

**KENTUCKY HIGH SCHOOL ATHLETIC ASSOCIATION
WRESTLING MINIMUM WEIGHT CERTIFICATION PROGRAM**

INTRODUCTION AND PLAN BACKGROUND

The appropriate and healthful control of body weight for wrestlers has been a concern of athletes, coaches, athletic trainers, schools physicians, parents and the interscholastic athletic community for many years. Prior studies show that more than one-third of all interscholastic wrestlers have used inappropriate or unsafe methods to get their bodies to an unnatural lower weight. Regardless of the educational information available from national, state and local athletic organizations, unhealthy weight loss procedures have continued.

Beginning with the 1999-2000 competitive season, each state high school association was required to adopt a plan which ensured that all participants in wrestling were wrestling at or near the normal body weight and that a formal plan was to be adopted to determine the minimum body weight of each wrestler. Medical concerns for the wrestlers and the success of programs in other states have resulted in the KHSAA adopted the Wrestling Minimum Weight Certification plan.

For the 1999-2000 and 2000-2001 season, the Kentucky High School Athletic Association worked in conjunction with the Kentucky Medical Association, the KHSAA Wrestling Advisory Committee and various member state associations of the National Federation to adopt a plan that would meet this requirement. Following a long analysis and comparison of plans, the KHSAA has adopted a minimum weight plan that closely mirrors those that have been in place in such states as Wisconsin, Iowa, New York and Indiana for many years.

The health hazards associated with excessive weight reduction through food deprivation and/or dehydration are well documented. These hazards include, but are not limited to, reduced regulation of body temperature, kidney failure, and acute and/or chronic fatigue. The KHSAA urges all to consider the information contained herein in making decisions regarding competitive weight of wrestlers.

The purpose of this plan is to develop and determine an athlete's minimum weight, not necessarily best weight, as those are individual decisions. This only forms a limitation for competition, not an artificial standard for normal practice. In order to participate in wrestling, all participants must have a minimum weight determination made by a designated assessor. The establishment of a minimum weight class is based on a body fat measurement of 7% for male wrestlers and 12% for female wrestlers. This determination must be made through a four-part process,

- 1) The determination and validation of the proper hydration level of the athlete;
- 2) The determination of the athlete's body fat percentage;
- 3) The determination of the athlete's minimum weight were his / her body fat percentage reduced to the minimum level; and
- 4) The projection and stipulation for the point in time when a wrestler could actually wrestle at that minimum weight.

ACKNOWLEDGEMENTS AND CREDITS

Any program such as this must result from years of study and research. Many of the concepts contained in the Kentucky program were borrowed, refined or otherwise patterned after successful attempts at similar programs in other states.

During its years of research, the KHSAA has been helped immensely by other state associations, and by many members of the medical community. The Wisconsin and Iowa High School Associations have provided immeasurable assistance and anecdotal information regarding their more than twenty (20) years of experimentation and implementation of the weight management program. Former Associate Director Don Hermann and current Assistant to the Director Dave Anderson of the Wisconsin Association have continually advised the Association along the developmental path. Former Executive Director Sandra Scott and the staff at the New York Public High School Athletic Association also provided an immense amount of material and advice to the Association for its implementation.

Lastly, the KHSAA owes an immense thank you to the members of the Kentucky Medical Association, and in particular, members of a special committee appointed to look at this regulation, which met on several occasions for more than a year in helping to refine a workable procedure. Though wrestling may not be a large sport in our state in terms of participants, its coaches, participants and supporters are certainly a passionate audience and the members of KMA particularly reinforce that position. Special thanks to Sub Committee Chair Dr. Mike Miller of Edgewood, and committee members Dr. James "Pete" Bowles of Madisonville, Dr. Mary Lloyd Ireland of Lexington, Dr. Greg Potts of Louisville, Dr. Ron Waldrige of Shelbyville, and KMA staff members Bob Klinglesmith and Sharon Heckel.

Questions about the program or its implementation should be directed to Assistant Commissioner Julian Tackett at the KHSAA offices in Lexington.

THE REGULATION AND PROCEDURES

- 1) Background of Regulation
 - a) Each school is required to certify minimum weights of all wrestlers and turn in the forms to the KHSAA, either in the form of paper forms or the electronic spreadsheet.
 - b) The establishment of a minimum wrestling weight based on 7% body fat for males and 12% for females is required for all high school wrestlers. The KHSAA does not advocate that a wrestler's established minimum weight is the athlete's best weight but simply the minimum weight at which the athlete will be allowed to compete.
 - c) To be entered in a specific weight class in the post season tournament series, each wrestler is required to have at least one-half of his / her weigh-ins during the entire season at the minimum weight they will wrestle during the state tournament series.
 - d) The KHSAA remains concerned for the safety of the young people who participate in our wrestling program. The establishment of minimum weight classes along with a maximum weight loss per week limit allows high school wrestlers to participate in a most healthy manner.
- 2) Time Periods for Assessments
 - a) Skin-fold measuring or the use of other methods to determine body fat may begin on October 15. All wrestlers, including those coming out late, must have their minimum weight established prior to any competition.
 - b) Skin-fold measuring must be completed by December 15
 - c) Results of measurements will be sent to schools within seven days of receipt of data in the KHSAA office.
- 3) Growth Allowance
 - a) A two-pound growth allowance may be added to each weight class on January 15.
 - b) No allowances can be made between schools and/or coaches for any regular season or post-season event with the exception of the allowable one-pound additional allowance on the second and subsequent days of a tournament.
- 4) Weight Loss Per Week
 - a) A weight loss of 1.5% of a wrestler's total body weight per week (or .5 pounds (½ pound) per week whichever is greater) has been established and therefore that is divided to get the allowable loss per day (.015 of Alpha weight / 7) or .5 pounds per day. A wrestler will not be allowed to wrestle at any time in a weight class that would require him/her to lose more than this amount.
- 5) Designation/Selection/Qualifications of an Assessor
 - a) When an individual is listed with the KHSAA as an "Assessor", there is normally a concern about professional responsibility. There is an expectation of the highest professional and ethical conduct relative to performing assessments on the young wrestlers. These young wrestlers MUST be treated with the highest regard for their right to privacy, and for the confidentiality of all data collected with the program.
 - b) Assessors are required to conduct themselves in a manner such that there will be no questions about the positive contribution to the program and to the sport of wrestling. There will be times when professional judgment will be involved to clarify and validate the assessment process; the greater the depth of understanding the program, the more likely you are to represent the best interests of both the KHSAA and the student-athlete.
 - c) Each school may select an individual to serve as the Assessor for this program within their wrestling program. Multiple schools may utilize the same assessors.
 - d) Schools must submit the name of the assessor to be used to the KHSAA using form WR128 IN ADVANCE of the testing.
 - e) Assessors may not be members of school coaching faculty in any sport.
 - f) Assessors must have medical background – by definition, employed in the healing and health care profession – Registered Nurse, Licensed Practical Nurse, Advanced Registered Nurse Practitioner, Doctor, Physical Therapist, Physicians Assistant, Doctor of Osteopathy, Athletic Trainer Certified, nutritionist, health educator or an exercise physiologist.
 - g) To be eligible to become a KHSAA approved skin-fold assessor an individual must have demonstrated training and experience in skin-fold measurement or other approved assessment method.
 - h) Schools may use someone not in one of the categories in Item 1(c) with permission of the Association by requesting such permission in advance.

6) Establishing Minimum Weights

- a) The lowest weight class a wrestler may compete at will be determined as follows:
 - i) If the predicted weight, at 7% male/12% female is exactly that of one of the weight classes, that weight class shall be the wrestler's minimum weight class.
 - ii) If the weight class falls between two weight classes, he/she must wrestle at the higher weight class.
 - iii) Any male or female wrestler whose body fat percentage at the time of measurement falls below 7%/12% must obtain, in writing on the prescribed IHSAA form, a licensed physician's clearance stating that the athlete is naturally at this sub 7%/12% body fat level. A physician's clearance is valid for one season and expires April 1 of each year. The physician's form (WR127) for this clearance is provided with this information.
- b) Determining Body Fat Percentage
 - i) There are four methods of determining the body fat percentage of a wrestler.
 - (1) Traditional skin-fold testing, using measurements as described within Section II of this manual. Competitors wishing to appeal the determination of body fat level may do so by using one of the other three methods of testing. The costs of such appeal shall be borne by the athlete. In most cases, skin-fold measurements will be utilized to determine each wrestler's body fat percentage. Only measurements taken by KHSAA Registered Skin-fold Measurers will be accepted. Schools may obtain a list of approved measurers at the KHSAA website at www.khsaa.org under the wrestling links. It is the responsibility of the school to contact a certified skin-fold measurer from this list. This method is based on the relationship between subcutaneous fat and total body fat and its inverse relationship to body density. The regression equations have been derived for the specific population of the wrestling community and these formulas calculate body density.
 - (2) Bioelectrical Impedance Analysis using electronic methods to determine the body fat percentage. The end result of the body fat calculation is entered into the minimum body weight calculations in order to determine the minimum body weight. There is no appeal from the body fat percentage determination used in this method. This is a fairly modern technique, still in the developmental stages in some areas, and utilizes electrode attachments to the extremities and a small but safe electrical current to determine the conductivity of lean tissue versus fat tissue. This is programmed to calculate lean body mass and percent body fat.
 - (3) Underwater or Hydrostatic body fat analysis in a supervised clinical setting. The end result of the body fat calculation is entered into the minimum body weight calculations in order to determine the minimum body weight. There is no appeal from the body fat percentage determination used in this method. This method involves the submersion of an individual to determine the subject's underwater weight that is used along with the weight on land to calculate the body density. It utilizes the concept that muscle mass and fat have specific known densities relative to water. This method can be fairly accurate, although it is usually quite expensive.
 - (4) BODPOD air displacement system of measurement. This advanced method uses air displacement technology and is as accurate as underwater weighing; yet, it is very safe and fast for the wrestlers. It also provides the wrestler and coach with an immediate calculation for any allowable weight loss and the allowable schedule for the loss. This device (named the BODPOD) is available for testing at several sites. If you wish to learn more about the BODPOD in the meantime, go to www.bodpod.com on the web. The end result of the body fat calculation is entered into the minimum body weight calculations in order to determine the minimum body weight. There is no appeal from the body fat percentage determination used in this method.
 - (5) Given the methods available, the most appropriate choice is skin-fold assessment. The cost of the method also makes it the safest and least expensive method and is controlled as to validity and reliability.
 - ii) The KHSAA will accept measurements using these different methods with the following equipment:
 - (1) Skin-fold measurements shall be taken with the Lange or Harpenden calipers. These are medium priced calipers and can be obtained for around \$200.00 from most health care product suppliers. Measurements taken with the Lange calipers must be taken by a KHSAA designated skin-fold measurer.
 - (2) The KHSAA will also accept measurements taken from the *TANITA TBF-300GS Body Composition Analyzer/Scale*. This technology is available from most health care product suppliers for a substantially higher fee. Measurements taken with the TANITA TBF-300GS must be witnessed and verified by the athletic director of the school and duly noted on the measurement sheet submitted by the school to the KHSAA. In addition to recording the measurement on the KHSAA Weight Permission Form, the actual printout of the wrestler's test with the wrestler's name printed on the printout, MUST be sent to the KHSAA.
 - (3) Other instruments of measurement must be approved by the KHSAA before being used to meet this regulation and will be required if either the BODPOD or Hydrostatic methods are used.

7) Definitions

- 1) SKIN-FOLD ASSESSMENT TERMINOLOGY - The use of skin-fold assessment in the process of determination of body composition requires some standardization of terminology used in this field. The following is an attempt to accomplish this standardization:
 - a) Total Body Weight (TBW): weight of the body on a certified, calibrated scale.
 - b) Body Density (BD): the mass of the body per unit of volume. (The fat free component is assumed to have a density of 1.100 gm/cm³. the mass of fat is considered to be about .90 gm/cm³)
 - c) Percent Body Fat (%BF): the proportion of total body weight that is fat weight and expressed as a percentage. $\%BF = (TBW - LBM) / (TBW) \times 100$
 - d) Lean Body Mass (LBM): the weight of the lean tissue of the body such as muscle, bone, and blood. The weight of the body without the fat weight. $LBM = TBW - FW$.
 - e) Fat Weight (FW): the weight of the fat tissue of the body. Includes both essential and stored fat tissue. $FW = TBW \times \%BF$
 - f) Minimum Wrestling Weight (MWW): the lowest weight at which a wrestler may compete, determined to be 7 % body fat for the Kentucky Wrestling Minimum Weight Program less a 3% margin of error.
 - g) Ideal Body Weight: a body weight selected for a specific individual or group based on both empirical and scientific evidence that provides an optimum level of performance.
 - h) Minimum Weight: a body weight selected for a specific individual or group based on a specific percent body fat. A minimal, but not necessarily ideal or optimum body weight
 - i) Regression Equations: equations that express the relationship (based on correlation) between the criterion measure (GOLD STANDARD) and the prediction measure. In skin-fold assessment these are determined for specific combinations of sites, and specific populations.
 - j) Population Specificity: the attempt to make prediction calculation (equations) on representative subjects from specific groups of individuals, the results of which are intended to be applied to a similar, larger population. In skin-fold assessment for body composition the important specific factors are sex, age, national origin, maturation and hydration.
 - k) Biological Variability: variation that will contribute to error due to such factors as hydration and deposition sites.
 - l) Technical Variability: variability that will contribute to error due to such factors as lack of standardization of procedures among assessors.
 - m) Reliability: reproducibility, the consistency and dependability of a measure. $>.9$ with experienced assessors. Increases with fewer sites and monitored practice.
 - n) Validity: degree to which an assessor obtains an accurate measure. How well the group being assessed matches the group from which the regression equation was obtained and is dependent upon: age, activity level, population specific, and body composition status.

8) Procedures of Recording Data

- a) Data Collection and Reporting
 - i) Measurements will be recorded and entered into spreadsheet for calculation or a WR101 must be completed and submitted for EACH athlete.
 - ii) Final spreadsheet will be sent to KHSAA via disk and/or email (sent to jtackett@khsaa.org). This can substitute for forms as far as KHSAA requirement, but forms must be completed and maintained on file for parent and athlete permission on minimum weight.
 - iii) The spreadsheet will contain columns to report your skin-fold measurements, OR your body fat percentage as recorded using one of the other acceptable methods.
 - iv) Once you have entered all the students you wish to submit, you should save your spreadsheet with your school name and a number 1 if it is your first sheet. Subsequent sheets shall be named by your school and the number 2 and so on. Each sheet will hold 25 wrestlers.
 - v) When you are finished with entering data on your spreadsheet and you have saved a copy to your computer, you are then ready to submit this sheet to the KHSAA.
 - vi) Please submit the sheets via an email message to jtackett@khsaa.org with your Microsoft Excel spreadsheet as an attachment. Please be sure you have saved this document as your school's name with a number following it so if we experience any difficulty in transmission, we can recover the saved document. Upon receipt of your spreadsheet, calculations will be performed and the minimum weight classes established for each of your wrestlers. A report, which your coach can maintain in his file, will be returned via e-mail to the address you provided.
 - vii) A second method of reporting data is via a 3-1/2 floppy Disk. The disk that will be sent via US Mail will contain the same spreadsheet that would be e-mailed otherwise. The reporting processes are the same as above with the exception of your mailing the disk back to our office. This process will be expectedly slower, however, due to some e-mailing programs, and this option remains necessary. If you wish to have a floppy disk mailed to you as opposed to using e-mail, please indicate that preference on the enclosed request sheet provided in this material.

- viii) A final and least desirable method of reporting is similar to our process of last year in which the school types or hand writes the information on a blank form. This requires considerable effort from our support staff in key stroking each name into our computer thus delaying your results for some time. For those member schools that find it IMPOSSIBLE to report their data electronically or by disk, this option remains. This will be the last year that a typed or hand written form will be acceptable for this information.
 - ix) Spreadsheet and/or forms must be submitted to KHSAA by December 22.
 - b) Effective January 1, wrestlers for which there is no completed form on file become ineligible.
 - c) Minimum weight re-certifications must be performed by the same physician/medical professional.
 - d) Wrestlers not competing or practicing prior to December 15 establish minimum weight at time of first scale weight.
- 9) Responsibilities of Schools in the Measurement Process
- a) It is the school's responsibility to contact an approved KHSAA skin-fold measurer. The list of approved measurers can be obtained from the KHSAA website at www.khsaa.org under wrestling.
 - b) The school must have the following items/information available at the time of the skin-fold measuring and/or body fat test:
 - i) An approved test device, whether it is Lange calipers, bioelectrical impedance equipment, or other approved device.
 - ii) A certified scale,
 - iii) Skin-fold data sheets [provided by the KHSAA in electronic format],
 - iv) School officials [e.g., coach, teacher, A.D.] who will assist in obtaining the weight of each wrestler and with the recording of the data.
 - c) The school shall determine if the assessor is to be compensated. That compensation cannot exceed \$3 per student. It is the strong recommendation of the Association that each school designate an assessor so that the cost to the student athlete is eliminated.
- 10) Physician's Clearance for Excessively lean Wrestlers
- a) Any wrestler who naturally is below the 7%/12% minimum measurement, must have a signed physician's clearance on the form provided in this material.

REPAIR OF EQUIPMENT

You may want or need to have your Lange calipers re-calibrated or repaired. If so, the unit(s) may be sent to Cambridge Scientific Industries, ATTN: RMR Department, 5455 Moose Lodge Road, Cambridge, MD, 21613. The phone number is (800) 638-9566 and you will need to call to get a return authorization number. Calipers will need to be sent pre-paid, with a current cost of \$44 covering repair, parts replacement, cleaning, re-calibration and return shipment.

NUTRITION EDUCATION

While it is not required, it is highly recommended that each school participate in a nutrition education program with their student-athletes and incur all costs of the program. Many times, wrestlers are making decisions regarding weight management and weight reduction that would be different if there were better educating as to the long-term consequences.

FUTURE CONSIDERATIONS

The KHSAA Wrestling Weight Control Program will continue to develop over the next few years with several enhancements planned. Education continues to be a key element in the success and understanding of the weight control program. A critical review of the entire weight control program is planned during the 2002-2003 school year. Administrators, coaches, athletes and parents will have an opportunity to provide valuable feedback to the Association through the Wrestling Advisory. It is hoped that through continued education and dedicated efforts among our wrestling community, we work toward creating a safer sport and healthier environment.