

## 日常生活管理

### 1. 遵医嘱:

遵照医嘱按时服药, 定期复诊

### 2. 重饮食:

保持合理健康的饮食, 保持正常范围体重, 减少饮酒

### 3. 锻身心:

保持积极乐观的心态, 适当锻炼, 不宜参加高强度运动, 无症状患者可在医生的指导下参加低强度的运动



## 肥厚型心肌病患者可以怀孕吗?

通常情况下患有肥厚型心肌病的女性可以正常怀孕, 但最好咨询医生再做计划, 尤其是出现肥厚型心肌病症状和并发症的女性。

## 总结

肥厚型心肌病 (HCM) 是常见的遗传决定的心脏病, 患病率为0.2-0.6%, 被认为是青少年前期儿童和青少年儿童以及年轻运动员心脏性猝死的常见原因。我们的宣传手册主要针对1-19岁青少年的肥厚型心肌病的病因诊断、治疗预后进行介绍, 以增加对青少年遗传疾病的重视, 希望减少肥厚型心肌病引起的猝死等不幸事件。

## 参考文献及图片引用

- [1] Cordula Maria Wolf. Hypertrophic cardiomyopathy: genetics and clinical perspectives. 2019 Oct; 9(Suppl 2): S388-S415. doi: 10.21037/cdt.2019.02.01. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6837941/>
- [2] Emanuele Monda,1, Marta Rubino,1, Michele Lioncino,1 Francesco Di Fraia,1 Roberta Pacileo,1 Federica Verrillo,1 Annapaola Cirillo,1 Martina Caiazza,1 Adelaide Fusco,1 Augusto Esposito,1 Fabio Fimi-ani,1 Giuseppe Palmiero,1 Giuseppe Pacileo,1 Paolo Calabrò,1 Maria Giovanna Russo,1 and Giuseppe Limongelli,2, Hypertrophic Cardiomyopathy in Children: Pathophysiology, Diagnosis, and Treatment of Non-sarcomeric Causes. Front Pediatr. 2021; 9: 632293. Published online 2021 Feb 25. doi: 10.3389/fped.2021.632293. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7947260/>
- [3] Juryne J. Hypertrophic cardiomyopathy: a review of etiology and treatment. J Cardiovasc Nurs. 2007;22(1): 65-75. doi: 10.1097/00005082-200701000-00010. <https://pubmed.ncbi.nlm.nih.gov/17224700/>
- [4] La Canna G, Montorfano M, Ficarra E, et al. Trattamento non farmacologico eco-guidato nei pazienti con cardiomiopatia ipertrofica ostruttiva [Non-pharmacological treatment of hypertrophic obstructive cardiomyopathy guided by echocardiography]. G Ital Cardiol (Rome). 2006;7(3): 192-205. <https://pubmed.ncbi.nlm.nih.gov/16572985/>
- [5] <https://www.heart.org/en/health-topics/cardiomyopathy/what-is-cardiomyopathy-in-adults/hypertrophic-cardiomyopathy>
- [6] <https://www.uptodate.com/contents/zh-Hans/hypertrophic-cardiomyopathy-clinical-manifestations-diagnosis-and-evaluation>

### PSD模板

<https://sc.chinaz.com/psd/200401158142.htm#down>

### 封面图

<https://ssl.baidu.com/60N1bjeh1BF3odCf/it/u=3524191639,580108086&fm=27&gp=0.jpg>

### 第3页图

[https://upload.wikimedia.org/wikipedia/commons/a/af/Hypertrophic\\_obstructive\\_cardiomyopathy.png](https://upload.wikimedia.org/wikipedia/commons/a/af/Hypertrophic_obstructive_cardiomyopathy.png)

### 第4页图

[https://ssl.bdstatic.com/70cFuXSh\\_QlYnxGkpoWK1HF6hhy/it/u=1395337755,967800920&fm=26&gp=0.jpg](https://ssl.bdstatic.com/70cFuXSh_QlYnxGkpoWK1HF6hhy/it/u=1395337755,967800920&fm=26&gp=0.jpg)

### 第5页图

[1] <https://ssl.baidu.com/60N1bjeh1BF3odCf/it/u=1392840086,1108957215&fm=27&gp=0.jpg>

[2] <https://i0.ndslb.com/bfs/article/cec5fc88d34754171f5c198ebb13858f5620561.jpg>

[3] [https://ssl.bdstatic.com/70cFuXSh\\_QlYnxGkpoWK1HF6hhy/it/u=2270553422,2414257279&fm=26&gp=0.jpg](https://ssl.bdstatic.com/70cFuXSh_QlYnxGkpoWK1HF6hhy/it/u=2270553422,2414257279&fm=26&gp=0.jpg)

## 免责声明

该材料是在PMed中作为要求之一完成的, 并不代表SUMC的观点/观点。所表达的观点来自作者。该材料可能包含错误(如信息、生产等)。建议阅读者/信息消费者在出于各种原因使用包含的信息之前先对其进行验证。PMed课程的老师建议学生们按照中国现行的法律、规范、价值观和文化, 制作优良的材料。建议您谨慎行事。请在下面给我们留言和建议。谢谢。

E-mail: 3228541242@qq.com



# 肌肉强健的健身大师?

## ——揭秘肥厚型心肌病

Zheng Haohua 2020810009  
Yao Luoran 2020810008  
Peng Shihong 2020810023  
Peng Lin 2020810024  
Tan Wenci 2020810025



## 背景介绍

2018年俄罗斯世界杯的赛程格外牵动人心，在万千球迷的心情为之跌宕起伏时，湖南一位28岁的年轻小伙因为看球而猝死，令人惋惜。“这么年轻怎么可能猝死！”“这不是老年人才会发生的事吗！”一时间，大众的质疑声接连不断。但其实年轻人猝死并不罕见，并且约有30%的年轻人是被有“青少年猝死杀手”之称的肥厚型梗阻性心肌病夺取的生命。

肥厚性心肌病(HCM)是影响儿童和青少年的第二种最常见的心肌疾病，是导致年轻运动员突然死亡的主要原因。

## 病因

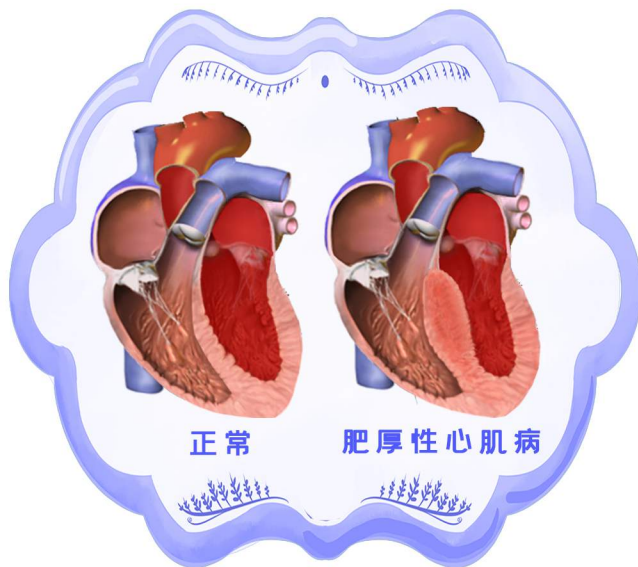
### 主要病因

肉瘤蛋白编码基因编码的突变，这些突变引起一系列生理和病理变化，导致心肌细胞肥大和功能障碍。在40-60%的成人和儿童病例中，肉瘤基因突变是HCM最重要的原因。

### 次要病因

- 遗传代谢错误
- 神经肌肉疾病
- 畸形综合征
- 线粒体疾病

这些病因在全球范围内的儿童肥厚型心肌病诱因中占比35%。



## 高风险人群

- 1 家族中直系亲属有肥厚型心肌病史或猝死史
- 2 运动后出现呼吸困难或胸痛
- 3 心律失常（心率异常）

### 如果你属于高风险人群该怎么办？

前往正规医疗机构进行排查、诊治。

### 诊断

- 心电图
- 超声心动图（心脏彩超）
- 心脏核磁共振
- 心导管检查
- 冠状动脉造影

## 治疗

对于没有症状的HCM患者，建议改变生活方式并针对可能导致心血管疾病的疾病用药。

对于那些有症状的患者，可通过下列方法进行治疗。

- 药物干预（β受体阻滞剂，钙通道阻滞剂等）
- 酒精室间隔消融术
- 间隔肌切除术
- 植入式心脏除颤器
- 心脏移植（终末期患者）

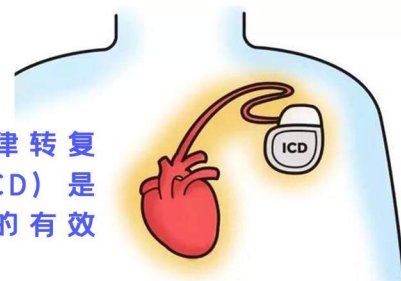
## 预防

HCM患者主要是预防猝死发生。

### 高危风险

- 一级亲属中有1个或多个肥厚性心肌病猝死发生
- 曾经发生过心跳骤停
- 24小时动态心电图发现反复非持续性室性心动过速
- 左心室严重肥厚（ $\geq 30\text{mm}$ ）
- 出现低血压、不明原因晕厥（尤其是发生在运动时）

埋藏式心律转复除颤器（ICD）是防治猝死的有效方法之一。





## DAILY LIFE MANAGEMENT

### 1. Follow the doctor's advice:

Take medicine on time in accordance with doctor's orders and revisit on a regular basis.

### 2. Pay attention to diet:

Maintain a reasonable and healthy diet. Maintain a normal range of weight. Reduce drinking.

### 3. Exercise body and mind:

Maintain a positive and optimistic attitude. Do proper exercise, but should not take part in high-intensity exercise, asymptomatic patients can take part in low-intensity exercise under the guidance of doctors.



## CAN HCM PATIENTS CONCEIVE?

Women with hypertrophic cardiomyopathy can usually conceive normally, but it is best to consult a doctor to make a plan, especially if they have symptoms and complications of hypertrophic cardiomyopathy.

## SUMMARY

Hypertrophic cardiomyopathy (HCM) is a common genetic heart disease with a prevalence of 0.2-0.6%. It is considered to be a common cause of sudden cardiac death in pre adolescent children, adolescent children and young athletes. Our brochure mainly introduces the etiology, diagnosis, treatment and prognosis of hypertrophic cardiomyopathy in teenagers from one to nineteen years old, so as to increase the attention to the genetic diseases of teenagers and reduce the sudden death caused by hypertrophic cardiomyopathy.

## References and photos

- [1] Cordula Maria Wolf. Hypertrophic cardiomyopathy: genetics and clinical perspectives. 2019 Oct; 9 (Suppl 2): S388-S415. doi: 10.21037/cdt.2019.02.01. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6837941/>
- [2] Emanuele Monda,1, Marta Rubino,1, Michele Lioncino,1 Francesco Di Fraia,1 Roberta Pacileo,1 Federica Verrillo,1 Annapaola Cirillo,1 Martina Caiazza,1 Adelaide Fusco,1 Augusto Esposito,1 Fabio Fimi-ani,1 Giuseppe Palmiero,1 Giuseppe Pacileo,1 Paolo Calabrò,1 Maria Giovanna Russo,1 and Giuseppe Limongelli,2, Hypertrophic Cardiomyopathy in Children: Pathophysiology, Diagnosis, and Treatment of Non-sarcomeric Causes. Front Pediatr. 2021; 9: 632293. Published online 2021 Feb 25. doi: 10.3389/fped.2021.632293 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7947260/>
- [3] Juryne J. Hypertrophic cardiomyopathy: a review of etiology and treatment. J Cardiovasc Nurs. 2007; 22(1): 65-75. doi: 10.1097/00005082-200701000-00010 <https://pubmed.ncbi.nlm.nih.gov/17224700/>
- [4] La Canna G, Montorfano M, Ficarra E, et al. Trattamento non farmacologico eco-guidato nei pazienti con cardiomiopatia ipertrofica ostruttiva [Non-pharmacological treatment of hypertrophic obstructive cardiomyopathy guided by echocardiography]. G Ital Cardiol (Rome). 2006; 7(3): 192-205. <https://pubmed.ncbi.nlm.nih.gov/16572985/>
- [5] <https://www.heart.org/en/health-topics/cardiomyopathy/what-is-cardiomyopathy-in-adults/hypertrophic-cardiomyopathy>
- [6] <https://www.uptodate.com/contents/zh-Hans/hypertrophic-cardiomyopathy-clinical-manifestations-diagnosis-and-evaluation>

PSD template:

<https://sc.chinaz.com/psd/200401158142.htm#down>

Picture on page 1:

<https://ssl.baidu.com/6ON1bjeh1BF3odCf/it/u=3524191639,580108086&fm=27&gp=0.jpg>

Picture on page 3:

[https://upload.wikimedia.org/wikipedia/commons/a/af/Hypertrophic\\_obstructive\\_cardiomyopathy.png](https://upload.wikimedia.org/wikipedia/commons/a/af/Hypertrophic_obstructive_cardiomyopathy.png)

Picture on page 4:

<https://ssl.bdstatic.com/70cFuXSh-Q1YnxGkpoWK1HF6hhy/it/u=1395337755,967800920&fm=26&gp=0.jpg>

Picture on page 5:

[1] <https://ssl.baidu.com/6ON1bjeh1BF3odCf/it/u=1392840086,1108957215&fm=27&gp=0.jpg>

[2] <https://i0.hdslb.com/bfs/article/cec5fc88d34757417f5fc198ebb13858f5620561.jpg>

[3] <https://ssl.bdstatic.com/70cFuXSh-Q1YnxGkpoWK1HF6hhy/it/u=2270553422,2414257279&fm=26&gp=0.jpg>

## Disclaimer

This material was done as one of the requirements in PMed and does not represent the perspectives/ views of SUMC. The views expressed are from the authors. This material may contain errors (e.g. information, production, etc.). It is advised that the reader/information consumer verifies the information included before using it for various reasons. The faculty members of the PMed course had advised students to make materials with good taste and in accordance with existing laws, norms, values and culture in China. Your discretion is advised. Please leave us comments and suggestions below. Thank you.

E-mail: 3228541242@qq.com



# Muscle-bound Fitness Guru?

## Hypertrophic Heart

Zheng Haohua 2020810009

Yao Luoran 2020810008

Peng Shihong 2020810023

Peng Lin 2020810024

Tan Wenci 2020810025



## BACKGROUND

The schedule of the 2018 World Cup in Russia is particularly affecting the hearts of the people. When the mood of thousands of fans is ups and downs, a 28-year-old young man in Hunan died suddenly because he was watching the game. It is a pity. "You can't die so young!" "That's what happens to old people!" All of a sudden, the public's doubts continue. But sudden death in young people is not uncommon, and about 30 percent of young people die from hypertrophic obstructive cardiomyopathy, known as the "killer of sudden adolescent death."

Hypertrophic cardiomyopathy (HCM) is the second commonest form of heart muscle disease affecting children and adolescents and is a leading cause of sudden death in young athletes.

## PATHOGENY

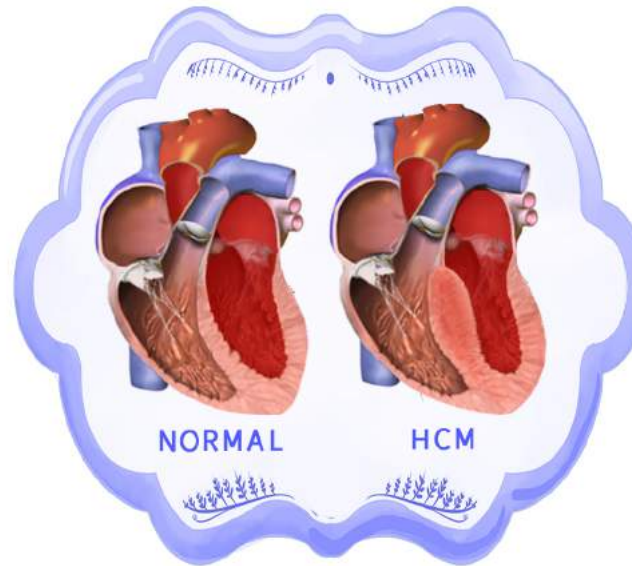
### PRIMARY REASON

Mutations in sarcoma protein-coding genes. These mutations cause a series of physiological and pathological changes, which lead to cardiomyocyte hypertrophy and dysfunction. Mutations in sarcomeric genes represent the most important cause of HCM both in adults and in children (40–60% of cases).

### MINOR REASONS

- Inherited errors of metabolism
- Neuromuscular diseases
- Malformation syndromes
- Mitochondrial disease

These reasons globally represent up to 35% of children with HCM.



## HIGH RISK PEOPLE

- 1 The immediate family members have a history of hypertrophic myocardial disease or sudden death
- 2 Dyspnea or chest pain after exercise
- 3 Arrhythmia (abnormal heart rate)

## IF YOU ARE HIGH RISK PEOPLE

Go to regular medical institutions for investigation, diagnosis and treatment.

## DIAGNOSIS

- Electrocardiogram (ECG)
- Echocardiography
- Cardiac MRI
- Cardiac catheterization
- Coronary angiography

## TREATMENT

For patients with asymptomatic HCM, lifestyle changes and medication for diseases that may lead to cardiovascular disease are recommended.

For those patients with symptoms, the following methods can be used for treatment.

- Drug intervention ( $\beta$  Receptor blockers, calcium channel blockers, etc.)
- Alcohol interventricular septal ablation
- Resection of septal muscle
- Implantable cardioverter defibrillator (ICD)
- Heart transplantation (end-stage patients)

## PREVENTION

HCM patients mainly prevent sudden death.

