Cardio and resistance training: challenge the norm!
The ‘My mate says syndrome’

Presented by
Morc Coulson
Senior lecturer in Health-Related Exercise
Set the scene!

- 14 years delivering Sport & Exercise Science undergraduate and post-graduate modules.
- Taught almost 3000 students in that time.
- More than 400 students already had some kind of fitness qualification.
- Modules designed to generate qualitative data in relation to student prior health and fitness knowledge.
- Thematic analysis identified the following areas of commonality for scientific debate;
  - Recumbent cycle
  - Cross trainer
  - Squatting
  - Lat pull down
  - Behind neck shoulder press
  - Bench press
  - Upright rowing
  - Preacher curl
Can science help the debate?

Yes but beware.............. correlation is not causation!

Example;

- Smoking is highly correlated to alcoholism but it does not cause alcoholism.

There are many other examples of correlation but not causation.

- Shoe size and reading ability.
- The sale of ice cream and drowning.

By all means read but be critical and selective in your reading and make sure you use credible sources of information.
Recumbent cycle

• Better for people with ‘bad’ backs

Curvature of the lumbar region is often reduced in seated positions which could increase injury risk.


Posterior pelvic tilt during sitting can decrease internal organ and respiratory function.


Lack of research on sitting postures but many agree that posterior pelvic tilt should be avoided.

Posterior tilt in recumbent cycling

Morc’s Top Tips
• use upright cycle if available.
• encourage clients to sit with neutral spine (on both).
• on upright cycle try not to support the weight through the arms.
Cross trainer - elliptical

• Keep feet flat on the foot plates!

The importance of ankle movement in promoting venous flow.


Morc’s Top Tip – encourage heel lift as in walking or running.
Squatting

• Got to keep feet ‘hip width apart’ and feet ‘parallel’.
Research suggests no difference between wide and narrow stance and no difference between varying foot angles from 0-30° in terms of vastus group and bicep femoris strength (limit the rotation if possible to reduce meniscus injury potential).

• Don’t go below 90° in a squat.
Deep squats do not contribute increased risk of injury to passive tissues.


Lack of consensus either for or against in terms of stability. Research suggests many coaches promote parallel squats as potential for injury in deep squats although many studies show that Posterior Cruciate Ligament can withstand much more force.

Squatting – benefits


Don’t lock-out.
Closed kinetic chain exercises produce less knee strain/greater muscle activation.

Lifting through a full range of motion was superior to the other training regimens.
Morc’s Top Tips - Squatting

- Allow client to find their own comfortable position in terms of squatting.
- Encourage slightly different positions in order to develop varying motor co-ordination patterns.
- In the absence of knee injury encourage full range of squatting.
- Develop technique and then slow progression of weighted squats.
- Patellofemoral syndrome normally associated with overuse so take sport or event plus training into account to limit the usage.
- Avoid translation injury by placing the feet slightly higher (or forward).
Lat pull down

• Don’t pull down behind the neck as this can crush vertebrae!

Behind the neck pull down can cause cervical injury (mainly neural).

There is a significant association between behind the neck pull downs and shoulder instability.

Pulling to the front elicits greater muscle activation.

• Wide grip better than narrow grip!

Similar hypertrophy gains with a grip width that is 1-2 times the biacromial distance.
Lat Pull Down and peripheral vision

Hands in peripheral vision through entire ROM.

Hands not in peripheral vision at any time

Are there any other exercises where the hands are not in peripheral vision?

Morc’s Top Tips:
• Pull to chin level only to avoid internal rotation.
• Have a slight lean back.
• Vary the grip width.
Behind the neck shoulder press

Behind the neck shoulder press will do my rear deltoids!


Morc’s Top Tips:
• Include external shoulder rotation exercises into programme to stabilise the glenohumeral joint.
• Keep hands in peripheral vision at all times.
• Include rear deltoid exercises in programme such as seated row.
Shoulder press

- Seated shoulder press is better!

Flexing the knees whilst weight lifting can reduce IDP.


It is better to perform exercises in a standing position to support greater loads by having greater trunk muscle activation.


Also, if supraspinatus initiates the process of abduction of the humerus (as suggested by Wilke et al) then does it not make sense to have a small countermovement in order to get the load moving?

**Morc’s Top Tips:**

Choose a standing option if possible and use a small countermovement. Keep hands in peripheral vision.
Bench press

• Bounce the bar to off the chest!

A large range of motion in bench press and flies can cause anterior instability and degenerative changes in the acromioclavicular joint. Recommended to drop to no less than 4cm above the chest and avoid narrow grip.


**Morc’s Top Tips:**

Start position – hands directly above elbows (avoids wrist compression). Limit range of motion on descent.
Upright rowing -

- Bring the bar up to the chin!

Abduction greater than 80° can cause impingement syndrome (tendonitis of supraspinatus, infraspinatus, bicep brachii)


Bar only at chest level.

Note wrist angle!

~ 80° abduction of the humerus.

Morc’s Top Tip – Bin! Find alternative exercises.
Bicep curl

- Preacher curls are better for muscle size!

EMG shows greater muscle activation in dumbbell curl as opposed to preacher curl. Activation increased throughout range.

Preacher curl

Almost horizontal movement.

**Morc’s Top Tip:**
Don’t second guess nature! Do standing bicep curl.
Summary

- Many opinions in this industry often based on anecdotal evidence and not research-based evidence.

- Question the opinions of others to establish the rationale for the statement.

- CPD is key. Research is easily available and still embryonic in this industry.

- To increase the professionalism of the industry let's move from the ‘my mate says’ syndrome to the ‘says who?’ syndrome.