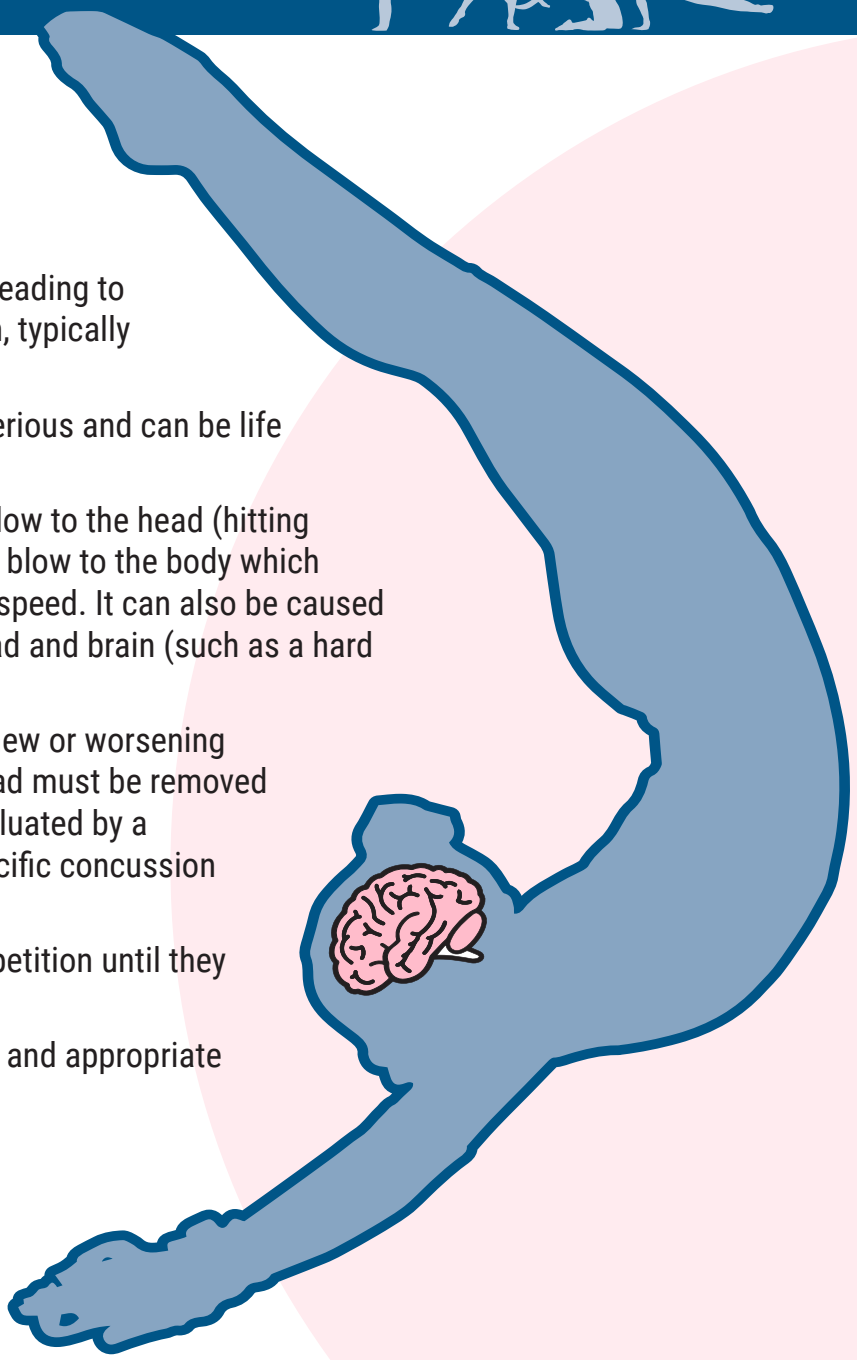
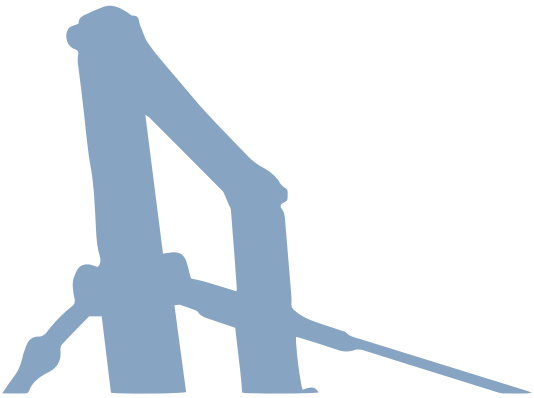
USA Gymnastics

SPORTS CONCUSSION OVERVIEW

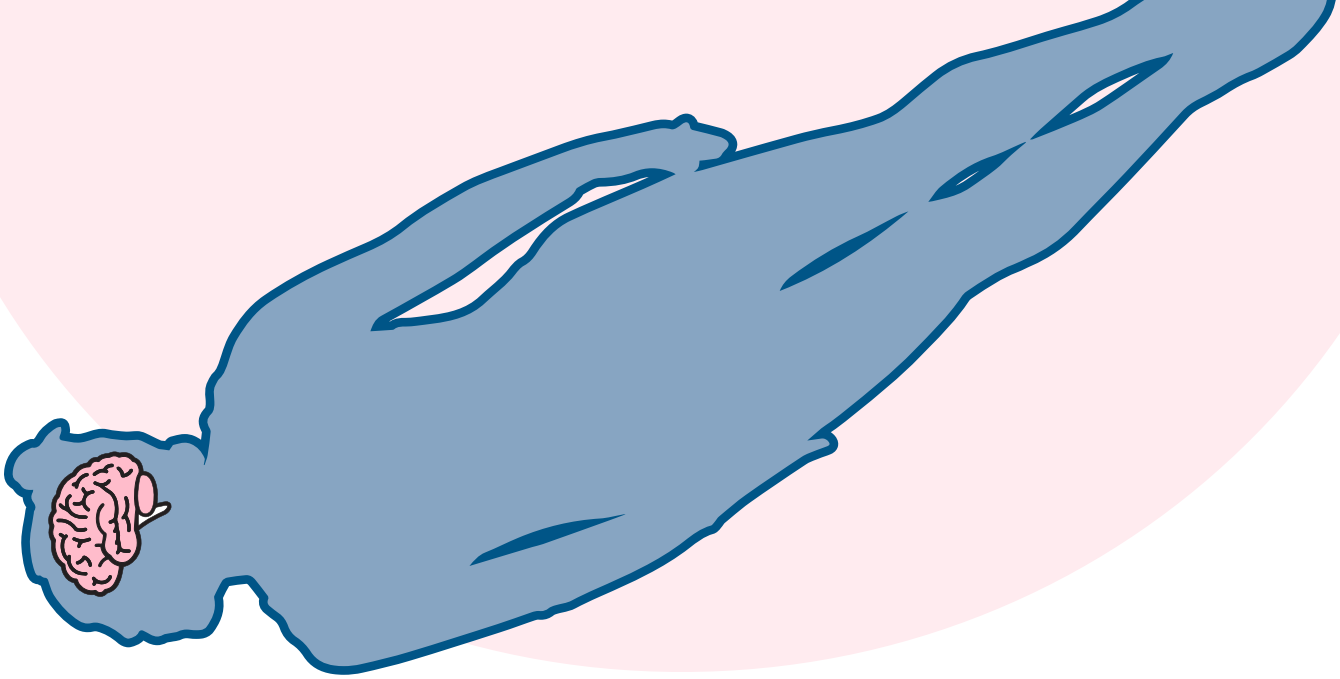
What is Concussion?

- A concussion is a mild traumatic brain injury leading to transient disturbance of normal brain function, typically without loss of consciousness.
- All head injuries, including concussions are serious and can be life threatening.
- A concussion typically is caused by a direct blow to the head (hitting your head on equipment or mat) or by a direct blow to the body which causes the head to changes direction at high speed. It can also be caused by a jarring effect from the trunk up to the head and brain (such as a hard fall to the buttocks)
- If in doubt, sit them out. A gymnast with any new or worsening symptoms following a fall or a blow to the head must be removed from training or competition until they are evaluated by a medical professional, preferably one with specific concussion training.
- A gymnast must not return to training or competition until they have been cleared by a physician.*
- The majority of concussions recover with rest and appropriate medical supervision in less than 14 days.





Please contact your child's medical provider if you have any further questions or concerns about your athlete.



What causes concussion?

A concussion can be caused by direct forces (e.g. a blow to the head), or indirect forces (e.g. a blow to the body, which causes the head to move rapidly).

Gymnastics is a high-risk sport with various types of injuries that can cause a concussion, including:

- Direct contact with the apparatus/equipment or safety mats
- The whiplash effect of head/neck flexion and extension (head forced forward &/or backward)
- Rotational forces of the head/neck (head forced left &/or right)
- Direct hard landing on their front, back or buttocks which transmit forces to the brain.

What are the signs and symptoms of concussion?

Recognition of concussions occurs through:

1. Observing an injury (e.g. blow to the head)
2. Noticing changes in the gymnast's behaviour, thinking, or physical functioning (ie. difficulty with balance or coordination)
3. Gymnast reporting symptoms to a coach, teammate, parent/guardian or medical provider.

The presence of one or more of these signs and symptoms may suggest a concussion:

Headache or pressure in head	"Feeling slowed down or "in a fog"
Neck pain	"Don't feel right"
Nausea and/or vomiting	Difficulty concentrating or remembering
Dizziness	Fatigue or low energy
Blurred vision	Confusion
Decreased balance or spatial awareness	Drowsiness
Sensitivity to light &/or noise	Emotional (ie. Sad, anxious or irritable)

** Symptoms may occur more than 24 hours after the initial injury.*

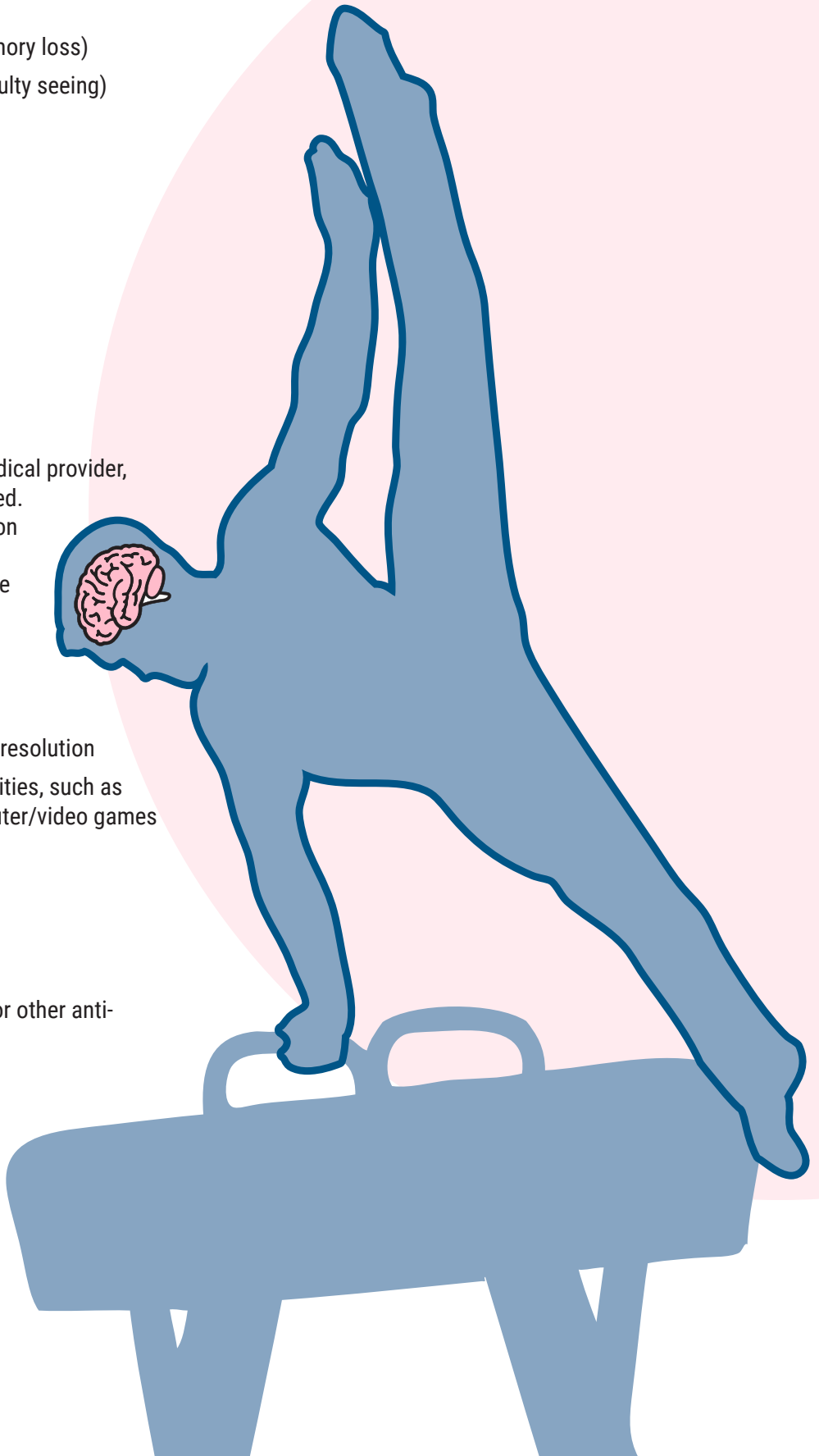
When to Seek Emergency Help

If any of the following symptoms occur, seek emergency medical attention immediately:

- A severe or worsening headache or neck pain
- Weakness or numbness in their arms &/or legs
- Repeated vomiting
- Difficulty talking (i.e. slurred speech or memory loss)
- Change in vision (i.e. Double vision or difficulty seeing)
- Double vision
- Seizure
- Difficulty staying awake or conscious
- Any other concerning symptoms

Management of Concussion

Evaluation and monitoring from a qualified medical provider, preferably with concussion expertise, is required. Physicians with advanced training in concussion management typically include sports medicine physicians, some pediatricians/family medicine physicians, neurologists and physiatrists.

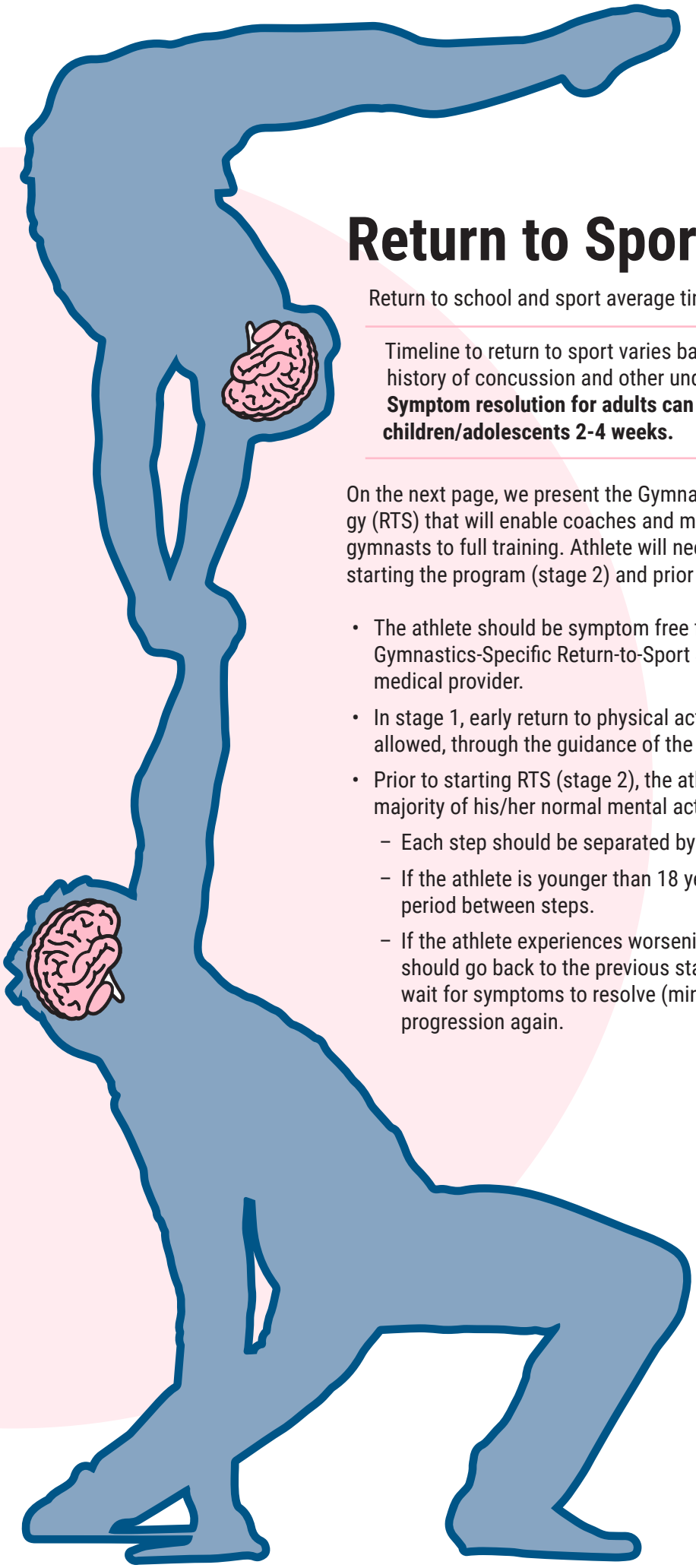


Rest (the body and mind):

- the cornerstone of concussion treatment
- minimum of 24-48 hours to allow symptom resolution
- Restrictions from physical and mental activities, such as schoolwork, reading, television, &/or computer/video games
- Avoid driving
- Avoid alcohol

Medications:

- Avoid NSAIDs (ie. Ibuprofen, aleve, aspirin or other anti-inflammatory medications)
- Avoid sleeping aids (ie. Benadryl)
- Consult with your doctor about the current medications you are taking



Return to Sport Protocol

Return to school and sport average timeline:

Timeline to return to sport varies based on individual factors, such as prior history of concussion and other underlying medical conditions. **Symptom resolution for adults can take on average 7-10 days, and for children/adolescents 2-4 weeks.**

On the next page, we present the Gymnastics-Specific Return-to-Sport Strategy (RTS) that will enable coaches and medical providers to safely return their gymnasts to full training. Athlete will need clearance from a physician, prior to starting the program (stage 2) and prior to completion (stage 6).

- The athlete should be symptom free for 24-48 hours before starting the Gymnastics-Specific Return-to-Sport Strategy and under the care of a medical provider.
- In stage 1, early return to physical activity that does not trigger symptoms is allowed, through the guidance of the treating medical provider.
- Prior to starting RTS (stage 2), the athlete should be able to perform the majority of his/her normal mental activities without symptoms.
  - Each step should be separated by 24 hours.
  - If the athlete is younger than 18 years old, consider a longer interval time period between steps.
  - If the athlete experiences worsening or new symptoms at any stage, they should go back to the previous stage that they completed symptom-free, wait for symptoms to resolve (minimum 24 hours), and then begin the progression again.

USA Gymnastics

SPORTS CONCUSSION: GYMNASTICS-SPECIFIC RETURN-TO-SPORT STRATEGY

Return-to-Sport strategy starts after symptom free for 24-48 hours and evaluation from a physician. Athlete should be performing mental activities symptom-free, prior to starting the RTS. A minimum, 24 hours should separate each step within this Return-to-Sport strategy

STAGE	AIM	ACTIVITY	GOAL OF EACH STEP
1	Rest followed by light aerobic activity	Daily activities that do not provoke symptoms for 24- 48 hours, then light aerobic activity (~20-30 minutes) without symptoms • Stationary bike • Walking or light jogging • Stretching (no inverted positions)	• Gradual reintroduction of work/school activities • Need to be back to full school prior to moving to step 2
2	Return to early sport specific training: Inversion	• Moderate intensity aerobics & sprinting • Landing drills – floor based, low impact • Gymnastics specific strengthening – start slow and then progress • Start basic, non-dynamic inversion (ie. Handstands) • Discipline-specific progression: - Ar – all events – basic swings/tap swings/cast handstands, leaps, jumps & dance on ground/ low heights, sprints - R – basic dance, no rotation - TT – non-impact, land-based drills, straight bounces - Ac/G – dance choreography only - P – running, jump drills without obstacles	• Increase heart rate • Start non-dynamic basic skills • Limited inversion • No twisting or flipping
3	Progress sport specific training: Flipping	• As above with increased intensity • Discipline-specific progression: - Ar – FX-basic tumbling/B-series on floor/UB&HB-giants/R-static strength holds (ie. L sit, planche), inlocates, dislocates/V - timers - R – advance dance, rotation, basic throws (Indiv./No Group) - Tr – straight bounces, level 10 single flipping skills - DM – soft landing, straight bounces, single rotation on & off - Tu – soft landing, basic HS, RH, RH, BHS, combining two skills - Ac/G – basic balance/lift drills/limit # of lifts, basic tumbling - P – low height hurdles, climbs, flipping drills	• Add full inversion • Advance basic skills • Limited flipping • No twisting
4	Progress sport specific training: Twisting	• As above with increased complexity • Discipline-specific progression: - Ar – add twisting, complex flipping, release timers, high beam - R – add full throws, rotation, sequences (Indiv./No Group) - Tr – add double salto skills and single twisting skills - DM – soft landings, single mount flipping skills, double landing skills, single twist on or off - Tu – soft landing, combining skills down the floor, double salto, complex flipping, single twist - Ac/G – progress from basic to advance balance, lift skills, twisting - P – high height hurdles, climbs, flip & twist without obstacles	• Add complex flipping • Start basic twisting
5	Progress sport specific training: Advanced Skills ** Physician clearance required to move to step 6*	• As above with increased complexity • Discipline-specific progression: - Ar – complex skills, higher risk skills (i.e. release skills) - R – continue full skills/sequences, integrate with Group - Tr – working rotation and twisting, progress to loop skills 1-5/5-10 together with limited turns - DM – hard landings, progress to mounts and dismounts in limited # - Tu – combo of inverted skills and one twisting skill in combination, complex flip/twist skills, basic sequences - Ac/G – add full tumbling, lift, balance skills, progress to full routines with choreography - P – add flip/twist with obstacles	• Combine complex inversion and rotation • Improve endurance & strength
6	Return to full training	• All disciplines – full clearance • Focus on slow increase in volume, to build stamina & strength • Progress through the following steps: 1. Single skill elements 2. Combined elements/Sequences 3. Routine parts 4. Full routines	• Final full reintegration • TT if symptoms reoccur go back to step 3

Ar = Artistic; R = Rhythmic; TT = Tumbling & Trampoline; Ac/G = Acro/Group; P = Parkour; FX = Floor Exercise; B = Beam; PH = Pommel Horse; PB = Parallel Bars; UB = Uneven Bars; R = Rings; HB = High Bar; Indv = Individual; Tr = Trampoline; DM = Double Mini; Tu = Tumbling

Special thanks to the following who contributed to this document:

1. USA Gymnastics Medical Staff 2. FIG Concussion Policy 3. Parachute Canada. Parachute (2017). Canadian Guideline on Concussion in Sport.

Note: If the athlete experiences worsening or new symptoms at any stage, they should go back to the previous stage that they completed symptom-free, wait for symptoms to resolve (minimum 24 hours), and then begin the progression again.