Basic Kettlebell Exercises For Strength And Conditioning

體適能的基本壺鈴訓練

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- Traditional Russian cast iron
- Shaped like a cannonball with a handle
- Pavel Tsatsouline
- Valery Federenko
- Steve Cotter (NSCA Seminars)

- Girya (Russian)
- 1 Pood =16 kgs=35.2lbs
- Traditionally
  - Men: 35 lbs, 53 lbs, 70lbs,88lbs
  - Women:18 lbs, 26 lbs, 35 lbs

Acute Training Program Variables

Choice of exercise– transfer of training principle

動作的選擇－運動／訓練原理的轉移

Order of Exercise 動作的次序

Volume (sets and reps) 量

Intensity 強度

Rest 作息

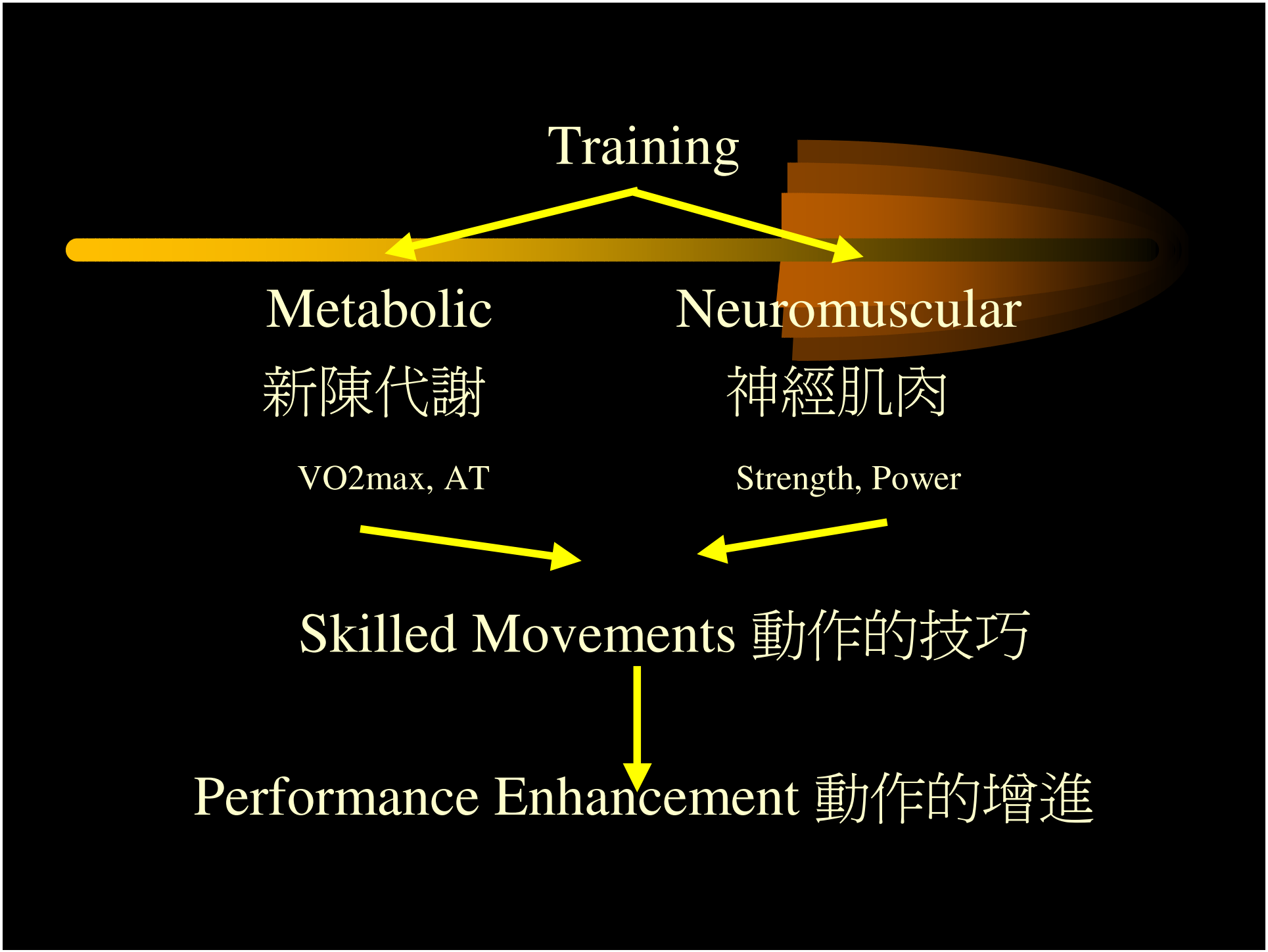
What is the role of Kettlebell in Strength and Conditioning Training

Metabolic qualities– work capacity

新陳代謝－運動量

Neuromuscular qualities– muscular strength, explosive strength, reactive strength

神經肌肉－肌肉力量，爆發力，發應力量


Training
Metabolic
新陳代謝
VO2max, AT
Neuromuscular
神經肌肉
Strength, Power
Skilled Movements 動作的技巧
Performance Enhancement 動作的增進

Upsurge 上升 in use

Little research available 少量的研究

Metabolic Considerations

Cardiorespiratory responses to Kettlebell Training exercise were relatively low. Less than reported for traditional weight training exercise at 40%1RM. (Bishop et al, 2005)

心肺功能對壺鈴訓練的反應很小, 比之傳統力量訓練的40% IRM

Energy cost of basic kettlebell training protocol is 32% of VO2max, 3-6 METS in intensity. (Lanier et al, 2005)

基本的壺鈴訓練相等于32%的最大攝氧量或3-6 Mets

Metabolic Considerations

Pilot study (Gray, Matthews, 2008@ York St John's University) 試點研究

2H Swings 搖擺 , 1H Snatch 抓舉, 5 min

Sustain high intensity for 4 min (80-90 %MHR) 維持4分鐘高強度

Intervals (time, reps) 間歇練習法

Cardio and muscular endurance advantage to adding swings and snatch to a Kb routine. 壺鈴運動可增強心肺和肌肉耐力

Voropayev (1983)

two groups of college students over a few years.

standard battery of the armed forces PT tests: pullups, broad jump, 100m sprint, and a 1k run.

The control group emphasized the above exercises.

The experimental group just lifted kettlebells.

In spite of the lack of practice on the tested drills, the kettlebell groups showed better scores in every one of them!

數年的研究, 對象是兩組學院學生

測驗動作: 引體向上, **broad jump, 100**米短跑 和 **1**公里跑.

Control group 強調以上的動作／運動．

實驗組別用壺鈴－實驗組別取得更好的表現

Researchers at the Lesgaft Physical culture Institute in Leningrad (Vinogradov & Lukyanov, 1986)

high correlation between the results posted in a kettlebell competition and a great range of dissimilar tests: ***strength*** (three powerlifts and grip strength); ***strength endurance*** (pullups & parallel bar dips); ***general endurance*** (1000 meter run); and ***work capacity and balance*** (special tests).

壺鈴比賽和一系列不相的測驗擁有高度相關關係：

力量 (3種舉重(Power lift) 握力):

力量耐力 (引體上升 x 雙槓暫降

(普通) 耐力 (14米跑) x 工作／運動量和平衡能力

Neuromuscular Characteristics

Speed 速度

Power 力量／爆發力

Motor control 動作技能

Sports the involve Jumping or Running

	Kettlebell Dumbell	Barbell
Muscular Strength	Limited	85% 1RM
Explosive Strength	Lower range	40-70% 1RM
Reactive Strength	No second pull.	Stretch shortening cycle present due to second pull

Kettlebell Training

- Local muscular endurance 局部肌肉耐力
- Cardio conditioning 心肺功能體適能
- Speed and Power Training 速度與力量 (爆發力) 訓練
- Strength Training 力量訓練
- 'Core' Training 軀干訓練
- Athletic training 體育的訓練

Kettlebell Training

- Train the posterior chain 訓練後肢群鏈
- Ballistic movement exercises 射彈動作／大爆發動
- Torsional movement 扭轉動作
- Variety 多樣化

Advantages to Kettlebell Training

- Inexpensive 便宜
- Simple 簡單
- Minimal maintenance 少量保養
- Durable 耐用
- Multi-functional 多用途

Major Styles of Kettlebell Movement

- Rigid style 堅硬手法 - the type of lifting depending on the goals.
- Fluid style 流暢手法 – most efficient manner of lifting kettlebells. 是高效節能的方法
- Jerk, Snatch, Clean and Jerk.-Maximum repetitions in 10 minutes.

Rigid Style

- Hip action : overextension 髖部: 運度擴展
- Head/Eye Position:locked to the horizontal 頭部／眼睛位置: 水平綫
- Grip: Maximum
- Breathing: Exhale when exerting 出勁時呼出

Fluid Style

- Hip Action: Natural extension, neutral alignment 髖部: 自然上挺
- Head /Eye position: follows movement
- 頭部／眼睛位置: 跟隨動作
- Breathing: Anatomic breathing. (Inhale when extending the trunk) 軀體上挺時呼氣
- Grip: just enough

‘*Anatomic*’ *Breathing*

- Pattern according to the movement
- Breath during the concentric phase 肌□維縮短時吸進
- Breath in when the body is extending or chest area is expanding/opening 軀體上挺或胸部伸延時吸進
- Used during high repetition exercises with lighter weight loads 適用于高次數，輕量動作

'Paradoxical'/Exertional Breathing

- Exhale at the concentric phase at the point of greatest exertion 肌□維縮短時呼出
- Inhale at the eccentric phase
- Used during very heavy lifts 適用于重量舉重

Basic Kettlebell Exercises For Strength And Conditioning

- Warm-up 熱身
  - Cycling, Rowing ,Running 10-20 minutes 單車, 划艇, 跑步 10-20分鐘
  - Dynamic Stretching(Calisthenics, Light kettlebell exercise movement) 動態伸展活動
  - Static Stretching (Optional) 靜態伸展活動 (可選的)

Basic Kettlebell Exercises For Strength And Conditioning

- Main Exercise Program
  - All Kettlebell Exercises
  - Kettlebell+Freeweights (Barbell, Dumbell, Heavy ropes,Medicine balls)
  - Kettlebell+Machines

Basic Kettlebell Exercises For Strength And Conditioning

- Cooldown 舒緩動作
- Static Stretching 15 mins

Basic Kettlebell Exercises For Strength And Conditioning

- Swings / Highpull* 搖擺／高拉
- Squat 蹲
- Clean 挺舉
- Snatch 抓舉
- Press 推
- Jerk 挺 (急拉, 急推, 猛拉)
    - Movement Patterns

X= Not done.	2Kb 2Arms	2Kb Alt.	1Kb 1 Arm	1Kb 2Arm	1Kb Alt.	Single Leg*
Swing		X				X
Squat*		X				
Clean		X		Open Palm		X
Snatch		X		X		X
Press					X	X
Jerk					X	X

Basic Kettlebell Exercises For Strength And Conditioning

- Double Kb Swing*
- Single Kb Swing*
- Single Kb Alt. Swing*
  - *HighPull

Basic Kettlebell Exercises For Strength And Conditioning

- Double Kb Cleans
- Single Kb Clean
- Single Kb Alt. Clean
- Double Kb Hang Clean

Basic Kettlebell Exercises For Strength And Conditioning

- Double Kb Snatch
- Single Kb Snatch
- Single Kb Alt. Snatch

Basic Kettlebell Exercises For Strength And Conditioning

- Bottoms Up Hang Clean
- Open Palm Clean
- Backhand Snatch

Basic Kettlebell Exercises For Strength And Conditioning

- Double Kb Squat
- Single Kb Squat
- Single Leg Squat (Pistol Squat)
- Double Front Squat

Exercises For Strength And Conditioning

KB Push Press

KB Jerk

Basic Kettlebell Exercises For Strength And Conditioning

- Supine Single-arm KB Press 仰卧單手推
- Supine KB Press 仰卧推
- Supine KB Fly 仰卧飛

Basic Kettlebell Exercises For Strength And Conditioning

- Push Up /Single Arm Row
- Alt. Plank Row

Basic Kettlebell Exercises For Strength And Conditioning

- Kettlebell Sit-up
- Russian Twist
- Kb Behind the head sit-up
- Pullover sit-up
- Single Arm Kb Sit-up

Basic Kettlebell Exercises For Strength And Conditioning

- Turkish Get Up (Lunge)
- Turkish Get up (Squat)
- Just Get Up*

Basic Kettlebell Exercises For Strength And Conditioning

- Figure of 8
- Figure of 8 to A hold
- Big 8 (Butterfly)

Basic Kettlebell Exercises For Strength And Conditioning

- Ribbon (Combing the Hair)
- Ribbon with open squat
- Ribbon with open lunge

Basic Kettlebell Exercises For Strength And Conditioning

- Kettlebell Windmill*
- Leg Over Floor Press

Basic Kettlebell Exercises For Strength And Conditioning

- Combo Exercises

Conclusion

Advantages of KB

Best used as assistance exercise

Open field for research

References

Bishop et al. Cardiorespiratory Responses to Kettlebell) Training Exercises. Medicine & Science in Sports & Exercises. May 2005. Vol 37. Issue 5. p.S219.

Chiu, Loren. Barbells, Dumbells, and Kettlebells. National Strength and Conditioning Association (NSCA) Hot Topic Series.

Cotter, Steve. A Performance-Based Comparison for Kettlebell Methods. The Crossfit Journal Articles. Issue 59. July 2009.

Cotter, Steve. Introduction to Kettlebells for Fitness and Athletic Development. National Strength and Conditioning Association (NSCA) Pre-Conference Sessions. July 9, 2008.

Cotter, Steve. Kettlebell Programming for Fitness and Athletic Development. National Strength and Conditioning Association (NSCA) Pre-Conference Sessions. July 9, 2008.

Gambetta, Vern. Maximal Power Training (MPT). Track Coach No. 145, Fall 1998.

Lanier et al. Energy Cost of a Basic Kettlebell (TM) Training Protocol. Medicine & Science in Sports & Exercises. May 2005. Vol 37. Issue 5. p.S51

McGill, Stuart. Ultimate Back Fitness and Performance. 3rd Ed. 2006.