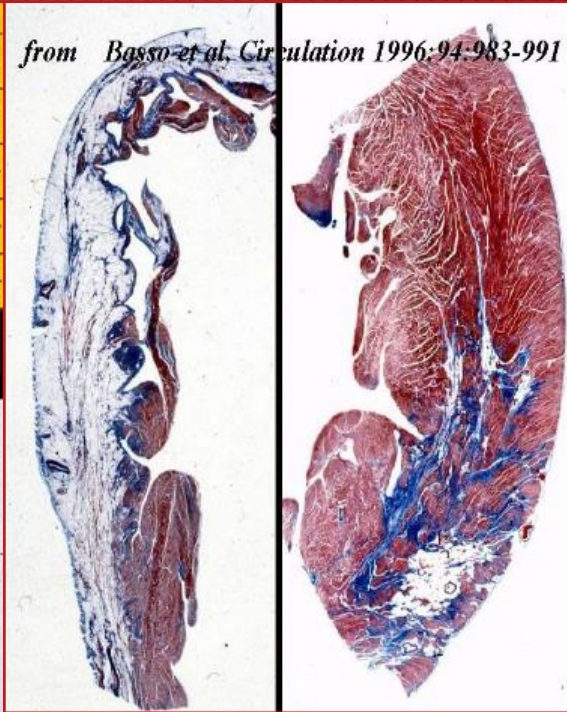
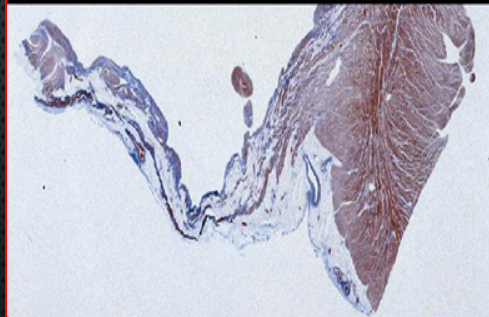
CORRADO ET AL NEJM 1998; 339:336-369

PATHOLOGY OF HCM

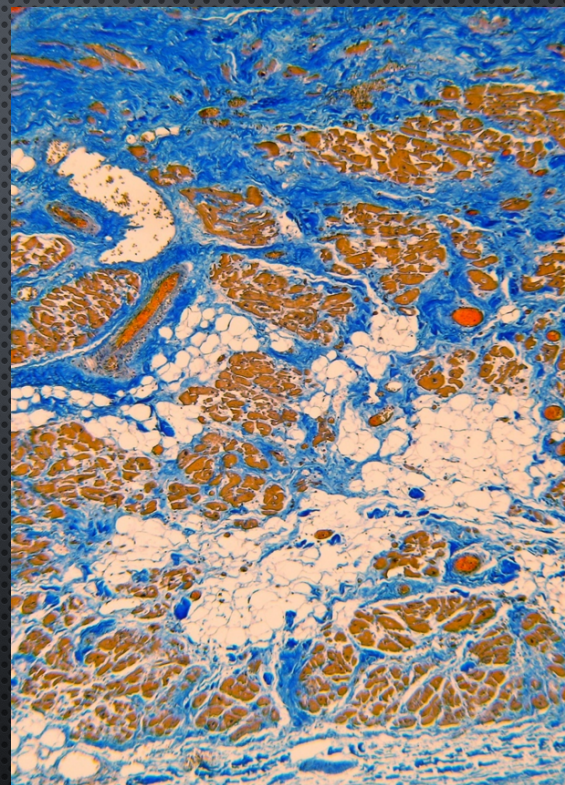




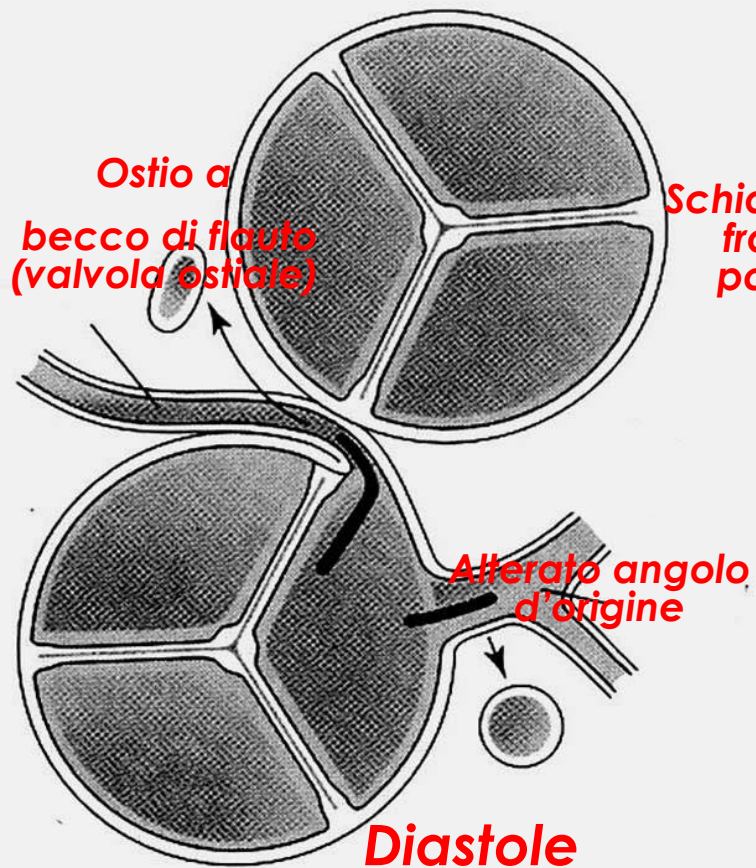
from Basso et al, *Circulation* 1996;94:983-991



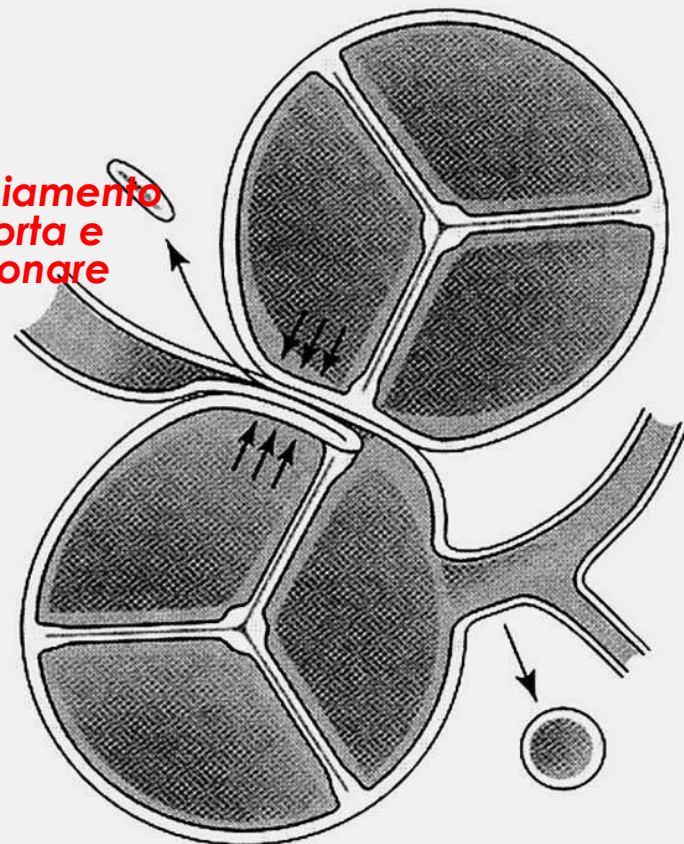
from Basso et al, *Circulation* 1996;94:983-991



CM aritmogena
dominante sinistra

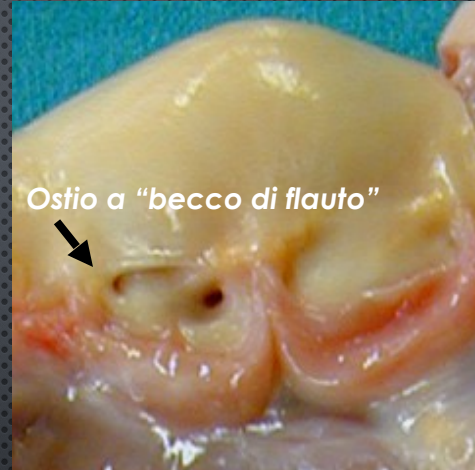
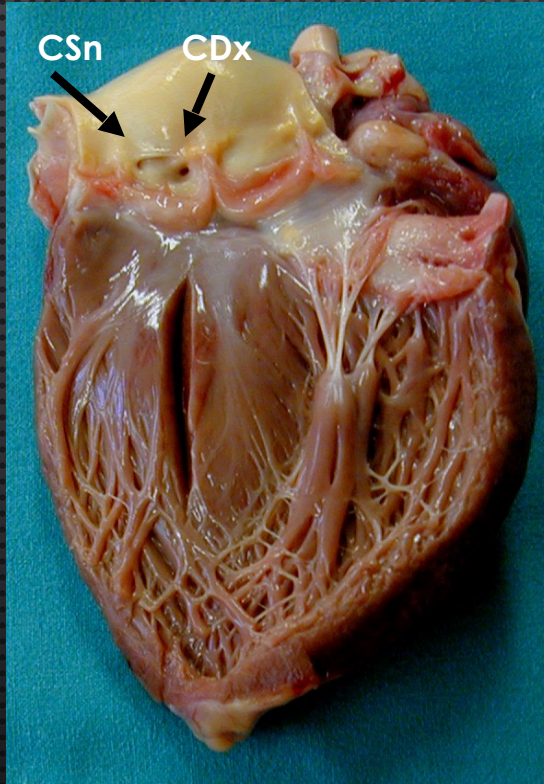


Schiacciamento
fra aorta e
polmonare





The Coronary is stretched by
the increased Aortic pressure



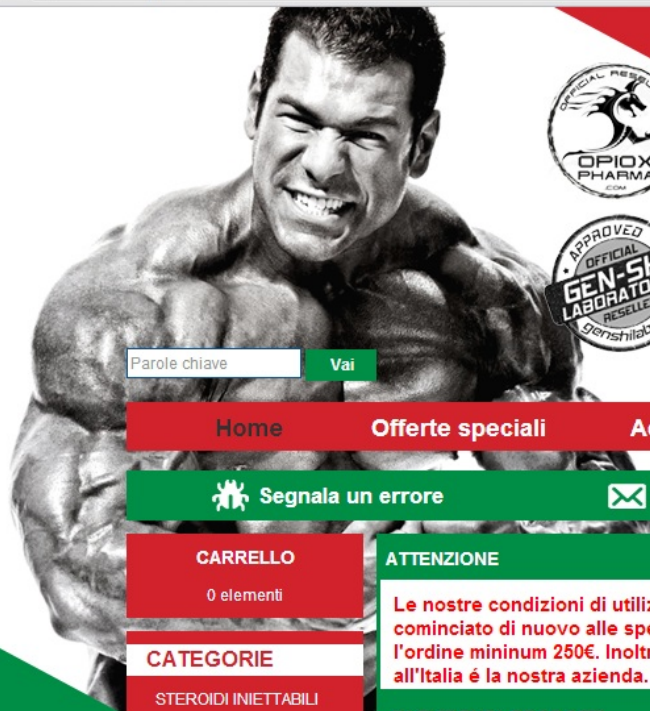
*Bambina di 12 aa.,
deceduta a scuola dopo
l'ora d'educazione fisica*

**Origine Coronaria Sn
dal seno di Valsalva
DX**

I RISULTATI DELLA STRATEGIA ITALIANA

Annual Incidence Rates of Sudden Cardiovascular Death in Screened Competitive Athletes and Unscreened Nonathletes Aged 12 to 35 Years in the Veneto Region of Italy (1979-2004)
Corrado et al JAMA 2006;296:1593-1601





Ciao Cari clienti, Benvenuti nel mondo di steroidi anabolizzanti. Potete trovare oltre 100 tipi diversi marchi ben noti di steroidi anabolizzanti nel nostro negozio online: ciclo Post terapia con farmaci, bruciatori grassi, steroidi iniettabili e compressa e così via. Siamo rivenditori autorizzati di Gen-shi laboratori, Generics Pharma. Inoltre, tutti gli altri farmaci sono originali prodotti farmacia di molti paesi. Offriamo consegna garantita al 100% Regno Unito entro 5-6 giorni o solo 3 giorni dalla spedizione Express scelta Non esiste ordine minimo nel nostro negozio on-line. Ci sono prezzi convenienti, discrezione imballaggio e consegna rapida. Tutte le droghe sono controllate prima di andare in vendita da parte di esperti. Siamo orgogliosi di assistere a tutti i livelli, a partire da on-line steroidi shopping e terminando con il ricevimento del vostro ordine, nonché effettuare il risultato sognato. Non esitate a convincere te stesso di questo e si sentono liberi di contattarci per eventuali domande. Il nostro servizio di assistenza clienti è ansioso di aiutare voi 24/7. Non hai bisogno di fare alcuna prescrizione acquistare da noi. Sono previsti sconti per grandi acquisti. Buona fortuna!

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0 elementi

CATEGORIE[STEROIDI INIETTABILI](#)[ORALE STEROIDI
ANABOLIZZANTI](#)[ESEMPIO CICLI](#)[BRUCIATORI DI GRASSO](#)[FINE DEL CICLO DI
TERAPIA](#)**ATTENZIONE**

Le nostre condizioni di utilizzo sono cambiate. Pima di ordinare assolutamente leggete queste. Abbiamo cominciato di nuovo alle spedizioni. Ma le nostre condizioni della vendita' sono cambiate. Accettiamo l'ordine mininum 250€. Inoltre la spese del corriere é fisso 50€. Adesso l'unica azienda che puo' servire all'Italia é la nostra azienda. Grazie per il vostro rapporto.

IN EVIDENZA PRODOTTI

35,00€

nuova



30,00€

nuova



0,00€

nuova



10,00€

STORIA DEL DOPING



- diete ricche di carne
- pozioni ricavate dai funghi
- unguenti e semi di sesamo
- testicoli di toro



“bevanda preparata con una miscela composta dal sudore dei colleghi risultati vincitori negli incontri del giorno precedente e dalla sabbia del campo da gioco che aveva accolto il sangue dei vinti”

STORIA DEL DOPING



Maratona Olimpiadi St. Louis 1904

1° arrivato: Frederick Lorz



Squalificatosi per aver preso parte della corsa
nell'auto del manager

STORIA DEL DOPING



Maratona Olimpiadi St. Louis 1904

2° arrivato e vincitore: Thomas Hicks



Più volte sul punto di ritirarsi, il proprio allenatore lo aiutò in gara con brandy, uova e 2 iniezioni di stricnina.

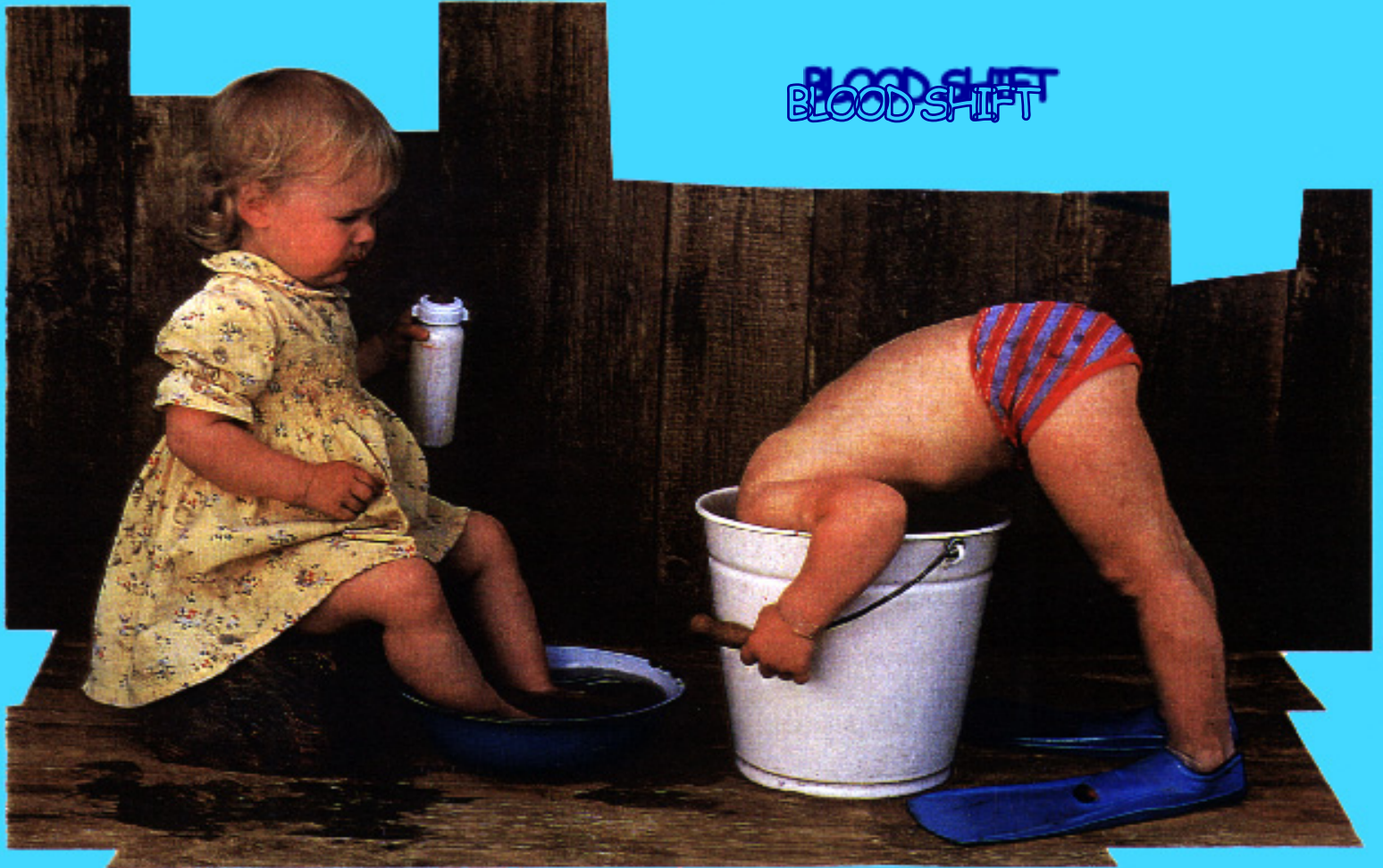
AMFETAMINE E STIMOLANTI AD AZIONE SIMILE

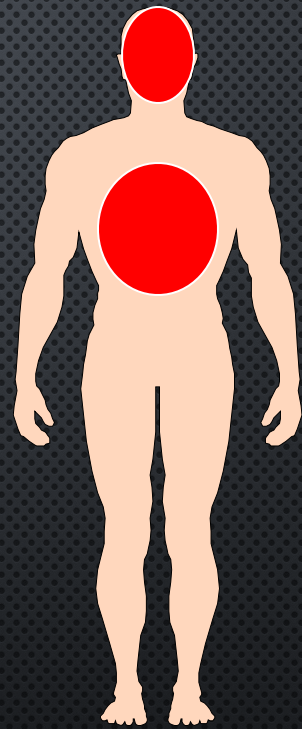
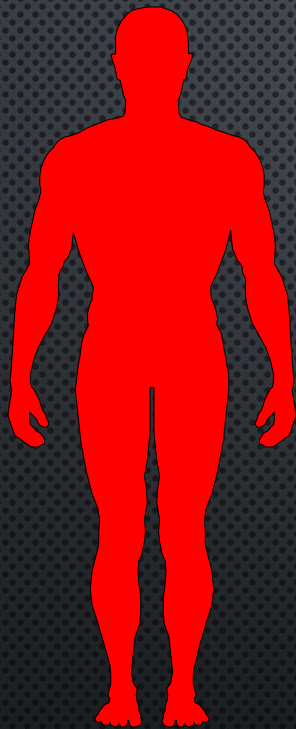


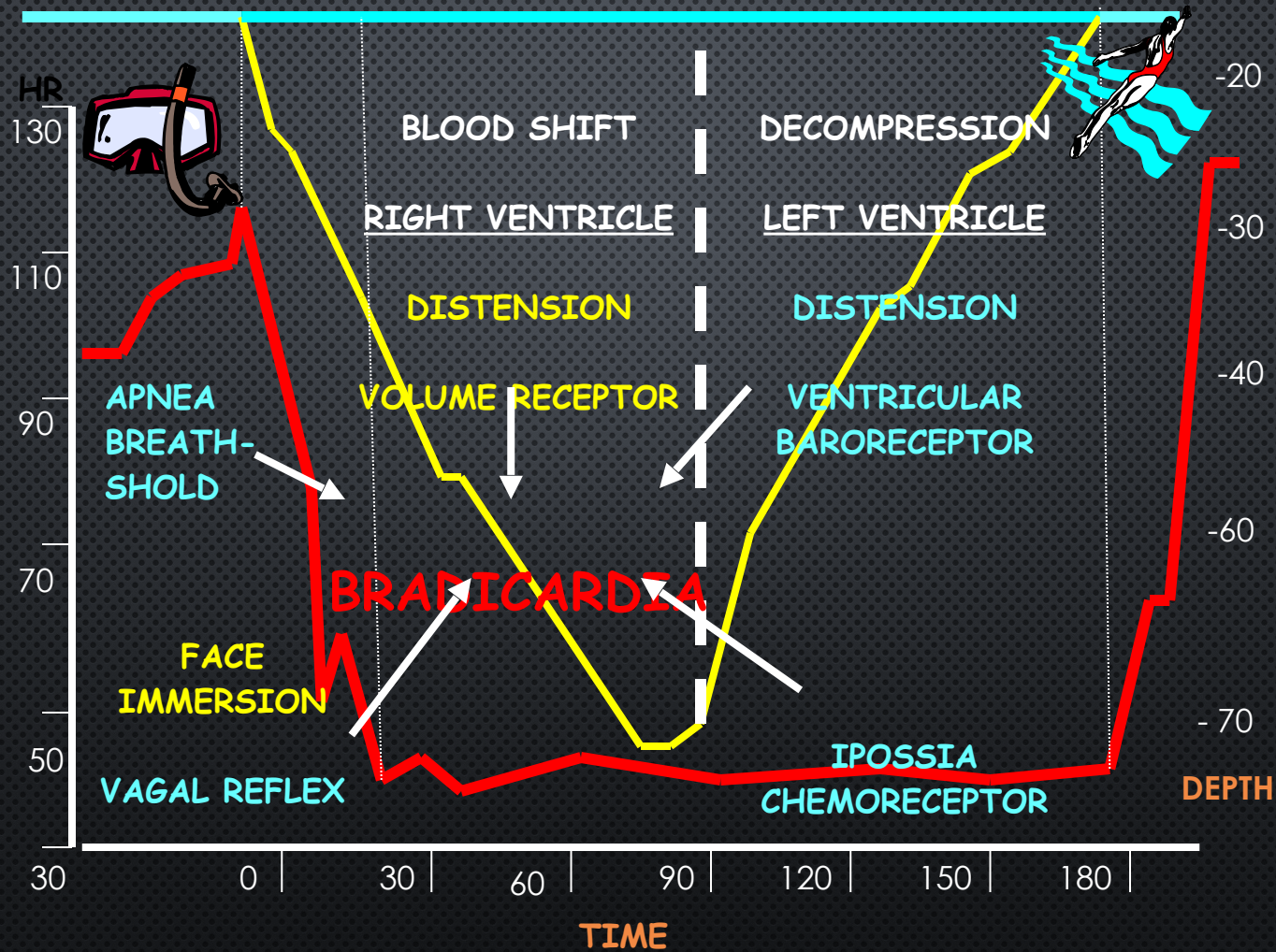
Amfetamine
nella tasca posteriore
della maglia



BLOOD SHIFT









EFFETTI CARDIOVASCOLARI

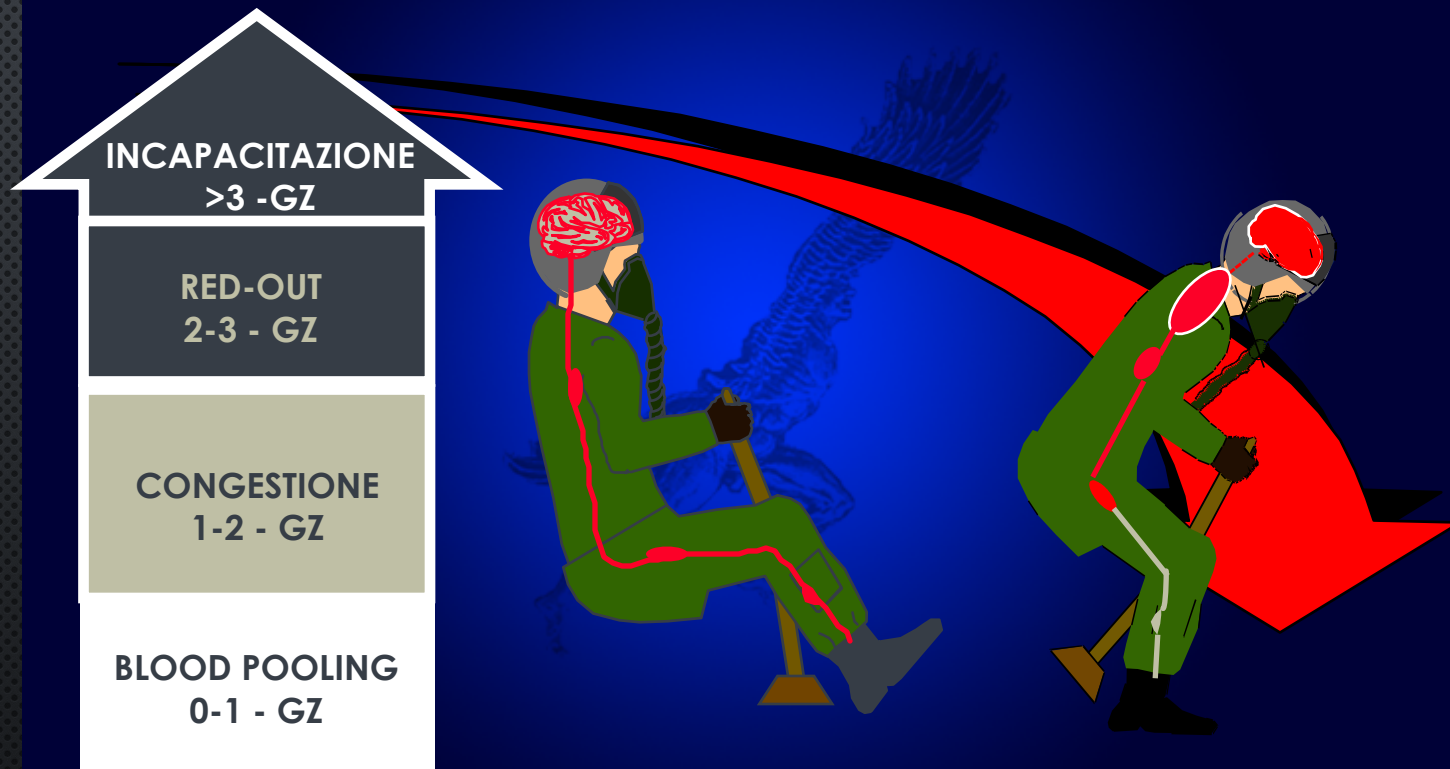
- AUMENTO DEL GRADIENTE IDROSTATICO
- RIDUZIONE DELLA PERFUSIONE CEREBRALE
- POOLING EMATICO PERIFERICO
- ARITMIE



EFFETTI CARDIOVASCOLARI



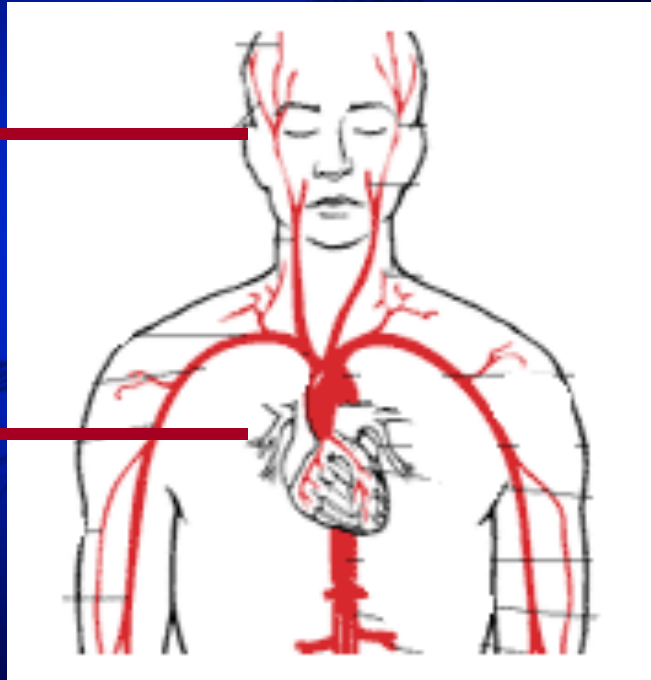
EFFETTI CARDIOVASCOLARI



EFFETTI CARDIOVASCOLARI

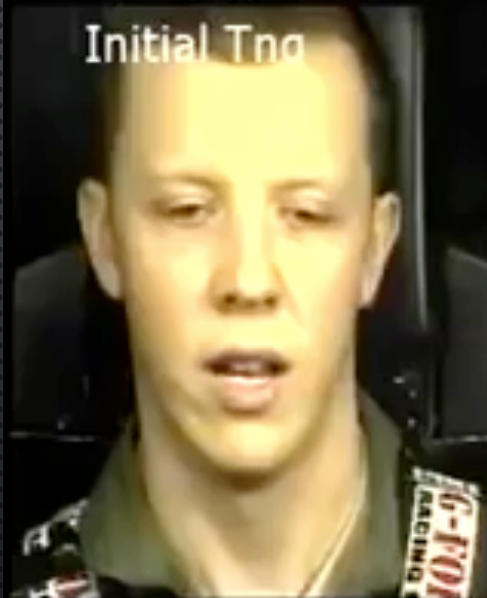
@ 1G
 $\Delta P = 22 \text{ mmHg}$

$P = h\rho G$





G= 1.57
Initial Tno



07-01-16 10:21:10







Gordon Cooper – Mercury 9, 1963



".....Standing on the deck for 1 min., the pilot began to look pale and new beads of perspiration appeared on his forehead.....symptoms of impending loss of consciousness, dimming of vision, tingling of his feet and leg"

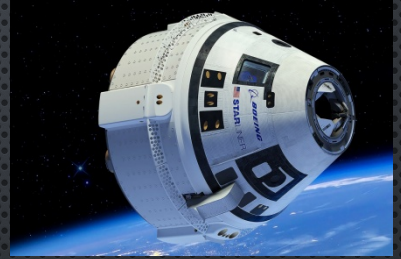
Soyuz TMA



Space X



Boeing

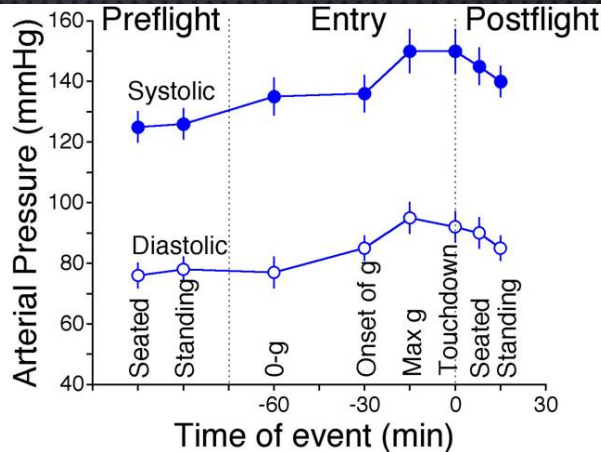
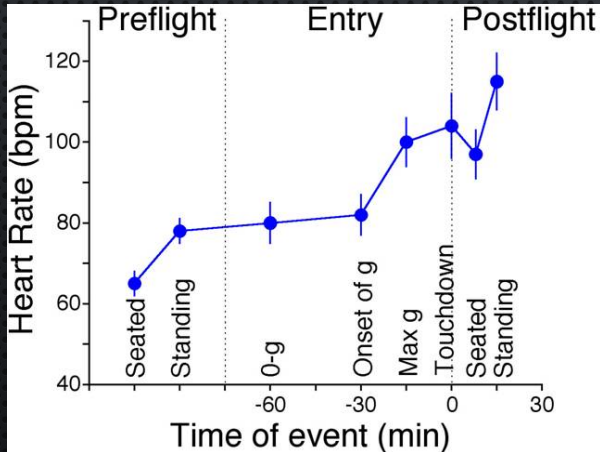


POST FLIGHT ORTHOSTATIC INTOLERANCE

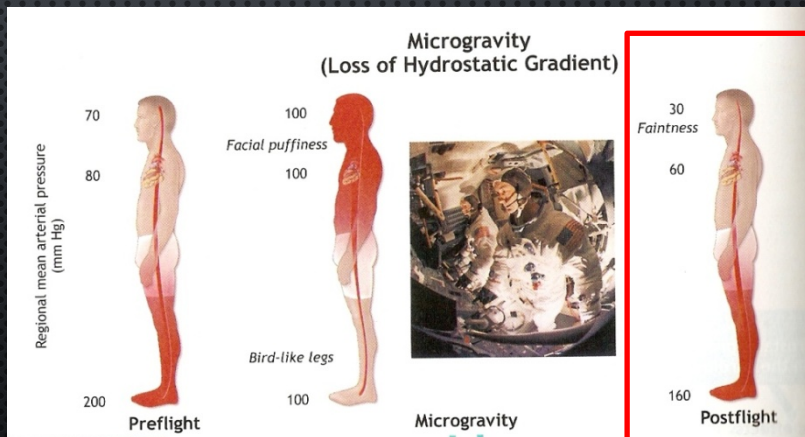


80% of astronauts experience orthostatic intolerance after long-duration spaceflight

Marked Exacerbation of Orthostatic Intolerance after Long- vs. Short-Duration Spaceflight in Veteran Astronauts. *Psychosom. Med.* **2001**, 63, 865–873.

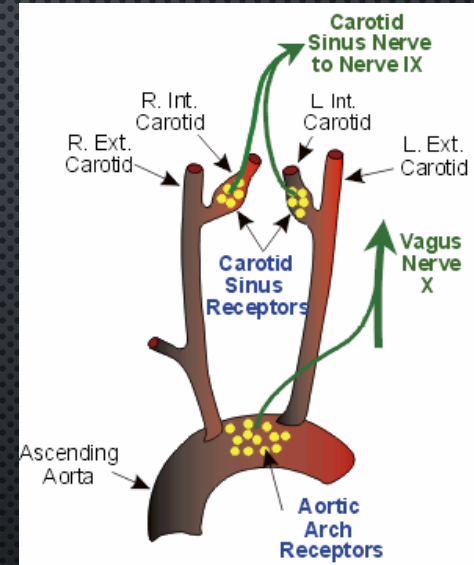


LANDING



POST-FLIGHT ORTHOSTATIC INTOLERANCE

- Deconditioning of baroreceptor that responds to a higher change in carotid distension pressure
- Hypovolemia (decrease of SV)
- Decrease in physical strength (muscle atrophy)



RUSSIAN COUNTERMEASURES

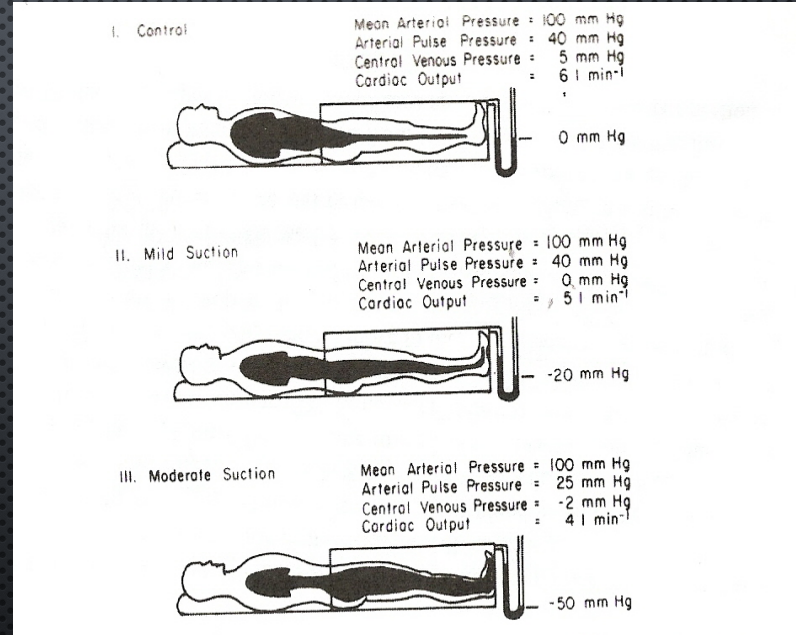
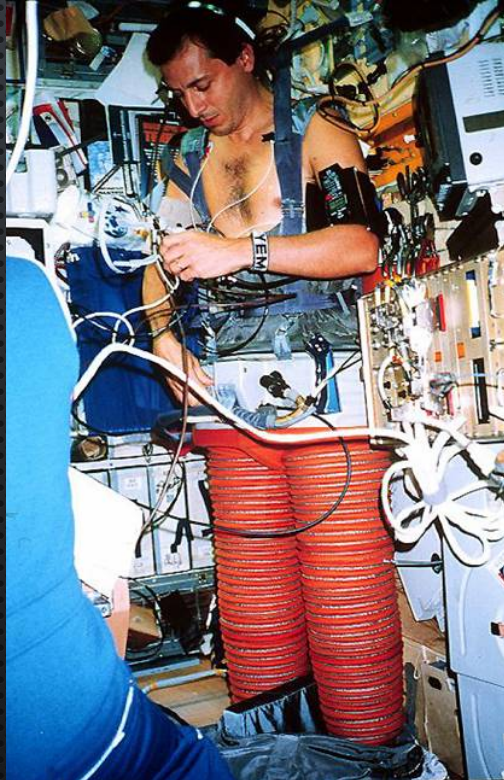


Penguin Suit



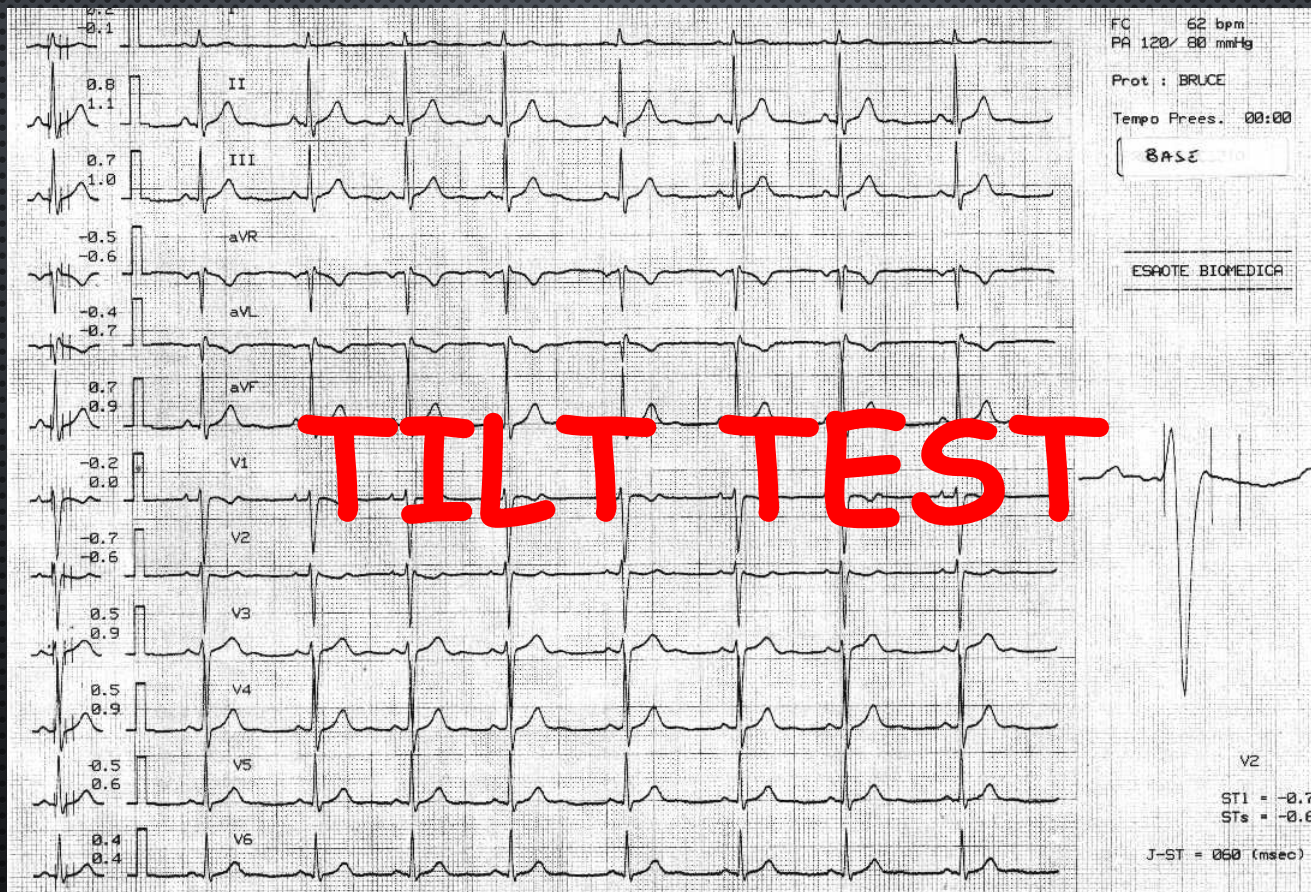
Kentavir

RUSSIAN COUNTERMEASURES



Lower Body Negative Pressure

MODIFICAZIONI ECG E SINCOPE NELLO SPORTIVO



MOSCA SIMONE
94

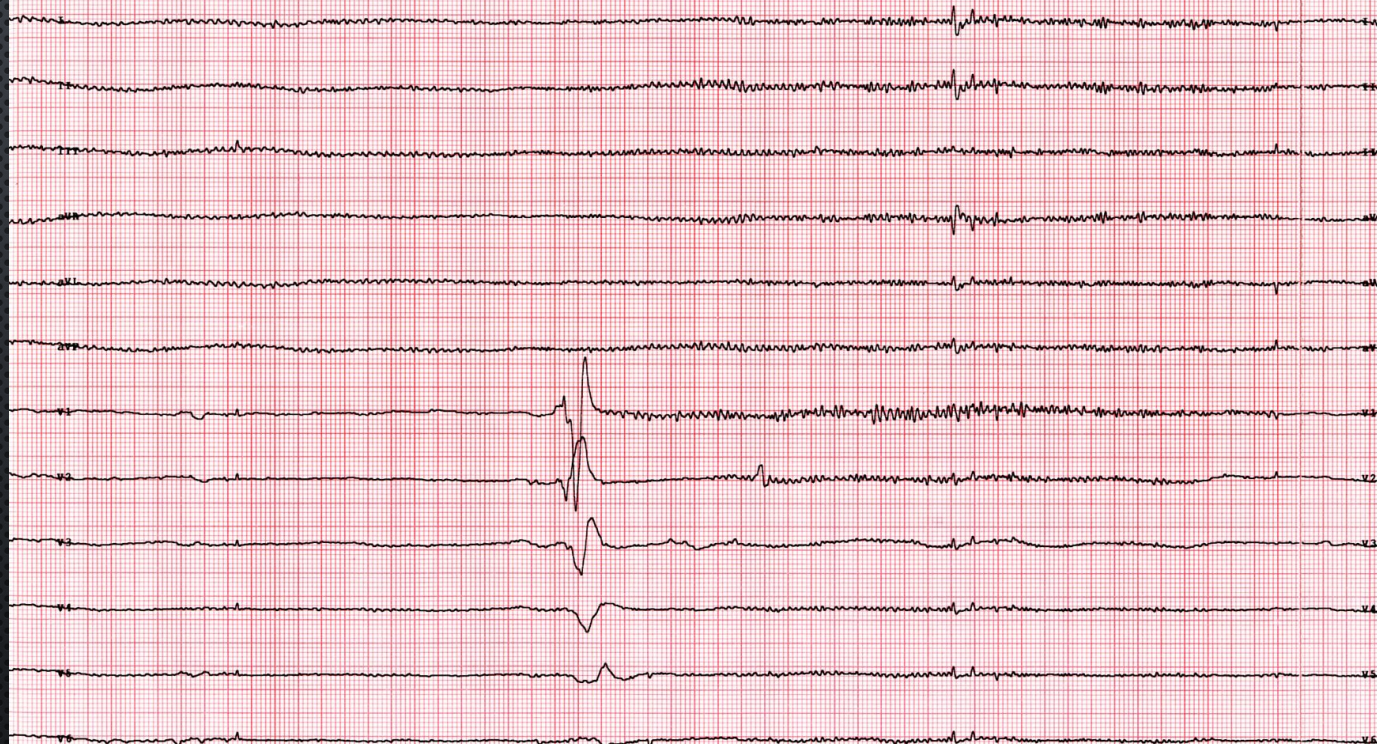
Step 2

tempo step 03:00
tempo totale 08:07

FC (bpm) 26
PA (mmHg) 120/90
DP+100 31

(watt) 0

MOSCA
94



94

tempo step 0.3 - 1.2

tempo step 0.3 - 1.2

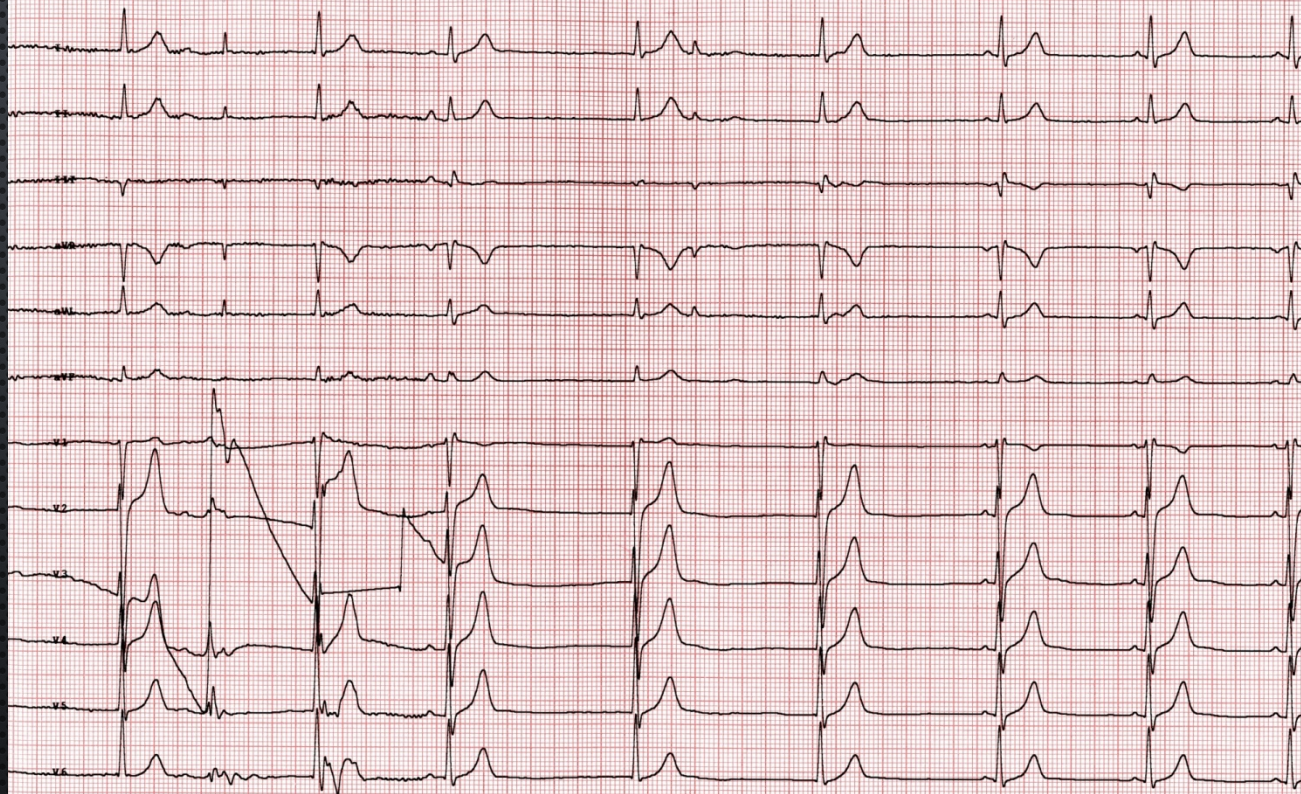
tempo totale 08:18

FC (bpm) 18

PA (mmHg) 120/90

DP* 100 21

(watt) 0





GRAZIE PER L'ATTENZIONE

