

ASV, PAV: Toujours à la mode?

CLINIQUES UNIVERSITAIRES ST-LUC - BRUXELLES
ACTUALITES EN VENTILATION 2008
(Médecins • Kinésithérapeutes • Infirmières)

Samedi 22 novembre 2008

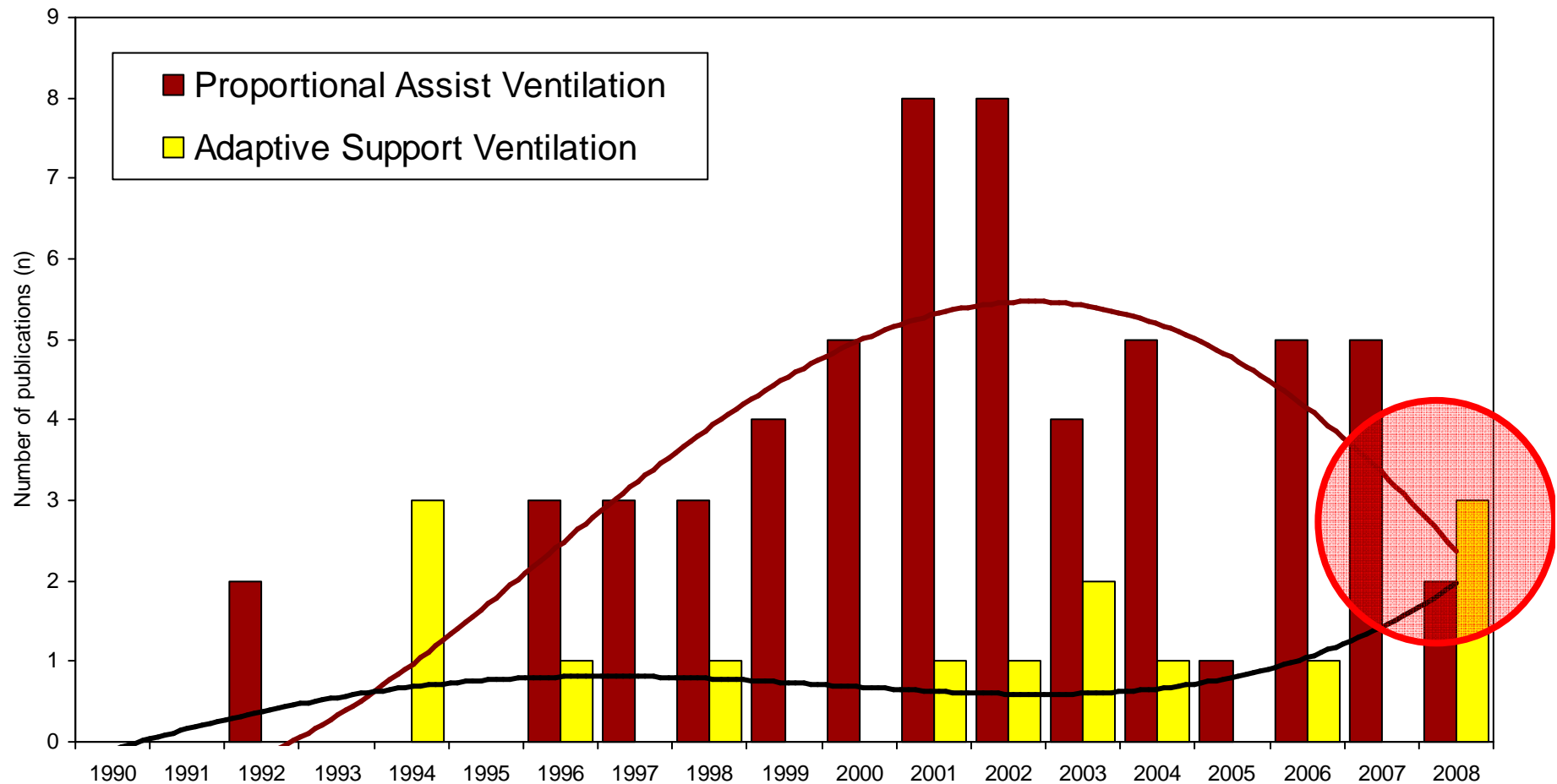
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PubMed Search: yearly publications

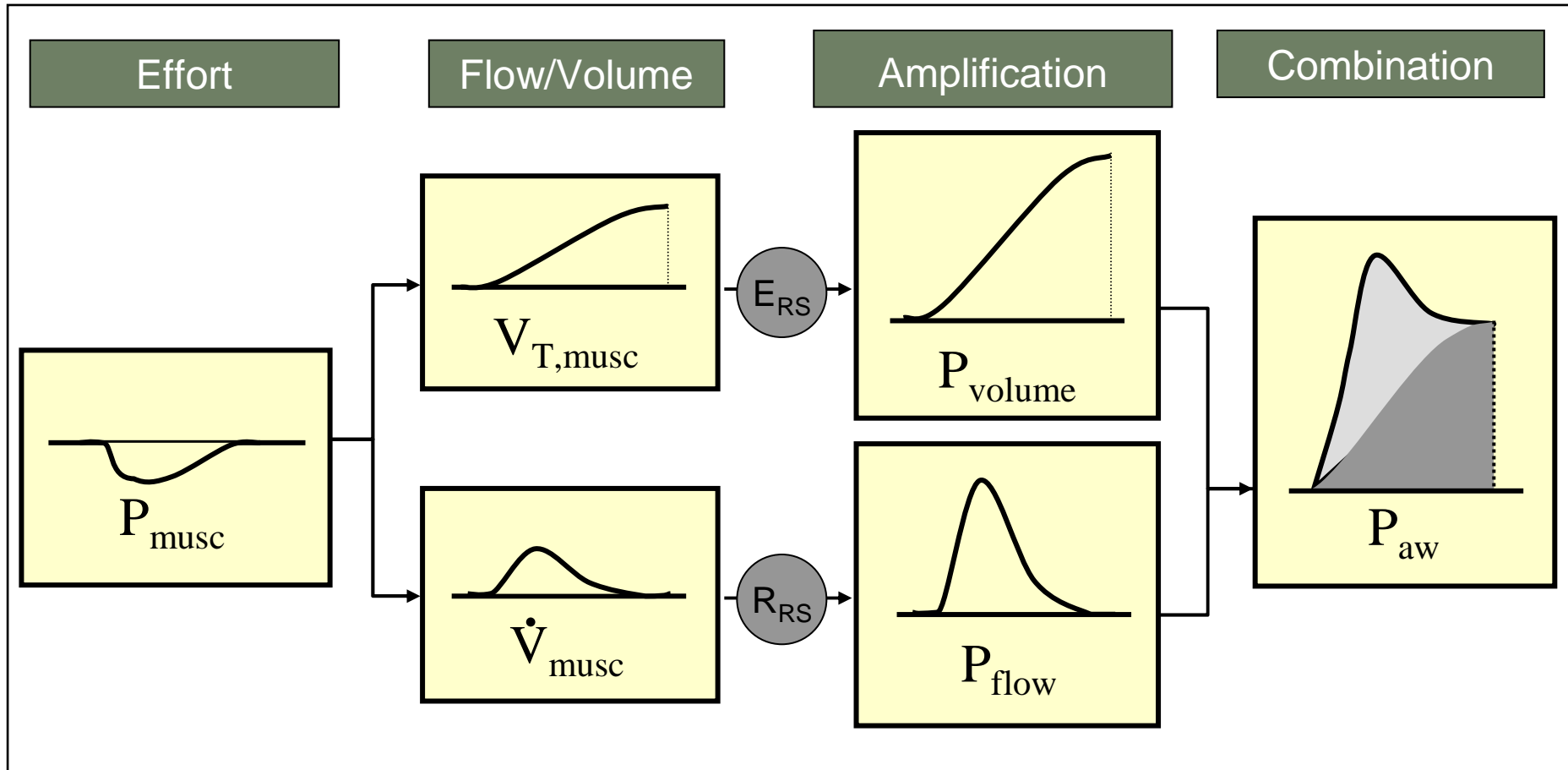


Randomized Controlled Trials*

First author	Mode	date	n total	Patients type	Outcome +	Outcome =
Gay	PAV	2001	45	Mixed	Refusal RR improvement Less complication	NIV failure Mortality
Fernandez-Vivas	PAV	2003	117	Mixed	Comfort Tolerance	NIV failure LOS Mortality
Xirouchaki	PAV	2008	208	Mixed	remaining in spont Synchrony	ICU and Hosp mortality Duration of MV?
Rusterholtz	PAV	2008	36	CPE		NIV failure Mortality Hdy and AMI
Sultzer	ASV	2001	49	CABG	Duration of MV ABG	LOS
Petter	ASV	2003	26	CABG	Manipulation Alarms	Duration of MV LOS
Gruber	ASV	2008	50	CABG	Duration of MV	ABG Manipulation LOS Mortality

*: Excluding Cross Over

Proportional Assist Ventilation (PAV)



Proportional Assist Ventilation+ (PAV+)

1. PAV:

- PC breath
- P_{insp} w/i breath proportional to flow/volume
- Positive feedback
- V_T , RR and P_{insp} not set

2. $(R_{RS}$ and $E_{RS})_{\text{auto}}$

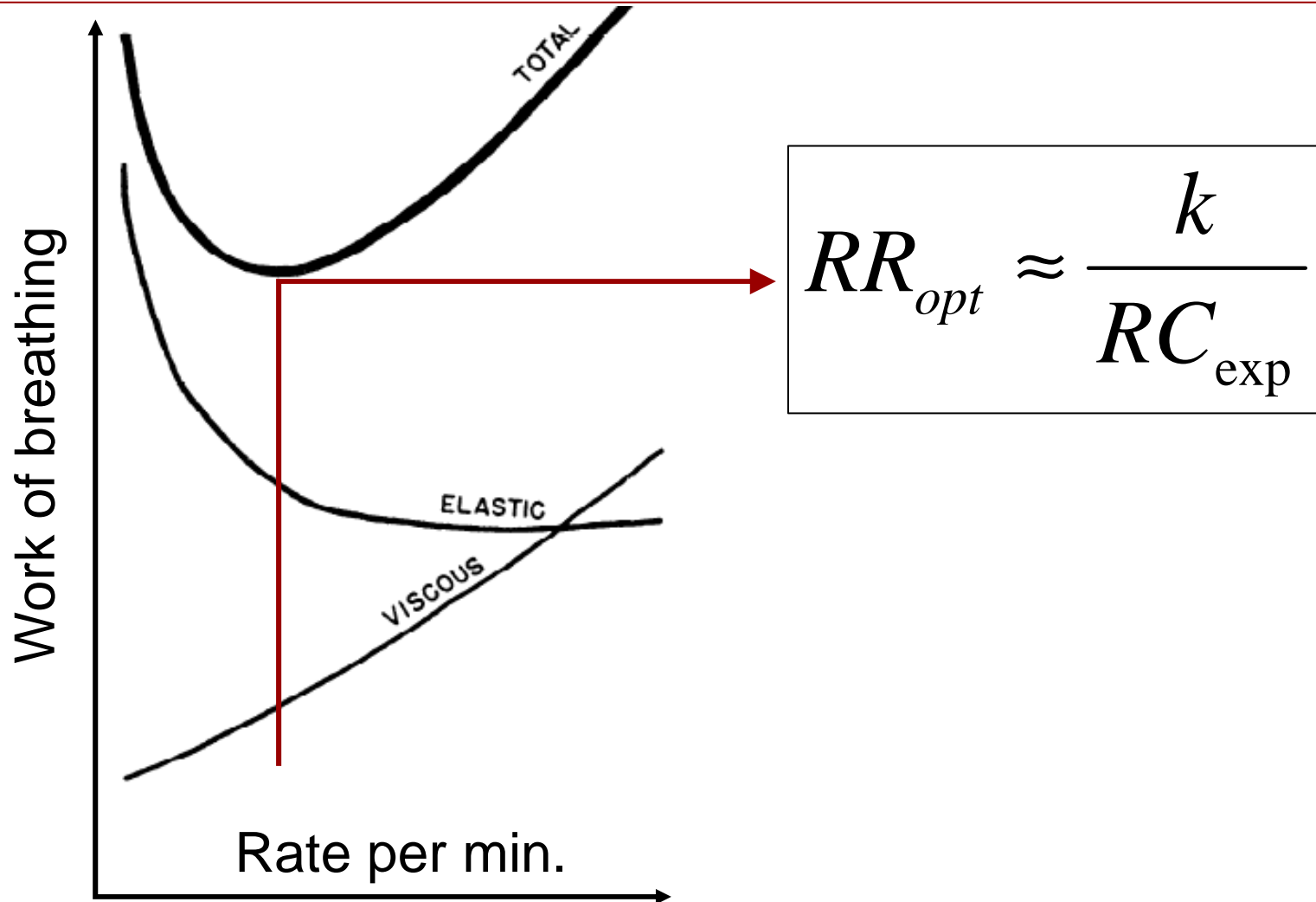
- Random micro-perturbations
- R_{RS} : pulse reductions in P_{aw} in early inflation phase.
- E_{RS} : Brief end-inspiratory occlusions

Adaptive Support Ventilation (ASV)

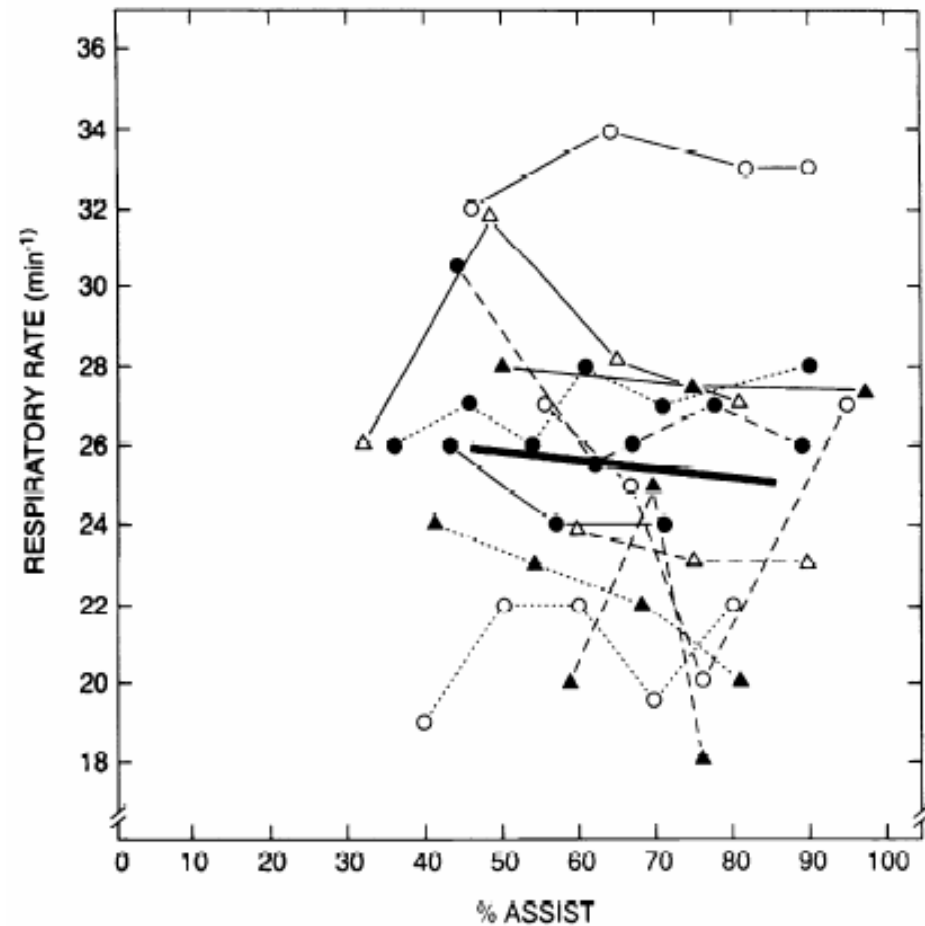
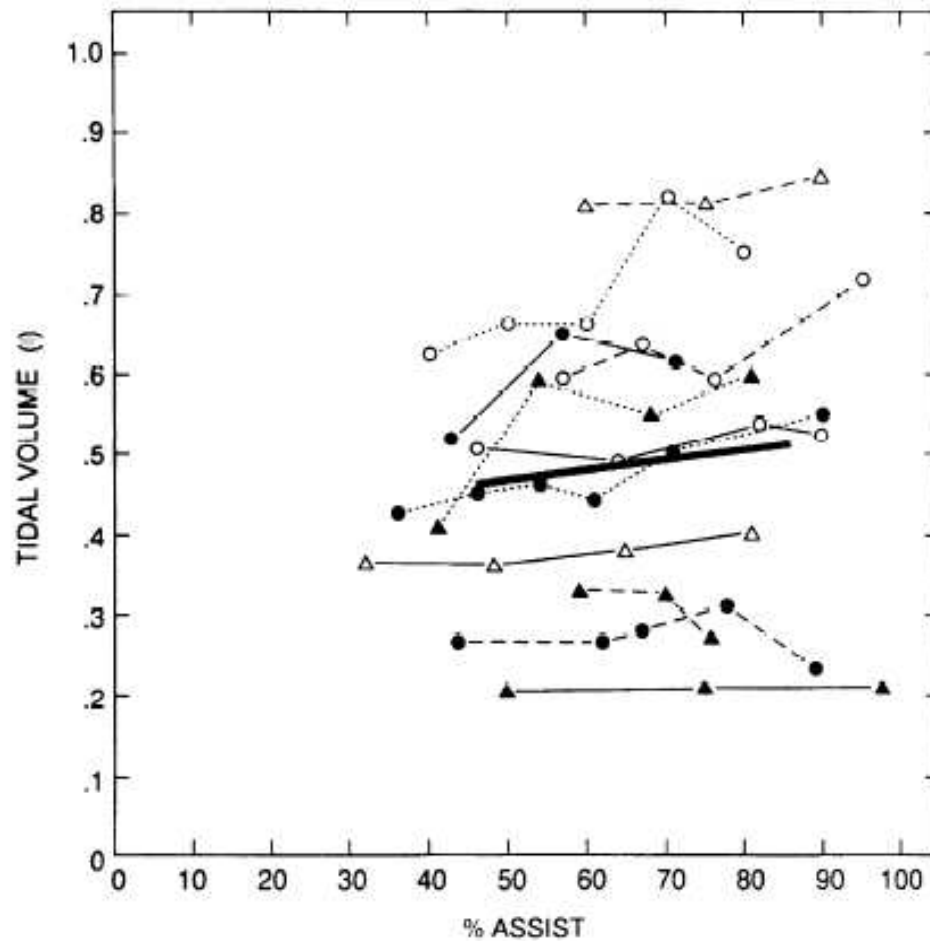
1. ASV

- PC breaths: PCV and PSV
- $MV \text{ (set)} = RR_{\text{opt.}} * V_{\text{T, opt.}}$
- Regulated: $[RR_{\text{mand}} \text{ for } RR_{\text{opt.}}] + [P_{\text{insp}} \text{ for } V_{\text{T, opt.}}]$
- Negative feedback
- Safety: $[PCV \leftrightarrow PSV] + [\text{dynamic safety rules}]$

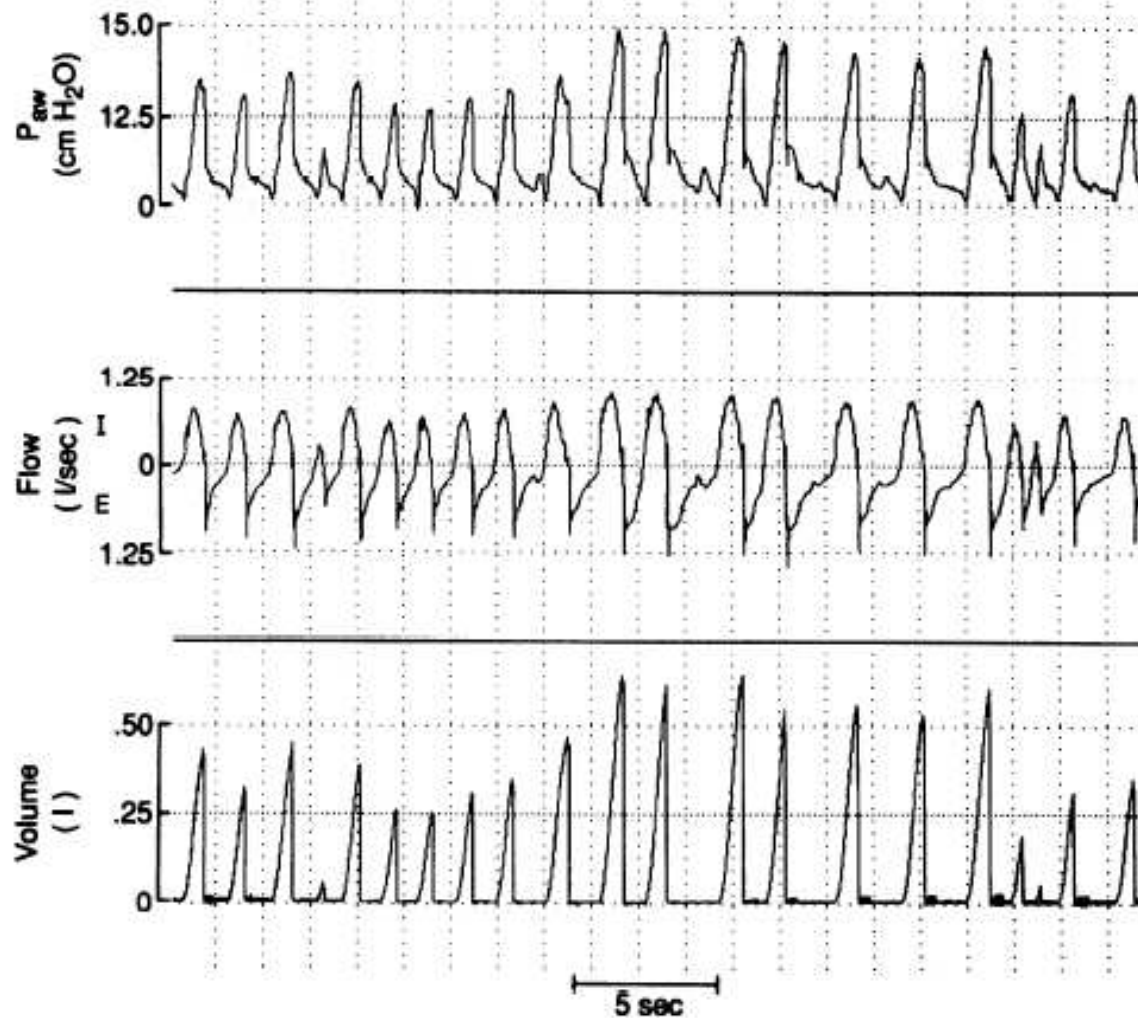
What is “optimal” RR and VT



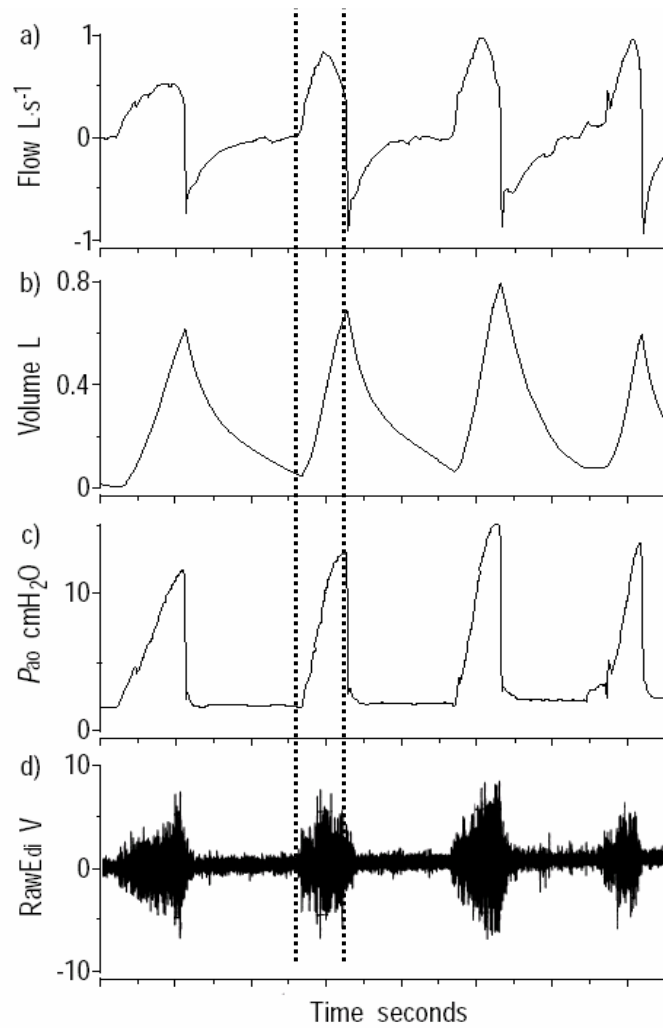
PAV: Physiological tool...



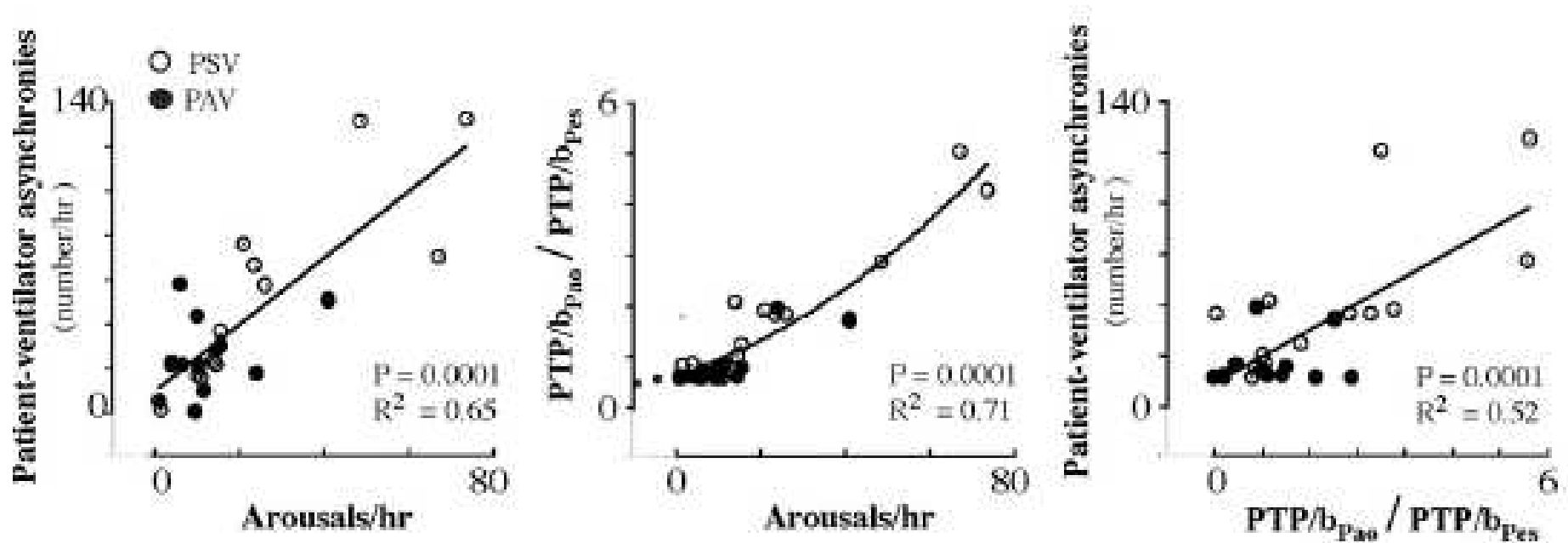
PAV: Variability and Comfort



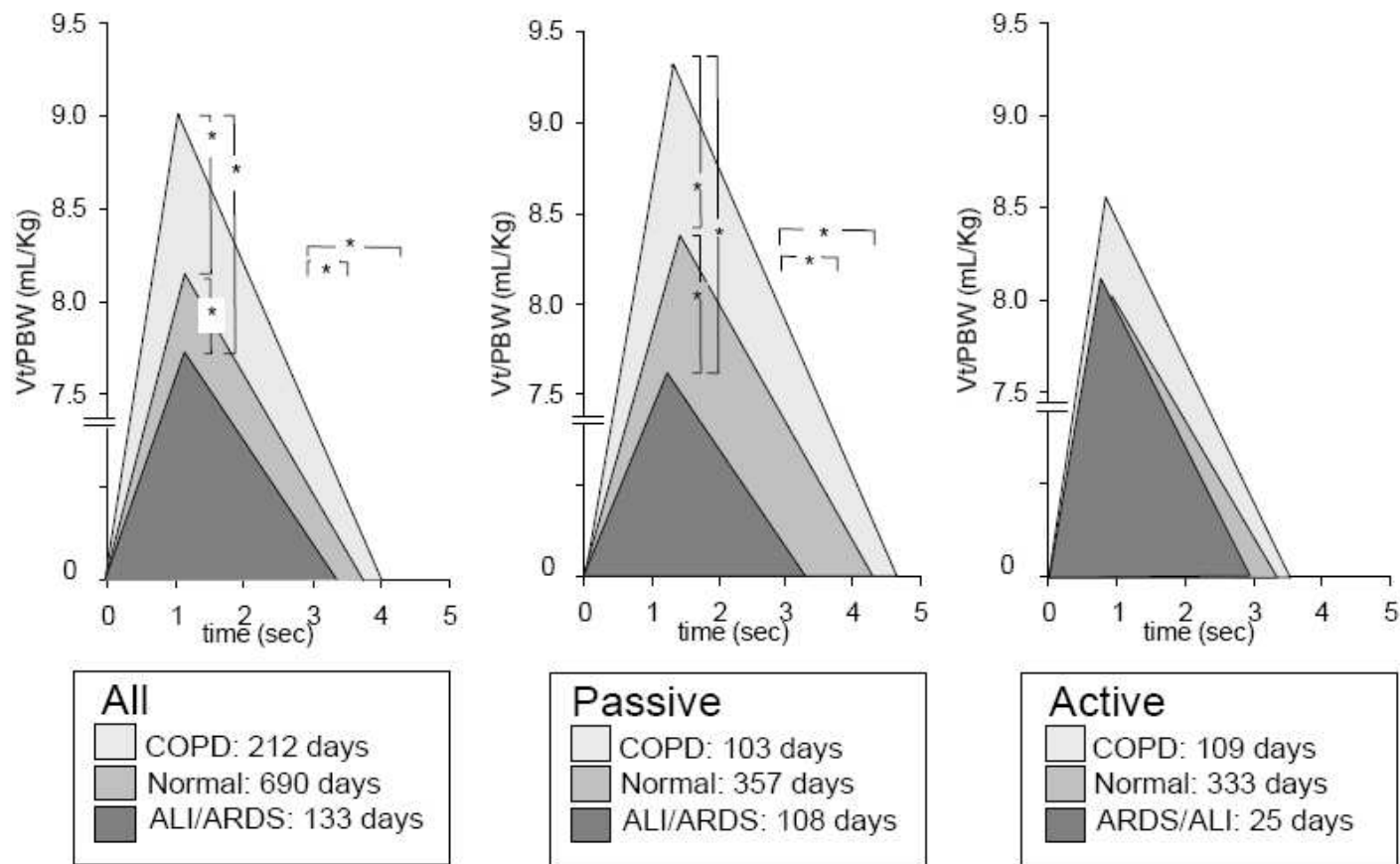
PAV: Synchrony and Comfort



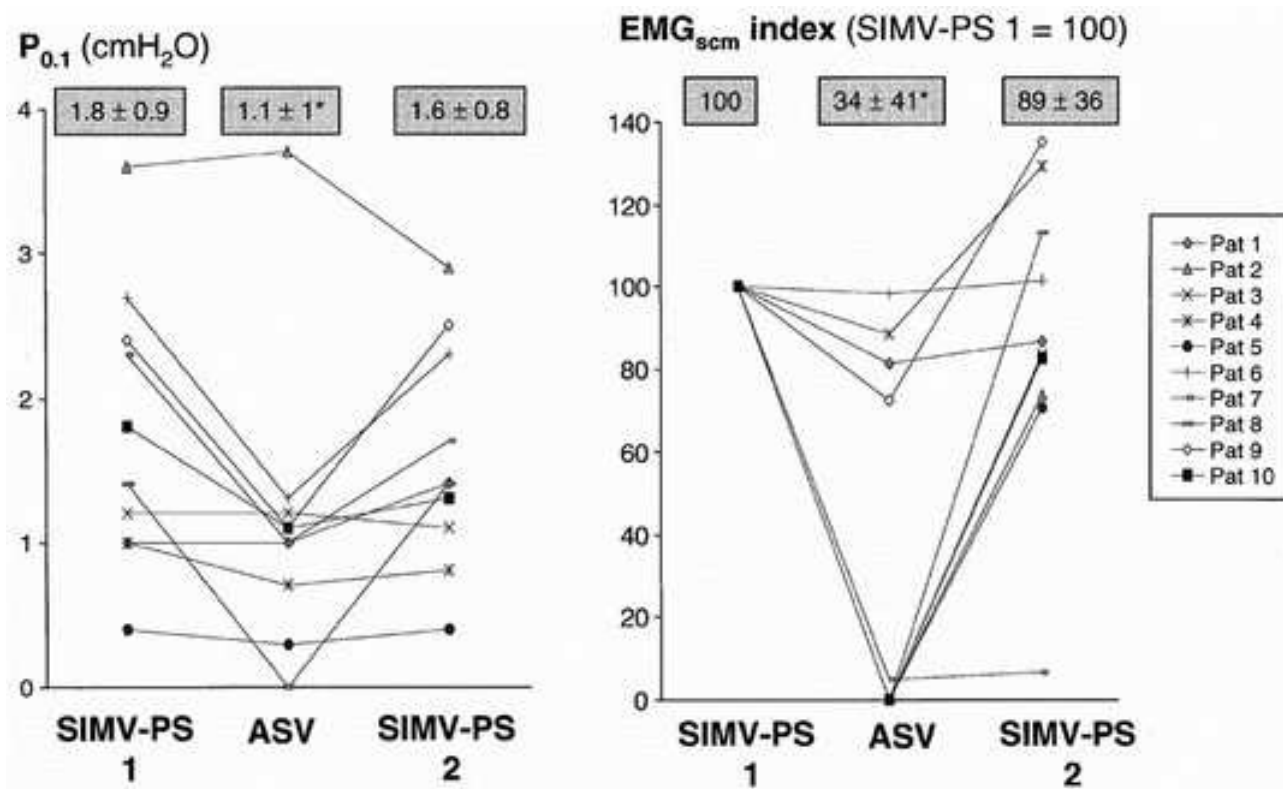
PAV: Comfort and Synchrony



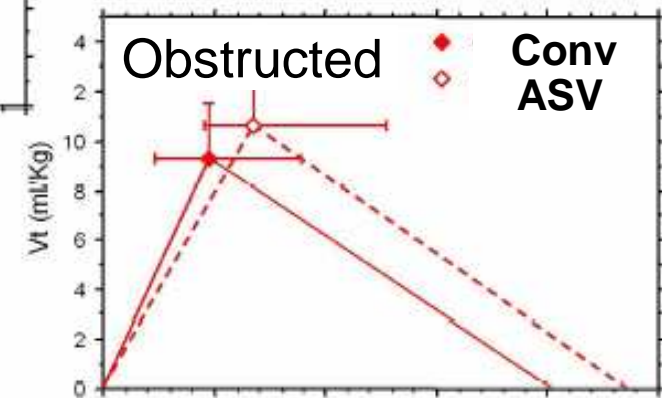
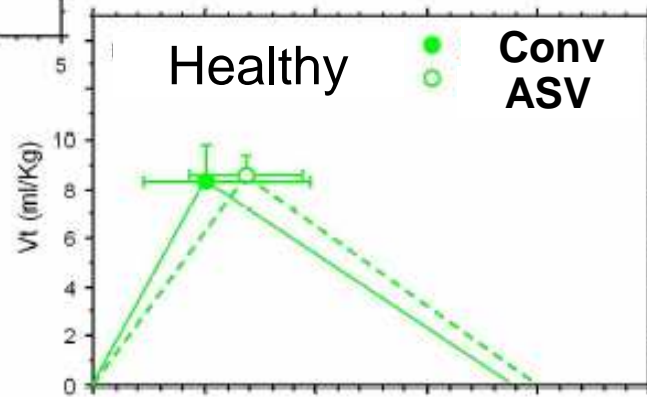
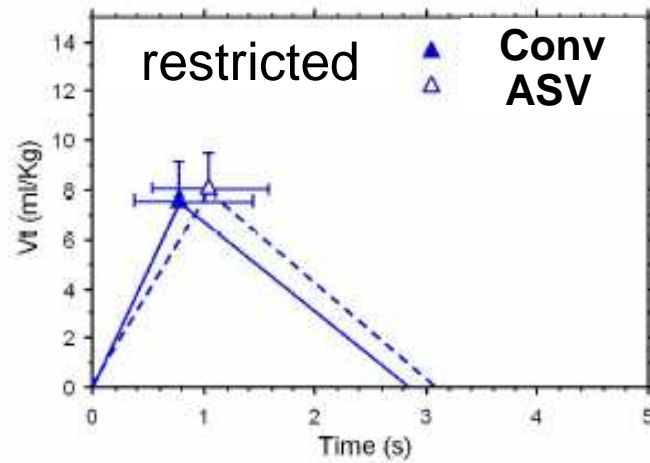
ASV: Adaptive to the respiratory mechanics



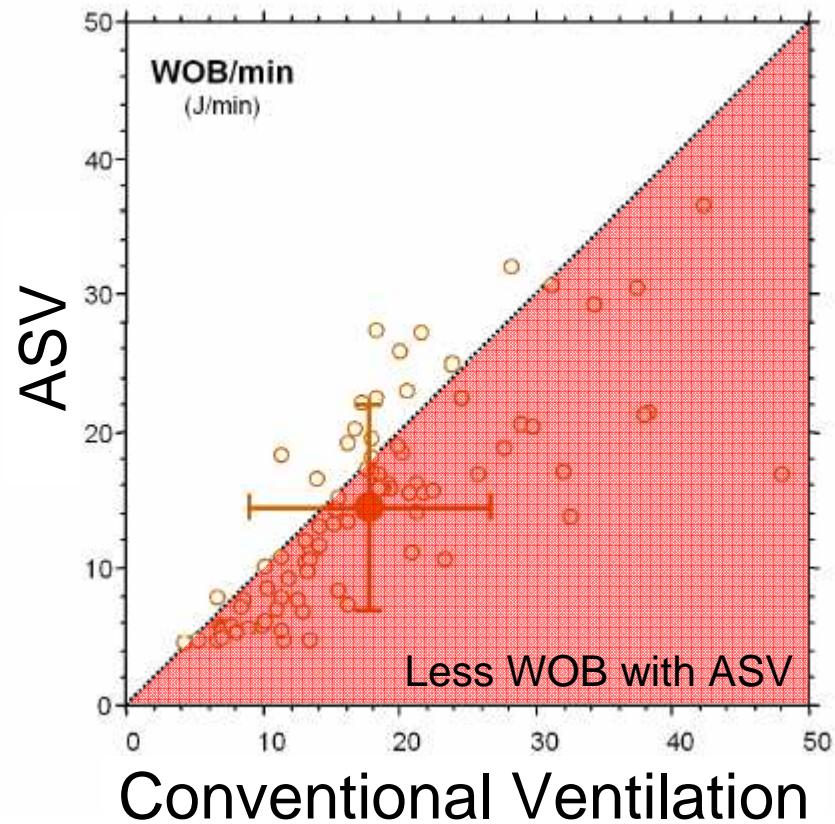
ASV: Optimizing the WOB...



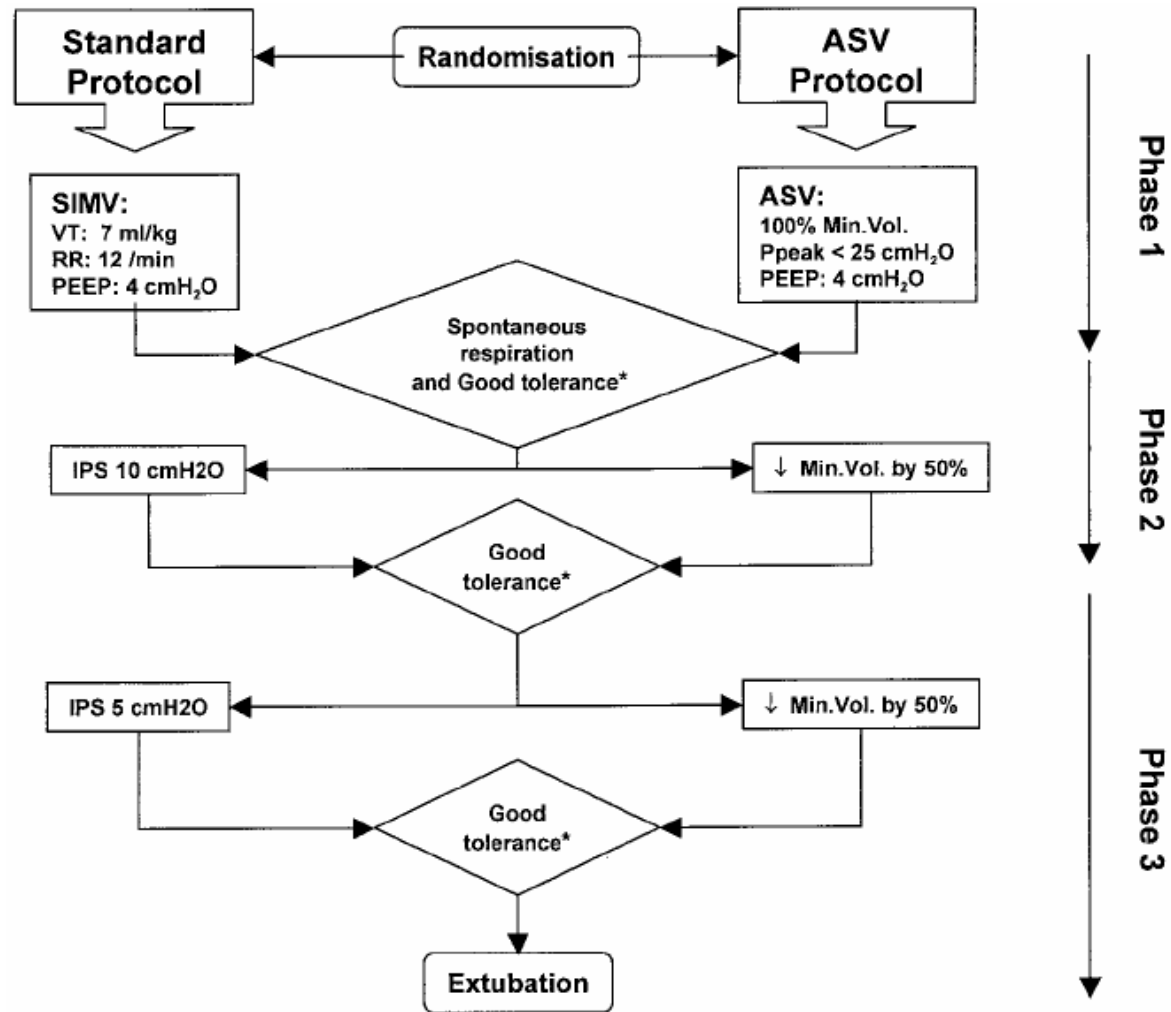
ASV: As well as the experts...



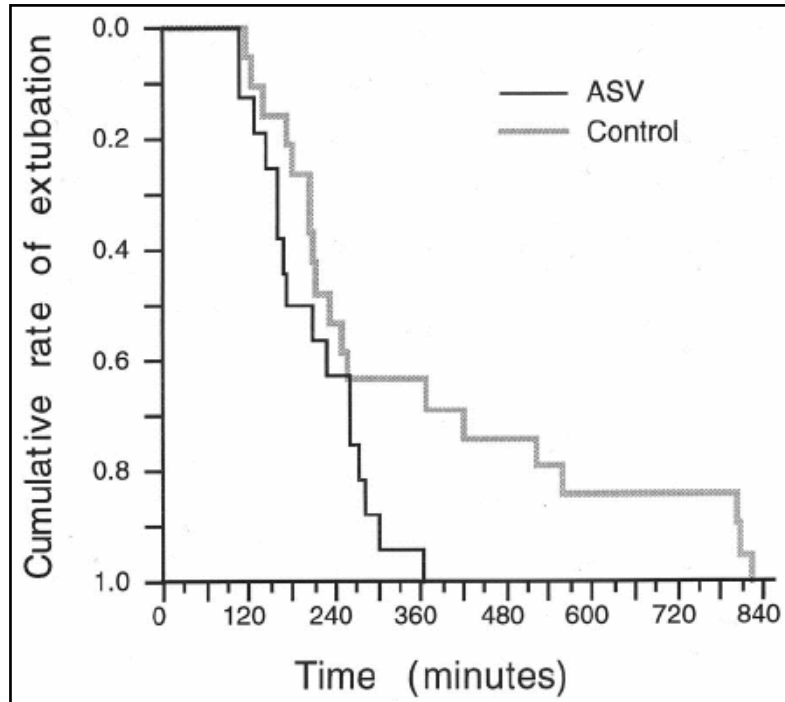
ASV: Better than the experts?



ASV: Clinical evidences – Post CABG patients

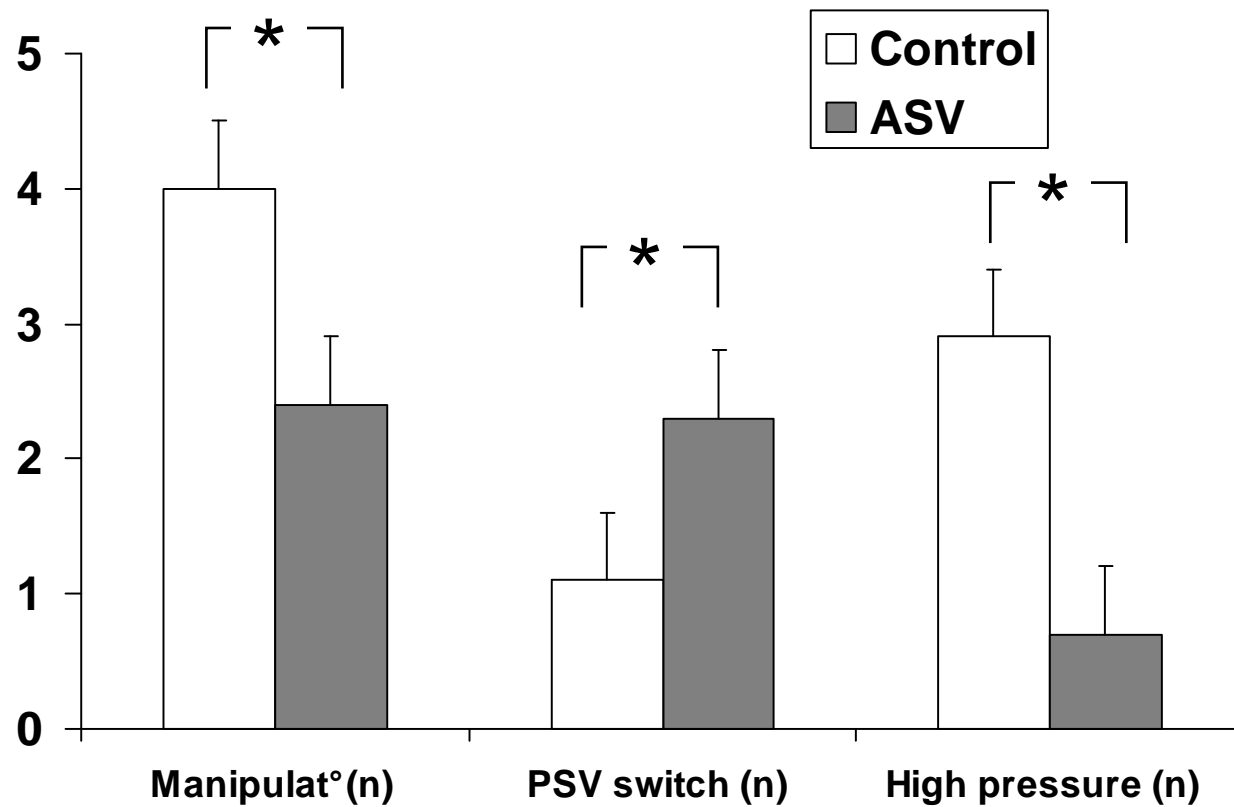


ASV: Clinical evidences – Post CABG patients

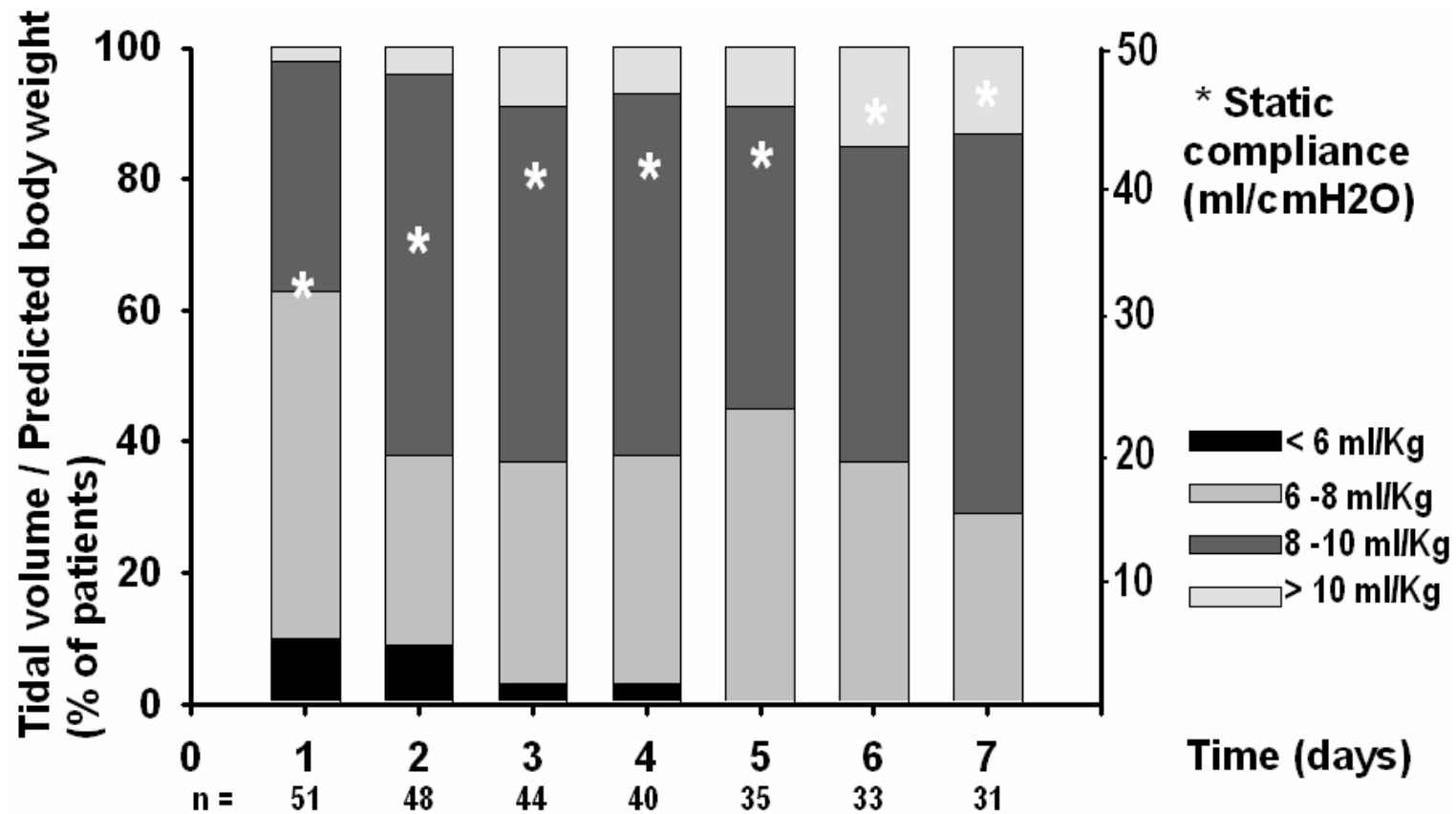


	Control	ASV	p value
	n = 20	n = 16	
Ventilation (min)	243	193	0.02
Extubation H6 (n)	12	15	< 0.01

ASV: Clinical evidences – Post CABG patients



ASV in ARDS patients – automatic VT adjustment



PAVNAVAKBSASV??????????

	PAV	NAVA	KBS	ASV
Principle	Pinsp ~ flow	Pinsp ~ EMG _{dia}	Pinsp to RR in comfort zone	Pinsp/RR to minimize WOB
Breaths type	≈ PSV	≈ PSV	PSV	PSV & PCV
Passive pts	NO	NO	NO	YES
Active pts	YES	YES	YES	YES
Auto weaning	NO	NO	YES	YES

Questions?

机械通气的新模式： 成比例辅助通气(PAV)、适应性 支持通气(ASV)、

关键词: 机械通气 PAV ASV

简介

新的机械通气模式如成比例辅助通气(Proportional Assist Ventilation, PAV)、适应性支持通气(Adaptive Support Ventilation, ASV)和智能监护(SmartCare, SC)目前已在市场上推出。

呼吸机的输出与病人的实际需要相匹配。所有以上模式至少通过一种闭环(Close-Loop)系统来工作：
PAV 通过调



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