

# 高爾夫 體能訓練 (重量訓練)

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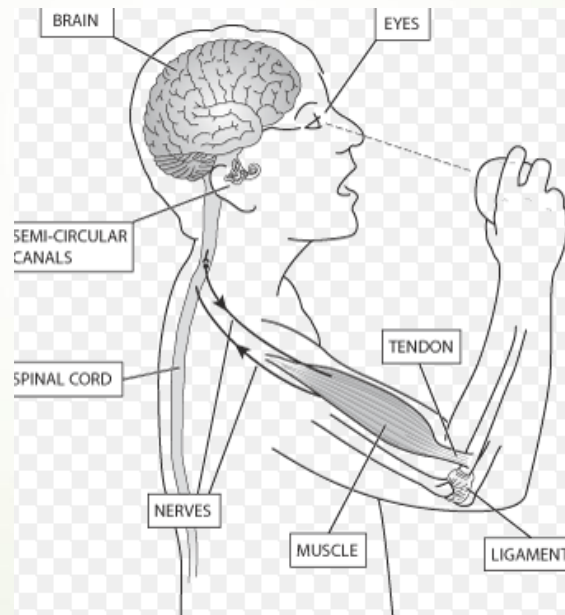
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# 動作表現與體能訓練

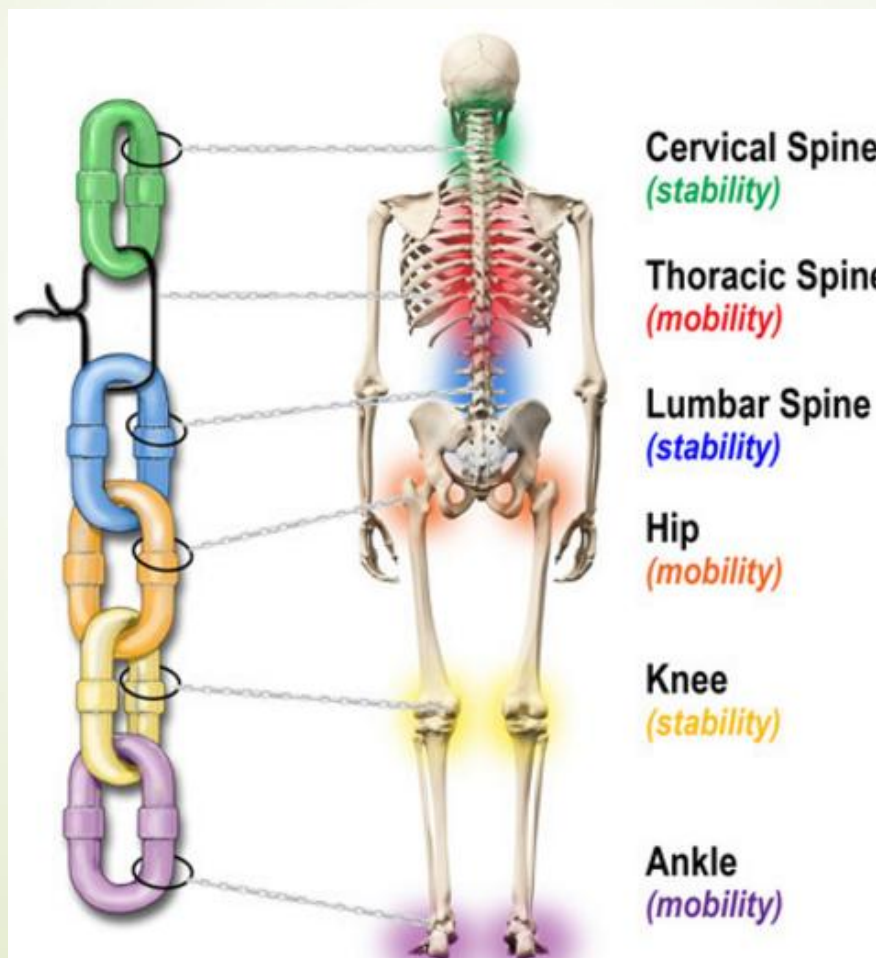
- 協調與動作控制
  - 肌肉是執行的單位





# 動作表現與體能訓練

## ➔ 揮桿動力鍊與穩定



# 動作表現與體能訓練

- 揮桿動力鍊在訓練的重要性(全身性與連結)



# 高爾夫目前趨勢

## ▶ PGA Tour開球距離每10年趨勢

**Table 1.1 Average Distance for 1st and 50th Players in Driving Distance on PGA Tour**

Year	1st in driving distance	50th in driving distance
1980	274.3 yd	261.0 yd
1990	279.6 yd	266.4 yd
2000	301.4 yd	277.5 yd
2008	315.1 yd	293.3 yd

# 高爾夫目前趨勢

## ➔ PGA Tour開球距離每10年趨勢

**# of Players at Each Distance Interval  
(Since 1980)**

<b>Distance Interval</b>	<b>2011</b>	<b>2000</b>	<b>1990</b>	<b>1980</b>
Less than 250	-	-	5	32
250 to 260	-	8	59	84
260 to 270	1	52	101	53
270 to 280	16	106	27	6
280 to 290	64	27	-	-
290 to 300	84	1	-	-
More than 300	21	1	-	-



# 重量訓練與揮桿速度表現

## 相關研究

Journal of Strength and Conditioning Research, 2004, 18(1), 59-62  
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### **EFFECT OF AN 8-WEEK COMBINED WEIGHTS AND PLYOMETRICS TRAINING PROGRAM ON GOLF DRIVE PERFORMANCE**



# 重量訓練與揮桿速度表現

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© 2004 National Strength & Conditioning Association

### EFFECT OF AN 8-WEEK COMBINED WEIGHTS AND PLYOMETRICS TRAINING PROGRAM ON GOLF DRIVE PERFORMANCE

TABLE 2. Mean ( $\pm$ SD) scores for club head speed and driving distance for control and experimental groups.

	Control			Experimental		
	Pre	Post	Change (%)	Pre	Post	Change (%)
Club head speed (km·h)	172.3 $\pm$ 17.1	173 $\pm$ 18.7	0.5	179.8 $\pm$ 9.1	182.6 $\pm$ 6.2	1.5
Driving distance (m)	220.8 $\pm$ 19	219.3 $\pm$ 30.7	-0.7	225.6 $\pm$ 16	235.7 $\pm$ 11.4	4.3

增加近5%的開球距離

# 重量訓練與揮桿速度表現

## 相關研究

**TABLE 1.** Resistance and plyometric training protocols.

Resistance exercise	Equipment	Sets/ reps	Medicine ball exercise	Sets/ reps
Bench press	Olympic bar	3 × 6/8 reps	Seated horizontal	3 × 8 reps
Squat	Olympic bar	3 × 6/8 reps	Twists	
Single arm row	Dumbbell	3 × 6/8 reps	Standing horizontal	3 × 8 reps
Lunge	Olympic bar	3 × 6/8 reps	Twists	
Shoulder press	Dumbbell	3 × 6/8 reps	Standing back	3 × 8 reps
Upright row	Dumbbell	3 × 6/8 reps	Extensions	
Abdominal crunch	Dumbbell	3 × 6/8 reps	Golf swings	3 × 8 reps
Back extension	Dumbbell	3 × 6/8 reps		
Side bends	Dumbbell	3 × 6/8 reps		

# 重量訓練與揮桿速度表現

## 相關研究

*International Journal of Golf Science*, 2013, 2, 33-42  
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INTERNATIONAL JOURNAL OF  
**GOLF SCIENCE**

Official Journal of WSCG

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ARTICLE

## **Effectiveness of a Six-Week Strength and Functional Training Program on Golf Performance**

# 重量訓練與揮桿速度表現

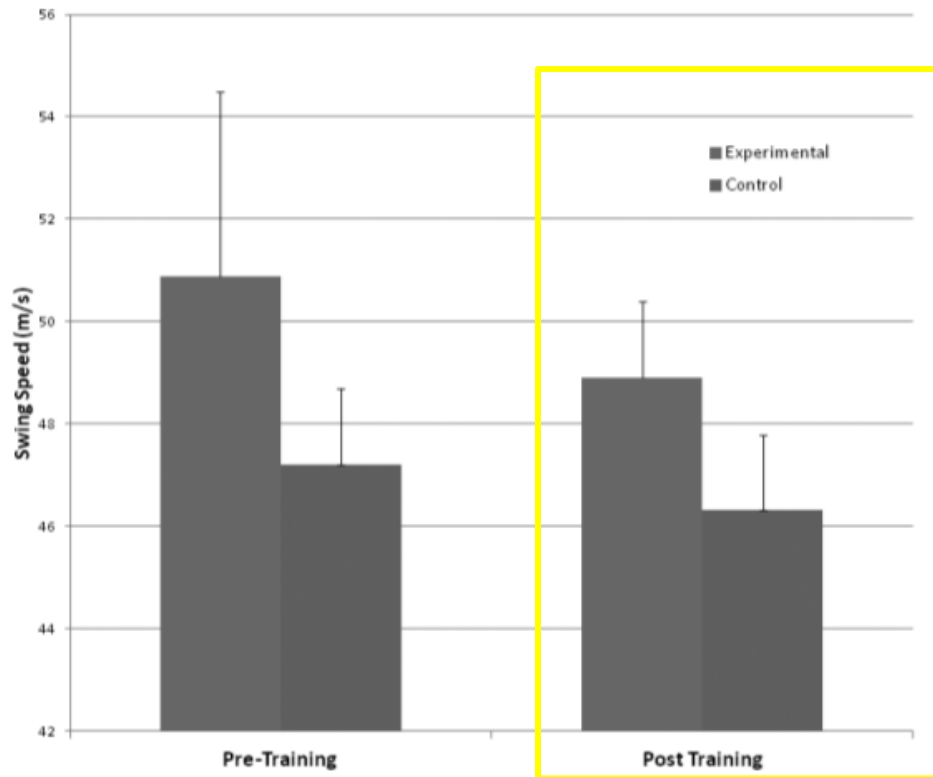
## 相關研究

**Table 1** The exercises which were included in the experimental groups prescribed training program. Participants were provided the program with specific sets and repetitions for each week. The participants completed between 2 and 4 sets and between 6 and 12 repetitions for each exercise depending on the weekly program.

Lower Body Exercises	Upper Body Exercises	Total Body Exercises
Back Hyper	Bench Press	Standing Cable Twist
Leg Press	Dumbbell Rows	Cable Wood Chop
Leg Curl	Shoulder Complex	
Reverse Lunge	Dumbbell Incline Bench Press	
Bulgarian Lunge	Lat Pulldown	
Walking Lunge	Double Curls	
Dumbbell Forward Lunge	Dumbbell Bench Press	
Smith Squat	Dumbbell Upright Row to Curl to Press	
	Double Lat Pulldowns	
	Horizontal Pull-Ups	

# 重量訓練與揮桿速度表現

訓練後居然桿頭速度沒有進度！？



**Figure 1** — Observed swing speeds (m/s) in the experimental and control groups during pre-training measurement and following the training period.

# 重量訓練與揮桿速度

相關研究課程討論：

1. 訓練動作不同？
2. 訓練的偏頗？
3. 器材有差異嗎？比較貴的設備？！
4. 訓練的模式？把肌肉變大變有力？



# 重量訓練與揮桿速度

相關研究討論：

1. 專項動作的介入
2. 速度相關的訓練
3. 器材的差異
4. 訓練的模式，功能性訓練？

# 揮桿動作肌肉介紹 :upswing

揮桿動作

- 目的:了解動作所使用的肌肉，並根據自己的優缺點，思考自己該在那些身體部位加強(柔軟度.肌力.平衡.爆發力等)



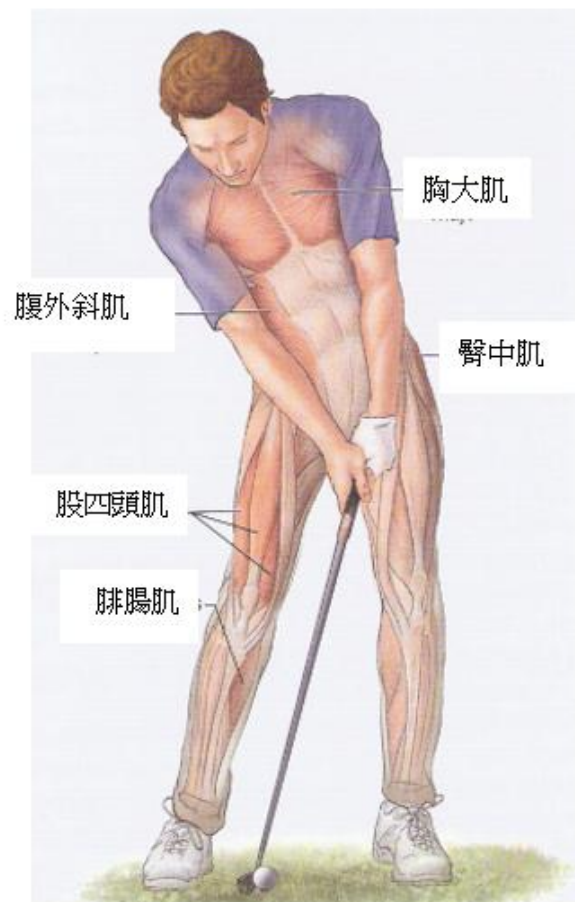
- upswing 必須強化腹部與背部肌肉的柔軟度
- upswing 必須強化大腿(膝關節的穩定)與髖部肌肉的肌力
- 思考-> 技術動作中的優缺，如何透過體能訓練的補強技術發展  
(例:upswing 不穩定是否因為大腿肌力不足)



# 揮桿動作肌肉介紹 :downswing

揮桿動作

- 目的:了解完成上桿後，下桿的主要肌肉運用。對於擊球距離需增進的選手，需要針對特定肌群進行訓練。



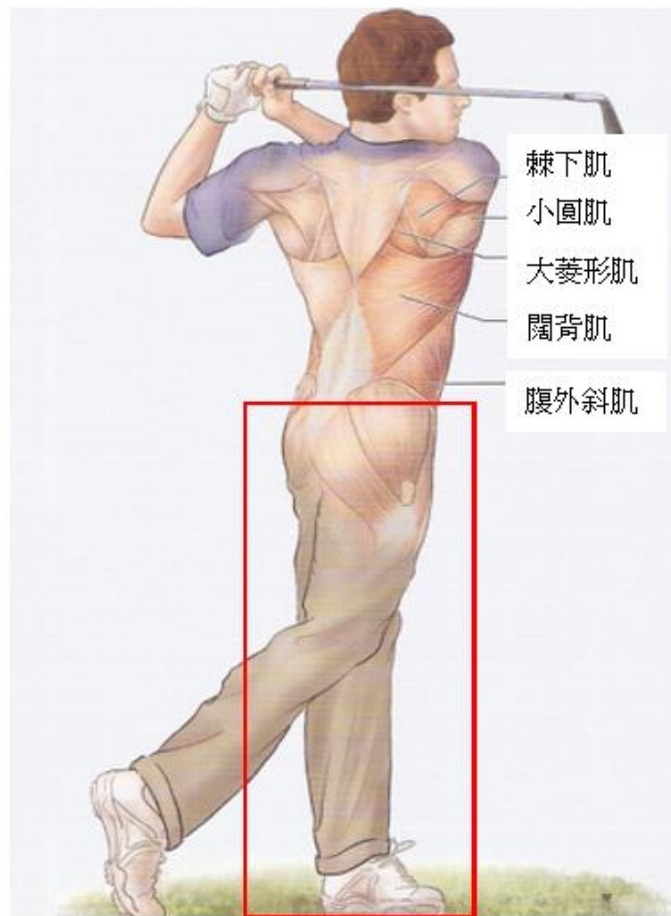
- 先思考 upswing 時，特定肌肉是否夠柔軟與穩定。
- downswing 必須強化下半身與腹背部肌肉的肌力與爆發力。
- 全身性的肌肉強化，才是 downswing 穩定且快速的基礎。
- 思考-> 技術動作中的優缺，如何透過體能訓練的補強技術發展

# 揮桿動作肌肉介紹 :follow-through

揮桿動

➤ 目的:1. 了解快速下桿後，收桿動作的主要肌肉運用。

2. 說明揮桿動作中兩側肌肉作用的差異。



➤ downswing 後的速度，透過背部肌肉(被動)完成揮桿動作的減速

➤ 背部與腰部肌肉的柔軟度決定收桿動作

➤ upswing 與 follow-through 都需要身體的柔軟度(柔軟度的重要)

➤ 腿部肌力與平衡能力，影響收桿動作的穩定性

# 揮桿動作肌肉介紹

## :揮桿穩定性相關肌肉

揮桿動

➤ 目的:1. 了解揮桿穩定性的肌肉。

2. 該如何訓練肌肉，讓揮桿動作更穩定。



➤ 肌肉除了貢獻力量外，也要負責穩定動作

➤ 腳部小肌肉的穩定性增加，必須透過平衡訓練(單腳訓練)

➤ 說明:平常訓練動作，哪些是可以增加揮桿穩定性的

➤ 穩定性是一種機率問題，唯有透過訓練的累積才能達成

# 高爾夫重量訓練計劃

## -----基本編排原則

- 訓練目標
- 全身整體肌肉適能之提昇
- 動作站數(station)
- 每次訓練時間
- 每週訓練天數
- 訓練間隔
- 訓練流程
- 訓練時間計算

# 一、確立重量訓練的訓練目標

- 肌耐力訓練
- 肌肥大訓練
- 肌力訓練
- 爆發力訓練

## 一、確立重量訓練的訓練目標

- 1 RM (repetition maximum, 一次反覆最大重量) 肌力

\*是指單一肌肉一次收縮所能夠產生的最大肌力，也可以指某一肌群收縮一次能夠抵抗重量的最大肌力

(了解訓練前肌力狀況再進行訓練編排)

# 一、確立重量訓練的訓練目標

- 1 RM (repetition maximum, 一次反覆最大重量) 肌力
- 推估與查表

**Table 7.3** Load-to-Repetition Relationship

% of 1RM	Number of repetitions
100	1
95	2
90	3
85	5
80	8
75	10
70	12
65	15

# 一、確立重量訓練的訓練目標

- 推估與查表(ex:80KG，做6-7下)

Max (Kg)	Max number of reps and 1RM percentages												
	>20	20	19-18	17-16	15-14	13-12	11-10	9-8	7-6	5-4	3-2	1	1
	40%	45%	50%	55%	60%	65%	70%	75%	80%	85%	90%	95%	100%
25	10	11	12	13	15	16	17	18	20	21	22	23	25
30	12	13	15	16	18	19	21	22	24	25	27	28	30
35	14	15	17	19	21	22	24	26	28	29	31	33	35
40	16	18	20	22	24	26	28	30	32	34	36	38	40
45	18	20	22	24	27	29	31	33	36	38	40	42	45
50	20	22	25	27	30	32	35	37	40	42	45	47	50
55	22	24	27	30	33	35	38	41	44	46	49	52	55
60	24	27	30	33	36	39	42	45	48	51	54	57	60
65	26	29	32	35	39	42	45	48	52	55	58	61	65
70	28	31	35	38	42	45	49	52	56	59	63	66	70
75	30	33	37	41	45	48	52	56	60	63	67	71	75
80	32	36	40	44	48	52	56	60	64	68	72	76	80
85	34	38	42	46	51	55	59	63	68	72	76	80	85
90	36	40	45	49	54	58	63	67	72	76	81	85	90
95	38	42	47	52	57	61	66	71	76	80	85	90	95
100	40	45	50	55	60	65	70	75	80	85	90	95	100
105	42	47	52	57	63	68	73	78	84	89	94	99	105



## 訓練相關變項與訓練目標的關係

### 重量訓練原則

負荷	訓練目的	% 1RM	反覆次數	訓練組數	組間休息
輕	肌耐力	60-70	12-20	2-3(1-3)	20-30 秒
中	肌肥大	70-80	8-12	3-6	30-90 秒
重	肌力	80-100	1-8	3-5+	2-5 分

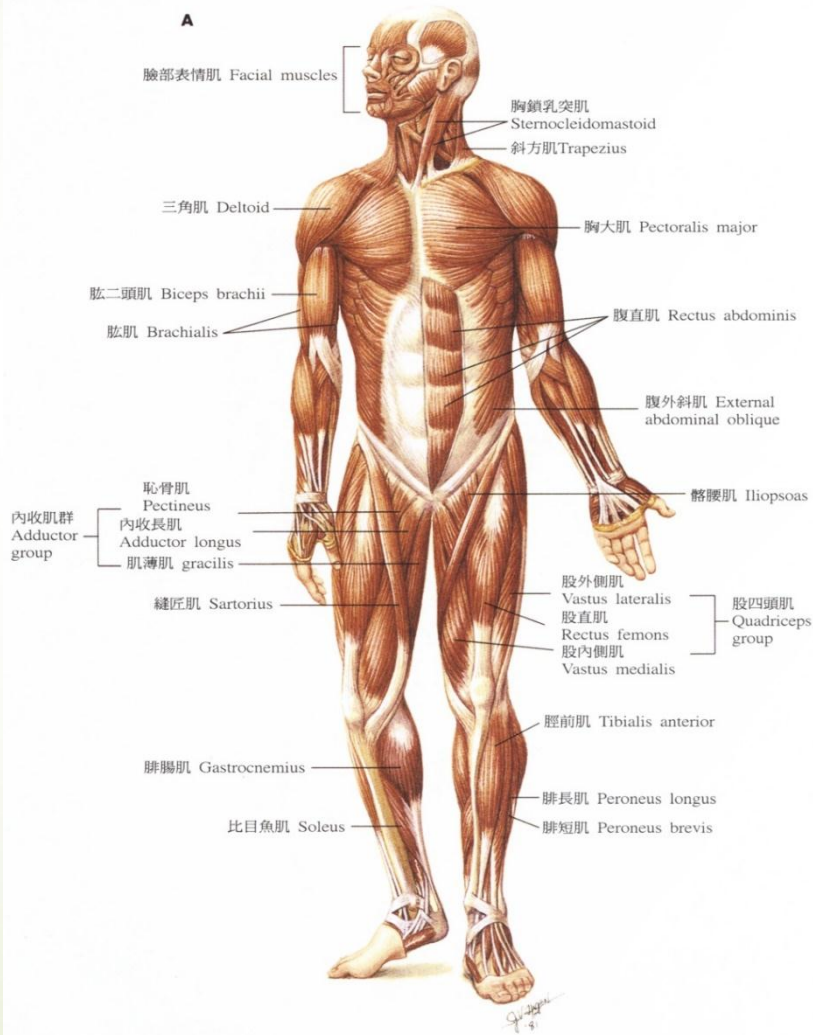
RM	≤2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	≥20
訓練目標	肌力																		
	*爆發力																		
	肌肥大																		
	肌耐力																		

## 二、全身整體肌肉適能之提昇

### 八大肌群

- 胸肌
- 背部肌群(上背及中背)
- 肩部肌群
- 腿部肌群
- 肱三頭肌
- 肱二頭肌
- 腹部肌群
- 下背肌群

圖6-6 身體肌肉的概觀。 A. 前面觀



### 三、動作站數(station)

- 視個人需要訂定不同訓練站數及動作(項目)，通常為8-12站，一般排法為全身八大肌群各排一站，其餘在加強需特別加強之部位。

## 四、每次訓練的時間

- ➡ 為了維持一般人從事重量訓練的興趣，美國運動醫學會(ACSM)建議一般人最多不超過一小時。

## 五、每週訓練的天數

- 每週能至少從事1次重量訓練，就可以維持適當肌肉力量及減緩肌肉量的流失。
- 每週能從事2-3次的重量訓練，增進肌力肌耐力。
- 增加肌肉量的健美者，適用局部分段訓練法每天只訓練1至2個肌群，每週可訓練5-6天。

## 六、訓練間隔

- ▶ 依據訓練原理每次重量訓練後最好能間隔一天，讓訓練的肌群能有足夠時間休息，以獲得最佳的訓練效果，一般可編排週一、週三、週五 or 週二、週四、週六（間隔一天）。

## 七、訓練流程

### ► 熱身運動(warm-up)：

運用簡單關節活動、伸展運動、有氧運動、欲訓練動作之輕負荷…等低強度運動進行熱身運動。

### ► 主運動( work out)：

訓練內容依照訓練目標、需求(維持、增進、修飾線條、肌耐力、肌肥大、肌力、爆發力)而定。

### ► 緩和運動(cool down)：

簡單關節活動、伸展運動等低強度運動。



# 八、啞鈴動作介紹-1

## STATION 1

### Goblet squat

With both hands, grab one end of a dumbbell to hold it vertically in front of your chest, and stand with your feet slightly beyond shoulder width [A]. Keeping your back naturally arched, push your hips back, bend your knees, and lower your body until the tops of your thighs are at least parallel to the floor [B]. Pause, and push yourself up to the starting position. If that's too hard, do a body-weight squat instead.



## STATION 2

### Mountain climber

Assume a pushup position with your arms completely straight. Your body should form a straight line from your head to your ankles [A]. Without allowing your lower-back posture to change, lift your right foot off the floor and slowly move your right knee toward your chest [B]. Return to the starting position, and repeat with your left leg. Alternate back and forth for the duration of the set.



## STATION 3

### Single-arm dumbbell swing

Hold a dumbbell (or a kettlebell) at arm's length in front of your waist. Without rounding your lower back, bend at your hips and knees and swing the dumbbell between your legs [A]. Keeping your arm straight, thrust your hips forward and swing the dumbbell to shoulder level as you rise to a standing position [B]. Swing the weight back and forth. At the 30-second mark, switch arms.



## STATION 4

### T-pushup

Grab a pair of hex dumbbells and assume a pushup position, your arms straight [A]. Bend your elbows and lower your body until your chest nearly touches the floor [B]. As you push yourself back up, lift your right hand and rotate the right side of your body as you raise the dumbbell straight up over your shoulder until your body forms a T [C]. Reverse the move and repeat, this time rotating your left side.



## 八、啞鈴動作介紹-2

### STATION 5

#### Split jump

Stand in a staggered stance with your feet 2 to 3 feet apart, your right foot in front of your left. Keeping your torso upright, bend your legs and lower your body into a lunge [A]. Now jump with enough force to propel both feet off the floor [B]. While you're in the air, scissor-kick your legs so you land with your left leg forward. Repeat, alternating your forward leg for the duration of the set.



### STATION 6

#### Dumbbell row

Grab a pair of dumbbells, bend at your hips (don't round your lower back), and lower your torso until it's nearly parallel to the floor. Let the dumbbells hang at arm's length [A]. Without moving your torso, row the weights upward by raising your upper arms, bending your elbows, and squeezing your shoulder blades together [B]. Pause, lower the dumbbells, and repeat.



### STATION 7

#### Dumbbell side lunge and touch

Hold a pair of dumbbells at arm's length at your sides [A]. Take a big step to your left and lower your body by pushing your hips backward and bending your left knee. As you lower your body, bend forward at your hips and touch the dumbbells to the floor [B]. Repeat for 30 seconds, and then switch to your right leg. If the exercise is too hard, do the move without the dumbbells; just reach for the floor with your hands.



### STATION 8

#### Pushup-position row

Grab a pair of hex dumbbells and assume a pushup position, your arms straight [A]. Keeping your core stiff, row the dumbbell in your right hand to the side of your chest, bending your arm as you pull it upward [B]. Pause, and then quickly lower the dumbbell. Repeat with your left arm.



## 八、啞鈴動作介紹-3

### STATION 9

#### Dumbbell lunge and rotation

Grab a dumbbell and hold it horizontally by its ends, just under your chin [A]. Step forward with your right foot and lower your body into a lunge. As you lunge, rotate your upper body to the right [B]. Return to the starting position, and repeat with your left leg. Alternate left and right until your 60 seconds are up. If the exercise is too hard, perform the movement without the dumbbell.



### STATION 10

#### Dumbbell push press

Stand holding a pair of dumbbells just outside your shoulders, with your arms bent and palms facing each other. Stand with your feet shoulder-width apart and knees slightly bent [A]. Dip your knees [B], and then explosively push up with your legs as you press the weights straight over your shoulders [C]. Lower the dumbbells back to the starting position and repeat.



## 八、藥球動作介紹-1



## 八、藥球動作介紹-2



# 訓練相關實務分享與討論

## ➤ 個案(如何透過重量訓練改善)

- 1.擊球距離增加
- 2.長草無法克服



Thanks For Your Listening

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