

# Rehabilitation Therapy for heart surgery patients (phase I)

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# Case

- Chief Complaint: 19 yo female, chest pain for 10 days
- Echo Imaging and other studies:
  - Marfan's syndrome
  - Aortic aneurysm, Debakcy III), Ai (severe) ,Mi ( moderate), Mitral valve prolapse,
- Treatment: Surgery (Bentall and AVR)
  - post-op Condition: Heart failure, low blood pressure, bedridden. Treated with Dopamine

• **Cardiac Rehabilitation Consult!**

# rehab team



# Cardiac Rehabilitation

- coughing, short of breath. Fatigue. PE: tachycardia, pulmonary rale, EF 38% with LVDd 64mm LVDs 53mm
- **The challenges:** long time bedridden-3 weeks, pulmonary infection, reduced cardiopulmonary functions, atrophy, psychological problem

# Cardiac Rehabilitation Effect

- Day 3 of treatment: patient up and walking in the ward
- Day 5 of treatment: exercising in our facility
- Discharged from the hospital in two weeks

**Cardiac rehabilitation program is effective.**

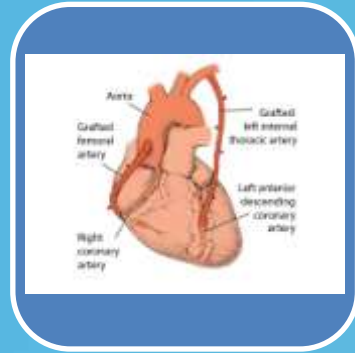
# Cardiac Rehabilitation





# Cardiac Rehabilitation is effective with all kinds of cardiac surgery patients

**Coronary  
bypass /heart  
transplantation**



**Valve  
replacement**



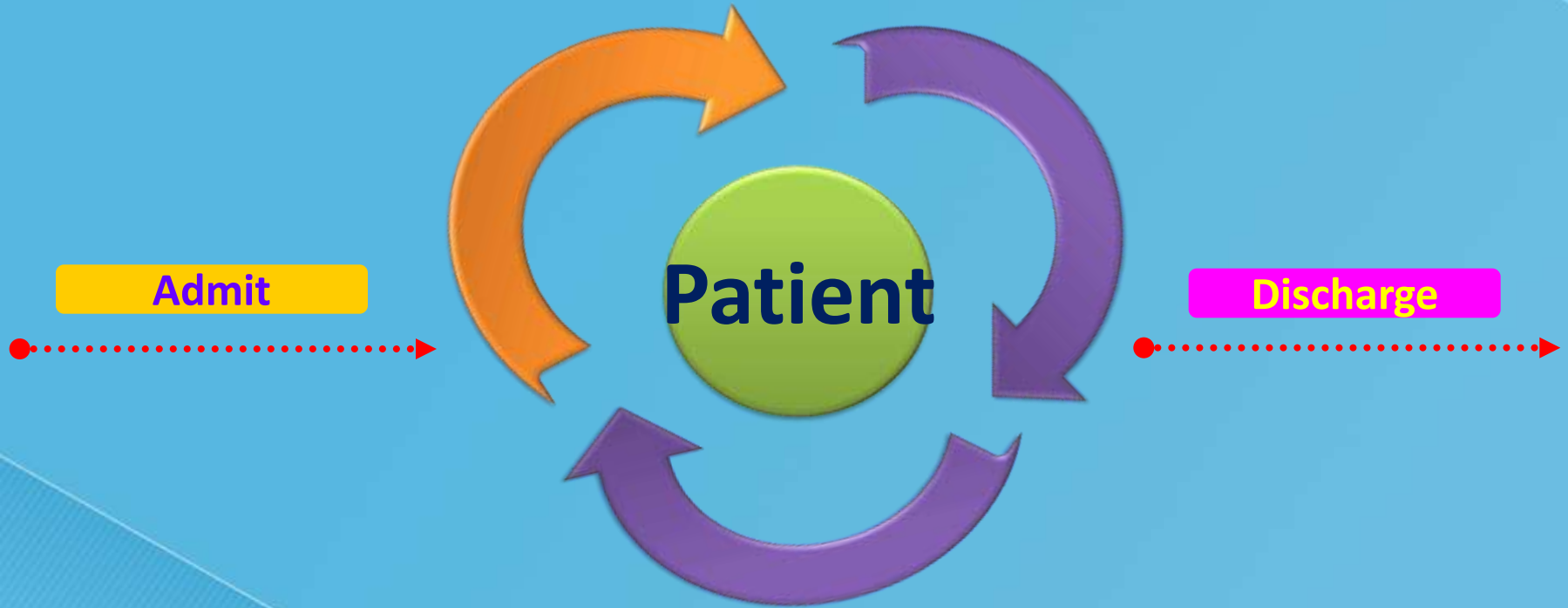
**Vessel  
enlargement**



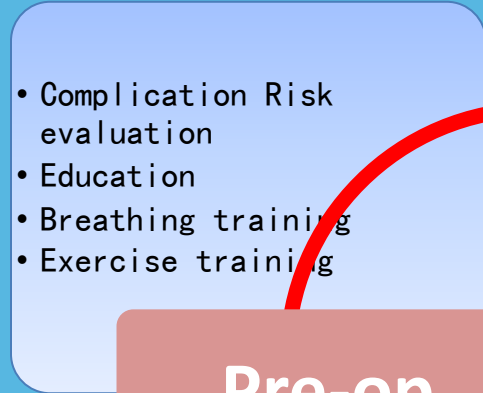
**Congenital  
heart disease**



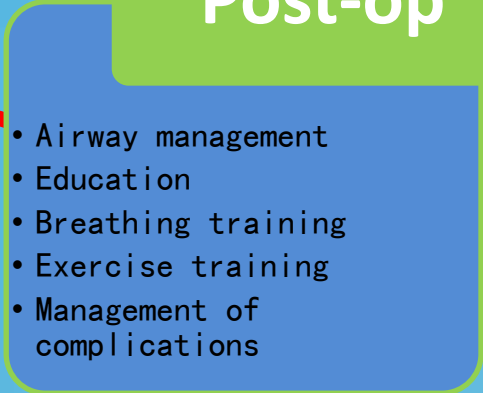
**the team works together around the patient**



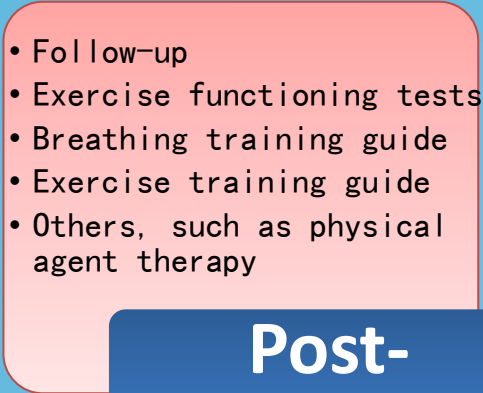




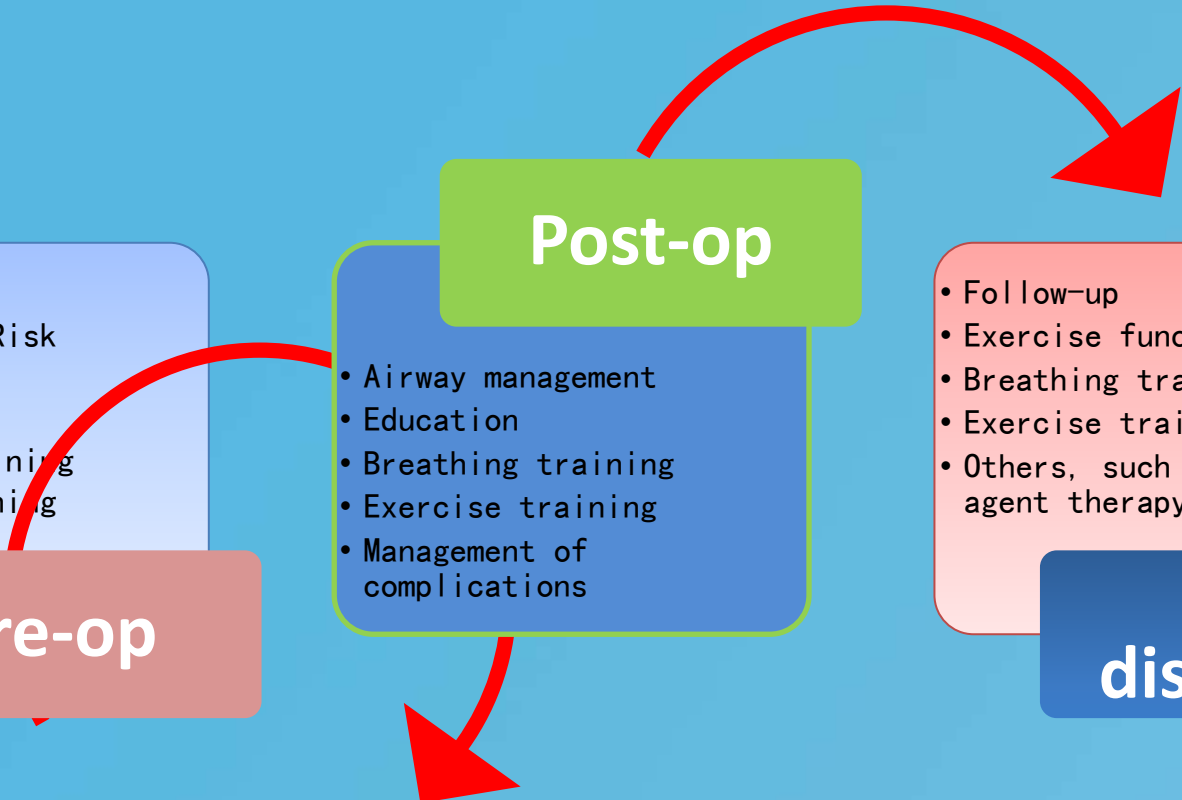
## Pre-op



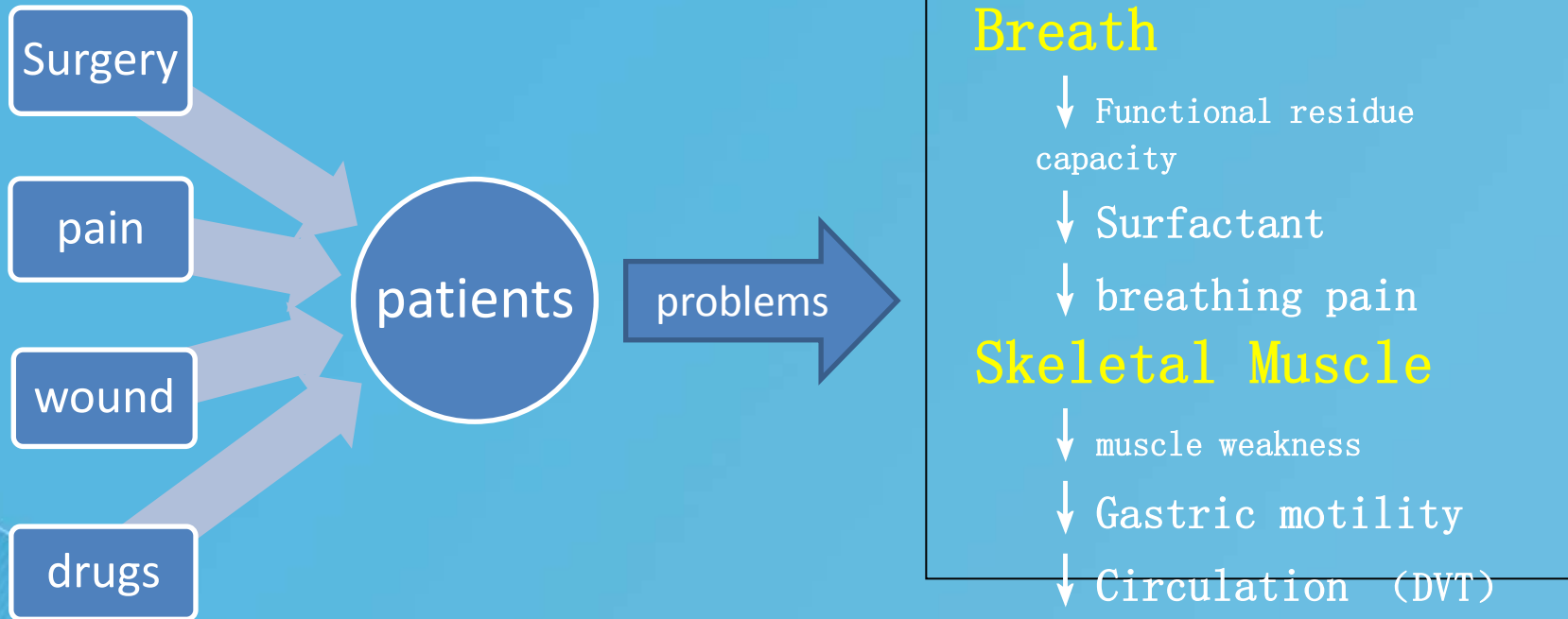
## Post-op



## Post-discharge



# Why Rehabilitation?



## Cardiac rehabilitation contraindications

- Unstable vital signs
- Acute heart failure, pulmonary edema, low cardiac output
- High risks for bleeding, hemoptysis
- Severe airway spasm, breathing difficulty
- Pneumothorax, large pleural effusion
- Uncontrolled high intracranial hypertension

## Pre-op Education (demonstration)

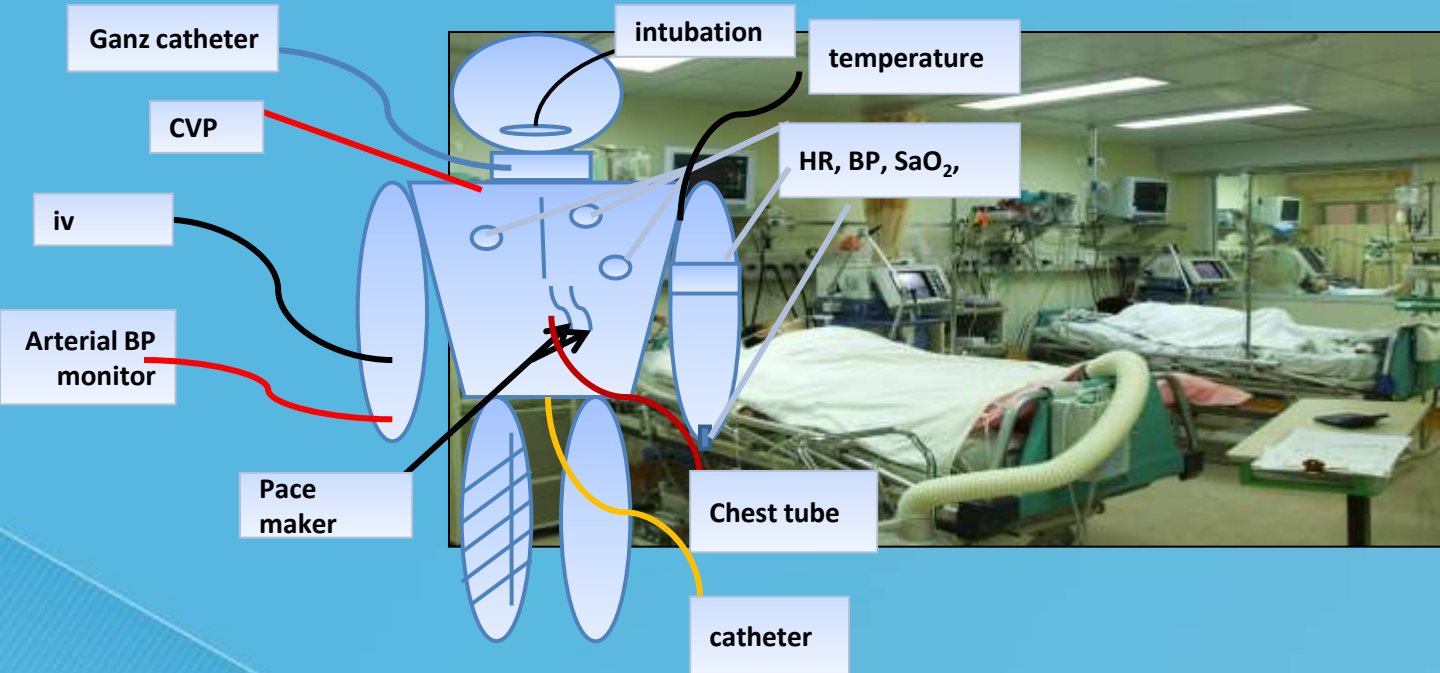
Breathing  
training



Exercise training



# Pre-op Education ( introduction of ICU )



Post-op  
Cardiac  
Rehab

```
graph LR; A((Post-op Cardiac Rehab)) --> B((ICU)); A --> C((WARD));
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The diagram features a large green circle on the left containing the text 'Post-op Cardiac Rehab'. A white arrow points from this circle to two yellow circles on the right. The top yellow circle contains the text 'ICU' and the bottom yellow circle contains the text 'WARD'. The background is a light blue gradient with a darker blue diagonal line in the top right and bottom left corners.

ICU

WARD

# ICU recovery room bed-side rehab





# Cardiac rehabilitation in ICU

Passive and active Body movement

Breathing

Coughing

Postural change

Airway management  
(Chest physical therapy)

Pain

Early exercise

Better breathing

Prompt coughing technique

Postural changes-early movement

Maintain good airway

Better pain control





# PAIN CONTROL

- Relaxation and surgical wound management
  - Wound protection can reduce pain and increase the power of coughing
  - towel cover the wound
  - pillow
- Pain medication can be used.







## Abdominal breathing



Bilateral chest  
breathing

Unilateral chest breathing

# Breathing training apparatus





# Ward rehabilitation

- Sitting - standing – walking
- up and down stairs
- bicycling
- self-care training
- exercise training



## Cardio Rehab before discharge

- Exercise training: 5 Mets or  $\text{THR} = \text{HR}_{\text{rest}} + 20$ ;
- medicine guidance
- Exercise function testing: such as 6MWT。



# Follow up

- Clinic
- PT/INR, medicine
- Cardiopulmonary function testing
- Occupational consultation



# summary of Rehabilitation for heart surgery patients (phase I )

- **Goal:**

- Sit earlier
- Out of bed earlier
- Control of complications
- Earlier discharge

- **Therapy:**

- Education: explain and persuade
- body movement monitoring by ECG
- Breathing training and chest physical therapy
- Sitting training
- Standing and walking training
- Stretching, balling and anti-resistance training in exercise room



# SUMMARY

- Cardiac rehabilitation is effective in helping patients recover quickly from surgery
- Exercise can be started immediately following surgery barring contraindications
- Post-discharge, patients can safely continue to practice the exercise at home



广东省心血管病研究所心脏康复区

运动训练室





# 心脏康复内容



1-1 术前评估及健康教育



1-2 术前评估及健康教育



1-3 术前康复知识宣教、术前心理疏导



1-4 术前康复知识宣教



1-5 术前康复知识宣教及术前心理疏导



1-6 术前康复知识宣教



1-7 术前康复知识宣教



1-8 术前饮食

## 心脏外科手术 病人的康复

术前：增加对疾病的认识，减轻对手术的恐惧和心理负担，积极配合治疗。



术后护理



术后床边康复之一

术后：帮助病人进行床边康复，促进机体的健康恢复，预防各种并发症，指导病人出院后的药物治疗、日常生活、定期随访。



术后床边康复之二



术后体能康复



## 心脏康复——运动篇 规律运动的好处

生活源于运动，运动不仅可以强身健体，还可以给我们带来很多积极的变化。然而，随着生活水平的提高，繁忙的生活节奏和紧张的生活习惯使我们越来越少参加运动，缺乏运动是诱发心脏的一个危险因素。坚持规律的运动锻炼可以减少心血管疾病的机会，并对防止心脏病复发起到重要的作用。

### 规律的运动锻炼有什么好处？

- ✓ 运动可以增加心脏和肺的工作效率，改善您的体能，增加体力劳动能力。
- ✓ 运动可以调节血脂，升高您的高密度脂蛋白(对血管有保护作用的脂蛋白)的浓度，降低血液中的胆固醇和甘油三酯。
- ✓ 运动可以调节血压和心率，使血压和心率趋于平稳，对心脏有保护作用。
- ✓ 运动增加胰岛素的敏感性，调节血糖，预防和进行治疗糖尿病。运动可以减少血小板聚集性，增加纤溶性，减少心肌梗塞和中风的机会。
- ✓ 通过规律运动，消耗多余的脂肪，有助于减轻体重和保持理想的体重。
- ✓ 运动可消除情绪紧张，有助于改善睡眠。
- ✓ 运动可以增加您的生活信心和兴趣，改善您的社会适应能力。

心脏是我们的动力源泉，可是如果患了心脏病，经历了心脑复苏甚至做了心脏外科手术，我还能参加运动吗？我的心脏能承受怎样的运动量？怎么样运动才安全而有实效？请留意下一讲——冠心病的运动处方。



# 冠脉搭桥术

广东省人民医院心脏康复区

# 心脏康复是心脏病人心身健康的治疗选择

广东省人民医院心脏康复区

# 冠心病的二级预防

广东省人民医院心脏康复区

# 先天性心脏病的外科治疗



广东省心血管病研究所  
广东省心血管病医院  
霍英东心脏中心

*Thanks for  
Your Attention :-)*

