MedStar Sports Medicine

Knowledge and Compassion
Focused on You

Racetrack Medicine

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DISCLOSURE

Neither I, Kelly Ryan DO, nor any family member(s), have any relevant financial relationships to be discussed, directly or indirectly, referred to or illustrated with or without recognition within the presentation.

Dedicated to ….

OBJECTIVES

To discuss basic training, weight requirements, and common injuries in professional jockeys

To discuss gaps in knowledge of concussion management and importance of further developing Return to Ride protocols

To evaluate the benefits and unique opportunity of having a sports medicine model implemented at the racetracks

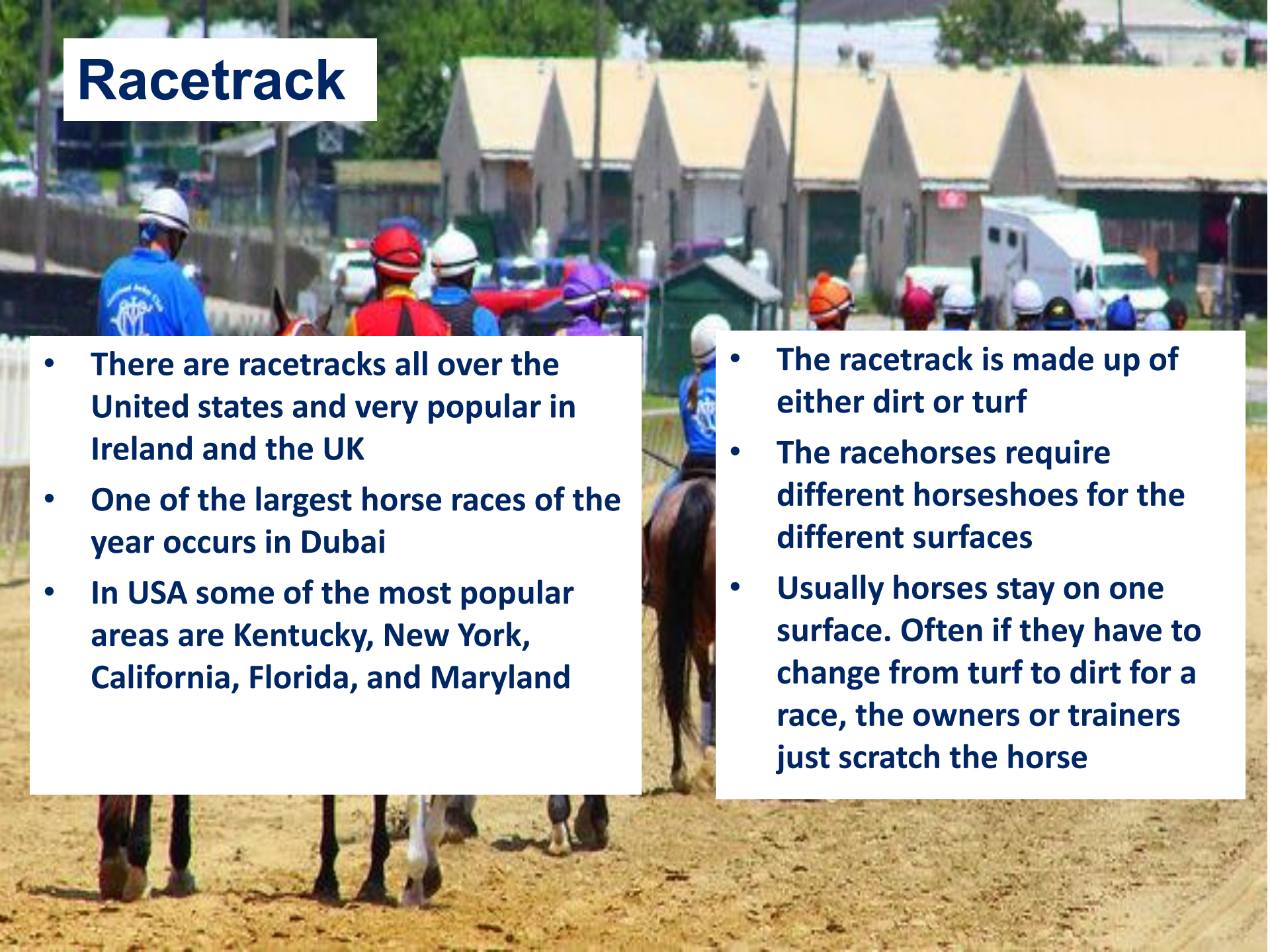
Background – Kelly Ryan, DO

- Primary Care Physician
- Fellowship trained in Sports Medicine
  - Concussion management
  - Team Coverage
  - Common Orthopedic Injuries
  - Pre-participation evaluations
- Sports Medicine Faculty – Family Medicine Residency Program
- Team Physician Baltimore Brigade
- Team Physician Towson University
- Co-Medical Director Maryland Racing
  - Physician on site at the racetrack providing pre-participation physicals for jockeys, evaluation and management of acute on-track injuries, ongoing musculoskeletal concerns, management of chronic illnesses for backstretch workers and employees, and overall safety at Laurel, Pimlico, and Timonium

What is the sport

- Horse racing started back in 1665
- In maryland it was very popular and now run at timonium (2 weeks a year), Pimlico 3 weeks, and Laurel the rest of the year
- The Maryland Jockey Club was founded in 1743
- Pimlico was built in 1868
- First Preakness was held in 1873
- Ride in all conditions – rarely closes for temperatures too cold or snow conditions
- Each race is a set distance “furlongs” (1/8 of a mile)

Racetrack



- There are racetracks all over the United states and very popular in Ireland and the UK
- One of the largest horse races of the year occurs in Dubai
- In USA some of the most popular areas are Kentucky, New York, California, Florida, and Maryland

- The racetrack is made up of either dirt or turf
- The racehorses require different horseshoes for the different surfaces
- Usually horses stay on one surface. Often if they have to change from turf to dirt for a race, the owners or trainers just scratch the horse

Who are the players

- Jockeys are approx 116 lbs but can race up to 120 including equipment
- Average height is 4’10”-5’5”
- When you first start as a new jockey, you are considered a “bug” and can be a few pounds lighter to give you an advantage
- You are considered an apprentice jockey until you have won a certain amount of races
- You can start as a Bug Boy/Girl age 16
- Many of the “JOCKS” go to jockey school
- Find a trainer that likes you and work REALLY hard
- Represented by agents
- There is a lot of free labor that goes into building your career

Other "Athletes at the Track"

Gate Crew

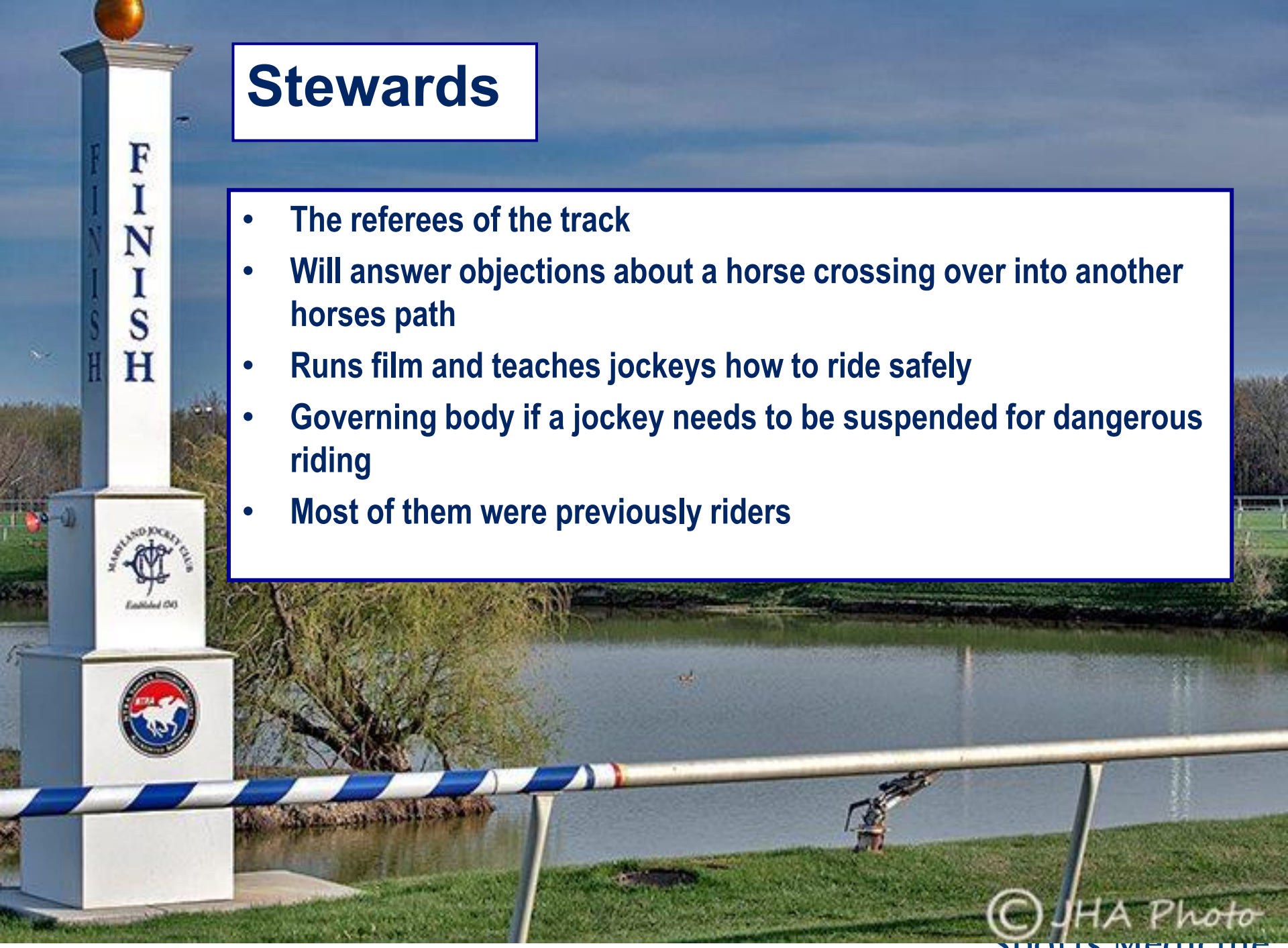
- In the gate with horses and jockeys
- LOTS of crush injuries

Backstretch Employees

- Literally the work horse of the track
- Grooms – Clean and wash horse, help with stables
- Hotwalkers – Walk the horses all day
- Walk, feed, groom, clean stables, repeat everyday
- Start at 4 AM

Horse – The real ATHLETES

- Essentially running on fingers
- Exercise about a mile a day
- Usually has 3 weeks in between races to recover
- Have as much personalities as people
- Horses are “broken” when they are 2 years old
- Triple Crown races at 3 years old



Stewards

- The referees of the track
- Will answer objections about a horse crossing over into another horses path
- Runs film and teaches jockeys how to ride safely
- Governing body if a jockey needs to be suspended for dangerous riding
- Most of them were previously riders

The MONEY

- Purses are paid by the track
- 60% goes to the winner
  - 10% Jockey
    - 10% Valet
    - 10-25% Agent
  - 10% Trainer
- The rest is divided up by 2nd-4th or 5th place
- A jockey gets $60-$100 a mount
- Ride anywhere from 1-12 mounts a day

Training

Wake up in the morning and hit the track approxiamtely 5:30
Many will groom their own horses and work in the stalls
Pick up feed and straw
Allergies to enviroment and horses
Some work out otherwise
Take naps in the late morning
Will travel to many tracks


Medical Topics
Performance
– Training
• Dehydration
– Vitamin D
– Rapid weight loss
• Weight requirements
– Flipping, diuretics, BUG
• Psychosocial
– Opioid dependence
– Depression
– Alcoholism
• Orthopedic injuries
– Knee pain, rotator cuff tears, labral tears
©JHA Photo

Medical Management for our Colony of Jockeys

- First thing we do in the morning is visit Jocks Room – just as a training room
- Follow up injuries from previous day or week
- Many of the riders may present with injuries from other racetracks
- Horses are followed by ambulance
- If riders goes down, ambulance is first on site
- Physician makes it out to field if possible
- Rapid assessment
- If non emergent - Jocks evaluated by physician in jocks room or office
- Have about 20 minutes to be cleared and to be back on horse for next race
- Evaluation need to be quick yet thorough

Recognizing – On Site Evaluation

- Rider Falls
- Immediately Evaluated by EMS
- Sports Medicine Physician Meets EMS on Track
- Acute evaluation for LOC or cervical spine injury
- Evaluation for injury requiring IMMEDIATE TRANSPORT

Indications for Emergency Management

NOTE: A hit to the head can sometimes be associated with a more serious brain injury. Any of the following warrants consideration of activating emergency procedures and urgent transportation to the nearest hospital:

- Glasgow Coma score less than 15
- Deteriorating mental status
- Potential spinal injury
- Progressive, worsening symptoms or new neurologic signs

III. Indications: Closest hospital emergency department that can manage Trauma (Levels I to IV)

A. EMS provider judgement

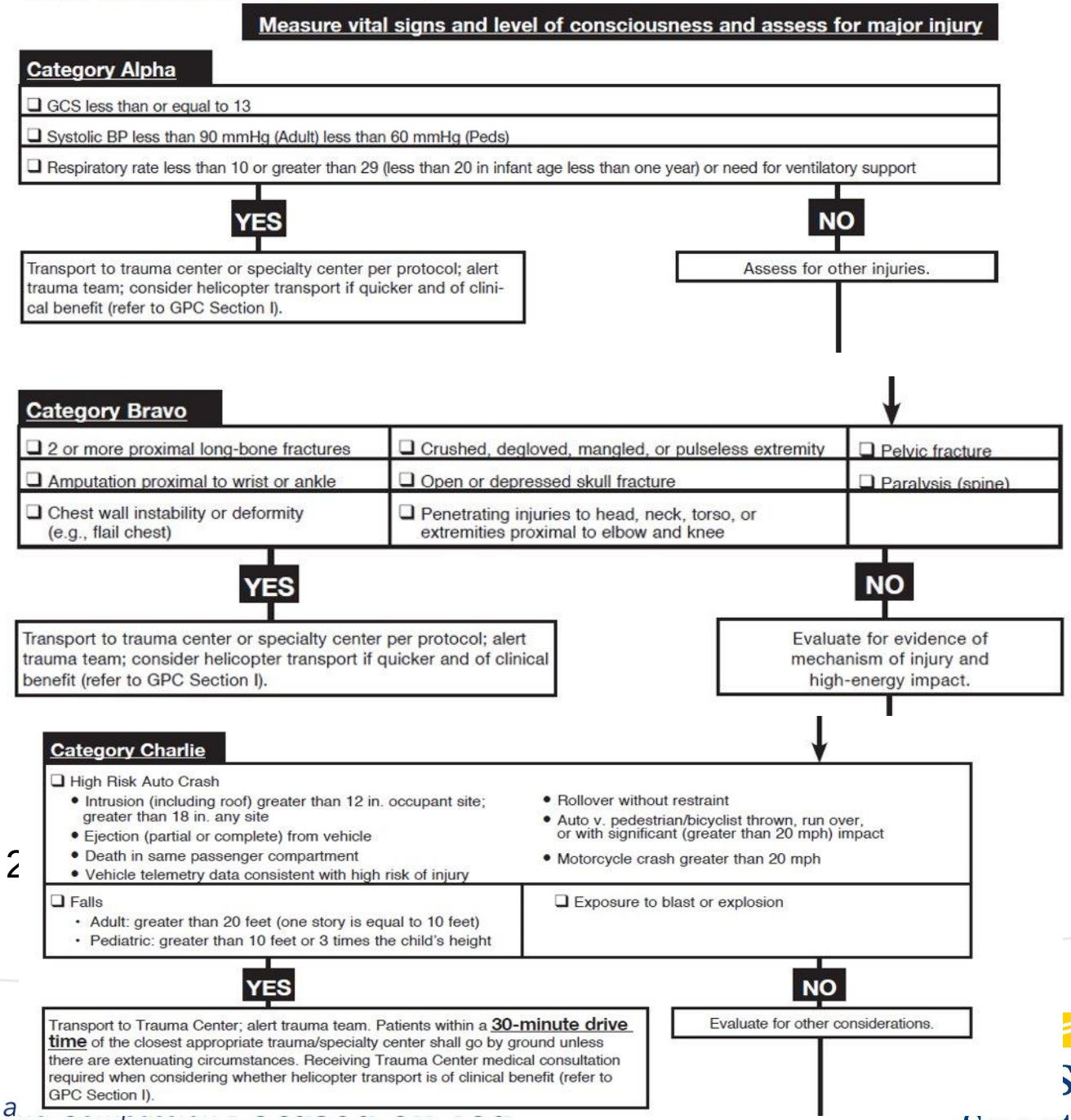
B. EMS Criteria based on Mechanism of injury

1. Falls
   a. Adult: >20 feet (2 stories)
   b. Child: >10 feet or fall from more than twice the height of the child
2. High-risk motor vehicle accident
   a. Intrusion into passenger compartment (including roof) >12 inches
   b. Ejection from vehicle (even if partial ejection)
   c. Death in same passenger compartment
   d. High risk of injury based on vehicle telemetry data
   e. Motor vehicle versus pedestrian or bicyclist (thrown, run over or with impact at >20 MPH)
   f. Motorcycle accident at >20 MPH

Recognize

Decision Made After Immediate Evaluation

Transportation	On- Site Management
Review Film	Allow jockey to clean up (under supervision)
Review Medical Record	Assess in a quiet location
Call ER and review mechanism of fall, initial evaluation, past medical history	Notify: Clerk of Scales, Stewards Agent (if jockey request)



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Knowledge a

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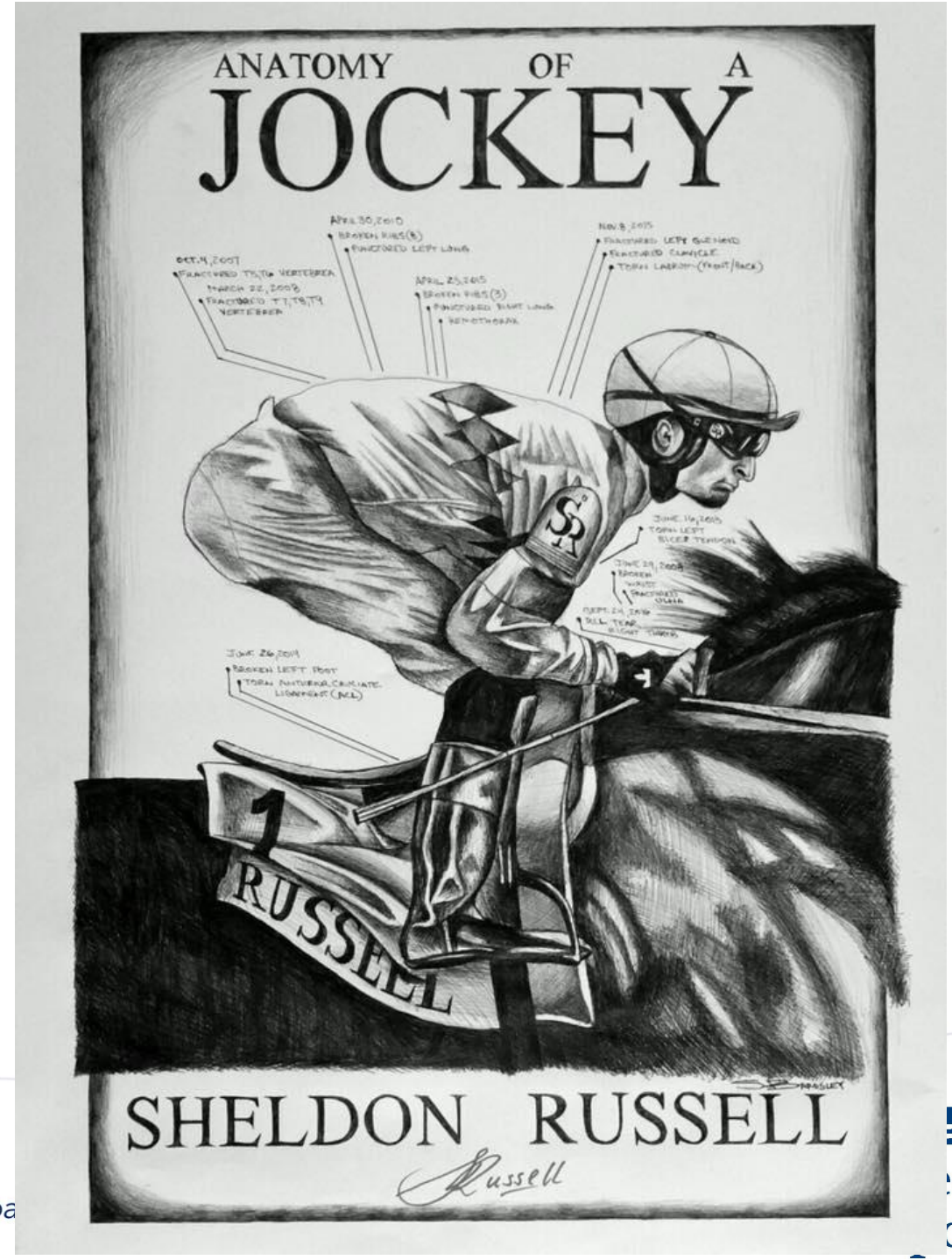
Injured Jock

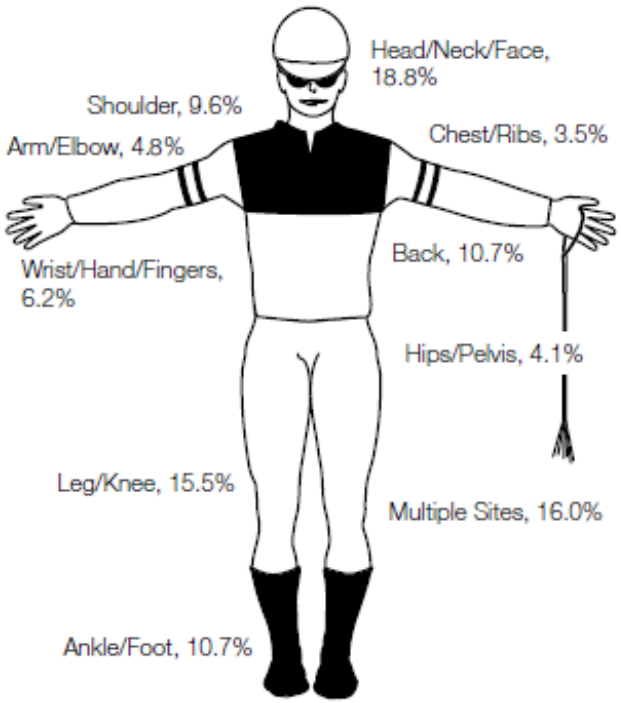

ANATOMY OF A
JOCKEY
1
RUSSELL
SHELDON RUSSELL
Russell

Jockey Injuries in the United States

Anna E. Waller, ScD
Julie L. Daniels, MPH, PhD
Nancy L. Weaver, MPH
Pamela Robinson, PhD

JAMA. 2000;283:1326-1328

Figure 1. Body Part Injured, 1993-1996



A total of 6545 injury events occurred during official races between 1993 and 1996, for a rate of 606 injuries per 1000 jockey-years

Most head injuries resulted from either being thrown from the horse (41.8%) or struck by the horse's head (23.2%).

Head and neck injuries represented 19% of all injuries in this study

Nearly 1 in 5 jockey injuries was to the jockey's head or neck

The head was the most frequently injured body part in our data.

Helmets are required head protection for jockeys; however, there have been discussions for improving the technology to create a lightweight helmet with greater coverage that may offer improved protection of the head.

Maryland Racing
Sept 2015-Oct. 2017

Days of Racing	311
Races	2,965
Mounts	25,437
Jockeys in Winter Meet	99
Jockeys in Summer Meet	91

Injury Reports	91
Number of Significant Falls	35
Number of Falls with Multiple Riders	3

On-Site Care	69
Ambulance Transports	6
Other Care	17

Head Injuries	12	13.2%
Concussions	4	4.4%

During Race	74	81.3%
Gate	14	15.4%
Other	2	2.2%
Paddock	1	1.1%
Path	1	1.1%

Rate of Falls/100 Races	1.18
Rate of Injuries/100 Races	3.07
Rate of Concussions/100,000	15.73

CONCUSSIONS

- Falling from a horse running 40 mph
- Falling approx 8 feet
- Helmet design
- Mouth guards?
- How do they NOT get concussion
- CTE from horse movement?

Racing concussions by the numbers…

- In a study of 706 jockeys with injuries occurring in 1990 in US, 13% attributed to concussions (Press, et al, 1995)
- In a study of jockey injury rates in Ireland from 1992-2000, the incidence of concussion was 7% per 100,000 falls (Turner, McCrory, & Halley, 2002)
- In study of jockey injury data from 1999-2006, concussions accounted for 15% of injuries in flat and jump racing of amateur & professional jockeys in France, Ireland, and Britain (Forero Rueda, Halley, & Gilchrist, 2010)
- Current Findings?
  - More jockeys reporting? Better/more involved medical care?

Consideration

- If they don’t ride, they don’t make money
- Lose their mount
- Owner/Trainer not happy
- Put them back too fast, could have difficulty with depth perception, balance, coordination
- Close space to the rail

REVIEW

Injuries in professional horse racing in Great Britain and the Republic of Ireland during 1992–2000

M Turner, P McCrory, W Halley

Br J Sports Med 2002;**36**:403–409

Table 7 Concussion rate per 100 falls 1992–2000

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	Total
Flat racing GB	2.7	4.9	3.2	1.8	4.8	1.4	5.3	1.4	2.7	1.2	2.5
Flat racing Ireland	–	10.0	11.5	8.0	12.9	5.1	3.4	8.3	5.8	9.4	7.4

Table 10 Injury rates in Great Britain 1992–2000

	Flat racing	
Injury	Injuries as % of total falls	Injuries per 100000 rides
Concussion	2.8	11.6
Fracture	3.6	14.6
Dislocations	0.08	0.31

Table 6 Causes of death in professional horseracing in Great Britain 1975–2000

Case number	Type of racing	Cause of death (as listed on death certificate)
1	Flat	Cerebral laceration, skull fracture
2	Jump	Left pneumothorax, lung laceration
3	Jump (Amateur)	Cerebral oedema/haemorrhage
4	Jump	Traumatic brain injury
5	Jump	Subdural haematoma
6	Flat	Intrathoracic haemorrhage/rib fractures
7	Jump	Ruptured liver/inferior vena cava
8	Flat (Amateur)	Subdural haematoma
9	Flat	Subdural haematoma

Clinical Journal of Sport Medicine
5:236-240 © 1995 Lippincott-Raven Publishers, Philadelphia

The National Jockey Injury Study: An Analysis of Injuries to Professional Horse-Racing Jockeys

Joel M. Press, M.D., Patricia Dietz Davis, M.P.H.,*Steven L. Wiesner, M.D.,
Allen Heinemann, Ph.D., Patrick Semik, and Robert G. Addison, M.D.

TABLE 1. *Types of Injuries*

Injury	Percentage
Fracture	64
Bruise	10
Sprain	8
Concussion	8
Dislocation	7
Laceration	5
Tear	5
Puncture	5
Contusion	4
Pull	2
Internal injury	2
Neurological injury	2
Amputation	1
Irritation	1
Herniation	<1
Abrasion	<1
Hemorrhage	<1
Infection	<1
Unknown	11

TABLE 5.

Injury type	Number	Mean time lost (days)
Concussion	66	43
Dislocation	54	83
Laceration	43	26
Tear	42	104
Puncture	38	122
Contusion	32	31
Pull	17	24
Internal injury	17	120
Neurologic injury	14	104

Amount of time missed for less common injuries

There were 1,757 total injuries reported among the 706 jockeys who returned questionnaires.

Concussions were reported by 54 jockeys, a 13% incidence.

Immediate Eval

- A 2007 study by the Centers for Disease Control and Prevention found that horseback riding resulted in **11.7 percent of all traumatic brain injuries** in recreational sports from 2001 to 2005, the highest of any athletic activity.
- Of the estimated **14,446** horseback-related head injuries treated in **2009**, 3,798 were serious enough to require hospitalization, for an estimated **4,958** concussions and 97 skull fractures. Subdural hematomas and brain hemorrhages comprised many of the serious injuries.
- According to the Equestrian Medical Safety Association, head injuries account for an estimated **60 percent of deaths resulting from equestrian accidents.**

Consensus statement on concussion in sport—the 5th international conference on concussion in sport held in Berlin, October 2016

Paul McCrory,[1] Willem Meeuwisse,[2] Jiří Dvorak,[3,4] Mark Aubry,[5] Julian Bailes,[6] Steven Broglio,[7] Robert C Cantu,[8] David Cassidy,[9] Ruben J Echemendia,[10,11] Rudy J Castellani,[12] Gavin A Davis,[13,14] Richard Ellenbogen,[15] Carolyn Emery,[16] Lars Engebretsen,[17] Nina Feddermann-Demont,[18,19] Christopher C Giza,[20,21] Kevin M Guskiewicz,[22] Stanley Herring,[23] Grant L Iverson,[24] Karen M Johnston,[25] James Kissick,[26] Jeffrey Kutcher,[27] John J Leddy,[28] David Maddocks,[29] Michael Makdissi,[30,31] Geoff Manley,[32] Michael McCrea,[33] William P Meehan,[34,35] Sinji Nagahiro,[36] Jon Patricios,[37,38] Margot Putukian,[39] Kathryn J Schneider,[40] Allen Sills,[41,42] Charles H Tator,[43,44] Michael Turner,[45] Pieter E Vos[46]

Management of Sports Related Concussion

Recognize
Remove
Re-evaluate
Rest
Rehabilitation
Refer

Recover
Return to Sport
Reconsider
Residual effects
Risk Reduction

Difficulty with Diagnosis

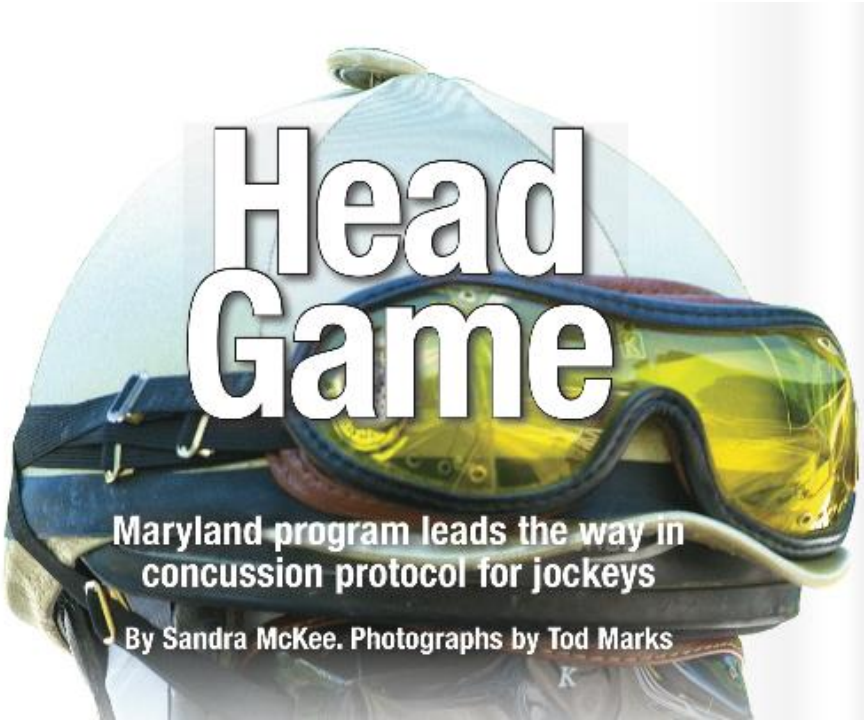
- Confusion
  - "From my experien… …cussion, you don't really know you h… …n — when you have a con… …k you're in a fine shape"
  - …ull players o… …nk …re fine; they don't k…
- Culture
  - "If you feel like you're fi… …e going …de a race. One way … …y is ride …re not going to stop."
- The goal of c… …ting is confirmation for me that the athlete doesn… …cussion or educating the rider they do … testing.

LIMITED AMOUNT TIME

HIGH PRESSURE SITUATION

ADRENALINE RUSH

Many areas of concussions



- Education
- Evaluation
- Management
- Return to Ride
- Prevention
- Protection
- Regulation
- Baseline?

Where do we start?

- Education
  - Track and Riders
- Rules for recognition
- Notification of removal
- Proper diagnosis
  - Coordinate with local sports medicine professionals
- Appropriate management to return to riding
- Waiver of liability for riders
- Baseline testing

CONCUSSION
RECOGNITION TOOL

RECOGNIZE & REMOVE

Concussion should be suspected if **one or more** of the following visible clues, signs, symptoms or errors in memory questions are present.

1. Visible clues of suspected concussion

Any one or more of the following visual clues can indicate a possible concussion:

- Loss of consciousness or responsiveness
- Lying motionless on ground / Slow to get up
- Unsteady on feet / Balance problems or falling over / Incoordination
- Grabbing / Clutching of head
- Dazed, blank or vacant look
- Confused / Not aware of plays or events

2. Signs and symptoms of suspected concussion

Presence of one or more of the following signs & symptoms may suggest a concussion:

- Loss of consciousness
- Headache
- Seizure or convulsion
- Dizziness Balance problems
- Confusion
- Nausea or vomiting
- Feeling slowed down
- Drowsiness
- "Pressure in head"
- More emotional
- Blurred vision
- Irritability
- Sensitivity to light
- Sadness Amnesia
- Fatigue or low energy
- Feeling like "in a fog"
- Nervous or anxious
- Neck Pain
- "Don't feel right"
- Sensitivity to noise
- Difficulty remembering
- Difficulty concentrating

April 29, 2019

3. Memory function

Failure to answer any of these questions correctly may suggest a concussion.

How many races do you ride today?
What is the name of your valet?
Which trainer did you ride for?
What racetrack are you at?
What race is it?

MARYLAND THOROUGHBRED HORSEMEN'S ASSOCIATION, Inc.

MedStar Sports Medicine

Maryland Jockey Club Est. 1743

RED FLAGS

If ANY of the following are reported the jockey should be safely and IMMEDIATELY removed from the riding, and should not return to activity until medically assessed. If no qualified medical professional is available, consider transporting by ambulance for urgent medical assessment:

- Athlete complains of neck pain
- Deteriorating conscious state
- Increasing confusion or irritability
- Severe or increasing headache
- Weakness or tingling / burning in arms or legs
- Repeated vomiting
- Unusual behavior change
- Seizure or convulsion
- Double vision

It is recommended that, in all cases of suspected concussion, the jockey is referred to a medical professional for diagnosis and guidance as well as return to play decisions, even if the symptoms resolve.

Jockeys with a suspected concussion should not be left alone and should not drive a motor vehicle.

Remember:

- **In all cases, the basic principles of first aid (danger, response, airway, breathing, circulation) should be followed.**
- **Do not attempt to move the jockey (other than required for airway support) unless trained to so do**
- **Do not remove helmet (if present) unless trained to do so.**

from McCrory et. al,
Consensus Statement on Concussion in Sport.
Br J Sports Med 47 (5), 2013

BAsem British Association of Sport & Exercise Medicine

Delaware Jockeys Association

CONCUSSION

A MUST READ FOR MARYLAND RIDERS

CONCUSSION FACTS

- Concussion is a *brain injury* that alters the way your brain functions
- Concussion can occur from a blow to the head/body:
  - following a fall from horse and hitting your head or even from a whiplash motion
- Most concussions occur without being knocked unconscious
- *Severity of injury depends on many factors* and is not known until symptoms resolve and brain function is back to normal
- *All concussions are not created equally*. Each rider is different, and all injuries should be evaluated by your team medical staff.

CONCUSSION SYMPTOMS

- Different symptoms can occur and may not show up for several hours. Common symptoms include:
  - Confusion
  - Headache
  - Amnesia/difficulty remembering
  - Balance Problems
  - Irritability
  - Dizziness
  - Difficulty Concentrating
  - Feeling sluggish, foggy, or groggy
  - Nausea
  - Sensitivity to Noise
  - Sensitivity to Light
  - Slowed Reaction Time
  - Feeling more emotional
  - Sleep disturbance
  - Loss of Consciousness
  - Double/fuzzy vision
  - *Symptoms may worsen with physical or mental exertion (e.g., lifting, computer use, reading)*

WHY SHOULD I REPORT MY SYMPTOMS?

- Your brain is the most vital organ in your body
- Riding while still experiencing symptoms can prolong the time it takes to recover and return to ride, and could put you or other riders at risk of a significant injury due to difficulty making good decisions and having slower reaction time
- Unlike other injuries, there may be significant consequences to "riding through" a concussion
- Repetitive brain injury, when not managed promptly and properly, may cause permanent damage to your brain

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CONCUSSION

A MUST READ FOR MARYLAND RIDERS

WHAT SHOULD I DO IF I THINK I HAVE HAD A CONCUSSION?

1. REPORT IT. Never ignore symptoms even if they appear mild. Look out for your fellow jocks. Tell your Race Track Physician if you think you or another rider may have a concussion
2. GET CHECKED OUT. Your team medical staff has your health and well being as its first priority. They will manage your concussion according to best practice standards which include being fully asymptomatic, both at rest and after exertion, and having a normal neurologic examination, normal neuropsychological testing, and clearance to play by the team medical staff.
3. TAKE CARE OF YOUR BRAIN. According to the CDC, "traumatic brain injury can cause a wide range of short or long term changes affecting thinking, sensation, language, or emotions." These changes may lead to problems with memory and communication, personality changes, as well as depression and the early onset of dementia. Concussions and conditions resulting from repeated brain injury can change your life and your family's life forever.

IF YOU HAVE ANY QUESTIONS, PLEASE CONTACT YOUR MEDICAL STAFF

In order to insure a safe return to ride, your race track physician will guide you through a Return to Ride Protocol. It is a protocol made of 5 steps that makes sure that your brain recovers appropriately. These steps may vary slightly, but essentially after you are symptom free for 24-72 hours, depending on severity, you may start return to ride protocol.

Phases:

1. 15 minutes light cardio exercise and then progress to 30 minutes
2. 30 minute simulated ride
3. 30 minute mounted individual trot
4. Individual Gallop/simulated Race speed
5. Return to racing (Jockeys Only)

*Rider must be examined by Track physician prior to step 1 and step 4 or

Adapted from www.cdc.gov/Concussion. For more information about concussion, please visit www.cdc.gov/Concussion

I _____ have read and understood this concussion form that is presented to me today. I am aware that at the conclusion of reading this form that I have the opportunity to ask the medical staff any questions/concerns I may have.

_____ _____

Signature Date

April 29, 2019

Knowledge and Co

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A Brief Vestibular/Ocular Motor Screening (VOMS) Assessment to Evaluate Concussions:

Am J Sports Med. 2014 October ; 42(10): 2479–2486. doi:10.1177/0363546514543775.

Anne Mucha, DPT[*], Michael W. Collins, PhD[†], R.J. Elbin, PhD[‡], Joseph M. Furman, MD, PhD[§], Cara Troutman-Enseki, DPT[*], Ryan M. DeWolf, MS, ATC[†], Greg Marchetti, PhD[||], and Anthony P. Kontos, PhD[†,¶]

"The eyes are the window to a concussion."
-Me

Vestibular/Ocular Motor Screening

1. Smooth Pursuit

- Test the ability to follow a slowly moving target
- Maintain focus on the target as the examiner moves the target smoothly in the horizontal direction

2. Horizontal and Vertical Saccades

- Test the ability of the eyes to move quickly between targets
- Move their eyes as quickly as possible from point to point 3 feet apart

Vestibular/Ocular Motor Screening

3. Convergence

Measure the ability to view a near target without double vision.

- The distance in cm. between target and the tip of nose is measured and recorded.
- Abnormal: Near Point of convergence ≥ 6 cm from the tip of the nose

4. Horizontal Vestibular Ocular Reflex (VOR)

Assess the ability to stabilize vision as the head moves. Horizontal and Vertical

Maintaining focus on the target, he head is moved at an amplitude of 20 degrees to each side and a metronome is used to ensure the speed of rotation is maintained

5. Visual Motion Sensitivity (VMS)

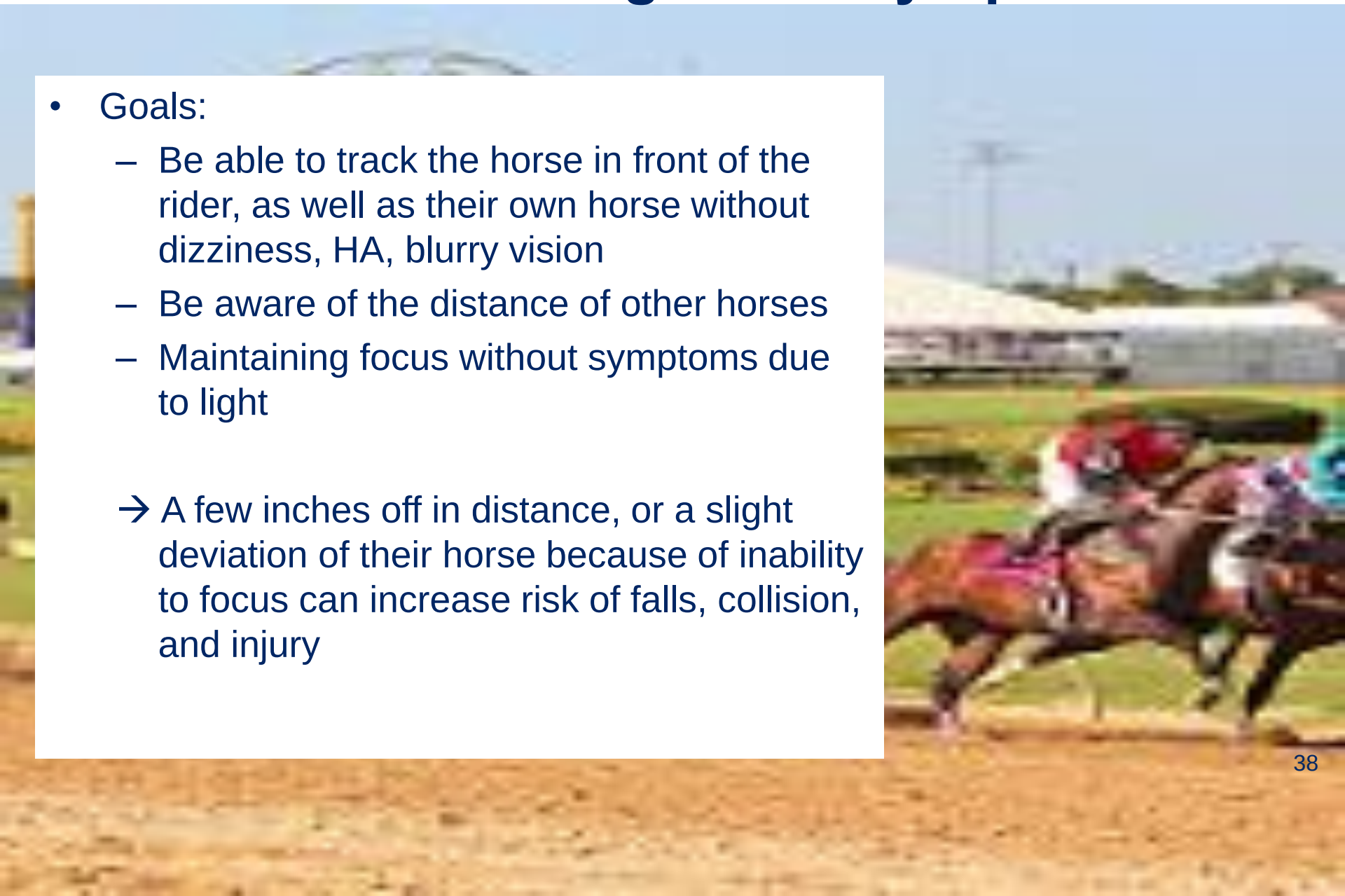
Test visual motion sensitivity and the ability to inhibit vestibular-induced eye movements using vision

The patient holds arm outstretched and focuses on their thumb. Maintaining focus on their thumb, the patient rotates, together as a unit

Visual Retraining – Jockey Specific

- Goals:
  - Be able to track the horse in front of the rider, as well as their own horse without dizziness, HA, blurry vision
  - Be aware of the distance of other horses
  - Maintaining focus without symptoms due to light

→ A few inches off in distance, or a slight deviation of their horse because of inability to focus can increase risk of falls, collision, and injury



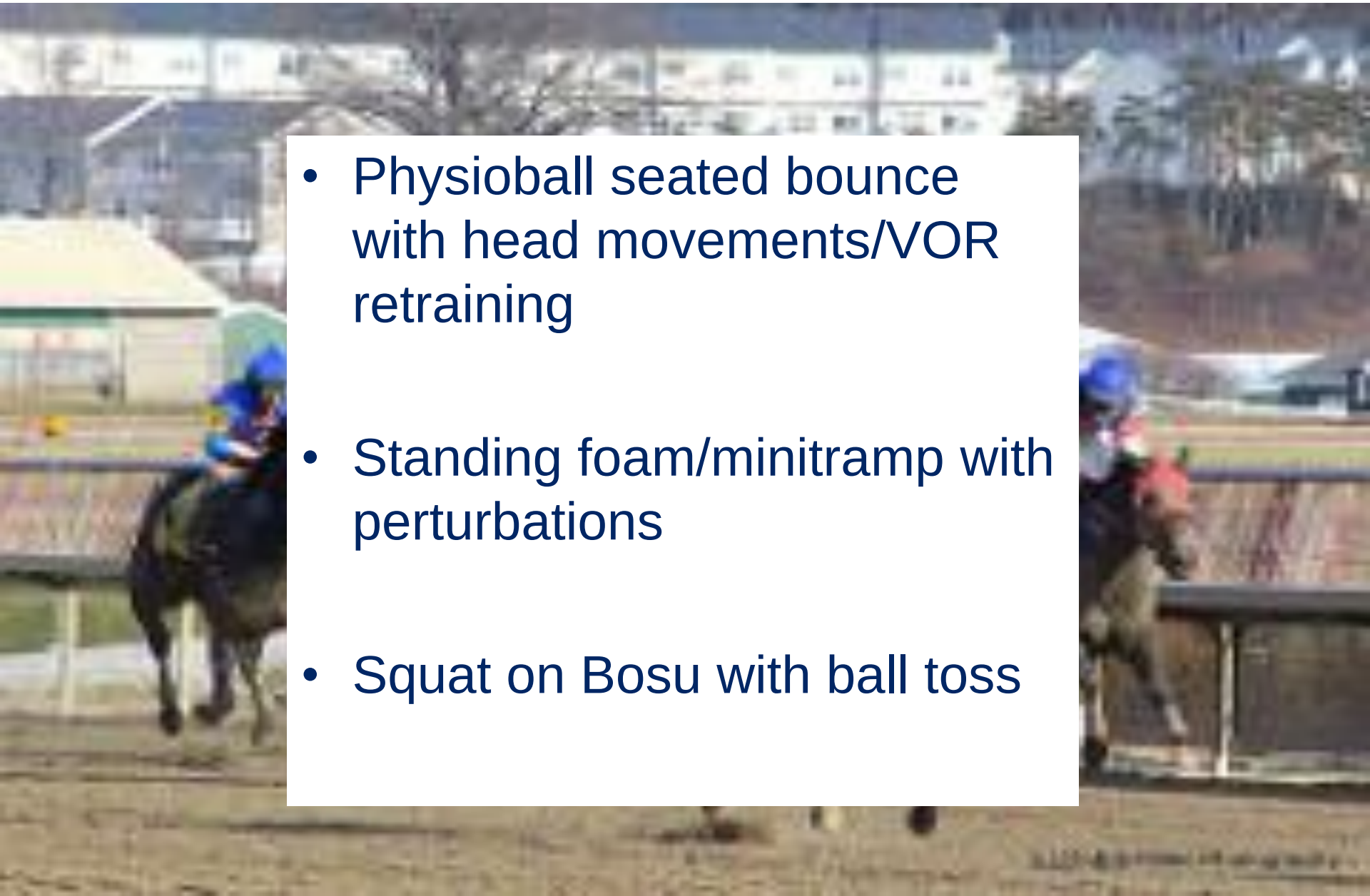
Vestibular System Dysfunction
Jockey Specific

- **Vestibulo-Ocular Reflex**: the horse in front may look blurry, or like it is moving faster or slower than it really is

- **Vestibulo-Spinal Reflex:** when the horse makes a sudden movement/turn, the jockey may over/under correct their movement in attempt to stay upright

- **Body Orientation/Movement:** the jockey may feel that they are upright on the horse, when they actually are leaning to one side; or the jockey may feel that the horse is going faster or slower than it actually is

Jockey Specific Balance Exercises



- Physioball seated bounce with head movements/VOR retraining
- Standing foam/minitramp with perturbations
- Squat on Bosu with ball toss

Return to Ride Protocol Limitations

- Heart rate?
- Head movement
- Simulated ride
- Returning rider back to horse
- Replacing helmet
- Length of time before returning back to horse

Physiological Demands of Flat Horse Racing Jockeys

SarahJane Cullen,[1,2] Gillian O'Loughlin,[2] Adrian McGoldrick,[2] Barry Smyth,[1] Gregory May,[3] and Giles D. Warrington[1]

[1]Applied Sports Performance Research Group, School of Health and Human Performance, Dublin City University, Dublin, Ireland; [2]The Turf Club, The Curragh, Co., Kildare, Ireland; and [3]Cognitive Motor Function Research Group, School of Healthcare Science, Manchester Metropolitan University, Manchester, United Kingdom

"…emphasize the importance of aerobic and anaerobic fitness for flat jockeys"

Based on results of this study, suggested training for jockeys includes high-intensity interval training sessions to optimize aerobic and anaerobic capacities.

Return to Ride (RTR) workout for jockeys focuses on high-intensity interval training to maximize aerobic and anaerobic fitness.

Aerobic/Anaerobic Demands of a Jockey

- Maintain low body mass while maintaining physical fitness
- Required to perform at high level of maximal aerobic capacity
  - Sustained over 80% of Max HR for duration of races
  - Flat racing is 1-3 minutes in duration
  - Fatigue linked to cognitive performance impairment = errors/safety issues
    - Need split-second decision making

Cullen, et al, 2015


EQUICIZER
EQUICIZER
2
QUICIZER

RTR PROGRESSION

Developed by MedStar Sports Medicine

Return to Ride Communication Tool

STAGE 1:

No sporting activity

Symptom-limited physical and cognitive rest

Recovery

Symptom-free for 24 hours?

Yes: Begin Stage 2
No: Continue resting.

Time and date completed:

_____
_____
_____
_____

STAGE 2:

Light aerobic exercise

Walking, swimming, stationary cycling, 15-30 minutes

No resistance training. Heart rate < 70%

Increase heart rate

Symptom-free for 24 hours?

Yes: Move to Stage 3
No: Return to Stage 1.

Time and date completed:

_____
_____
_____
_____

STAGE 3:

Sport-specific exercise

Jump Rope/Squat Jump
Jumping Jacks
Box Jumps/Step Ups
Burpees/Lunge Jump
Moutain Climbers
Bicycle Circles
Pushups

Heart Rate 80-100% at 2-3 minute intervals, with 2-3 minute rest. No head-impact activities.

Add movement

Symptom-free for 24 hours?

Yes: Move to Stage 4
No: Return to Stage 2.

Time and date completed:

_____
_____
_____
_____

STAGE 4:

Noncontact drills

Equicizer:

30 sec on/off
1 min on/off
1.5 min on/off
2 min on/off

Max Heart Rate

May start resistance training.

Exercise, coordination, cognitive load

Symptom-free for 24 hours?

Yes: Move to Stage 5
No: Return to Stage 3.

Time and date completed:

_____
_____
_____
_____

STAGE 5:

Full-contact practice

Following medical clearance, participating in galloping and breezing

Restore confidence; assess functional skills

Symptom-free for 24 hours?

Yes: Return to play
No: Return to Stage 4.

Time and date completed:

_____
_____
_____
_____

STAGE 6:

Return to Competition:

Medical clearance will be determined by team physician

15MSM-3357/09/2015

If symptoms reappear at any stage, go back to the previous stage until symptom free for 24 hours. You may need to move back a stage more than once during the recovery process.

Medical clearance required before moving to Stage 5

CATT

BC INJURY research and prevention unit

Are physiological attributes of jockeys predictors of falls? A pilot study

Hitchens P, Blizzard L, Jones G, *et al. BMJ Open* 2011;**1**:e000142. doi:10.1136/bmjopen-2011-000142

Key messages

- Lower anaerobic and aerobic fitness, and higher muscular strength and power were associated with greater risk of falls.
- Placement of the foot in the stirrup irons was also found to be associated with falls.
- This pilot study has confirmed that it is feasible to measure the physiological attributes of jockeys and track-work riders that are predictive of the risk of falling.

At-Risk Populations in Sports-Related Concussion

Jeffrey S. Kutcher[1] *and James T. Eckner*[2]

[1]Department of Neurology, University of Michigan, Ann Arbor, MI; [2]Department of Physical Medicine & Rehabilitation, University of Michigan, Ann Arbor, MI

"A large part of concussion management is the estimation of risk. Return-to-play decisions are made with the risks of possible symptom exacerbation, subsequent concussion, or catastrophic injury in mind. Every athlete, whether previously concussed or not, walks on to the field of play with some inherent risk of being concussed. One begins the estimation of an athlete's concussion risk by considering his or her sport and position. **By understanding that this risk** ultimately is defined by far more than just these two parameters, however, **we become better advocates for our patients and are able to provide a higher standard of clinical care."**

Risk of CTE

- Fall from horse much different than subconcussive blows to the head
- Risk of hemorrhage
- Multiple riders have sustained multiple head injuries
- Many riders complain of memory difficulty, poor sleep, depression


RESULTS
TOTE
5

Preakness 2016: Much like the NFL, Maryland horse racing heightens focus concussion safety for jockeys

In a perfect sports medicine world…

- Concussion protocols across the country
- Universal governing body
- Medical directors working together among tracks
- Research
- Better nutrition management
- Improved training
  - HIIT
  - Resistance Training
- Increasing weight of scales
- WADA guidelines
- Model rules for trauma management
- Universal weather protocol
- Mouth guards
- Helmet replacement program

MedStar Sports Medicine

Thank you!

Questions?

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https://youtu.be/ZtXeyJAdK_E

STRONACH GROUP

Special thanks to Dottie Miller Photography and Jimmy McCue for the amazing pictures!

Jockeys' Guild Assembly: Diagnosis, Management Of Head Injury Still Challenging

by Natalie Voss | 12.14.2016 | 11:55am

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Permanently Disabled Jockeys Fund PDJF

Healthy as a horse

MedStar doctors bring top-notch care to Maryland jockeys, backstretch workers

By Sandra McKee. Photographs by Jim McCue

'They Just Want To Ride': Small Changes In Scale Of Weights Have Big Impact On Jockeys' Health

by Natalie Voss | 02.08.2017 | 11:53am

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Guild Aims for Uniform Medical Oversight

By Frank Angst @BH_FAngst | December 12, 2016 5:29 PM | Thoroughbred Racing

Knowledge and Compassion **Focused on You**

MedStar Sports Medicine

Bibliography

- Press, JM., et al. (1995). The national jockey injury study: An analysis of injuries to professional horse-racing jockeys. *Clinical Journal of Sport Medicine, 5*(4): 236-240.
- Turner, M., McCrory, P., & Halley, W. (2002). Injuries in professional horse racing in Great Britain and the Republic of Ireland during 1992-2000. *British Journal of Sports Medicine, 36*: 403-409.
- Forero Rueda, MA., Halley, WL., & Gilchrist, MD. (2010). Fall and injury incidence rates of jockeys while racing in Ireland, France, and Britain. *Injury, 41*(5): 533-539. doi: 10.1016/j.injury.2009.05.009
- McCrory, P., et al. (2017). Consensus statement on concussion in sport – the 5th international conference on concussion in sport held in Berlin, October 2016. *British Journal of Sports Medicine, 0*: 1-10. doi: 10.1136/bjsports-2107-097699
- Waller, AE., et al. (2000). Jockey injuries in the United States. *Journal of American Medical Association, 283*: 1326-1328.
- Kontos AP, et al. (2012). A revised factor structure for the Post-Concussion Symptom Scale: Baseline and postconcussion factors. *American Journal of Sports Medicine,40*(10):2375–2384
- McCrea M, Barr WB, Guskiewicz K, et al. (2005). Standard regression-based methods for measuring recovery after sport-related concussion. *J Int Neuropsychological Soc,11*:58–69
- Mucha A, Collins MW, Elbin RJ, Furman JM, Troutman-Enseki C, DeWolf RM, Marchetti G, Kontos AP. A brief vestibular and ocular motor screening (VOMS) assessment to evaluate preliminary concussion: Preliminary findings. Am J Sports Med; in press
- Leddy, J., et al. (2012). Rehabilitation of concussion and post-concussion syndrome. *Sports Health, 4*(2), 147-154. doi: 10.1177/194173811433673

Bibliography

- Begasse de Dhaem, O., et al. (2017). Post-traumatic headache: the use of the sport concussion assessment tool (SCAT-3) as a predictor of post-concussion recovery. The *Journal of Headache and Pain, 18*(1), 1-9. doi: 10.1186/s10194-017-0767-5
- International Classification of Headache Disorders, 3rd ed. (2016). Retrieved September 25, 2017 from https://www.ichd-3.org/
- Gallaway, M., Scheiman, M., & Mitchell, GL. (2016). Vision therapy for post-concussion disorders. *Optometry and Vision Science, 93*(00), 1-6. doi: 1040-5488/16/9300-0000/0
- Hoffer, ME., et al. (2004). Characterizing and treating dizziness after mild head trauma. *Otology & Neurotology, 25*(2):135-8.
- Tierney, RT., et al. (2008). Sex differences in head acceleration during heading while wearing soccer headgear. *Journal of Athletic Training, 43*(6), 578-584.
- Leddy, JJ., et al. (2011). Reliability of a graded exercise test for assessing recovery from concussion. *Clinical Journal of Sports Medicine, 21*(2), 89-94.
- Cullen, SJ., et al. (2015). Physiological demands of flat horse racing jockeys. *Journal of Strength and Conditioning Research, 28*(11), 2060-3066.
- Ciuffreda, KJ., et al. (2008). Vision therapy for oculomotor dysfunctions in acquired brain injury: a retrospective analysis. *Optometry, 79*, 18-22.
- Alsalaheen, BA., et al. (2010). Vestibular rehabilitation for dizziness and balance disorders after concussion. *Journal of Neurological Physical Therapy, 34*, 87-93. doi: 10.1097/NPT.0b013e3181dde568
- Schnieder, KJ., et al. (2014). Cervicovestibular rehabilitation in sport-related concussion: a randomized controlled trial. *British Journal of Sports Medicine, 48*: 1294-1298. doi: 10.1136/bjsports-2013-093267