




international  
**canoe**  
federation



**PROVISIONAL  
UPPER LIMB  
CLASSIFICATION  
Illustrated Guide**

Developed by Julie Gray - Member of the ICF  
Classification Committee and ICF Paracanoe  
Committee

Additional input from Anna Bjerkefors, Johanna  
Rosen and Fatima Fernandes

# General Information

★ Reference:

**Three-dimensional kinematic analysis and power output of elite flatwater kayakers.**

**Anna Bjerkefors, Olga Tarassova, Johanna S. Rosen, Pascal Zakaria, and Anton Arndt**

**Published in Sports Biomechanics  
2018**

- The Upper Limb classification is a provisional document for Kayak assessment only.
- Whilst some research has been done on the Sports Specific Range of Movement (SSROM) for the Shoulder, Elbow and Wrist, further research testing will be needed before the assessment can be finalised and then ratified by the IPC. ★
- This means there may be some changes to the testing protocol and/or changes to the Minimal Impairment Criteria (MIC) before athletes with an Upper Limb Impairment can be added to the International programme.
- A Combined Upper, Lower Limb and Trunk (CULLT) classification is, therefore, still some way off!

# General Information

- This guide is to be distributed to National Federations.
- The intention is to allow NFs to open competition to a new cohort of athletes, which will eventually complete the IPCs Limb Deficiency Impairment type.
- These athletes may then become the test subjects for further research, so that the classification system can be Evidence Informed when it is presented to the IPC.
- At present, whether competition is specific to upper limb, or integrated into other existing competitions, is entirely at the discretion of the NF.
- However, athletes with Upper Limb impairments will NOT be included in Paralympic events at ICF International Events at this time.
- There may be an opportunity, in the near future, for exhibition races at an International level. if there is sufficient growth in the class.

# Equipment needed for Classification

- Upper limb Medical Testing Manual
- Medical Scoring sheets and Technical Observation sheet
- Physio couch/plinth
- Arm table (or similar small table)
- Large Goniometer
- Finger Goniometer
- Small blanket or towel for athlete comfort
- Book or block of wood
- Grip strength Dynamometer (optional)

**ICF PARACANOE FUNCTIONAL ASSESSMENT CHART FOR THE UPPER LIMBS **KAYAK****

**Athlete Name**  **Federation**

REMINDER: When the athlete has full active SSROM, muscle strength is used for classification. When active ROM is reduced to < 50% of SSROM, loss of passive range, rather than strength, may be the limiting factor to athlete performance.

Functional Assessment	Muscle Strength through sports specific ROM (0 – 2 Scale)		Classifiers comments, and notes on ROM if needed
	Right	Left	
<b>UPPER LIMB</b>			
<b>SHOULDER (10 points)</b>			
Flexion 0° - 115°			
Extension 0° - 40°			
Abduction 0° - 60°			
External Rot'n 0° - 60°			
Internal Rot'n 0° - 70°			
<b>ELBOW (8 points)</b>			
Flexion 15° - 130°			
Extension 130° - 15°			
Pronation 0 - 40°			
Supination 0 - 40°			
<b>WRIST (8 points)</b>			
Flexion 0° - 20°			
Extension 0° - 40°			
Radial Deviation 0° - 15°			
Ulna Deviation 0° - 30°			
<b>HAND (8 points)</b>			
Points brought forward from Minimal Eligibility charts	/8	/8	
<b>TOTAL UPPER LIMB</b>	<b>/34</b>	<b>/34</b>	
<b>Points lost</b>			

Does athlete meet minimal eligibility criteria? If NO, athlete is NE	YES	NO
Loss of 3 points		

## ICF PARACANOE SUMMARY CHART

The total number of points available is  $34 + 34 = 68$

The MIC is 65 if one limb is affected , if 2 limbs affected MIC = 63 points

Classes for Upper Limb	Range of scores
Kayak Upper Limb (KUL) 3	65 - 52
KUL2	51 - 36
KUL1	35 and below

Right Upper limb scores	Left Upper limb scores	TOTAL SCORE

Class chart (circle one or tick the box)

KUL3	KUL2	KUL1
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Medical classifier signature   
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Technical classifier signature   
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Athlete signature   
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Date  
.....

Please note the layout on this presentation is slightly different to the chart because of the page orientation

## Measuring Upper Limb Range of Movement

- All measurements of Upper Limb ROM should be performed using the range scores, which research has shown, are sport specific for paddling. (Highlighted on the left of the table)
- If an athlete has an active joint range which is limited, but is still 50% or more of the SSROM, then he/she will score 2 for that joint.
- If an athlete's active joint range is limited to between 0 and 50% of the SSROM, then he/she will score 1 for that joint.
- If an athlete has an active joint ROM which falls completely outside the SSROM, he/she will score 0 for ROM on that joint. For example, a shoulder that has an abduction ROM of 70° - 130° will score 0.
- If an athlete has 0° ROM, for example an arthrodesis, they will score 0

Sport Specific Ranges of Movement (SSROM)		To score 2 for ROM (> or = to 50% of SSROM)	To score 1 for ROM (between 50 and 0% of SSROM)
<b>SHOULDER</b>			
Flexion	0° - 115°	>60°	60-1°
Extension	0° - 40°	>20°	20-1°
Abduction	0° - 60°	>30°	30-1°
External Rot'n	0° - 60°	>30°	30-1°
Internal Rot'n	0° - 70°	>35°	35-1°
<b>ELBOW</b>			
Flexion	15° - 130°	>60°	60-1°
Extension	130° - 15°	>60°	60-1°
Pronation	0° - 40°	>20°	20 - 1°
Supination	0° - 40°	>20°	20 - 1°
<b>WRIST</b>			
Flexion	0° - 20°	>10°	10-1°
Extension	0° - 40°	>20°	20-1°
Radial Deviation	0° - 15°	>10°	10-1°
Ulna Deviation	0° - 30°	>15°	15-1°

Please note range scores have in some cases been “rounded” off to facilitate easy measurement

## Upper limb tests Illustrated Guide

### Shoulder flexion

SSROM = 0 - 115°

50% SSROM = 60° in any part of the range

Starting position: Athlete lies supine on the plinth with arm by their side.

Instruction: Lift your arm up and over your head.

Classifier: stands at the side of the athlete and observes the range of shoulder movement. If the athlete has reduced strength the classifier may assist the movement by holding the arm at the elbow and the hand.

- If range is over 50% of SSROM the athlete is asked to repeat the movement, this time with the classifier resisting by holding just above the elbow.
- If the SSROM is reduced, the classifier should measure the range using a goniometer. The centre of the goniometer is placed over the shoulder joint with the arms parallel to the plinth. As the athlete moves the arm, one arm of the goniometer is held along the length of the humerus and moves with it. The ROM is read on the scale.

Score 2 = athlete moves arm against resistance  
Score 1 = athlete moves arm without resistance  
Score 0 = athlete is unable to move the arm  
For ROM scores, please see separate chart.





## Upper limb tests Illustrated Guide

### Shoulder Abduction

SSROM = 0 - 60°

50% SSROM in any part of range = 30°

Starting position: Athlete lies supine on plinth with arm by their side

Instruction: Move your arm out to the side

Classifier: stands at the side of the athlete and observes the range of shoulder movement. If the athlete has reduced strength the classifier may assist the movement by holding the arm at the elbow and the hand.

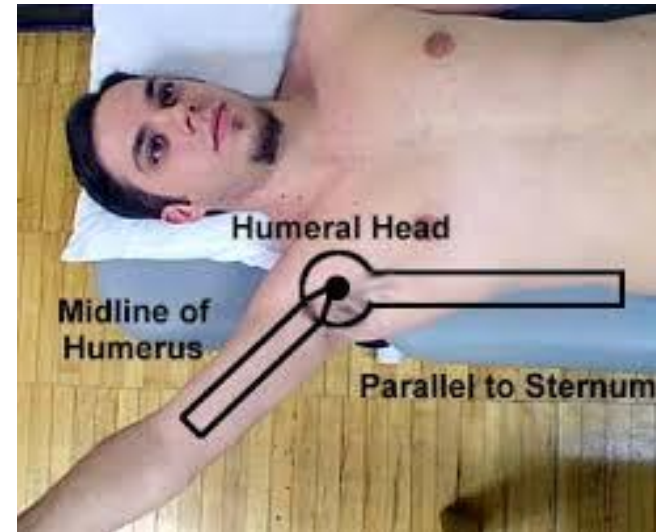
- If range is over 50% of SSROM the athlete is asked to repeat the movement, this time with the classifier resisting by holding just above the elbow.
- If the SSROM is reduced, the classifier should measure the range using a goniometer. The centre of the goniometer is placed over the shoulder joint with the arms parallel to the sternum. As the athlete moves the arm, one arm of the goniometer is held along the length of the humerus and moves with it. The ROM is read on the scale.

Score 2 = athlete moves arm against resistance

Score 1 = athlete moves arm without resistance

Score 0 = athlete is unable to move the arm

For ROM scores, please see separate chart.



## Upper limb tests Illustrated Guide

### Shoulder External rotation

SSROM = 0 - 60°

50% SSROM at any point in range = 30°

Starting position: Athlete lies supine on the plinth with the shoulder and elbow flexed to 90, and the hand pointing to the ceiling

Instruction: keeping your elbow still, take your hand over your head

Classifier: stands at the side of the athlete and observes the range of shoulder movement. If the athlete has reduced strength the classifier may assist the movement by holding the arm at the elbow and the hand.

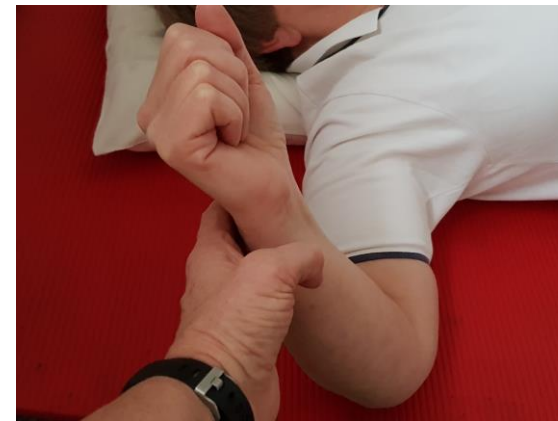
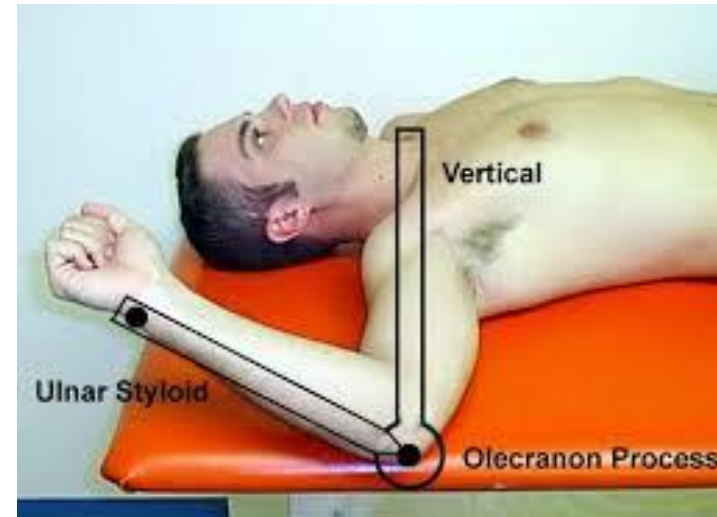
- If range is over 50% of SSROM the athlete is asked to repeat the movement, this time with the classifier resisting by holding just above the wrist.
- If the SSROM is reduced, the classifier should measure the range using a goniometer. The centre of the goniometer is placed over the elbow joint with the arms vertical to the plinth. As the athlete moves the arm, one arm of the goniometer is held along the length of the ulna and moves with it. The ROM is read on the scale.

Score 2 = athlete moves arm against resistance

Score 1 = athlete moves arm without resistance

Score 0 = athlete is unable to move the arm

For ROM scores, please see separate chart.



## Upper limb tests Illustrated Guide

### Shoulder internal rotation

SSROM = 0 - 70°

50% SSROM in any part of range - 35°

Starting position: Athlete lies supine on the plinth with the shoulder and elbow flexed to 90, and the hand pointing to the ceiling

Instruction: keeping your elbow still move your hand down towards the plinth

Classifier: stands at the side of the athlete and observes the range of shoulder movement. If the athlete has reduced strength the classifier may assist the movement by holding the arm at the elbow and the hand.

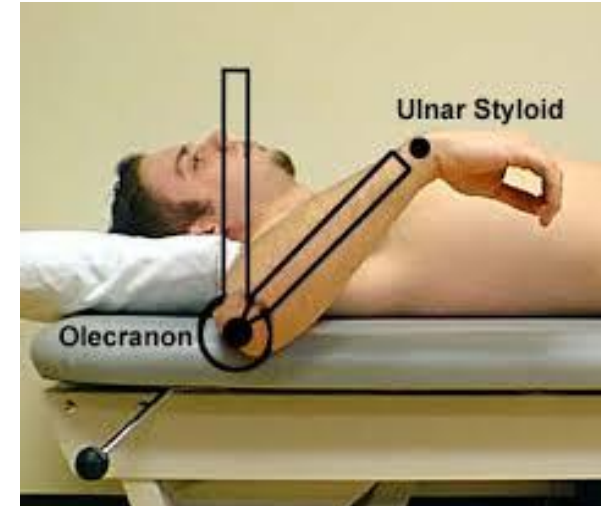
- If range is over 50% of SSROM the athlete is asked to repeat the movement, this time with the classifier resisting by holding just above the wrist.
- If the SSROM is reduced, the classifier should measure the range using a goniometer. The centre of the goniometer is placed over the elbow joint with the arms vertical to the plinth. As the athlete moves the arm, one arm of the goniometer is held along the length of the ulna and moves with it. The ROM is read on the scale.

Score 2 = athlete moves arm against resistance

Score 1 = athlete moves arm without resistance

Score 0 = athlete is unable to move the arm.

For ROM scores, please see separate chart



## Upper limb tests Illustrated Guide

### Shoulder Extension

SSROM = 0 - 40°

50% SSROM in any part of range = 20°

Starting position: The athlete lies prone on the plinth with arm at their side.

Instruction: Lift your arm up behind you

Classifier: stands at the side of the athlete and observes the range of shoulder movement. If the athlete has reduced strength the classifier may assist the movement by holding the arm at the elbow and the hand.

If range is over 50% of SSROM the athlete is asked to repeat the movement, this time with the classifier resisting by holding just above the elbow.

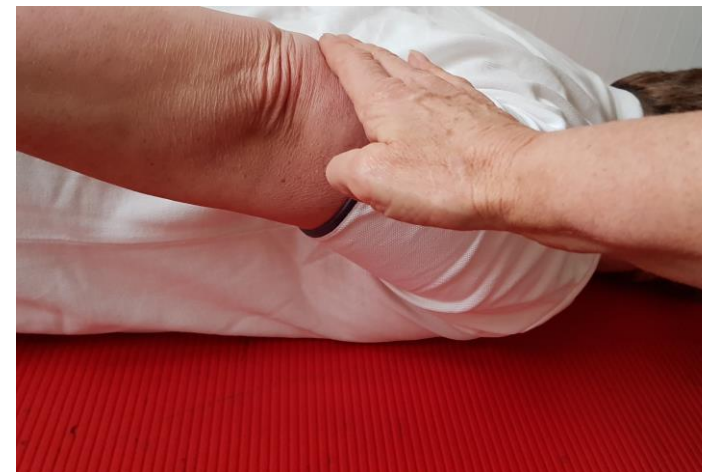
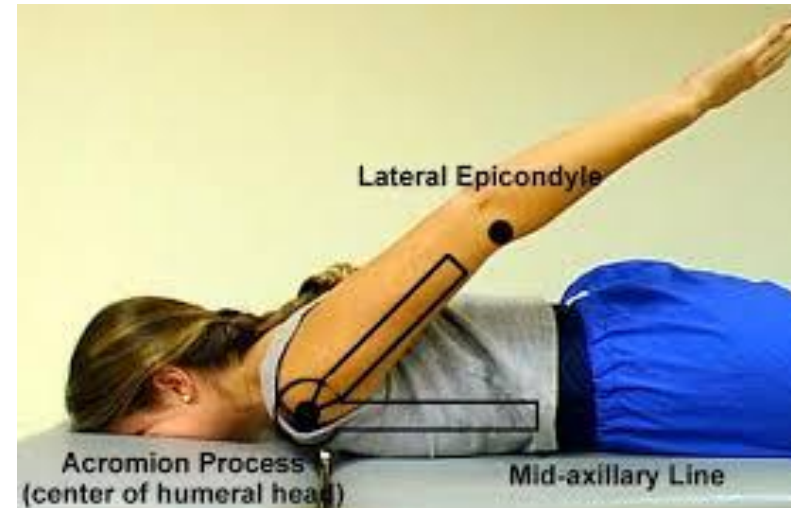
If the SSROM is reduced, the classifier should measure the range using a goniometer. The centre of the goniometer is placed over the shoulder joint with the arms parallel to the plinth. As the athlete moves the arm, one arm of the goniometer is held along the length of the humerus and moves with it. The ROM is read on the scale.

Score 2 = athlete moves arm against resistance

Score 1 = athlete moves arm without resistance

Score 0 = athlete is unable to move the arm

For ROM scores, please see separate chart.



## Upper limb tests Illustrated Guide

### Elbow extension

SSROM = 130 - 15°

50% SSROM at any part of range = 60°

Starting point: Athlete lies supine on plinth, with elbow bent

Instruction: straighten your elbow as much as you can

Classifier: stands at the side of the athlete and observes the range of elbow movement. If the athlete has reduced strength the classifier may assist the movement by holding the arm at the hand.

- If range is over 50% of SSROM the athlete is asked to repeat the movement, this time with the classifier resisting by holding just above the wrist.
- If the SSROM is reduced, the classifier should measure the range using a goniometer. The centre of the goniometer is placed over the elbow joint with one arm along the humerus, and one along the radius. As the athlete moves the arm, the goniometer moves with the radius. The ROM is read on the scale.

Score 2 = athlete moves arm against resistance

Score 1 = athlete moves arm without resistance

Score 0 = athlete is unable to move the arm

For ROM scores, please see separate chart.



## Upper limb tests Illustrated Guide

### Elbow Flexion

SSROM = 15 - 130°

50% SSROM at any part of range = 60°

Starting position: Athlete lies supine on the plinth with arm by their side.

Instruction: bend your elbow as much as possible

Classifier: stands at the side of the athlete and observes the range of elbow movement. If the athlete has reduced strength the classifier may assist the movement by holding the arm at the hand.

- If range is over 50% of SSROM the athlete is asked to repeat the movement, this time with the classifier resisting by holding just above the wrist.
- If the SSROM is reduced, the classifier should measure the range using a goniometer. The centre of the goniometer is placed over the elbow joint with one arm along the humerus, and one along the radius. As the athlete moves the arm, the goniometer moves with the radius. The ROM is read on the scale.

Score 2 = athlete moves arm against resistance

Score 1 = athlete moves arm without resistance

Score 0 = athlete is unable to move the arm

For ROM scores, please see separate chart.



## Upper limb tests Illustrated Guide

### Elbow pronation

SSROM = 0 - 40°

50% SSROM at any part of range = 20°

Starting position: athlete sits with elbow flexed to 90 and tucked into Side. Athlete holds a pencil vertically in the fist

Instruction: keeping the upper arm and the elbow still, rotate the thumb inwards and down

Classifier: stands in front of the athlete and observes the range of forearm movement. If the athlete has reduced strength the classifier may assist the movement by holding the arm at the hand.

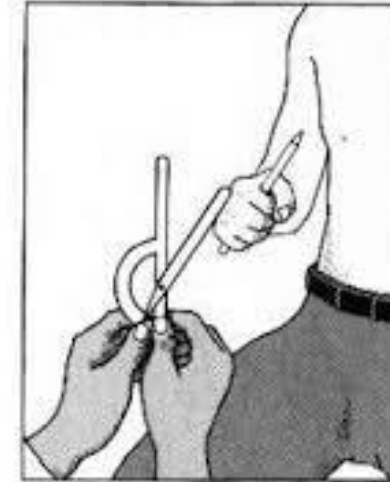
- If range is over 50% of SSROM the athlete is asked to repeat the movement, this time with the classifier resisting by holding just above the wrist.
- If the SSROM is reduced, the classifier should measure the range using a goniometer. The goniometer is held vertically, centred on the knuckle of the middle finger. One arm of the goniometer follows the line of the pencil, and the ROM read on the scale.

Score 2 = athlete moves arm against resistance

Score 1 = athlete moves arm without resistance

Score 0 = athlete is unable to move the arm

For ROM scores, please see separate chart.



## Upper limb tests Illustrated Guide

### Elbow Supination

SSROM = 0 - 40°

50% SSROM at any part of range = 20°

Starting position: athlete sits with elbow flexed to 90 and tucked into Side. Athlete holds a pencil vertically in the fist

Instruction: keeping the upper arm and the elbow still, rotate the thumb outwards

Classifier: stands in front of the athlete and observes the range of forearm movement. If the athlete has reduced strength the classifier may assist the movement by holding the arm at the hand.

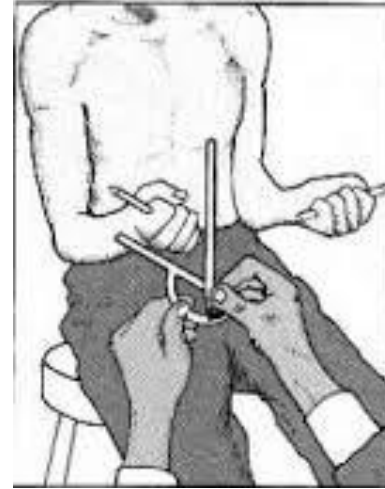
- If range is over 50% of SSROM the athlete is asked to repeat the movement, this time with the classifier resisting by holding just above the wrist.
- If the ROM is reduced, the classifier should measure the range using a goniometer. The goniometer is held vertically, centred on the knuckle of the middle finger. One arm of the goniometer follows the line of the pencil, and the ROM read on the scale.

Score 2 = athlete moves arm against resistance

Score 1 = athlete moves arm without resistance

Score 0 = athlete is unable to move the arm

For ROM scores, please see separate chart.





## Upper limb tests Illustrated Guide

### Wrist extension

SSROM = 0 - 40°

50% SSROM in any part of range = 20°

Starting position: athlete's forearm is placed on the plinth in a prone position, with the wrist hanging over the edge

Instruction: keeping the forearm still, lift the hand up towards the ceiling

Classifier: stands at the side of the athlete and observes the range of wrist movement. If the athlete has reduced strength the classifier may assist the movement by holding the hand.

- If range is over 50% of SSROM the athlete is asked to repeat the movement, this time with the classifier resisting by holding the back of the hand.
- If the ROM is reduced, the classifier should measure the range using a goniometer. The goniometer is placed over the wrist joint with one arm along the ulna and the other along the 5<sup>th</sup> metacarpal. The ROM is read on the scale.

Score 2 = athlete moves arm against resistance  
Score 1 = athlete moves arm without resistance  
Score 0 = athlete is unable to move the arm  
For ROM scores, please see separate chart.



## Upper limb tests Illustrated Guide

### Wrist flexion

SSROM = 0 - 20°

50% of SSROM in any part of range = 10°

Starting position: athlete's forearm is placed on the plinth in a prone position, with the wrist hanging over the edge.

Instruction: keeping the forearm still, drop the hand towards the floor

Classifier: stands at the side of the athlete and observes the range of wrist movement. If the athlete has reduced strength the classifier may assist the movement by holding the hand.

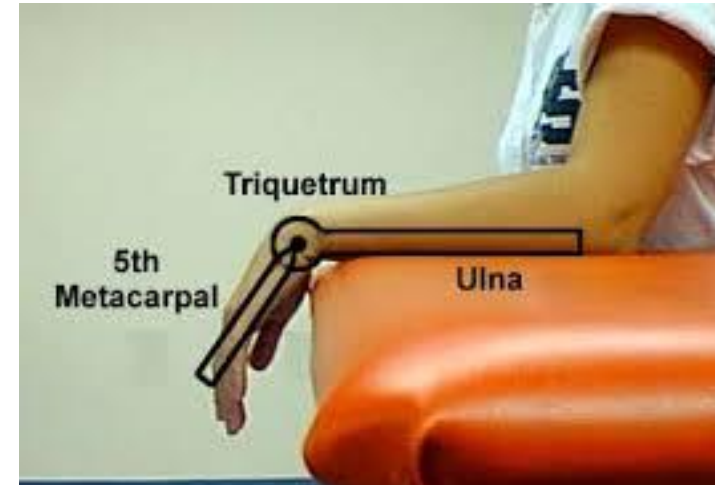
- If range is over 50% of SSROM the athlete is asked to repeat the movement, this time with the classifier resisting by holding the palm of the hand.
- If the ROM is reduced, the classifier should measure the range using a goniometer. The goniometer is placed over the wrist joint with one arm along the ulna and the other along the 5<sup>th</sup> metacarpal. The ROM is read on the scale.

Score 2 = athlete moves arm against resistance

Score 1 = athlete moves arm without resistance

Score 0 = athlete is unable to move the arm

For ROM scores, please see separate chart.



## Upper limb tests Illustrated Guide

### Wrist flexion

SSROM = 0 - 20°

50% of SSROM in any part of range = 10°

Starting position: athlete's forearm is placed on the plinth in a prone position, with the wrist hanging over the edge.

Instruction: keeping the forearm still, drop the hand towards the floor

Classifier: stands at the side of the athlete and observes the range of wrist movement. If the athlete has reduced strength the classifier may assist the movement by holding the hand.

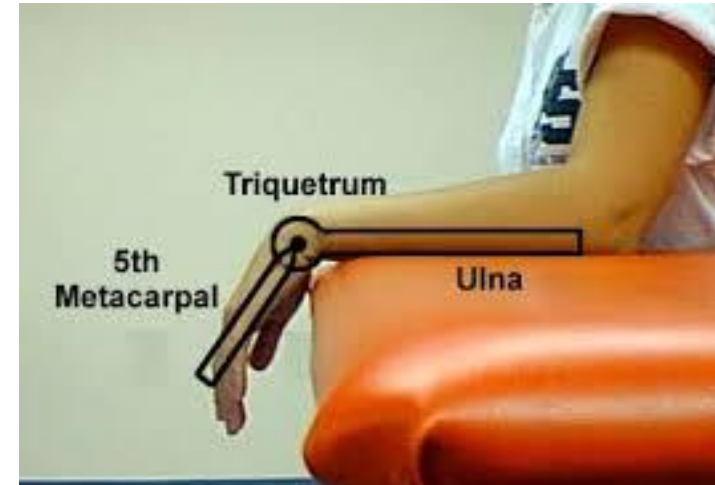
- If range is over 50% of SSROM the athlete is asked to repeat the movement, this time with the classifier resisting by holding the palm of the hand.
- If the ROM is reduced, the classifier should measure the range using a goniometer. The goniometer is placed over the wrist joint with one arm along the ulna and the other along the 5<sup>th</sup> metacarpal. The ROM is read on the scale.

Score 2 = athlete moves arm against resistance

Score 1 = athlete moves arm without resistance

Score 0 = athlete is unable to move the arm

For ROM scores, please see separate chart.



## Upper limb tests Illustrated Guide

### Radial deviation

SSROM = 0 - 15°

50% SSROM at any part of range = 10°

Starting position: athlete's forearm is placed in prone on the plinth and the hand in a neutral deviation position.

Instruction: keeping the forearm still, move the hand out as far as you can towards the thumb

Classifier: stands at the side of the athlete and observes the range of wrist movement. If the athlete has reduced strength the classifier may assist the movement by holding the hand.

- If range is over 50% of SSROM the athlete is asked to repeat the movement, this time with the classifier resisting by holding over the 2nd metacarpal.
- If the ROM is reduced, the classifier should measure the range using a goniometer. The goniometer is placed over the wrist joint with one arm along the centre of the forearm and the other along the middle finger. The ROM is read on the scale.

Score 2 = athlete moves arm against resistance  
Score 1 = athlete moves arm without resistance  
Score 0 = athlete is unable to move the arm  
For ROM scores, please see separate chart.



## Upper limb tests Illustrated Guide

### Ulnar deviation

SSROM = 0 - 30°

50% SSROM in any part of range = 15°

Starting position: athlete's forearm is placed in prone on the plinth and the hand in a neutral deviation position.

Instruction: keeping the forearm still, move the hand out as far as you can in the direction of the little finger.

Classifier: stands at the side of the athlete and observes the range of wrist movement. If the athlete has reduced strength the classifier may assist the movement by holding the hand.

- If range is over 50% of SSROM the athlete is asked to repeat the movement, this time with the classifier resisting by holding over the 5<sup>th</sup> metacarpal.
- If the ROM is reduced, the classifier should measure the range using a goniometer. The goniometer is placed over the wrist joint with one arm along the centre of the forearm and the other along the middle finger. The ROM is read on the scale.

Score 2 = athlete moves arm against resistance

Score 1 = athlete moves arm without resistance

Score 0 = athlete is unable to move the arm

For ROM scores, please see separate chart.



### ICF FUNCTIONAL ASSESSMENT CHART FOR THE HAND

Athlete Name  Federation

To simplify this provisional assessment chart for the hand, loss of strength and loss of ROM will not be measured using the 0-2 scale.  
**Loss of strength** will be scored by assessing whether the athlete can move the joints into flexion against resistance (assuming there is no loss of range) If the athlete can flex against resistance, they score the point, if they cannot they lose the point.  
**Loss of range** will be scored by assessing whether the athlete has 50% of the joints normal range.  
 More than 50% and the athlete scores the point. Less than 50% means that the athlete loses the point  
 For some hand impairments there may be a mixture of range and strength issues. If so, the classifier should make note of this in the comments section

Assessment of Individual digits	Amputation	Function: Loss of Strength or Range of Movement		Medical classifier's comments and observations
<b>Thumb</b>				
Interphalangeal joint	1 pt	1 pt	<40°	Measure using palmar abduction
Metacarpophalangeal joint	1 pt	1pt	<20°	
Carpometacarpal joint	1 pt	1pt	<20°	
<b>Index Finger</b>				
Middle and distal phalanges	0.5 pt	0.5 pt	<45°	
Metacarpophalangeal joint	1 pt	1 pt	<45°	
<b>Middle Finger</b>				
Middle and distal phalanges	0.5 pt	0.5 pt	<45°	
Metacarpophalangeal joint	1 pt	1 pt	<45°	
<b>Ring Finger</b>				
Middle and distal phalanges	0.5 pt	0.5 pt	<45°	
Metacarpophalangeal joint	0.5 pt	0.5 pt	<45°	
<b>Little finger</b>				
Middle and distal phalanges	0.5 pt	0.5 pt	<45°	
Metacarpophalangeal joint	0.5 pt	0.5 pt	<45°	
<b>TOTAL LOSS OF POINTS</b>	MIC = 5 /8	MIC = 5 /8		

Does athlete meet Minimum Impairment Criteria (MIC) of loss of 3 points?  YES  NO

Medical Classifier	Technical Classifier	Date
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Left hand is exactly the same. If only one hand is affected, the unaffected hand may be given full marks without testing, if athlete agrees. This will save wasting time in the assessment.

## Upper Limb Tests Illustrated Guide – The Hand

### INDEX, MIDDLE, RING AND LITTLE FINGERS

#### Metacarpophalangeal Joint

Full ROM = 90°

50% ROM = 45°

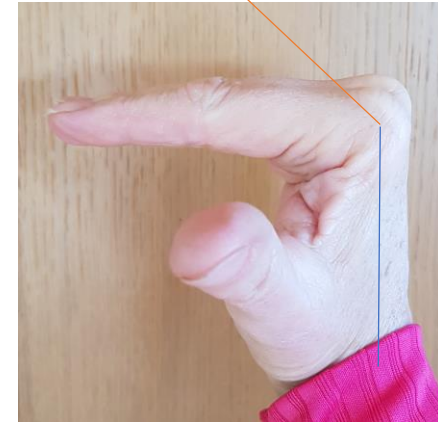
Starting point: Hand in neutral position

Instruction: Keeping the palm of the hand still, bend the fingers at the knuckles as far as you can

Classifier: Place one arm of the goniometer on the back of the hand and the other along the back of the proximal phalanges. Measure the degrees of flexion.  
To test strength, place a finger against the proximal phalanges as the athlete flexes the joint



Start position



Full ROM = 90° 50% = 45° Red

#### Index and Middle finger

Score 1 – when active ROM is = or > 50%

Or when joint can move against resistance

Score 0 – when active ROM is < 50%

Or when joint cannot move against resistance

#### Ring and little finger

Score .5 – when active ROM is = or > 50%

Or when joint can move against resistance

Score 0 – when active ROM is = or < 50%

Or when joint cannot move against resistance

## Upper Limb Tests Illustrated Guide – The Hand

INDEX, MIDDLE, RING and LITTLE FINGERS

Middle and Distal Phalanges combined

Full ROM = 180°

50% ROM = 90°

Starting point: Fingers held in a neutral position. A solid object with a 90° angle (eg a book) is placed against the proximal phalanges.

Instruction: Bend the top of your finger to touch the “book”

Classifier: Hold the “book” to make sure it remains against the Finger, and observe the movement. If the fingertips are able to touch the book, the athlete has enough active range to score the point.

To check strength, ask the athlete to hook their fingers and see if they can maintain the position as you press against their fingertips



Score .5 – when ROM is = or > 50%

Or when joint can hold against resistance

Score 0 – when ROM is < 50%

Or when joint cannot hold against resistance

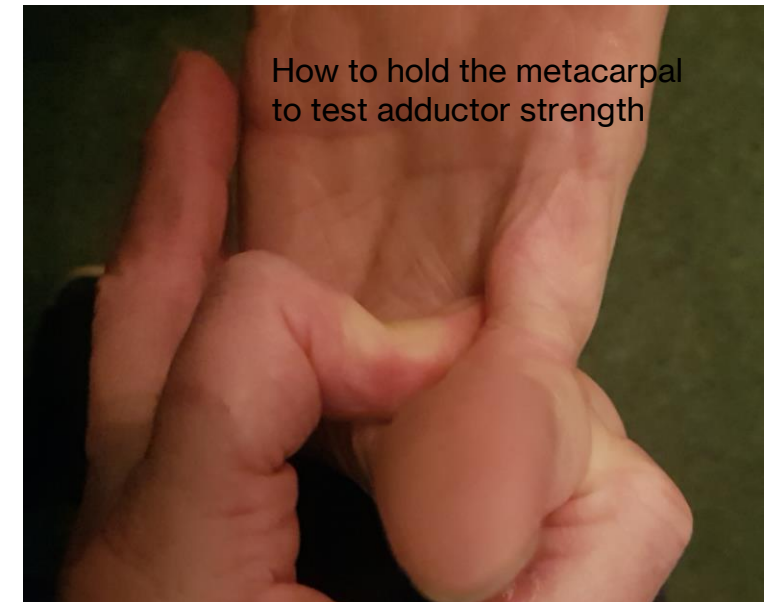
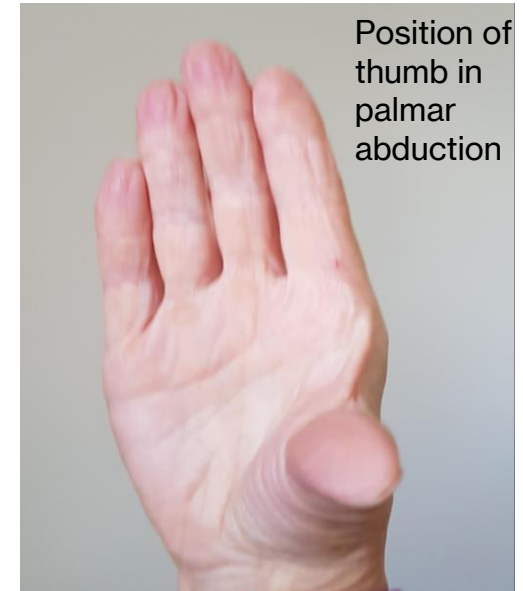
Remember: **each** finger scores half a point for this movement

Example: if only middle and index fingers can perform the task, athlete will score a maximum of 1 out of 2



## Upper Limb Tests Illustrated guide – The Hand

- The thumb – Carpometacarpal joint. Total 1 point
- This joint has a complex mvt pattern, which I have tried to simplify as much as possible
- For our purposes the important mvts are palmar ab and adduction
- Palmar abduction gives the thumb it's position to wrap around the paddle.
- Palmar adduction gives the paddler the grip to hold the paddle shaft
- Can athlete abduct thumb into position to hold paddle shaft ? If yes score half a point
- Have they strength to maintain grip on paddle shaft? If yes score half a point
- It will be very important to confirm the medical findings using the technical observation



## Upper Limb Tests Illustrated Guide – The Hand

### THUMB

Metacarpophalangeal joint

Full ROM = 50°

50% ROM = 25°

Starting point: Thumb in a neutral position, with the metacarpal held to prevent movement

Instruction: Bend your thumb down as far as you can

Classifier: one arm of the goniometer is placed against the back of the metacarpal and one against the proximal phalanx to measure the range

To measure strength, ask the athlete to flex the thumb and maintain the flexion whilst pushing against the proximal phalanx.

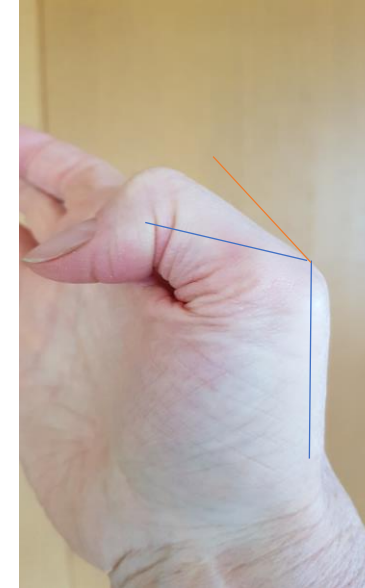
Score 1 – when active ROM is = or > 50%

Or when joint can move against resistance

Score 0 – when active ROM is < 50%

Or when joint cannot move against resistance

25° = red line



## Upper Limb Tests Illustrated Guide – The Hand

### THUMB

Interphalangeal joint

Full ROM = 80°

50% ROM = 40°

Starting point: Hold the thumb in a straight position.

Instruction: Bend the tip of your thumb down as far as you can

Classifier: Place one arm of the goniometer against the back of the thumb, and one along the distal phalanx to measure the range.

To measure strength, ask the athlete to hook the thumb and Press against the tip.

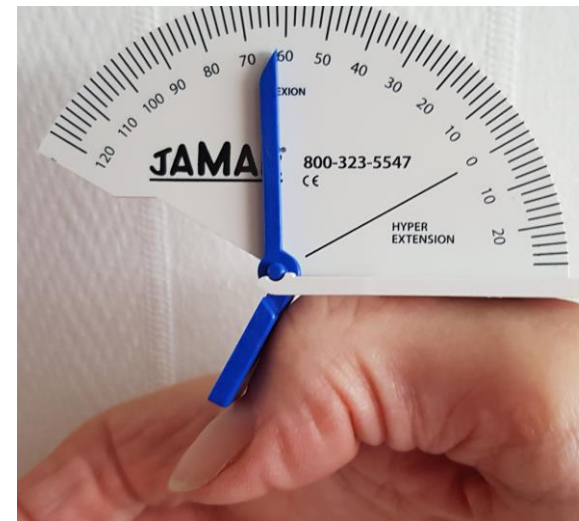
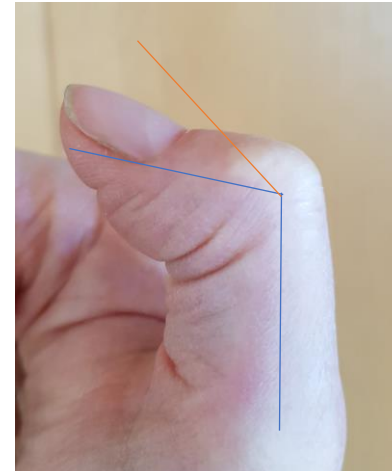
Score 1 – when active ROM is = or > 50%

Or when joint can move against resistance

Score 0 – when active ROM is < 50%

Or when joint cannot move against resistance

Full ROM = 80° Blue 50% = 40° Red



# Grip strength Dynamometer

- This test has been added as an extra. It is not being scored.
- If there is no Dynamometer available, it is not essential.
- The Grip strength will provide additional information for the Researchers, and may be compared with the scores for the hand, to test validity of the Classification system.
- The hand should be tested with the thumb uppermost
- Both hands should be tested 3 times with an average of the score being recorded



# TECHNICAL OBSERVATIONS FOR UPPER LIMB

## General information

Limb affected -  Right  Left  Both

Is impairment from -  Birth  Accident/Medical condition

How long has limb been affected if from Accident/Medical condition  Years

Has the athlete competed in other sports?  YES  NO

If yes, which sports?

And to what level?

# TECHNICAL OBSERVATIONS FOR UPPER LIMB

## Paddling Experience

How long has the athlete been paddling?  Months/Years

Is the athlete a Novice  (less than 2 years) or Experienced  (more than 2 years)

If the impairment is not from birth, did the athlete paddle before it occurred?  YES  NO

Has the athlete competed in other kayak disciplines? Eg Ocean Racing, Marathon, Slalom, Polo

NO  YES  Which disciplines

# TECHNICAL OBSERVATIONS FOR UPPER LIMB

## Paddling Adaptations

\* Please note photos will be needed for the equipment passport

\* How does the athlete hold the paddle? Eg Glove, Hook, Strap, Prosthetic  
With their hand

\* Is blade size equal, or different from one side to the other?

YES

NO

\* Is the paddle offset on the affected side to compensate for lack of reach?

YES

NO

Is length of stroke equal on both sides?

YES

NO

Is depth of stroke equal on both sides?

YES

NO

Is trunk rotation equal on both sides?

YES

NO

Is stroke technique affected in any other way? Eg Sweeping stroke on one side

Is the start affected? Eg slow to get up to speed, difficulty in balancing the boat

Does the athlete have any lower limb involvement?

YES

NO

If yes, is the athlete able to use the rudder bar to steer?

YES

NO