



Injury Reduction Through Dynamic Warm-Up & Concussion Basics

Importance of the Dynamic Warm-Up

- Goal is to prepare the athlete both mentally and physically for exercise
- Designed to prepare an athlete's body for the demands of lifting, conditioning, or competition and can improve performance and decrease the risk of injury
- Should take the body through full ranges of motion while establishing proper neuro-muscular firing patterns to align the body and give mechanical advantage to express power and strength
- Increase heart rate, blood flow, internal temperature of the muscles, respiration rate and perspiration and decrease the viscosity of joint fluids

Mental Preparation

- Dynamic warm-up should require focus and challenge the athlete with components requiring undivided attention
 - Balance
 - Coordination
- Sport specific and interesting to athlete
- Athlete “buy in”

Physical Preparation

- Lengthen and strengthen muscles
- Full ROM of joints and body segments
- Encompass all major muscle groups as well as smaller groups that will be targeted during workout
- Should be at an accomplishable skill level

Prepare Body For Specific Demands of Workout

- Planned out work out
 - Have an understanding of what muscles are used in each drill/period of practice
- Dynamic warm-up should be adjusted based on the demands of the day
- Highly target the major muscle groups that will be used the most
- Always leave time for self stretching at the end
 - Individual needs can be addressed

Components of the Dynamic Warm-Up

- Stretching/Flexibility
 - Moving/active
- Cardiovascular Activity
 - Increase blood flow and joint readiness
 - Should be done early/middle of warm up
- Balance Exercises
 - Coordination
 - Important to start young to build neuromuscular feedback
- Strengthening Exercises/Plyometric Exercises (if age appropriate)
 - Plyo should not be started until coordination is developed (minimum age 10 yo)
- Technique Exercises
 - Sport specific
 - At the level of the athletes

Specific Exercises



Stretching (3-4 exercises):

- calf, quadriceps, hamstrings, hip adductor, hip flexor



Warm Up (2-3 exercises):

- forward-backward jog, side shuffle, high knee skipping, carioca, butt kickers, arm swings, trunk rotations, leg swings



Balance (2-3 exercises):

- single leg balance (static), single leg balance with perturbation (ball toss, partner perturbation, unstable surface, upper body motion), dynamic jump/hop to balance



Strengthening (2-3 exercises):

- core musculature: curl ups, plank, push up
- hip / thigh musculature: squat, lunge, deadlift, russian hamstring curl, bridge



Plyometrics (5-6 exercises):

- double leg jumps (multi-planar), single leg jumps (multi-planar), single leg bounding, ladder drills, running & cutting



Technique (verbal feedback on movement quality during all exercises):

- bend knees and hips (land softly, light as a feather, act like a shock absorber)
- keep knees over toes (straight as an arrow)
- toes straight ahead

Show Time!!

- Stretching
 - Knee Hugs
 - Side Lunge
- Active Cardio
 - Windmills
 - Front Cross Jacks
- Balance/Stabilization
 - Pendulums w/ Bat
 - Plank
- Strengthening
 - TB I/T/Y
 - TB External Rotation
- Plyometric – EVALUATE BASED ON AGE
 - Base Running/Stealing
 - Jumping Jacks
- Sport Specific/Technique
 - Throwing Motion w/ Towel For Follow-Through
 - Swings

Pitch Counts

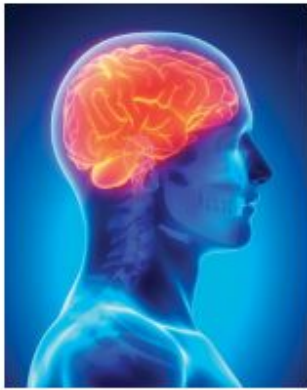
AGE	DAILY MAX (PITCHES)	REQUIRED REST (PITCHES)				
		0 Days	1 Days	2 Days	3 Days	4 Days
7-8	50	1-20	21-35	36-50	N/A	N/A
9-10	75	1-20	21-35	36-50	51-65	66+
11-12	85	1-20	21-35	36-50	51-65	66+
13-14	95	1-20	21-35	36-50	51-65	66+
15-16	95	1-30	31-45	46-60	61-75	76+
17-18	105	1-30	31-45	46-60	61-75	76+

Pitch Counts

AGE / DIVISION	ONE DAY MAXIMUM TO PITCH THE NEXT DAY	ONE DAY MAXIMUM	THREE DAY MAXIMUM
7U – 12U	3 IP	6 IP	8 IP
13U – 14U	3 IP	7 IP	8 IP
15U	Unlimited	Unlimited	Unlimited

Concussions

- A type of traumatic brain injury caused by a bump, blow, or jolt to the head or by a hit to the body that causes the head and brain to move rapidly back and forth.
- Sudden movement can cause the brain to bounce around or twist in the skull, stretching and damaging the brain cells and creating chemical changes in the brain.
- Every concussion is significant, unique and potentially complex.



CONCUSSION SIGNS & SYMPTOMS

- ✓ Loss of consciousness
- ✓ Can't recall events before or after impact
- ✓ Appears dazed or confused
- ✓ Exhibits unusual behavior
- ✓ Moves clumsily
- ✓ Headache
- ✓ Dizziness or balance problems
- ✓ Nausea
- ✓ Confusion, foggy or slowed down
- ✓ Sensitivity to light and noise
- ✓ Blurred vision

DANGER SIGNS

REPORT TO ER IMMEDIATELY

- ✓ Decreasing consciousness
- ✓ Increased confusion
- ✓ Increased irritability
- ✓ Numbness or tingling in extremities
- ✓ Unequal pupils
- ✓ Repeated vomiting
- ✓ Seizures
- ✓ Slurred speech or inability to speak
- ✓ Worsening headache
- ✓ Inability to recognize people or places

IF YOU SUSTAIN A CONCUSSION...

DO

- ✓ Know you will get better by maintaining a positive outlook on recovery.
- ✓ Sleep, eat a well-balanced diet, stay hydrated and maintain normal activities as long as symptoms do not increase.
- ✓ Limit physical and cognitive activity so as not to cause increased symptoms.
- ✓ Monitor and honestly report your symptoms to your concussion management team.

DON'T

- ✓ Participate in any vigorous activity or put yourself in harms way.
- ✓ Take medication containing aspirin or non-steroidal anti-inflammatories
- ✓ Hide or under report your symptoms
- ✓ Drive a car or bike.
- ✓ Expose yourself to bright lights or loud noises if they increase symptoms.

REFERENCE: NATA position statement management of sport concussion

What Do You Do?

- Remain calm
- Pull him/her out!!
- Inform parents
 - Teachers
 - School
 - Coaches
- Monitor Symptoms
- Rest
- Follow up with, Doctor, Athletic Trainer, School Nurse, etc

Prolonged Symptoms

- Normal length 1-14 days
- Post-Concussion Syndrome
- Concussion Rehabilitation and Management Program
 - Headaches
 - Neck Pain
 - Dizziness
 - Balance Issues
 - Memory Issues
 - Sensitive to Light/Sound
- Great for those with a history of multiple concussions

Resources for Coaches

- Pivot Physical Therapy's Concussion Rehabilitation and Management Program
- CDC HEADS UP Concussion App on your smartphone
- PLAY IT SAFE app from Concussion Health on your smartphone

References

- <file:///C:/Users/User/Downloads/Warm%20Up%20and%20Cool%20down.pdf>
- <http://nfhs.org/articles/focus-on-health-of-pitchers-continues-in-high-school-baseball/>
- <http://www.cdc.gov/HeadsUp/index.html>
- <https://www.weckmethod.com/articles/dynamic-warm-up-for-overhead-athletes-to-reduce-injury>

