Sports Medicine for the Female Wrestler

Unique aspects to coaching, treating, and just being around female wrestlers

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Objectives

Growth of Girls Wrestling

- ➔ 46 States have high school wrestling (1)
- ➔ 153 collegiate programs (1)
- ➔ NCAA Championship sport in 2026 (1)
- ➔ 50,000 participants at just the high school level in 2023 versus just 804 in 1994 (2)
- ➔ Highest injury rates at 2.5 per 1000 athlete exposures, second only to football, which was 4.36 per 1000 athlete exposures (2)
- ➔ Unlike other sports, wrestling male and female wrestlers practice with each other and compete against one another from the youth level up to the high school level. (2)

What do we need to consider when working with female wrestlers?

Considerations

- ➔ Procedures for Wrestling
- ➔ Injuries specific to female wrestlers
- ➔ Female body - menstrual cycle impact with the sport, weight classes
- ➔ Strength Training

Wrestling Procedures

Form WR #1 - Girls

Current protocol is filling out this form within the first 34 days of the season to certify a safe wrestling weight for each wrestler.

Use a scale with body fat analysis to determine safest lowest weight.

Safe is determined on body fat percentage. Current recommendation is 12% for women.

Mayo Clinic Study (2020) by Andrew Jagim, Ph.D., the director of Sports Medicine Research at Mayo Clinic, has determined that 17% body fat percentage may be a more reasonable and safer alternative to use.

In spring of 2025, Andrew Jagim, Ph.D. will be proposing a 19% threshold for high school wrestlers to the National Federation of State HIgh School Associations.

Montana High School Association Wrestling Weight Permit Form

Each wrestler must certify his/her weight within thirty-four (34) calendar days of the first allowable wrestling practice date, which we have adjusted this year is **December 24, 2024.** A student who joins the team after the certification date must **immediately** have the WR#1 completed in Track Wrestling. There can only be one WR #1 form in a season. Once completed, this form is FINAL. There can be no recertification at a lower weight.

Name of school_____ **School Year: 2024-25**

Personal Information and Weight Classifications:

The individuals who have signed below certify that _____
(name of student wrestler)

may wrestle no lower than the _____ weight class during the 2024-25 wrestling season.
(enter weight class)

Weight Classifications - Girls

competition will be divided into 14 weight classes as follows:

100 lbs. (no min.)	125 lbs.	155 lbs.
105 lbs.	130 lbs.	170 lbs.
110 lbs.	135 lbs.	190 lbs.
115 lbs.	140 lbs.	235 lbs.
120 lbs.	145 lbs.	

Recommendations:

Body fat % of wrestler _____(should be no lower than 7% for males and 12% for females).

Actual weight of wrestler at the time of certification _____ Actual height of wrestler at the time of certification _____

Weighing In Procedures/Rules

- Weigh-in Procedures – all weigh-ins (including for males) be in a school approved singlet and worn as intended (excluding headgear and footwear). There will be no weight allowance given for uniforms.
- Weight Management – 50% rule: For health and safety reasons, Montana's weight control program shall require each wrestler to have at least one-half of weigh-ins during the season at the minimum weight the wrestler will compete in during the divisional and state tournament series.
- Timing: Weigh-ins usually happen at least an hour before the event, with wrestlers arriving at the weigh-in/staging area at the start of the weigh-in period.
- Medical Check: Wrestlers undergo a medical examination by trainers and/or physicians to check for contagious diseases.
- Scale:Wrestlers are weighed on scales, with most associations and leagues giving them one or two chances to get on the scale.
- No Changes: Wrestlers should not be allowed to change out of their singlets into their normal attire in the weigh-in area.
- Nail Trimming: Contestants must have their fingernails cut very short, says the USA Wrestling rule book.
- Weight Tolerance: No weight tolerance is allowed for the singlet at any age level, notes USA Wrestling.
- Specific Considerations: Weight Class: Wrestlers may only weigh in at one weight for a particular competition.
- Weight Reduction: Any means of drastic weight reduction is strictly prohibited, says the USA Wrestling rule book.
- Late Arrivals: If a team will be late for the designated weigh-in start time, the coach must communicate this information to the host coach and provide an estimated time of arrival.
- No Shoes or Ear Guards: Wrestlers should not weigh in wearing shoes or ear guards.

How do we help with weigh in and weight certifications?

Set date early for weight certifications

Have Nail Clippers/Trimmers on hand with alcohol/disinfectant wipes

Communicate constantly with athletes and coaches on skin concerns. If ANY concern, fill out the form. Need a minimum of 3 days of treatment to be cleared to compete.

Hand write these and take pictures to send to coaches phones for weigh ins.

MONTANA HIGH SCHOOL ASSOCIATION
1 South Dakota Ave
Helena, MT 59601

MEDICAL RELEASE FOR WRESTLER TO PARTICIPATE WITH SKIN LESION

Name of Wrestler: _____ School: _____ Date of Exam: ___ / ____ / ___

Diagnosis _____

_____

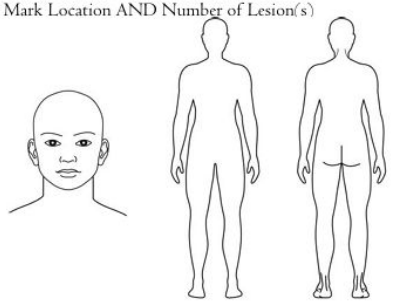
Location AND Number of Lesion(s) _____

_____

Medication(s) used to treat lesion(s): _____

_____

Mark Location AND Number of Lesion(s)



Date Treatment Started: ___ / ____ / ____ Time: _____

Form Expiration Date for this Lesion (Note on Diagram(s)): ___ / ____ / ____

Earliest Date the Wrestler may return to participation: ____ / ____ / ____

Provider Signature _____ Office Phone #: _____

Provider Name (Printed or Typed) _____

Office Address _____

Below are some treatment guidelines that suggest MINIMUM TREATMENT before return to wrestling:

Bacterial Diseases (impetigo, boils): To be considered "non-contagious," all lesions must be scabbed over with no oozing or discharge and no new lesions should have occurred in the preceding 48 hours. Oral antibiotic for 72 hours is considered a minimum to achieve that status. If new lesions continue to develop or drain after 72 hours, MRSA (Methicillin Resistant Staphylococcus Aureus) should be considered.

Herpetic Lesions (Simplex, fever blisters/cold sores, Zoster, Gladiatorum): To be considered "non-contagious," all lesions must be scabbed over with no oozing or discharge and no new lesions should have occurred in the preceding 72 hours. For a first episode of Herpes Gladiatorum, wrestlers should be treated and not allowed to compete for a minimum of 10 days. If general body signs and symptoms like fever and swollen lymph nodes are present, that minimum period of treatment before return to wrestling should be extended to 14 days. Recurrent outbreaks require a minimum of 120 hours of oral anti-viral treatment, again so long as no new lesions have developed and all lesions are scabbed over.

Tinea Lesions (ringworm on scalp or skin): Oral or topical treatment for 72 hours on skin and oral treatment for 14 days on scalp.
Scabies, Head Lice: 24 hours after appropriate topical management.
Conjunctivitis (Pink Eye): 24 hours of topical or oral medication and no discharge.
Molluscum Contagiosum: Upon treatment with curettage and hyfrecator, may cover with biooclusive and wrestle immediately.

Skin Diseases

1. Folliculitis is an inflammation of the hair collicles.
    a. Treatment: Mild cases need to be kept clean with soap and water. More severe cases need antibiotics
2. Ringworm is a fungal infection, not caused by a worm, but a group of fungi known as dermatophytes
    a. Treatment: over the counter antifungal creams. Cover for practice and competition
3. Ringworn in the Hair (Tinea Capitis) = can cause hair loss.
    a. Referral for prescription antifungal such as fluconazole and possible antifungal shampoo.
4. Impetigo is a very contagious skin infection cuased by strains of staph or strep bacteria.
    a. Treatment: oral antibiotics

Folliculitis

Ring worm

Impetigo

Female Wrestling Injuries

Injuries by the numbers

US Emergency Rooms

An estimated 28,824 female wrestlers presented to US EDs during the study period (Jan 2015-Dec 2023). (Khera et al, 2024)

Body Part	NEISS Cases	National Estimate	%
Head	139	4266	16.53
Shoulder	118	4275	14.03
Knee	93	3140	11.06
Elbow	90	3081	10.70
Ankle	66	2566	7.85
Upper Trunk	62	2434	7.37
Neck	40	1245	4.76
Lower Trunk	37	1573	4.40
Wrist	34	1216	4.04
Finger	33	1191	3.92
Head	23	4266	2.73

TABLE 1: Number of injuries per body part as reported by National Electronic Injury Surveillance System (NEISS) cases and National Estimates. Percentage is calculated based off of National Electronic Injury Surveillance System cases

Type of Injuries

	Age 5–11		Age 12–18	
Characteristic	n	% (95% CL)	n	% (95% CL)
Total Injuries	104	--	737	--
Injuries by Diagnosis[1]				
Strain/ Sprain	29	27.9 (26.7-49.3)	223	30.3 (36.1–44.8)
Other	25	24.0 (10.9-29.5)	165	22.4 (30.6–40.5)
Fracture	24	23.1 (12.6-34.8)	100	13.6 (27.0–39.2)
Concussion	5	4.8 (14.6-83.5)	83	11.3 (23.7–36.3)
Contusion, Abrasion	12	11.5 (19.1-60.9)	75	10.2 (25.1–38.7)
Internal Injury	6	5.8 (11.5-59.6)	38	5.2 (18.5–35.6)
Dislocation	1	1.0 (NA)	39	5.3 (21.8–38.7)
Injuries by Location[2]				
Head	12	11.5 (20.0–57.7)	127	17.2 (24.9–34.9)
Shoulder	8	7.7 (4.14–35.4)	110	14.9 (31.4–43.5)
Knee	7	6.7 (2.27–51.7)	86	11.7 (27.7–41.0)
Elbow	10	9.6 (16.3–56.6)	80	10.9 (27.8–40.2)
Ankle	6	5.8 (12.0–55.3)	60	8.1 (30.9–47.9)
Lower Arm	9	8.7 (0.575–32.3)	11	1.5 (10.7–50.8)
Neck	5	4.8 (4.81–15.5)	35	4.7 (23.0–45.2)
Lower Trunk	4	3.8 (6.17–79.4)	33	4.5 (30.6–54.3)
Wrist	11	10.6 (9.85–47.4)	23	3.1 (25.1–53.1)
Finger	7	6.7 (9.41–59.7)	26	3.5 (23.9–49.1)

TABLE 2: Injuries stratified by diagnosis using National Electronic Injury Surveillance System cases

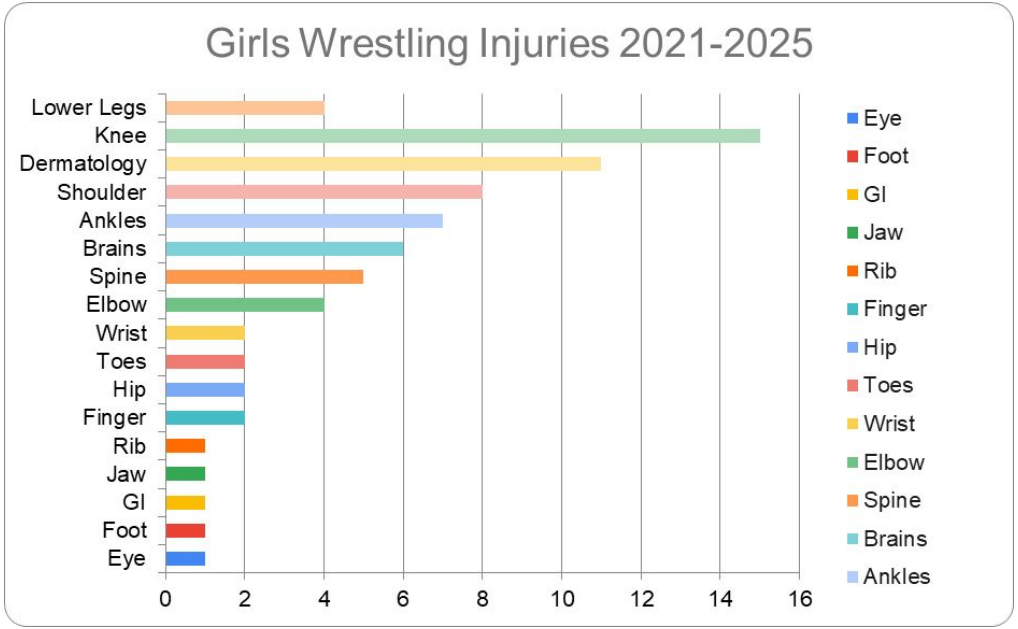
1: p is equal to 2.2e-16

2: p is equal to 2.2e-16

Injuries by the numbers

Billings Senior

Data collected from November 1st to March 1st of each year 2021, 2022, 2023, 2024 & 2025 there were 73 reported injuries to the athletic training room.



Body Part

Injury, Treatment, taping?, rehab? Surgical?

Or do we do 2-3 quick cases and how we treated these patients?

Female Athlete

Menstrual cycle, effect on training & weight management

Female Wrestling Weight Management

Athletic Performance has external factors that affect all athletes such as stress, sports anxiety, and not being properly prepared for competition

Wrestlers have these factors plus **WEIGHT MANAGEMENT** that affect performance.

Wrestlers will try to possibly wrestle at a lower weight class, for the potential be bigger, faster, stronger

FEMALE wrestlers also have their **Menstrual Cycle** with the hormone changes that affect weight management.

Managements Strategies include: Maintaining fitness level at ideal weight year around, Rapid weight loss or ignoring the fluctuations.

Stress Management

Klepps enter some of your strategies that you use with the team?

I think you do a book club and mental health talks?

- Getting at least eight hours of sleep per night as frequently as possible.
- Following sports-specific fueling strategies
- Properly managing the training loads of an athlete, meaning trying to avoid excessive amounts of high-intensity training year-round and making sure to incorporate planned periods of rest or active recovery.

Rapid Weight Loss (RML) Method

These techniques are designed to sweat out as much water weight as possible in a short duration of time. Typically, wrestlers will run, bike, hard drill, or even use saunas to sweat as much as possible. The problem when using these techniques is during a typical wrestling season, wrestlers can find themselves doing this to make weight for ten minutes.

Negative Effects: Young Wrestlers Brazilians, showed symptoms such as fatigue, cramps, headaches, and irritability are common (Viveiros, 2015). When feeling fatigued or irritable, this can then lead to an increase in stress and anxiety leading up to the performance. Possibly poor performance. Also cases of cardiac arrest and death from RWL

Preventative Negative Measures: A study done one seven wrestlers and three judo athletes, was able to find a key factor in how to make weight-cutting both safe and non-impactful on performance. There were two weight loss time periods: one being a healthy caloric restriction and the other being the typical fluid loss method. (Fogelholm, 1993). With this evidence from these methods, we can safely assume that while n**ot exceeding more than five percent of weight change in a three week period,** wrestlers can prevent any negative consequences of their weight management. (Fogelholm, 1993).

Coaches, being some of the most influential people in a wrestler's decisions in the sport, can help their athletes by promoting healthy practices and behaviors, and monitor risky behavior they may show.

Rapid Weight Loss In Female Athletes

These can lead to intentional caloric restriction and decreased body fatness, with the perceived goal of attaining a competitive advantage.

Low energy availability and low body fatness are associated with a number of health concerns including **menstrual dysfunction** and loss of bone mineral density in girls and women. The current recommendation of 12% as a minimum for percentage body fat is very likely too low, opening the door for health perturbations among this population. The minimum threshold might more appropriately fall within the range of 18% to 20%. (Jagim 2024)

Recommend that weight cycling, restrictive energy intake, and intentional dehydration be avoided

Menstrual Cycle Rapid Review of Olympic Sport

Major findings of the present rapid review (1309 records) were that rhythmic gymnastics athletes suffer menstrual disorders secondary are cyclic and individual sport athletes. Wrestlers were not studies due to not being an Olympic sport

Research about the Menstrual Cycle

Research emerging that highlights that strength training is more advantageous in the first half of the menstrual cycle because the body adapts and recovers better.

During the luteal phase women consume approximately 238 additional calories and it has been said, starting a diet during this time increases the risk of failure

Further research need to examine how weight loss efforts can be optimized by using the menstrual cycle, and how menstrual cycles manipulated by contraception.

What we know about the female athlete and her cycle?

- Every athlete has a different cycle length, hormone level
- Menstrual Cycle dysfunction is common in every sport
- Hormone contraception is an option and athlete dependant (discussion between PCP and athlete/parent)
    - NCAA Division I or international-level competition athletes:~ 69.8% of elite athletes have used hormonal contraceptives









Questions?

Considerations with Female Athletes

“Physiological, anatomical and psychological differences between males and females create unique patterns of illness and injury”

– Mary Lloyd Ireland, MD

Historical Context

- 1880-1917: social, no teams, no hard effort
- Olympics 1912: added swimming and diving
- 1917: college teams (field hockey, BB, tennis, etc..), early rise in women in sports
- 1920's: running added to Olympics, then discontinued till 1950's
- 1950's-1960's: increased participation at collegiate level
- 1960's- present: second rise, Title IX: 1972

History of Female Participation

- High School participation jumped 616% in girls between 197-1982, compared to 20% in boys
- 42% of present participation are female
  - Most common for both males and females
    - BASKETBALL

So What?

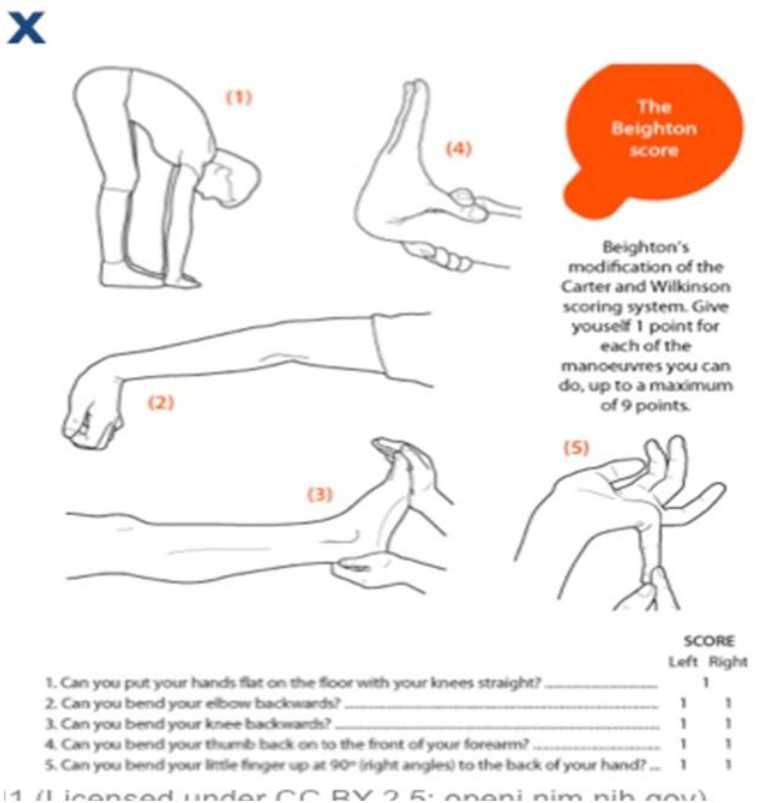
- As females have had greater opportunity and become more competitive in sports, injury patterns and specifi concerns have come to light?
- 2 Questions
  - Do anatomic and physiological differences make females more prone to injury/conditions?
  - Should injuries that occur in females be rehabilitated differently?

Anatomical Considerations

- Shorter legs
- Lower center of gravity
- Smaller body frames
- Narrower shoulders
- Smaller lungs/thoracic cavity
- Smaller ligaments/muscles
- Smaller heart
- Wider/different pelvis
- Greater valgus at elbows and knees
- Greater varus at hi ps

Ligament Laxity/Beighton Scale/Index

- Important for consideration for general physiological laxity in females
- Scored 0-9 and higher score is indicative of great laxity profile
- Laxity does not predispose an athlete to instability



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Physiological Considerations (Female to Male) ??!?!

- Lower BMR, aerobic/anaerobic capacity
- VO2 max
  - Lower by 10-20%
- Strength
  - Upper Extremities 40-75% as strong
  - Lower Extremities 60-80%
- Body Fat
  - After age 6, all females have great body fat than their counterparts. Greater percent body fat/body weight
- Hormonal Status: presence of estrogen

Menstruation & Ligament Laxity

- A LOT of research happening right now on the increase risk of ligament rupture/sprain, muscular strain during luteal phase of menses
- Analysis of the data found that players were six times more likely in the pre-menstrual phase and five times more likely in the early-mid luteal phase to experience a muscle injury, compared to when they were in the menstrual phase.
- Injury risk was significantly elevated during the luteal phase of the menstrual cycle among elite female professional footballers. Further research is urgently needed to better understand the influence of the menstrual cycle on injury risk and to develop interventions to mitigate risk.
  - https://pubmed.ncbi.nlm.nih.gov/38227488/

Female Considerations Cont.

- There are conditions that females experience that their male counterparts can/will not
  - Menstruation
  - Pregnancy
  - Osteoporosis/bone density issues
  - Due to the presence/absence of estrogen and other hormones unique to the female

Female Athlete Triad ?!

- **NOT** prevalent in girls wrestling BUT… consideration with female athletes
  - Reduced Energy Availability w/ or w/o disordered eating
  - Menstrual Irregularities
  - Decreased bone mineral density
- Sports PT's should be evaluating for risk
- Refer if even 1 component of triad is present
- Work with multidisciplinary team: athletic trainers, doctors, families, coaches
- Avoid pressuring athletes, have basic nutritional knowledge and have established referral source
- Prevention & Intervention
  - Often denied, not recognized, and under reported
  - Physically active girls/females should be educated about proper nutrition, safe training principles, and warning signs/risks of triad