CIRCUIT TRAINING ON THE HANDBALL COURT

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About Circuit Training

- Excellent way to improve agility, strength, stamina.
- Comprises of 6 to 10 exercises.
- One exercise <u>completed</u> after another.
- Each exercise is <u>performed</u> for a specified number of repetitions or for a set time before moving on.
- Between the <u>stations</u> short rest period, between each <u>circuit</u> longer rest.
- The <u>total number of circuits</u> may vary from 2 to 6 depending on the level, the period and the objective training.

Advantages and Disadvantages

Advantages of circuit training are:

- Develops agility, strength and endurance
- ✓ Appropriate form of training for most sports
- ✓ Can be adjusted to suit age and level of fitness
- ✓ Exercises are simple enough to feel success
- ✓ A wide range of exercises to select from which will maintain the athlete's enthusiasm
- ✓ Encourages disciplined individual work
- ✓ Facilitates collaboration between team mates
- ✓ Exercise routine keeps the athletes focused
- ✓ Encourages team work and team spirit

Disadvantages of circuit training are:

- Many exercises require specialised equipment
- Space required to set up the circuit
- Pre-planning and organisation needed
- Dependent on the number of players
- Can only be conducted where appropriate facilities/equipment are available

Planning

- Identify 3 to 4 <u>circuits</u> of 6 to 10 <u>exercise</u> that can be performed with the <u>available resources</u>.
- Ensure that no two consecutive exercises exercise the same muscle group.
- Work <u>each body part</u> as follows: Total-body -> Upperbody -> Lower-body -> Core & Trunk -> Total-body etc.
- For each circuit have a set of Exercise card written on:
 - o <u>number</u> of station
 - <u>equipment</u> needed
 - o required <u>exercise</u>
 - o <u>duration</u> of the exercise
 - <u>recovery</u> time.



THROWING 3 KG MEDICINE BALL WITH TWO HANDS



Exercise: 20 sec.

Rest: 40 sec.

Repetitions: x 2

Coach's hint: catch on the fall and throw on the rise



Workload and **Intensity** is a combination and variation of:

- Number of the exercises <u>per station</u> (from 1 to 2).
- Duration of the exercises can be based on <u>time</u> (e.g. 20 seconds) or <u>number of repetitions</u> (e.g. 25 sit ups).
- Sets depends on the <u>aim of the training (6 to 10)</u>.
- Repetitions based on <u>regular testing</u> (certain % of max. capacity).
- Recovery time between the exercises depends on the <u>type of exercise</u> (dynamic strength, strength endurance, endurance/ stamina) and the <u>number of</u> <u>stations</u>

Workload and **Intensity** = **VOLUME** of training

		Ju	ly			AUG	GUST		S	ЕРТЕ	MBEF	2		осто	DBER		r	IOVE	MBEF	2	1	DECE	MBER	ł
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INTENSITY (%)	65	75	80	75	70	65	70	90	100	95	90	95	90	85	70	65	90	95	90	90	95	95	75	60
WORK LOAD (%)	60	65	75	80	90	95	100	80	75	75	75	70	75	80	85	95	80	75	80	75	75	70	65	55
VOLUME (%)	63	70	78	78	80	80	83	85	87	85	83	83	83	82	83	80	85	85	85	83	85	78	70	58

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NTENSITY (%)	65	75	80	75	70	65	70	90	100	95	90	95	90	85	70	65	90	95	90	90	95	95	75	(
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OLUME (%)	63	70	78	78	80	80	83	85	87	85	83	83	83	82	83	80	85	85	85	83	85	78	70	
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→ INTENSITY (%)

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INTENSITY (%)	65	75	80	75	70	65	70	90	100	95	90	95	90	85	70	65	90	95	90	90	95	95	75	60
WORK LOAD (%)	60	65	75	80	90	95	100	80	75	75	75	70	75	80	85	95	80	75	80	75	75	70	65	55
VOLUME (%)	63	70	78	78	80	80	83	85	87	85	83	83	83	82	83	80	85	85	85	83	85	78	70	58



		Ju	ly			AUG	GUST		s	EPTE	MBEI	र		осто	DBER		r	IOVE	MBE	२	1	DECE	MBER	2
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
INTENSITY (%)	65	75	80	75	70	65	70	90	100	95	90	95	90	85	70	65	90	95	90	90	95	95	75	60
WORK LOAD (%)	60	65	75	80	90	95	100	80	75	75	75	70	75	80	85	95	80	75	80	75	75	70	65	55
VOLUME (%)	63	70	78	78	80	80	83	85	87	85	83	83	83	82	83	80	85	85	85	83	85	78	70	58



Practical points

- Most often even number of players ideal.
- Exercise stations should have the same volume.
- Exercising one by one or in pairs.
- When two players per station:
 - both players doing the <u>same</u> exercises
 - both players doing <u>different</u> exercises at once
 - one player working the other assisting
 - one player <u>working</u> the other <u>resting</u>
- Starting and finishing for a whistle signal.
- Selecting general or handball specific exercises.
- Starting with warm up and cool down after exercises.
- Clear demonstration and explanation before the start.

Type of Work		

Type of Work	DYNAMIC STRENGTH	

Type of Work	DYNAMIC STRENGTH	STRENGTH ENDURANCE	

Type of Work	DYNAMIC STRENGTH	STRENGTH ENDURANCE	ENDURANCE / STAMINA

Type of Work / Areas of Planning	DYNAMIC STRENGTH	STRENGTH ENDURANCE	ENDURANCE / STAMINA

Type of Work / Areas of Planning	DYNAMIC STRENGTH	STRENGTH ENDURANCE	ENDURANCE / STAMINA
No. of Players			

Type of Work / Areas of Planning	DYNAMIC STRENGTH	STRENGTH ENDURANCE	ENDURANCE / STAMINA
No. of Players	1-2 per Station	1-2 per Station	1-2 per Station

Type of Work / Areas of Planning	DYNAMIC STRENGTH	STRENGTH ENDURANCE	ENDURANCE / STAMINA
No. of Players	1-2 per Station	1-2 per Station	1-2 per Station
No. of Exercise Stations			

Type of Work / Areas of Planning		DYN, STRE	AMIC NGTH		STREI ENDUI	NGTH RANCE	ENDURANCE / STAMINA
No. of Players	1	-2 per	Station		1-2 per	Station	1-2 per Station
No. of Exercise Stations	4 2 2				3	3	8 11111111

Type of Work / Areas of Planning		DYN/ STRE	AMIC NGTH		STREI ENDUI	NGTH RANCE	ENDURANCE / STAMINA
No. of Players	1	-2 per	Station		1-2 per	Station	1-2 per Station
No. of Exercise Stations	4	2	2	6	3	3	8 11111111
No. of Rest Stations							

Type of Work / Areas of Planning	DYNAMIC STRENGTH					STR ENDU	ENC JRA	GTH	I CE		ENDURANCE / STAMINA
No. of Players	1-2 per Station					1-2 pe	er St	tati	on		1-2 per Station
No. of Exercise Stations	4	2	2)	6	3		3		8	11111111
No. of Rest Stations	2		1	1	2		1		1	0	

Type of Work / Areas of Planning	DYNAMIC STRENGTH						STR ENDI	EN JR/	GTH ANC	H		ENDURANCE / STAMINA
No. of Players	1-2 per Station						1-2 pe	er S	tati	on		1-2 per Station
No. of Exercise Stations	4	2		2		6	3		3		8	11111111
No. of Rest Stations	2		1		1	2		1		1	0	
Exercise time												

Type of Work / Areas of Planning	DYNAMIC STRENGTH					STR ENDU	ENG JRA	GTH NC	I CE	ENDURANCE / STAMINA			
No. of Players	1	. -2 per S	Stat	tion		1-2 pe	er St	ati	on		1-2 per S	tation	
No. of Exercise Stations	4	2	2		6	3		3		8	1111	1111	
No. of Rest Stations	2	1		1	2		1		1	0			
Exercise time		20 Sec	с. X	2		30 S	Sec.	X 2	-		40 Sec	. X 3	

Type of Work / Areas of Planning	DYNAMIC STRENGTH					STRI ENDU	eno Jra	GTH NC	I E	ENDURANCE / STAMINA			
No. of Players	1	-2 per S	Stat	ion		1-2 pe	er St	ati	on		1-2 per Station		
No. of Exercise Stations	4	2	2		6	3		3		8	11111111		
No. of Rest Stations	2	1		1	2		1		1	0			
Exercise time		20 Sec	. X	2		30 S	ec.	X 2			40 Sec. X 3		
Rest time													

Type of Work / Areas of Planning	DYNAMIC STRENGTH					STRE ENDU	NG IRA	TH NCE	Ξ	ENDURANCE / STAMINA			
No. of Players	1	-2 per \$	Stat	ion		1-2 pei	r Sta	atio	n	1	. -2 per S	Station	
No. of Exercise Stations	4	2	2		6	3		3		8	1111	1111	
No. of Rest Stations	2	1		1	2		1		1	0			
Exercise time		20 Sec	c. X	2		30 Se	ec. X	X 2			40 Sec	. X 3	
Rest time		40 Sec	c. X	1		30 Se	ec. X	X 1			20 Sec	.X1	

Type of Work / Areas of Planning		DYNAI STREN	MIC GTH		STREN ENDUR	IGTH RANC	H CE	ENDURANCE / STAMINA			
No. of Players	1	-2 per S	tation		1-2 per	Stati	on	1-2 per Station			
No. of Exercise Stations	4	2	2	6	3	3		8	11111111		
No. of Rest Stations	2	1	1	2	1	-	1	0			
Exercise time		20 Sec.	. X 2		30 Sec	c. X 2	2		40 Sec. X 3		
Rest time		40 Sec.	. X 1		30 Sec	c. X 1	L		20 Sec. X 1		
Travel time											

Type of Work / Areas of Planning	DYNAMIC STRENGTH					STRE ENDU	IRAN	TH ICE	1	ENDURANCE / STAMINA	
No. of Players	1	-2 per	Stat	ion		1-2 pei	r Sta	tion		1-2 per Station	
No. of Exercise Stations	4	2	2		6	3	3		8	11111111	
No. of Rest Stations	2	1	L	1	2		1	1	0		
Exercise time		20 Se	c. X	2		30 Se	ec. X	2	40 Sec. X 3		
Rest time		40 Se	c. X	1		30 Se	ec. X	1		20 Sec. X 1	
Travel time		40 S	Sec.			30	Sec.			20 Sec.	

Type of Work / Areas of Planning		DYNA STREN	MIC IGT	C H		STRE ENDU	NGT RAN	'H ICE		ENDURANCE / STAMINA		
No. of Players	1	-2 per S	Stat	ion		1-2 per	Stat	tion	1-2 per Station			
No. of Exercise Stations	4	2	2		6	3	3		8 11111111			
No. of Rest Stations	2	1		1	2		1	1	0			
Exercise time		20 Sec	:. X	2		30 Se	ec. X	2	40 Sec. X 3			
Rest time		40 Sec	:. X :	1		30 Se	ec. X	1		20 Sec. X 1		
Travel time		40 S	ec.			30	Sec.			20 Sec.		
Intensity												

Type of Work / Areas of Planning	DYNAMIC STRENGTH					STRE ENDU	ENG JRAN	ГН NCE	ENDURANCE / STAMINA			
No. of Players	1	-2 per	Stat	tion		1-2 pe	r Sta	ition	1-2 per Station			
No. of Exercise Stations	4	2	2		6	3		3	8	11111111		
No. of Rest Stations	2	-	1	1	2		1	1	0			
Exercise time		20 Se	с. Х	2	30 Sec. X 2					40 Sec. X 3		
Rest time		40 Se	с. Х	1	30 Sec. X 1					20 Sec. X 1		
Travel time		40 S	Sec.		30 Sec.					20 Sec.		
Intensity	H	igh (90	-10	0 %)	M	ledium	ı (75	-90%)		Low (60-75%)		

Type of Work / Areas of Planning	DYNAMIC STRENGTH					STRE ENDU	ENG JRAN	ГН NCE	ENDURANCE / STAMINA		
No. of Players	1	-2 per	Stat	tion		1-2 pe	r Sta	ition	1-2 per Station		
No. of Exercise Stations	4	2	2		6	3		3	8	11111111	
No. of Rest Stations	2	-	1	1	2		1	1	0		
Exercise time		20 Se	c. X	2	30 Sec. X 2					40 Sec. X 3	
Rest time		40 Se	c. X	1	30 Sec. X 1					20 Sec. X 1	
Travel time		40 S	Sec.		30 Sec.					20 Sec.	
Intensity	H	igh (90)-10	0 %)	M	ledium	ו (75	-90%)		Low (60-75%)	
Work load											

Type of Work / Areas of Planning	DYNAMIC STRENGTH					STRE ENDU	NGT RAN	TH ICE	ENDURANCE / STAMINA		
No. of Players	1	-2 per	Stat	tion		1-2 per	· Sta	tion		1-2 per Station	
No. of Exercise Stations	4	2	2		6	3	3		8	11111111	
No. of Rest Stations	2	1	L	1	2		1	1	0		
Exercise time		20 Se	с. Х	2	30 Sec. X 2					40 Sec. X 3	
Rest time		40 Se	с. Х	1	30 Sec. X 1					20 Sec. X 1	
Travel time		40 S	Sec.		30 Sec.					20 Sec.	
Intensity	H	igh (90	-10	0 %)	N	ledium	(75	-90%)		Low (60-75%)	
Work load	Н	igh / N	/led	ium		Mediu	m / ŀ	ligh		Medium / Low	

Type of Work / Areas of Planning	DYNAMIC STRENGTH					STRE ENDU	NGT RAN	H CE	ENDURANCE / STAMINA			
No. of Players	1	-2 per	Stat	ion		1-2 per	Stat	tion	1	1-2 per Station		
No. of Exercise Stations	4	2	2		6	3	3		8	11111111		
No. of Rest Stations	2	1	L	1	2		1	1	0			
Exercise time		20 See	c. X	2	30 Sec. X 2					40 Sec. X 3		
Rest time		40 See	c. X	1	30 Sec. X 1					20 Sec. X 1		
Travel time		40 S	ec.		30 Sec.					20 Sec.		
Intensity	Н	igh (90	-100) %)		ledium	(75-	·90%)		Low (60-75%)		
Work load	Н	igh / N	1edi	um		Mediu	m /⊦	ligh	ſ	Medium / Low		
Sets												

Type of Work / Areas of Planning	DYNAMIC STRENGTH	STRENGTH ENDURANCE	ENDURANCE / STAMINA		
No. of Players	1-2 per Station	1-2 per Station	1-2 per Station		
No. of Exercise Stations	4 2 2	6 3 3	8 11111111		
No. of Rest Stations	2 1 1	2 1 1	0		
Exercise time	20 Sec. X 2	30 Sec. X 2	40 Sec. X 3		
Rest time	40 Sec. X 1	30 Sec. X 1	20 Sec. X 1		
Travel time	40 Sec.	30 Sec.	20 Sec.		
Intensity	High (90-100 %)	Medium (75-90%)	Low (60-75%)		
Work load	High / Medium	Medium / High	Medium / Low		
Sets	1 - 2	2-3	2 - 3		

Type of Work / Areas of Planning	DYNAMIC STRENGTH					STRE ENDU	ENG IRA	TH NCE	ENDURANCE / STAMINA			
No. of Players	1-2 per Station					l-2 pe	r Sta	atio	n	1-2 per Station		
No. of Exercise Stations	4	2	2		6	3		3		8	11111	111
No. of Rest Stations	2	1	1		2		1		1	0		
Exercise time	2	0 Sec	. X 2		30 Sec. X 2						40 Sec. >	< 3
Rest time	4	0 Sec	. X 1		30 Sec. X 1						20 Sec. >	< 1
Travel time		40 Se	ec.		30 Sec.						20 Sec	•
Intensity	High	h (90-	100 %	5)	Μ	edium	ı (75	5-90)%)	I	L ow (60-7	[′] 5%)
Work load	Hig	h / M	ediun	۱		Mediu	m /	Hig	h	N	/Iedium	Low
Sets	1 - 2					2	2-3				2 - 3	
Total time												

Type of Work / Areas of Planning	D' ST	YNAN RENG	AIC GTH		STRE ENDU	NGTH RAN(H CE	ENDURANCE / STAMINA		
No. of Players	1-2 β	per St	ation		1-2 per	Stati	on	1-2 per Station		
No. of Exercise Stations	4	2	2	6	3	3		8 11111111		
No. of Rest Stations	2	1	1	2		1	1	0		
Exercise time	20	Sec.	X 2		30 Se	ec. X 2	2	40	Sec. X 3	
Rest time	40	Sec.	X 1		30 Se	ec. X 1	L	20 Sec. X 1		
Travel time	4	40 Se	С.		30	Sec.		20 Sec.		
Intensity	High	(90-1	.00 %)	N	ledium	(75-9	90%)	Low	(60-75%)	
Work load	High	/ Me	dium		Mediur	m /Hi	gh	Medi	um / Low	
Sets	1 - 2				2	-3			2 - 3	
Total time	6x2	'= 12	min.		8x2'= :	16 mi	n.	8x3'= 24 min.		

Type of Work / Areas of Planning	DYNAMIC STRENGTH					STRE ENDU	NGT RAN	H CE	ENDURANCE / STAMINA		
No. of Players	1-2 per Station					1-2 per	[.] Stat	ion	1	-2 per Station	
No. of Exercise Stations	4	2	2		6	3	3		8 11111111		
No. of Rest Stations	2	-	1	1	2		1	1	0		
Exercise time		20 Se	c. X	2		30 Se	ec. X	2		40 Sec. X 3	
Rest time		40 Se	c. X	1		30 Se	ec. X	1		20 Sec. X 1	
Travel time		40 S	Sec.			30	Sec.		20 Sec.		
Intensity	H	igh (90	-100) %)		ledium	(75-	90%)	L	.ow (60-75%)	
Work load	н	igh / N	/ledi	um		Mediu	m /H	igh	N	/ledium / Low	
Sets	1 - 2					2	-3			2 - 3	
Total time	6x2′= 12 min.					8x2'=	16 m	in.	8x3′= 24 min.		
Exercise selection											

Type of Work / Areas of Planning	DYNAMIC STRENGTH					STRE ENDU	NGT RAN	H CE	ENDURANCE / STAMINA		
No. of Players	1-2 per Station					1-2 per	r Stat	ion	1	- 2 per Station	
No. of Exercise Stations	4	2	2		6	5 3 3			8 11111111		
No. of Rest Stations	2	-	1	1	2		1	1	0		
Exercise time		20 Se	c. X	2		30 Se	ec. X	2		40 Sec. X 3	
Rest time		40 Se	c. X	1		30 Se	ec. X	1		20 Sec. X 1	
Travel time		40 S	Sec.			30	Sec.		20 Sec.		
Intensity	H	i gh (90)-100) %)	N	ledium	ı (75-	90%)	L	ow (60-75%)	
Work load	н	igh / N	/ledi	um		Mediu	m /H	igh	N	1edium / Low	
Sets	1 - 2					2	2-3			2 - 3	
Total time	6x2'= 12 min.					8x2'=	16 m	in.	8x3′= 24 min.		
Exercise selection	ſ	Notor	Abil	ity		Ability	y + Sk	cill	Skill + Stamina		

Example 1 – Dynamic strength



Example 2 – Strength-endurance



Example 3 – Endurance / Stamina



Main sources

http://www.brianmac.co.uk/circuit.htm

http://www.bbc.co.uk/schools/gcsebitesize/pe/exercise/1_exercise_principles_rev4.shtml

References

1.GODFREY, R.J. et al. (2005) The detraining and retraining of an elite rower: a case study. *J Sci Med Sport*, 8 (3), p. 314-320 2.HAWLEY, J. (2008) *Specificity of training adaptation: time for a rethink?* Journal of Physiology, 586 (Pt 1), p. 1–2. 3.Burgomaster KA. et al (2008) *Similar metabolic adaptations during exercise after low volume sprint interval and traditional endurance training in humans*. J Physiol. 586. p.151–160

Related References

The following references provide additional information on this topic:

•ZARYSKI, C., & SMITH, D. J. (2005) Training principles and issues for ultra-endurance athletes. *Current sports medicine reports*, 4 (3), p. 165-170. •STONE, M. et al. (2000) Training principles: Evaluation of modes and methods of resistance training. *Strength & Conditioning Journal*, 22 (3), p. 65. •STONE, M. et al. (2002) Strength and conditioning: Training principles: evaluation of modes and methods of resistance training - a coaching perspective. *Sports Biomechanics*, 1 (1), p. 79-103.

Page Reference

The reference for this page is: •MACKENZIE, B. (2000) *Training Principles* [WWW] Available from: http://www.brianmac.co.uk/trnprin.htm [Accessed 3/6/2015]

Related Pages

The following Sports Coach pages provide additional information on this topic: raining

Additional Sources of Information

For further information on this topic see the following:

- •BEASHEL, P. & TAYLOR, J. (1996) Advanced Studies in Physical Education and Sport. UK: Thomas Nelson & Sons Ltd.
- •BEASHEL, P. & TAYLOR, J. (1997) The World of Sport Examined. UK: Thomas Nelson & Sons Ltd.
- •BIZLEY, K. (1994) Examining Physical Education. Oxford; Heinemann Educational Publishers
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- •McARDLE, W. et al. (2000) Essentials of Exercise Physiology. 2nd ed. Philadelphia: Lippincott Williams & Wilkins