

# ***Guidelines for the Medical Management of Concussions***

## *As Applied to Cheerleading*

This information is not intended to evaluate or treat a concussion or any injury, and is not a substitute for a consultation with a medical provider. Every concussion is unique and AACCA recommends that you see your physician following any injury especially a concussion. AACCA always acknowledges your physician as the best potential source of information.

### ***About Concussions:***

A concussion is a potentially serious injury to the brain. Also known as a traumatic brain injury, or “TBI”, a concussion can cause potentially life-altering symptoms.

### ***Signs & Symptoms of Concussion:***

*Any one or more of the following signs and symptoms may indicate a concussion has occurred.*

- ***Symptoms reported by the cheerleader:***

- Headache
- Nausea
- Balance Problems & Dizziness
- Blurred Vision
- Sensitivity to bright lights or loud noise
- Feeling “sluggish” or “foggy”
- Altered sleep patterns
- Difficulty concentrating
- Problems with memory

- ***Signs observed by coaches and other cheerleaders:***

- Stunned or confused appearance
- Forgets arm motions or cheers
- Confused about formations in dances or routines
- Unsure of surroundings (i.e., game score)
- Moves clumsily
- Loss of consciousness (long or short)
- Personality or behavior changes (irritable, agitated, sad, etc).
- Forgets events right before or after a blow to the head

### ***A Note about Concussion Severity***

Historically, concussions have been evaluated and given a graded severity, usually including “mild, moderate, and severe” or “I, II, III” grades. Emerging trends have included a move away from assigning a concussion severity grade. Such grades place an artificial timeline for an athlete’s return to play. The medical focus following any concussion should be on any symptoms an athlete might exhibit. Return to play should not be allowed until all symptoms are absent and the athlete has undergone a 5-phase return to play rehabilitation program.

**Additional Information and Resources about Concussions are available at:**

<http://www.aacca.org/concussions>

To download this guide and for more information on cheerleading concussions, visit <http://www.aacca.org/concussions>

# ***Guidelines for the Medical Management of Concussions***

*As Applied to Cheerleading*

## **GENERAL RECOMMENDATIONS:**

- All participants should have an annual preparticipation physical evaluation (PPE). If a school's athletic program offers pre-season concussion testing (such as ImPACT, Axon Sports, Etc.), the cheerleading team should participate in that testing when possible.
- All teams should have an identified medical provider for the assessment and initial care of concussions. The medical provider should either be a physician (MD/DO) or an Athletic Trainer working under a physician's concussion protocol.
- Any cheerleader who exhibits signs, symptoms, or behaviors consistent with a concussion (such as loss of consciousness, headache, dizziness, confusion, or balance problems) shall be immediately removed from the activity and shall not return to play until cleared by a physician.
- Following the diagnosis of a concussion, a rehabilitation protocol (or protocol for progression) should be applied to the athlete. An example of such a protocol is on the following page.
  - Athletes should work through the protocol beginning with rehabilitation phase 1 and ending with rehabilitation phase 5, followed by return to full participation.
  - The athlete must have a minimum of one complete day in each rehabilitation phase.
  - The athlete must be symptom-free during activity in each rehabilitation phase and 24 hours following activity to progress to the next higher rehabilitation phase;
  - If symptoms occur twice in any phase, the athlete should reduce his/her activity to the lower rehabilitation phase.
  - A physician shall provide guidance through the rehabilitation process and shall make any return to play decision.
  - The rehabilitation protocol should consider the vestibular system to aid in acclimation. If patient experiences dizziness but the dizziness subsides quickly, they are allowed to continue the protocol.
- Any cheerleader who sustains multiple concussions should seek a consultation with a physician who specializes in the evaluation and care of concussions.
- A cheerleader who has a suspected concussion should not be allowed to return to participation within 24 hours of incident and without being cleared by a medical professional.

# **GUIDELINES FOR POST-CONCUSSION REHAB**

*Cheerleader-specific Concussion Rehabilitation.*

*For use by Medical Providers in conjunction with Cheerleading Coaches & Advisors.*

## **Coaches' Quick Reference for Post-Concussion Participation in Cheerleading**

**Stages 1 – 5 are in a supervised practice setting. No competition or sideline activity during games is allowed.**

### **Stage 1 – Pending a physician's approval:**

- No cheerleading/dance/gymnastics activity
- May do low-level exercise that does not raise the heart rate (Walking, slow stationary bike, etc)

### **Stage 2**

- Continue basic exercise now allowing a slightly raised heart rate (fast walking, stationary bike, slow elliptical, etc)
- Cheerleading activity limited to sideline cheers/chants including arm motions and mild jumps but no quick movements of the head

### **Stage 3**

- Begin moderate exercise (fast elliptical, slow jogging, light-weight lifting, etc)
- Cheerleading activity remains limited to cheers/chants, but may now introduce quick movements of the head and may introduce mild to moderate dances.
- Thigh level stunts are allowed with an added spotter.

### **Stage 4**

- Begin low-level cheerleading activities such as basic gymnastics and basic stunting
  - Limit stunting to double-legged, chest-level stunts with an added spotter.
  - Limit gymnastics to single-rotation in a hand-supported position (ie., cartwheel, roundoff, or handspring)
  - Minimum of 2-minute break between tumbling passes for a max of 30 minutes total participation
  - Sideline cheers permitted but absolutely no live activity or practicing of "competition routines"

### **Stage 5**

- Begin moderate-level cheerleading activities
  - Limit stunting to double legged, extension level activities with simple dismounts and an added spotter.
  - Limit gymnastics to basic and moderate tumbling passes: max of two rotations with no twisting per any single pass (i.e., round-off back tuck)
  - Minimum of 2-minute break between tumbling passes for a max of 60 minutes total participation
  - Absolutely no game cheering or practicing of "competition routines"

### **Return to full participation**

- Pending physician approval may begin full participation including advanced stunts, advanced gymnastics, and advanced dances. May practice, compete, and participate in sideline activities.

### **IMPORTANT NOTES:**

If a Certified Athletic Trainer is available, the athlete must complete these exercises under their supervision or check in daily before and after activity. An athlete must not have any symptoms of a concussion during any activity (headache, dizziness, confusion, fatigue, etc.) If symptoms are present they must stop participation and communicate the symptoms with the medical provider (MD/DO or ATC if applicable). An athlete may only progress to the next day if they do not have symptoms. Return to participation is at the sole discretion of the physician.

# GUIDELINES FOR POST-CONCUSSION REHAB

*Cheerleader-specific Concussion Rehabilitation. For use by Medical Providers in conjunction with Cheerleading Coaches & Advisors.*

Stage of Rehabilitation	Rehabilitation Program	Recommended Cheerleading Activities
<p><b>Stage 1 – MUST BE SYMPTOM FREE &gt;24 HOURS AND HAVE PHYSICIAN CLEARANCE TO START REHAB</b>  <u>Target Heart Rate:</u> 30-40% of maximum exertion (figured via Karvonen)</p> <p><u>Recommendations:</u> exercise in a quiet area (treatment rooms recommended); no impact activities; balance and vestibular treatment by specialist; limited head movement/postural changes; limited concentration activities; 10-15 minutes of light cardio exercise</p>	<ul style="list-style-type: none"> <li>• Very light aerobic conditioning</li> <li>• Sub-max isometric strengthening and gentle isotonic exercise</li> <li>• ROM and stretching</li> <li>• Very low level balance activities</li> </ul>	<p>Limit to general and basic components of fitness</p> <p>Stationary bike, UBE, Treadmill (slow walking)</p> <p>Quad sets; ham sets; UE light hand weights, LE SLR's, light resistive bands ankle strengthening that does not exceed 30 – 40% of maximum exertion.</p> <p>Romberg exercises (feet together, tandem stance, eyes open), SL balance</p>
<p><b>Stage 2</b>  <u>Target Heart Rate:</u> 40-60% of maximum exertion (figured via Karvonen)</p> <p><u>Recommendations:</u> exercise in gym area recommended, use various exercise equipment, allow some positional changes and head movement, low level concentration activities (counting reps), 10-30 minutes of cardio exercise</p>	<ul style="list-style-type: none"> <li>• Light to moderate aerobic conditioning</li> <li>• Light weight PReS</li> <li>• ROM and stretching (active stretching initiated)</li> <li>• Low level balance activities</li> </ul>	<p>Continue basic components of fitness including Stationary bike, Elliptical, UBE, Treadmill (slow to moderate walking)</p> <p><i>Sideline cheers without quick head movements allowed.</i></p> <p>Begin moderate balance activities</p>
<p><b>Stage 3</b>  <u>Target Heart Rate:</u> 60-80% of maximum exertion (figured via Karvonen)</p> <p><u>Recommendations:</u> any location is ok for exercise (indoor/outdoor), integrate strength, conditioning, balance/proprioception exercise, can incorporate concentration challenges (counting exercises, MRS equipment/visual games). Stage 1&amp;2 exercises included as appropriate.</p>	<ul style="list-style-type: none"> <li>• Moderately aggressive aerobic conditioning</li> <li>• All forms of strength exercise (80% max)</li> <li>• Active stretching</li> <li>• Impact activities, running and plyometrics (no contact)</li> <li>• Moderately challenging proprioceptive/balance, integrated with strength and conditioning</li> </ul>	<p>Begin moderate fitness activities such as treadmill jogging and resistance training including free weights, MRS/Functional squats, dynamic strengthening activities.</p> <p><i>Basic to moderate dancing and sideline cheers with quick head movements allowed if symptom free.</i></p> <p><i>Stunting and tumbling is still prohibited due to potential for re-injury.</i></p>
<p><b>Stage 4 (Sports Performance Training)</b>  <u>Target Heart Rate:</u> 80% of maximum exertion (figured via Karvonen)</p> <p><u>Recommendations:</u> Continue to avoid contact activity, but resume aggressive training in all environments.</p>	<ul style="list-style-type: none"> <li>• Non contact physical training including some participation with team</li> <li>• Aggressive strength training</li> <li>• Impact activities/plyometrics</li> <li>• Sport specific training</li> </ul>	<p>Begin sport specific activities. <i>Moderate dancing is allowed.</i></p> <p><i>Basic tumbling</i> (hand supported activities such as round-off or handspring).</p> <p><i>Basic stunting is allowed</i> (recommend thigh and chest level only for base &amp; flyer; Simple dismounts). Limit exposure time to 30 minutes total.</p> <p><i>No live activity yet (i.e., sideline at game, competition, or full-out competition practice)</i></p>
<p><b>Stage 5 (Sports Performance Training)\Maintenance</b>  <u>Target Heart Rate:</u> full exertion (figured via Karvonen)</p> <p><u>Recommendations:</u> Full practice participation with team allowed but no practicing of competition routines or game participation.</p>	<ul style="list-style-type: none"> <li>• Resume full physical training including full team practice</li> <li>• Continue aggressive strength training/conditioning exercises</li> <li>• Sport specific activities</li> </ul>	<p><i>Moderate level dancing, gymnastics, and stunting in a practice setting only.</i></p> <p><i>Double leg stunts only. Added spotter should be used. Limit exposure time to 60 minutes.</i></p>

Karvonen =  $( [( \text{Max HR} - \text{Resting HR} ) * \text{target percentage} ] + \text{Resting HR} ) / 6$

Cognitive tasking can be added to any activity as appropriate (simple math, spelling).

Headaches: When working through the rehab protocol during mild physical activity, if a mild headache exists but does not increase with exercise it is permissible to continue with the protocol. If the headache increases or symptoms change, stop all activity immediately and reevaluate.

# ***Guidelines for the Medical Management of Concussions***

*As Applied to Cheerleading*

## **Many thanks to our contributing experts:**

### **Alex Pinto, MS, ATC**

Athletic Medicine Director of Baptist Sports Medicine  
Associate Director, Tennessee Sports Medicine Advisory Council

### **Barry P. Boden, MD**

The Orthopedic Center, Rockville, MD  
Adjunct Associate Professor, Uniformed Services University of the Health Sciences

### **Anthony G. Alessi, MD**

Associate Clinical Professor of Neurology at the University of Connecticut

### **Karen M. Lew, MEd., ATC, LAT**

Clinical Coordinator for Athletic Training Education, University of Miami

### **Shane Miller, MD**

Sports Medicine Center at Children's Medical Center of Dallas  
Assistant Professor of Orthopaedics and Pediatrics, UT Southwestern Medical Center at Dallas

### **Gerald S. George, Ph.D.**

Professor Emeritus, Department of Kinesiology at the University of Louisiana  
Director of Safety, AACCA

### **Vincent McInerney, MD**

Director of Orthopedic Education and Sports Medicine, St. Joseph's Regional Medical Center, Paterson NJ

### **Jim Lord**

Executive Director, American Association of Cheerleading Coaches and Administrators