Reviewer ID: Matthew Querée, Gurmaan Gill			
Type of Outcome Measure: Wingate Anaerobic Test (WAnT)			**Total articles:** 5
Author ID Year	**Study Design**	**Setting**	**Population (sample size, age) and Group**
Jacobs et al. 2003	Test-retest 2 trials of arm WAnT were performed with 2-7 days between trials. Participants were directed to crank at maximal pace for 30s against a resistance load equal to 3.5% of their body mass.	Not specified	N=43 paraplegic participants 33M, 10F Mean (SD) age: 34.4 (10.3) years Mean (SD) body mass: 74.2 (18.3) kg Mean (SD) DOI: 8.1 (7.1) years Injury levels T2-T12
Jacobs et al. 2004	Convenience sample. 6 trials of arm WAnT were performed. Two test bouts were completed on each of three different test days. The six WAnT trials applied resistance loads equivalent to 1.0, 1.5, 2.0, 2.5, 3.0, and 3.5% of each subject's body mass.	Not specified	N=39 33M, 6F C5 group: N=13 (10M, 3F) Mean (SD) age: 31.0 (11.7) years Mean (SD) body mass: 77.5 (18.3) kg C6 group: N=13 (11M, 2F) Mean (SD) age: 35.2 (9.2) years Mean (SD) body mass: 75.6 (17.9) kg C7 group: N=13 (12M, 1F) Mean (SD) age: 41.3 (16.1) years Mean (SD) body mass: 73.6 (13.3) kg 3 groups w/ neurologically complete cervical level SCI (C5, C6 and C7)
Jacobs et al. 2005	Test-retest 2 trials of arm WAnT were performed with 2-4 days between trials. Participants were directed to crank at maximal pace for 30s against a resistance load equal to 1% (for C5 level injury participants), 2% (for C6) and 3% (for C7) of their body mass.	Not specified	N=45 participants with motor-complete injuries (AIS A/B) C5 group: N=15 Mean (SD) age: 34.7 (11.7) years Mean (SD) body mass: 75.6 (19.6) kg Mean (SD) DOI: 8.2 (3.9) years C6 group: N=15 Mean (SD) age: 31.8 (7.6) years Mean (SD) body mass: 71.3 (16.3) kg Mean (SD) DOI: 10.0 (7.2) years C7 group: N=15 Mean (SD) age: 35.1 (16.4) years Mean (SD) body mass: 72.8 (15.2) kg Mean (SD) DOI: 10.6 (7.4) years Injury level: C5 – C7
Nash et al. 2007	Repeated testing. Subjects underwent a 4-	Academic medical	7 participants with motor-complete (AIS A or B) paraplegia Age range: 39-58 yrs old DOI: 13.1±6.6 yrs

	month CRT program using alternating resistance maneuvers and high-speed, low-resistance arm exercise. Anaerobic power was measured before and after training using a 30-second WAnT.	centre.	T5-T12 injuries Study participants recruited from a pool of volunteers who reported mild to moderate upper limb pain during the performance of daily activities and used a manual wheelchair for locomotion. All participants had been physically inactive for at least 6 months before entry into the study.
Jacobs 2009	Matched-pairs design This study compared the effects of 12 wk of endurance training (ET) with 12 wk of resistance training (RT)	Not specified	18 participants with motor-complete paraplegia (T6-T10) 12M, 6F

1. RELIABILITY

Author ID	Internal Consistency	Test-retest, Inter-rater, Intra-rater
Jacobs et al. 2003	No data available	No significant differences were found between 2 test trials for any of the 4 power output variables: P_{peak} = highest average power output over any given 5-second period P_{mean} = average power output over a 30-second trial P_{min} = lowest power output recorded Fatigue (% decrease) = percentage decline in power output relative to P_{peak} Values of P_{peak} and P_{mean} were significantly associated between trials, with calculated r^2 values of 0.92 and 0.94 respectively.
Jacobs et al. 2005	No data available	No significant differences were found between trials in either P_{peak} or P_{mean}. Values of P_{peak} were significantly ($P<.05$) associated between trials for the C5 (r^2 =.95), C6 (r^2=.98) and C7 (r^2=.93) groups. Values of P_{mean} were also significantly ($P<.05$) associated between trials for the C5 (r^2 =.98), C6 (r^2=.96) and C7 (r^2=.88) groups.

2. VALIDITY – no data available

3. RESPONSIVENESS – no data available

4. FLOOR/CEILING EFFECT – no data available

5. INTERPRETABILITY

Author ID	Interpretability
Jacobs et al. 2003	Mean (SD) power output values shown below for each trial:

	Trial 1	Trial 2
P_{peak} (W)	312.3 (97.1)	311.4 (94.6)
P_{mean} (W)	221.1 (71.7)	221.7 (70.0)
P_{min} (W)	140.6 (49.5)	141.9 (50.6)
Fatigue (% decrease)	58.6 (12.1)	57.4 (13.5)

Jacobs	Mean (SD) peak power (P_{peak}) and mean power (P_{mean}) is shown in the table below for the C5, C6, and C7 group:

et al. 2004

Power output (W)	C5	C6	C7
P_{peak}	83.2 (47.2)	171.3 (47.5)	224.5 (56.8)
P_{mean}	27.5 (21.4)	66.4 (24.0)	133.1 (47.9)

Jacobs et al. 2005

Mean (SD) power output values shown below for each trial for each group:

	C5 group		C6 group		C7 group	
	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2
P_{peak} (W)	53.9 (34.4)	57.0 (37.7)	121.7 (57.3)	119.7 (52.2)	203.4 (64.4)	206.8 (58.1)
P_{mean} (W)	31.7 (26.4)	31.9 (26.4)	70.3 (26.3)	72.3 (24.1)	134.2 (38.8)	138.2 (33.1)

Nash et al. 2007

Subjects underwent circuit resistance training (CRT) 3 times weekly on nonconsecutive days for 16 weeks. Each session lasted approximately 40-45 minutes and included resistance training and high-speed, low-intensity endurance activities (arm cranking) with interposed periods of incomplete recovery (heart rate not falling to baseline).
Effects of CRT on anaerobic power: (values are mean (SD))

Variables:	Pretraining	Post-training	Change (%)	P
Peak power (W)	380.0 (62.2)	402.6 (78.6)	6.0	.005
Mean power (W)	256.4 (46.0)	278.4 (53.5)	8.6	.001

Jacobs 2009

	RT		ET	
	Pre	Post	Pre	Post
Peak power (W)	277.3 (65.9)	318.8 (75.8)	308.8 (136.5)	315.9 (141.5)
Mean power (W)	204.5 (52.4)	219.5 (54.6)	220.8 (99.1)	231.7 (111.2)

After 12 weeks of training, both study groups (ET and RT) displayed significant increases in P_{peak} and P_{mean} ($P<0.05$). Mean power increased 8% and 5% for the RT and ET groups, respectively, with no statistically significant differences apparent between groups. Whereas RT and ET both produced significant enhancement of P_{peak} ($P<0.05$), the RT produced significantly greater gains (15.6%) compared with ET (2.6%).