

# A Beachball Sized Baseball Following Interprofessional Treatment of Multiple Concussions

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## Medical History

A twenty-year old athlete presents to the NSU Sports Medicine Clinic following a weight-lifting accident. He was seen one week after the accident and diagnosed with a concussion. He was evaluated by sports medicine physicians for initial diagnosis and treatment.

He suffered a second concussion while colliding with another player on the baseball field six months later. He returned to the clinic for evaluation and management three days after injury.

## Medical Findings

**Concussion #1:** Symptomatic at rest. **Physical Exam:** Vital signs and general medical exam normal, neurological exam within normal limits except for errors with tandem gait. Vestibular Ocular Motor Sensitivity (VOMS) test exacerbated headache and dizziness. 3 weeks post injury tandem gait normal and VOMS was without symptom provocation (Figure 1).

Vestibular/Ocular Motor Test	Not Tested	Headache 0-10	Dizziness 0-10	Nausea 0-10	Fogginess 0-10	Comments
Baseline Symptoms	N/A	2	1	0	1	No phorias or tropias
Smooth Pursuits	<input type="checkbox"/>	3	1	0	1	2-2 beat nystagmus
Convergence (Near Point in cm):	<input type="checkbox"/>					Measurement 1: cm Measurement 2: cm Measurement 3: cm
Saccades - Horizontal	<input type="checkbox"/>					
Saccades - Vertical	<input type="checkbox"/>					Overshoots target
VOR - Horizontal	<input type="checkbox"/>	0	4	0	0	
VOR - Vertical	<input type="checkbox"/>	4	2	0	0	
Visual Motor Sensitivity Test	<input type="checkbox"/>	2	1	0	1	

**Figure 1.** VOMS test results-initial (left) and 3 weeks post injury (right)

**Concussion #2:** Symptomatic after cognitive exertion. **Physical Exam:** Vitals signs, general medical and neurological exam within normal limits. VOMS was without symptom provocation.

## Medical Treatment

- Referral to Neuropsychology for neurocognitive testing
- Referral to Optometry
- Recommendations for Return to Learn (RTL) and Return to Play (RTP)
- Follow up evaluations

## Optometric History

He suffered from photophobia, headaches, blurry vision, night glare and poor concentration following subsequent concussions in a short timespan. He suffered a second concussion within a six month period from the first.

## Optometric Findings

He was diagnosed with dry eyes, accommodative dysfunction and mild astigmatism. His mild astigmatism was likely longstanding but following the concussion he was no longer able to compensate for it and subsequently he noticed blurry vision and glare at night.

Following his second concussion in six months he experienced headaches, glare, photosensitivity, convergence insufficiency and reported difficulty hitting and catching the ball.

## Optometric Treatment

His initial symptoms were relieved with use of certain filters on his phone and tablet, tinted spectacles for prolonged near work and artificial tears in each eye throughout the day. His mild astigmatism was corrected with use of contact lenses especially for sports (games and practice). Neuro-optometric rehabilitation therapy was used to treat his accommodative dysfunction.

We continued neuro-optometric rehabilitation therapy to treat his convergence insufficiency and utilized another contact lens to treat his glare. He did so well with treatment that he reported the baseball was “jumping out to him like it was the size of a beachball.”

## Neuropsychological History and Findings

His grades were above average at baseline. He did not have history of learning disability or ADD/ADHD.

Following the initial concussion, neurocognitive computer testing revealed significant deficits in visual motor speed and visual memory. He returned to physical and cognitive baselines prior to sustaining a second concussion six months later.

Neurocognitive computer testing following the second concussion did not show deficits, however he had symptoms with cognitive exertion.

## Neuropsychological Treatment

- Recommendations for RTL and RTP following both concussions
- Concussion recovery education

## Conclusion

This case displays the importance of an interdisciplinary team effectively treating and managing subsequent sports-related concussions in an athlete. In this case three disciplines collaborated to resolve the effects of two concussions in the same patient.