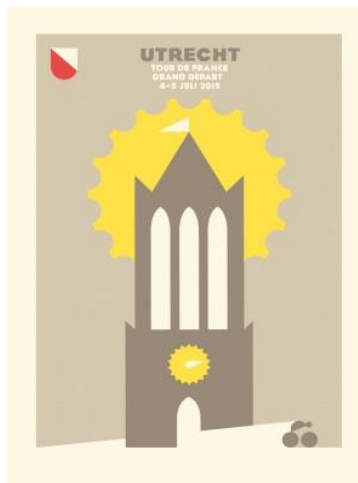


Rehabilitation of a Tibial Plateau Fracture within an Elite Female Mountainbiker

Case Report



Jason Hynd
Teesside University
Science & Cycling
Utrecht 2015



Athlete Profile:
Tibial Plateau Fracture
caused by rotational
fall during skiing

Career
threatening
injury
(Liitmatainen
etal 2009)

Elite Professional
Female Endurance
Mountainbiker

Age: 32

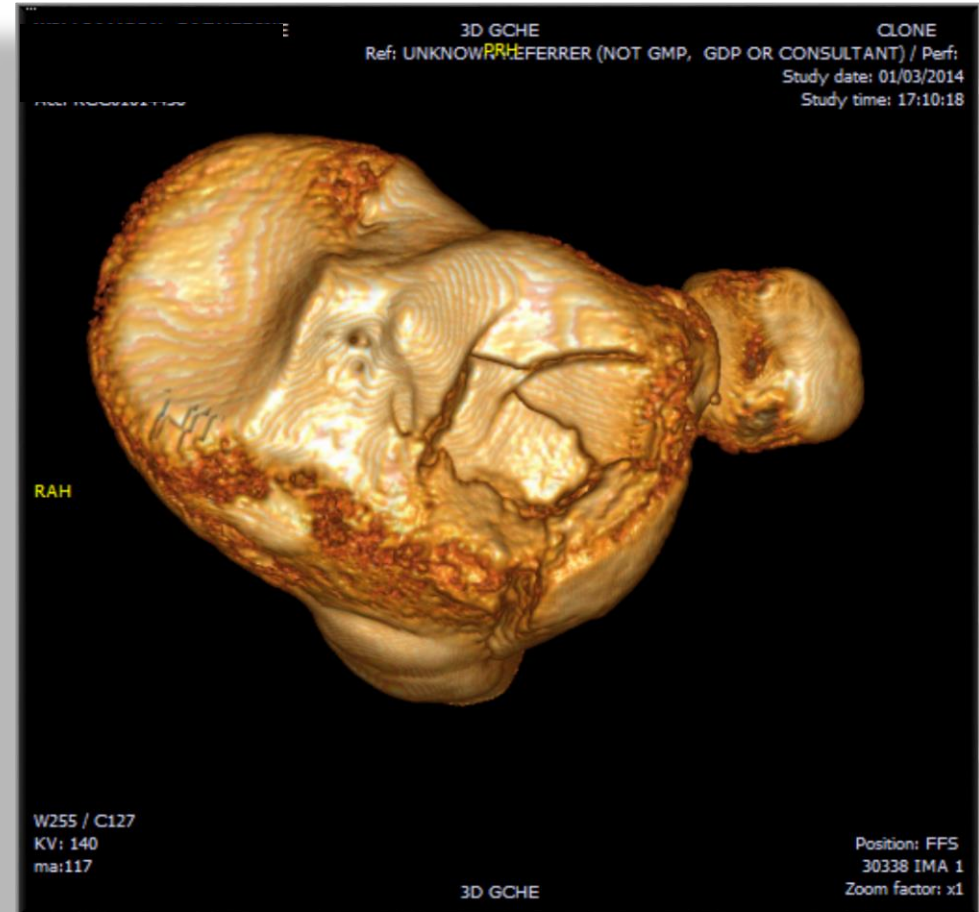
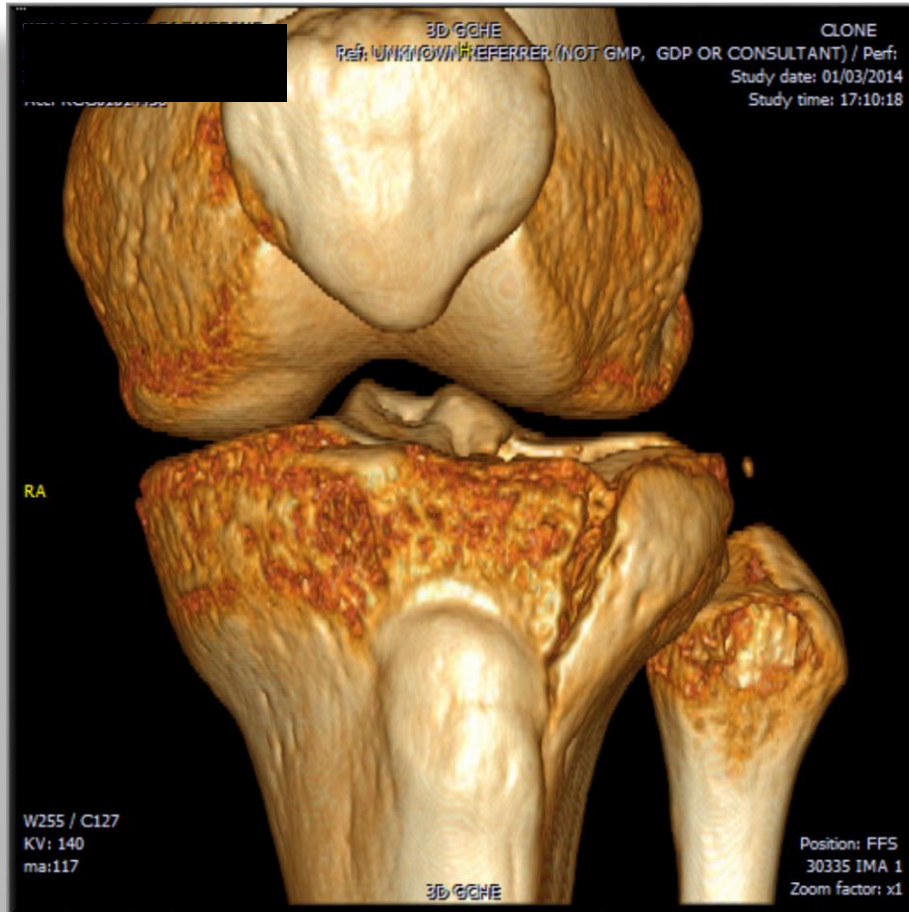
Height: 1.52m

BM: 51Kg

Post surgery;
complete rest
for 10 weeks?

Future status
and
sponsorship?

Superolateral Tibial Plateau Fracture



Fracture Extent and Screw Fixation Placement



Potential Causes

12 weeks running on
Alpine Roads

Microcracks within
tibia (Barfeldt et al
2011)

Female athlete triad?
(Birch, 2005)

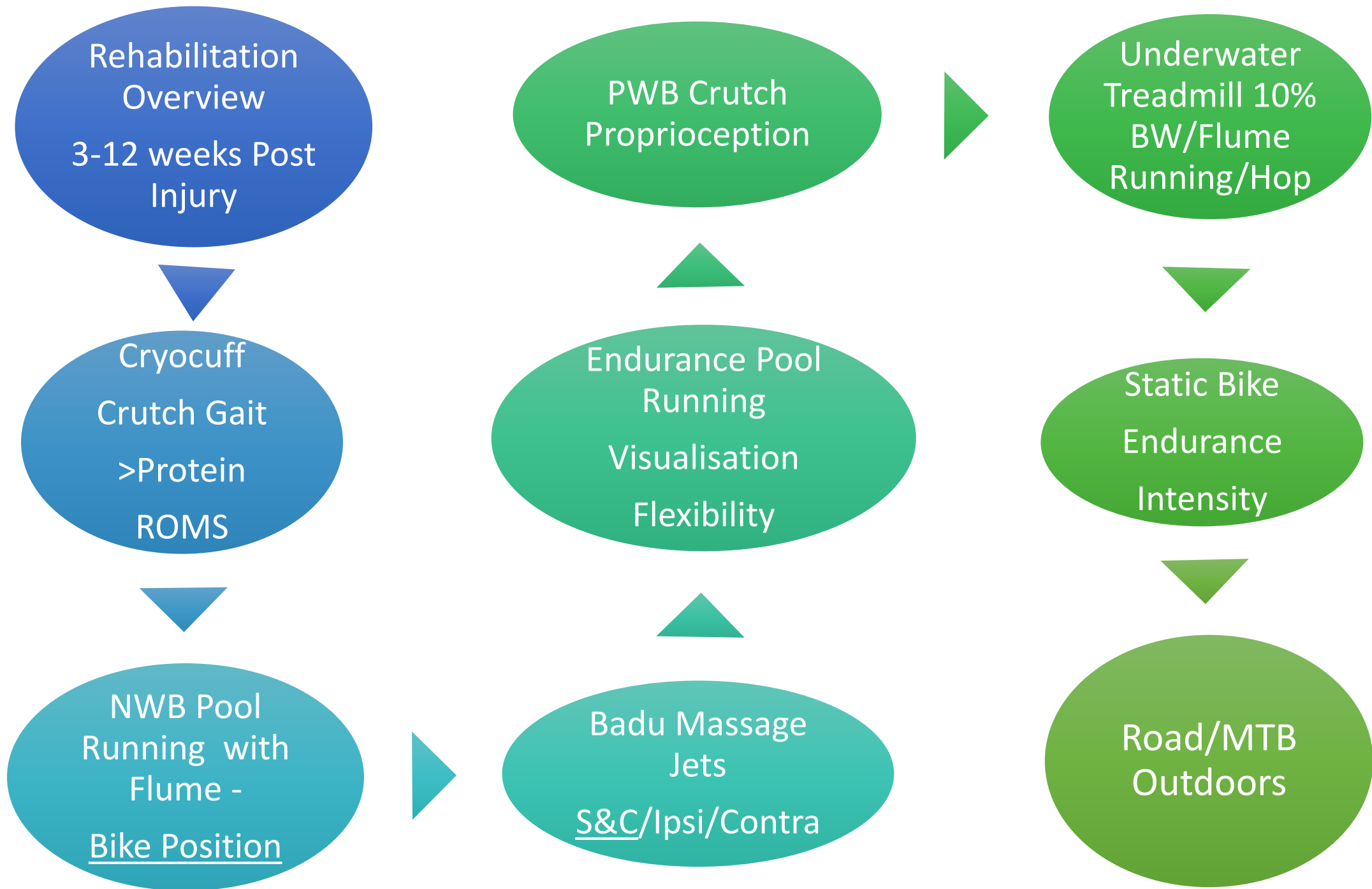
Oestrogen
reduction?

Challenges

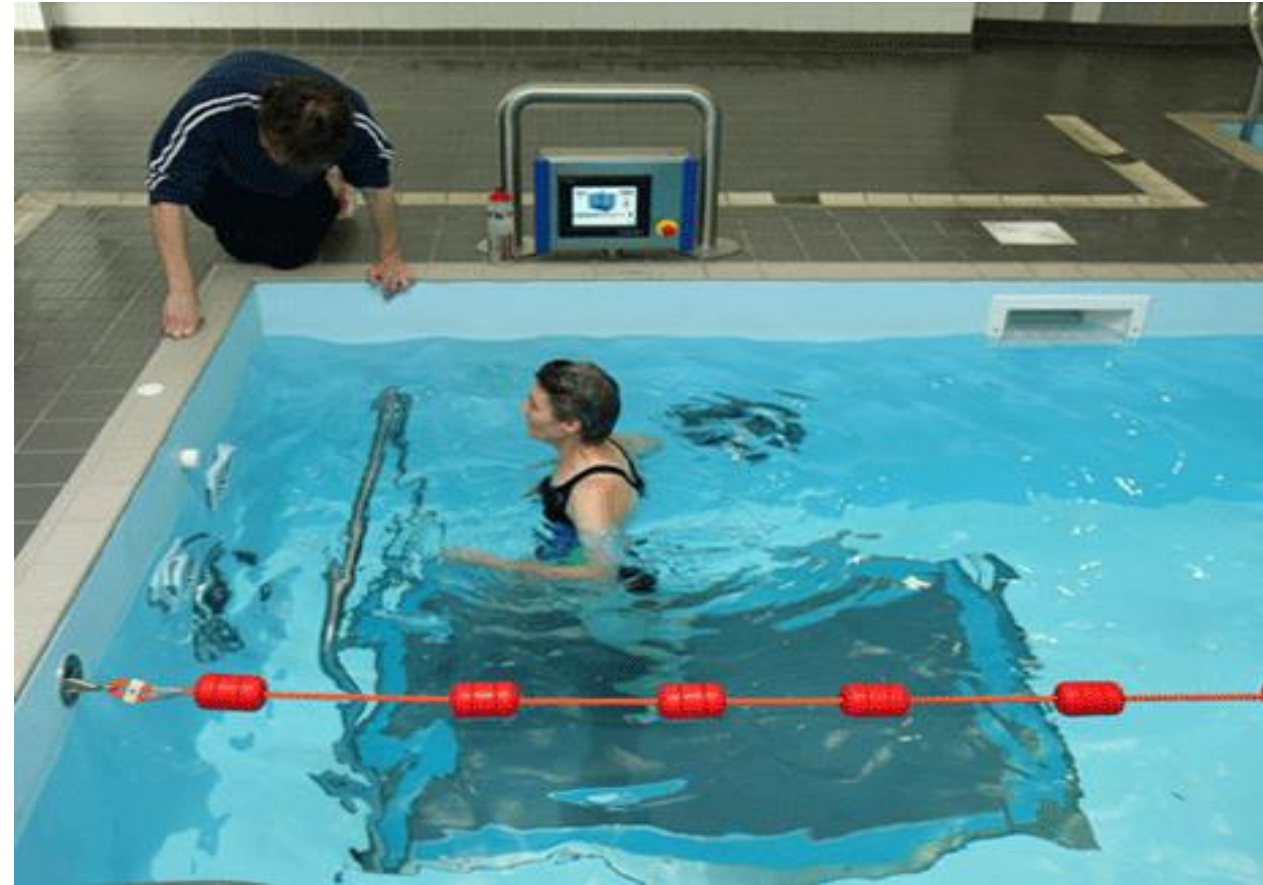
Screw fixation
placement

Pain/Loss of function
and confidence

UCI MTB Marathon
17 weeks post Injury



Bespoke Hydro Pool facility at Teesside University



Rehabilitation in Focus

Impellizzeri & Marcora, (2007) determined that 80% of cross country mountainbike racing was at or above lactate threshold

Flume resistance utilising RPE 0-10 scale (Borg etal, 1985) enabled threshold/suprathreshold intensity to be achieved

Hydro pool 40-45° spinal flexion angle for cycling position, with cadence at 90 rpm (Ferrer-Roca etal 2012).

Recommendations of 30-35° knee flexion angle were also achieved pain free (Bini etal, 2014)

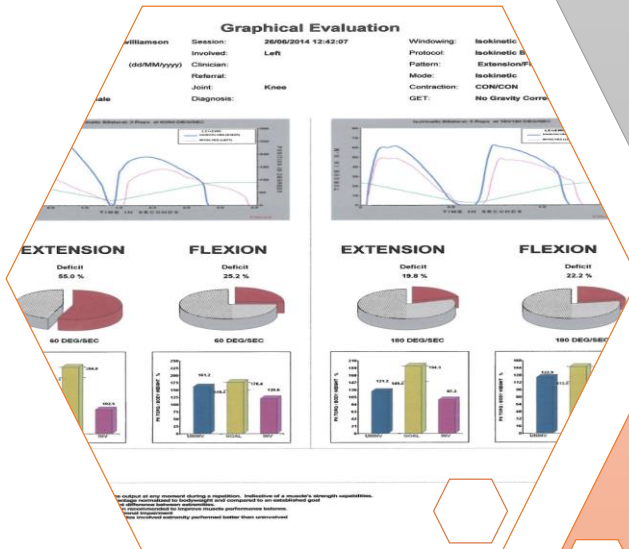
Resisted upper limb seated rowing, woodchopper and upright rows were introduced. Supine swiss ball press (knee flexed 35°) with dumbbell also addressed specific upper limb conditioning. Hand positions replicated handlebar width. Core/ Upper/Lower strength exercises were progressively applied to initiate conditioning for mountainbiking (Andrews etal 2012)

Outcome Measures

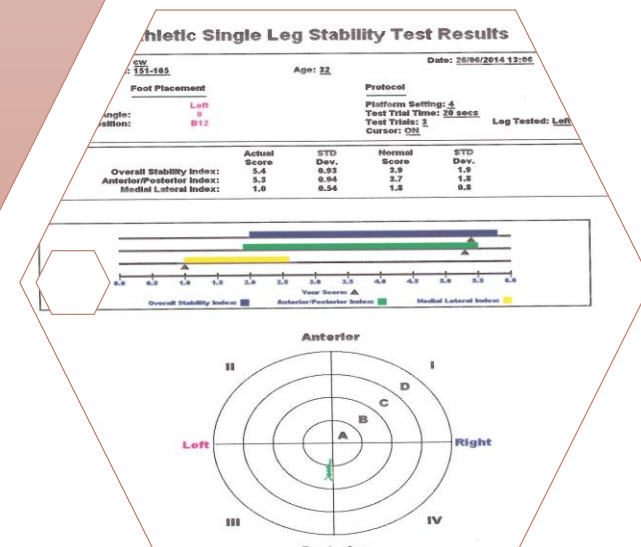


Functional movement Screen (Minnick et al 2010)

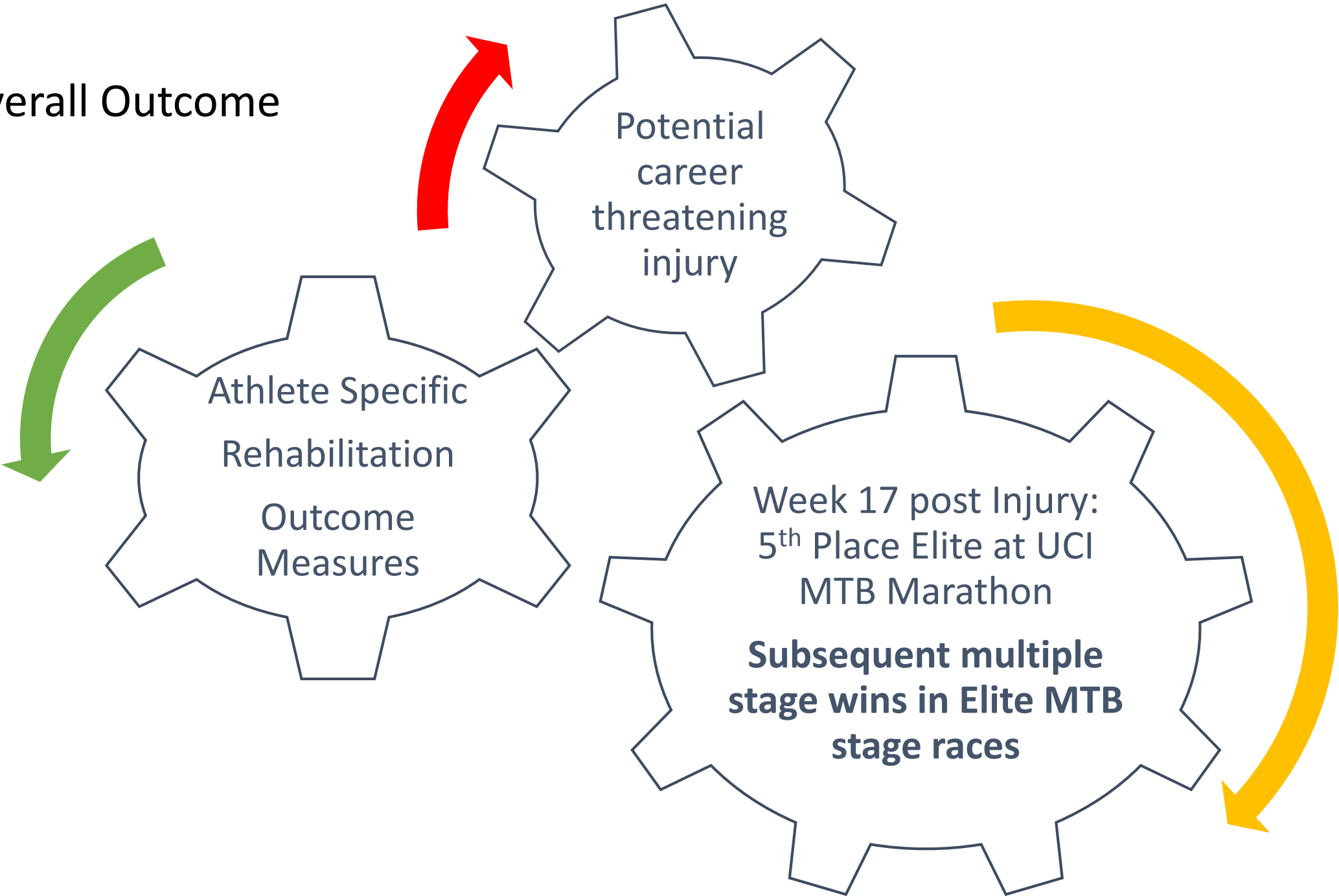
Biodex Balance System (Cachupe et al 2001)



Biodex Dynamometer (Drouin et al 2004)



Overall Outcome



Conclusion



Aquatic cycling specific rehabilitation can enhance general conditioning and motivation for the elite cyclist, whilst optimising the natural healing process.

Regardless of the complexity of injury, the application of an evidenced based multidisciplinary approach, employing specificity to the athletes sporting demands provides optimum rehabilitation for the elite athlete.

GRAND DÉPART 2016

LA MANCHE
À SON TOUR



A cyclist wearing a black long-sleeved jersey, black shorts, and a red and white helmet is riding a mountain bike on a dirt trail. The trail is surrounded by tall, dry grass and several pine trees. The background shows a hilly landscape under a clear sky.

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