

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*

