

Heart Attacks in Middle-aged Recreational Athletes



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If it happened to a “Pro”,
it could happen to you!

Heart attack fells former Hab Zholtok, 31

Sergei Zholtok, who was the Canadiens’ leading goal-scorer in 1999-2000, has died of a heart attack in Belarus. He was 31.

Zholtok, a Latvian, was playing for Riga 2000 and he left the bench after the game went into overtime. He collapsed on his way to the dressing room and died of an apparent heart attack.

An irregular heartbeat was diagnosed in Zholtok when he was playing for the Minnesota Wild last season. He collapsed between periods of a game be-

tween Minnesota and Calgary on Oct. 21, but was cleared to play later.

A third-round draft choice of the Boston Bruins, he played with the Bruins and the Ottawa Senators before signing as a free agent with the Canadiens in 1998. During the 1999-2000 season, he had a career-high 26 goals in 68 games with nine power-play goals and seven game-winners.

But Zholtok’s production tailed off in 2000-01. He had only one goal in 32 games when the

Canadiens traded him to the Edmonton Oilers for Chad Kilger.

Zholtok’s best season was with the Minnesota Wild in 2002-03. He had 16 goals and 26 assists for a career-high 42 points and added 13 points in the playoffs. The Wild dealt him to Nashville at the trading deadline in March. The Predators chose not to re-sign him and he was an unrestricted free agent. He had 111 goals and 147 assists in 588 NHL games.



Montreal Gazette Nov 4 2004



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During high intensity bouts of exercise, the risk of...

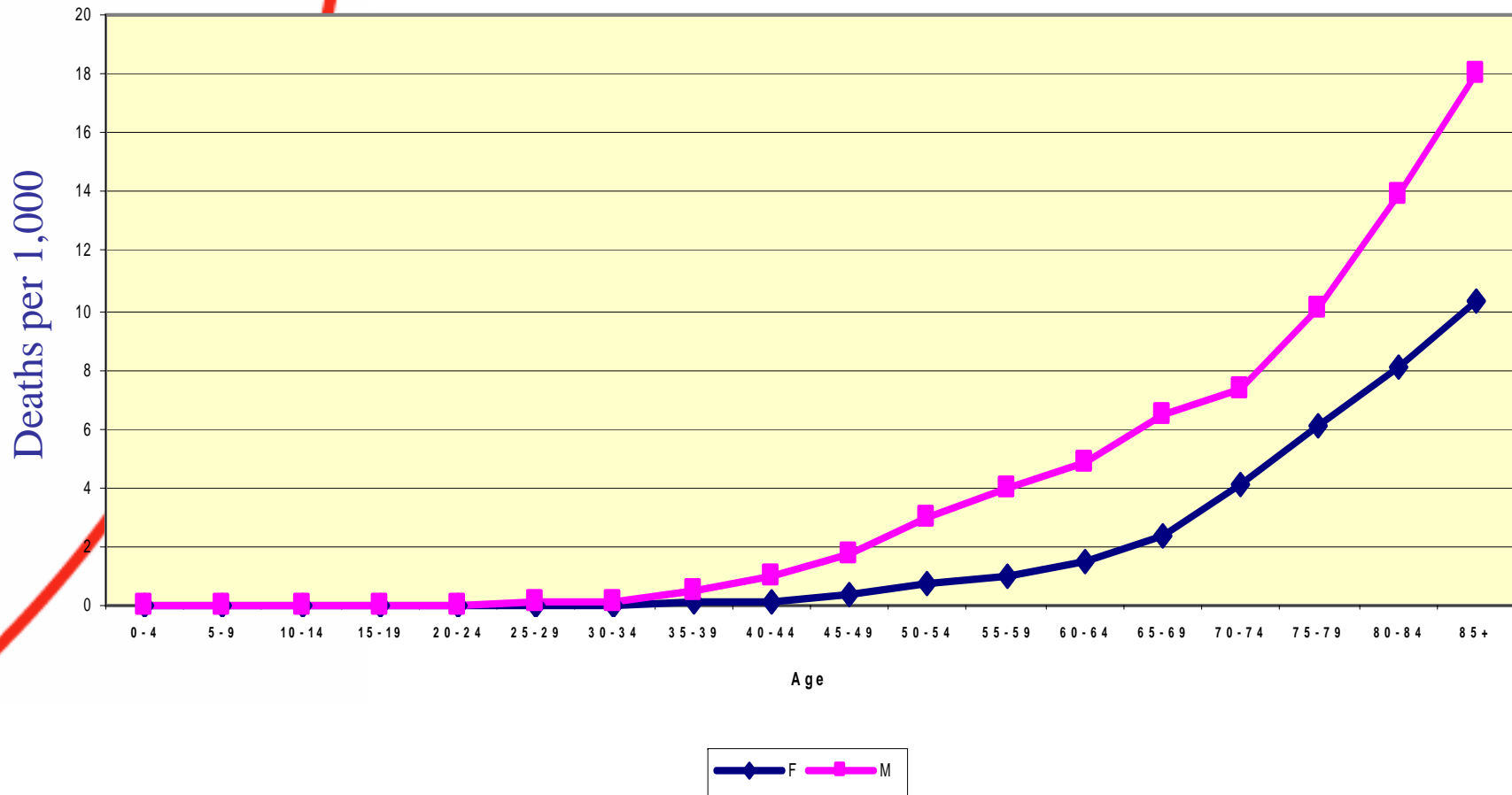
- suffering a heart attack (myocardial infarction) increases 100-fold
- a sudden cardiac death increases 50-fold



** 23% of hearts attacks occur during exercise*



The Risk of Having a Heart Attack Increases with Age

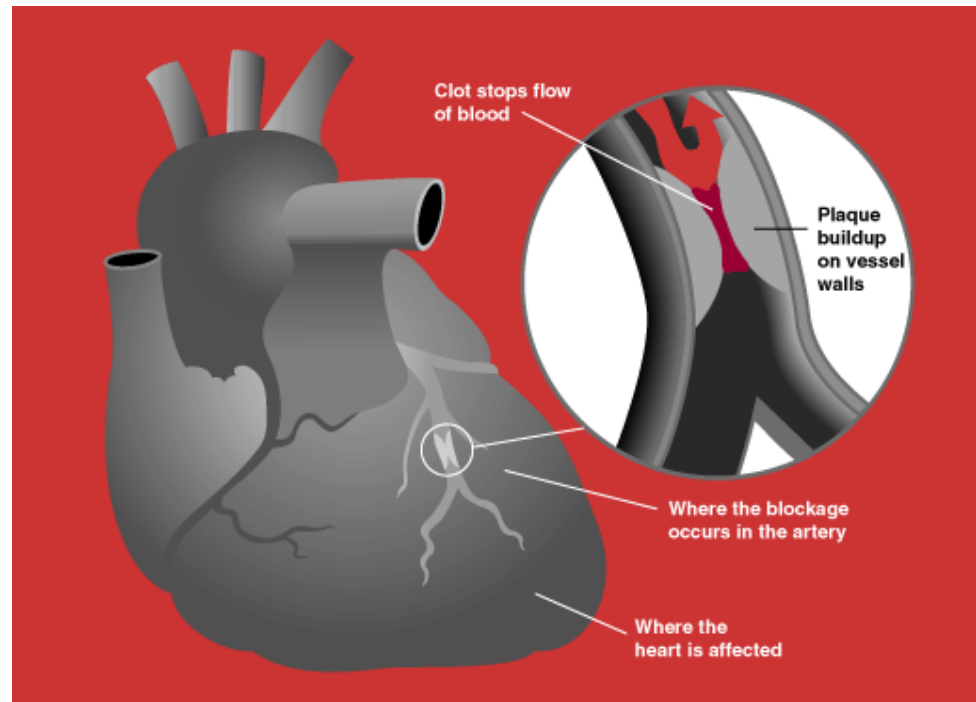




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What is a heart attack?

Reduction of blood flow to the heart resulting in death of heart muscle due to oxygen deprivation.
Also called a “myocardial infarction”





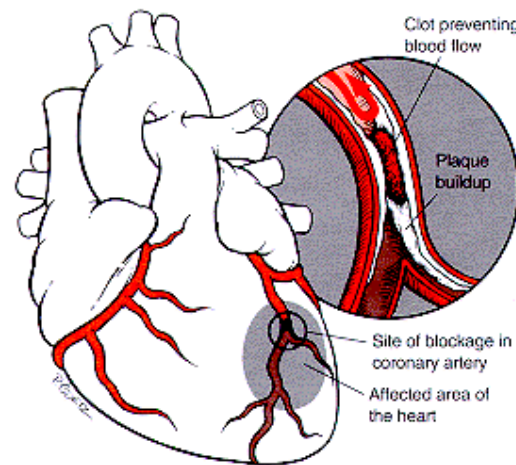
Two culprits

#1 Arterial Plaque

- Consists of material deposited in the arterial wall. They can significantly obstruct arteries and occasionally rupture, causing functional problems with blood vessels.

#2 Formation of Blood Clots (Thrombus)

- Results when components of blood clump together because blood vessels are damaged. Clots can block arteries and deprive tissue of valuable nutrients.





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How can infrequent intense exercise cause heart attacks?

#1 Rupture of Arterial Plaques

- Exercise increases blood pressure as the heart pumps harder to the body's demands
- This increases stress within the arteries
- Plaques can be sheared off from the arterial wall and can lead to clot formation

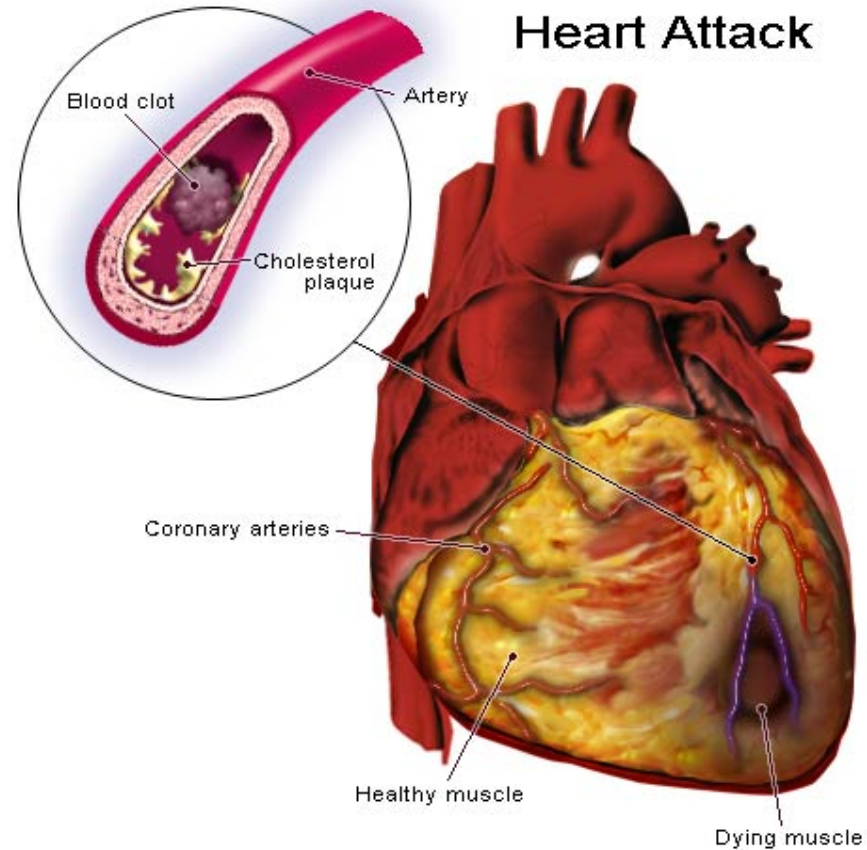
#2 Increased Activation of Platelets

- High-intensity exercise activates the nervous system which in turn releases compounds that increase clotting



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How can infrequent intense exercise cause heart attacks?

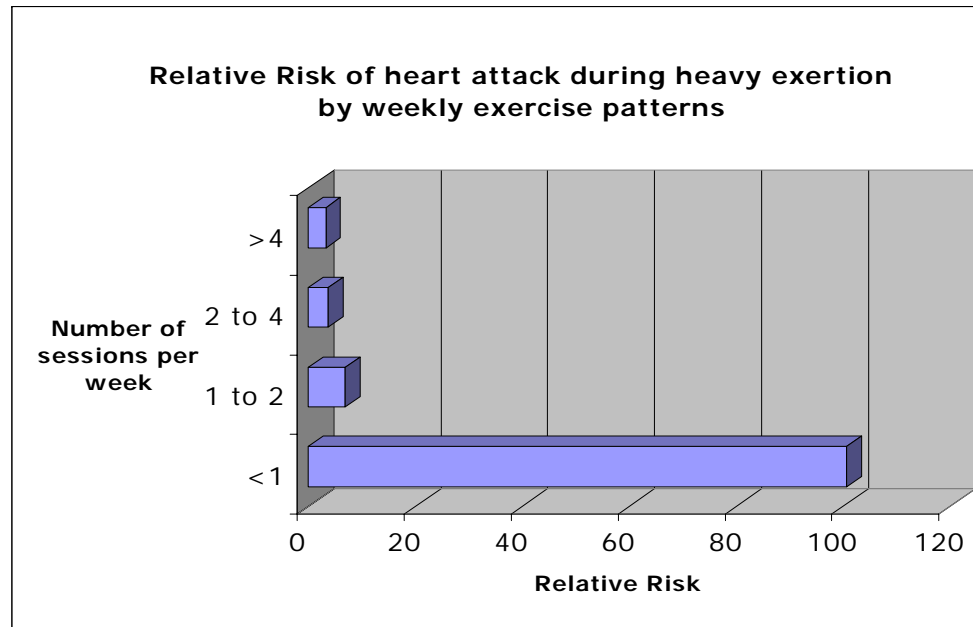




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Regular exercise protects against cardiac disease!

The risk of heart attack is reduced dramatically by exercising more often.



This represents a 50X decrease in risk for people exercising >4/week!



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How does regular exercise protect you?

- Increase heart muscle strength and endurance. Therefore the heart doesn't have to work as hard during intense exercise
- Increases the body's capacity to dissolve clots
- Decreases blood concentration of arterial plaque forming agents





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Why occasional exercise just isn't enough

Research has shown cardiac de-conditioning occurs rapidly:

- Loss of the protection occurs within a matter of weeks
- Maximum oxygen delivering capacity of the heart decreases by 16% within 12 weeks of inactivity
- Muscle mass of main pumping chamber of the heart decreases by up to 20% in 3 weeks





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What you can do for yourself: A modest proposal

See your doctor before every season

Assess whether you have any
of the major factors that increase the
risk of having a heart attack. Example:

Smoking

High Blood Pressure

Diabetes

High (low density) cholesterol



What you can do for yourself: A modest proposal

Annual Plan

off-season	pre-season	in-season
April-July	July-September	September-April
100% aerobic	90% aerobic 10% anaerobic	70% aerobic 30% anaerobic
3 sessions/wk	3-4 sessions/wk	1-2 sessions/wk
examples	examples	examples
walking-running	walking-running	walking-running
bike	bike	bike
swimming	swimming	swimming
weight-training	weight-training	weight-training
		Hockey game 1-2/wk



How hard are you working?

Échelle de Borg

très très facile	6
	7
très facile	8
	9
assez facile	10
	11
un peu difficile	12
	13
	14
difficile	15
	16
très difficile	17
	18
	19
très très difficile	20

Borg's Scale

very, very light

very light

fairly light

somewhat hard

hard

very hard

very, very hard



→ **About 80%**

**This is too hard
for most people
(>85% maximum)**



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How hard are you working?

Aerobic = 80% of maximum heart rate or less
“light” to “hard”

Anaerobic = 85%-95% of maximum heart rate
“very hard” to “very very hard”



Possible Training Program

Off-Season

April-July

100% aerobic work-out

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
	Biking 30-40 min 60-75% MHR (continuous pace)		Swimming 20-30 min 60-75% MHR (continuous pace)			Walking-running 20 min 60-75% MHR (continuous pace)

You may replace one of these sessions with weight-training

60-75% between “somewhat hard” and “hard “



Possible Training Program

In-Season 1 game/wk

September-April

70% aerobic work-out

30% anaerobic work-out

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
	Biking 40 min 70-85% variations in speed or hills 6 min slow, 4 min fast (could be replaced by spinning class)		Swimming 10 min 60-75% MHR Alternate 10 min 1 fast-length / 1 slow-length 10 min slow pace 60% MHR			GAME

You may replace one of these sessions with weight-training.

60-75% between “somewhat hard” and “hard “



Possible Training Program

In-Season 2games/wk

September-April

70% aerobic work-out

30% anaerobic work-out

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
	GAME		Walking-running 10 min light jog / walking 10 min : 1 min light jog / walking 1 min fast jog / walking up a hile (75-85% MHR) 10 min cool down jog / walking (65% MHR)			GAME

You may occasionally replace this sessions with weight-training.

60-75% between “somewhat hard” and “hard “



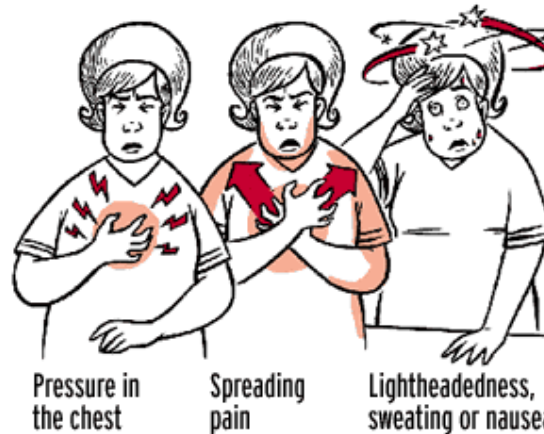
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Learn to know your limits

The symptoms of a heart attack should be recognized! Don't dismiss them as unimportant.

- Pain, feeling of pressure and squeezing in the chest
- Nausea, vomiting, gastric discomfort
- Pain radiating into the arm (particularly the left arm)
- General discomfort occurring repeatedly

Heart attacks that cause little or no symptoms may be as dangerous as those causing intense chest pain!





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Conclusions

You can have a fatal heart attack while playing hockey

This risk increases with age

To minimize this risk:

- Have an annual check-up with your doctor
- Have an exercise plan for on- and off-season
- Limit the length of your shifts on-ice (45 seconds to 1 minute)
- Be mindful of symptoms



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Useful Links

Canadian Dieticians Association - www.dieticians.ca

Heart and stroke foundation - www.heartandstroke.ca

Fitness info - http://www.hc-sc.gc.ca/english/lifestyles/physical_activity.html

General Info -

<http://www.canadianwellness.com/fitness/fitness.asp>

http://www.healthyeating.net/HE_12A.HTM