NWCA / NATA / NSAA Protocol for Performing Wrestling Weight Management Assessments

Materials Needed for the Assessment Process:

- Data Collection Forms – May be downloaded from the NSAA Site: http://www.nssaahome.org/wrest.html
- Collection Cups
- Refractometer or Hydratrend Test Strips
- Scale or Tanita Scale TBF-300WA or TBF-300W (must use ATHLETIC MODE)
- Computer with Internet Connection

Data Collection:

- All wrestlers must be assessed after November 9, 2008 but prior to the first individual’s competition. NO “PRACTICE” ASSESSMENTS MAY BE PREFORMED BY AN NSAA REGISTERED ASSESSOR AFTER NOVEMBER 9, 2008.
- During the data collection, an undergarment must be worn if the athlete and assessor are of opposite sex. If the athlete is of the same sex, the athlete may weigh-in for the assessment nude.
- It is recommended that all assessment data for each wrestler should be initially recorded on a data collection form or index card so a hard copy back up system is available. All hard copies are to be retained by the assessor until the conclusion of the current wrestling season.
- A data collection form for BIA and Skin fold measurements is available on the NSAA website.
Assessment of Hydration:

1. Completion of a hydration test is required **BEFORE** any wrestler can undergo a body composition or weight assessment.
2. Purpose is twofold:
   1. Dehydration can significantly affect a BIA body composition measure, which will result in an invalid percent body fat.
   2. Dehydration or loss of water weight will directly affect minimal wrestling weight

Assessment of Hydration Status:

- Two methods commonly used to assess urine specific gravity are: 1) reagent test strips - Hydratrend Strips and 2) refractometer.
- Refractometry is considered the gold standard and reagent strips are an acceptable alternative.

Assessment of Hydration Instruments:

![Step 1 - Assessment of Hydration Instruments](image)

- Refractometer
- Urine Test Strips

Assessment of Hydration Guidelines:

- If a wrestler has a urine specific gravity above 1.025 (as set by the NFHS), they should not be allowed to undergo the body composition assessment.
- If wrestler fails the hydration test they may not be assessed again for 48 hours.
In preparation for the hydration test the athletes should be instructed to consume 2-4 cups of water in 1-2 hour period immediately preceding the test.

Assessment of Hydration Status Protocol:

1. Evaluator assistant wears rubber gloves during the assessment.
2. Subject is provided a cup (marked by name or identification number). Sample should never leave the possession of the subject.
3. Subject is then instructed to provide a 2-3 oz. urine sample (mid-stream) in the urinal/bathroom under supervision.
4. Practice and enforce secure procedures during urine collection.
5. Urine specific gravity is then measured by reagent strips or a refractometer. (follow manufacturer's guidelines)
6. Upon successful completion of the hydration test, the subject should dispose of sample and then proceed to the body weight and body composition assessment stations.

Assessment of Height: Only necessary when using Tanita B.I.A. to measure body fat.
- Height should be measured using a tape to the nearest ¼ inch.
- Student should be measured in their bare feet

Assessment of Body Composition:

Currently approved by the NSAA:

Skin Fold Calipers: Baseline, Harpenden, Holtain, Lange, Lafayette, or Skyndex

Bioelectrical Impedance Analysis (BIA) - Tanita Scale TBF-300WA or TBF-300W using ATHLETIC MODE

Hydrostatic (Underwater) Weighing

Air Displacement System BodPod

Dune Entergy X-Ray Absorptiometry (Dexa)

This measurement should ideally be taken prior to the first practice, but must be performed prior to the first competition. All data must be entered into the NWCA website prior to competition.
Body Composition Methods:

- Two most common methods that may be used to assess body fat with the critical masses are:
  - 1) Skinfold Analysis and
  - 2) Bioelectrical Impedance Analysis (BIA) – Tanita Scale TBF-300WA or TBF-300W (ATHLETIC MODE)

- All personnel conducting the body composition assessment should have advanced training and education in whichever method is being employed. All assessors must register and pay the $25.00 fee while also attending a NSAA training session.

Lange Skinfold Calipers

As shown below, the goal is to measure a double fold of skin and subcutaneous tissue (with sides of skinfold approximately parallel). The thicker the fat layer, the wider the fold.
Basic Rules for Taking Skinfolds:

- Take skinfold measurements on the right side of the body (most skinfold equations were developed from measurements on the right side).
- Do not take measurements when the subject's skin is moist (ensure that the skin is dry, and has no lotion). Also do not take measurements immediately after exercise.
- To reduce error during the learning phase, skinfold sites should be precisely determined, marked, and verified by a trained instructor. The largest source of error in skinfold testing is inaccurate site selection.
- Firmly grasp the skinfold with the thumb and index finger of the left hand, and pull away.
- Hold the caliper in the right hand, perpendicular to the skinfold and with the skinfold dial facing up and easily readable. Place the caliper heads ¼-½ inch away from the fingers holding the skinfold. Try to visualize where a true double-fold of skin thickness is, and place the caliper heads there.
- Read the caliper dial to the nearest 1 millimeter within 4 seconds. During the measurement, ensure that the left thumb and forefinger maintains the shape of the skinfold.
- Take a minimum of 3 measurements at each site (at least 15 seconds apart).

**Triceps Skinfold**

Vertical fold on posterior aspect of arm, midway between lateral projection of acromion process and inferior margin of olecranon process. Flex the elbow to 90 degrees to identify the landmarks.
Abdomen Skin Fold

Vertical fold, one inch to the right side of and ½ inch below the navel. *The Jackson-Pollock procedure uses a vertical fold 2 cm to the right of the umbilicus.*

Subscapular Skin Fold

Diagonal fold just below the inferior angle of scapula.

Assessment of Body Composition: Bioelectrical Impedance Analysis (BIA)

- A safe electrical signal is generated and passed through the wrestler being measured.
- The Tanita Scale TBF-300WA or TBF-300W must be in the ATHLETIC MODE
- BIA measures the impedance or resistance to the electrical signal as it travels throughout the body. Resistance to the electrical signal is greater in fat mass than muscle mass, simply because fat mass is not a good conductor of electricity due to its relatively low water content.
Assessment of Body Composition: Bioelectrical Impedance Analysis (BIA)

- BIA does not require a high degree of technician skill and therefore is easy to use, and provides simultaneous measurements of body weight and body composition in a short time period.
- The wrestler simply stands on the scale after entering a few pieces of information (age, gender, height) and results are generated in less than 1 minute. The athlete should remain still while feet are flat to the surface of the scale.
- Body fat results are then entered into the Initial Assessment page for calculation of minimal wrestling weight.

Entering Data:

- Results of the hydration, height (if using BIA) and body weight assessment will be entered into the NWCA Optimal Performance Calculator for the Initial Assessment or Appeal.
- A wrestler must wait 48 hours to complete an Appeal Test.
- A wrestler may use any of the assessment tools for appeal.

Questions regarding the Weight Management program should be directed to Darin Boysen, Assistant Director NSAA, at (402) 489-0386 or dboysen@nsaahome.org.

Please review the Weight Management Guidelines on the NSAA Wrestling web page for further details at www.nsaahome.org.