



**4° CONVEGNO**  
anticoagulazione.it  
Attualità cliniche e di laboratorio.  
Aspetti sociali

**7-8 FEBBRAIO 2019**  
BOLOGNA Hotel Savoia Regency

EVENTO PROMOSSO DA  **arianna**  
ANTICOAGULAZIONE

IN COLLABORAZIONE CON  **ASSOCIAZIONE ITALIANA PAZIENTI ANTICOAGULATI BOLOGNA**

EVENTO SENZA FINI DI LUCRO

**Sono un maschio di 35 anni e ho sempre fatto molta attività sportiva, talvolta anche agonistica. Quattro mesi fa ho avuto trombosi con embolia polmonare e sono in cura con Xarelto. Quando e in che modo posso riprendere l'attività fisica?**

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## Trombo-embolismo venoso e sport agonistico

- **Rischio emorragico della terapia anticoagulante**
- **Sindrome post-trombotica**
- **Performance cardio-vascolare**

Outcome	Rivaroxaban	Standard Therapy	Hazard Ratio (95% CI) <sup>a</sup>	P Value
<b>Efficacy</b>				
Intention-to-treat population — no. of patients	2419	2413		
Recurrent venous thromboembolism — no. (%)	50 (2.1)	44 (1.8)	1.12 (0.75–1.68)	0.003 <sup>†</sup>
Type of first recurrent venous thromboembolism — no.				
Fatal pulmonary embolism	2	1		
Death in which pulmonary embolism could not be ruled out	8	5		
Nonfatal pulmonary embolism	22	19		
Recurrent deep-vein thrombosis plus pulmonary embolism	0	2		
Recurrent deep-vein thrombosis	18	17		
Net clinical benefit: venous thromboembolism plus major bleeding — no. (%) <sup>‡</sup>	83 (3.4)	96 (4.0)	0.85 (0.63–1.14)	0.28
<b>Safety</b>				
No. of patients	2412	2405		
First episode of major or clinically relevant nonmajor bleeding during treatment — no. (%)	249 (10.3)	274 (11.4)	0.90 (0.76–1.07)	0.23
Major bleeding episode — no. (%)				
Any	26 (1.1)	52 (2.2)	0.49 (0.31–0.79)	0.003
Fatal	2 (<0.1)	3 (0.1)		
Retroperitoneal	0	1 (<0.1)		
Intracranial	2 (<0.1)	2 (<0.1)		
Other nonfatal episode in a critical site <sup>§</sup>	7 (0.3)	26 (1.1)		
Intracranial	1 (<0.1)	10 (0.4)		
Retroperitoneal	1 (<0.1)	7 (0.3)		
Intraocular	2 (<0.1)	2 (<0.1)		
Pericardial	0	2 (<0.1)		
Intraarticular	0	3 (0.1)		
Adrenal gland	1 (<0.1)	0		
Hemothorax	1 (<0.1)	1 (<0.1)		
Intraabdominal with hemodynamic instability	1 (<0.1)	2 (<0.1)		
Associated with a fall in hemoglobin of $\geq 2$ g/dl, transfusion of $\geq 2$ units, or both	17 (0.7)	26 (1.1)		

**TABLE 1 Classification of Sports According to Contact**

Contact	Limited-Contact	Noncontact
Basketball	Adventure racing <sup>a</sup>	Badminton
Boxing <sup>b</sup>	Baseball	Bodybuilding <sup>c</sup>
Cheerleading	Bicycling	Bowling
Diving	Canoeing or kayaking (white water)	Canoeing or kayaking (flat water)
Extreme sports <sup>d</sup>	Fencing	Crew or rowing
Field hockey	Field events	Curling
Football, tackle	High jump	Dance
Gymnastics	Pole vault	Field events
Ice hockey <sup>e</sup>	Floor hockey	Discus
Lacrosse	Football, flag or touch	Javelin
Martial arts <sup>f</sup>	Handball	Shot-put
Rodeo	Horseback riding	Golf
Rugby	Martial arts <sup>f</sup>	Orienteering <sup>g</sup>
Skiing, downhill	Racquetball	Power lifting <sup>c</sup>
Ski jumping	Skating	Race walking
Snowboarding	Ice	Riflery
Soccer	In-line	Rope jumping
Team handball	Roller	Running
Ultimate Frisbee	Skiing	Sailing
Water polo	Cross-country	Scuba diving
Wrestling	Water	Swimming
	Skateboarding	Table tennis
	Softball	Tennis
	Squash	Track
	Volleyball	
	Weight lifting	
	Windsurfing or surfing	

## Sport e terapia anticoagulante

Decisione basata sulla valutazione di :



➤ **Rischio di recidiva**

(a)....., (b)....., (c) .....

➤ **Rischio di emorragia**

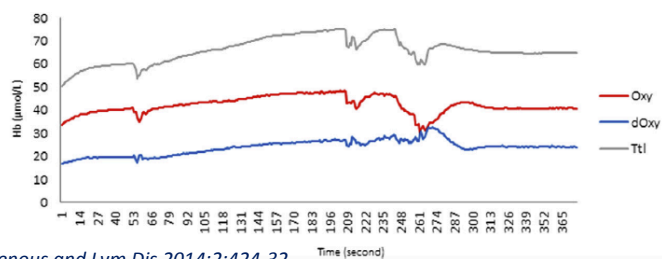
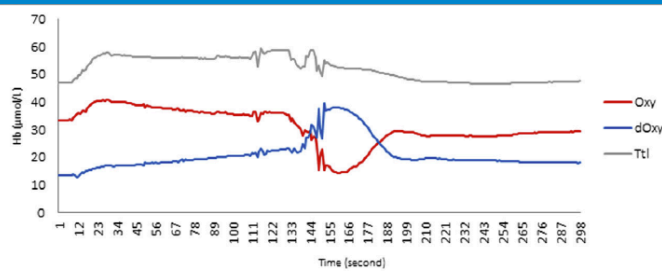
(a)....., (b)....., (c) .....

## Athletes and blood clots: individualized, intermittent anticoagulation management

- DOAC dosing can be scheduled so that the plasma drug level has fallen below the acceptable threshold (where risk of bleeding is increased only minimally or not at all) at the time of sports participation.
- Once the risk of trauma or bleeding normalizes after athletic competition, a single dose of medication quickly reestablishes therapeutic anticoagulation.

*J Thromb Haemost 2017; 15: 1051-4*

## Attività fisica e ossigenazione muscolare nei pazienti con sindrome post-trombotica



*J Vasc Surg: Venous and Lym Dis 2014;2:424-32*

J Thromb Thrombolysis (2016) 41:144–153  
DOI 10.1007/s11239-015-1312-5



## Guidance for the prevention and treatment of the post-thrombotic syndrome

Susan R. Kahn<sup>1,5</sup> · Jean-Philippe Galanaud<sup>2</sup> · Suresh Vedantham<sup>3</sup> · Jeffrey S. Ginsberg<sup>4</sup>

### **Guidance Statement**

We suggest that a supervised exercise training program consisting of leg strengthening and aerobic activity for 6 months or more is reasonable for PTS patients who can tolerate it.

60–120 minutes per week of aerobic exercise performed to within 60%–85% of maximal heart rate

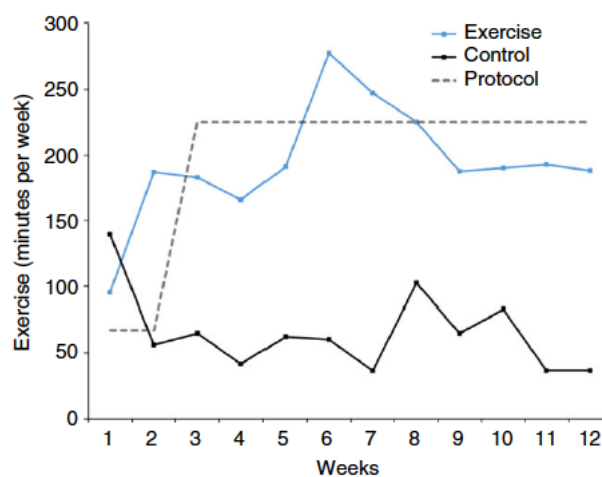
**Most research on prognosis after pulmonary embolism has focused on outcomes such as mortality and pulmonary embolism recurrence, while patient-centered outcomes such as health-related quality of life (QOL), dyspnea, and exercise capacity have been less well studied.**

## Elope cohort study

Our findings are of direct importance to patients. At baseline, average SF-36 Physical and Mental Component Summary scores in our population of pulmonary embolism patients were similar to that reported for US patients with chronic lung disease<sup>21</sup> and substantially lower than population norms for a similarly aged general Canadian adult population,<sup>18</sup> but by 1 year, average scores had improved to the level of healthy population norms.

*The American Journal of Medicine (2017) 130, 990.e9-990.e21*

## The safety and efficacy of early-initiation exercise training after acute venous thromboembolism: a randomized clinical trial



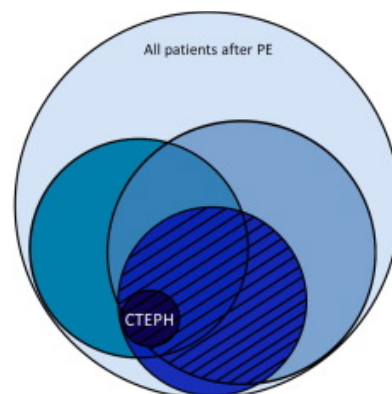
*J Thromb Haemost 2015;13: 1238-44*

## Embolia polmonare

- Pulmonary embolism (PE) has classically been regarded as a curable disease with the majority of patients expected to fully recover without any sequelae
- During the last decade several reports have revealed that up to 50% of long term PE survivors suffer from dyspnea, reduced health-related quality of life (HRQoL) and/or impaired exercise capacity, e.g. by 6-min walking test (6MWT) or cardiopulmonary exercise test

## Post-PE syndrome

- All patients after PE
- Reported symptoms of reduced functional status
- Persistent thrombi
- Measurable limitations in cardiopulmonary function
- CTEPH
- Post-PE syndrome



**Return-to-training recommendation in weeks after anticoagulation initiation.**

<b>Weeks 1–3</b>	<b>Gradual return to ADL</b>
<b>Week 4</b>	<b>Start nonweight-bearing exercise (e.g., swimming)</b>
<b>Week 5</b>	<b>Start nonimpact-loading exercise (e.g., cycling)</b>
<b>Weeks 6 +</b>	<b>Start impact-loading exercise (e.g., commence return-to-running program)</b>

**Return to running program.**

**General guidelines**

1. Use running shoes. Begin at easy pace on flat surfaces.
2. Each phase must be completed twice before progressing to next phase.
3. Do not run/walk more than once every other day.
4. Decrease to previous phase if increased pain, swelling, or stiffness are noted.
5. After successfully completing Phase 8, gradually increase running without walking.
6. Do not incorporate hills until at least 3 wk after completing Phase 8.
7. No daily running until at least 3 wk after completing Phase 8.

**Program phases**

- 1 Walk 2 miles at your own pace
- 2 Progress to walking 1 mile in 35 min
- 3 Walk ¼ mile, run ¼ mile, walk ¼ mile, run ¼ mile
- 4 Walk ¼ mile, run ¼ mile, walk ¼ mile, run ¼ mile, walk ¼ mile, run ¼ mile, walk ¼ mile, run ¼ mile
- 5 Walk ¼ mile, run ½ mile, walk ¼ mile, run ½ mile
- 6 Walk ¼ mile, run ¾ mile, walk ¼ mile, run ¾ mile
- 7 Walk ¼ mile, run 1 mile, walk ¼ mile, run 1 mile
- 8 Walk ¼ mile, run 1 mile, walk ¼ mile, run 1 mile, walk ¼ mile, run 1 mile