



**“A RELEVÂNCIA CLÍNICA DE UM PROGRAMA DE
REABILITAÇÃO CARDÍACA”.**



A RELEVÂNCIA CLÍNICA DE UM PROGRAMA DE REABILITAÇÃO CARDÍACA.



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A RELEVÂNCIA CLÍNICA DE UM PROGRAMA DE REABILITAÇÃO CARDÍACA.



THE LANCET

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www.thelancet.com

JULY, 18th 2012.

O Maior causa de morte não acidental no mundo 5.3 milhões/ ano

Ultrapassou o tabagismo 5.1 milhões

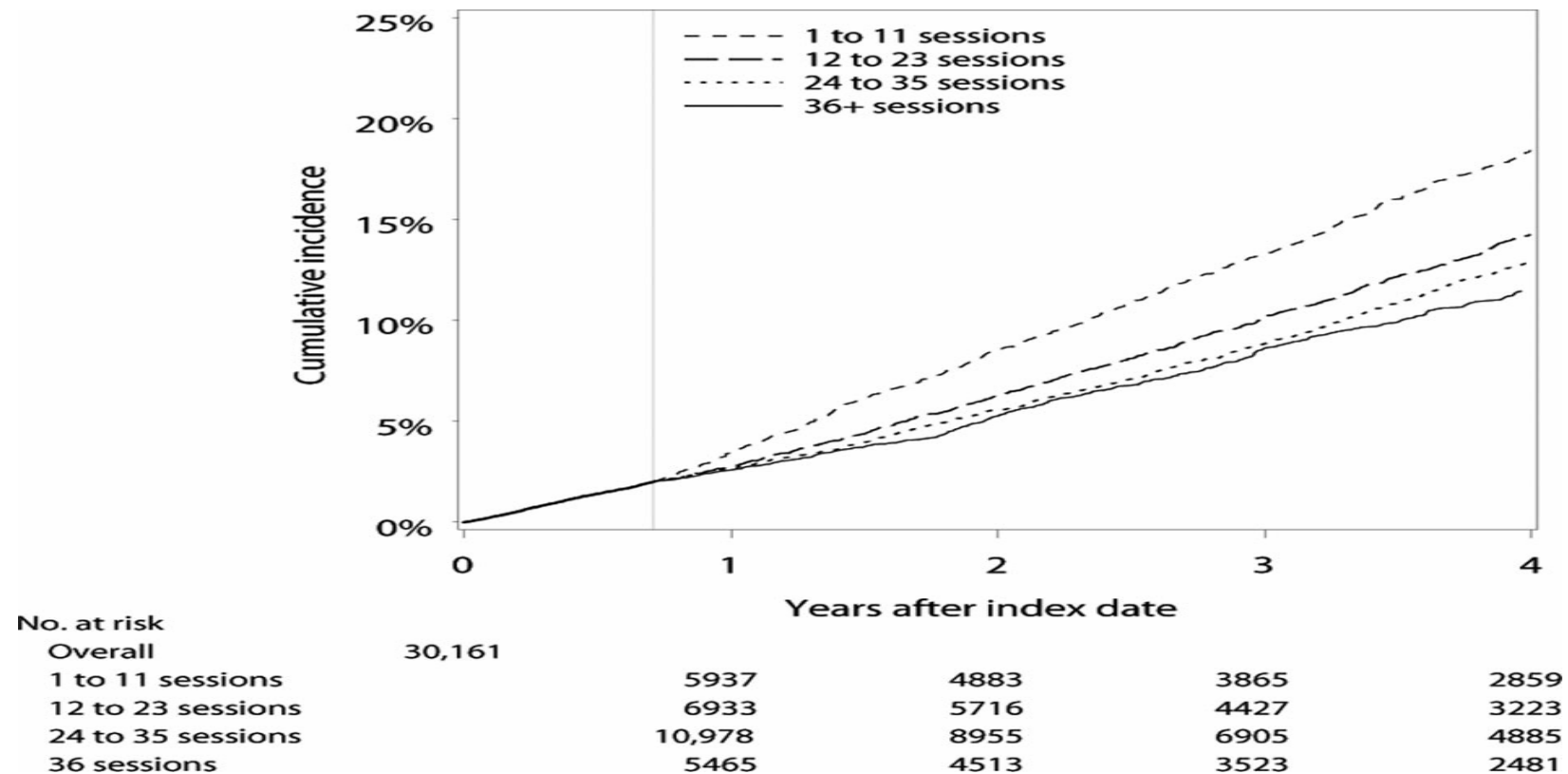
Respondeu por quase 10% de todas as mortes no ano de 2008

Já considerada uma Pandemia

10% de aumento na prática de AF evitaria 500.000 mortes/ano

Health Services and Outcomes Research

Relationship Between Cardiac Rehabilitation and Long-Term Risks of Death and Myocardial Infarction Among Elderly Medicare Beneficiaries



Circulation January 5/12, 2010

Exercise Physiology

Exercise Capacity and Mortality in Older Men A 20-Year Follow-Up Study

Peter Kokkinos, PhD; Jonathan Myers, PhD; Charles Faselis, MD;
Demosthenes B. Panagiotakos, DrMedSci; Michael Doumas, MD; Andreas Pittaras, MD;
Athanasios Manolis, MD; John Peter Kokkinos; Pamela Karasik, MD; Michael Greenberg, MD;
Vasilios Papademetriou, MD; Ross Fletcher, MD

Background—Epidemiological findings, based largely on middle-aged populations, support an inverse and independent association between exercise capacity and mortality risk. The information available in older individuals is limited.

Methods and Results—Between 1986 and 2008, we assessed the association between exercise capacity and all-cause mortality in 5314 male veterans aged 65 to 92 years (mean $\pm$ SD, 71.4 $\pm$ 5.0 years) who completed an exercise test at the Veterans Affairs Medical Centers in Washington, DC, and Palo Alto, Calif. We established fitness categories based on peak metabolic equivalents (METs) achieved. During a median 8.1 years of follow-up (range, 0.1 to 25.3), there were 2137 deaths. Baseline exercise capacity was 6.3 $\pm$ 2.4 METs among survivors and 5.3 $\pm$ 2.0 METs in those who died ($P<0.001$) and emerged as a strong predictor of mortality. For each 1-MET increase in exercise capacity, the adjusted hazard for death was 12% lower (hazard ratio=0.88; confidence interval, 0.86 to 0.90). Compared with the least fit individuals (≤ 4 METs), the mortality risk was 38% lower for those who achieved 5.1 to 6.0 METs (hazard ratio=0.62; confidence interval, 0.54 to 0.71) and progressively declined to 61% (hazard ratio=0.39; confidence interval, 0.32 to 0.49) for those who achieved >9 METs, regardless of age. Unfit individuals who improved their fitness status with serial testing had a 35% lower mortality risk (hazard ratio=0.65; confidence interval, 0.46 to 0.93) compared with those who remained unfit.

Conclusions—Exercise capacity is an independent predictor of all-cause mortality in older men. The relationship is inverse and graded, with most survival benefits achieved in those with an exercise capacity >5 METs. Survival improved significantly when unfit individuals became fit. (*Circulation*. 2010;122:790-797.)

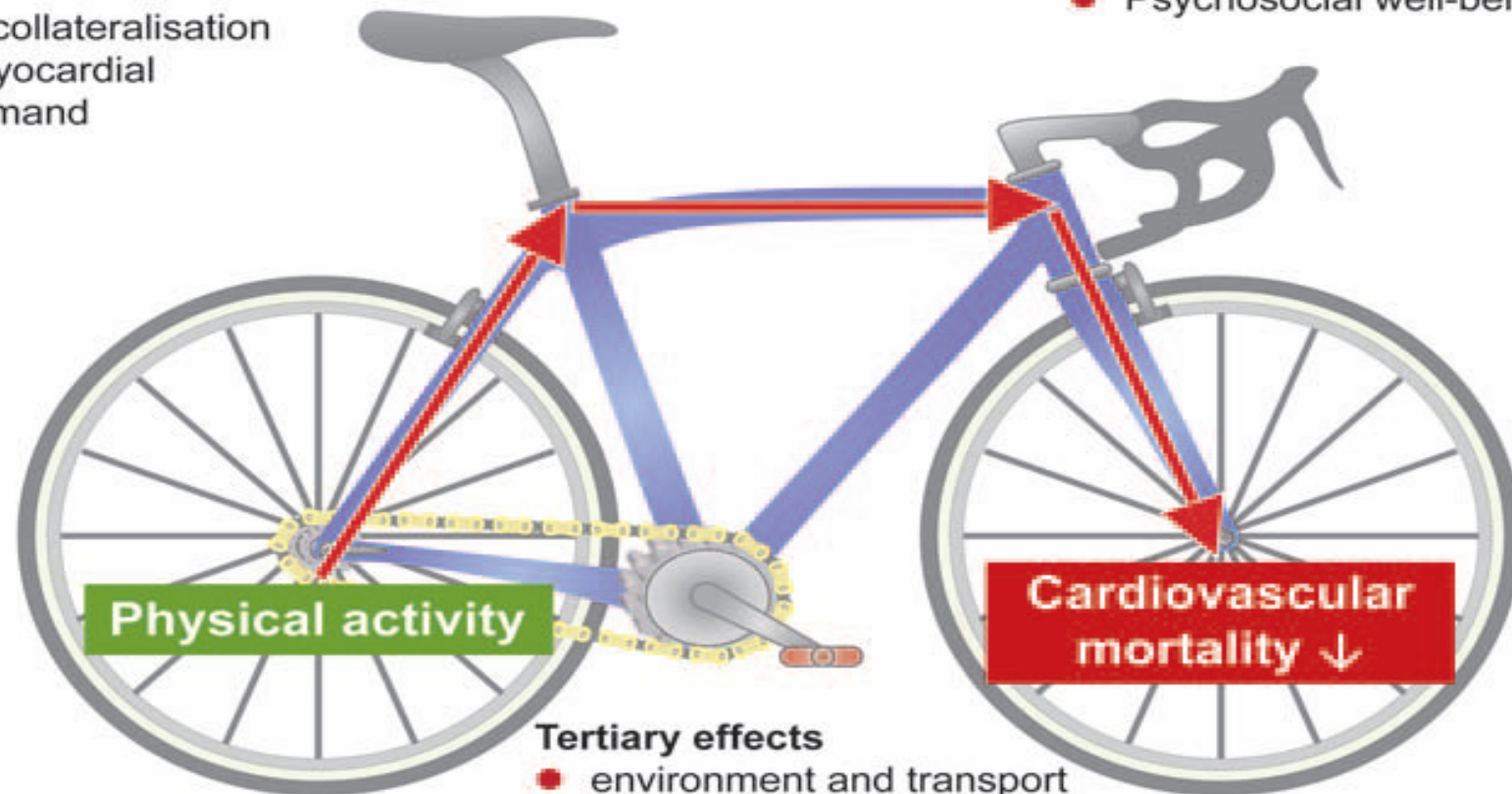


Primary effects

- improved endothelial function
- vascular repair by EPC
- stabilization of vulnerable plaques
- decreased platelet reactivity
- anti-inflammatory effects
- upregulation anti-oxidative mechanisms
- enhanced collateralisation
- reduced myocardial oxygen demand

Secondary effects

- Improvement CV risk profile
 - weight control
 - arterial hypertension
 - lipid profile
 - insulin resistance
- Psychosocial well-being



Physical activity

Cardiovascular
mortality ↓

Tertiary effects

- environment and transport
- air pollution
- climate change
- workplace
- rural → urban migration

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Risco relativo para eventos coronarianos

Tabagismo →
Dislipidemia →
Hipertensão → **2X**

Condição
aeróbica baixa → **5X**

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IMPACTO DO SEDENTARISMO NO ORGANISMO

- ↓ Capacidades motoras
- ↓ Força
- ↓ Flexibilidade
- ↓ Níveis de VO₂ máximo
- ↓ Massa mineral óssea
- ↓ Cognição

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RESPOSTAS CARDIOVASCULARES AO EXERCÍCIO E ENVELHECIMENTO

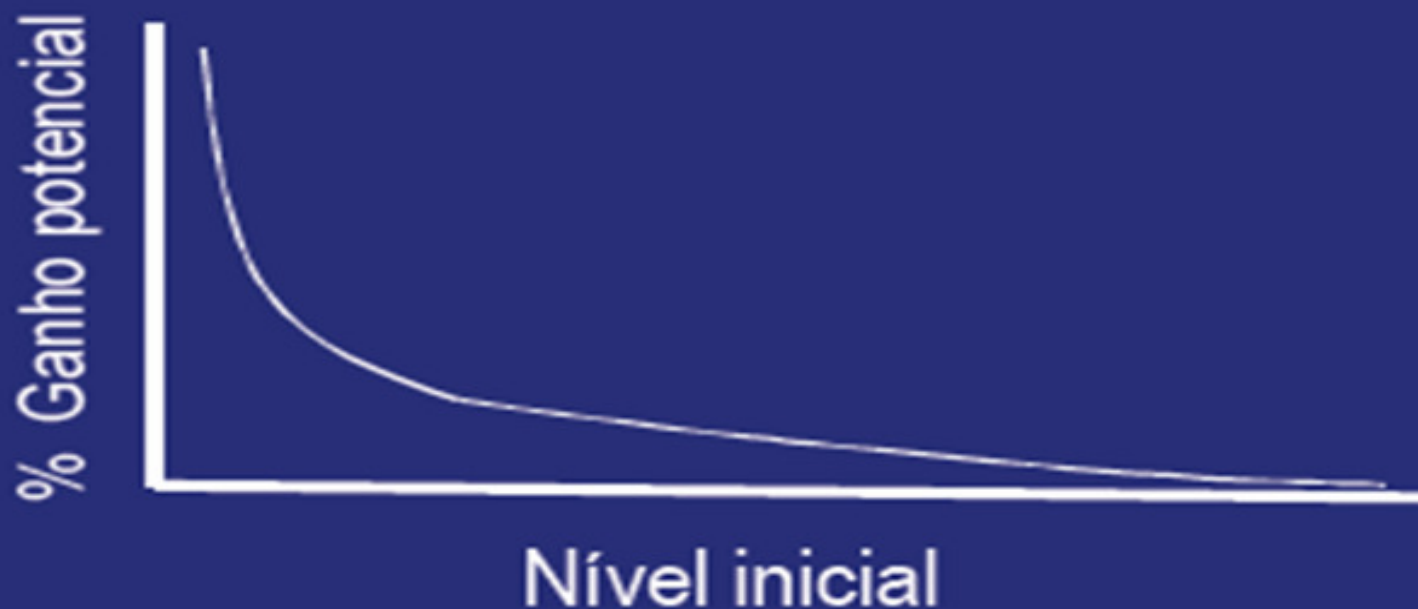
- O consumo máximo de oxigênio (VO_{2max}) decresce 5 a 15% por década após a idade de 25 anos;
- A $F_{cmáx}$ decresce 6 a 10bpm por década, contribuindo para o decréscimo do débito cardíaco;

Posicionamento oficial ACSM

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POTENCIAL DE TREINABILIDADE



BENEFÍCIOS da AF

- ¥ Redução do peso corporal, %G, otimiza a relação Cintura/Quadril
- ¥ Redução da resistência insulínica
- ¥ Correção das dislipidemias
- ¥ Estímulo ao abandono do Tabagismo
- ¥ Maior cap.funcional max. e sub max.
- ¥ Menor Estresse hemodinâmico para as AVDs
- ¥ Aumento da densidade óssea
- ¥ Previne a sarcopenia - > força e potência muscular
- ¥ melhora equilíbrio e coordenação
- ¥ Redução do estresse, depressão e melhora da auto estima.

STATE-OF-THE-ART PAPER

The Role of Exercise Training in Heart Failure

Jill Downing, MD, MPH, Gary J. Balady, MD

Boston, Massachusetts

Table 5 **Beneficial Effects of Exercise in Heart Failure**

Aerobic training	Increased exercise capacity (2,54)
	Lower heart rate response to submaximal exercise (54)
	Improved diastolic function (57–59)
	Improved endothelial function (61,62)
	Increased skeletal muscle oxidative capacity (19,20,60)
	Enhanced vagal tone and lower sympathetic tone (65,66)
	Reduced inflammatory cytokines (27,68)
	Lower all-cause mortality or hospital stay (2,45)
Resistance training	Improved health status (44,45,47)
	Increased muscle strength and endurance (73,75,82)

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OBJETIVOS DE UM PROGRAMA DE REABILITAÇÃO CARDÍACA

INCREMENTAR:

- è CAPACIDADE FUNCIONAL
- è FORÇA , POTÊNCIA E RESIST. MUSCULAR
- è FLEXIBILIDADE
- è COORDENAÇÃO E EQUILÍBRIO

- ▣ OTIMIZAR O PESO CORPORAL E NUTRIÇÃO
- ▣ MAXIMIZAR O CONTACTO SOCIAL E LAZER
- ▣ PROMOVER O RELAXAMENTO PSÍQUICO, MINIMIZANDO A ANSIEDADE E DEPRESSÃO
- ▣ ESTIMULAR AUTO ESTIMA E BEM ESTAR

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TREINAMENTO DE FORÇA

VANTAGENS

- **AUMENTA A FORÇA EM 20 a 40%**
- **MANTÉM E/OU AUMENTA A MASSA ÓSSEA**
- **AUMENTO de 4 - 15% NO VO2MX.**
- **MELHORA A AUTO IMAGEM E SENSACÃO DE BEM ESTAR**
- **AO AUMENTAR A FORÇA e a MASSA ÓSSEA:**
 - MELHORA O EQUILÍBRIO E A MARCHA**
 - AUMENTA o METABOLISMO BASAL**
 - DIMINUI A INSULINO RESISTÊNCIA**
 - MELHORA A CAPACIDADE FUNCIONAL PARA AS AVD**

HURLEY 1987,1988,1995; HAENNEL 1991; KELEMEN 1986, McCARTNEY 1991; SMUTOK 1993; EWART 1987,1989; BROWN 1990 GOLDBERG 1989; SPARLING 1990; ACSM 2000 e 2002; AACVPR 2004



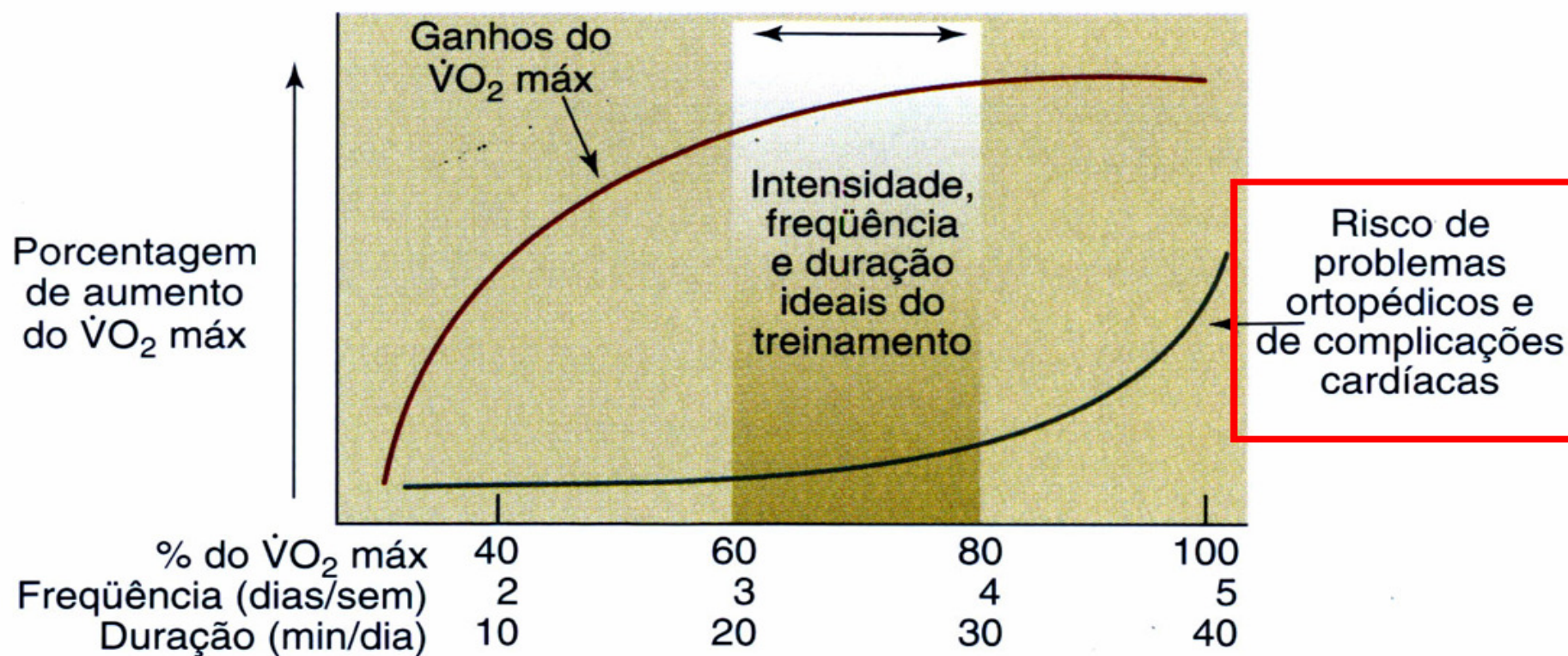




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PRESCRIÇÃO



Gait Speed and Survival in Older Adults

Stephanie Studenski, MD, MPH

Subashan Perera, PhD

Kushang Patel, PhD

Caterina Rosano, MD, PhD

Kimberly Faulkner, PhD

Marco Inzitari, MD, PhD

Jennifer Brach, PhD

Julie Chandler, PhD

Peggy Cawthon, PhD

Elizabeth Barrett Connor, MD

Context Survival estimates help individualize goals of care for geriatric patients, but life tables fail to account for the great variability in survival. Physical performance measures, such as gait speed, might help account for variability, allowing clinicians to make more individualized estimates.

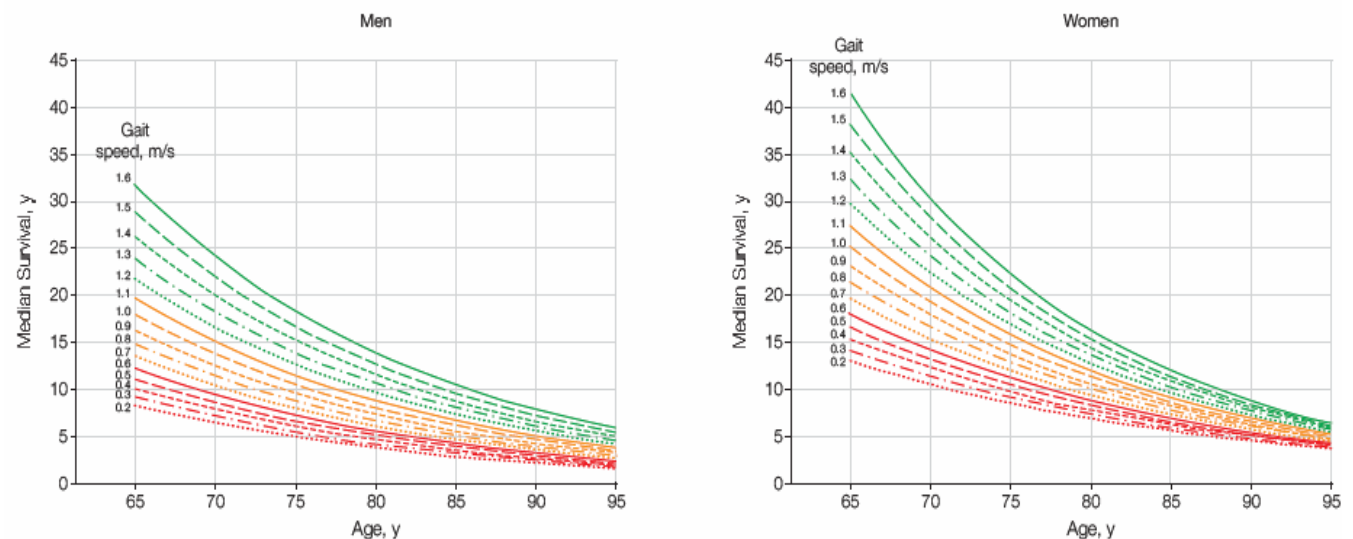
Objective To evaluate the relationship between gait speed and survival.

Design, Setting, and Participants Pooled analysis of 9 cohort studies (collected between 1986 and 2000), using individual data from 34 485 community-dwelling older adults aged 65 years or older with baseline gait speed data, followed up for 6 to 21 years. Participants were a mean (SD) age of 73.5 (5.9) years; 59.6%, women; and 79.8%, white; and had a mean (SD) gait speed of 0.92 (0.27) m/s.

Main Outcome Measures Survival rates and life expectancy.

Results There were 17 528 deaths; the overall 5-year survival rate was 84.8% (confi-

Figure 2. Predicted Median Life Expectancy by Age and Gait Speed



A PDF of enlarged graphs is available at <http://www.jama.com>.

Physical Activity in Older Subjects Is Associated With Increased Coronary Vasodilation

The ADVANCE Study

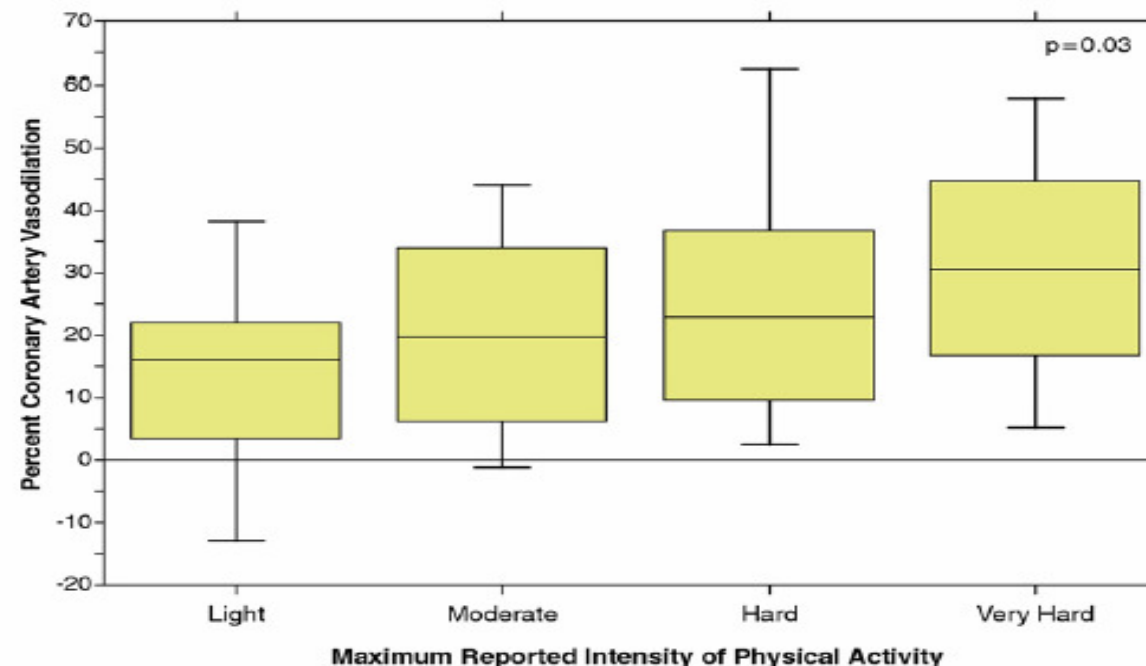


Figure 1. Coronary Vasodilation and Physical Activity Intensity

A box-and-whisker plot displays the degree of nitroglycerin-induced vasodilation according to categories of maximum reported intensity of physical activity. The degree of nitroglycerin-induced coronary vasodilation increases significantly with the maximum reported intensity of physical activity (Kruskal-Wallis, $p = 0.03$). The **box** represents the interquartile range, the **line** dividing the box is the median, and the **whiskers** extend to $1.5 \times$ the interquartile range.





Moderado para todos
Vigoroso para quem pode, gosta ou
precisa

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"A atividade física continua sendo a intervenção terapêutica mais negligenciada em todo o mundo.

Ficar em boa forma física ao longo da vida pode ser uma das mais fáceis, baratas e eficazes maneiras para se evitar a unidade coronariana."

Inactivity is a universal risk factor for heart attack

JANUARY 11, 2012 [Lisa Nainggolan](#)

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REABILITAÇÃO CARDÍACA

Existe uma clara relação dose
resposta

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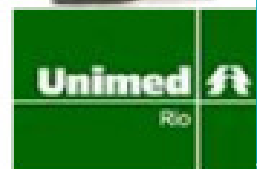


REABILITAÇÃO CARDÍACA

Exercício é como remédio,
tem que ser na dose certa

8th INTERNATIONAL CONFERENCE ON STRENGTH TRAINING

Oslo, 24th - 28th of October 2012



THE INFLUENCE OF STABILIZER BELT OF LUMBAR SPINE IN STRENGTH AND POWER OF LOWER LIMB FOR A MUSCLE STRENGTHENING EXERCISE PROGRAM FOR ELDERLY ADULTS.

Roberto Cascon¹, Alexandro Coimbra¹, Paula Abreu¹, Serafim Borges¹, Carlos Campani¹ and Dušan Hamar².

¹Unimed- Rio de Janeiro Brazilian Health Provider and ²Comenius University Bratislava, Slovakia.

OBRIGADO.

Unimed 
Rio

O melhor plano de saúde é viver.
O segundo melhor é Unimed.