

A Comprehensive Approach to Concussion Assessment: Sideline Evaluation

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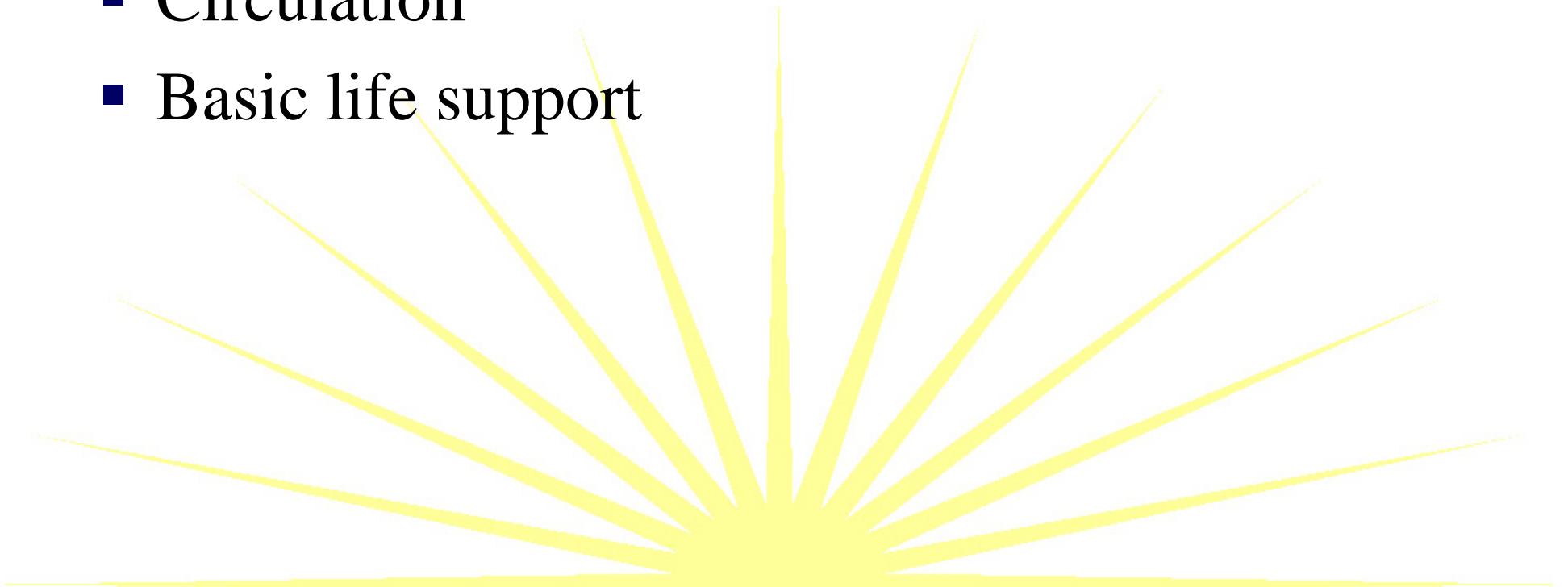
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DEPARTMENT OF SPORTS HEALTH CARE



Primary Survey

- Airway
- Breathing
- Circulation
- Basic life support



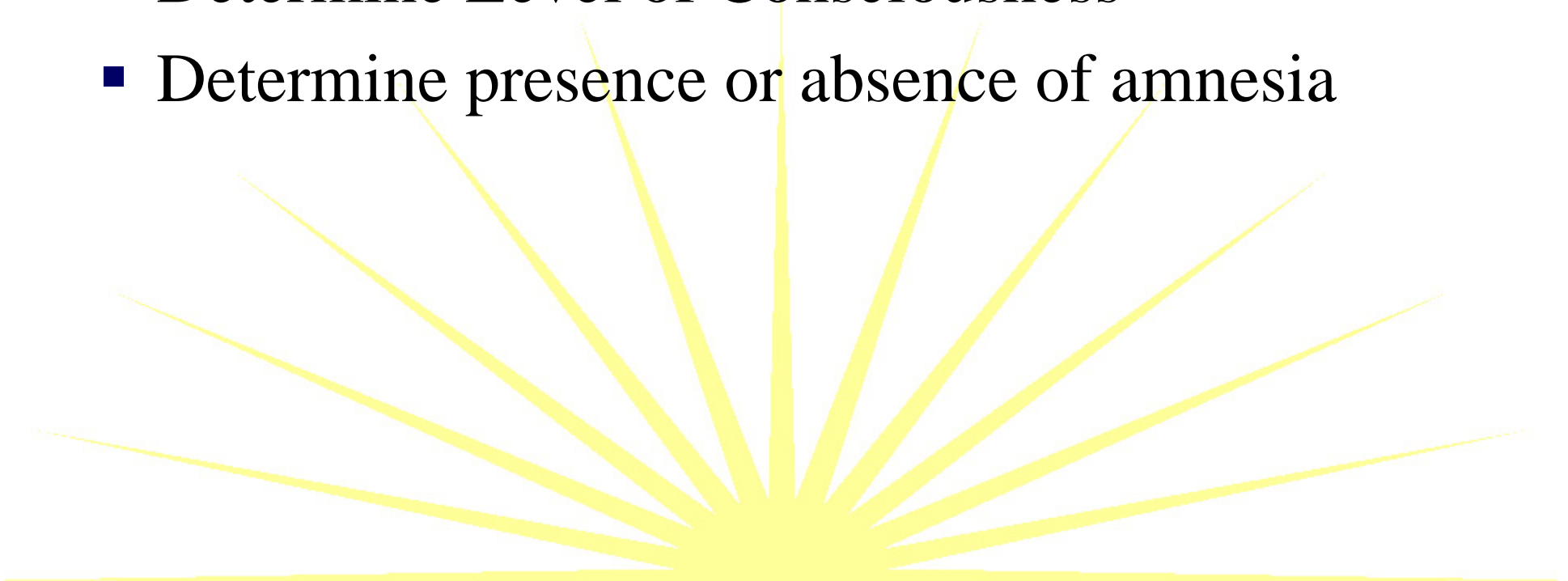
Secondary Survey

- History
- Observation
- Palpation
- Stress Tests
- Active / Passive ROM
- Strength Testing
- Functional Testing

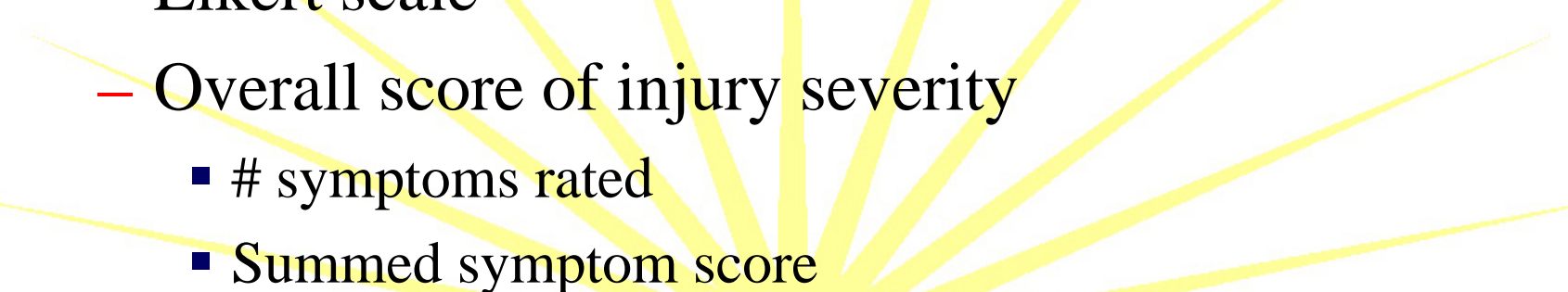


History

- Determine Symptoms
 - Symptom Checklist vs. Graded Symptom Scale
- Determine Level of Consciousness
- Determine presence or absence of amnesia

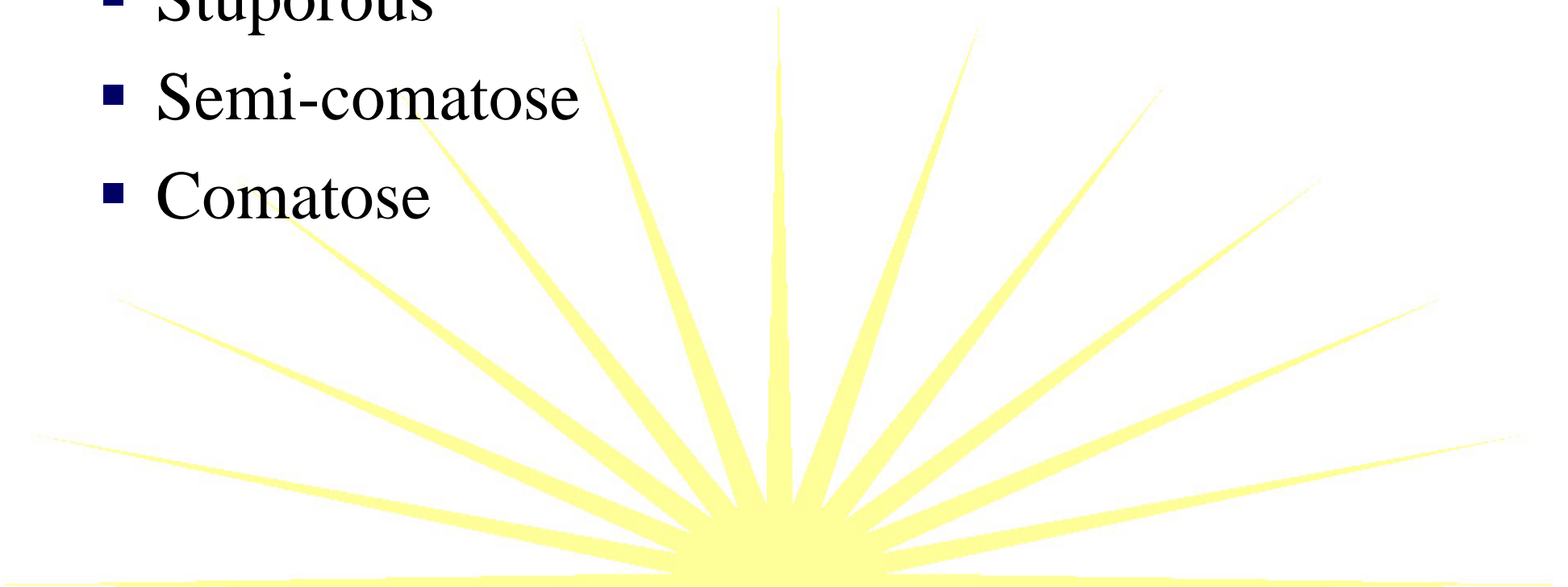


Symptom Checklists and Scales

- Symptom Checklist
 - Check whether a symptom is present (Y/N)
 - Symptom Scale
 - Allows athlete to describe the extent to which they are experiencing the symptom
 - Athlete ranks the severity of the symptom using a Likert scale
 - Overall score of injury severity
 - # symptoms rated
 - Summed symptom score
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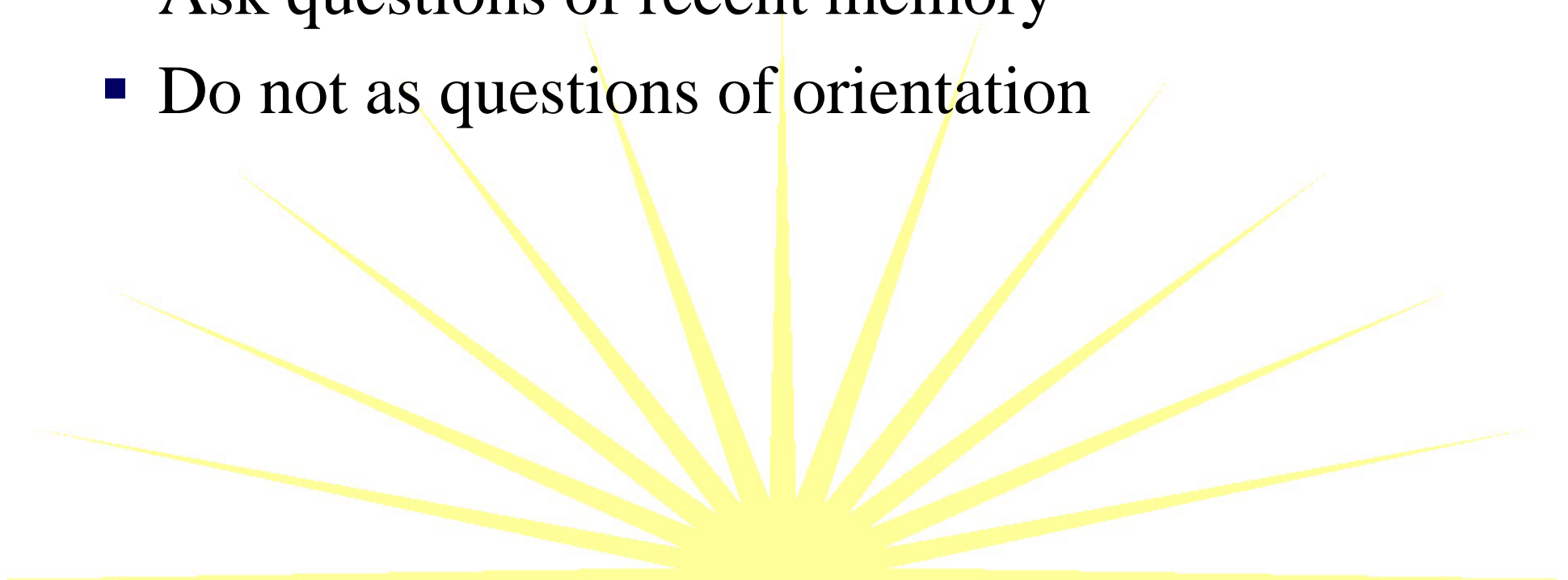
Level of Consciousness

- Alert
- Lethargic
- Stuporous
- Semi-comatose
- Comatose

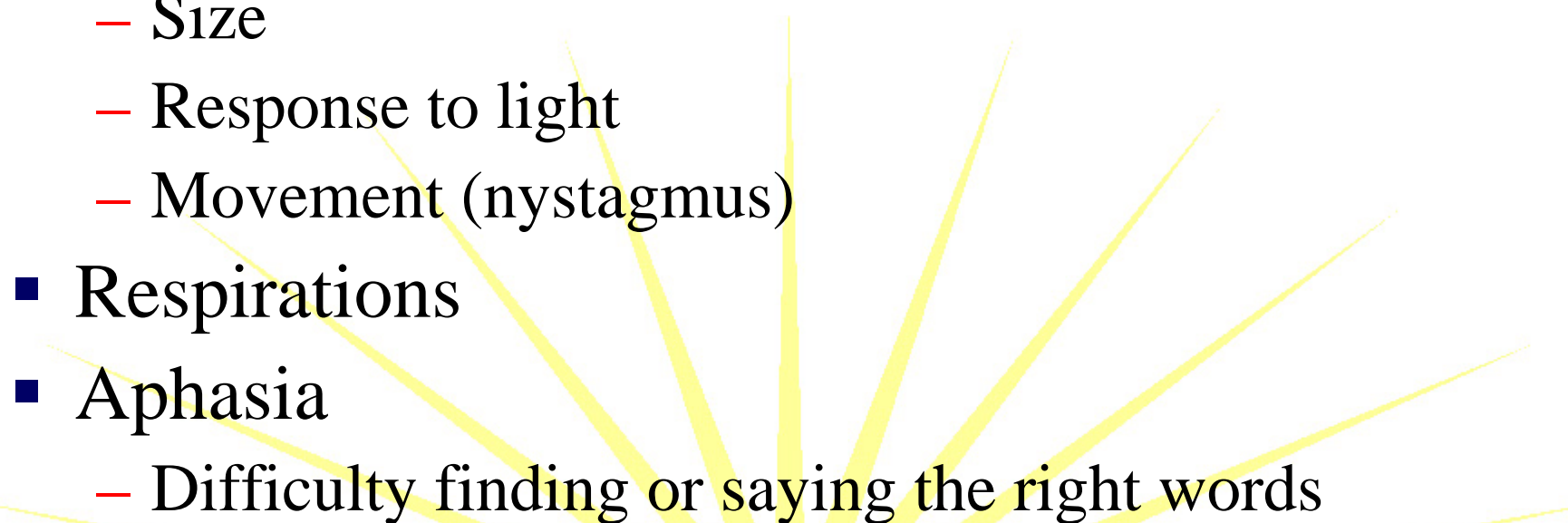


Amnesia

- Retrograde
- Anterograde
- Ask questions of recent memory
- Do not ask questions of orientation



Observation

- Watch athlete closely throughout the evaluation
 - Deformities or abnormal positioning
 - Pupillary signs
 - Size
 - Response to light
 - Movement (nystagmus)
 - Respirations
 - Aphasia
 - Difficulty finding or saying the right words
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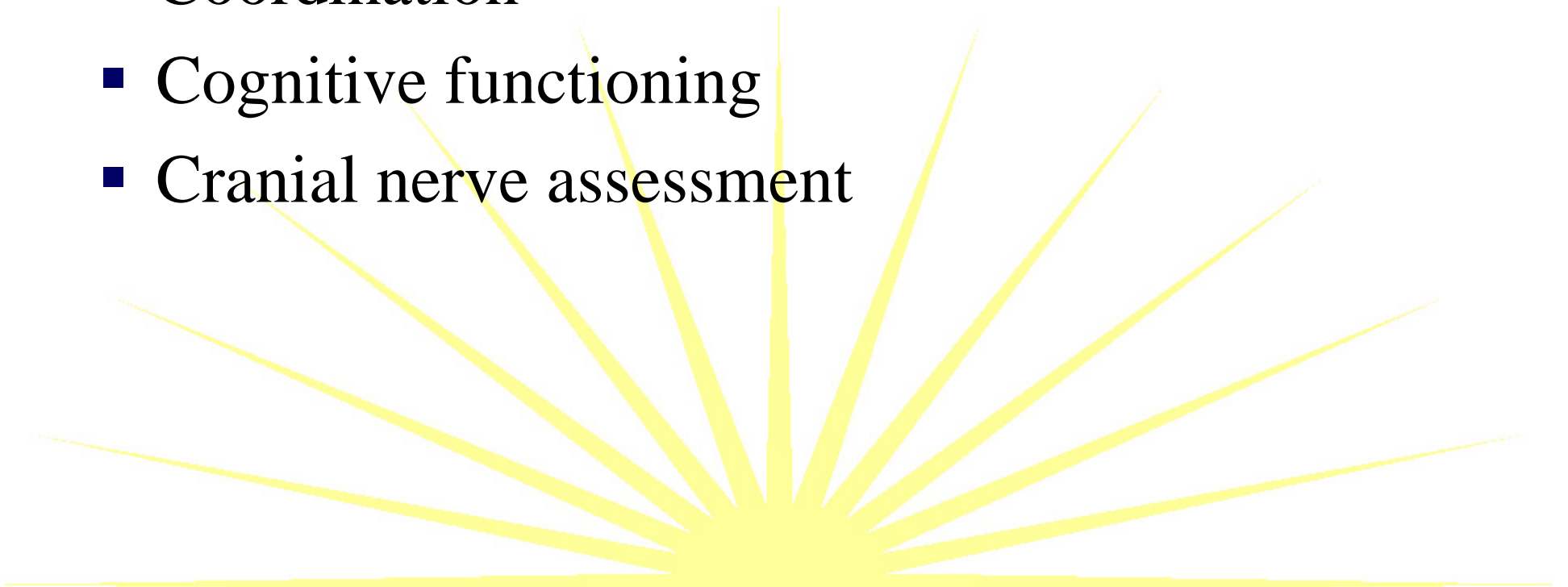
Palpation

- Establish baseline measures of
 - Pulse
 - Blood pressure
- Palpate for signs of trauma
 - Painful areas
 - Deformities
 - Swelling



Stress Tests

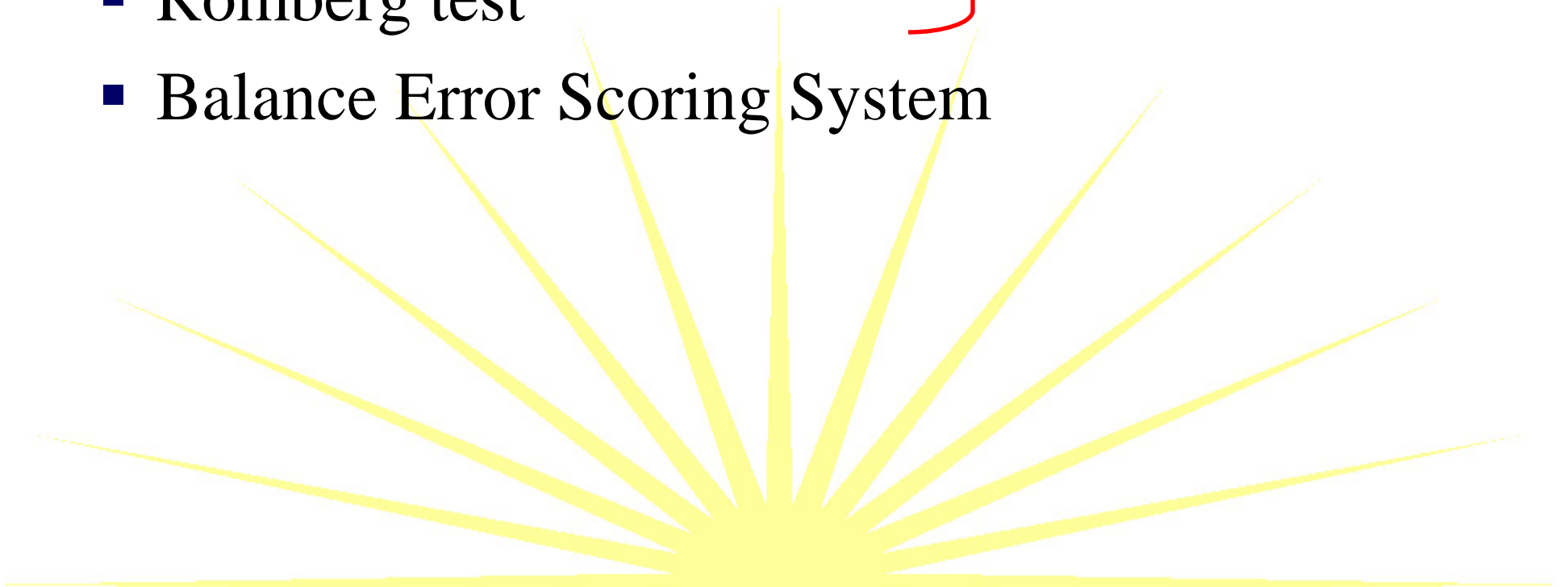
- Used to establish baseline and monitor progress as the athlete recovers
- Coordination
- Cognitive functioning
- Cranial nerve assessment



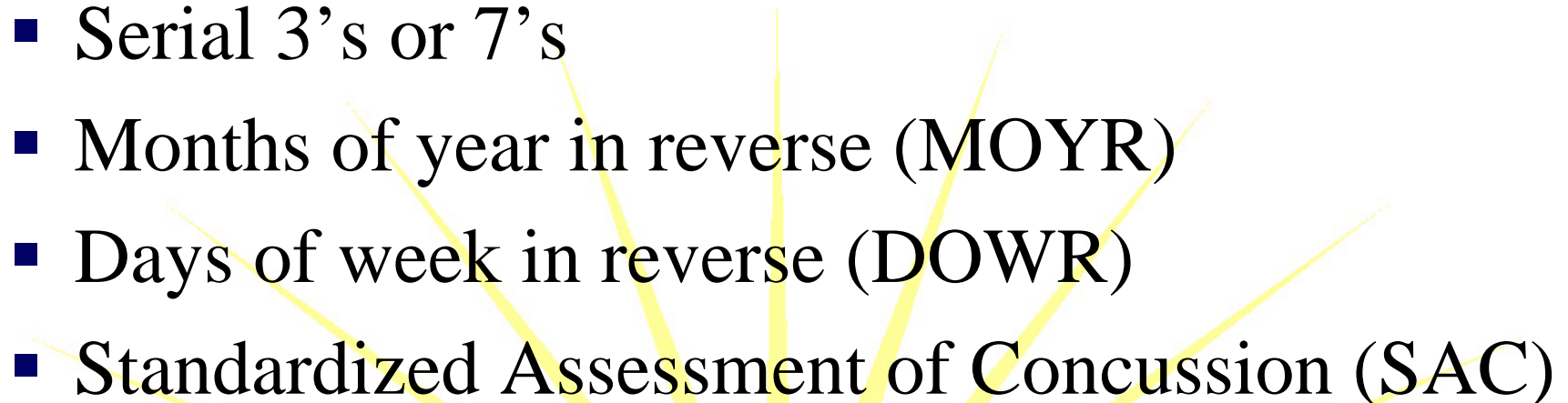
Coordination

- Heel to opposite knee
- Finger to nose
- Romberg test
- Balance Error Scoring System

} Difficult to quantify
and use in serial
assessments



Cognitive Functioning

- Mental status tests are feasible for the sideline, need little training or equipment
 - Repeat digits backwards or forwards
 - Serial 3's or 7's
 - Months of year in reverse (MOYR)
 - Days of week in reverse (DOWR)
 - Standardized Assessment of Concussion (SAC)
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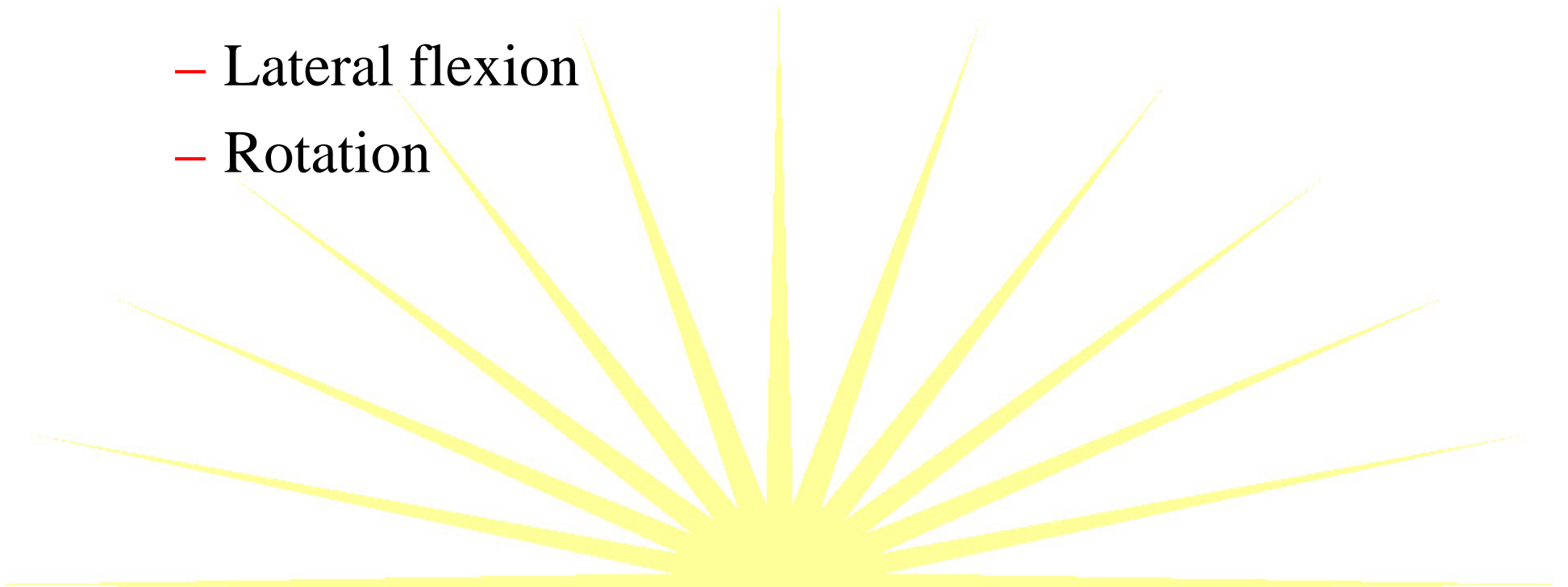
Cranial Nerve Assessment

- Optic
 - Visual acuity
- Ocular
 - Pupil reactions
- Trochlear
 - Eye movements
- Facial
 - Smile, grimace

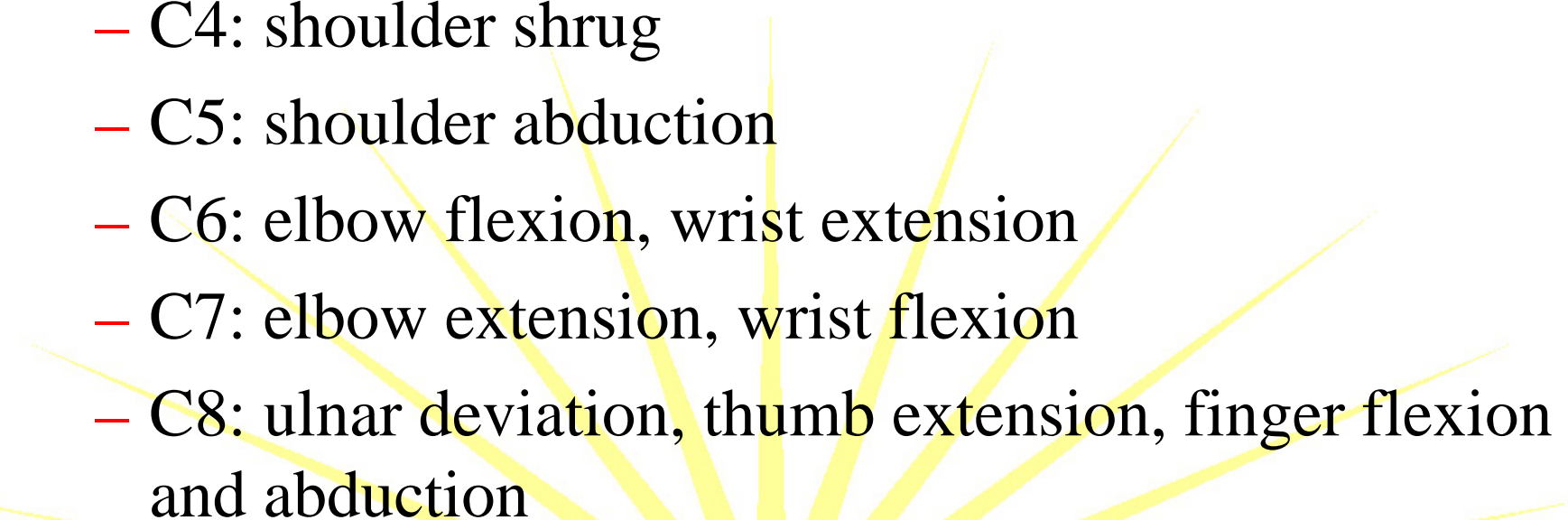


Active / Passive ROM

- Cervical ROM
 - Flexion
 - Extension
 - Lateral flexion
 - Rotation

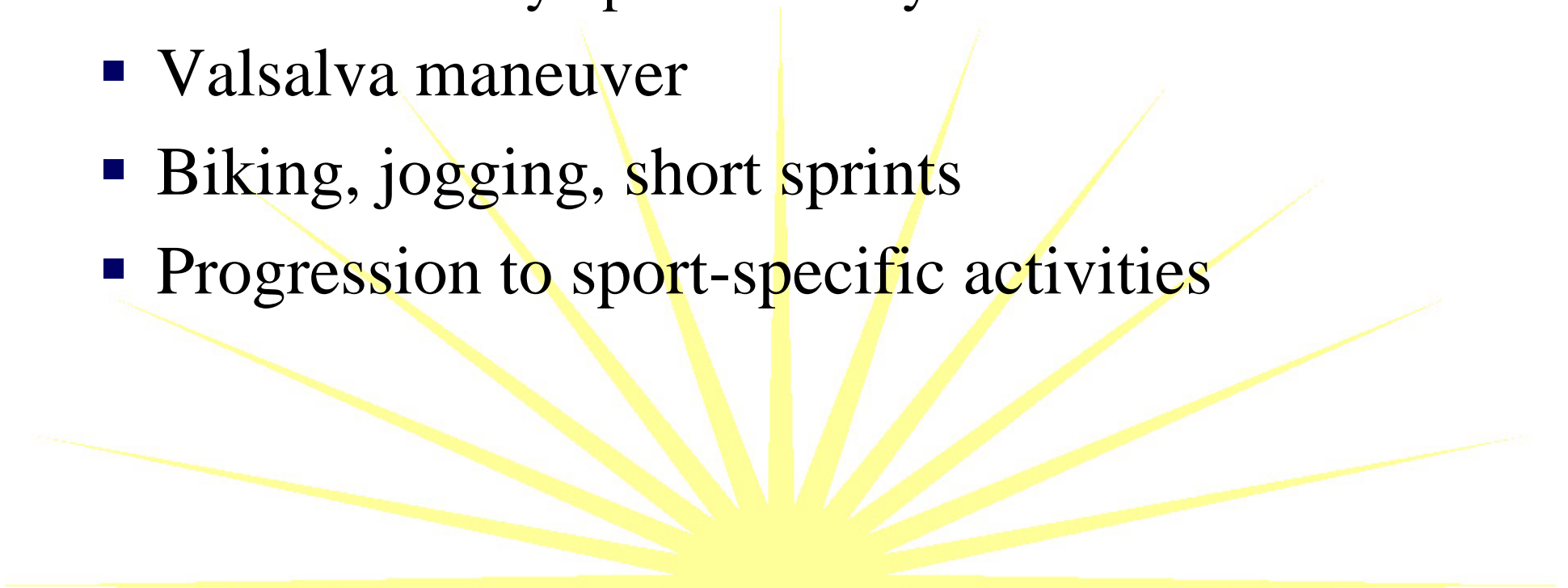


Strength Testing

- Assess upper extremity myotomes
 - C1-C2: cervical flexion
 - C3: lateral cervical flexion
 - C4: shoulder shrug
 - C5: shoulder abduction
 - C6: elbow flexion, wrist extension
 - C7: elbow extension, wrist flexion
 - C8: ulnar deviation, thumb extension, finger flexion and abduction
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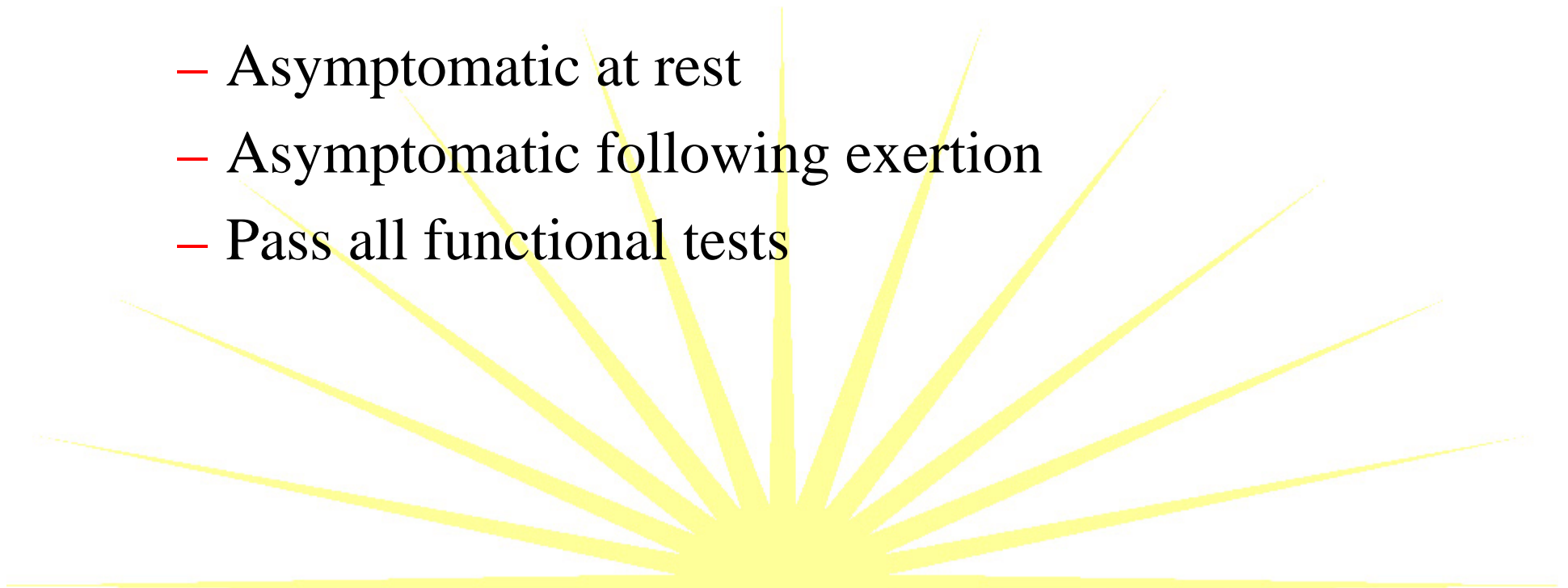
Functional Testing

- Exertional tests
 - Evidence of early post-concussion symptoms
 - Increase in symptom severity
- Valsalva maneuver
- Biking, jogging, short sprints
- Progression to sport-specific activities



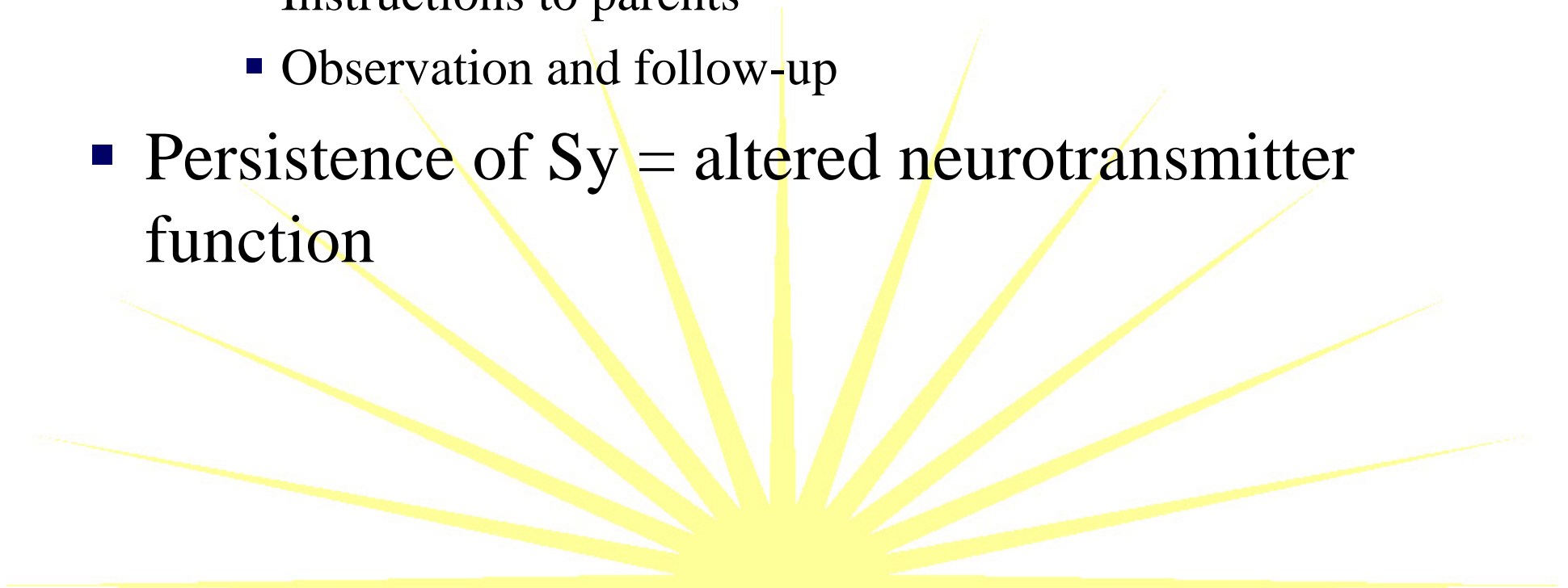
Return to Play Decision

- May consider RTP on same day if:
 - No LOC
 - No Amnesia
 - Asymptomatic at rest
 - Asymptomatic following exertion
 - Pass all functional tests



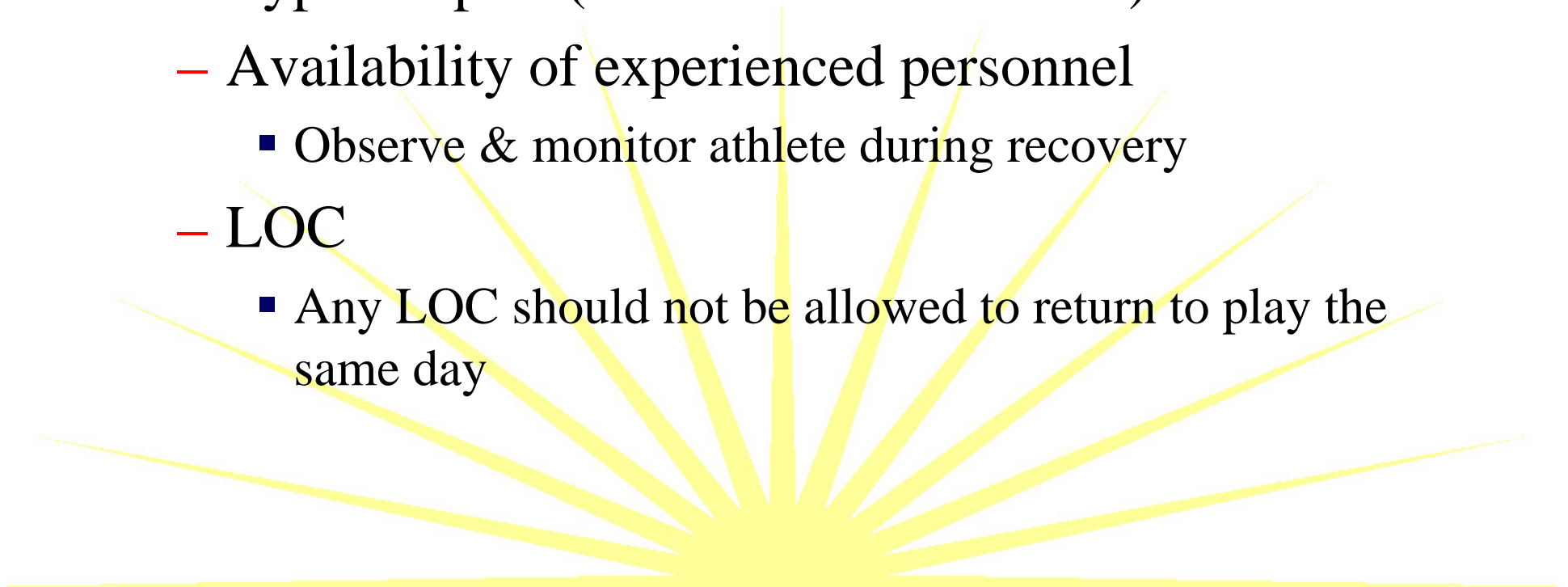
Return to Play Decision

- Do NOT consider RTP if:
 - Any sign/symptoms is still present
 - Any initial LOC or amnesia
 - Instructions to parents
 - Observation and follow-up
- Persistence of Sy = altered neurotransmitter function

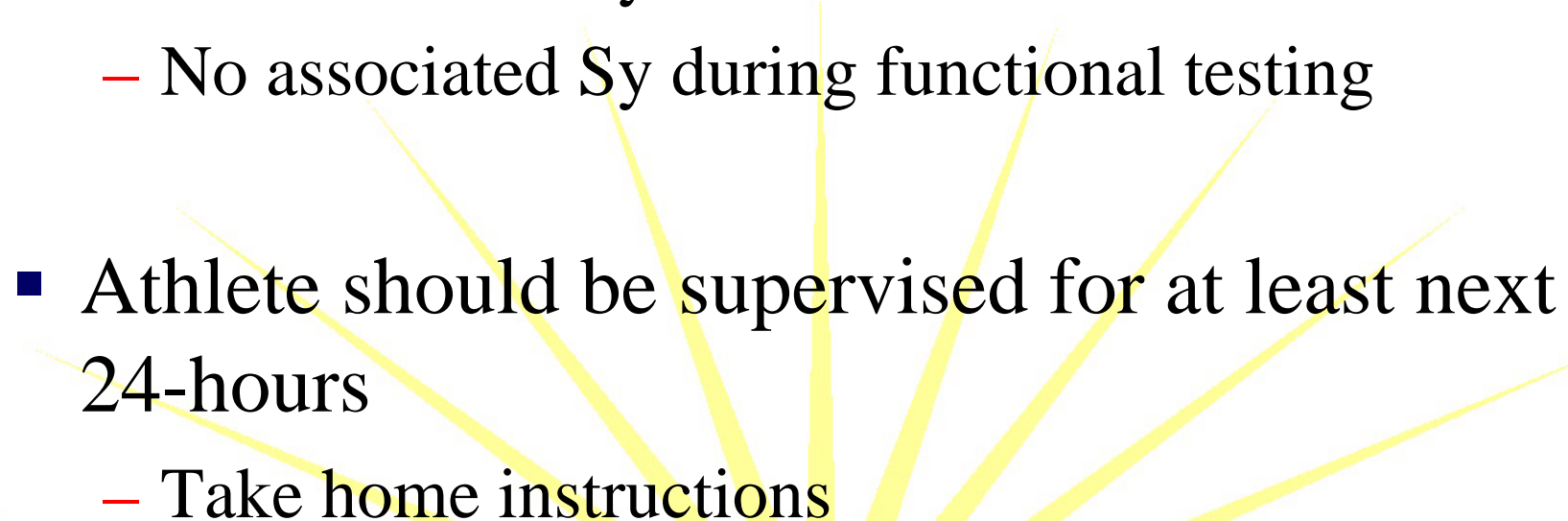


Return to Play Guidelines

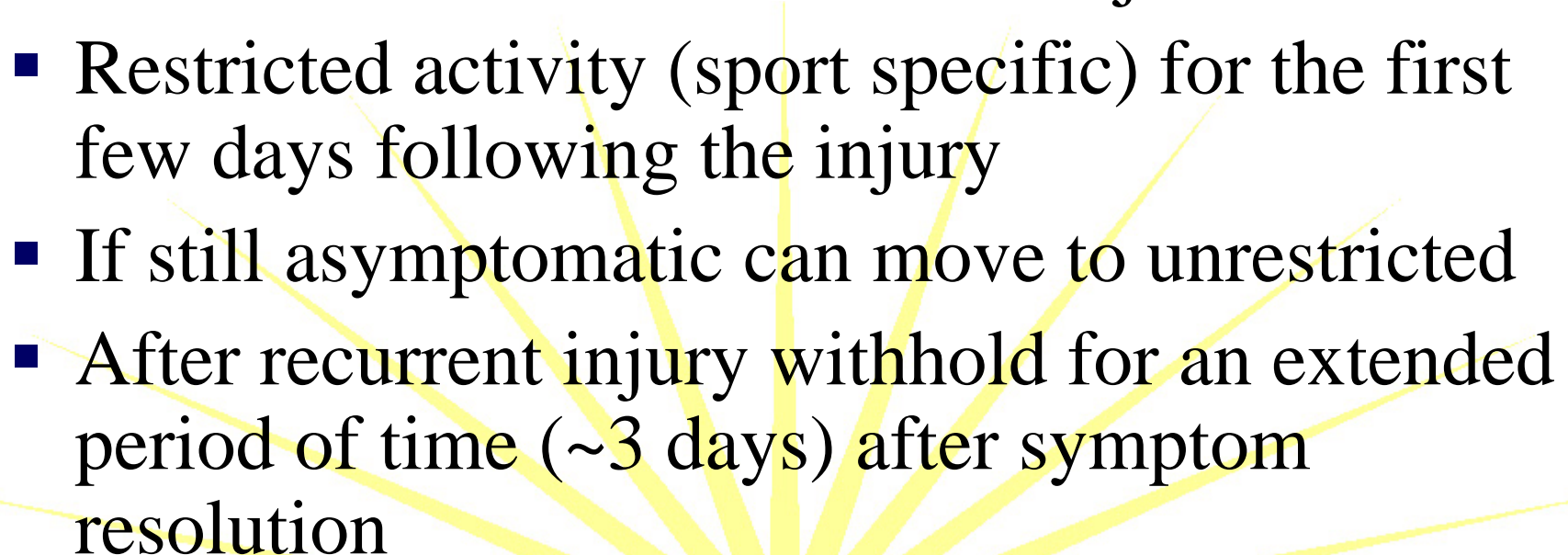
- Consider the following:
 - Athlete's previous history of concussion
 - Type of sport (contact vs non-contact)
 - Availability of experienced personnel
 - Observe & monitor athlete during recovery
 - LOC
 - Any LOC should not be allowed to return to play the same day



Return to Play Guidelines

- Candidates for same day return to play
 - Asymptomatic for 20-minutes
 - No associated Sy at rest
 - No associated Sy during functional testing
 - Athlete should be supervised for at least next 24-hours
 - Take home instructions
- 

Return to Play

- Progression that begins when asymptomatic
 - No S&S at rest and exertion
 - Return to baseline function on adjunct tests
 - Restricted activity (sport specific) for the first few days following the injury
 - If still asymptomatic can move to unrestricted
 - After recurrent injury withhold for an extended period of time (~3 days) after symptom resolution
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Thank You

