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Auckland Concussion Clinic, xxx, xxx, AUCKLAND

To whom it may concern,

## Re: Deanne ALLEN (22/01/84), 7 Rimu Lane, Westmere, Auckland.

Thank you for seeing Deanne regarding her recent concussion (05/09/17), which was formally diagnosed by Dr Ramon at Auckland City Hospital. The injury occurred during a social hockey game where Deanne rolled her ankle and slipped, was hit by a hockey stick on the left temporal side of the head, and then extended her neck back before hitting the AstroTurf.

Deanne was initially motionless for 5-10 seconds before responding to physical and verbal cues. The SCAT5<sup>1</sup> was performed and Deanne presented with a GCS of 14/15, a total number of symptoms of 16/22, a symptom severity score of 54/132, and difficulties in all components of the cognitive screening. Deanne was taken by ambulance to Auckland City Hospital where the two front teeth she lost during the accident were successfully restored via an immediate root canal, and where she received the concussion diagnosis. Dr Ramon instructed Deanne to rest from all exertion for 48 hours following her concussion.

Deanne works as a domestic flight attendant four to five days a week and prior to the accident ran on her days off. She is a non-smoker, "social-drinker", is currently not taking any medication, and reports a history of one concussion two years ago that resolved in seven days<sup>2</sup>. I am currently managing her ankle injury for which we have set the goals of a full return to work in 6–8 weeks, and a full return to pre-injury levels of hockey in 12 weeks<sup>3</sup>.

Deanne presented to me today reporting some persisting concussion symptoms including a headache when lifting heavy objects, concentration difficulties that worsen as the day progresses, and fatigue. Today, Deanne's SCAT5 scores have normalised to pre-season levels except for her total number of symptoms (8/22), her symptom severity score (25/132), and her digits backwards score (remained at 3/4 as per post-injury). Her partner also reported that ever since the concussion, Deanne had been complaining of dizziness when rolling over in bed. On examination, the Dix-Hallpike test<sup>4</sup> was positive so I carried out the Epley Manoeuvre, which resolved her dizziness. Being 11 days post-injury, I would have expected her other symptoms to have also resolved<sup>5</sup>. Based on these findings, I believe Deanne has post-concussion syndrome<sup>6</sup>. I would appreciate your input to address Deanne's persisting symptoms and am referring her to you on behalf of Dr Ramon<sup>7</sup>. I believe that it would be in Deanne's best interest to be treated by your multidisciplinary team<sup>8</sup>, with involvement of the clinical neuropsychologist<sup>9</sup> in light of her concussion history. I am also hoping for your input on a return-to-play protocol to extend upon my current exercise prescription of light aerobic exercise<sup>10</sup>. In the meantime, I will also continue to manage her ankle injury.

Thank you for your consideration of this referral. I look forward to hearing from you soon.

Kind regards,

XXX

## XXX XXX

Physiotherapist

## References

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<sup>1</sup> The SCAT5 is the latest revision of the SCAT3, the components of which are valid and reliable in the acute evaluation of concussion (King, Brughelli, Hume, & Gissane, 2014).

<sup>&</sup>lt;sup>2</sup> Athletes with a history of concussion may be at higher risk of subsequent concussions and may take longer to recover from an acute concussive injury (King et al., 2014).

<sup>&</sup>lt;sup>3</sup> The literature cites these return-to-work and return-to-sport timeframes following the partial-rupture of an ankle ligament (Abidi, 2002; Verhagen, van Mechelen, & de Vente, 2000).

<sup>&</sup>lt;sup>4</sup> The Dix-Hallpike test can identify vestibular issues related to concussion (Werner, 2013).

<sup>&</sup>lt;sup>5</sup> Sports-related concussion typically recovers within 10 days (Makdissi, Cantu, Johnston, McCrory, & Meeuwisse, 2013).

<sup>&</sup>lt;sup>6</sup> Deanne reported headache, concentration difficulties, and fatigue, which are common post-concussion syndrome symptoms (Makdissi et al., 2013).

<sup>&</sup>lt;sup>7</sup> Allied health professionals can refer to the concussion service on behalf of the doctor when there is a concussion diagnosis (Accident Compensation Corporation, 2017).

<sup>&</sup>lt;sup>8</sup> Multidisciplinary management is indicated when concussion symptoms persist beyond 10 days (Makdissi et al., 2013).

<sup>&</sup>lt;sup>9</sup> Neuropsychological testing measures several domains of cognitive function, with moderate sensitivity for the detection of post-concussive cognitive deficiencies. The interpretation of neuropsychological tests should be undertaken by a neuropsychologist (King et al., 2014).

<sup>&</sup>lt;sup>10</sup> Concussion management should include a graded exercise programme at a level that does not exacerbate symptoms (Makdissi et al., 2013).