NYSPHSAA

# THE WRESTLING MINIMUM WEIGHT CERTIFICATION PROGRAM

## ASSESSOR'S HANDBOOK

New York State Public High School Athletic Association, Inc.
July 2010

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# A HANDBOOK FOR STANDARDIZING URINALYSIS, SKINFOLD MEASUREMENTS AND CALCULATING MINIMUM WRESTLING WEIGHT FOR HIGH SCHOOL ATHLETES* FOR THE NEW YORK STATE PUBLIC HIGH SCHOOL ATHLETIC ASSOCIATION'S WRESTLING MINIMUM WEIGHT CERTIFICATION PROGRAM

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**PURPOSE**: Accurate determination of minimum wrestling weight from urinalysis (specific gravity to determine state of hydration) and skinfold measures (determine percent body fat) is important to provide each wrestler with information regarding a healthful body weight for wrestling. Standardization of urinalysis and skinfold site locations and equations is essential to calculate accurate minimum wrestling weight.

**BACKGROUND**: Skinfold measurements determine the level of subcutaneous fat. That measure of fat is then used, via a prediction equation, to estimate an individual's percent body fat. Percent body fat and the individual's body weight can then be used to determine a wrestler's minimum weight at 7% body fat for males and 14% body fat for females. These body fat percentages have been selected as the minimum level of essential body fat for adolescents and also as the minimal level for normal growth in secondary school athletes. Dehydration is a common procedure used by wrestlers to obtain weight loss. Because dehydration will affect the accuracy of determination of minimal weight for wrestlers, urinalysis will be completed prior to skinfold measurements. With dehydration the specific gravity of the urine will increase. Athletes with specific gravity above a specific level indicates dehydration and the wrestler will need to be tested at another time when hydrated.

The Wrestling Minimal Weight Certification Program has been developed not to eliminate weight loss in wrestling, but to encourage healthy weight loss via nutrition education and to control weight loss to healthy levels. Many procedures (i.e., girth dimensions, underwater weighing, infrared, and electrical resistance) have been utilized to determine an individual's percent body fat. Skinfolds have been selected because of their accuracy and ease of completion. Many different equations have been developed for determining the percent of body fat from skinfold measurements. Research has indicated that the equation used must be specific for the population measured and that the measurer should be trained. The equation used for determining minimal wrestling weight was developed by Lohman (1981) and modified by Thorland et. al (1991). Research with over 850 high school wrestlers from five Midwestern laboratories along with cross validation on Wisconsin high school wrestlers by Clark et. al (1990) has indicated accuracy for both the technique and formula for secondary school wrestlers.

** Adapted from "Wisconsin Wrestling Minimum Weight Program - 1996". Herrmann D. and Harms R., Wisconsin Interscholastic Athletic Association, Stevens Point, WI 54481*

**STANDARDIZATION:** A key aspect of effective determination of minimum wrestling weight is standardization of testing. Standardization includes:

1) Determination of the state of dehydration with a digital refractometer. Specific gravity shall be 1.025 or lower.
2) Standardization of skinfold site location and measurement techniques. All measurements must be determined with the same techniques and at the same locations.
3) A standardized equation for predicting body density and percent body fat. The Lohman equation, with three skinfold sites for males and two skinfold sites for females, is used to determine body density and the Brozek equation is used to convert body density to percent body fat.
4) Minimal wrestling weight is based upon 7% body fat for males and 14% body fat for females.
5) Training and certification of all urinalysis and skinfold assessors.
6) Assessors may charge up to $6.00 per student-athlete for the skinfold assessment or a maximum of $8.00 if urinalysis is included.

**EQUIPMENT:** Instruments required for determination of minimal weight include:

1) A digital refractometer.
2) Lange or Harpenden calipers for determining skinfold thickness.
3) A cloth tape measure to measure skinfold sites from anatomical landmarks.
4) A felt tip pen for marking skinfold sites.
5) A digital body weight scale for determining body weight at the time of skinfold measurements. The scale must be certified annually prior to assessments.
6) Copies of the Individual Profile Form.

## GENERAL PROTOCOL

Section Coordinators are to notify the NYSPHSAA Office by October 15 of the names and emails for the assessors who will be working at the central assessment sites. If the Section Consultant wants all assessors to use the Consultant's email, that is fine. The programmer will assign passwords directly to these individuals. Only the Section Consultants, Wrestling Committee Members and the appointed assessors will have access to the minimum weight assessment database. **All wrestlers must be assessed within fourteen (14) days from the first day of the season.** The timeframe is exclusive of Sundays and school holiday closings. The assessment process (urinalysis and skinfold) must be administered contiguously. There is no break in time between the two.

When a school is closed for an emergency or holidays, the days in which the school is closed are not counted in the 14 day sequence.

**School trips causing conflicts with assessment:** The Section Consultant may schedule the assessment earlier, not later than the official date for assessments. In cases where an individual is ill or has a legitimate reason for not making the assessment date, the Section Consultant may set a new date for the individual.

**Central Assessment Site:** Each Section will assign member schools to the assessment site and the appeal site - the only site the school shall use.

Schools are to identify the Modified Level wrestlers who are exceptional and who may qualify for high school wrestling via the State Education Department Selection Classification (S/C) at the outset of the season. The S/C wrestlers are to be weight certified with the high school wrestlers within 14 days from the first day of the high school season.

Emphasize the need for wrestlers to be hydrated. Wrestlers should also be reminded that chocolate, soft drinks and use of substances such as creatine may adversely effect the specific gravity of their urine. It is recommended early morning assessment be avoided because of the hydration factor being effected by the night's respite.

Make sure you have duplicated enough copies of the Individual Profile Form to ensure a copy for the school's athletic director and your own files. The computer program found on the NYSPHSAA web site (www.nysphsaa.org) must be used by all assessors for calculating data. Data must be carried out to a specific number of places depending on topic.

For any certification after the first two weeks of the season, permission must be received from the section wrestling coordinator. Requests must be in writing on a standardized form to be obtained from the section coordinator. At the end of the season, each sectional wrestling coordinator will report the number of exceptions and accompanying rationale to the NYSPHSAA Office.

Assessment Protocol: Testing will proceed in this order: 1. Urine sample collected and specific gravity determined; 2. Body weight determined; and 3. Fat analysis through use of skinfold measurements. NOTE: If a wrestler "fails" the specific gravity criteria THE WRESTLER WILL NOT BE PERMITTED TO CONTINUE AND IS REQUIRED TO RETURN ON ANOTHER DAY, AFTER 24 HOURS FROM ORIGINAL URINALYSIS, FOR TESTING.

# NEW YORK STATE PUBLIC HIGH SCHOOL ATHLETIC ASSOCIATION
# WRESTLING MINIMUM WEIGHT ASSESSMENT
# PARENTAL AWARENESS FORM

The appropriate and healthful control of body weight for wrestlers has been a concern of athletes, coaches, athletic trainers, school physicians, and parents for a number of years. Approximately one-third of wrestlers have used inappropriate weight loss procedures to obtain a lower body weight for wrestling. Regardless of the educational information from national, state and local athletic organizations, unhealthy weight loss procedures continued. Medical concerns for the wrestlers, and the success of other state associations' programs to determine minimum wrestling weight, resulted in the NYSPHSAA governing board approving a Wrestling Weight Certification Program in April 1996. This action was taken after fifteen years of review and study by the Association, which involved the Safety and Research Committee and the NYSPHSAA Wrestling Committee.

The NYSPHSAA Wrestling Minimum Weight Certification Program became mandatory for all member high school wrestling programs, commencing with the 1997-98 wrestling season. The Program is based on two components, assessment of wrestlers to establish a minimum weight at which each athlete will be allowed to compete and nutrition education to promote healthy eating patterns and improved athletic performance.

Schools must follow the provisions of the Wrestling Minimum Weight Certification Program for all wrestlers in varsity and junior varsity programs. Minimum wrestling weight is based upon 7% body fat for males and 14% for females. **The minimum wrestling weight is not established as the athlete's best weight, but rather the minimum weight at which the athlete will be allowed to compete.**

**STEPS OF PROCESS:** Urinalysis, Body Weight, Skinfolds

1. Wrestler will provide a sample of urine to test for hydration. If the specific gravity of urine is above 1.025, testing cannot continue and testing must be rescheduled after 24 hours has lapsed.
2. Wrestler will be weighed on a digital scale.
3. Wrestler will have sites marked on his body with a marker and have skinfolds raised to determine body fat percentage.

Minimum weight assessment, including urinalysis, may be completed only by health care professionals who have successfully completed the NYSPHSAA's Wrestling Minimum Weight Assessor's Workshop. An athlete found to have cheated in the hydration test process will be ineligible to compete in wrestling for the season.

**APPEAL PROCEDURE:**

A wrestler may appeal his/her skinfold measurements or calculations. Appeals may not be done on the same day as the original assessment. They are to be conducted on day one, two or three after the original assessment - three consecutive calendar days (count Sundays, holidays and days school is closed). Appeal procedures must be completed prior to any competition. ALL COSTS INCURRED ARE THE RESPONSIBILITY OF THE STUDENT/ATHLETE. Step 1 must be completed three days after the date of the original assessment. Step 2, hydrostatic testing, must be completed within five days of Step 1. If Step 1 is bypassed, Step 2 must be completed within five days from the original assessment.

***I, the parent/guardian of _____, have read the information above and I am aware of the minimum weight assessment process.***

Parent/Guardian Signature _____ Date _____

Student-Athlete Signature _____ Date _____

*Failure to have a signed copy on file does not excuse the student-athlete from the assessment process and/or related penalties.*

*The School's Athletic Director is to keep a copy on file until the season is completed.*

# URINALYSIS

Dehydration is a common procedure used by wrestlers to lower body weight to compete in a lower weight class. Dehydration will concentrate the urine and increase the urine's specific gravity. Accurate determination of minimum wrestling weight from skinfolds, requires the wrestler to be hydrated. The specific gravity of water is 1.000 and the specific gravity of a hydrated individual will be 1.025 or lower. Urinalysis by specific gravity of the urine will be completed BEFORE skinfold measurements. If the wrestler is dehydrated (i.e., specific gravity of the urine is over 1.025), skinfold measurements will NOT be completed and testing must be rescheduled for a different time, at least 24 hours later, when the wrestler will be hydrated. Record the results of the specific gravity measurement at the beginning of the skinfold measurement data form and circle pass or fail.

**OBTAINING A URINE SAMPLE**: Reports of wrestlers using various techniques to bypass the urine testing have been reported. Therefore the following procedures are required to assure an appropriate urine sample has been collected.

**AREA:** A bathroom with toilet or urinal can be used by the wrestler to provide the urine sample. The determination of specific gravity can be completed in another area, but a means of appropriate disposal of the urine must be available. A plan for appropriate supervision must be established. An athlete found to have cheated in the hydration test process will be ineligible to compete in wrestling for the season.

**SAFETY:** Use gloves when measuring the urine and appropriately dispose of the urine in the toilet.

**COLLECTION CONTAINER:** Paper cups of sufficient size to provide a 20-30 ml urine sample can be provided to the wrestler to collect the sample.

**COLLECTING THE URINE SAMPLE:** School personnel must insure that the wrestler has provided a sample of his/her urine for measurement. Normally one to three wrestlers can be supervised at one time in a open area. After collection of the urine by the wrestler, personnel should insure that the urine is warm by feel in the collection container. ***If the urine is cold, reject that sample and require the wrestler to provide another sample under close supervision.***

**DETERMINING SPECIFIC GRAVITY:** Specific gravity is to be determined by the use of a digital refractometer.

* Discard urine in urinal or toilet and cup in an acceptable place.
* **Record pass or fail for specific gravity on Individual Profile Form.** The computer programmer will change the individual's online data sheet which will accept the results of the hydration test - Pass/Fail and the date of the hydration test.

**REMEMBER, if the specific gravity is above 1.025, testing cannot continue and testing must be rescheduled after 24 hours has lapsed.**

NOTE: Urine testing should be completed within one hour after voiding. If testing cannot be completed within one hour, refrigerate the urine immediately and then let the urine return to room temperature before testing.

**Athletes Unable to Urinate:** If the school doctor furnishes a note which substantiates the fact that a wrestler can not urinate due to a health concern, the wrestler may use another method for proof of hydration noted by the physician (a medically accepted and proven practice).

**Athletes Who Do NOT Pass Hydration After Two or Three Attempts:** Instruct the coach to talk to the parents of the athletes, the school physician and the family physician. The athlete may have a health concern that will prevent the athlete from competing. The hydration test must be passed before competing in a contest.

**Refractometer:** An assessor wishing information regarding purchasing and using a digital refractometer should contact a medical supply company. Follow the directions supplied with the individual refractometer.

## WEIGHT

A certified digital scale (certified at the beginning of the school year) must be available. The assessor must check the scales for accuracy prior to each session.

**WRESTLER'S DRESS:** Males must be in shorts or swim suit only; females must be in shorts and halter. Nude weigh-ins are not allowed.

**RECORD WEIGHT:** An approved assessor must obtain the weight of each wrestler. On the Individual Profile Form record weight two (2) places beyond the decimal.

## SKINFOLDS

**WRESTLER'S DRESS:** Males must be in shorts or swim suit only; females must be in shorts and halter. Nude weigh-ins are not allowed.

**RAISING SKINFOLDS:**

1) Hold the skinfold caliper in the right hand while raising the skinfold with the thumb and index finder of the left hand.
2) The skinfold should be grasped one centimeter from where the actual measurement will occur. Practice will be necessary to feel the underlying adipose tissue separate from the muscle. Hold the skinfold firmly but do not pinch to the point of pain.
3) Measure midway between the surface and the crest of the fold. Allow the caliper paddles to gently come in contact with the skinfold. Release the mechanism so that thumb, index finger, and caliper spring tension is supporting the skinfold.
4) Leave the caliper paddles in contact with the skin from two to four seconds. Longer contact may decrease the skinfold value due to fluid being forced from the tissue.
5) Position yourself so you are looking directly at the caliper dial, read and record the measure to the nearest .5 millimeter.

6) Take two measurements at each site in serial fashion. If the difference is less than or equal to .5 millimeter record the average. If the difference is greater than .5 millimeter, take a third measurement and record the average. Computer programs must have the ability to calculate two or three measurements to obtain average. Average measurements and the sum of SF measurements must be carried out to 2 places beyond decimal point.

   Record skinfold measurements on Individual Profile Form.

## SKINFOLD LOCATIONS

### TRICEPS

* The triceps skinfold is measured on the midline of the posterior aspect of the upper arm, over the triceps muscle.
* The fold is measured midway between the posterior-lateral aspect of the acromion process of the scapula and the olecranon process of the ulna.
* The elbow should be flexed to 90 degrees to locate these landmarks. Use a tape measure and mark the location.
* The elbow should then be extended and fully relaxed at the side to raise the skinfold.

### SUBSCAPULAR

* The subscapular skinfold is raised on a diagonal one centimeter below the inferior angle of the scapula.
* With the arms comfortably at the side of the trunk, palpate the vertebral border with the fingers until the inferior angle is identified. The inferior angle is the lowest part of the scapula.
* To aid identification of the site in a well-musculared wrestler, place the arm behind the wrestler's back. The vertebral border and inferior angle of the scapula should become more evident. In most instances the location identified by a natural hollowing of the skin when the arm is placed behind the back.
* Return the arms to the sides and be sure the shoulders are level and relaxed while raising the skin.

### ABDOMINAL

* The skinfold is raised vertically on the right side of the wrestler's abdomen three centimeters from the midpoint of the umbilicus.
* The athlete should stand with the weight equally distributed on each foot.
* Encourage the wrestler to breathe normally and relax the abdominal wall.

# CAUTIONS

## COMMON ERRORS IN MEASURING SKINFOLDS

1) Be careful to measure and mark each site. Raise the skinfold one centimeter above the site so the caliper paddles will be directly over the marked location. The paddles should be placed one centimeter from thumb and index finger grasping the skinfold.
2) Be cautious to make the measurements when the skin is dry. When the skin is wet the assessor may grab excessive skinfold resulting in larger values.
3) The measurements should not be taken immediately after a workout or when the wrestler is overheated. Fluid shifts to the skin occur as the body attempts to cool itself. This may increase the skinfold measurement.
4) Take special care to look directly at the caliper to avoid errors in viewing from an angle.

## RELIABILITY

The ease at which you raise a skinfold from the underlying muscle will vary by the site and the person being measured. You will discover that some athletes pose a special problem. Generally, the thicker the skinfold the more difficult it is to reproduce the measurement. Reliability is critical to success, both within a given assessor and between assessors. This reliability can be improved through:

1) Careful site identification
2) Quality training
3) Practice: Assessors will be able to practice on available student-athletes, with the provision that no information will be shared with anyone during or after the training session. Section consultants will be able to provide instruction to the assessors during the training session.

Once standardization is established for the measurement protocol, the assessor must work to become proficient and comfortable with the procedures. Proficiency in measuring skinfolds will take many practice sessions on a variety of body types.

# MINIMUM WRESTLING WEIGHT CALCULATIONS

1) Compilation of this data will be carried out to eight (8) places beyond the decimal. The use of a computer program to analyze the data is mandated. A program for this purpose is available for use on the NYSPHSAA's website, www.nysphsaa.org. Furthermore, the official data treatment program to determine the minimum weight is that used by the assessor. The official assessor is the person taking the skinfold measurements.

2) Compute Body Density and percentage of Body Fat, entering information on the Individual Profile Form.

3) Calculate the Minimum Weight at 7%(males)/14%(females) Body Fat as per the Individual Profile Form.

4) Enter the Minimum Weight the student may wrestle at on the bottom of his/her Individual Profile Form.

The lowest weight a wrestler may compete at, will be determined by:

a) The predicted weight, at 7%(males)/14%(females) body fat, falls between two weights, he/she must wrestle at the higher weight. If weight is recorded below .5, round down to the nearest pound; if .5 or above, move up to the next pound. Example: If the wrestler's weight is 125.4, the minimum weight is 125; if the weight is 125.5 it is recorded as 126.

b) Some athletes are naturally lean, that is, their body fat will be under 7%(males)/14%(females). In such cases the assessor will use their actual weight to be their minimum weight at which they can compete.

Make sure all data has been entered on the Individual Profile Form. **Keep a copy for your files and send a copy to the athletic director of the school.** Also, complete a summary report for each team assessed using the NYSPHSAA Wrestling Weight Certification Report (see page 15). A copy of this report for each team is to be sent to the school athletic director. The minimum weight of the wrestler has been added to this form.

## APPEAL PROCESS

**Appeal versus Correction:** An assessor who realizes an error in testing or recording took place while doing an assessment should make the correction immediately. There is to be no outside influence on this decision. An appeal must take place on one of the three consecutive days after the assessment. Appeals may not be done on the same day as the original assessment. They are to be conducted on day one, two or three after the original assessment - three consecutive calendar days (count Sundays, holidays and days school is closed).

A wrestler may appeal his/her skinfold measurements or calculations. ALL COSTS INCURRED ARE THE RESPONSIBILITY OF THE STUDENT/ATHLETE. Step 1 must be completed three days after the date of the original assessment. Step 2, hydrostatic testing, must be completed within five days of Step 1. If Step 1 is bypassed, Step 2 must be completed within five days from the original assessment.

For the appeal done by the assessor appointed by the Section Consultant, the assessor will use the actual weight of the wrestler on the day of the appeal if the wrestler passes the hydration test.

***The steps of the appeal process are:***

**STEP 1:** If the wrestler is dissatisfied with the results of the skinfold and minimum weight determination, the wrestler is remeasured by the Section Consultant or the Section Consultant's designee. The official assessor is the person taking the skinfold measurements. Measurements must be within 3 days of the original date of measurement. The urinalysis must be repeated and passed. The wrestler may choose which measurement to accept (the original or the second measurement). This step may only be used once per wrestler.

If a wrestler wishes to appeal the weight certification and the original assessor is not available, the wrestler may take appeal to a Section Consultant or the Section Consultant's designee. All other appeal rules remain the same.

**STEP 2:** If still dissatisfied with the results, the wrestler may choose to be hydrostatically weighed to determine body fat percentage. Results obtained by this step are automatically accepted; the wrestler has no further choice. This step must be completed within five days of Step 1 or, if Step 1 is bypassed, within five days from the original assessment. The actual weight of the wrestler established by the administrator of the hydrostatic weighing on the date of testing will be used. The athletic director must supply a copy of the original assessor's Profile Sheet. The urinalysis must be repeated and passed prior to the testing.

For students electing to pursue hydrostatic testing the athletic director must send the section wrestling coordinator and section consultant a copy of the hydrostatic weighing form. The section consultant will input the results of the hydrostatic testing on the NYSPHSAA website. At the end of the season the wrestling coordinator will report the number of students completing this process and report hydrostatic site utilized.

**NOTE: Hydrostatic testing is only used as an appeal of the original assessment.**

# New York State Public High School Athletic Association, Inc.
# WRESTLING MINIMUM WEIGHT CERTIFICATION
# INDIVIDUAL PROFILE FORM - MALES

**Coach:** Please complete (print) to dotted line

Name: _____ Grade: _____
Last First

School: _____ Section: _____

Town/City of School: _____

Athletic Director's email address: _____

Race: Caucasian, Hispanic, Black, Asian, Native American, Other _____

## DATA COLLECTION

Urinalysis: Specific gravity of urine: _____ (indicate pass or fail)
Must be 1.025 or lower for testing to continue

Assessor: _____

Weight: _____ lbs.

SKINFOLD MEASUREMENTS (SF)
(nearest .5 mm)

| | | | | Average |
|---|---|---|---|---|
| Triceps | _____ | _____ | _____ | _____ |
| Subscapular | _____ | _____ | _____ | _____ |
| Abdominal | _____ | _____ | _____ | _____ |

Take 2 in series.
If difference is less than or equal to .5 mm, record average.
If difference is greater than .5 mm, take a 3rd and record average.

_____ SUM

MINIMUM WRESTLING WEIGHT CALCULATIONS

BODY DENSITY (BD) from Lohman Equation

$$BD = 1.0973 - (\underset{\text{SUM SF}}{\_\_\_\_} \times .000815) + (\underset{\text{SUM SF}}{\_\_\_\_})^2 \times .00000084$$

BD = 1.0973 - (_____) + (_____)

BD = _____

% BODY FAT (BF) from Brozek Equation

$$\%BF = (4.57 \div \underset{\text{BD}}{\_\_\_\_} - 4.142) \times 100$$

Use data sheet on page 16 of Assessors Manual

%BF = _____

CALCULATING MINIMUM WEIGHT AT 7% BF

$$\text{7\% BF weight} = [1 - (\underset{\text{\%BF}}{\_\_\_\_} \div 100) \times \underset{\text{current weight}}{\_\_\_\_}] \div .93$$

or

Minimum Weight at 7% BF = _____ lbs.

NYSPHSAA Assessor _____ Date _____

**Send one copy to the Athletic Director - Keep one copy for your files**

# New York State Public High School Athletic Association, Inc.
# WRESTLING MINIMUM WEIGHT CERTIFICATION
# INDIVIDUAL PROFILE FORM - FEMALES

**Coach:** Please complete (print) to dotted line

Name: _____ Grade: _____
Last First

School: _____ Section: _____

Town/City of School: _____

Athletic Director's email address: _____

Race: Caucasian, Hispanic, Black, Asian, Native American, Other_____

**DATA COLLECTION**

Urinalysis: Specific gravity of urine: _____ (indicate pass or fail)
Must be 1.025 or lower for testing to continue

Assessor: _____

Weight: _____ lbs.

**SKINFOLD MEASUREMENTS (SF)**
(nearest .5 mm)

| | | | | Average |
|---|---|---|---|---|
| Triceps | _____ | _____ | _____ | _____ |
| Subscapular | _____ | _____ | _____ | _____ |
| | | | | _____ SUM |

Take 2 in series. If difference is less than or equal to .5 mm, record average.
If difference is greater than .5 mm, take a 3rd and record average.

MINIMUM WRESTLING WEIGHT CALCULATIONS

%BF = ( _____ x 1.33) - ( _____ $^2$ x .013) = _____ - 2.50
SUM SF SUM SF

%BF = _____

CALCULATING MINIMUM WEIGHT AT 14% BF

14% BF weight = [1 - ( _____ ÷ 100) x _____ ] ÷ .86
%BF current weight

or

Minimum Weight at 14% BF = _____ lbs.

NYSPHSAA Assessor _____ Date _____

**Send one copy to the Athletic Director - Keep one copy for your files**

Wrestling Minimum Weight Certification

# SAMPLE FEMALE CALCULATION

The following is a sample of the calculation for females with an example to be utilized during assessor training.

%BF = ( _____ x 1.33) - ( _____$^2$ x .013) = _____ - 2.50 = _____
SUM SF SUM SF %BF

Female #1

| | | | | |
|---|---|---|---|---|
| Triceps SF | 16 | 18 | 16.5 | 16.83 (16.83333333) |
| Subscapular SF | 14 | 14.5 | ____ | 14.25 (14.25) |
| | | | | 31.08 SUM SF |

(Take 2 in series, if difference is less than or equal to .5 mm, record average. If difference is greater than .5 mm, take a third and record average.)

Minimum Wrestling Weight Calculation

( **31.08** x 1.33) = **41.34** (41.3364)
SUM SF

(-)

( **31.08** $^2$ x .013) = **12.56** (12.5575632)
SUM SF

= **28.78**

(-)

- 2.50

%BF = **26.28**

Calculating Minimum Weight at 14% BF

Body Weight = 156 lbs.

Minimal weight = [1 - ( **26.28** / 100) x **156** ] / .86 = **133.72** (133.724512)
%BF current weight weight at 14% BF

# MINIMUM WEIGHT: 134

Wrestling Minimum Weight Certification

# FEMALE PRACTICE SHEET

The following is a practice calculation for female wrestlers. Assessors are to complete the calculation and then compare their answer with the answer sheet found on page 25.

%BF = ( _____ x 1.33) - ( _____ $^2$ x .013) = _____ - 2.50 = _____
(SUM SF; SUM SF; AVERAGE; %BF)

Female #2

| | | | | |
|---|---|---|---|---|
| Triceps SF | 15 | 16 | 16 | ____ |
| Subscapular SF | 13 | 14 | 14 | ____ |
| | | | | _____ SUM SF |

(Take 2 in series, if difference is less than or equal to .5 mm, record average. If difference is greater than .5 mm, take a third and record average.)

Minimum Wrestling Weight Calculation

(_____ x 1.33) = _____
SUM SF

(-)

(_____ $^2$ x .013) = _____
SUM SF

= _____

(-) 2.50

%BF = _____

Calculating Minimum Weight at 14% BF

Minimal weight = [1 - ( _____ / 100) x 156 ] / .86 = _____
(%BF; current weight; weight at 14% BF)

## MINIMUM WEIGHT: _____

# NYSPHSAA
# WRESTLING WEIGHT CERTIFICATION REPORT

SCHOOL _____ COACH _____ YEAR _____

ASSESSOR _____ DATE OF ASSESSMENT _____

**ASSESSOR:** A copy of each school's Wrestling Weight Certification Report is to be sent to your Section Assessor Consultant upon completion of assessment. (You may e-mail as an attachment or send through the US mail.) The names and addresses are listed in the Assessor's Handbook. A copy of this report is to be emailed to the Athletic Director of each school whose team you assess, along with sending a copy of each wrestler's individual profile.

A draft copy of a team's Wrestling Weight Certification Report "may" be made available to the coach at the first reasonable time at the site of testing (optional to each site). No request for recertification may be made that day. An appeal must take place on day one, two or three after the assessment. If hydrostatic testing is to be done, that protocol is followed. Remember: the official Team Certification Report will be the one emailed to the athletic administrator. The one given to the coach is not official.

**ATHLETIC DIRECTOR:** Keep a copy of the Wrestling Weight Certification Report on file. Sign and send a copy to your Section's Wrestling Coordinator. The school must also have on file the assessor's report for each individual wrestler.

***ALL FILING MUST BE COMPLETED BEFORE THE FIRST MATCH.***

| Wrestler's Name | Grade | Weight @ Exam | % Body Fat | Minimum Weight |
|---|---|---|---|---|
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Athletic Directors Signature _____ Date _____

# REFERENCE TABLE

09-Nov-92

**(for Male Reference Only)** Wisconsin Interscholastic Athletic Association

REMcAlpine

SUM SF = TRICEPS SF + SUBSCAPULAR SF + ABDOMINAL SF

BD = [ 1.0973 - (SUM SF X .000815) ] + [ (SUM SF)2 X .00000084 ]

% BF = (4.57/BD - 4.142) X 100

| SUM SF | BD | % BF | SUM SF | BD | % BF |
|---|---|---|---|---|---|
| 1 | 1.09648584 | 2.58604805 | 51 | 1.05791984 | 17.77979915 |
| 2 | 1.09567336 | 2.89510944 | 52 | 1.05719136 | 18.07746394 |
| 3 | 1.09486256 | 3.20398904 | 53 | 1.05646456 | 18.37485135 |
| 4 | 1.09405344 | 3.51268504 | 54 | 1.05573944 | 18.67195939 |
| 5 | 1.09324600 | 3.82119560 | 55 | 1.05501600 | 18.96878607 |
| 6 | 1.09244024 | 4.12951888 | 56 | 1.05429424 | 19.26532938 |
| 7 | 1.09163616 | 4.43765304 | 57 | 1.05357416 | 19.56158732 |
| 8 | 1.09083376 | 4.74559626 | 58 | 1.05285576 | 19.85755789 |
| 9 | 1.09003304 | 5.05334667 | 59 | 1.05213904 | 20.15323909 |
| 10 | 1.08923400 | 5.36090243 | 60 | 1.05142400 | 20.44862891 |
| 11 | 1.08843664 | 5.66826169 | 61 | 1.05071064 | 20.74372532 |
| 12 | 1.08764096 | 5.97542260 | 62 | 1.04999896 | 21.03852633 |
| 13 | 1.08684696 | 6.28238328 | 63 | 1.04928896 | 21.33302991 |
| 14 | 1.08605464 | 6.58914188 | 64 | 1.04858064 | 21.62723404 |
| 15 | 1.08526400 | 6.89569653 | 65 | 1.04787400 | 21.92113670 |
| 16 | 1.08447504 | 7.20204536 | 66 | 1.04716904 | 22.21473587 |
| 17 | 1.08368776 | 7.50818650 | 67 | 1.04646576 | 22.50802951 |
| 18 | 1.08290216 | 7.81411806 | 68 | 1.04576416 | 22.80101560 |
| 19 | 1.08211824 | 8.11983817 | 69 | 1.04506424 | 23.09369211 |
| 20 | 1.08133600 | 8.42534494 | 70 | 1.04436600 | 23.38605700 |
| 21 | 1.08055544 | 8.73063649 | 71 | 1.04366944 | 23.67810823 |
| 22 | 1.07977656 | 9.03571091 | 72 | 1.04297456 | 23.96984376 |
| 23 | 1.07899936 | 9.34056633 | 73 | 1.04228136 | 24.26126155 |
| 24 | 1.07822384 | 9.64520083 | 74 | 1.04158984 | 24.55235957 |
| 25 | 1.07745000 | 9.94961251 | 75 | 1.04090000 | 24.84313575 |
| 26 | 1.07667784 | 10.25379948 | 76 | 1.04021184 | 25.13358805 |
| 27 | 1.07590736 | 10.55775981 | 77 | 1.03952536 | 25.42371442 |
| 28 | 1.07513856 | 10.86149161 | 78 | 1.03884056 | 25.71351281 |
| 29 | 1.07437144 | 11.16499295 | 79 | 1.03815744 | 26.00298116 |
| 30 | 1.07360600 | 11.46826191 | 80 | 1.03747600 | 26.29211741 |
| 31 | 1.07284224 | 11.77129658 | 81 | 1.03679624 | 26.58091950 |
| 32 | 1.07208016 | 12.07409503 | 82 | 1.03611816 | 26.86938537 |
| 33 | 1.07131976 | 12.37665532 | 83 | 1.03544176 | 27.15751295 |
| 34 | 1.07056104 | 12.67897553 | 84 | 1.03476704 | 27.44530018 |
| 35 | 1.06980400 | 12.98105373 | 85 | 1.03409400 | 27.73274499 |
| 36 | 1.06904864 | 13.28288796 | 86 | 1.03342264 | 28.01984531 |
| 37 | 1.06829496 | 13.58447630 | 87 | 1.03275296 | 28.30659906 |
| 38 | 1.06754296 | 13.88581680 | 88 | 1.03208496 | 28.59300417 |
| 39 | 1.06679264 | 14.18690751 | 89 | 1.03141864 | 28.87905857 |
| 40 | 1.06604400 | 14.48774647 | 90 | 1.03075400 | 29.16476017 |
| 41 | 1.06529704 | 14.78833174 | 91 | 1.03009104 | 29.45010689 |
| 42 | 1.06455176 | 15.08866136 | 92 | 1.02942976 | 29.73509665 |
| 43 | 1.06380816 | 15.38873337 | 93 | 1.02877016 | 30.01972737 |
| 44 | 1.06306624 | 15.68854580 | 94 | 1.02811224 | 30.30399696 |
| 45 | 1.06232600 | 15.98809669 | 95 | 1.02745600 | 30.58790333 |
| 46 | 1.06158744 | 16.28738406 | 96 | 1.02680144 | 30.87144439 |
| 47 | 1.06085056 | 16.58640596 | 97 | 1.02614856 | 31.15461805 |
| 48 | 1.06011536 | 16.88516039 | 98 | 1.02549736 | 31.43742222 |
| 49 | 1.05938184 | 17.18364539 | 99 | 1.02484784 | 31.71985480 |
| 50 | 1.05865000 | 17.48185897 | 100 | 1.02420000 | 32.00191369 |

# HYDROSTATIC WEIGHING

*This method may only be used for an appeal of the original assessment or an original appeal.

One of the methods which may be used by a wrestler to appeal his/her minimum weight certification is to be hydrostatically weighed to determine body fat percentage. All arrangements and costs incurred are the responsibility of the student-athlete.

Should a wrestler choose to pursue this method of appeal, one of the NYSPHSAA approved hydrostatic weighing facilities would have to be contacted to make arrangements.

- The actual weight of the wrestler established by the administrator of the hydrostatic weighing on the date of the testing will be used.
- The school's athletic director must supply a copy of the original Individual Profile Form.
- The Athletic Director must also sign the contract for Determination of Body Composition by Hydrostatic Weighing (underwater)
- The wrestler must pass the urinalysis test to determine hydration.

For students electing to pursue hydrostatic testing the athletic director must send the section wrestling coordinator and section consultant a copy of the hydrostatic weighing form. The section consultant will input the results of the hydrostatic testing on the NYSPHSAA website. At the end of the season the wrestling coordinator will report the number of students completing this process.

The wrestler must also be provided copies of the Hydrostatic Weighing Form as well as the Contract for Determination of Body Composition By Hydrostatic Weighing Form.

NYSPHSAA APPROVED SITES: Sites and dates will be provided annually by the NYSPHSAA Wrestling Coordinator.

Adelphi University
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# Contract for Determination of Body Composition
# By Hydrostatic Weighing (underwater)

DESCRIPTION OF PROCEDURE

Urinalysis will be repeated and must be passed prior to continuing with procedure. A refractometer is to be utilized to measure hydration. The acceptable specific gravity will be 1.025 or lower.

Dry body weight will be taken at the site. The weight established by the administrator of hydrostatic weighing on the date of the testing will be used.

Residual lung volume will be estimated using a spirometer. The wrestler will hyperventilate two or three times, inhale maximally, and then exhale maximally into the spirometer through a clean mouth piece. This procedure will be repeated three times.

The hydrostatic weighing apparatus consists of a tank filled with water, a scale suspended over the tank, and a swing upon which the subject is seated and submerged below the surface of the water. The subject is initially seated upright with the head above the water. A deep breath is taken, the wrestler lowers the upper body into the water, and exhales as completely as possible. After exhaling, the wrestler remains submerged and still for one or two seconds, and then sits upright, bringing the head above the water. Some wrestlers prefer to exhale prior to submersion.

Attire: Bathing suit

Hydrostatic Examiner: The procedure will be performed by a trained individual. If the gender of the wrestler is different from that of the Examiner, an adult (over 18 years of age) of the same sex as the wrestler will be present during the testing.

Risks: It is possible that the wrestler will experience discomfort while holding his or her breath underwater. The wrestler may also experience anxiety during submersion, may inhale water and choke, or may faint from hyperventilating during the hydrostatic weighing procedure or the residual volume test. Adverse cardiac responses may also occur which could result in death.

Voluntariness: The wrestler is aware that he or she is under no compulsion or duress whatsoever to participate in this procedure, and that the decision not to participate will in no way effect the wrestler's standing as an athlete.

Informed Consent: The signature of the wrestler and parent/guardian indicates understanding of the procedures to be performed. The (facility) and examination personnel will not be held responsible for unforeseen and unavoidable reactions by the wrestler during examination.

_____

(signature of wrestler) (date)

_____

(signature of parent/guardian) (date)

_____

(signature of Athletic Director) (date)

**NEW YORK STATE PUBLIC HIGH SCHOOL ATHLETIC ASSOCIATION**

**Wrestling Minimal Weight Program**

# MALES

**HYDROSTATIC WEIGHING FORM**

Name: _____ Date: _____

School: _____ Age: _____

Urinalysis: specific gravity _____g/mL passed ____ failed ____

Body Mass (weight) _____grams (lbs divided by .0022 g/lb) _____ lbs
Barometric Pressure _____mmHg
Air Temperature _____°C
ATPS to BTPS conversion _____
Vital Capacity _____mL
Residual Volume (RV) _____mL

Water Temperature _____°C
Water Density _____g/mL
Tare Weight _____g
Water Weight

| | |
|---|---|
| T1_____ | T6 _____ |
| T2_____ | T7 _____ |
| T3_____ | T8 _____ |
| T4_____ | T9 _____ |
| T5_____ | T10_____ |

Water Weight _____g (average of 2 highest)
Actual Weight _____g (water weight _ tare weight)

$$\text{Body Density (BD)} = \frac{\text{Body Weight (g)}}{\frac{\text{Body Weight(g)} - \text{Actual Weight(g)}}{\text{Water Density (g/mL)}} - \text{RV}}$$

Body Density _____g/mL
% Body Fat _____%
Estimated Fat Mass _____lb _____g
Estimated Fat Free Mass _____lb _____g

$$\%\ \text{fat} = \frac{(4.57)}{\text{BD}} - 4.142 \times 100$$

Minimal Weight at 7% fat: _____lb

Evaluation Complete/Debriefing _____ date:_____
(signature)

# MINIMUM WRESTLING WEIGHT
# FOR MALE WRESTLERS

| |
|---|
| _____ |
| Minimum Weight |

The lowest weight a wrestler may compete at will be determined by:

a) If the predicted weight, at 7% body fat, falls between two weights, he must wrestle at the higher weight. If weight is recorded below .5, round down to the nearest pound; if .5 or above, move up to the next pound.

b) **Some athletes are naturally lean, that is, their body fat will be under 7%. In such cases the assessor will use their actual weight to be their minimum weight at which they can compete.**

Examiner: _____ Facility: _____ Date: _____
(Signature)

Complete two copies:
1. Original in sealed envelope to Athletic Director.
2. One copy for your files (maintain for four years).

**NEW YORK STATE PUBLIC HIGH SCHOOL ATHLETIC ASSOCIATION**

**Wrestling Minimal Weight Program**

# FEMALES

**HYDROSTATIC WEIGHING FORM**

Name: _____ Date:_____

School: _____ Age: _____

Urinalysis: specific gravity _____g/mL passed ____ failed ____
Body Mass (weight) _____grams (lbs divided by .0022 g/lb) _____ lbs
Barometric Pressure _____mmHg
Air Temperature _____°C
ATPS to BTPS conversion _____
Vital Capacity _____mL
Residual Volume (RV) _____mL

Water Temperature _____°C
Water Density _____g/mL
Tare Weight _____g
Water Weight T1_____ T6 _____
T2_____ T7 _____
T3_____ T8 _____
T4_____ T9 _____
T5_____ T10_____

Water Weight _____g (average of 2 highest)
Actual Weight _____g (water weight _ tare weight)

$$\text{Body Density (BD)} = \frac{\text{Body Weight (g)}}{\frac{\text{Body Weight(g) \_ Actual Weight(g)}}{\text{Water Density (g/mL)}} - \text{RV}}$$

Body Density _____g/mL
% Body Fat _____%
Estimated Fat Mass _____lb _____g
Estimated Fat Free Mass _____lb _____g

$$\%\ \text{fat} = \frac{(4.57)}{\text{BD}} - 4.142 \times 100$$

Minimal Weight at 14% fat:_____lb

Evaluation Complete/Debriefing: _____ date _____
(signature)

# MINIMUM WRESTLING WEIGHT
# FOR FEMALE WRESTLERS

| |
|---|
| _____<br>Minimum Weight |

Enter the Minimum Weight the student may wrestle at in the box above.

The lowest weight a wrestler may compete at will be determined by:

a) If the predicted weight, at 14% body fat, falls between two weights, she must wrestle at the higher weight. If weight is recorded below .5, round down to the nearest pound; if .5 or above, move up to the next pound.

b) **Some athletes are naturally lean, that is, their body fat will be under 14%. In such cases the assessor will use their actual weight to be their minimum weight at which they can compete.**

Examiner: _____ Facility: _____ Date: _____
(Signature)

Complete two copies:
1. Original in sealed envelope to Athletic Director.
2. One copy for your files (maintain for four years).

# Section Assessor Consultants

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Wrestling Minimum Weight Certification

## FEMALE PRACTICE ANSWER SHEET

Assessors with questions are to contact their Section Assessor Consultant.

%BF = (____ x 1.33) - (____ $^2$ x .013) = ____ - 2.50 = ____
(SUM SF; SUM SF; AVERAGE; %BF)

Female #2

| | | | | |
|---|---|---|---|---|
| Triceps SF | 15 | 16 | 16 | 15.67 (15.66666667) |
| Subscapular SF | 13 | 14 | 14 | 13.67 (13.66666667) |
| | | | | 29.34 SUM SF |

(Take 2 in series, if difference is less than or equal to .5 mm, record average. If difference is greater than .5 mm, take a third and record average.)

Minimum Wrestling Weight Calculation

(**29.34** x 1.33) = 39.02 (39.0222)
(SUM SF)

(-)

(**29.34** $^2$ x .013) = 11.19
(SUM SF)

= 27.83

(-) 2.50

%BF = **25.33**

Calculating Minimum Weight at 14% BF

Minimal weight = [1 - ( **25.33** / 100) x 156 ] / .86 = 135.45
(%BF; current weight; weight at 14% BF)

# MINIMUM WEIGHT: 135