Para Va'a Classification Explained...

Introduction

Para va'a competition is 'levelled' for fairness by a system of race-classes designated as accurately as possible to accommodate the stroke impairment imposed by each paddler's disability. Start-up para paddling in clubs can be made more accessible to mainstream club coaches by a clear explanation of the process that places paddlers in fair and appropriate race-classes, enabling them to compete with optimism and giving coaches confidence that- 'it's really not rocket science.'

History

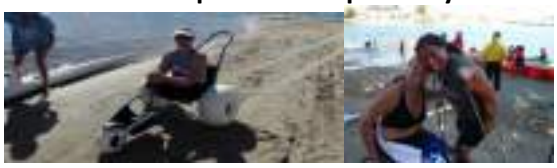
Para Va'a competition was initiated by the IVF with a demonstration V12 event at the 2004 Hilo Sprints and V1, V6 and V12 events in 2006 at the Karapiro Sprints. Classification, loosely based on that for rowing, was then started by the IVF Para Committee immediately following Karapiro. It was taken up by the ICF who, following a meeting at the 2012 Paralympic Games that included the IVF Para Chair, commissioned the Swedish School of Health and Sports Sciences (GIH) to research and design an evidence-based classification system, overseen and ratified by International Paralympic Committee sports scientists.

IVF athlete in classification, Sacramento, 2008

"Disability is a human rights issue! I repeat; disability is a human rights issue!" **- Bengt Lindqvist, Special Rapporteur on Disability, speaking to the United Nations Commission for Social Development.**

Why?

Paddlers present with a broad range of physical disabilities, each of which impairs the paddling stroke to different degrees. To find truly outstanding champions we pitch them against each other in race categories that, as accurately as possible, reflect common levels of stroke impairment imposed by those disabilities.



"You are not disabled by the disabilities you have, you are able by the abilities you have."


Competitor lacking one lower leg, both forearms and hands using two prosthetics. Illustration shows connection between bespoke prosthetic and paddle. This competitor has been enabled to paddle va'a by the IVF granting use of a double-bladed paddle. He switches on the usual cycle.

Who?

Each classification is undertaken by a team of two classifiers. For International competition, these have to be members of the International Panel of classifiers and, in order to be seen to be impartial, need to be of different nationality from the paddler. For domestic competition, these could be national classifiers but a national level classification will need subsequently to be repeated by International Classifiers and, until then, could only hold 'Review' status.

The team of two is composed of a Medical classifier- this will be a medical doctor or physiotherapist, ideally with paddling experience, and a Technical classifier- this will either be a paddling coach or ex high level paddler, generally with a sports science background or training.

When?

Classification has to be completed before a paddler is allowed to compete. The first time a paddler is classified, the outcome will generally be given 'Review' status, to allow scrutiny by a second team, thereby to minimise the possibility of classifier error while first getting to know the athlete. If the paddler is recovering from trauma it may be proposed to give them a fixed date for re-assessment by different classifiers, when they could be expected to have recovered to a steady-state and be race-prepared. Factors like paddling experience, skill, trained fitness and strength have to be factored-in to the classifiers' assessment of impairment. In the case of lower limb amputation, both the condition, and its impairment of the stroke are normally sufficiently stable to skip 'Review' status, and fix the race class at first assessment.

How?

To enable athletes to take advantage of both IVF and ICF opportunities for high-level competition, the IVF adopted the system scientifically evidenced for ICF by the Swedish research team and ratified by IPC. This means that competitors classified for, or at IVF 'World' events are able to take a qualifying classification to major ICF events and vice-versa.

. Where?

The great majority of International classifiers are in Europe but IVF are planning to qualify more classifiers in the southern hemisphere, overcoming the need for competitors from that part of the world to present for classification at a World Sprints. Classification at major events is always available, but requires the paddler to travel to the event before determining their race class, with the potential to find their team's quota for that class already filled by team-mates.

"It's not the disability that defines you: it's how you deal with the challenges the disability presents you with. We have an obligation to the abilities we do have, not the disability."

A tented 'lab' showing medical couch with 'wobble cushion' on, used to test trunk muscle control/coordination

Unpicking the Stroke

To assess performance impairment, the stroke is first 'unpicked' and contributing aspects, such as leg function, hip flexion/extension and trunk rotation are assessed in isolation. The scoring of these functions then informs the Technical classifier's assessment of stroke impairment on the water, in the V1

What do we test?

After a decade of PhD research at the Swedish Institute of Sport, tests have so far only been ratified by Paralympic Committee scientists for impairment of trunk and lower limb function. These impairments are initially investigated, quantified and recorded for each paddler by the Medical classifier, watched by the Technical classifier. They are then taken forward by the Technical classifier who puts the paddlers through a set of test protocols in the boat and observes and quantifies the effects on the stroke of the impairments recorded by the Medical classifier.
The research for arm and shoulder function has yet to be completed for ICF, so in the absence of IPC ratification these are not currently part of ICF test protocols.

Impairment range

It is the policy of the IVF to include in competition, as many paddlers with as wide a variety of impairments as can be credibly classified. IVF Va'a competition is not an Olympic/Paralympic sport so the Federation is not subject to the restrictive IPC rules binding the ICF. This enables IVF to parallel ICF 'core' classification while being inclusive of paddlers with a broader range of impairments than can ICF- both more profound and less.

The Medical classifier Julie Gray has used her lifetime experience as a physiotherapist and paddling coach to devise a battery of arm and shoulder tests, which enable competitors with impairments that do not qualify under ICF rules, to participate in major IVF events. These include tetraplegic paddlers who are designated VL1a, are assigned one point and are able to compete in V6 or 12.

Tetraplegic paddler with hand strapped to paddle
Competing in World Distance Championships, V6, Tahiti.

Below knee amputation does not qualify as a disability in ICF V1 competition but is included by IVF in class VL4 and carries 4 points in a crew.

The IVF also admits paddlers with Cerebral Palsy medically classified and holding a CP-ISRA card, Class 4 (Cerebral Palsy-International Sport and Recreation Association Card) to compete as VL1s. Vision impaired paddlers classified by an ophthalmologist at B1, 2 or 3 are able to compete as VL4s. All vision-impaired V1 paddlers are required to wear blinders, and a guide is allowed to paddle behind them in their lane, to give directions. Vision impaired paddlers also wear blinders when competing in crew-boats.

"The disability is not the problem.
The accessibility is the problem."

Paddler with one forearm prosthetic

Paddlers with above and below-knee amputations

Paddler with high spinal cord lesion using high-backed support seat and torso support strap

Paddler classified by IVF, missing one lower leg and both forearms. Using prosthetic forearms and hands, this competitor is allowed to use a double-bladed paddle, but has to paddle continuously on one side until switching at normal intervals

Paddler ready to race V1

The Process

http://www.ivfiv.org/para-vaa.html

Before being tested, the paddler is required to present the Medical classifier with a set of notes from their clinician providing their clinical diagnosis and medical history. These are used by the Medical classifier to inform trunk and leg function tests. The outcomes of these two lab tests then inform the third battery of paddling tests on the water in the V1 and each score contributes to the route through to their designated race-class.

Complex support-seat arrangement supporting trunk and legs

"The greatest pleasure in life is doing what people say you cannot do."

Paddler attempts left hip flexion against gentle resistance

If the paddler cannot extend the leg against gravity, the classifier will turn them to work in The horizontal plane while supporting the limb.

ICF/IVF Leg Function Tests

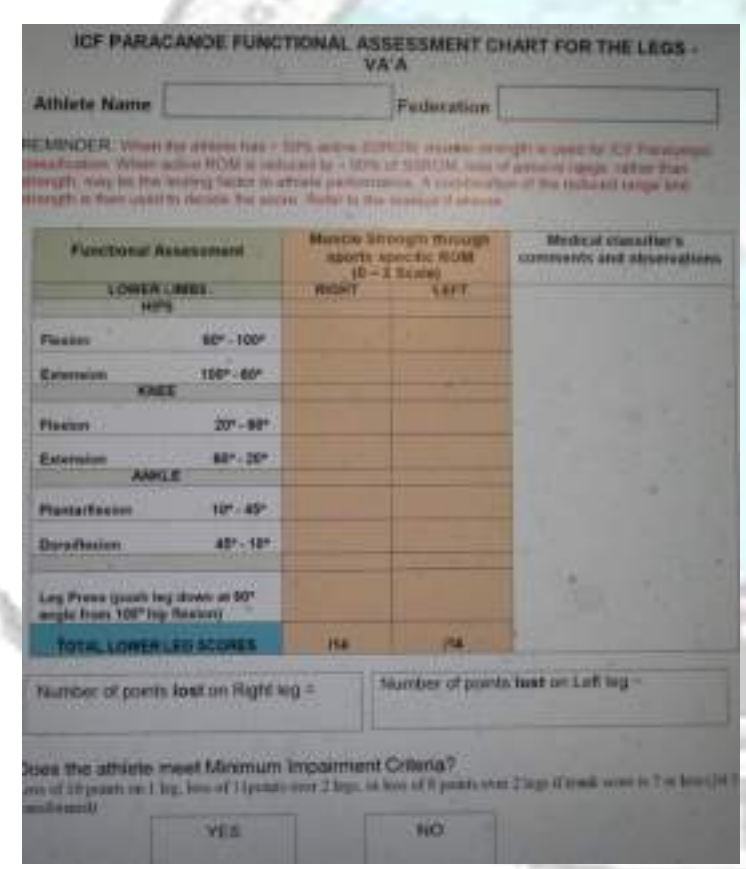
The battery of tests for the legs extends downwards from hip flexion/extension through knee flexion/extension to ankle flexion/extension and combines these to test the paddler's ability to drive forwards and down with the legs. To minimise classifier error, a two-point scoring system has been adopted. Rather like a light switch- on, or off.

A zero is given where no voluntary muscular activity is possible. One point is scored for a 'flicker' of weak contraction, or contraction not under voluntary control, and two points are given for contraction under the control of the paddler. This may fall below a normal, full-strength contraction but still qualifies for two points if it is under the paddler's control.

The normal range of angle of lower limb joints through the paddling stroke was measured during research and voluntary muscular contraction around the average for that angle while paddling is tested. If the range of motion, RoM, or strength of contraction across the range is restricted, the classifier will subtract points accordingly.

If the number of points lost fails to reach a minimum required, the paddler does not classify as a Para paddler. When points lost exceed the minimum required, the total points scored are taken forward to inform a flow chart from which the race-class is derived. The score is adjusted by a multiplier to equalise the weight carried by each test.

ICF/IVF chart for functional assessment of the legs



ICF PARACANOE FUNCTIONAL ASSESSMENT CHART FOR THE LEGS - VA'A

Athlete Name | Federation

REMINDER: When the athlete has > 50% active ROM/its muscle strength is used for ICF Paracanoe classification. When active ROM is reduced by > 50% of NORMAL loss of passive range rather than strength, may be the limiting factor to athlete performance. A combination of the reduced range and strength is then used to decide the score. Refer to the manual if unsure.

Functional Assessment		Muscle Strength through sports specific ROM (0 – 2 Scale) RIGHT	LEFT	Medical classifier's comments and observations
LOWER LIMBS				
HIPS				
Flexion	60° - 100°			
Extension	100° - 60°			
KNEE				
Flexion	20° - 90°			
Extension	90° - 20°			
ANKLE				
Plantarflexion	10° - 45°			
Dorsiflexion	45° - 10°			
Leg Press (push leg down at 90° angle from 100° hip flexion)				
TOTAL LOWER LEG SCORES		/14	/14	

Number of points lost on Right leg =

Number of points lost on Left leg =

Does the athlete meet Minimum Impairment Criteria?

YES | NO

Paddler attempts to extend hip and knee
To drive the foot forwards and down

Paddler lacking neuromuscular control of the legs

'This is my life and I absolutely love it. I wouldn't change it for the world. I've done things that other people couldn't dream of.'

ICF/IVF Trunk Function Test Protocols

Trunk extension taken beyond the limit

Paddler receiving a sharp push- 'Perturbation Test.'

Paddler demonstrates rotation

Trunk function and core stability underpin the normal paddling stroke and their impairment is investigated by the battery of trunk tests, below. These include the paddler being required to lean forwards, to either side, backwards and rotating to their limit while sitting; pushing back in resistance to the tester from various positions; and being jerked in different directions while sitting on a 'wobble-cushion', called the 'perturbation test,' to enable the tester to determine core control. Again, a set of scores will feed into the flow chart.

Functional Assessment Chart for the Trunk

ICF PARACANOE FUNCTIONAL CLASSIFICATION TEST CHART FOR THE TRUNK – VA'A

Athlete Name | Federation

Manual Muscle Tests

Test	Score (0 – 2)
Trunk Flexion	
Trunk Rotation to Right	
Trunk Rotation to Left	
Trunk Side Flexion to Right	
Trunk Side Flexion to Left	
Trunk Lumbar Extension	
Trunk and Hip Extension	
	/14

Functional Trunk Tests

Static Test	Score (0 – 2)
Upright sitting (arms crossed)	
Upright sitting (shoulders flexed)	
Upright sitting (shoulders extended)	
Upright sitting (right shoulder abducted	
Upright sitting (left shoulder abducted)	
	/10
Dynamic Test	
Active trunk flexion	
Active trunk extension	
Active trunk rotation to right	
Active trunk rotation to left	
Active trunk side shift to right	
Active trunk side shift to left	
	/12
Perturbation Response	
Flex against Resistance	
Extend against Resistance	
Resistance to right rotation	
Resistance to left rotation	
Resistance to right side flexion	
Resistance to left side flexion	
Trunk push into flexion	
Trunk push into extension	
Trunk push into right rotation	
Trunk push into left rotation	
Trunk push into right side flexion	
Trunk push into left side flexion	
	/24

OTE: Only the Dynamic trunk tests (shaded pink) will be used to determine e athlete's classification

The On-water Paddling Tests

The final set of tests is conducted by the Technical classifier. This person will have observed and assisted with the functional tests in the lab and will be looking to see to what extent the functional impairments they saw scored-down there, transpose to stroke impairments in the boat.

Like their Medical colleague, the Technical classifier will be sensitive to possible overstatement of impairment and from experience will be able to translate muscle-function impairments shown in specific lab tests, across to stroke weaknesses shown on the water. Overplaying impairment during testing can advantage the paddler if it results in their being placed in a race-class for more profoundly impaired paddlers, but this is a serious offence that can result in participation bans from fixed-term to 'life'.

The Technical classifier will want to see the paddler's stroke as near as practicable to race conditions. For this reason they will ask the paddler to sprint between two buoys against the clock. A variety of data will be collected. Collection starts with video of the paddler getting into the boat and this can be very revealing.

Whatever prosthetic aids were used in lab testing have also to be used on the water. Support seating, prosthetic limbs, strapping, foam wedges and adapted paddles will be recorded and quick-release mechanisms inspected for safety. There are paddlers who will fit a lightweight bamboo lower leg prosthetic to keep their weight down in the boat. This is permitted, but only if they presented for testing with this same aid.

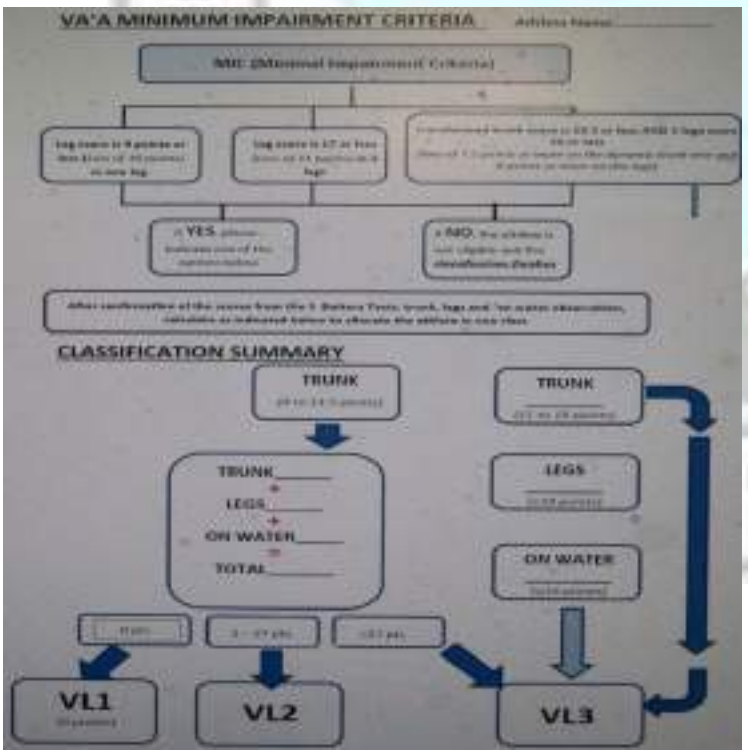

ICF PARACANOE
ON-WATER TECHNICAL ASSESSMENT CHART
V1
Athlete Name
Federation
ON WATER OBSERVATION
Observed getting into the boat:
Observed the following:
Adapted Equipment in boat (photo)
Video
Adapted equipment with paddler in boat (photo)
Adapted paddle (photo)
Athlete holds adapted paddle (photo)
Novice paddler
Experienced paddler
Arms: Left side Right side (circle one)
Athlete's dominant leg*: Left Right (circle one)
Dominant hand side Leg movement*
Position of legs
Feet/shin contact with footboard
Trunk Flexion
Trunk Rotation
Range of stroke motion
Depth of paddle stroke
Stroke speed
Stroke synchronization
TOTAL POINTS

The on-water test protocols. Not all make a scoring contribution but all inform the classifier's assessment

The paddler will be asked to sprint, close-in, across the view of the classifier in both directions so that leg action, or lack of, and trunk flexion, extension and rotation can be observed and recorded. (Spray-covers are not allowed). They then paddle directly away from and towards the tester, so that lateral flexion and rotation can be observed. A paddler with a clinically diagnosed high spinal cord lesion who showed little or no capacity in the lab for controlled lateral trunk flexion would be expected to show hip and lower trunk shift away from the paddle-side in compensation for the weight of shoulders and head being laterally displaced to the other side, to bear down on the paddle.

A broad range of observations are recorded as corroborative evidence but just three are taken forward from the on-water test to contribute to a final score to determine race-class. These are the observed leg drive on the lower hand side, trunk flexion and trunk rotation. A multiplier is used to give this score equal weighting to the other two test batteries and it is fed into the flow chart below to determine whether the paddler is assigned a VL1, VL2 or VL3 race-class.

"The key is not the will to win ,everybody has that. It is the will to prepare to win that is important."



Flow chart totalling the scores from the three test batteries To determine race class.

Race-day Observation

The classifier's job is not complete until the paddler has been observed in their race. It is not unknown for a paddler, during testing, to show limited core capability, characteristic of a VL1, only to make clear use their torso in contribution to the stroke when pushed for a place in the race. This is cheating, and will lead to reprimand, their result being annulled and the paddler being re-tested by different classifiers. If they persist in miss-representation, they are banned from competition,

The outcomes of all test procedures are recorded, both as numerical scores and as videos. For paddlers within VL1 to VL3, intending to compete in both IVF and ICF events, this data will be sent to ICF headquarters in Lausanne where it is securely held according to data protection law.

'If you are going through hell, keep going.'

Winston Churchill

"The most striking fact about the disabled population is that it is the most inclusive. I will never be black, and I will never be a woman, but I could become disabled on the drive home tonight."

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