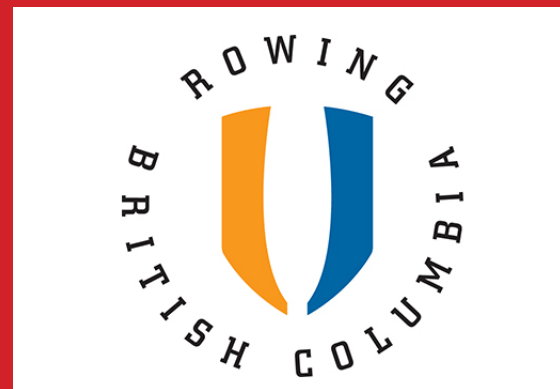




BRENTWOOD
COLLEGE SCHOOL



Strength and Conditioning for Youth in Rowing

November 2015

Coaching S&C at BCS



- **M,W,F – 2-6pm (4 x 1hr sessions)**
- **Time Slot – don't stray**
- **Business time – stay on task, arrive on time**

- **Journal & Tracking**
- **Progressive overload**
- **Attitude**
- **Uniform**
- **Music**
- **3 strike rule**

Timing	Focus
5 min	Roll-out, Stretch
5 min	Dynamic Warm-up
10 min	Plyometric/Olympic
30 min	Main body
If time...	Langer's core
	Stretching
	Cool down

Where do we do it?



What do we do?



- **Strength and Anaerobic Conditioning**
- **Category 1 and 2**
- **Programing**
 - **Sports specific**
 - **Periodized**
- **Testing**
 - **Year long Metrics and Progressions**
 - **No 1RM, only 3 RM and extrapolate (next slide)**
- **Some individualization (Rehab)**
- **Technique Clinics**
- **Nutrition**



Extrapolate



Calculated Percentage of 1Rep Max for 'Failure'

												1 Rep Max	
% →	65%	67%	75%	77%	80%	83%	85%	87%	90%	93%	95%	100%	
Reps →	20	12	10	9	8	7	6	5	4	3	2	1	
45	29	30	34	35	36	37	38	39	41	42	43	45	
50	33	34	38	39	40	42	43	44	45	47	48	50	
55	36	37	41	42	44	46	47	48	50	51	52	55	
60	39	40	45	46	48	50	51	52	54	56	57	60	
65	42	44	49	50	52	54	55	57	59	60	62	65	
70	46	47	53	54	56	58	60	61	63	65	67	70	
75	49	50	56	58	60	62	64	65	68	70	71	75	
80	52	54	60	62	64	66	68	70	72	74	76	80	
85	55	57	64	65	68	71	72	74	77	79	81	85	
90	59	60	68	69	72	75	77	78	81	84	86	90	
95	62	64	71	73	76	79	81	83	86	88	90	95	
100	65	67	75	77	80	83	85	87	90	93	95	100	
105	68	70	79	81	84	87	89	91	95	98	100	105	
110	72	74	83	85	88	91	94	96	99	102	105	110	
115	75	77	86	89	92	95	98	100	104	107	109	115	
120	78	80	90	92	96	100	102	104	108	112	114	120	
125	81	84	94	96	100	104	106	109	113	116	119	125	
130	85	87	98	100	104	108	111	113	117	121	124	130	
135	88	90	101	104	108	112	115	117	122	126	128	135	
140	91	94	105	108	112	116	119	122	126	130	133	140	
145	94	97	109	112	116	120	123	126	131	135	138	145	



Periodized



	September	October	November	December	January	February	March	April	May	June	July	August	
Rugby (M)	Red	Yellow	Yellow	Yellow	Yellow	Orange	Orange	Green	Green	Red	Blue	Red	Post-Season
Rugby (F)	Red	Yellow	Yellow	Yellow	Yellow	Orange	Orange	Green	Green	Red	Blue	Red	Off-Season
Rowing (M/F)	Red	Red	Blue	Yellow	Yellow	Yellow	Orange	Orange	Green	Green	Purple	Blue	Pre-Season
Volley Ball	Green	Green	Red	Red	Yellow	Yellow	Yellow	Orange	Orange	Orange	Blue	Blue	In-Season
Basket Ball (M)	Yellow	Orange	Orange	Green	Green	Green	Red	Red	Yellow	Yellow	Blue	Blue	Region/Rep Competition



Philosophy* (Modified from Matt Jordan, CSI Clagary)



Performance Optimization (T2P)	Explosive Strength / High Intensity / Work Capacity	
	Muscular Strength	
Performance Preparation (T2T)	Structural Tolerance	Work Capacity
	Movement Pattern Competency	
	Muscular Integrated Function	Stability / Mobility Continuum
Performance Foundation (L2T)	Movement Platform	
	Health / Lifestyle / Nutrition / Sleep	

Should Youth use Resistance Training?



YES

- **Under appropriate supervision, there is no evidence that it is detrimental**
- **Once a foundation has been laid, building good movement patterning, core strength and mobility**
- **Consider timing in the week: Legs Early, Pull, finish with Push on a Friday.**
- **It allows for symmetric development, and general athletic preparedness.**



Movement Platform



Release Work:

1. Pre or Post work out?

1. Rollers

2. Peanuts

2. Dynamic Warm-up



Sequence (T2T, T2P)



- 1. Plyometric/Explosive and coordinated**
- 2. Power(Pre- and in-season)**
- 3. Strength/focus Hypertrophy**
- 4. Local Muscular Endurance**
- 5. Assistance work**
- 6. 'Challenge'**



Getting Started (L2T, T2T)



- **Circuits**
 - For general preparedness in mobility and core strength.
 - For HIIT training
 - For asymmetric work during the off season
 - To break things up
 - Advantageous because it breaks up the monotony



What generates the largest response?



- **Response = Adaptation (Timed Push-up)**
 - Neuromuscular
 - Vascular
 - Hypertrophy
 - Muscle Density
 - Fiber type
 - Tendinous
- **Hormone response (Cortisol, Testosterone, HGH)**
- **Open ended, multi-joint movements**
 - Pull-up
 - Push-press
 - Bent-over Row
 - Squat
 - Dead-lift
 - Clean



Anatomical Adaptations



- 1. Create better Recruitment – improving the neuromuscular connections (Muscle Memory)**
- 2. Improve coordination of contraction (*Big/Heavy Lifts*) (increased start and sprint capability in endurance athletes)**
- 3. Increase tendinous tension**
- 4. Hypertrophy**
- 5. Muscle Type**
- 6. Vascularization**



Cheat Sheet



- **By the numbers:**
- **Intensity vs Volume**

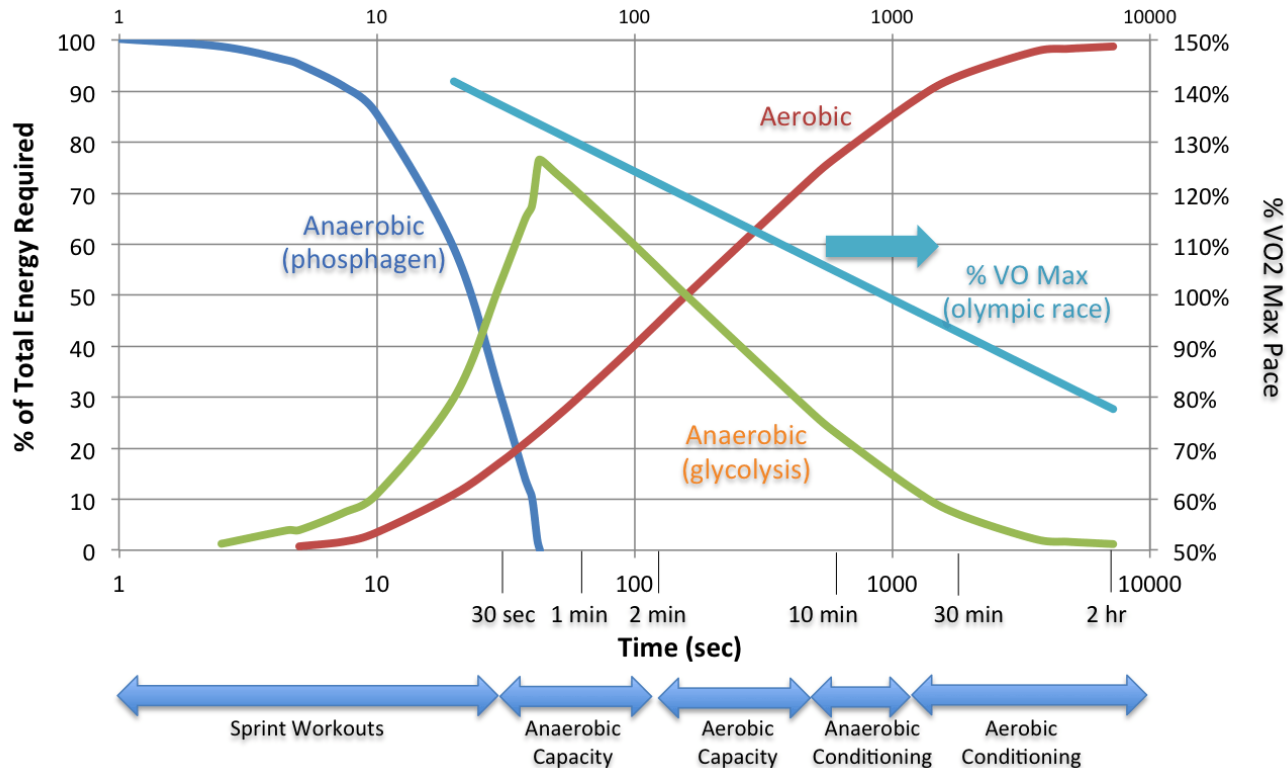
	Weight/Intensity	Reps	Sets	Rest
Hypertrophy	67-85% 1RM	6-12	3-6	30-90 sec
Strength	> 85% 1RM	2-6	2-6	2-5 min
Power	75-90% 1RM	1-5	3-4	2-5 min
Competition (cycle)	> 93% 1RM	1-3	1-3	~ 2 min
	80-85% 1RM	6-8	2-3	



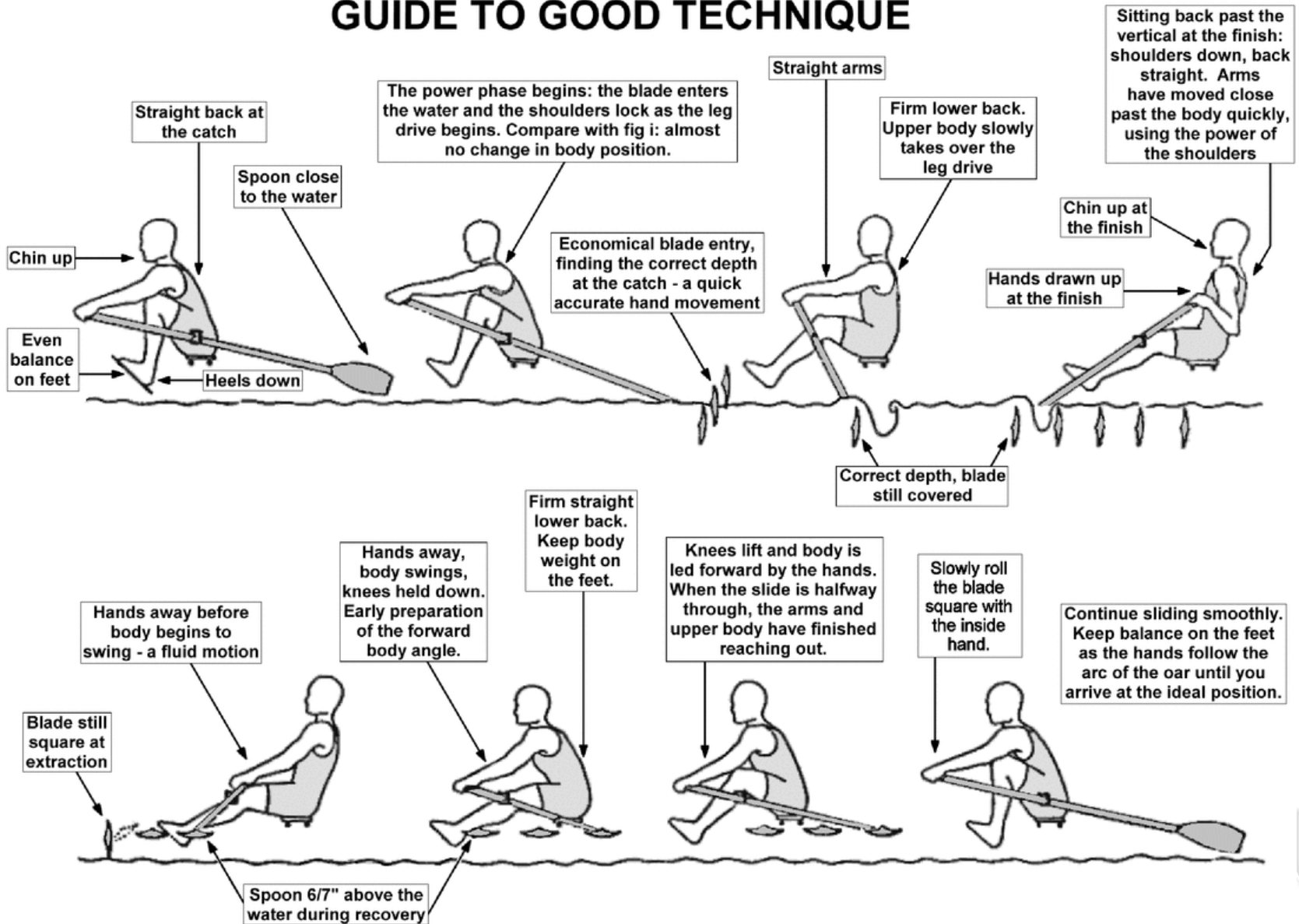
Physiological Improvements



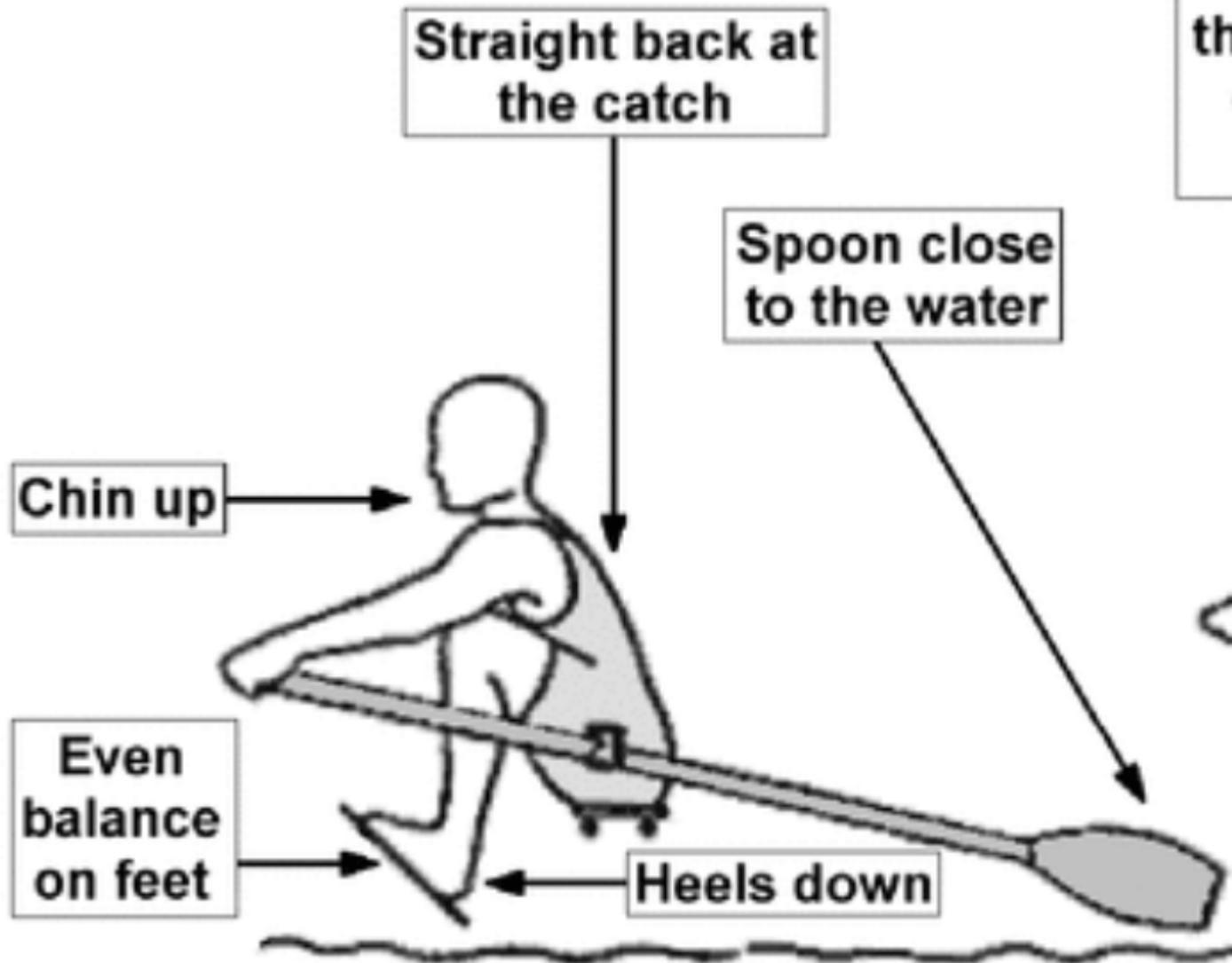
1. Increased capacity of phosphagen system. (Minor)
2. Increase Aerobic capacity and push back Lactic 'wall' through HIIT (interval) training – increase # of mitochondria.
3. Adolescence and 'The Age' – 13-17



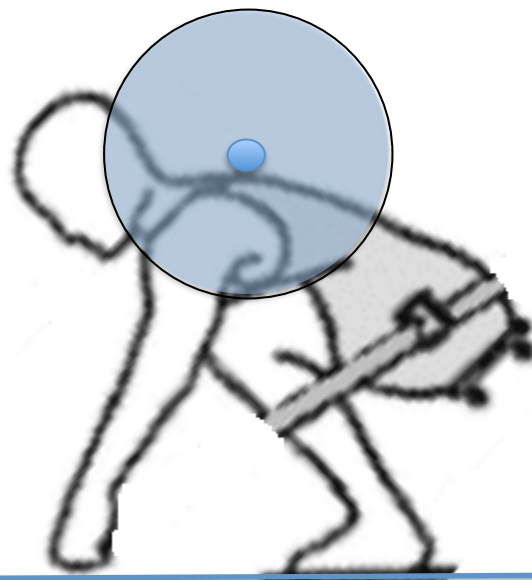
GUIDE TO GOOD TECHNIQUE



Rowing Technique



Rowing Technique



Relevant Lifts for T2T



- **If you could only do one lift for the rest of your life, how often would you dead-lift?**
- **Squat**
- **Clean**
- **Bench Pull / Bent over row / Inverted Row**
- **Pull-up**
- **Bench / Push-up**



Commonly Ignored



- **Female rowers**
- **All things Push**
- **Hamstrings**
- **Core**
- **The importance of training antagonistic muscle groups**
- **Calves (ankles)**



What to watch for...



- **Common issues with the new lifter and tips for correction.**
- **Squat motion restrictions (Squat = Trip Extension)**
 - Heels
 - Knees
 - Ankles
 - Hips
- **Improvements**
 - Activate Glutes – Band walks
 - Weight placements (High/Low, Front Back)



Rowing 'Issues'



- **Hip Mobility and Warm-up (Tara C)**
 - Achieving 10-2 o'clock
 - Knee leg alignment in the boat. Does the outside knee 'wing out' too much.
- **Ribs (Martin M. and 'The Jerk', building force and the Deadlift)**
- **Asymmetries (The port-side swagger, Alex R)**

