Gelatin and Vitamin C intervention in college football athletes: Retrospective case studies.

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OBJECTIVES

1. Accelerate return to play by minimizing duration of musculoskeletal soft tissue injury repair in two athletes with existing injuries.
2. Determine the effectiveness of gelatin and vitamin C on collagen synthesis and injury healing.
3. Assess the impacts of sports nutrition education and intake tracking on overall dietary improvement and injury healing.

BACKGROUND

- Musculoskeletal soft tissue injuries account for 70% of all injuries in American Football (Feeley 2008).
- Gelatin enriched vitamin C supplementation has been tested on genetically engineered ligaments (Paxton 2010, Paxton 2012).
- Collagen synthesis with this supplementation has been studied in lab rats (Shaw 2017).

CASE DESCRIPTIONS

INJURY DESCRIPTION AND SURGICAL REPAIR

ATHLETE A

- Sustained a torn pectoralis major muscle and underwent surgical repair the following month.

ATHLETE B

- Sustained a pectoralis tendon repair rehabilitation protocol for 5 months and 1 week post-surgery, and was cleared to fully return to all football activities.

METHODLOGY

Training Interventions

ATHLETE A

For the first 4 weeks of rehabilitation, the athlete’s shoulder was immobilized and he performed hand, wrist, and elbow exercises. After 4 weeks the athlete began shoulder range of motion and strengthening exercises. The athlete completed an anterior labral tear rehabilitation protocol for approximately 5 months and 3 weeks post-surgery, and was cleared to fully return to all football activities.

ATHLETE B

For the first 2 weeks of rehabilitation, the athlete’s shoulder was immobilized, and he performed hand, wrist, and elbow exercises. After 2 weeks the athlete began shoulder range of motion, but remained in a sling until 6 weeks post-surgery. The athlete completed a pectoralis tendon repair rehabilitation protocol for 5 months and 1 week post-surgery, and was cleared to fully return to all football activities.

Nutrition Interventions

Initial dietary assessment and nutrition education were conducted with a registered dietitian (RD). Education emphasized consistent and balanced meal consumption of nutrient dense foods. The athletes were introduced to the Athlete’s Plate aimed at building a balanced meal. RD discussed strategies on meal preparation at home, increasing protein for healing, tracking intake, and protein rich snack before bed. Supplementation of gelatin and vitamin C 30-60 minutes prior to rehabilitation and activity.

Nutrition Tracking

Intake was monitored through an electronic food record (EFR) application. The application enables users to photograph meals and receive timely feedback from the RD. This tracker was utilized due to its simplicity and nature of the athlete’s busy schedules.

Supplementation

The RD ordered supplementation for the athletes prior to rehabilitation sessions and activity. Athletes were to consume gelatin and vitamin C 30-60 minutes prior to rehab or activity. The athlete mixed gelatin (15 g) in room temperature sports drink or water and obtained vitamin C (150 mg) from Athletic Trainer (ATC).

Discussions

With few human studies to date, this case study demonstrates a potentially promising impact of nutrition intervention on athlete recovery of soft tissue injury. The prevalence of nutrition intervention in the recovering athlete increases as sports nutrition research improves. This retrospective case study assessed the use of gelatin (15 g) and vitamin C (500 mg) supplementation in combination with nutrition education, a dietary plan, and intake monitoring alongside rehabilitation. The interventions were likely beneficial in shortening the rehabilitation period for musculoskeletal soft tissue injuries and accelerating return to play. The effects of athlete compliance level on the outcomes remains in question. Future research incorporating the aforementioned nutrition interventions in the injured athlete should investigate the potential benefits of vitamin C and gelatin supplementation with a larger sample size and stricter compliance measures for better adherence.

REFERENCES


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