MATT CHURCH, LOCKER 27 – STRENGTH AND CONDITIONING FOR FAST BOWLERS
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Background

• Ex Pro Cricketer
• S&C for Surrey CCC, England Lions, Cricket Ireland
• Locker 27

Overview

• Needs Analysis
• Injury Data-thresholds
• Neuromuscular Stress-monitoring
• Programming, Exercise Selection
• Warm ups-Game prep
• Recovery
• Future?
Needs Analysis

Episodes of upper and lower body actions (i.e., acceleration and deceleration), requiring a significant ability to work at high anaerobic intensities repetitively with heart rate peaks of fast bowlers measured at between 159-190 beats/min (Duffield et al. 2009; Johnstone et al. 2008).

Bowling is a high impact, repetitive activity displaying a combination of hyperextension, lateral flexion and rotation of the trunk (Milsom 2006; Millson, 2004; Elliot 2000)

High ground reaction forces (e.g., 5–9 times body mass), requiring strong eccentric strength in the quadriceps and a strong core, i.e., lumbo-pelvic area (Stretch, 1989; Elliot 2000; Noakes 2000).

Lower and upper body strength are important factors in determining delivery velocity (Pyne et al 2006).
Injury Data

Fast bowlers miss, through injury, about **16% of all potential playing time**, whereas the prevalence rate for all other positions is less than 5%. (Orchard et al. 2006)

- **Lower limb injuries**: associated with front foot strike in the delivery stride (Bartlett et al., 1996) and include - patellar tendinitis (Stretch, 1989; Bartlett et al., 1996) and stress fractures, stress fractures to the metatarsals, fibula and tibia (Stretch, 1989; Bartlett et al. 1996; and Orchard and James, 2002)

- **Lumbo-pelvic injuries**: High incidence of lumbar bone stress in fast bowlers (Elliot, 2000; Kountouris et al. 2012), spondylolisthesis, disc degeneration and bulging, ligament damage and QL strains are common injuries (Bartlett et al. 1996).

- **Upper limb injuries**: elbow strains, olecranon bursitis, pinched nerves in the shoulder region, rotator cuff sprains and impingement, and stress fractures (Bartlett et al., 1996; Stretch, 1989)

- 23.9% of the injuries to club and provincial cricketers were reported to be recurrent injuries and 22.7% of the new injuries sustained were re-aggravated again during that season (Stretch 1993b).
Thresholds

Bowlers with a weekly bowling workload above the mean of 203 deliveries (34 overs) were at an increased risk of injury (Dennis et al., 2004).

Compared to bowlers with an average of 3–4 days between bowling sessions, bowlers with an average of less than 2 days or 5 or more days between sessions were at a significantly increased risk of injury (Dennis et al. 2003).

Compared to those bowlers with an average of 123–188 deliveries per week (21-31 overs), bowlers with an average of fewer than 123 deliveries or more than 188 deliveries per week may also be at an increased risk of injury (Dennis et al. 2003).
Brett v’s Tero

Tero Pitkamaki and Steve Backley are both World champion javelin throwers. As well as the differences look for the similarities between fast bowling and javelin throws in these videos.

http://youtu.be/ZC2-PQjUJvQ
http://youtu.be/C0E-Pgu1cMw
http://youtu.be/bd86C_h_iHA

Tero is immensely powerful in both upper and lower body yet still athletic. Could fast bowlers be trained in a similar way to javelin throwers for power?
Warm up Window

- Pulse Raise
- Activate
- Mobilise
- Readiness
- Potentiate
Programming

Fast Bowler

Individual

Progressive/Regressive

Plan

Monitor
Recovery

• It’s not how it used to be......
  – Sleep (Meerlo et al. 2008)
  – Hydration (Devlin et al. 2001)
  – Nutrition – Protein & CHO (Batty et al. 2007; Ferguson-Stegall et al. 2011), Cherry Juice (Connolly et al 2006; Kuehl et al 2010)
  – Contrast baths (Pournot et al 2010; Higgins et al. 2011; French, 2008)
  – Skins (Gill et al. 2006; Kraemer et al. 1997; French, 2008)
  – Massage/Foam Roll
  – Active Recovery – post game/next morning (Gill et al. 2006)
The Future?

Possible strategies for optimal performance:

• Post Activation Potentiation (Kilduff et al. 2007; Bevan 2009). Looks at how performance may improve shortly after a bout of heavy resistance training.

• Bike Sprint (Crewther, 2009; Crewther, 2011) Sprints (Farzad et al 2011). Some studies have shown that, used as part of a warm up, short bike sprints have been shown to improve performance in power training.

Justifications:

• Testosterone (T) has positive effects on Cognitive Function - Reaction times and Decision making (Fonda et al. 2005; Fontani et al. 2004; Moffat & Hanson 1996; O’Connor et al. 2001 and Wright et al. 2005)

• T has Positive effects on neuromuscular system (Crewther et al. 2011)

• T has positive influence on performance (Crewther et al. 2012)
General Warm Up

Move around area, change direction and movement style often whilst passing balls of varying sizes and weights.

Shadow – balance

Squats

Scorpion

Start the motor

Leg Swings. Forwards and side to side
Practical S and C

All designed to improve strength, power and flexibility from the stomach down to the feet with glute exercises being especially important. Essential for all sport and especially bowling fast.

Basic principles – back straight, knees over feet, feet flat on ground
Theraband work. Band can be replaced by medicine ball or any weighted object for individual work or if you don’t have specialist equipment.
Three Minute Warm Up

• During a match bowlers often get one over’s notice to prepare for a new spell. This gives them approximately three minutes to get ready. How can they warm up in that time so that they are prepared for the first ball of their new spell? Here are some exercises that can be used between balls to do just that.
Balance and reach high and low across body

Arm Swings.

Knee Rolls

Squats
Press Ups
Leg Swings
Shadow Bowling

Torso Twists

Lunges