



GRNZ Return to Racing Fitness Best Practice Guidelines

April 2024

Principles of injury prevention:

Preventing injury requires the following:

- Fitness to race has been established.
- Work done in training has adequately prepared the greyhound for the physical demands of racing.
- Exercise intensity does not exceed physical capacity.
- Known risk factors for injury are sufficiently mitigated.
- Performance measures indicate no underlying injury or fitness concerns.

Greyhounds returning to race following a significant rest period must be physically healthy, free from injury and disease, and have sufficient cardiovascular fitness training and musculoskeletal fitness training to withstand the high intensity exercise of racing.

Fitness to Race:

Data analysis has revealed a higher risk of serious injury in greyhounds who have returned to racing following a significant rest period. When tracking greyhounds returning following 60 days or more layoff, this risk increases further (See GRNZ Safe Return to Racing Policy for requirements).

To mitigate this risk of injury, the GRNZ Serious Injury Review Committee (SIRC) has recommended the creation of best-practice return-to-racing-fitness guidelines which provide evidence-based advice to LPs about the fitness work, including the number of straight gallops, hand slips around a bend, and/or trials a greyhound should complete prior to returning to race.

Greyhounds racing in a circle undergo bone remodelling, as a normal adaptation to the increased forces in the right hind limb during anti-clockwise cornering. Specifically, the central tarsal bone (CTB) in the hock experiences marked thickening in greyhounds who race in a circle, compared to retired or non-racing, or spelling greyhounds (Johnson, *et al.*, 2001).

This CTB is also the site of frequent stress fractures of the hock in greyhounds due to accumulated stress-microfractures, which eventually join to cause a complete failure of the CTB. The greyhound's body must be able to repair the microfractures, by laying down extra bone to get thicker. This occurs with repeated running around a bend, enough to



cause a small amount of strain, but not overwhelm the repair process and lead to failure. This is called '**adaptive remodelling**'.

In greyhounds who are rested for around 21 days, this remodelling process reverses, with bone being removed, and the CTB becoming less thickened (Thompson, *et al.*, 2012) than in those of currently racing greyhounds (Johnson, *et al.*, 2001). This makes them especially prone to stress-overload and failure (hock fractures) should the greyhound return to high intensity exercise without a period of exercise adaptation.

Training preparations which result in asymmetric loading (more weight on the right hind than the left hind) of the hindlimbs i.e., training on the bend, rapidly causes this adaptive remodelling. This means that training on a straight track and swimming are excellent for cardiovascular fitness and muscle strength but will not adequately prepare the skeletal system for the racing around the turn.

When starting to build **Fitness to Race**, LPs should consider veterinary advice on returning to exercise following an injury, as well as the age, and previous injury history of their greyhound. Other factors to consider include the racing distance to which the greyhound will return, and the amount of racing (racing intensity) expected once they return.

Warm-up exercise programs should be implemented to ensure that greyhounds' muscles are primed for high intensity exercise, and they are ready to begin training. Insufficient warm-up has been scientifically proven to decrease performance and increase the risk of injury in human athletes, particularly sprint athletes.

Generally, greyhounds will not be considered **Fit to Race** until they have at least managed to complete the following:

- at least two hand slips around a bend of 200m or more, no less than four days apart; and
- a box trial at the distance the greyhound is intending to race, preferably at the track at which the greyhound intends to race.

This means that preparation for returning to race, following a significant break or layoff, needs to be undertaken gradually and well ahead of the planned race date to be sure that the greyhound is fit to race.

'At-risk' greyhounds: extra requirements:

Greyhounds deemed to be more '**at-risk**' following a rest period of 60-days, or more, include the following:



- Greyhounds 16 months to 24 months, who are still growing; and
- Greyhounds 40 months or older; and
- Greyhounds that are returning, or have previously returned from 42-day, or more, incapacitation period for injury; and
- Greyhounds that have had orthopaedic surgery (see requirements in GRNZ Safe Return to Racing Policy).

Greyhounds with multiple of the above risk factors together, are likely even more prone to serious injury, particularly in their 1st four starts.

To ensure fitness to race in 'at-risk' greyhounds, LPs should consider any veterinary advice they have received and additional exercise requirements in preparation for racing as follows:

- at least 4 hand-slips around a bend of 200m, or more, no less than 4 days apart; and
- A box trial at the same track and distance as intending to race.

Once 'at-risk' greyhounds are returned to racing, LPs should abide by recommended further restrictions on **racing frequency** to allow gradual return to full function, especially during their 1st four starts. 'At-risk' greyhounds should be nominated to race no more than:

- once per week, at sprint distance around a bend, for their 1st four starts; and
- Once per 10-day period for their 1st three starts (i.e., three times in 30 days) for middle distances (470m+); and
- Once per fortnight for distance (600m+) races (twice in 30 days).

Evidence has also demonstrated that changing tracks can be an increased risk factor for injury and it is recommended that the 1st 4 starts for 'at risk' greyhounds are at the same track and over the same distance.

Advice in these best-practice guidelines does not over-ride veterinary advice on returning to exercise following injury or illness.

LPs must abide by provisions in the GRNZ Safe Return to Racing Policy.