

# Cases

## Athelte with a systemic right ventricle

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No Disclosure

# Long-Term Outcome after atrial switch for TGA

- right “systemic ventricle”
- leakage of the atrial baffle
- obstruction of the baffle
- sinus-node dysfunction
- atrial arrhythmias (atrial flutter)
- ventricular dysfunction
- chronotropic incompetence

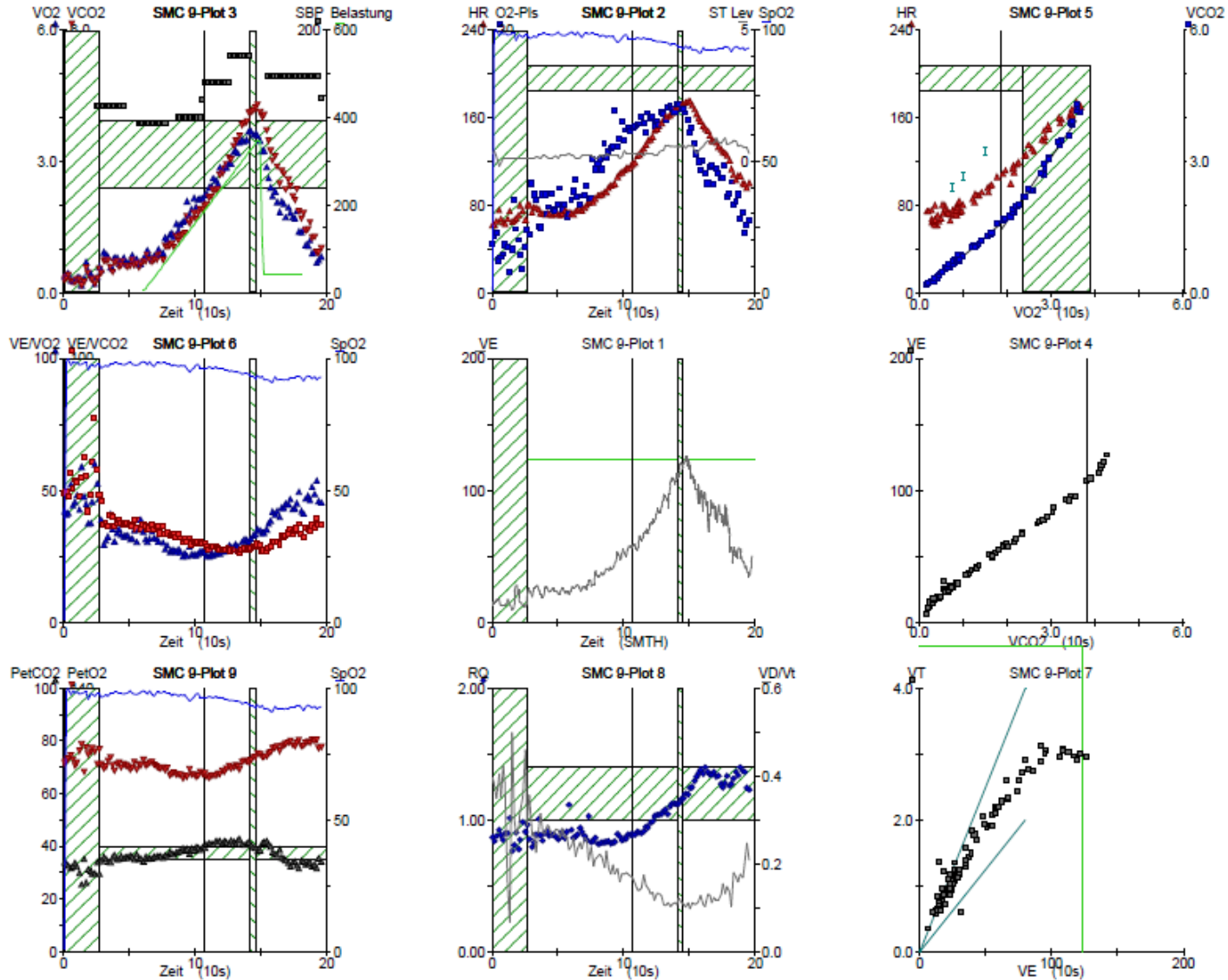
## Exercise intolerance

Mean peak oxygen uptake:  $\approx 60-70\%$

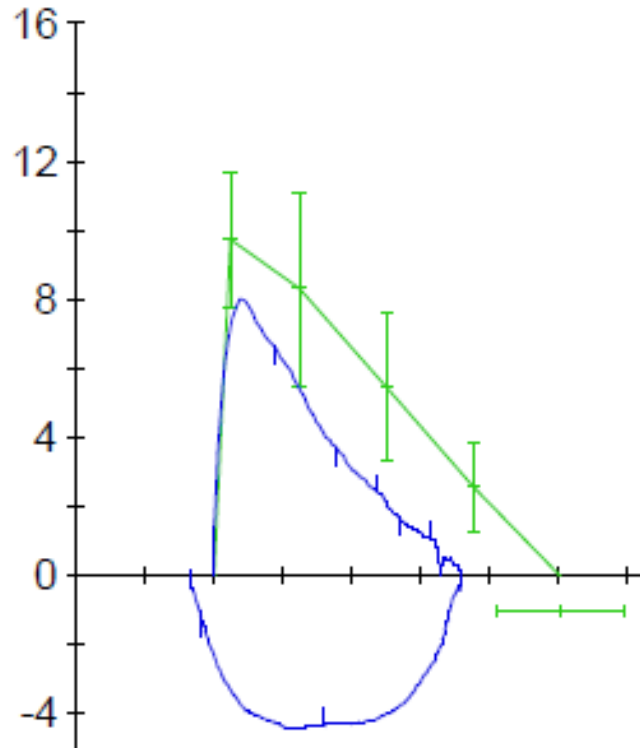
# Cardiopulmonary Exercise Test

Leistung	5.11 W/kg 353 Watt
Herzfrequenz Ruhe max.	70 Puls/min 176 Puls/min
RR Ruhe max.	128 / 85 mmHg 180 / 87 mmHg
SpO2 Ruhe Belastung	98 % 93 %
<b>Peak VO2</b>	<b>53.1 ml/kg/min</b> <b>( 115 % der Norm)</b> <b>3.661 L/min</b>
Circulatory Power	9549 ml/kg/min * mmHg
Ventilat. Schwelle Leistung Herzfrequenz	31.2 ml/kg/min 176 Watt 115 Puls/min
VE/VCO2 slope	24.8
RER	1.14

# Cardiopulmonary Exercise Test



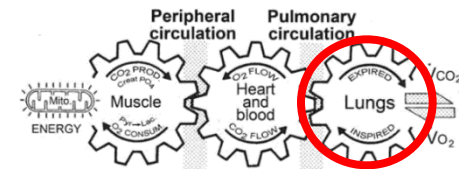
# Spirometry



FVC	3.60 Liter	( 71 % der Norm)
FEV1	3.15 Liter	( 74 % der Norm)
FEV1/FVC	88 %	

## Restrictive Lung Pattern

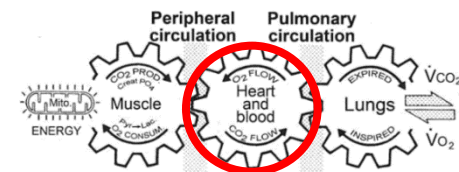
- Common in patients after open heart surgery
- Surgical scars
- Fibrotic tissue
- Impaired chest wall compliance
- Hypoperfusion of the Lungs



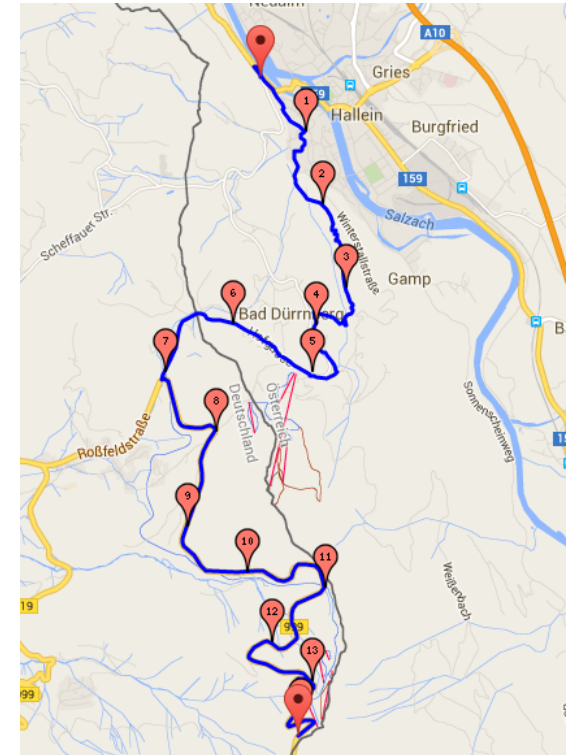
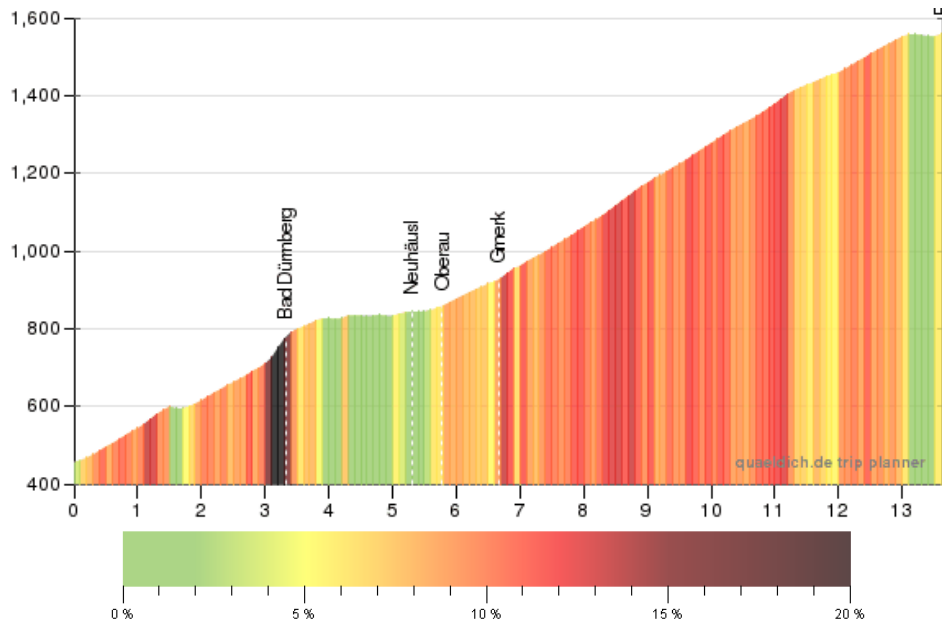
# Cardiac Magnetic Resonance

	Study subject	Reference values
End-diastolic volume index (ml/m <sup>2</sup> )	109	98 (59-198)
End-systolic volume index (ml/m <sup>2</sup> )	101	54 (21-159)
Stroke volume index (ml/m <sup>2</sup> )	57	45 (34-58)
Ejection fraction (%)	53	44 (20-75)

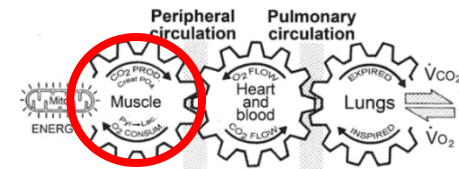
- Within the normal range compared to „reference values“ (Patients with congenital corrected Transposition of the Great Arteries)
- Stroke volume and ejection fraction at the upper range of „normal“
- But no „other“ sings of an athletes heart



# “Hausrunde”



- Intensive and structured training for years
- Summer: 15h/week cycling, Winter: 10h/week cycling and running
- Half Marathon: 1:50h (2009),
- Full Marathon 4:34h (2013)



## Take Home Message

With regular exercise training also a systemic right ventricle can become very efficient comparable to healthy amateur athletes.

However, there are no morphological adaptations comparable to an athletes heart.



# Thank you for your attention

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