

# INJURY PREVENTION IN THE DEVELOPING ROWER



**GrowingBODIES**  
with Conny Draper

# INTRODUCTIONS





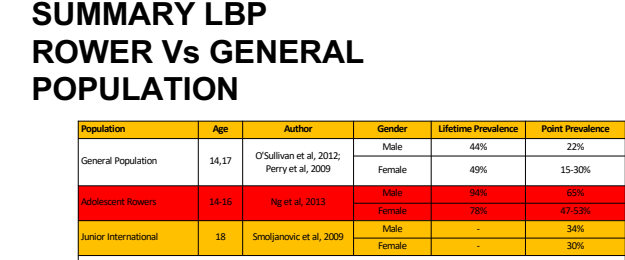
**SPORTS PHYSIOTHERAPIST**  
Australian Olympic Rowing Team  
Physiotherapist Rio 2016 London 2012  
Aust Rowing Team Physiotherapist 2008-2016  
**BODYSYSTEM PHYSIO**

**SPORTS BIOMECHANIST**  
Australian Rowing Team  
Biomechanist 2008 - 2013  
Consultant Biomechanist to international Rowing Federations  
FISA Commission Member (Equipment and Technology)

**SPORT & EXERCISE PHYSICIAN**  
Australian Olympic Team Doctor Rio 2016, Sochi 2014, Beijing Paralympics 2008  
Aust Rowing Team Doctor 2010-2016  
**Orthopaedics ACT**

**GrowingBODIES**  
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# SUMMARY LBP ROWER Vs GENERAL POPULATION

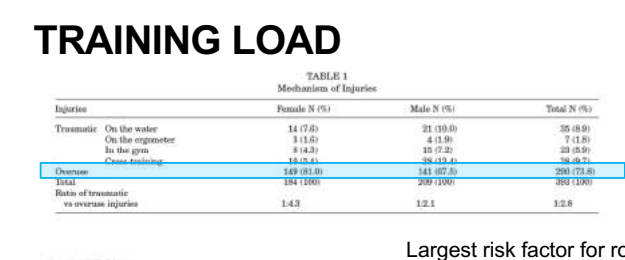


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Population	Age	Author	Gender	Lifetime Prevalence	Point Prevalence
General Population	14,17	O'Sullivan et al, 2012; Perry et al, 2009	Male	44%	22%
			Female	49%	15-30%
Adolescent Rowers	14-16	Ng et al, 2013	Male	94%	85%
			Female	78%	47-53%
Junior International	18	Smoljanovic et al, 2009	Male	-	34%
			Female	-	30%
			Season Prevalence	2014 Jan Camp Prevalence	
Australian Rowing Team	Elite		2010	27%	24 hour Point 8%
			2011	15%	Month Point 18%
			2012	7%	Lifetime Rowing 57%
			2013	9%	ADULT Point 30%
			2014	15%	ADULT LIFETIME 60-80%

*LBP prevalence in adolescents is a known risk factor of LBP in adulthood [Hestbaek et al, 2006]*

# TRAINING LOAD



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TABLE 1  
Mechanism of Injuries

Injuries	Female N (%)	Male N (%)	Total N (%)	
Traumatic	On the water	14 (17.6)	21 (19.0)	35 (8.9)
	On the ergometer	3 (11.6)	4 (11.9)	7 (11.8)
	In the gym	4 (14.3)	10 (17.2)	14 (15.9)
Overuse	14 (14.3)	14 (14.3)	28 (14.3)	
<b>Total</b>	<b>34 (81.0)</b>	<b>34 (80.7)</b>	<b>68 (73.6)</b>	
<b>Total</b>	<b>184 (1100)</b>	<b>209 (1100)</b>	<b>393 (1100)</b>	
Ratio of traumatic vs overuse injuries	1.4:3	1.2:1	1.2:8	

*Sports Med (2017) 47:611-612  
DOI: 10.1007/s00421-016-3463-3*

**REVIEW ARTICLE**

**Rowing Injuries: An Updated Review**

Jess S. Thornton<sup>1</sup>, Anders Vinther<sup>2</sup>, Fiona Wilson<sup>3</sup>, Constantine M. Lefteris<sup>4</sup>, Mike Wilkinson<sup>5</sup>, Stephen R. Di Chiara<sup>6</sup>, Karen Orbanek<sup>7</sup>, Tomislav Smoljanovic<sup>8,9,10</sup>

Largest risk factor for rowing injury remains **rapid increase in training** frequency, intensity and volume.

Complete cessation of training is predictive of injury recurrence

*Consider tissue and training load*

## ROWING & CROSS TRAINING



### Traumatic and Overuse Injuries Among International Elite Junior Rowers

Tomislav Smpojanovic,<sup>1,2</sup> MD, PhD, Ivan Bojanc,<sup>1</sup> MD, PhD, Jo A. Hamrin,<sup>3</sup> MD, PhD,  
Darko Hnin,<sup>3</sup> PhD, Domagoj Delmar,<sup>1</sup> MD, PhD, and Marko Pecina,<sup>3</sup> MD, PhD  
The American Journal of Sports Medicine, Vol. 37, No. 6  
DOI: 10.1177/0363546508311205

- > 2 types X training ↑
- Run > 1/wk ↑ knee injuries
- > 7 sessions ↑ injuries / LBP
- ↑ mths training ↑ injuries / LBP

### Sports-Specialized Intensive Training and the Risk of Injury in Young Athletes

#### A Clinical Case-Control Study

The American Journal of Sports Medicine, Vol. 43, No. 4  
DOI: 10.1177/0363546514567298  
© 2015 The Author(s)

#### Increased risk injury:

- training hours / week > age in years
- time in organized sport > 2 x unstructured activity time

## INTERVENTION



Knee Surg Sports Traumatol Arthrosc (2011) 19:25-29  
DOI 10.1007/s00381-010-1171-0

SPORTS MEDICINE

### Low back pain in adolescent female rowers: a multi-dimensional intervention study

Debra Perich · Angus Burnett · Peter O'Sullivan ·  
Chris Perkin

- School girl rowers
- Non-randomised
- Screening + Education + Exercises



Less mid & end season prevalence of LBP

## OPTIMAL POSTURE

### PREVENTING LOW BACK PAIN

- Compressed hips
- Upright pelvis
- Flat low back
- Curved upper back



## STRETCH GLUTS


### AFTER EVERY SESSION 1-2min HOLD L+R



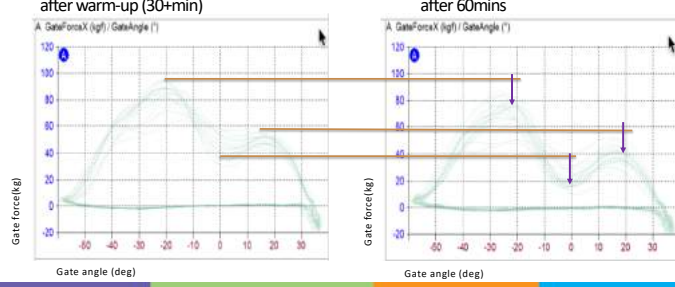
## TRUNK STRENGTH & ENDURANCE




## TECHNIQUE VARIABILITY WITHIN A TRAINING SESSION




Intercollegiate W8+; inexperienced novice female rower

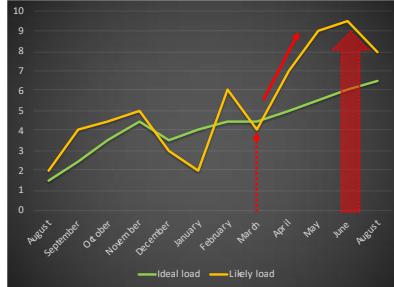


Data gathered & analysed with the Peach system


## SCHOOL ROWING CALENDAR & RIB STRESS INJURY



- Start training August
- First regatta – October
- Summer break moratorium
- January camp
- Regatta's throughout February & March
- Head River – March
- National Championships – March
- Junior selection trials – April
- Crew based training April to July



## PREVENTION OF RSI DEVELOPING ROWERS



- Significance not reflected in rowing literature
- Prevention is the only cure for this season ending injury
- Planned & graduated loading across the season
- Avoid radiation exposure with clinical diagnosis and management
- If imaging required: MRI in plane of the ribs, US for healing monitoring
- Timeframes for return to rowing may need to be extended compared to elite athletes

## FOREARM REHABILITATION

### ADDRESS CAUSATIVE FACTORS

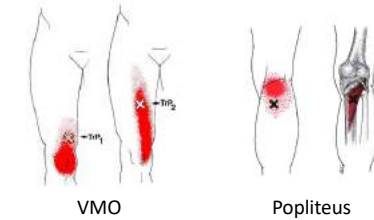
- No specific exercise rehabilitation for the forearm muscle groups
- Improving shoulder stability & will unload the forearm muscle groups
- Technical coaching for wrist & hand position is essential



## KNEE PAIN

### YOUNG ROWERS

- Youth >> Elite
- Mainly Patello-femoral pain
- Occasionally ITB friction
- Trigger point referred pain - VMO & popliteus
- Distal hamstring tenosynovitis



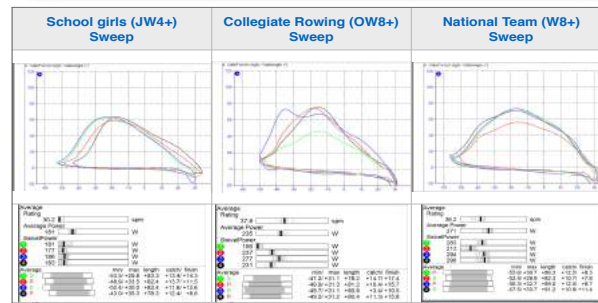
Travell & Simons' Myofascial Pain and Dysfunction; Trigger Point Manual 2nd Edition



## ROWING SKILL DEVELOPMENT

### WOMEN'S SWEEP

Women's Sweep Comparison: 5min SRRP pieces



## ROWING INJURY SPORTS MEDICINE MASTER CLASSES

PHYSIOTHERAPY & SPORTS MEDICINE FOR CLUB & SCHOOL PRACTITIONERS

### INJURY PREVENTION FOR COACHES

PROFESSIONAL DEVELOPMENT DAY FOR CLUB & SCHOOL COACHES



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www.growingbodies.blog

