HIGH YIELD MCQs - SPORTS MEDICINE 2

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QUES 1

You are working as a Field of Play Doctor for the ISL and one of your player sustained a Head On collision with the other player's arm. After getting a call from Refree you run towards the players and after suspecting signs of concussion took player out of the field. Which testing we used to asesss concussion?

a.SCAT 2

b.SCAT 4

c.SCAT 5

d.SCAT 6

Sport Concussion Assessment Tool-6

QUES2

A handball player had a collision and fainted. He got up shortly and started playing again but kept on getting progressively aggressive. On asking he could not recall who had scored the last goal. What should be the appropriate step in this case?

a.Allow him to play as he performs best when he is aggressive

b.Counsel him for 15 min and then let him play

c.Immediately remove him from the play area

d.Give electrolyte drink and then allow him to resume play

Ans: C

(Maddock score assessment should be done and remove him)

SIDELINE ASSESSMENT- MADDOCKS SCORE

At what venue are we today?	0	1
Which half is it now?	0	1
Who scored last?	0	1
What team did we play last week?	0	1
Did we win last week?	0	1

Scoring: 1 point for each correct answer (maximum of 5)
Validated for sideline diagnosis

The Sports Concussion Assessment Tool - 6th Edition

It is used to support the clinical diagnosis of a medical practitioner or healthcare professional.

Clinical diagnosis remains the gold standard.

Note: The SCAT6 should not be used as a stand-alone method to diagnose concussion, measure recovery, or make decisions about an athlete's readiness to return to competition.

- Can WE DO SCAT 6 ON FIELD??
- SCAT 6 can be used for Both ACUTE or Chronic??
- Can we use SCAT 6 IN PAEDIATRIC SPORTS??

IMPORTANT POINTS

1. Can WE DO SCAT 6 ON FIELD??

SCAT 6 can not be performed correctly in less than 10-15 minutes.

2. SCAT 6 can be used for Both ACUTE or Chronic??

Ideally within 72 hours and upto 7 days, following injury.

MORE THAN 7 DAYS----- SCOAT6

SCOAT6™

Sport Concussion Office Assessment Tool

For Adults & Adolescents (13 years +)

What is the SCOAT6?*

The SCOAT6 is a tool for evaluating concussion in a controlled office environment by Health Care Professionals (HCP) typically from 72 hours (3 days) following a sport-related concussion.

The diagnosis of concussion is a clinical determination made by an HCP. The various components of the SCOAT6 may assist with the clinical assessment and help guide individualised management.

The SCOAT6 is used for evaluating athletes aged 13 years and older. For children aged 12 years or younger, please use the Child SCOAT6.

Brief verbal instructions for some components of the SCOAT6 are included. Detailed instructions for use of the SCOAT6 are provided in an accompanying document. Please read through these instructions carefully before using the SCOAT6.

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Completion Guide

Blue: Complete only at first assessment | Green: Recommended part of assessment | Orange: Optional part of assessment

Athlete's Name:

Date of Birth: Sex: Male Female Prefer Not To Say Other

Sport:

Occupational or Educational Status:

Current or Highest Educational Level or Qualification Achieved:

Examiner: Date of Examination:

Referring Physician's Name:

Referring Physician's Contact Details:

* In reviewing studies informing the SCOAT6 and Child SCOAT6, the period defined for the included papers was 3–30 days. HCPs may choose to use the SCOAT6 beyond this timeframe but should be aware of the parameters of the review.

For use by Health Care Professionals Only SCOAT6™

Developed by: The Concussion in Sport Group (CISG)

Supported by:

International Olympic Committee FEI FIA FIFA

BMJ Patricios L et al. Br J Sports Med June 2023 Vol 57 No 11 651

- Can we use SCAT 6 IN PAEDIATRIC SPORTS??
- Athlete more than 13 years.
- Child less than 12 year.... CHILD SCAT6

Immediate Assessment/Neuro Screen:

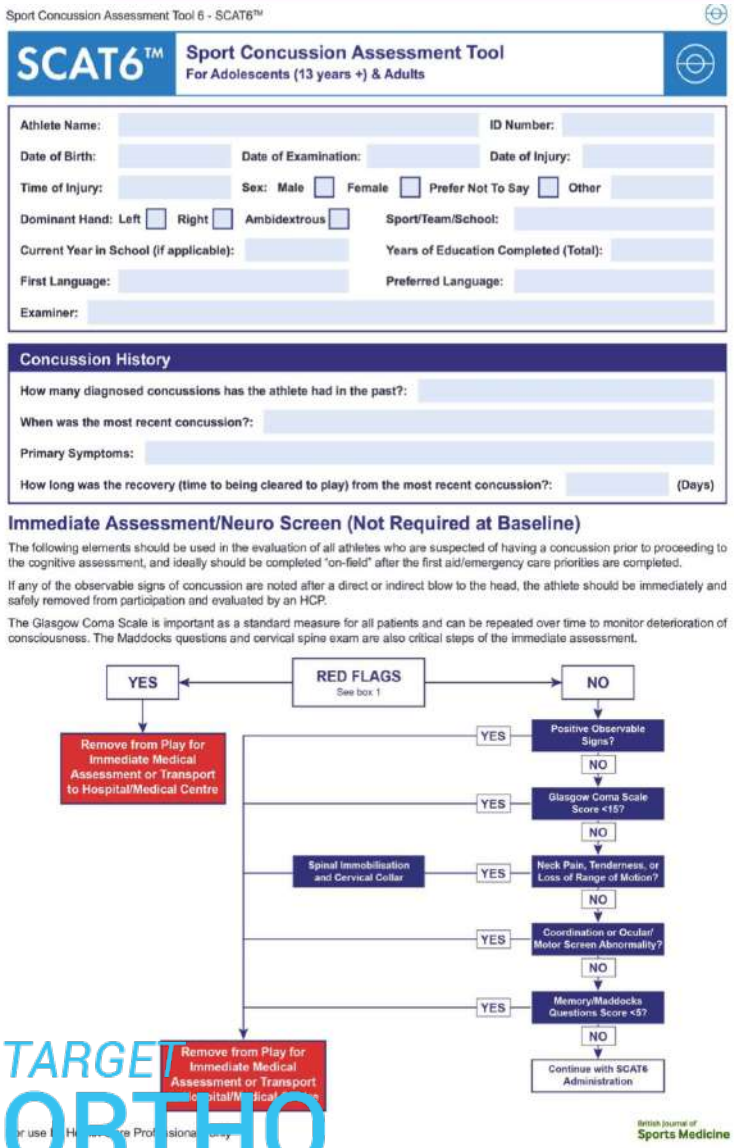
Step 1: Observable Signs

- Step 2: Glasgow Coma Scale(GCS)
- Step 3: Cervical Spine Assessment
- Step 4: Coordination & Ocular/Motor Screen
- Step 5: Memory Assessment Maddocks Questions

Off Field Assessment:

- Step 1: Athlete Background
- Step 2: Symptom Evaluation
- Step 3: Cognitive Screening
- Step 4: Coordination and Balance Examination---- mBESS(modified Balance Error Scoring System)
- Step 5: Delayed Recall
- Step 6: Decision

CONCUSSION ASSESSMENT



Sport Concussion Assessment Tool 6 - SCAT6™

SCAT6™ Sport Concussion Assessment Tool
For Adolescents (13 years +) & Adults

Athlete Name: ID Number:
Date of Birth: Date of Examination: Date of Injury:
Time of Injury: Sex: Male Female Prefer Not To Say Other
Dominant Hand: Left Right Ambidextrous Sport/Team/School:
Current Year in School (if applicable): Years of Education Completed (Total):
First Language: Preferred Language:
Examiner:

Concussion History

How many diagnosed concussions has the athlete had in the past?:
When was the most recent concussion?:
Primary Symptoms:
How long was the recovery (time to being cleared to play) from the most recent concussion?: (Days)

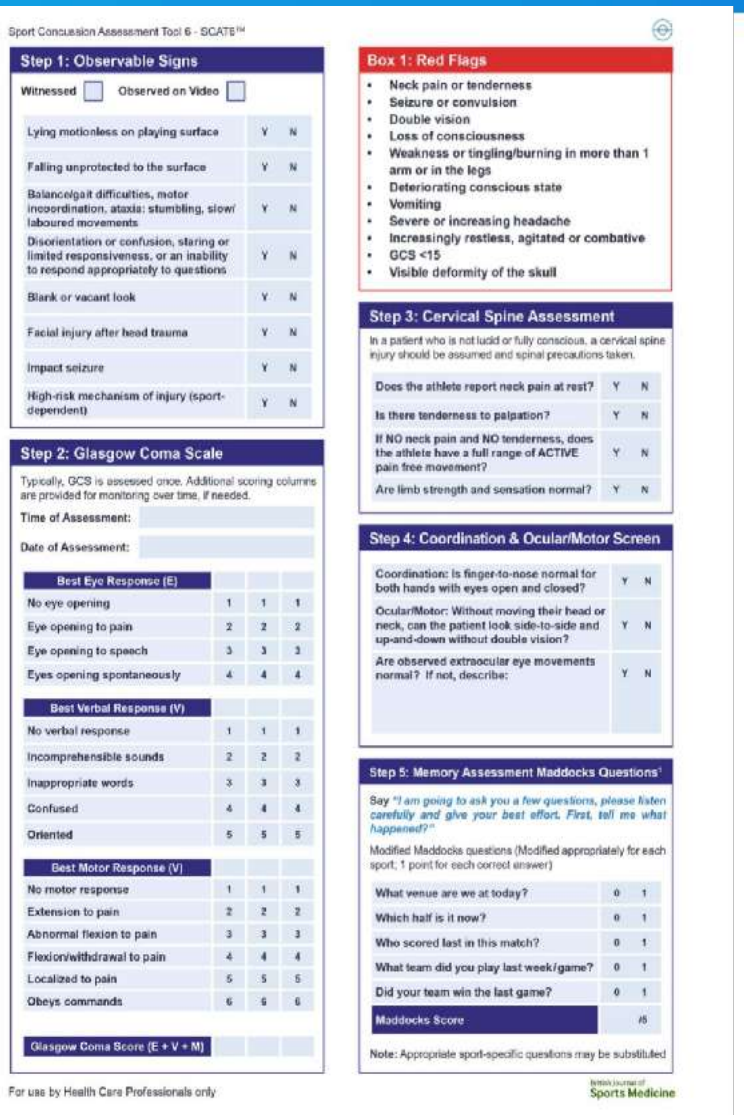
Immediate Assessment/Neuro Screen (Not Required at Baseline)

The following elements should be used in the evaluation of all athletes who are suspected of having a concussion prior to proceeding to the cognitive assessment, and ideally should be completed "on-field" after the first aid/emergency care priorities are completed.

If any of the observable signs of concussion are noted after a direct or indirect blow to the head, the athlete should be immediately and safely removed from participation and evaluated by an HCP.

The Glasgow Coma Scale is important as a standard measure for all patients and can be repeated over time to monitor deterioration of consciousness. The Maddocks questions and cervical spine exam are also critical steps of the immediate assessment.

British Journal of Sports Medicine



Sport Concussion Assessment Tool 6 - SCAT6™

Step 1: Observable Signs

Witnessed Observed on Video

Lying motionless on playing surface	Y	N
Falling unprotected to the surface	Y	N
Balance/gait difficulties, motor incoordination, ataxia: stumbling, slow/laboured movements	Y	N
Disorientation or confusion, staring or limited responsiveness, or an inability to respond appropriately to questions	Y	N
Blank or vacant look	Y	N
Facial injury after head trauma	Y	N
Impact seizure	Y	N
High-risk mechanism of injury (sport-dependent)	Y	N

Step 2: Glasgow Coma Scale

Typically, GCS is assessed once. Additional scoring columns are provided for monitoring over time, if needed.

Time of Assessment:
Date of Assessment:

Best Eye Response (E)			
No eye opening	1	1	1
Eye opening to pain	2	2	2
Eye opening to speech	3	3	3
Eyes opening spontaneously	4	4	4
Best Verbal Response (V)			
No verbal response	1	1	1
Incomprehensible sounds	2	2	2
Inappropriate words	3	3	3
Confused	4	4	4
Oriented	5	5	5
Best Motor Response (V)			
No motor response	1	1	1
Extension to pain	2	2	2
Abnormal flexion to pain	3	3	3
Flexion/withdrawal to pain	4	4	4
Localized to pain	5	5	5
Obeys commands	6	6	6
Glasgow Coma Score (E + V + M)			

Box 1: Red Flags

- Neck pain or tenderness
- Seizure or convulsion
- Double vision
- Loss of consciousness
- Weakness or tingling/burning in more than 1 arm or in the legs
- Deteriorating conscious state
- Vomiting
- Severe or increasing headache
- Increasingly restless, agitated or combative
- GCS <15
- Visible deformity of the skull

Step 3: Cervical Spine Assessment

In a patient who is not lucid or fully conscious, a cervical spine injury should be assumed and spinal precautions taken.

Does the athlete report neck pain at rest?	Y	N
Is there tenderness to palpation?	Y	N
If NO neck pain and NO tenderness, does the athlete have a full range of ACTIVE pain free movement?	Y	N
Are limb strength and sensation normal?	Y	N

Step 4: Coordination & Ocular/Motor Screen

Coordination: Is finger-to-nose normal for both hands with eyes open and closed?	Y	N
Ocular/Motor: Without moving their head or neck, can the patient look side-to-side and up-and-down without double vision?	Y	N
Are observed extraocular eye movements normal? If not, describe:	Y	N

Step 5: Memory Assessment Maddocks Questions[1]

Say *"I am going to ask you a few questions, please listen carefully and give your best effort. First, tell me what happened?"*

Modified Maddocks questions (Modified appropriately for each sport, 1 point for each correct answer)

What venue are we at today?	0	1
Which half is it now?	0	1
Who scored last in this match?	0	1
What team did you play last week/game?	0	1
Did your team win the last game?	0	1
Maddocks Score		/5

Note: Appropriate sport-specific questions may be substituted

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Step 3: Cognitive Screening (Based on Standardized Assessment of Concussion; SAC)[2]

Orientation

What month is it?	0 1
What is the date today?	0 1
What is the day of the week?	0 1
What year is it?	0 1
What time is it right now? (within 1 hour)	0 1
Orientation Score	of 5

Immediate Memory

All 3 trials must be administered irrespective of the number correct on Trial 1. Administer at the rate of one word per second.

Trial 1: Say *"I am going to test your memory. I will read you a list of words and when I am done, repeat back as many words as you can remember, in any order."*

Trials 2 and 3: Say *"I am going to repeat the same list. Repeat back as many words as you can remember in any order, even if you said the word before in a previous trial."*

Word list used: A ☐ B ☐ C ☐

List A	Trial 1	Trial 2	Trial 3	Alternate Lists: List B	Alternate Lists: List C
Jacket	0 1	0 1	0 1	Finger	Baby
Arrow	0 1	0 1	0 1	Penny	Monkey
Pepper	0 1	0 1	0 1	Blanket	Perfume
Cotton	0 1	0 1	0 1	Lemon	Sunset
Movie	0 1	0 1	0 1	Insect	Iron
Dollar	0 1	0 1	0 1	Candle	Elbow
Honey	0 1	0 1	0 1	Paper	Apple
Mirror	0 1	0 1	0 1	Sugar	Carpet
Saddle	0 1	0 1	0 1	Sandwich	Saddle
Anchor	0 1	0 1	0 1	Wagon	Bubble
Trial Total					

Immediate Memory Score of 30 **Time Last Trial Completed:**

Off-Field Assessment

Please note that the cognitive assessment should be done in a distraction-free environment with the athlete in a resting state **after** completion of the Immediate Assessment/Neuro Screen.

Step 1: Athlete Background

Has the athlete ever been:

Hospitalised for head injury? (If yes, describe below)	Y N	Diagnosed with attention deficit hyperactivity disorder (ADHD)?	Y N
Diagnosed/treated for headache disorder or migraine?	Y N	Diagnosed with depression, anxiety, or other psychological disorder?	Y N
Diagnosed with a learning disability/dyslexia?	Y N		

Notes:

Current medications? If yes, please list:

Step 2: Symptom Evaluation

Baseline: ☐ **Suspected/Post-injury:** ☐ **Time elapsed since suspected injury:** mins/hours/days

The athlete will complete the symptom scale (below) after you provide instructions. Please note that the instructions are different for baseline versus suspected/post-injury evaluations.

Baseline: Say *"Please rate your symptoms below based on how you typically feel with "1" representing a very mild symptom and "6" representing a severe symptom."*

Suspected/Post-injury: Say *"Please rate your symptoms below based on how you feel now with "1" representing a very mild symptom and "6" representing a severe symptom."*

PLEASE HAND THE FORM TO THE ATHLETE

Symptom	Rating
Headaches	0 1 2 3 4 5 6
Pressure in head	0 1 2 3 4 5 6
Neck pain	0 1 2 3 4 5 6
Nausea or vomiting	0 1 2 3 4 5 6
Dizziness	0 1 2 3 4 5 6
Blurred vision	0 1 2 3 4 5 6
Balance problems	0 1 2 3 4 5 6
Sensitivity to light	0 1 2 3 4 5 6
Sensitivity to noise	0 1 2 3 4 5 6
Feeling slowed down	0 1 2 3 4 5 6
Feeling like "in a fog"	0 1 2 3 4 5 6
"Don't feel right"	0 1 2 3 4 5 6
Difficulty concentrating	0 1 2 3 4 5 6
Difficulty remembering	0 1 2 3 4 5 6
Fatigue or low energy	0 1 2 3 4 5 6
Confusion	0 1 2 3 4 5 6
Drowsiness	0 1 2 3 4 5 6
More emotional	0 1 2 3 4 5 6
Irritability	0 1 2 3 4 5 6
Sadness	0 1 2 3 4 5 6
Nervous or anxious	0 1 2 3 4 5 6
Trouble falling asleep (if applicable)	0 1 2 3 4 5 6

Do your symptoms get worse with physical activity?	Y N
Do your symptoms get worse with mental activity?	Y N

If 100% is feeling perfectly normal, what percent of normal do you feel?

If not 100%, why?

PLEASE HAND THE FORM BACK TO THE EXAMINER

Once the athlete has completed answering all symptom items, it may be useful for the clinician to revisit items that were endorsed positively to gather more detail about each symptom.

Total number of symptoms: of 22 **Symptom severity score:** of 132

Step 3: Cognitive Screening (Continued)

Concentration

Digits Backward:

Administer at the rate of one digit per second reading DOWN the selected column. If a string is completed correctly, move on to the string with next higher number of digits; if the string is completed incorrectly, use the alternate string with the same number of digits; if this is failed again, end the test.

Say *"I'm going to read a string of numbers and when I am done, you repeat them back to me in reverse order of how I read them to you. For example, if I say 7-1-9, you would say 9-1-7. So, if I said 9-6-8 you would say? (8-6-9)"*

Digit list used: A ☐ B ☐ C ☐

List A	List B	List C				
4-9-3	5-2-6	1-4-2	Y	N	0	1
6-2-9	4-1-5	6-5-8	Y	N		
3-8-1-4	1-7-9-5	6-8-3-1	Y	N	0	1
3-2-7-9	4-9-6-8	3-4-8-1	Y	N		
6-2-9-7-1	4-8-5-2-7	4-9-1-5-3	Y	N	0	1
1-5-2-8-6	6-1-8-4-3	6-8-2-5-1	Y	N		
7-1-8-4-6-2	8-3-1-9-6-4	3-7-6-5-1-9	Y	N	0	1
5-3-9-1-4-8	7-2-4-8-5-6	9-2-6-5-1-4	Y	N		
			Digits Score			of 4

Months in Reverse Order:

Say *"Now tell me the months of the year in reverse order as QUICKLY and as accurately as possible. Start with the last month and go backward. So, you'll say December, November... go ahead"*

Start stopwatch and CIRCLE each correct response:

December November October September August July June May April March February January

Time Taken to Complete (secs): _____ **Number of Errors:** _____

1 point if no errors and completion under 30 seconds

Months Score: _____ **of 1**

Concentration Score (Digits + Months) _____ **of 5**

Step 4: Coordination and Balance Examination

Modified Balance Error Scoring System (mBESS)[3] testing

(see detailed administration instructions)

Foot Tested: **Left** ☐ **Right** ☐ (i.e. test the **non-dominant** foot)

Testing Surface (hard floor, field, etc.): _____

Footwear (shoes, barefoot, braces, tape etc.): _____

OPTIONAL (depending on clinical presentation and setting resources): For further assessment, the same 3 stances can be performed on a surface of medium density foam (e.g., approximately 50cm x 40cm x 6cm) with the same instructions and scoring.

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Step 4: Coordination and Balance Examination (Continued)

Modified BESS (20 seconds each)

Double Leg Stance:		of 10
Tandem Stance:		of 10
Single Leg Stance:		of 10
Total Errors:		of 30

On Foam (Optional)

Double Leg Stance:		of 10
Tandem Stance:		of 10
Single Leg Stance:		of 10
Total Errors:		of 30

Note: If the **mBESS** yields normal findings then proceed to the **Tandem Gait/Dual Task Tandem Gait**.
If the **mBESS** reveals abnormal findings or clinically significant difficulties, **Tandem Gait** is not necessary at this time.
Both the **Tandem Gait** and optional **Dual Task** component may be administered later in the office setting as needed (see SCOAT6).

Timed Tandem Gait

Place a 3-metre-long line on the floor/firm surface with athletic tape. The task should be timed. Please complete all 3 trials.

Say *"Please walk heel-to-toe quickly to the end of the tape, turn around and come back as fast as you can without separating your feet or stepping off the line."*

Single Task:

Time to Complete Tandem Gait Walking (seconds)				
Trial 1	Trial 2	Trial 3	Average 3 Trials	Fastest Trial

Dual Task Gait (Optional. Timed Tandem Gait must be completed first)

Place a 3-metre-long line on the floor/firm surface with athletic tape. The task should be timed.

Say *"Now, while you are walking heel-to-toe, I will ask you to count backwards out loud by 7s. For example, if we started at 100, you would say 100, 93, 86, 79. Let's practise counting. Starting with 93, count backward by sevens until I say "stop"."* Note that this practice only involves counting backwards.

Dual Task Practice: Circle correct responses; record number of subtraction counting errors.

Task									Errors	Time
Practice	93	86	72	65	58	51	44	37		

Say *"Good. Now I will ask you to walk heel-to-toe and count backwards out loud at the same time. Are you ready? The number to start with is 88. Go!"*

Dual Task Cognitive Performance: Circle correct responses; record number of subtraction counting errors.

Task														Errors	Time (circle fastest)
Trial 1	88	81	74	67	60	53	46	39	32	25	18	11	4		
Trial 2	90	83	76	69	62	55	48	41	34	27	20	13	6		
Trial 3	98	91	84	77	70	63	56	49	42	35	28	21	14		

Alternate double number starting integers may be used and recorded below.

Starting Integer: _____ **Errors:** _____ **Time:** _____

Step 6: Decision

Domain	Date:	Date:	Date:
Neurological Exam (Acute Injury evaluation only)	Normal/Abnormal	Normal/Abnormal	Normal/Abnormal
Symptom number (of 22)			
Symptom Severity (of 132)			
Orientation (of 5)			
Immediate Memory (of 30)			
Concentration (of 5)			
Delayed Recall (of 10)			
Cognitive Total Score (of 50)			
mBESS Total Errors (of 30)			
Tandem Gait fastest time			
Dual Task fastest time			

Disposition

Concussion diagnosed?

Yes ☐ No ☐ Deferred ☐

Health Care Professional Attestation

I am an HCP and I have personally administered or supervised the administration of this SCAT6.

Name:

Signature: Title/Speciality:

Registration/License number (if applicable): Date:

Additional Clinical Notes

Note: Scoring on the SCAT6 should not be used as a stand-alone method to diagnose concussion, measure recovery, or make decisions about an athlete's readiness to return to sport after concussion. Remember: An athlete can score within normal limits on the SCAT6 and still have a concussion.

For use by Health Care Professionals only

Step 4: Coordination and Balance Examination (Continued)

Were any single- or dual-task, timed tandem gait trials not completed due to walking errors or other reasons?

Yes ☐ **No** ☐

If yes, please explain why:

Step 5: Delayed Recall

The Delayed Recall should be performed after **at least 5 minutes** have elapsed since the end of the Immediate Memory section:
Score 1 point for each correct response.

Say *"Do you remember that list of words I read a few times earlier? Tell me as many words from the list as you can remember in any order."*

Time started:

Word list used: A ☐ B ☐ C ☐

List A	Score		Alternate Lists: List B	Alternate Lists: List C
Jacket	0	1	Finger	Baby
Arrow	0	1	Penny	Monkey
Pepper	0	1	Blanket	Perfume
Cotton	0	1	Lemon	Sunset
Movie	0	1	Insect	Iron
Dollar	0	1	Candle	Elbow
Honey	0	1	Paper	Apple
Mirror	0	1	Sugar	Carpet
Saddle	0	1	Sandwich	Saddle
Anchor	0	1	Wagon	Bubble
Delayed Recall Score		of 10		

Total Cognitive Score

Orientation:		**of 5**
Immediate Memory:		**of 30**
Concentration:		**of 5**
Delayed Recall:		**of 10**
Total:		**of 50**

If the athlete was known to you prior to their injury, are they different from their usual self?

Yes ☐ **No** ☐ **Not applicable** ☐ (If different, describe why in the clinical notes section)

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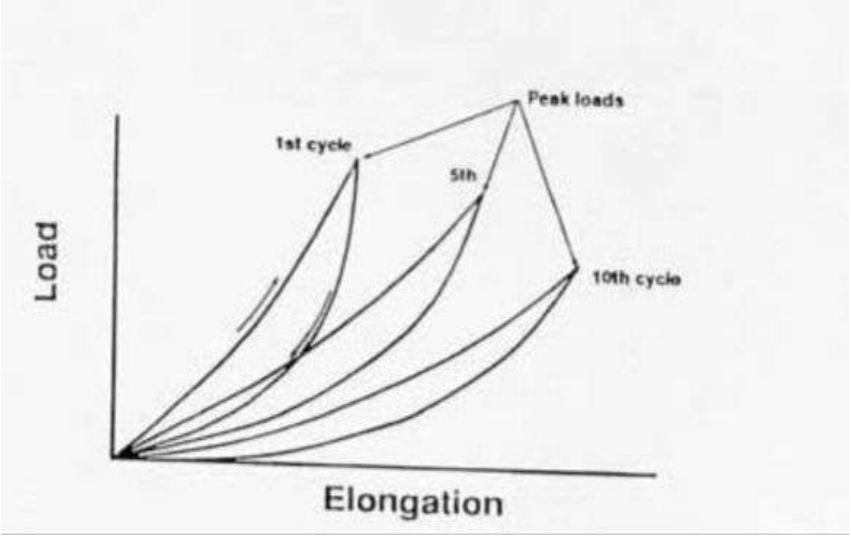
British Journal of Sports Medicine

QUE 3

A young female typist has come with pain in area just proximal to wrist. The pain exactly is on Dorso Lateral side of wrist.

See attached graph depicting pattern of muscle contraction for her. The patient seems to be a case of



a. Dequervain disease

b. Injury to UCL of wrist

c. AVN of lunate

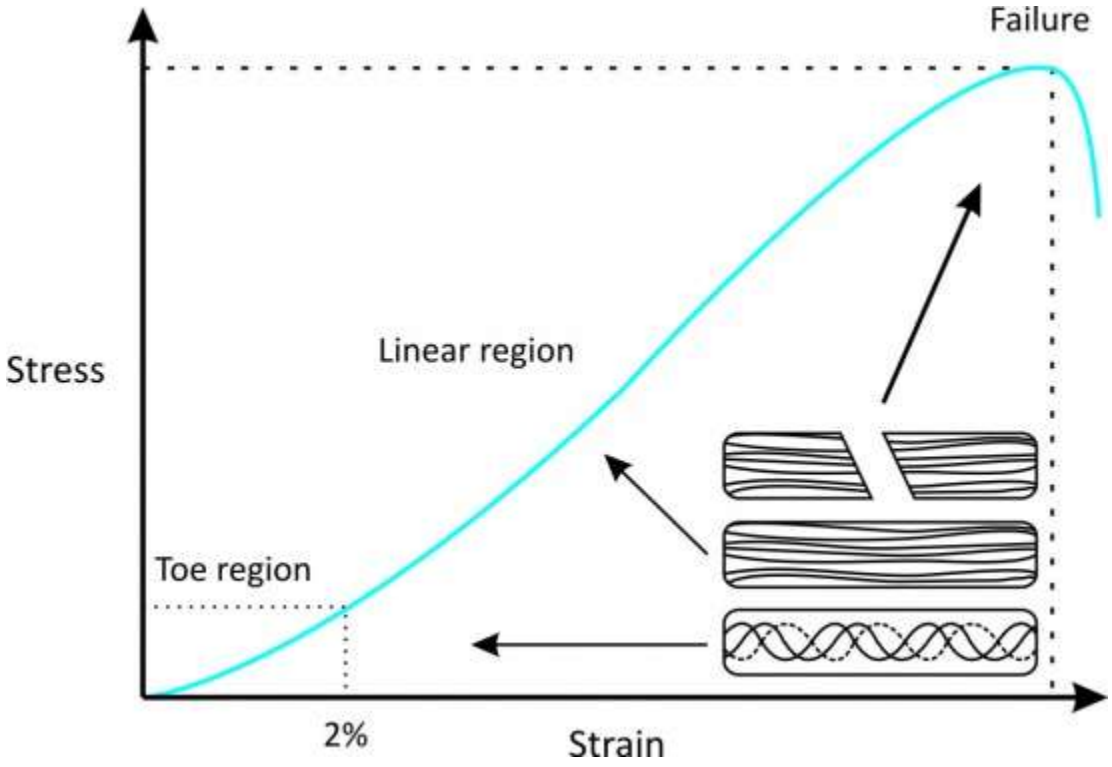
d. Scaphoid insufficiency fracture

Mechanical properties of Tendon/ligament

a. Strain, whichdescribes the elongation/deformation of the tendon (ΔL) relative to the normal length (L0)
b. Stress, the tendon force (Ft) relative to the tendon cross-sectional area (CSA),
c. Stiffness, the change in tendon length (ΔL) in relation to the force applied (ΔFt)
d. Modulus, describes the relation between tendon stress and tendon strain and represents the properties independently of the CSA

   High modulus indicates stiffer tissue

Tendon Mechanical Properties: Non-Linear Elasticity



Stress and Strain for a tendon is *not constant but depends on the time of displacement or load.*

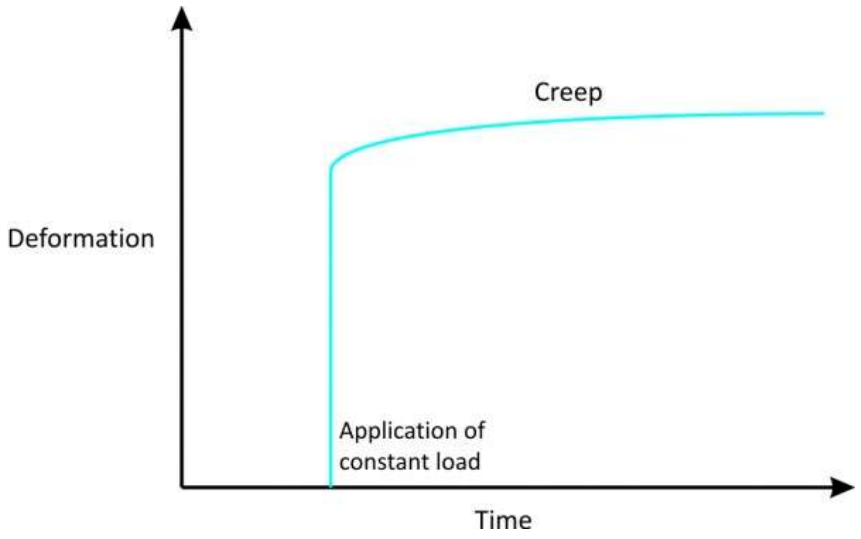
Tendon Mechanical Properties: Viscoelasticity

Tendons also have viscoelastic properties , mechanical behaviour is dependent on the rate of mechanical strain.

1.Creep

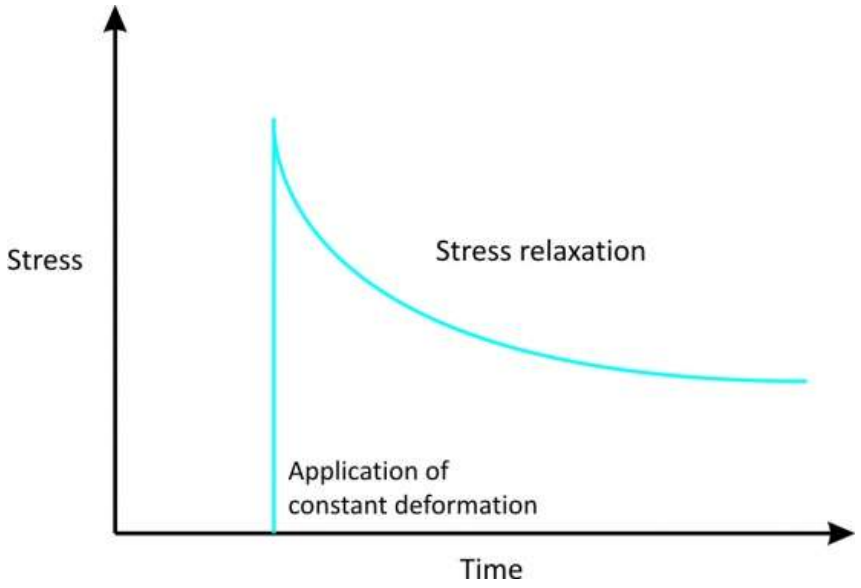
Indicates increasing deformation under constant load

This is in contrast with the usual elastic material, which does not elongate, no matter how long the load is applied.



2. Stress relaxation

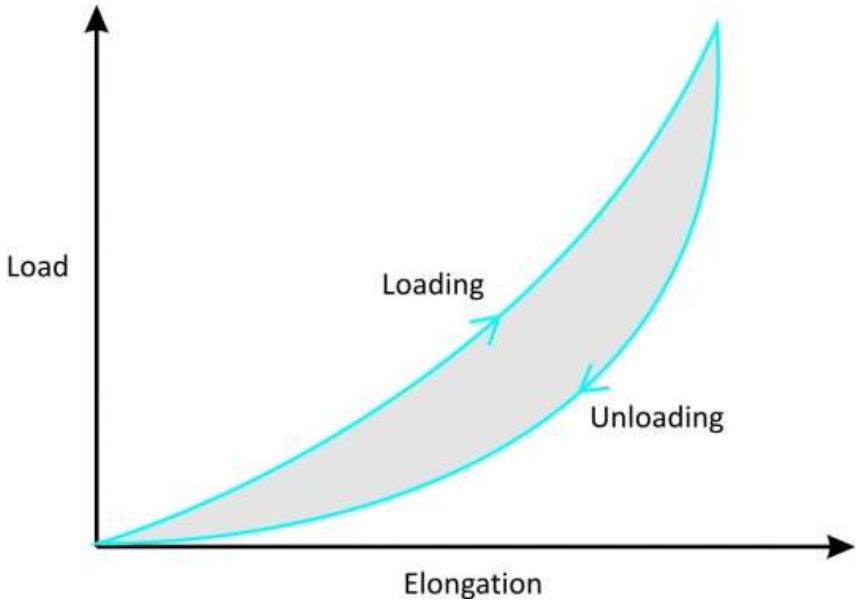
Indicates stress acting upon a tendon will eventually reduce under a constant deformation.



3. Hysteresis or Energy dissipation

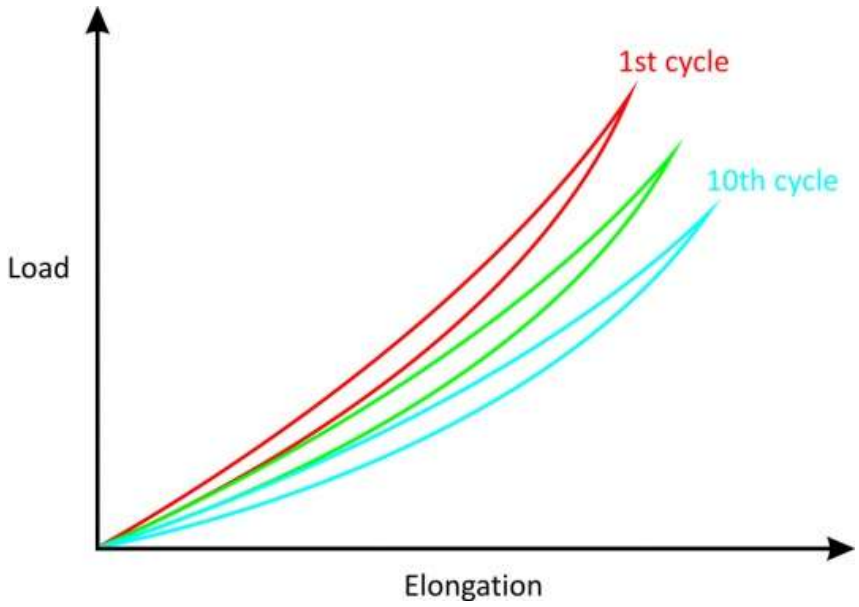
When a viscoelastic material is loaded and unloaded, the unloading curve is different from the loading curve.

The difference between the two curves represents the amount of energy that is lost during loading.



Cyclic loading and unloading

- ✓ During cyclic loading and unloading,
- ✓ the stress/strain curve shifts to the right.
- ✓ After 10 repetitions, the curve becomes reproducible.
- ✓ The amount of hysteresis under cyclic loading is reduced



QUE 4

You are posted as Team Doctor in Olympics.

One of your athlete is having problem of exercise induced bronchospasm as determined by your PPE checkup. You wanted to advise him medication for this purpose. Which of following drug can be allowed for medical use for this condition as per WADA guidelines during olympics?

a) TERBUTALINE

b) VILANETROL

c) LEVOSALBUTAMOL

d) TRIMETOQUINOL

- S3
- BETA-2 AGONISTS
- ALL TIMES
- All prohibited substances in this class are Specified Substances.

- All selective and non-selective beta-2 agonists, including all optical isomers, are prohibited.

INCLUDING, BUT NOT LIMITED TO:

Arformoterol
Fenoterol
Formoterol
Higenamine
Indacaterol
Levosalbutamol
Tretoquinol (trimetoquinol)
Olodaterol
Procaterol
Reproterol
Salbutamol
Salmeterol
Terbutaline
Tulobuterol
Vilanterol

Inhaled salbutamol: maximum 1600 micrograms over 24 hours in divided doses not to exceed 600 micrograms over 8 hours starting from any dose

Inhaled formoterol: maximum delivered dose of 54 micrograms over 24 hours

Inhaled salmeterol: maximum 200 micrograms over 24 hours

Inhaled vilanterol: maximum 25 micrograms over 24 hours

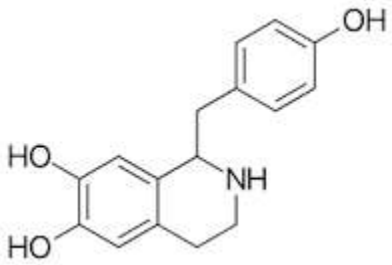
TUE

The presence in urine of salbutamol in excess of 1000 ng/mL or

Formoterol in excess of 40 ng/mL

is not consistent with therapeutic use of the substance and will be considered as an Adverse Analytical Finding (AAF) unless the Athlete proves, through a controlled pharmacokinetic study, that the abnormal result was the consequence of a therapeutic dose (by inhalation) up to the maximum dose indicated above.

Higenamine is prohibited under S3 as a non-selective beta-2-agonist.



Higenamine is documented to be a constituent of the plant Tinospora crispa, which can be found in some dietary supplements.

TUE REQUIREMENT

- Yes still it should be taken as doses are in milli and nano grams and only Lab Analysis report can exactly tell the concentration reflecting in urine.
- It’s always safe to file a TUE indicating that these medications had been taken for therapeutic purpose with
- Name of Medication
- Dosage
- Frequency in what form and for how long with proper prescription slip of prescribing doctor

Ques 5

You were posted as team doctor in ASIAN GAMES 2021. One of your athlete suffered Acute Gastroenteritis due to which he lost a large amount of body fluids. You decided to administer IV fluids (RINGER LACTATE) as he was unable to accept oral feeds. You later on remembered that giving IV fluids is also doping. You decided to check WADA website to check the guideline for IV Fluids. What is conc. Of IV fluids allowed so that athlete is not sanctioned?

a) 100 mL/12 hours

b) 200 mL/12 hours

c) 200 mL/24 hours

d) Since athlete was severely dehydrated he will be excused from sanctions & it was done to save life

Note that regardless of volume administered, an IV infusion or injection given as part of a hospital treatment, surgical procedure or clinical diagnostic investigation is not prohibited.

1. It is the responsibility of the treating physician as per WADA guidelines to emphasize that the health and well being of the athlete must always remain the priority during treatment.
2. After evaluation by physician for indication of IV infusion he should be aware of the prohibited dosage of IV fluids more than 100 ml/12 hour in non emergency conditions.
3. As per WADA TUE guidelines when an IV infusion is considered by Physician as a treatment option in Emergency situation (keeping it as hemodynamically unstable athlete requiring IV fluids) or emergency situations, treatment with IV fluids should never be withheld on grounds that method is on the Prohibited List & Methods.

TUE(Therapeutic use exemptions) Physician Guidelines

- INTRAVENOUS INFUSIONS AND/OR INJECTIONS
- Intravenous (IV) infusions have been included on the WADA List of Prohibited Substances and Methods under section M2.
- Prohibited Methods; Chemical and Physical Manipulation since 2005.

- Intravenous infusions and/or injections of more than a total of 100 ml per 12-hour period except for those legitimately received in the course of hospital treatments, surgical procedures or clinical diagnostic investigations.
- The wording in the Prohibited List for IV infusions is unique in that the method is not prohibited under the three exceptions stated above.
- TUE would be necessary for a Prohibited Substance delivered by intravenous infusion even if the infusion itself is delivered in the setting of one of the three exceptions.

Infusions or injections of more than 100 ml within a 12- hour period are prohibited unless the infused/injected substance is administered during a

1) *hospital treatment,*

2) surgical procedure or

3) clinical diagnostic investigation.

Therefore, athletes should always apply for a TUE, if they are administered an intravenous treatment (more than 100 ml/12hrs), in any of the following environments which under regular circumstances will not comply with the three exemptions listed above.

a) medical practitioner's office, a hotel room, in a home, tent or vehicle

b) event organizers' medical facility, tent, first aid station, or start-finish line facility

c) IV clinics or any clinic/treatment room or centre outside of a hospital facility unless a clinical diagnostic investigation or surgical procedure has been performed.

- If a NON-PROHIBITED SUBSTANCE is infused or injected without being part of a hospital treatment, surgical procedure or clinical diagnostic investigation, a TUE must be submitted for this Prohibited Method if more than 100 ml of fluid in a 12-hour period is infused or injected.
- If a PROHIBITED SUBSTANCE is administered via IV infusion or injection, a TUE application must be submitted for the Prohibited Substance regardless of whether the infusion is less than 100 ml or the setting/circumstances under which it is administered.

WHAT YOU WILL FILE IN A TUE-- Diagnosis

a. **Medical History**

A summary of the **athlete's history** and the findings of a **physical examination** should confirm the diagnosis and/or the clinical condition that resulted in the need for an IV infusion.

A description of the clinical situation that preceded the treatment and specific medical indication for the IV infusion must be given in the TUE application.

Only if a prohibited substance is administered would one need to apply for a TUE.

The athlete is advised to obtain and keep a copy of the medical records from the intervention or procedure.

b. Relevant medical information

A detailed description of the **substance infused, the rate of infusion and any other relevant clinical information** from the treating physician should be included.

It must be demonstrated **why an alternative permitted therapy**, for example oral rehydration in case of dehydration, is not a valid option.

Any existing co-morbidities that would influence the decision for granting a TUE should also be included.

QUE 6

You are posted as Doping Control Officer in Olympics. You were told that you will receive TUE

(Therapeutic Use Exemption) applications before games. What is the minimum duration to send TUE applications before games so that it is granted?

a) 3 weeks

b) 4 weeks

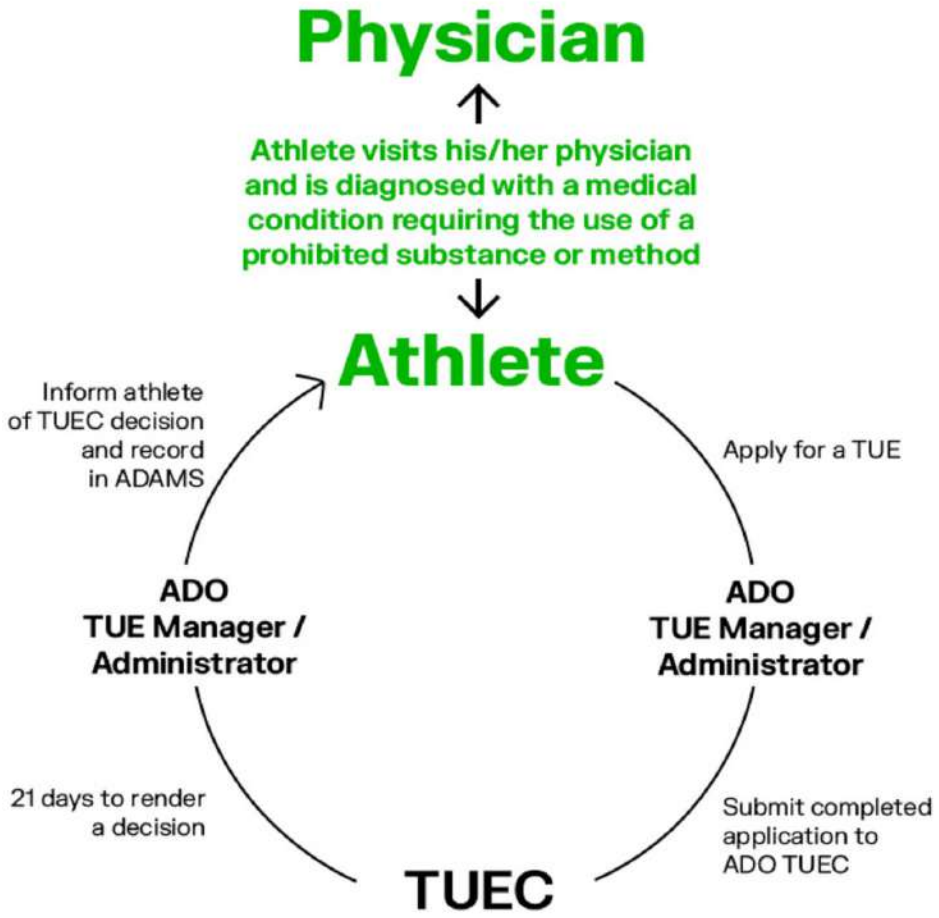
c) 6 weeks

d) 2 weeks

ANS

B 4 weeks

A TUE ensures that athletes can be treated for medical conditions - even if the treatment involves using a prohibited substance or method – while avoiding the risk of being sanctioned.



Athlete should apply for a TUE as soon as possible after being prescribed the medical subtance or route of administration.

If substance is prohibited IN COMPETITION ONLY.

Be Sure to apply 30 days before competition.

, unless one of the exceptions on retroactive TUEs

All of the four following criteria must be m

1. The athlete has a clear diagnosed medical condition, which requires treatment using a prohibited substance or method
2. The therapeutic use of the substance will not, on the balance of probabilities, produce significant enhancement of performance beyond the athlete's normal state of health
3. The prohibited substance or method is an indicated treatment for the medical condition, and there is no reasonable permitted therapeutic alternative
4. The necessity to use that substance or method is not the consequence of the prior use (without a TUE), of a substance or method which was prohibited at the time of use.

RETROACTIVE TUE

1. You required *emergency or urgent treatment* of a medical condition.
2. There was insufficient time, opportunity or other exceptional circumstances that prevented you from submitting the TUE application or having it evaluated, before getting tested.
3. As per the International Federation anti-doping rules you were not permitted or required to apply in advance for a TUE.
4. You are a lower level athlete who is not under the jurisdiction of an International Federation or National Anti-Doping Organisation and were tested.
5. You tested positive after using a substance Out-of-Competition that was only prohibited In-Competition (for example glucocorticoids).

QUE 7

International cricketer Shakib-Al-Hasan was recently banned by ICC for not complying with whereabouts filing information rule as stated by WADA. Complying with rules ICC suspended him for 2 years. What is allowed no of whereabouts failure in year so that it's not an ADRV (Anti-Doping Rule Violation) as per latest guidelines?

a) 2

b) 3

c) 4

d) 5

A WHEREABOUTS FAILURE WILL BE RECORDED AGAINST AN ATHLETE UNDER THE FOLLOWING CIRCUMSTANCES:

1. **You have failed to submit your whereabouts by the required deadline (Filing Failure).**
2. **You have failed to update your whereabouts or you have not updated them as soon as possible after a change of circumstances (Filing Failure).**
3. **You have filed your whereabouts on time but they are incomplete or inaccurate or insufficient to enable us to locate you for testing (training address missing, home address too vague, competition schedule missing or incomplete, no address of temporary accommodation during competition…) (Filing Failure).**
4. **The Respective federation finds out that your whereabouts are inaccurate or incomplete following an unsuccessful attempt to test you (e.g. an athlete lives in a gated complex and fails to give instructions to the security gate to let the doping control officer in) (Filing Failure).**
5. **You have filed whereabouts information but you are not available for testing at the location corresponding to your 60-minute time slot (Missed Test).**

3 whereabouts failures (Filing Failure and/or Missed Test) within a period of 12 months constitute an anti-Doping rule violation, for which the applicable sanction is

2 years' ineligibility subject to a reduction to a minimum of 1 year depending on your degree of fault.

Ques 8

You are posted with national women's hockey team as CMO for upcoming national games. The dietary advisory committee comes to you regarding concern of Iron deficiency in athlete esp. females. What is single most important marker to assess the same in females?

A) Hepcidin levels

B) Serum Iron & Ferritin concentration

C) Transferrin % saturation

D) Transferrin receptor/Ferritin Ratio

Diagnostic efficiency of laboratory tests in the Diagnosis of Iron depletion.

1. Hemoglobin, g/L Serum iron
2. MCV, fl
3. Iron, µmol/L
4. Transferrin/total iron-binding capacity (TIBC),
5. Transferrin saturation
6. TfR/log ferritin Index
7. Ferritin

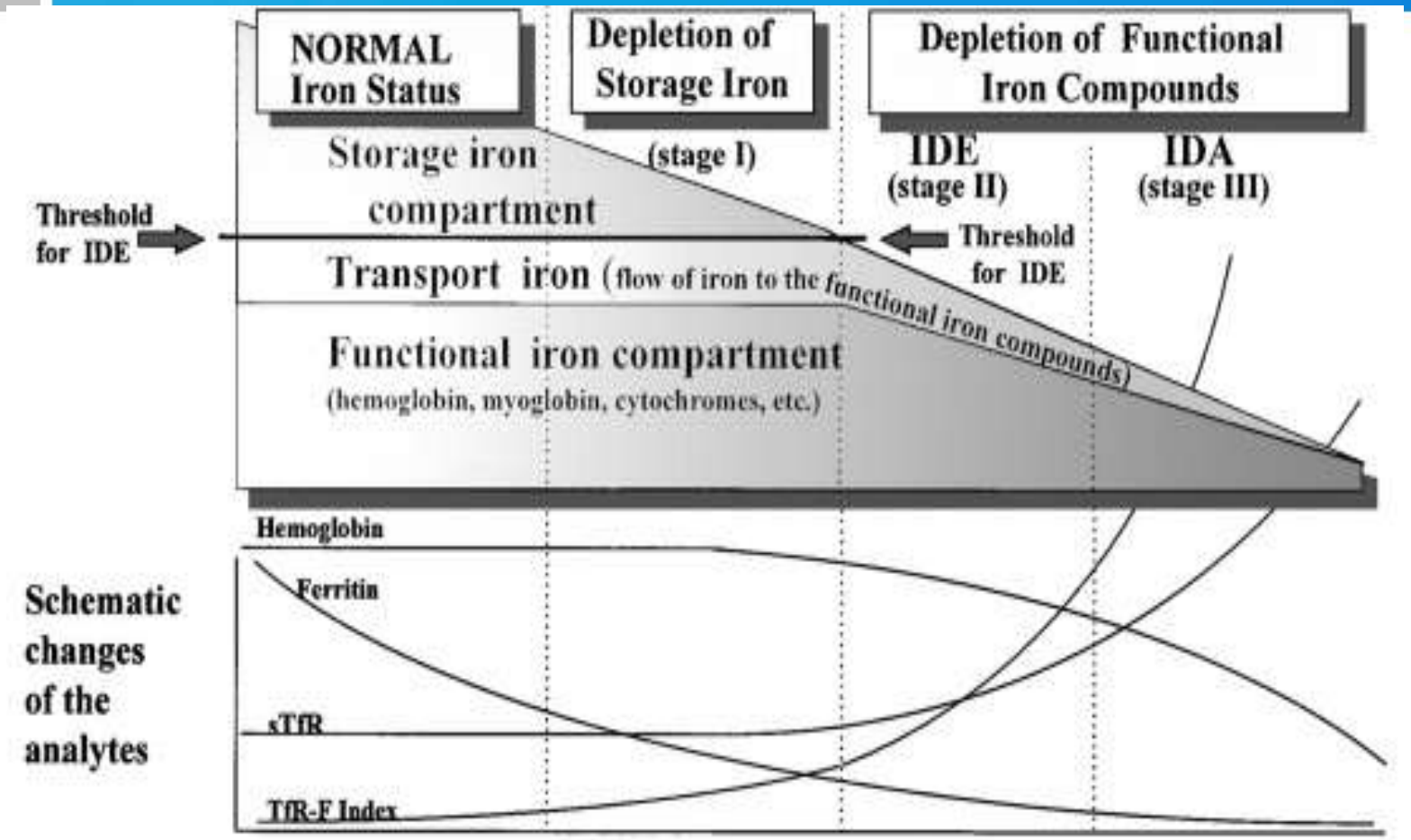
Iron deficiency anemia (IDA)

- Serum TfR concentrations were elevated in the vast majority of the IDA and COMBI patients,
- TfR measurement thus provided a reliable diagnosis of iron deficiency anemia

Anemia of chronic disease (ACD)

- The levels were within the reference limits

The soluble transferrin receptor (sTfR), especially in the form of the ratio to the log concentration of ferritin (sTfR/logFerr), has been widely used as a measure of latent iron deficiency, Border Line or Early Stage of Anemia.



Typical laboratory profile

Ferritin 22-203 µg/L sTfR 1.15 - 2.75 mg/L TfR-F Index 0.63 - 1.8 Hb (women) 117-153 g/L Hb (men) 128-168 g/L	**Ferritin <22 µg/L** TfR-F Index >1.8 sTfR <2.75 mg/L Hb (women) >117 g/L Hb (men) >128 g/L	**sTfR > 2.75 mg/L** **Ferritin < 22 µg/L** TfR-F Index > 2.2 Hb (women) > 117 g/L Hb (men) > 128 g/L	**sTfR > 3.6 mg/L** **Ferritin < 22 µg/L** **Hb (women) < 117 g/L** **Hb (men) < 128 g/L** TfR-F Index > 2.8

- The transition from the normal iron-replete state to the development of IDA entails two sequential processes:

a. depletion of the storage iron compartment (stage I)

b. Followed by its exhaustion and the consequent initiation of depletion of the functional iron compartment in the setting of continued iron loss (stage II).

c. There are no additional physiologic phenomena associated with the development of IDA (stage III), which is merely a sequel of progressive depletion of the functional compartment.

QUES 9

You are doing PPE check up before 38th National Games. One of your 26 year old female athlete is known case of anxiety.On asking medication history she shows prescription for her treatment which shows drug PROPANOLOL.You were concerned about it's use so you checked WADA list & it shows certain sports where it's banned. In what category the drug should be placed in the given doping list.

a)S0

b)S3

c)S8

d)S2

- Beta Blockers - comes in P1 Class

- IN PARTICULAR SPORTS
- All prohibited substances in this class are Specified Substances.

- Beta-blockers are prohibited In-Competition only, in the following sports Archery , Automobile, Billiards, Darts , Golf, Shooting, Skiing , underwater Sports.
- And also prohibited Out-of-Competition in others.

- Then the correct answer would become
- SO for NON-APPROVED SUBSTANCES
- which are the substances that aren't covered in other sections of the List, and they don't have approval from any health authority for human use.
- This includes things like drugs in development, designer drugs, or those approved only for animals.
- Using them is not allowed at any time.

The confusion regarding SO and S2

- was because S2 also k/a class of mimetic agents and beta blockers (e.g. oxprenolol, pindolol, penbutolol, labetalol and acebutolol) exhibit intrinsic sympathomimetic activity (ISA).
- And Propanol possess no Symapthomimetic activity.