

# Body Screen for Shoulder Function

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## Introduction

Biomechanical research has demonstrated that the lower limbs and trunk contribute force at the shoulder to perform many sporting, vocational and everyday functional activities.

For example:



■ During a tennis serve, **54% of the energy** to perform the serve comes **from the legs and trunk**. The shoulder contributes 21% and the elbow and wrist contribute 15% and 10% respectively.

■ During a baseball pitch, energy is also transferred from the lower limbs to the pitching shoulder. **If there is 24% reduction or decrease** in energy transfer **from the hips and trunk**, the shoulder has to **increase** its contribution by **34% to deliver the same force at the hand**. One possible consequence is fatigue and overload and potential failure at the shoulder.

■ The **legs and trunk contribute 10%** of the propulsion force in **swimmers**.

■ **Maximal handball throwing velocity** is related to **peak power** in both **upper and lower limb muscles**.

Although the reliability, validity and knowledge of its ability to contribute to enhanced outcome is still in its scientific infancy, the potential for **whole of body screening** to identify deficits in range of movement strength, endurance and power, should be considered as an important part of the shoulder assessment process. More research is required to determine which patient groups a whole of body screening process will help, by how much, and what are the most appropriate assessment methods. The following tool is currently used and is a clinically based suggestion. Feedback and suggestions as well as possible research collaborations are requested.

## References

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This screening tool should be used in conjunction with: A complete interview, relevant outcome measures, full physical examination, and as required, other supporting investigations.  
Ensure appropriateness and medical stability before conducting assessment.

## Body Screen

<b>Height (m)</b>	<b>m</b>
<b>Weight (kg)</b>	<b>kg</b>
<b>BMI (kg / m<sup>2</sup>)</b> (<18.5-underweight, 18.8-24.9-normal, 25-29.9-overweight, >30 obese)	<b>kg / m<sup>2</sup></b>
<b>Waist circumference (around umbilicus)</b> Increased risk: diabetes, cardiac disease, cancer Increased risk: men ♂ >94cm, women ♀ >80cm. Significant risk: ♂ >102cm, ♀ >88cm	<b>cm</b>

Region	Range of Movement			
Cervical	Flexion: Extension:	Rotation right: Rotation left:	Lateral bend right: Lateral bend left:	
Thoracic	Flexion: Extension:	Rotation right: Rotation left:	Lateral bend right: Lateral bend left:	
Lumbar	Flexion: Extension:	Rotation right: Rotation left:	Lateral bend right: Lateral bend left:	
Elbow	Left: Flexion: Extension:	Supination: Pronation:	Right: Flexion: Extension:	Supination: Pronation:
Wrist and Hand	Left: Flexion: Extension:	Ulnar deviation: Radial deviation:	Right: Flexion: Extension:	Ulnar deviation: Radial deviation:
Hip	Left: Flexion: Internal rotation: Abduction:	Extension: External rotation: Adduction:	Right: Flexion: Internal rotation: Abduction:	Extension: External rotation: Adduction:
Knee	Left: Flexion:	Extension:	Right: Flexion:	Extension:
Foot and Ankle	Left: Dorsiflexion: Inversion:	Plantarflexion: Eversion:	Right: Dorsiflexion: Inversion:	Plantarflexion: Eversion:
MTP (1 <sup>st</sup> )	Left: Flexion:	Extension:	Right: Flexion:	Extension:

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<b>Level 1</b> (suggestions / select only as appropriate)	Comment	
<b>Walking on spot</b> Arm swing as appropriate   Keep stepping speed constant Record ability and time to complete 20 steps (in total)   or when fatigued   or other		
<b>Knee bends</b> Hands gently supported on table top, chair back or as appropriate, keep angles / speed constant. Or <b>Decline squat – bilateral</b> 25° decline, aim to get to 90° knee flexion Record ability and time to complete 5 repetitions   or when fatigued   or other		
<b>Sit to stand to sit</b> Minimal to no arm support, keep angles constant Record ability and time to complete 5   or 10 reps.   or when fatigued   or other		
<b>Bridge – bilateral</b> Aim for thighs and trunk to be parallel Record number   Stop when fatigued / other / or at 1 minute		
<b>Abdominal crunches</b> Knees flexed, elbows extended, (if needed - pillow under head), semi curl-up touch patella. Or <b>Intermediate</b> Knees flexed, hands behind head or across chest, curl-up. Record ability and time to complete 10 repetitions   or when fatigued   or other		
<b>Heel raises – bilateral</b> Minimal support as required, keep heel height and lift speed constant Record ability and time to complete 10 repetitions   or when fatigued   or other		
<b>In-line lunge (with support- pole)</b> Flex knee to floor to touch back of opposite heel, back straight   Aim to complete 5 each side   Stop if unable	Left	Right
<b>Other</b>		

<b>Level 2</b> (suggestions / select only as appropriate)	Comment	
<b>Step ups</b> Step height: 15cm / 20cm / 25cm   Keep stepping speed constant. Or <b>Box jumps</b> Box height: 40cm / 60cm   Keep jumping speed constant Record ability and time to complete 10 repetitions   or when fatigued   or other		
<b>In-line lunge</b> Flex knee to floor to touch back of opposite heel, back straight   Aim to complete 10 each side   Stop if unable	Left	Right
<b>Bridge – bilateral with ‘marching’</b> Aim for thighs and trunk to be parallel   alternate lifting feet off support 10cm Or <b>Bridge – unilateral with straight leg lift</b> Aim for thigh and trunk to be parallel   alternate lifting contralateral leg (knee extended) of support 10cm Record ability and time to complete 20 repetitions   or when fatigued   or other		
<b>Heel raises – unilateral</b> Minimal support as required, keep heel height and lift speed constant Record ability and time to complete 15 repetitions   or when fatigued   or other	Left	Right
<b>Deep squat</b> - shoulders 90° abduction / ER if possible - if not identify alternate. Heels on floor. Full squat with trunk parallel to tibia Record ability and time to complete 10 repetitions   or when fatigued   or other		
<b>Bilateral leg press</b> -if unilateral not appropriate Start knee 90° flexion, aim for 1.5x body weight Or <b>Single leg press</b> (Start knee 90° flexion, aim for 1.25x body weight) Record ability and time to complete 5 repetitions   or when fatigued   or other		
<b>Standing forward hop</b> 3 each side (alternate) and average Start feet together, measure distance left and right sides	Left	Right
<b>Abdominal</b> 1 or 2 hands in small of back (if possible), one knee bent, other extended, SLR (10cm off floor- hold for 3s)   Alternate left and right sides Record ability and time to complete 10 reps. Each side   or when fatigued   or other		
<b>Decline squat – unilateral</b> 25° decline, aim to get to 90° knee flexion Record ability and time to complete 5 reps. Each side   or when fatigued   or other	Left	Right

<b>Level 3</b> (suggestions / select only as appropriate)	Comment	
<b>Gym / Sports Specific / Function Specific Assessment</b>		