Materiales docentes para el alumnado
Clases teóricas

UNIVERSIDAD DE MURCIA

Lesiones musculares

Musculatura isquiosural. Parte 2

Asignatura: Readaptación deportiva y reentrenamiento físico-deportivo

Docentes

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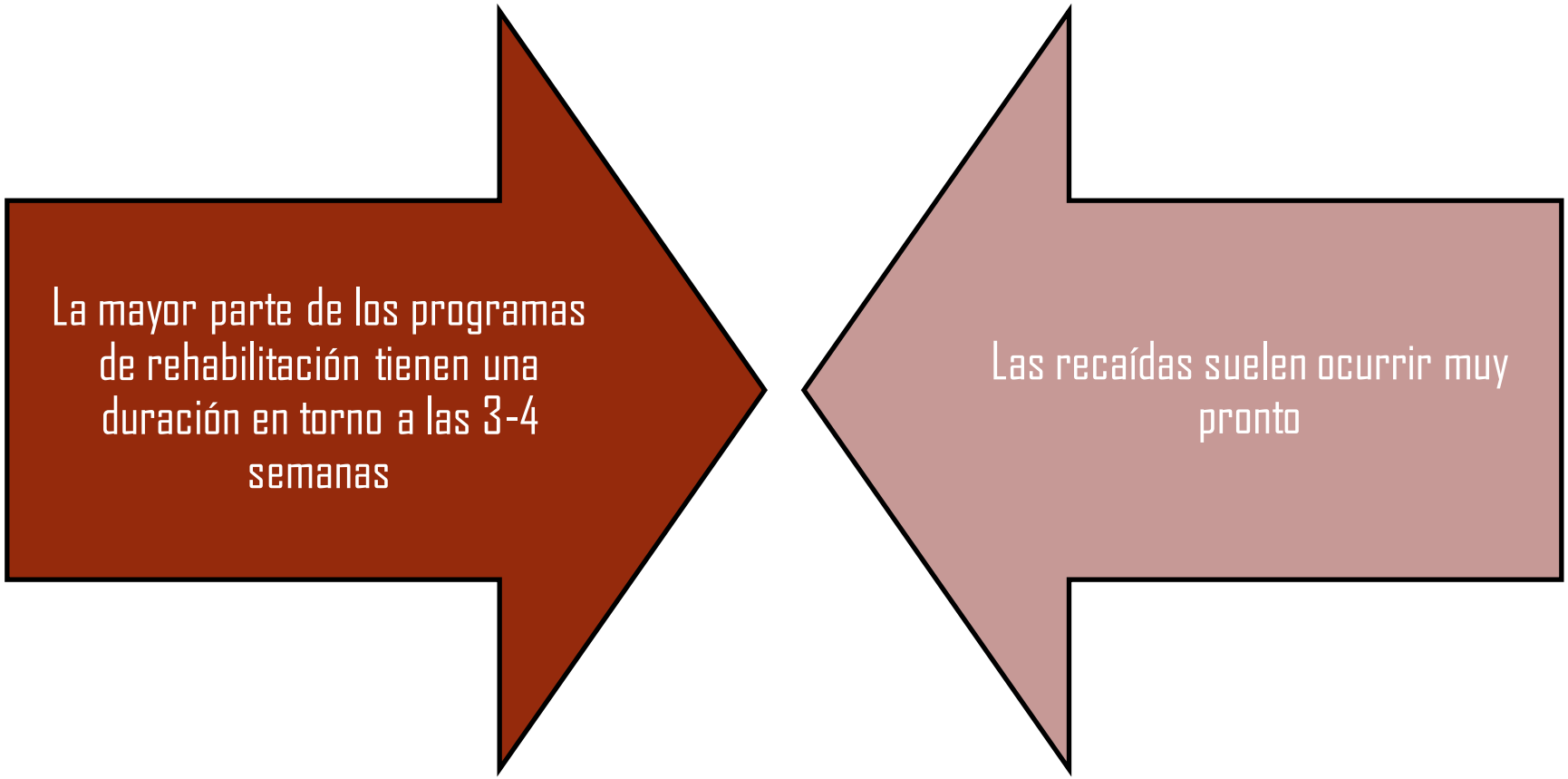
LESIÓN DE LA MUSCULATURA ISQUIOSURAL

Uno de los jugadores del primer equipo ha sufrido una **lesión** de la musculatura de la parte posterior del muslo (**isquiosurales**). El equipo médico te encarga a ti la **readaptación** del deportista.

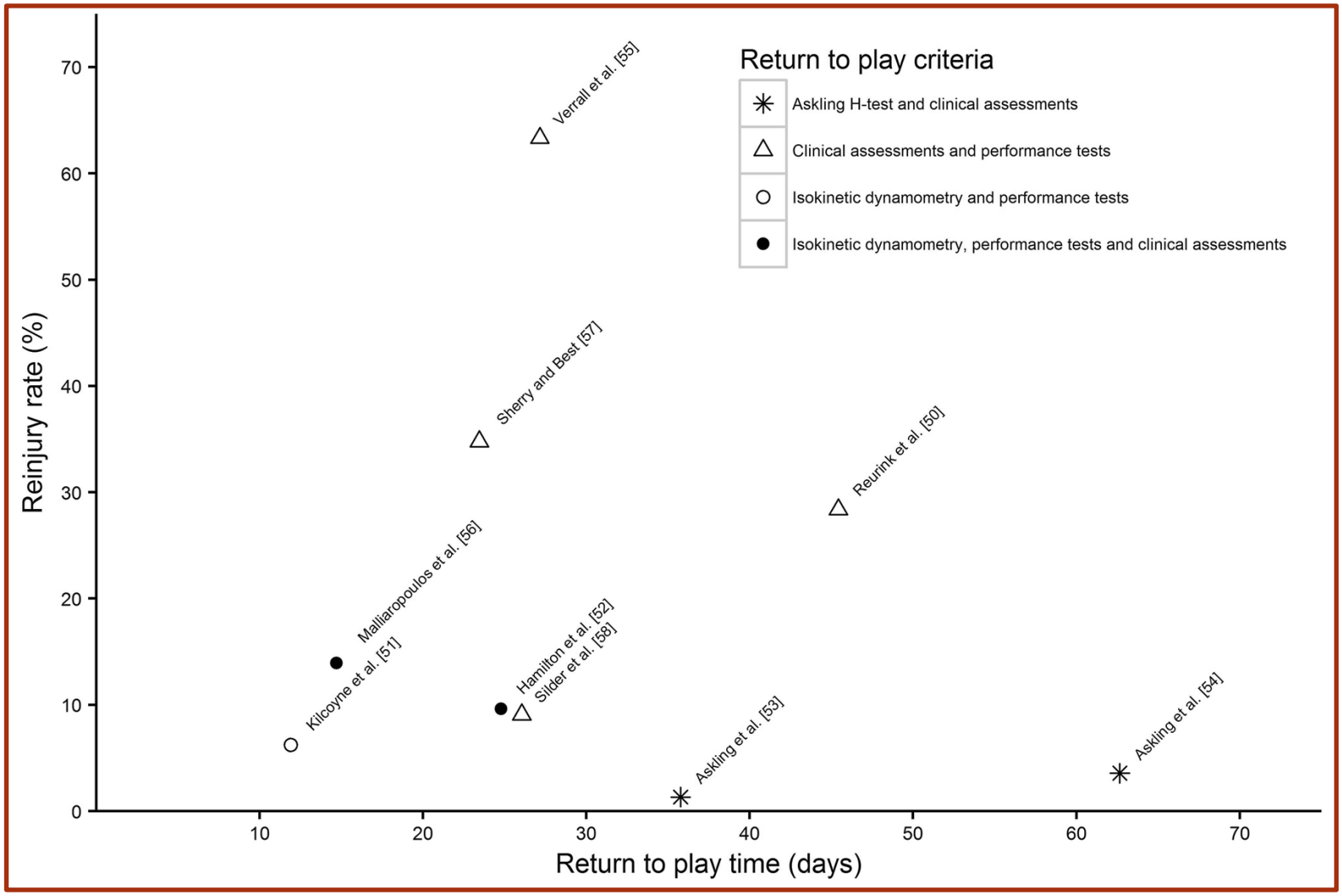
READAPTACIÓN DEPORTIVA



References	Askling et al.	Askling et al.	Hamilton et al.	Kilcoyne et al.	Malliaropoulos et al.	Reurink et al.	Sherry et al.
General guidelines							
▪ Within free pain limits	+	+	+				
▪ Within limits- of 1-2/10 pain (no sharp limits pain)				+			
Specific criteria for progression through stages of rehabilitation							
▪ Pain- free single leg squat			+				
▪ Pain-free bike at 150 W for 5 min			+				
▪ Full knee extension in supine			+				
▪ Pain- free high knee march							+
▪ Pain-free normal walking gait					+	+	+
▪ Pain-free ROM or >75% of uninjured side			+		+		
▪ Pain-free normal jog						+	
▪ Run at 70% perceived maximum speed			+				
▪ Pain-free submaximal then full isometric knee flexor strength assessed manually						+	
▪ Pain-free change of direction and 100% speed run			+				

References	Askling et al.	Askling et al.	Hamilton et al.	Kilcoyne et al.	Malliaropoulos et al.	Reurink et al.	Sherry et al.
Clinical assessments							
▪ Manual assessment of isometric knee flexor strength	+	+					+
▪ Pain-free palpation of injury site	+	+					+
▪ ROM tests	+	+			+	+	
▪ "Normal" clinical assessment			+				
Performance tests							
▪ Pain-free and subjective readiness following sprinting				+		+	+
▪ Pain-free and subjective readiness following agility tests or sport-specific movements			+			+	
▪ Pain free full training							
▪ "Equal" single-leg triple hop for distance					+		
Isokinetic dynamometry							
▪ Difference <5% at 60 and 180º/s					+		
▪ Results of isokinetic strength test considered			+				
▪ Perceived equal between limb isokinetic strength				+			
Askling H-test	+	+					

READAPTACIÓN DEPORTIVA



Hickey et al. (2017)

READAPTACIÓN ISQUIOSURALES

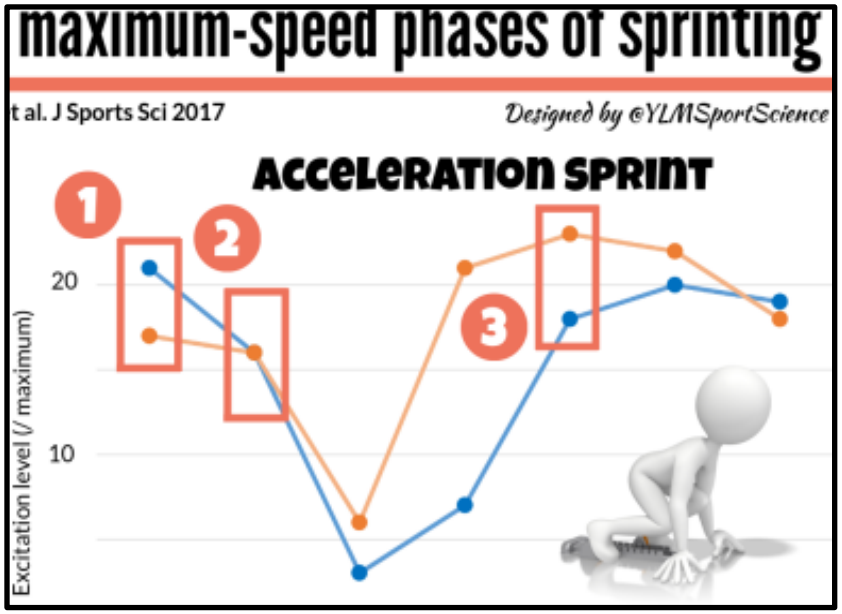
Ante la ausencia de criterios para el retorno seguro a la competición con una sólida evidencia científica detrás, decides crear **tu propio proceso de readaptación** teniendo en cuenta los ya existentes y cuya eficacia ha sido probada

READAPTACIÓN ISQUIOSURALES

PRINCIPIOS

- Establece un **diagnóstico** estructural preciso y una correcta clasificación de la lesión
  - Miofascial
  - **Unión músculo-tendón**
  - Intra-tendón
- Facilita la **colaboración** de expertos en Ciencias del Deporte, Sicología, Nutrición y Medicina
- Involucra al **entrenador** y al **deportista** en el proceso de toma de decisiones
- Entrena **movimientos (cadera y rodilla)** y **músculos**
- Prescribe ejercicios de **fuerza** para alcanzar objetivos específicos
  - Entrenamiento excéntrico
  - Entrenamiento isométrico
- Aplica un modelo **multi-componente** que aborde potenciales factores de riesgo

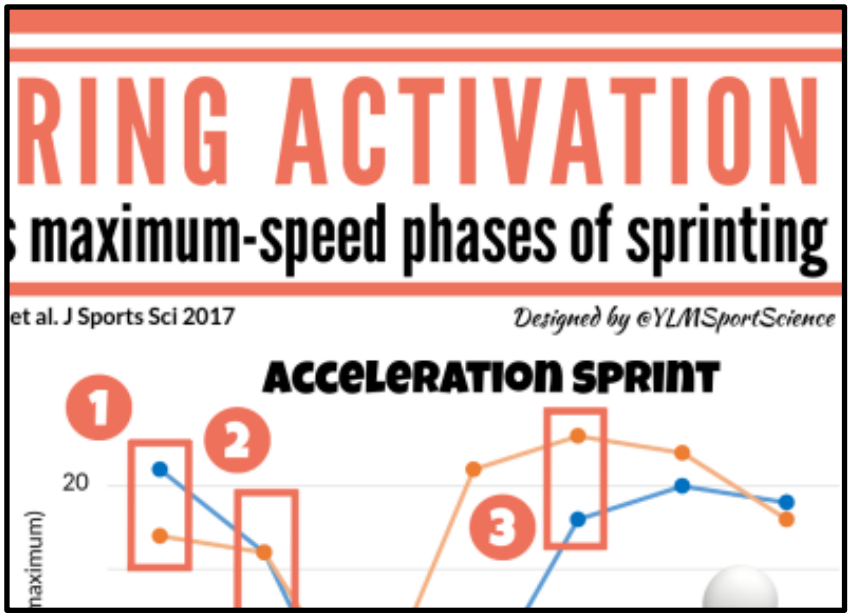
READAPTACIÓN ISQUIOSURALES



Early stance phase

La fuerza de ***extensión de cadera es mayor*** durante la aceleración en el sprint que durante el sprint a la máxima velocidad y la activación de ***bíceps femoral (cabeza larga)*** es mayor que la activación del músculo semitendinoso.

Higashihara et al. (2017)



Late stance and terminal mid-swing

La rodilla esta más extendida y un mayor ***momento de flexión de rodilla*** es observado durante el sprint a máxima velocidad comparado con la fase de aceleración, y el músculo ***semitendinoso*** muestra una mayor activación que la cabeza larga del bíceps femoral.

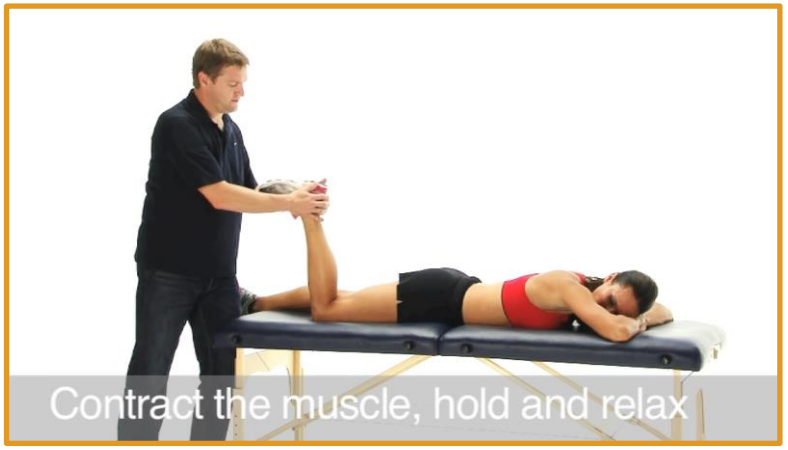
READAPTACIÓN ISQUIOSURALES

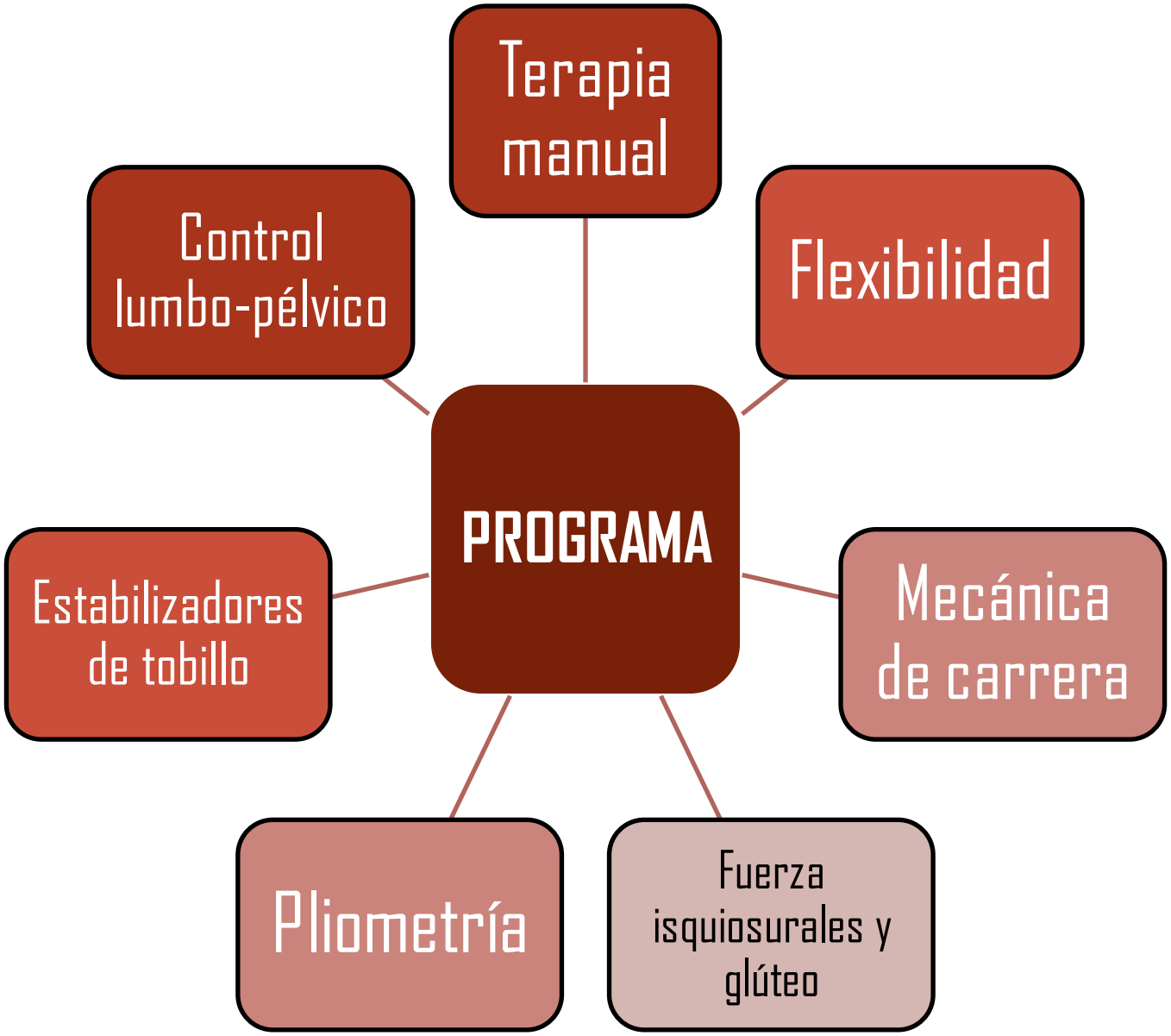
ENTRENAMIENTO EXCÉNTRICO

- Desarrollo de una alta fuerza excéntrica.
- Incremento de la longitud de los fascículos para mejorar la relación longitud-tensión (más lejos y más fuerte).

ENTRENAMIENTO ISOMÉTRICO

- Desarrollo de la especificidad de la unidad músculo-tendón
- Desarrollo de la resistencia a la fatiga
- Recuperar de posibles inhibiciones selectivas de la musculatura.




Terapia manual
Control lumbo-pélvico
Flexibilidad
PROGRAMA
Estabilizadores de tobillo
Mecánica de carrera
Pliometría
Fuerza isquiosurales y glúteo

READAPTACIÓN ISQUIOSURALES

No todo el mundo evoluciona igual

Tiempos Pato-fisiología

- Fase aguda (hasta 48-72 horas)
- Fase sub-aguda (2nd-8 día)
- Fase de remodelación (9-28 día)
- Fase de recobro/funcionalidad (28-36 día)

Necesidad de pruebas validas

Criterios clínicos

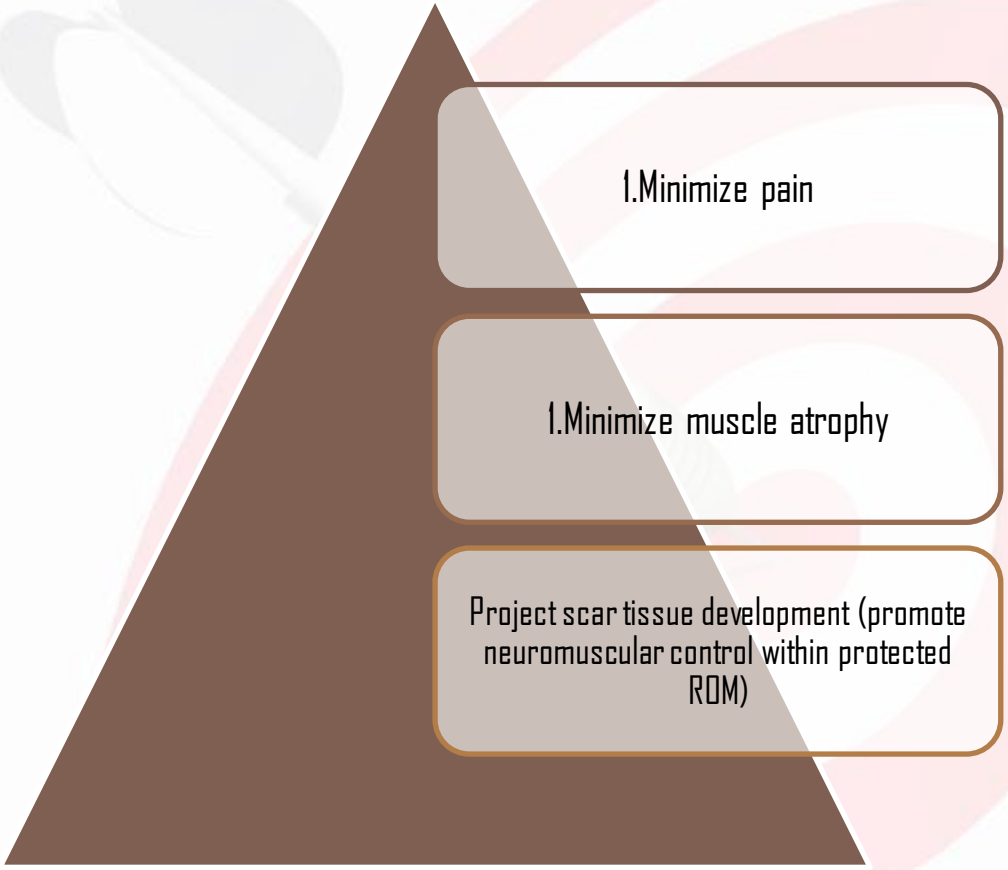
- Fase I. Aguda
- Fase 2. Regeneración
- Fase 3. Funcional

READAPTACIÓN ISQUIOSURALES

10 días aprox = cicatriz resistente

21 días aprox

FASE 1. AGUDA


1.Minimize pain
1.Minimize muscle atrophy
Project scar tissue development (promote neuromuscular control within protected ROM)

FASE 1. AGUDA

TRATAMIENTO

Inmovilización

PRICE

Inmersión en agua

Manipulación articulación sacro-iliaca

TIEMPO

3-4 días

Inmediatamente y hasta las 24 horas

Días 2-4

Días 3-4

OBJETIVO

Descenso del tamaño de la cicatriz, incremento de la fuerza y elasticidad y permitir un apropiado alineamiento para la regeneración miofibrillas

---

Reducir el dolor, sangrado e inflamación

Desplazamiento de los fluidos desde las extremidades inferiores hacia las cavidades centrales a través de presión hidrostática

---

Restablecimiento de la función lumbo-pelvico-cadera y articulación sacro iliaca

Re-evaluar si persiste el dolor después de 3-4 días

Si no hay dolor después de 4-5 días →

FASE 2. REGENERACIÓN

FASE 1. AGUDA

Approximately days 0-5

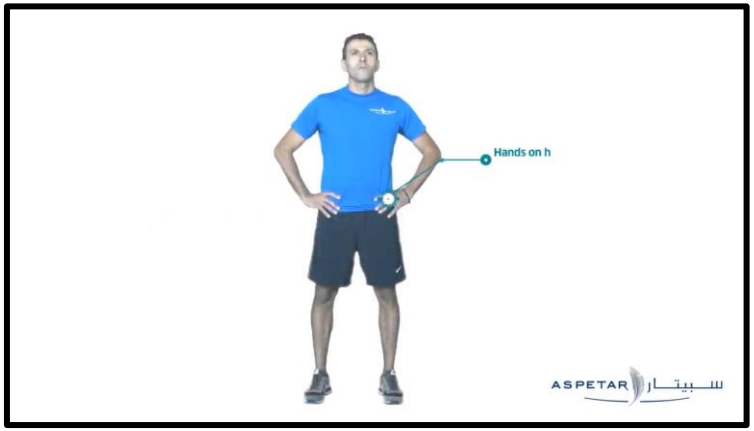
1. Pain free walking
2. First point of resistance = first point of pain on PKE
3. Submaximal prone contraction pain free

Painless single leg squat

Numeric Rating Scale

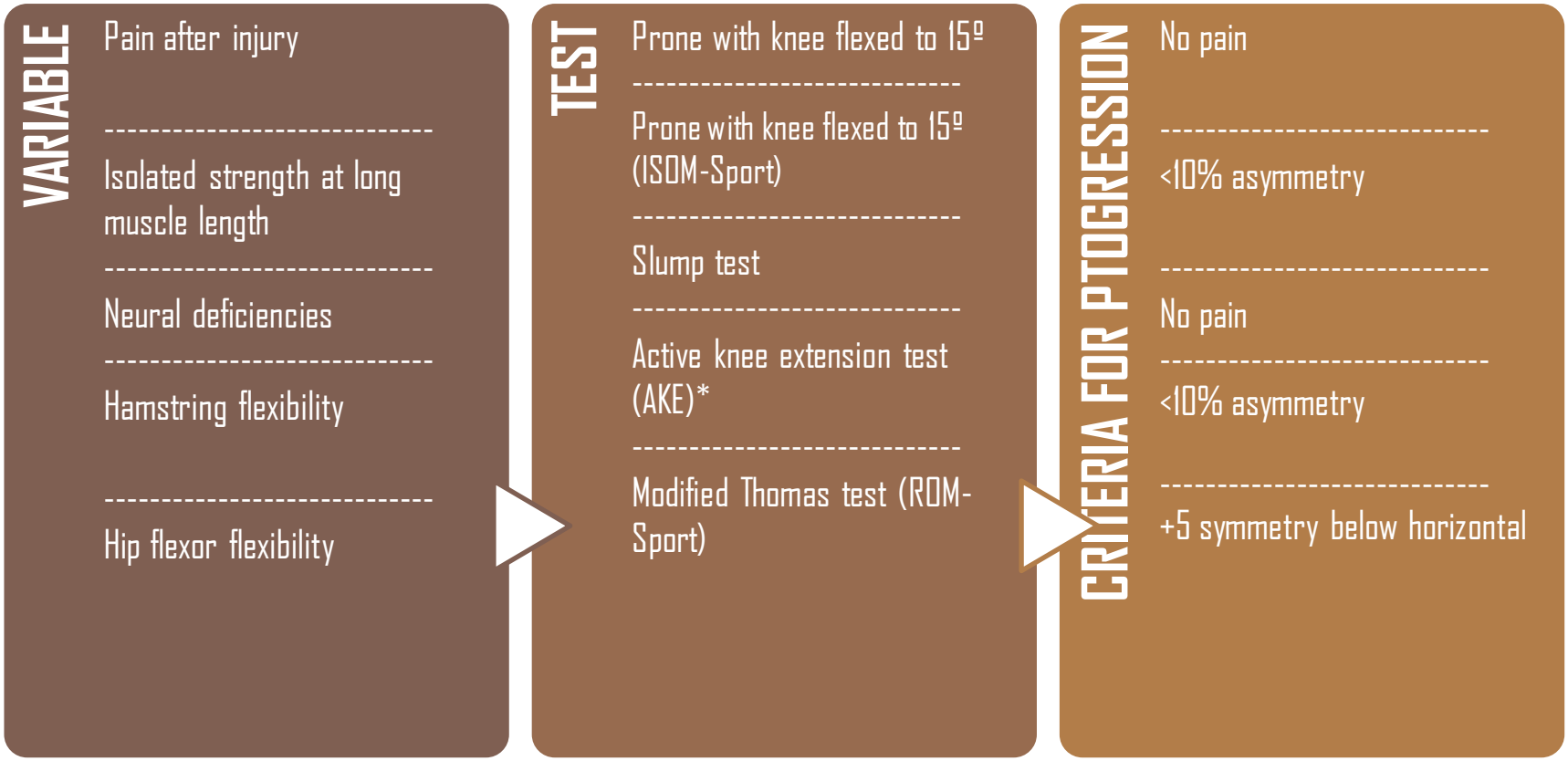
Painless bike

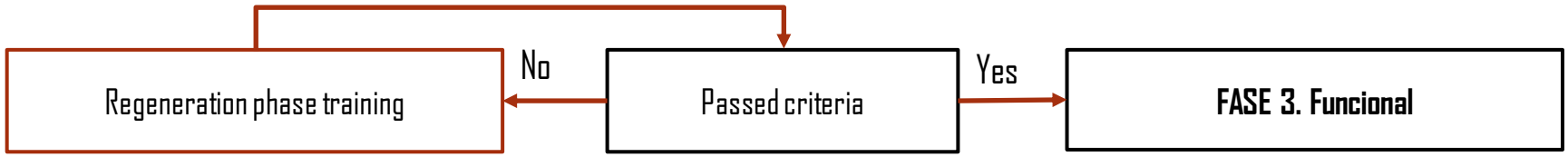
FASE 1. AGUDA



FASE 2. REGENERACIÓN

Approximately days 5-14





FASE 2. REGENERACIÓN

Prone with knee flexed to 15º (ISOM-Sport)

Slump test

Passive straight leg raise test (ROM-Sport)

Modified Thomas test (ROM-Sport)

FASE 2. REGENERACIÓN

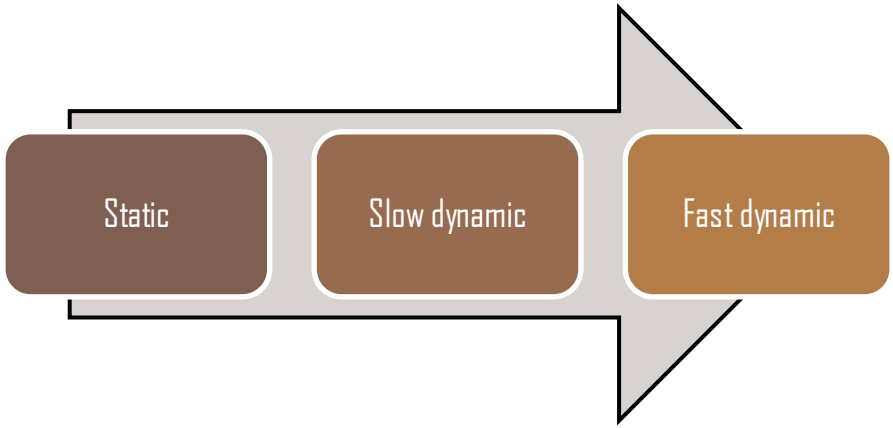
MANUAL THERAPY

- Plantar fascia, gastrocnemius and hamstring (avoiding injury site) massage.
- Lumbar Z-joint mobilization.
- Sliding neural mobilization (3 x 12 rep).
- Neuromuscular electrical stimulation.

FASE 2. REGENERACIÓN

FLEXIBILITY

- Psoas static flexibility with pelvic retroversion (4 x 15 s / 2 x 30 s)
- Quadriceps static flexibility (4 x 15 s / 2 x 30 s)
- Quadriceps dynamic mobility (2 x 8 reps)
- Hamstring static flexibility
- Hamstring dynamic mobility:
  - With fit-ball (2 x 8 reps)
  - Supine (2 patterns) (2 x 8 reps)
  - Etc.

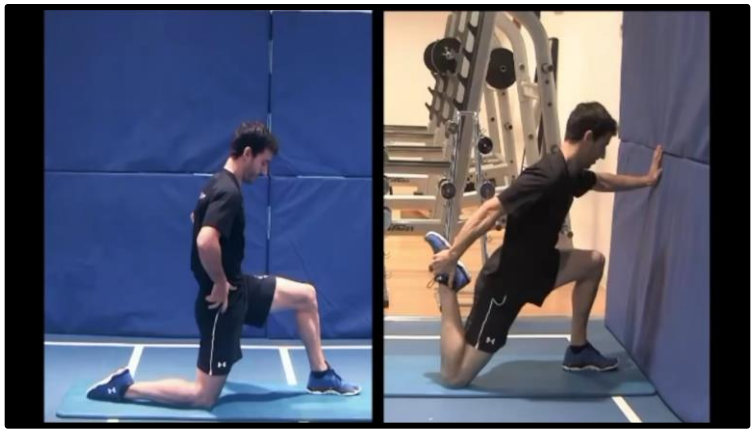


FASE 2. REGENERACIÓN

FLEXIBILITY

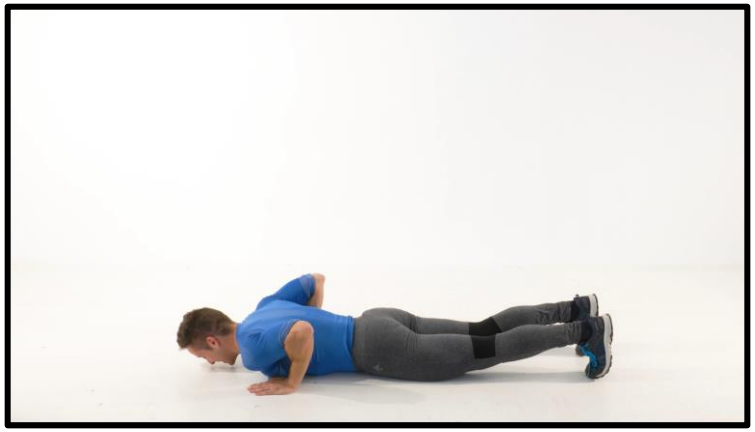
Psoas static flexibility with pelvic retroversion

Quadriceps dynamic mobility

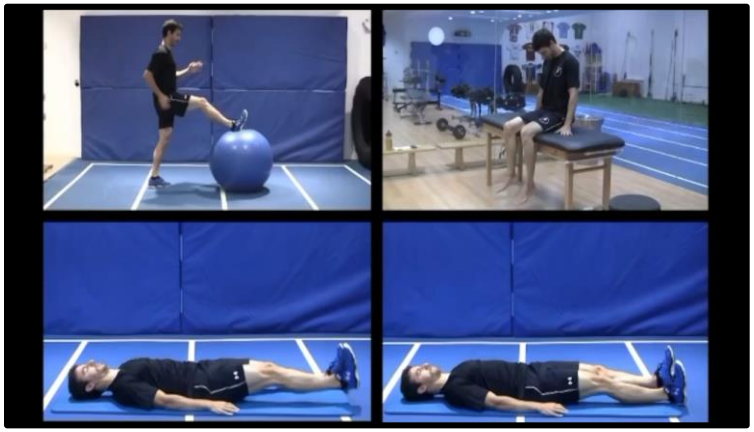


Hamstring static flexibility

Hamstring dynamic mobility



Hamstring dynamic mobility



FASE 2. REGENERACIÓN

GLUTEUS MAXIMUS

- **Option A**
  - Prone hip extension (2 x 10 reps x 3 sec)
  - Single leg bridge + contralateral kick (as tolerated) (2 x 5 reps x 3 sec)
  - Double leg bridge (50% BW) (3 x 6 reps x 3 sec)
- **Option B**
  - Hip thrust (40% BW) (3 x 6 reps x 3 sec)
  - Single leg bridge + contralateral kick (as tolerated) (10% BW) (2 x 4 reps x 3 sec)
  - Single leg hip thrust + contralateral kick (as tolerated) (3 x 6 reps x 3 sec)

GLUTEUS MEDIUS

- Clamshell with band (3 x 6 reps x 3 sec)
- Side lying hip abduction with band (3 x 6 reps x 3 sec)

GLUTEUS MAXIMUS

A option

FUNCIÓN PRINCIPAL es la de extensión de cadera y una FUNCIÓN SECUNDARIA es la de rotación externa y estabilizador de la pelvis

B option

- Prone hip extension (2 x 10 reps x 3 sec)
- Single leg bridge + contralateral kick (as tolerated) (2 x 5 reps x 3 sec)
- Double leg bridge (50% BW) (3 x 6 reps x 3 sec)

- Hip thrust (40% BW) (3 x 6 reps x 3 sec)
- Single leg bridge + contralateral kick (as tolerated) (10% BW) (2 x 4 reps x 3 sec)
- Single leg hip thrust + contralateral kick (as tolerated) (3 x 6 reps x 3 sec)

GLUTEUS MEDIUS

Side lying hip abduction with band (3 x 6 reps x 3 sec)

Clamshell with band (3 x 6 reps x 3 sec)

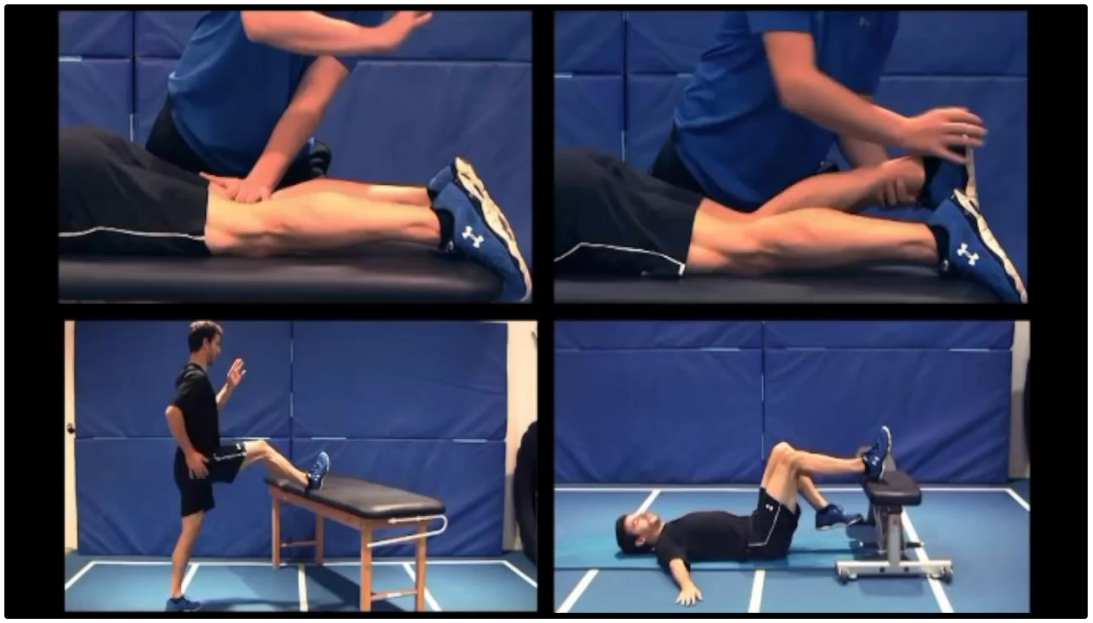
Acción: abduce y rota medialmente el muslo

FASE 2. REGENERACIÓN

HAMSTRING STRENGTH

- Isometric (mid and long length)
- Submaximal eccentric

- Prone isometrics (mid and long length) (2 x 5 reps x 5 sec)
- Standing long length isometrics (2 x 5 reps x 5 sec)
- Supine isometrics (tolerated degrees) (2 x 5 reps x 3 sec)
- Submaximal eccentric manual resistance in prone (intensity as tolerated) (2 x 8 reps)



Tolerated eccentric and isometric strength training with progression in load and elongation stress

Double leg hamstring / gastrocnemius disassociation drill (3 x 6 reps)

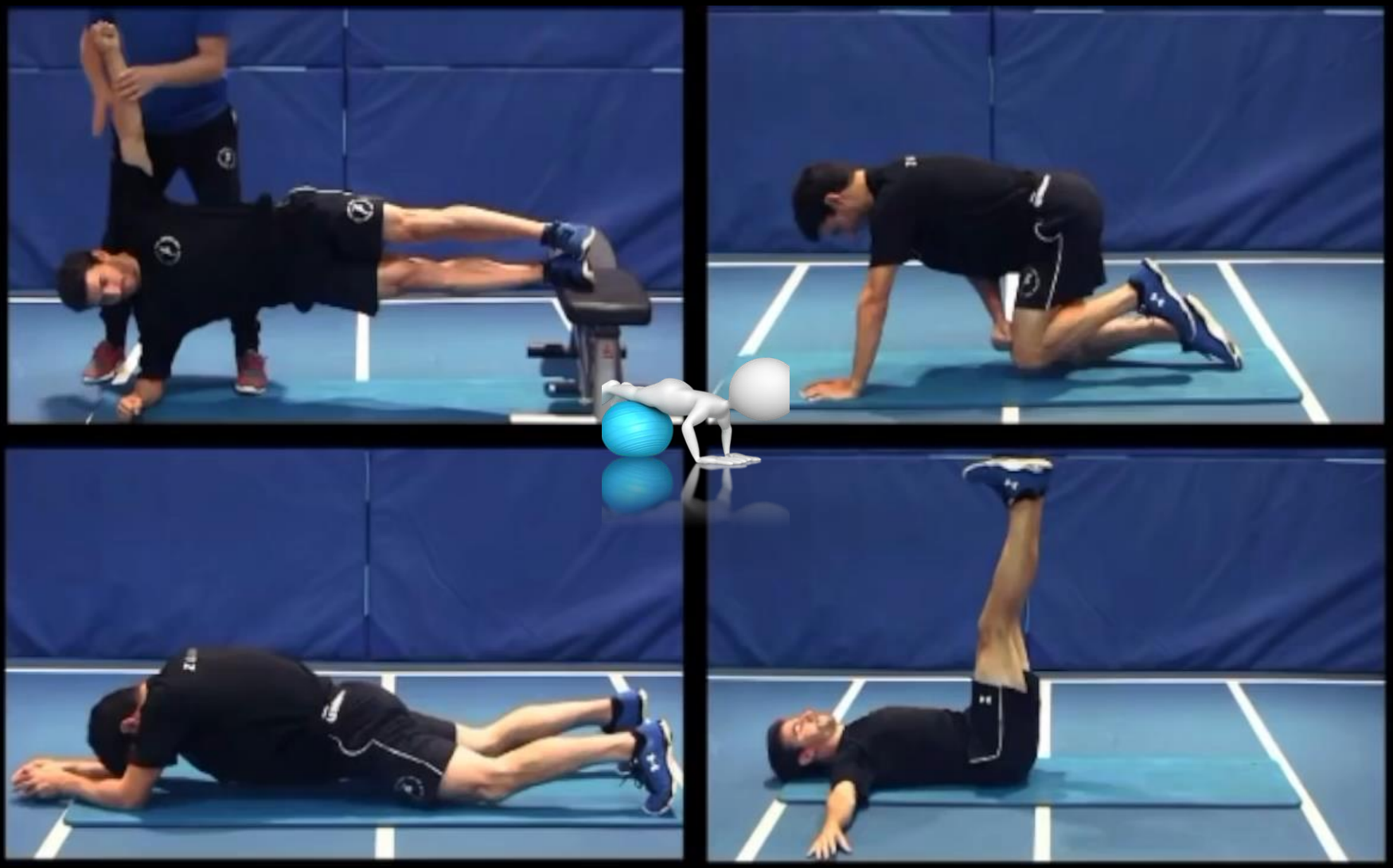
Single leg hamstring / gastrocnemius disassociation drill (3 x 6 reps)

ANKLE STABILIZERS

Step bounding side to side (25% BW) (2 x 10 reps)

Side bridge feet in bench + perturbation (2 x 5 reps x 5 sec)

Bird-dog (2x 5 reps x 5 sec)



Leg scissors arms on the floor (2 x 5 reps x 5 sec)

FASE 2. REGENERACIÓN

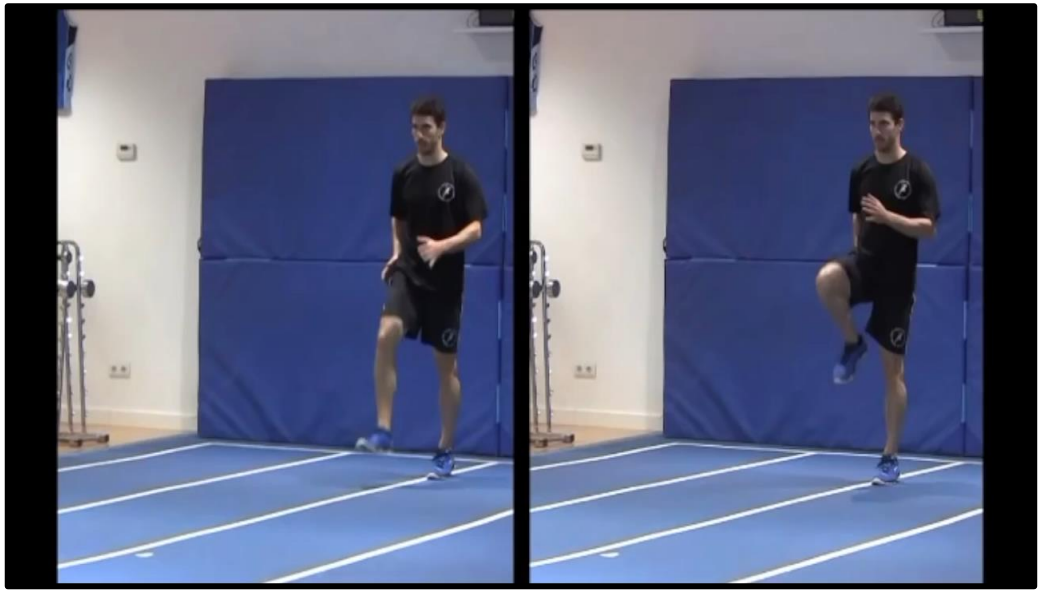
FRONTAL PLANE RUNNING DRILLS

- Low to moderate intensity sidestepping (10 x 5 reps)
- Low to moderate intensity grapevine stepping (10 x 5 reps)
- Low to moderate intensity steps forward and backward over a tape line while moving sideways (10 x 5 reps)

SAGITTAL PLANE RUNNING DRILLS

- Vertical emphasized execution specifically first days or painful subjects)
- 8 running exercise drills (static in place dynamics over 8 m)
- Running 5 m + 5 m deceleration (4 reps)
- Running 10 m + 5 m deceleration (3 reps)
- Running 15 m + 5 m deceleration (2 reps)

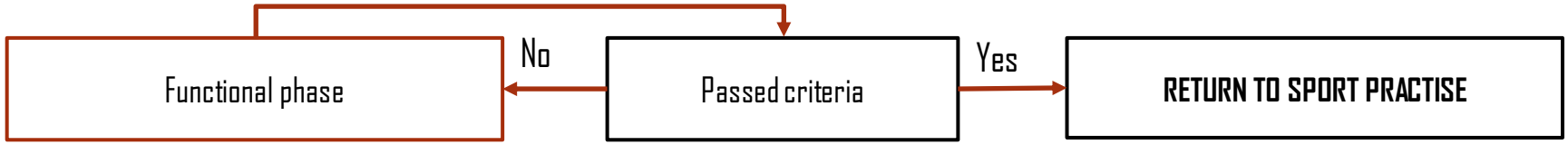
Run ≥ 70% at patient-rated



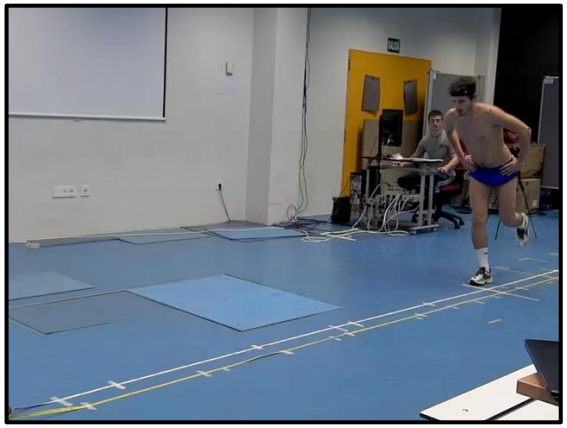
FASE 3. FUNCIONAL

Approximately days 14–28

VARIABLE	TEST	CRITERIA FOR PROGRESSION
Pain	Palpation	No pain
Peak torque (H/H) and conventional ratio (H/Q)*	Isokinetic knee flexion/extension at 60º/s	<10% H/H and H/Q >0.45 (Biodex) or >0.47 (Cybex)
Hip extension strength	Prone hip extension	<10% asymmetry between legs
Distance	Triple hop test	<10% asymmetry between legs
Endurance (repetition number)	Single leg bridge test	>25 and <10% asymmetry between legs
Torsion capabilities	ASLR test	No compensations*
Insecurity and pain	Askling H-Test	No pain and insecurity



FASE 3. FUNCIONAL



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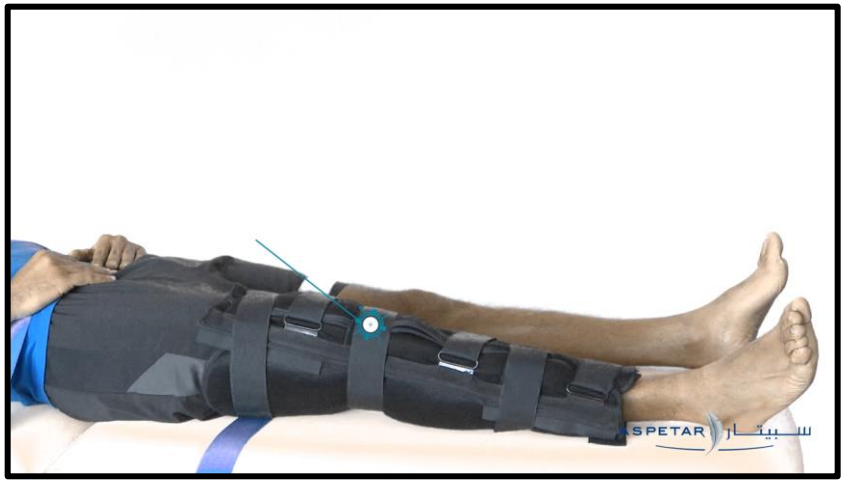
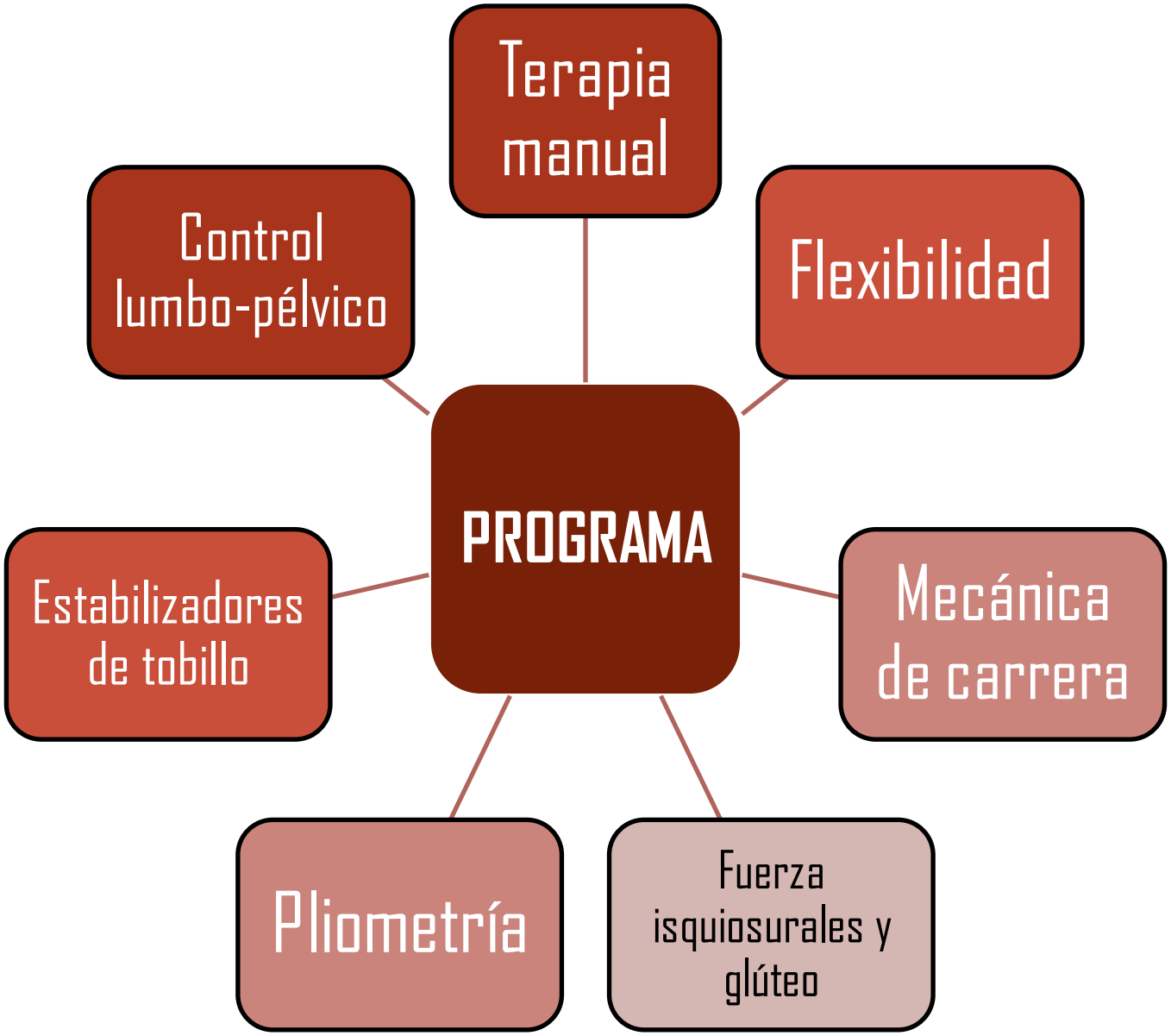



Terapia manual
Control lumbo-pélvico
Flexibilidad
PROGRAMA
Estabilizadores de tobillo
Mecánica de carrera
Pliometría
Fuerza isquiosurales y glúteo

FASE 3. FUNCIONAL

1
- Manual Therapy
- Running technique

2
- Manual Therapy
- Flexibility
- Lumbopelvic control
- Gluteus strength
- Hamstring strength
- Plyometrics

3
- Manual Therapy
- Flexibility
- Lumbopelvic control

FASE 3. FUNCIONAL

1
- Manual Therapy
- Running technique

2
- Flexibility
- Lumbopelvic control
- Gluteus strength
- Hamstring strength

3
- Manual Therapy
- Flexibility
- Lumbopelvic control
- Plyometrics

4
- Running technique
- Flexibility

FASE 3. FUNCIONAL

MANUAL THERAPY [1. 2. 3.]

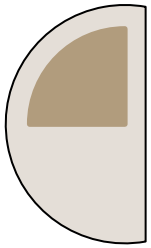
- Plantar fascia, gastrocnemius and hamstring (injury site included) massage.
- Lumbar Z-joint mobilization.

FASE 3. FUNCIONAL

FLEXIBILITY

FASE 3. FUNCIONAL

Fuerza

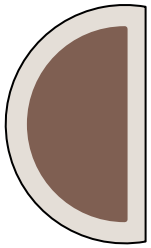


FUERZA DE LA CADENA POSTERIOR

Pico de fuerza cerca de la **extensión total de la cadera** (Hip thrust/glute bridge [bil/uni], quadruped hip extension, back extension [bil/uni]).

Pico de fuerza a la **mitad del ROM de la cadera** (trapbar/sumo/traditional deadlift, 45º hyper, high sled push, high step up).

Pico de fuerza cerca del ROM de la **flexión de cadera** (squat/split squat variations, Romanian deadlift, low step up, low sled push).

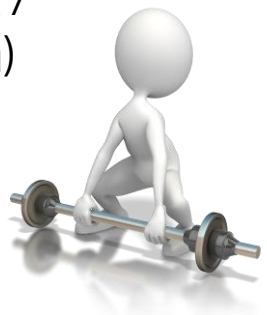


ISQUIOSURALES

Ejercicios focalizados en la **flexión de rodilla** (Nordic hamstring exercise, Sliders, Standing band curl).

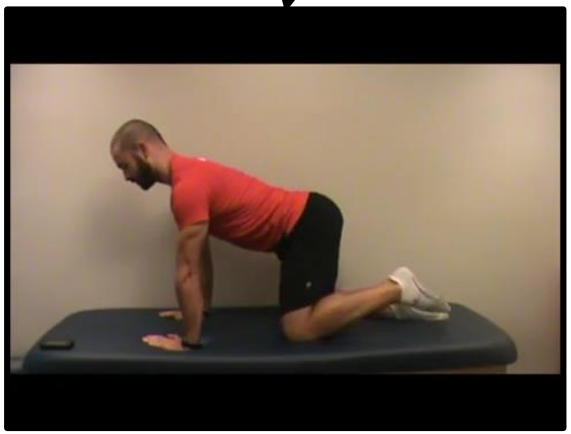
Ejercicios focalizados en la **extensión de cadera** (Drop lunge into Romanian deadlift, Perturbation stretches, straight leg dynamic cable pulls).

Ejercicios de **rigidez** (Tantrums / Bench heel kick / heel drops in lunge position)



FASE 3. FUNCIONAL

Pico de fuerza cera de la **extensión total de la cadera**

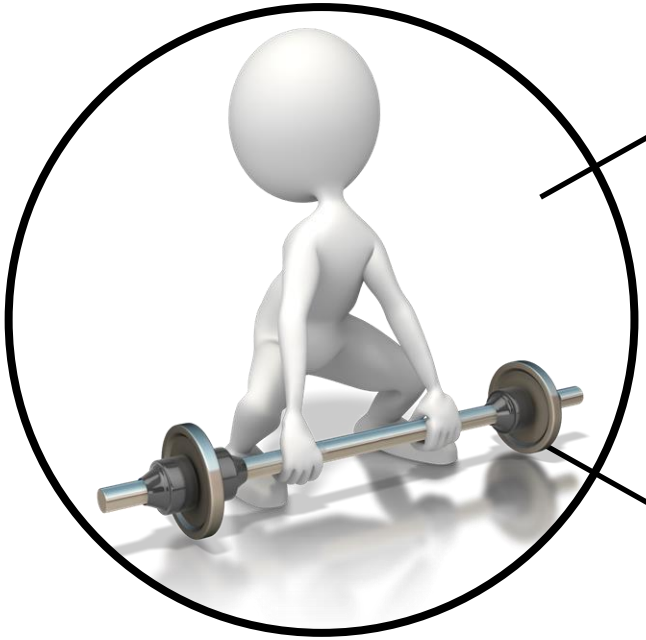


Pico de fuerza a la **mitad del ROM de cadera**

FASE 3. FUNCIONAL

Ejercicios de **rigidez**

FASE 3. FUNCIONAL



CADERA

Bajo nivel: 2 d

Optimo nivel: 1 d

- Pico de fuerza cerca de la **extensión total de la cadera**. (3 x 4-8 rep [6-10 RM])
- Pico de fuerza a la **mitad del ROM de la cadera.** (3 x 4-8 rep [6-10 RM])
- Pico de fuerza cera del ROM de la **flexión de cadera.** (2 x 4-8 rep [6-10 RM])
- Si **desequilibrio bilateral**, elige un ejercicio unilateral extra. (1 x 4-8 rep [6-10 RM])

Un ejercicio por categoría dependiendo de la preferencia de los deportistas

ISQUIOSURAL

Bajo nivel: 2 d

Optimo nivel: 1 d

- Ejercicios focalizados en la **flexión de rodilla** (2 x 4-6 rep por lado)
- Ejercicios focalizados en la **extensión de cadera** (2 x 4-6 rep [6-10 RM])
- Ejercicios de rigidez (2 x 4-5 rep por lado)

GLUTEUS MAXIMUS

DAY 2

A option

- Single leg hip thrust (10% BW) (3 x 4 reps x 3 sec)
- Double leg hip thrust (60% BW) (3 x 8 reps x 3 sec)
- Walking sled push (75% BW) (15 m x 2 reps)

B option

- Single-leg foot and shoulder elevated hip thrust + contralateral kick (2 x 4 reps)
- Single leg back extension + perturbations (2 x 4 reps)
- Swing leg hip extension + contralateral hip flexion (2 x 4 changes)

FASE 3. FUNCIONAL

GLUTEUS MAXIMUS

Option A [2]

- Single leg hip thrust (10% BW) (3 x 4 reps x 3 sec)
- Double leg hip thrust (60% BW) (3 x 8 reps x 3 sec)
- Walking sled push (75% BW) (15 m x 2 reps)

•Option B

- Single-leg foot and shoulder elevated hip thrust + contralateral kick (2 x 4 reps)
- Single leg back extension + perturbations (2 x 4 reps)
- Swing leg hip extension + contralateral hip flexion (2 x 4i3 changes)

[2] GLUTEUS MEDIUS

- Side step running with band (5 m x 5 go and back)
- Monster running with band (5 m x 5 go and back)

HAMSTRINGS

DAY 2

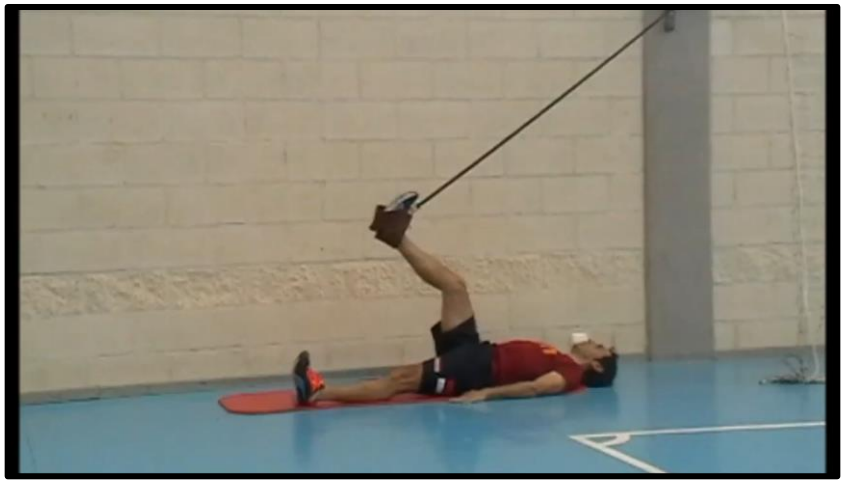
Knee dominant

- Double leg slide curl (2 x 6 reps)
- Nordic hamstring (2 x 4 reps)
- Sprinter eccentric leg curl (2 x 6 reps)

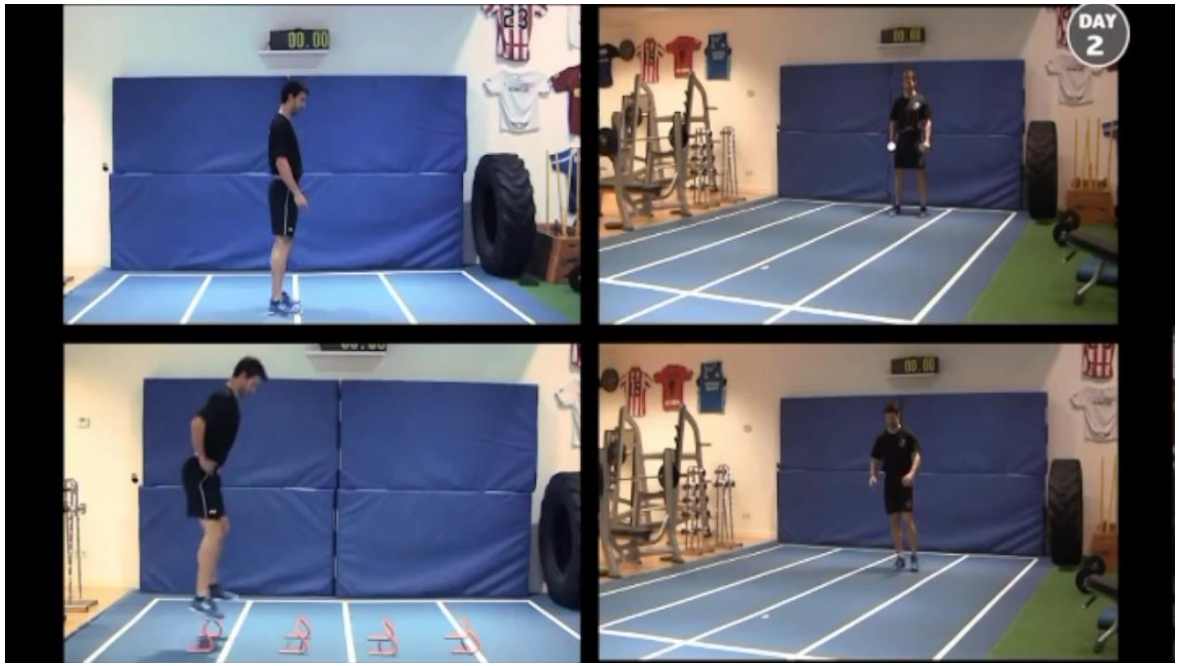
Hip dominant

- Double leg deadlift with 4 kg medicine ball (2 x 8 reps)
- Lunge (15% BW) (2 x 6 reps)
- Single leg deadlift with 15kg + step up (2 x 6 reps)

FASE 3. FUNCIONAL



FASE 3. FUNCIONAL



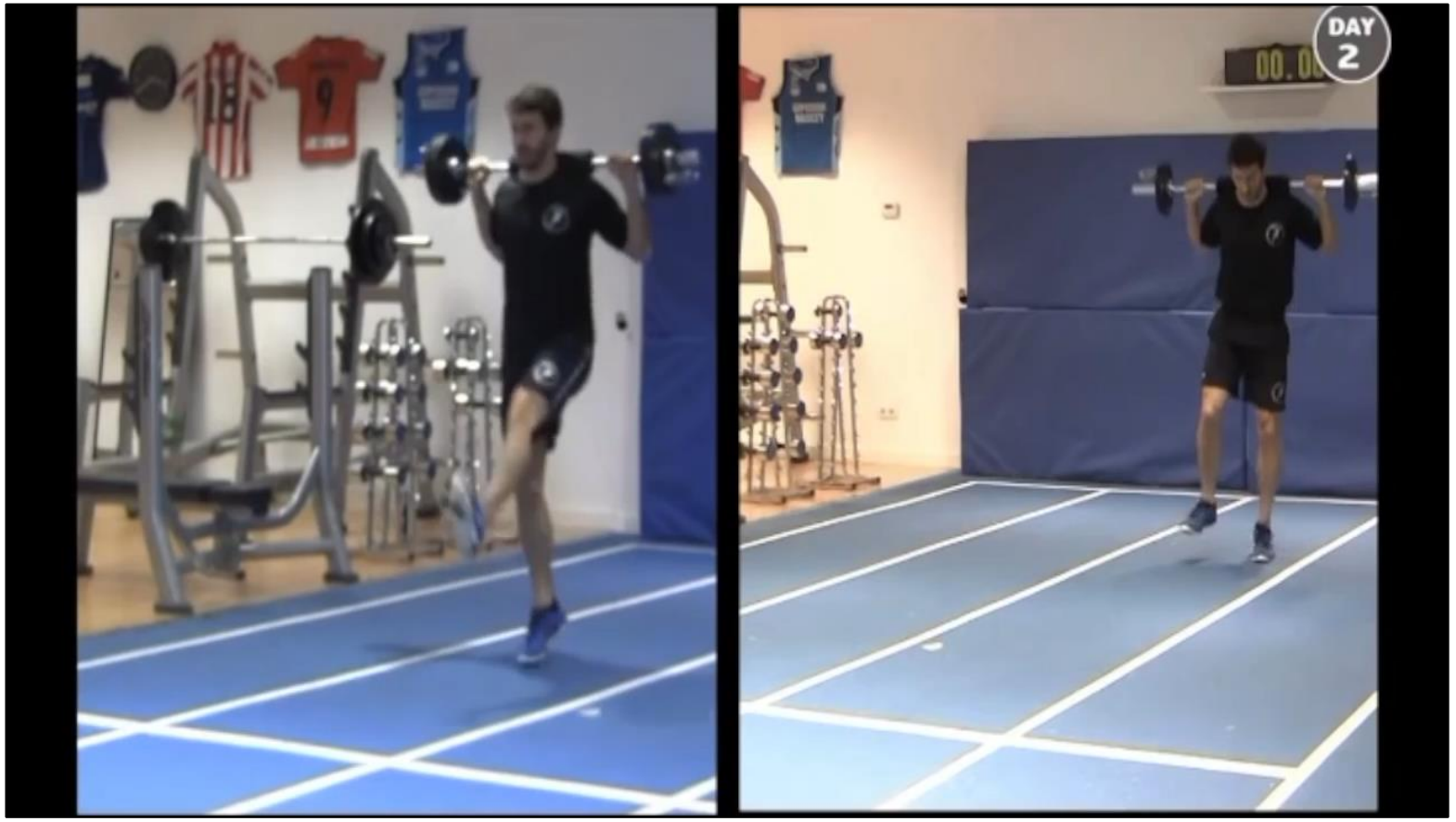
PLIOMETRICS (2.)

- Double leg hurdle hop with trunk flexion (2 x 4 reps)
- Double broad jump with 5 kg (2 x 4 reps)
- 2 consecutive explosive scissor jumps (3 times)
- Single leg horizontal jump (2 x 3 reps)

FASE 3. FUNCIONAL

ANKLE STABILIZERS [2.]

- Ankle drills 1 (20% BW) (10 m x 4 reps)
- Ankle drills (20% BW) (10 m x 4 reps)



Stir the pot with fitball (3 x 2 reps)

TRX helicopter (2 x 4 reps)

Single-leg stand rotating reaches 4 kg (2 x 6 reps)

Leg scissors arms on the chest (2 x 5 reps x 5 sec)

FASE 3. FUNCIONAL

RUNNING TECHNIQUE

WARM UP [1.]

- Hamstring ballistic stretching (2 x 6 reps)
- Static B drill with resisted band (2 x 5 reps)
- ----------
- Hurdle drills (1-4) (1 set walking lower intensity, 1 set bounding higher intensity)
- ----------
- Military march (15 m x 2 reps)
- Lunge + deadlift (4 reps for each leg)
- Lunge + B drill (4 reps for each leg)
- From skipping to running (20 m x 4 reps)
- Sprint bounding (15 m x 3 reps)
- Running with hurdle jumps (15 m x 1 rep)
- Sprinting 5 m (3 reps), 10 m (3 reps), 15 m (4 reps), 20 m (3 reps), 30 m (2 reps) and 40 m (1 rep)

DAY 1

FASE 3. FUNCIONAL

Sprint drills

FASE 3. FUNCIONAL

Sprint drills

A walk

A skip

B walk

B skip

FASE 3. FUNCIONAL

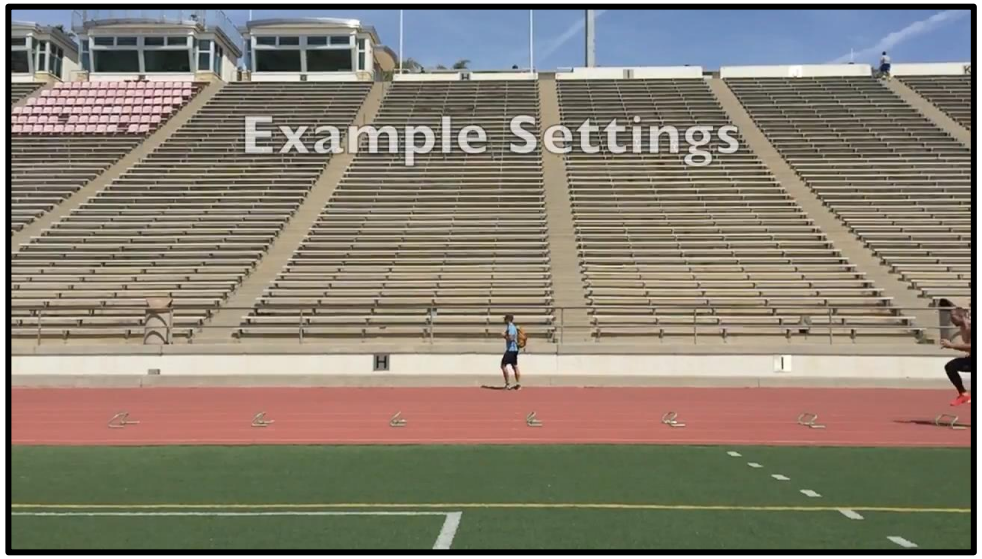
Ankle dribble

Dribble bleed

Straight leg scissor

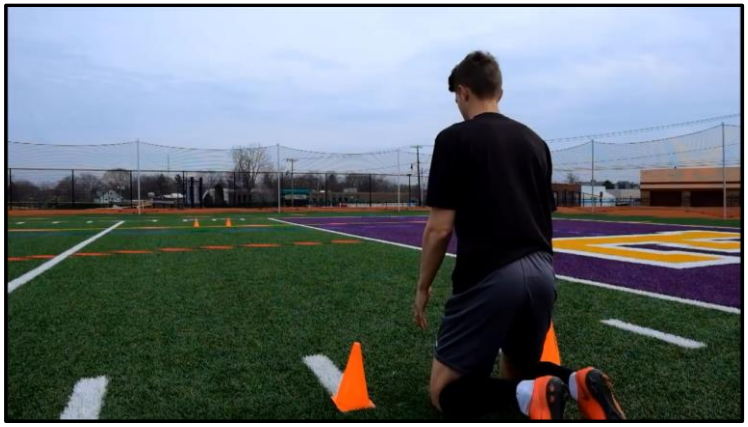
Pogo jumps

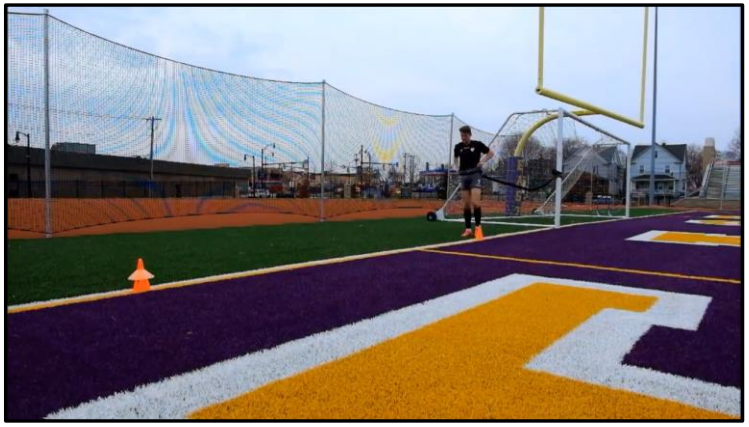
FASE 3. FUNCIONAL

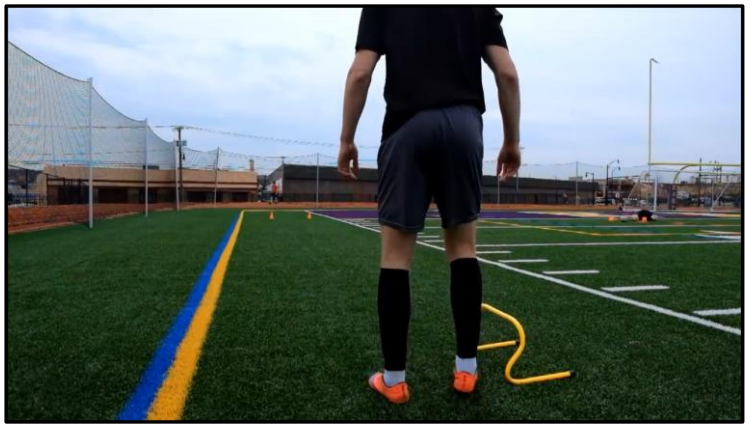


Wicket sprint

FASE 3. FUNCIONAL







Resisted sprint training

FASE 3. FUNCIONAL

Resisted sprint training

Resisted and Assisted Sprint Training

Determining the transfer to maximal sprinting

Reference : Hicks, New Studies in Athletics 2018

To enhance sprinting ability, athletes should frequently use movement patterns, intensities, and kinematic positions that resemble those achieved in maximal sprinting

Resisted Sprint Training

LOAD

Loads of approximately 10% bodymass improve late acceleration (30-40m)

Loads of approximately 10-30% bodymass improve early acceleration (0-10m)

Loads greater than 30% bodymass may strengthen the specific musculature necessary to enhance acceleration qualities

Assisted Sprint Training

1 No universally accepted towing force

2 Enhances acute horizontal velocity at distances between 20-60m

3 Towing force should constrain the athlete within 10% of the maximal voluntary velocity

4 Coaches should ensure their athletes have been exposed to several sessions of maximal sprinting to limit the incidence of injury when running at supramaximal speeds

Designed by @YLMSportScience

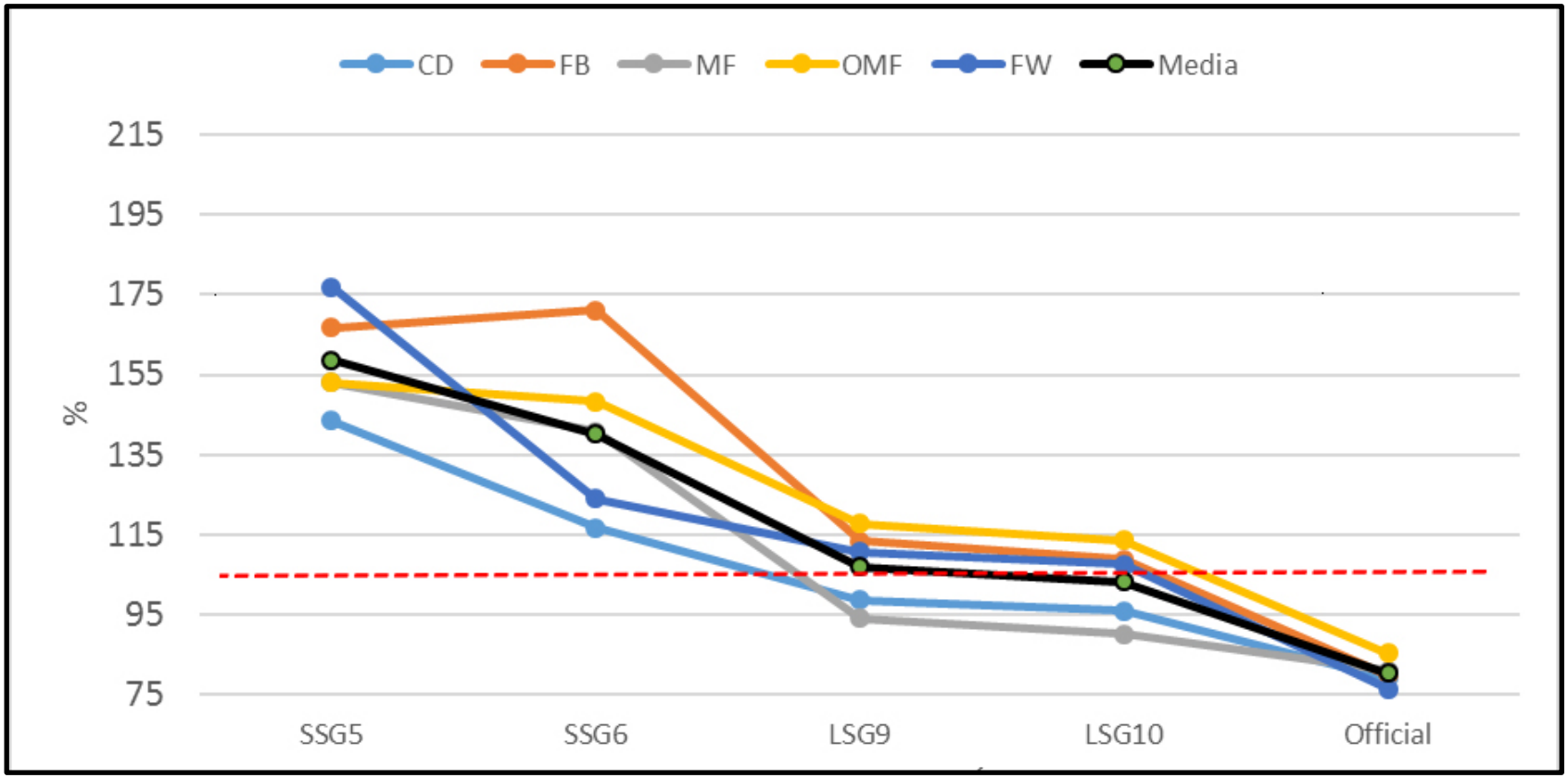
READAPTACIÓN ISQUIOSURALES

Ejemplo progresión a la carga para lesión 2b distal en bíceps femoral				
Semana	**1**	**2**	**3**	**4**
Objetivo	Evitar inhibición	Desarrollo R muscular a la fatiga	Progreso carga ecc en mayor longitud	Aumentar carga ecc en dominantes de rodilla
	Promover la curación tisular	Aumentar carga excéntrica en dominante de cadera	Progreso carga distal ecc en dominantes de rodilla	
Estrés elongación	Baja	Bajo-moderado	Moderado	Alto
Carga I/Vol	Baja (10-12RM) Moderada/alta (4-5 series)	Moderado (8-10RM)/ Moderado (3-4series)	Moderado-Alto (6-8RM)/ moderado (3-4 series)	Alto (2-6RM)/moderado-bajo (2-3 series)
Frec/sem	3-4	3-4	3	2
Ejercicios	Curl isquiotibial isométrico	Aumento longitud	Curl nórdico	
	Isométrico bilateral en silla romana	Unilateral	Unilateral + Carga	Unilateral + remo
	Subida a cajón	Peso muerto rumano Unilateral		
	Sentadilla	Puente 90-90 según capacidad	-	-

READAPTACIÓN ISQUIOSURALES

Ejemplo progresión carrera en corredora sprinter masculino de 100 y 200m con lesión 2b BF					
Semana	1	2	3	4	5
Objetivo	Re-establecer mecánica del pie	Aumento de carga específica a baja I (60-70%máx)	Aumento I en distancias cortas (70-80% máx)	Aumento I carrera (80-90%máx)	Transición a carrera Máx velocidad (>90%máx)
	Re-establecer control lumbo-pélvico	Baja carga excéntrico con baja del	Aumento específico R del tejido	Exposición a la carrera inclinada	Transición aceleraciones máximas en bloques
	Evitar inhibición muscular	-	Re-establecer buena mecánica de carrera	-	-
Sesión carrera	Progresión nivel 1 y 2	Nivel 3	Carrera	Carrera	Aceleraciones
	Carrera	Carrera			Carrera
Parámetros Carrera	10x50m en 10s	10x50 m en 8s 4x100m en 16s	6x80m en 10 s 4x150m en 19 s	2x2x150m en 17 s 4x200m en 21-21,5 s	-2 S máx aceleración: 50,60, 70 m. -2 Bloques 10m,20 y 30m -2x2x150m en 16 s -4x200 en 21s

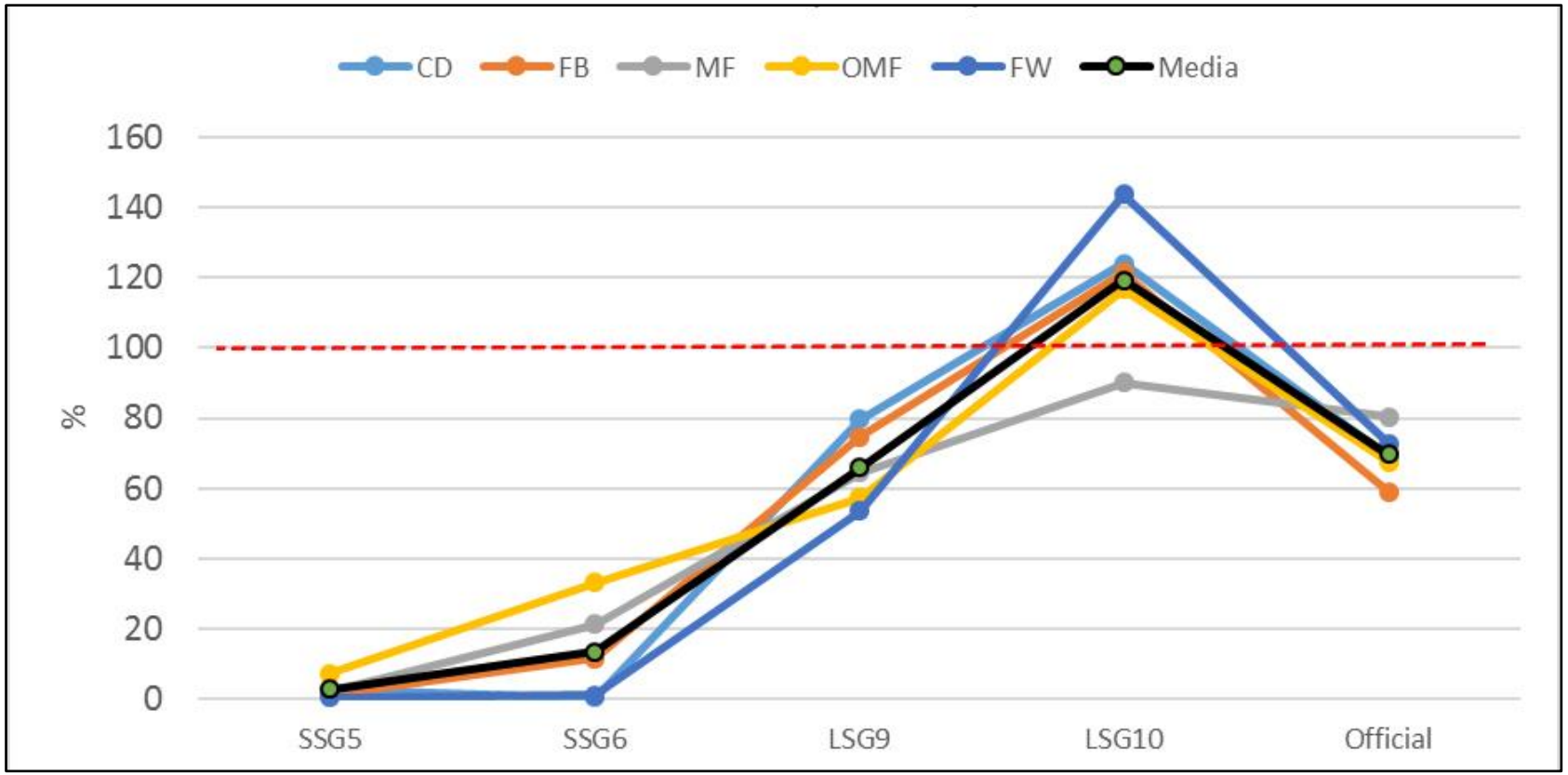
FASE 4. RETORNO A LA COMPETICIÓN



Percentage MDS in the game, with respect to number of accelerations.

Martín-García et al. (2019)

FASE 4. RETORNO A LA COMPETICIÓN



Percentage most demanding passages in the game, with respect to distance in metres at high intensity (>25 km·h-1)

Martín-García et al. (2019)

FASE 5. PREVENCIÓN RECAIDA

Sprint drills programming	
Week 1-2	All days: A skip progressions, Pogo jumps (sagittal and lateral), dribble bleeds
Week 3-4	Day 1: A skip progressions, pogo jumps unilateral, dribble bleeds Day 2: A skip progressions, lateral A skips Day 3: Same as day 1
Week 5-6	Day 1: A skip progressions, lateral A skips, scissors (high frequency) Day 2: A skip progressions, Skip jumps, dribble bleeds Day 3: Same as day 1
Week 7-8	Day 1: A skip progressions, lateral A skips, scissors (progressive: high frequency to power) Day 2: A skip progressions, Skip jumps, dribble bleeds, pogo jumps Day 3: Same as day 1
In-season	Day 1: A skip progressions, lateral A skips, scissors (progressive: high frequency to power to dribble bleeds) Day 2: A skip progressions, pogo jumps, Skip jumps Day 3: Same as day 1

Si pobres valores F_0 entonces utilizar "heavy sled" en lugar the "light sled" (mejorar aceleración temprana)

Sprint programming

PHASE	WEEKS	DAY 1	DAY 2	DAY 3 (20-25 min)		TOTAL SPRINT VOLUMEN	
		ACCELERATIONS (15-20 min)	HIGH SPEED SPRINTING (12-18 min)	HIGH SPEED SPRINTING	ACCELERATIONS	EARLY ACCELERATION	UPRIGHT SPRINTING
Pre-season: Initiation	Week 1-3	A) Sprint drills 5 min B) Light/heavy sled work x 5 to 10-15-m C) 5-m sprints x 4, last 2 races	A) Sprint drills 5 min B) Wicket sprints x3 to 45 -m, 10-m rolling start, 20-m wickets, 15-m run through. Intensity 80, 90, 100%. Wicket distance: progressive	A) Sprint drills 5 min B) Wicket sprints x3 to 45 -m, full acceleration start, 30-m wickets, 15-m run through. Intensity 80, 90, 100%. Wicket distance: progressive. Contrast first two wicket runs with sled sprints, total 2x15 m		130 + 20 = 150 m (130-m sled work, 20-m first steps work	135 + 135 = 270 m (70 m is 100% sprinting)
Pre-season: Increase upright sprinting volume, add curved sprinting	Week 4	A) Sprint drills 5 min B) Light/heavy sled work x 5 to 10-15-m C) 5-m sprints x 4, last 2 races	A) Sprint drills 5 min B) Wicket sprints x4 to 45 -m, 10-m rolling start, 20-m wickets, 15-m run through. Intensity 80, 90, 90, 100%. Wicket distance: Progressive. 90% runs are curved (1x left, 1x right).	A) Sprint drills 5 min B) Wicket sprints x4 to 45 -m, full acceleration start, 30-m wickets, 15-m run through. Intensity 80, 90, 90, 100%. Wicket distance: progressive 90% runs are curved (1 x left, 1x right). Contrast first two wicket runs with sled sprints, total 2x15 m		130 + 20 = 150 m (130-m sled work, 20-m first steps work)	180 + 180 = 360 m (70 m is 100% sprinting)
Pre-season: Increase acceleration sprinting volume	Week 5-7	A) Sprint drills 5 min B) Light/heavy sled work x 6 to 10-15-m C) 5-m sprints x 4, last 2 races	A) Sprint drills 5 min B) Wicket sprints x4 to 45 -m, 10-m rolling start, 20-m wickets, 15-m run through. Intensity 80, 90, 90, 100%. Wicket distance, progressive from 1.5 -> 1.8 m. 90% runs are curved (1 x left, 1x right).	A) Sprint drills 5 min B) Wicket sprints x4 to 45 -m, full acceleration start, 30-m wickets, 15-m run through. Intensity 80, 90, 90, 100%. Wicket distance: progressive 90% runs are curved (1 x left, 1x right). Contrast first wicket run with sled sprints, total 1x15 m		135 + 20 = 155 m (160-m sled work, 30-m first steps work)	180 + 180 = 360 m (70 m is 100% sprinting)
Taper before post testing or double match weeks	Week 8	A) Sprint drills 5 min B) Light/heavy sled work x 3 to 20-m C) 5-m sprints x 4, last 2 races	A) Sprint drills 5 min B) Wicket sprints x3 to 45 -m, 10-m rolling start, 20-m wickets, 15-m run through. Intensity 80, 90, 100%. Wicket distance: progressive			80 m (60-m sled work, 20-m first steps work)	135 m (45 m is 100% sprinting)
One match week structure in-season (same as week 5-7 structure)		A) Sprint drills 5 min B) Light/heavy sled work x 6 to 10-15-m C) 5-m sprints x 4, last 2 races.	A) Sprint drills 5 min B) Wicket sprints x4 to 45 -m, 10-m rolling start, 20-m wickets, 15-m run through. Intensity 80, 90, 90, 100%. Wicket distance, progressive from 1.5 -> 1.8 m. 90% runs are curved (1 x left, 1x right)	A) Sprint drills 5 min B) Wicket sprints x4 to 45 -m, full acceleration start, 30-m wickets, 15-m run through. Intensity 80, 90, 90, 100%. Wicket distance: progressive 90% runs are curved (1 x left, 1x right). Contrast first wicket run with sled sprints, total 1x15 m		135 + 20 = 155 m (160-m sled work, 30-m first steps work).	180 + 180 = 360 m (70 m is 100% sprinting)