

National Wheelchair Softball Association
Player Classification Handbook
As of 05/01/2005

1.0 Preface

An efficient and effective medical classification system is prerequisite to the establishment of fair and equitable competition within the National Wheelchair Softball Association (NWSA). Fair and equitable softball competition can only exist when disabled athletes are properly placed within their classification levels so that all member teams have an opportunity to exercise their fullest capabilities within the limits of the rules governing classifications. These rules are applicable to all individuals and teams.

The Physical Classification Handbook includes definitions, examples, and descriptions of proper test positions. Also included are methods and procedures for determining the classification level of each disabled athlete. This handbook is a guide. Its intent is to explain the NWSA player classification system and make it more meaningful for athletes, coaches, physicians, and therapists.

2.0 Purpose of the Physical Classification Handbook

All delegates and members of the NWSA tend to agree that many problems relating to player classification are due to different interpretations of the classification rules and different test procedures presently utilized to determine the disabled athlete's classification level. The purpose of this handbook is to establish uniformity. By establishing uniform interpretations of rules and uniform testing procedures, all disabled athletes throughout the United States can be fairly and accurately classified. Utilizing the handbook as a guide, physicians and therapists will be able to identify borderline disabilities more readily and thus place these individuals in their proper classification level more accurately.

3.0 Purpose of Player Classification System

The player classification system serves to classify each wheelchair athlete according to his/her physical limitations. It is through the classification system that fair and equitable competition is achieved. The classification system attempts to keep individuals with similar degrees of disability within the same category. Its intent is to encourage more severely disabled athletes to participate and protects against athletes with superior strength and physical ability from dominating the sport. Further, it maintains high standards of competition and generates spectator interest.

3.1 Role of Classifier

The role of the classifier is to apply the rules of the classification system to the individual player. The rules must be fairly and consistently applied. Although an athlete or coach may seek special consideration for his or her specific problems, it is the classifier's role to

apply the system consistently, so that it remains a fair system for all teams. It is recognized that not all players within a specific classification have identical neurological function. There is a range of neurological function with each classification which will be reflected in skills (related to neurological function within each classification which will be reflected in skills (related to trunk and pelvic control) on the field. It may be necessary to educate athletes and coaches regarding this range of neurological function.

And, even in cases involving identical neurological function, there is a range of athletic ability and skill among athletes. It is the classifier's role to compensate for limitations in a given player's skill, nor to penalize another player for superior athletic ability when his or her neurological function clearly identifies that player with a particular class.

Player classification is a non-therapeutic intervention. The classifier serves a critical role in wheelchair softball. The decisions the classifier makes affect team balance and the potential combinations of players allowed on the playing field. Your role is very similar to that of a game official, in that you are applying established rules to the best of your ability.

To achieve this end, it is necessary for the classifier to expect maximal effort and cooperation from all players.

4.0 Outline of classification levels and team balance.

The play classification system of the NWSA addresses three distinct levels of disability as related to paraplegia. The first two levels involve trunk lesions (I, II) and the third involves lower extremity innervation (III). As wheelchair softball involves team play, a point system has evolved in order to insure team balance and to insure equal participation based on athletic ability.

4.1 Classification Levels

4.11 Class I

Complete motor loss at T-7 or above or comparable disability where there is total loss of muscle function originating at or above T-7.

4.12 Class II

Complete motor loss originating at T-8 and descending through and including L-2 where there may be motor power of hips and thighs. Also included in this class are amputees with bilateral hip disarticulation.

4.13 Class III

All other physical disabilities as related to lower extremity paralysis or paresis originating at or below L-3. All lower extremity amputees are included in this class except those with bilateral hip disarticulation. (See Class II, 4.12)

4.2 Team balance

Each classification will be given a numerical value as follows:

Class I equals 1 value point
Class II equals 2 value points
Class III equals 3 value points

At no time during the game shall a team have players participating with a total value of points greater twenty-two (22).

4.3 Statement regarding classification levels

4.31 Class I

Class I athletes should demonstrate no functional use of abdominal musculature. Perhaps some very high spinal extensor muscles will be present; however, spinal extension will be accomplished primarily by substitution of dorsal scapular muscles. Trunk control and sitting balance should be poor (see definition 5.422) to non-existent. There should be no functional motor power below T-7 and these athletes should demonstrate a weak cough.

4.32 Class II

Class II athletes should demonstrate no useful motor power below L-2. Abdominal and spinal extensor muscle strength can vary from fair (3) to normal (5) (see muscle definitions 5.423 and 5.424). Hip flexors may test good (4), hip abductors may test fair (3), and quadriceps strength may be poor (2) (see muscle testing grades 5.21).

4.33 Class III

Class III athletes should demonstrate motor paralysis or paresis, originating at or below L-3. Trunk control, pelvic control and sitting balance should be good to normal (see definitions 5.424 and 5.425)

4.4 Note 1:

When evaluating disabled athletes with poliomyelitis, incomplete traumatic paraplegia, and other disabilities where there is not a complete horizontal lesion of the spinal cord, spared muscle groups may be present below the lower limits of a specific class.

EXAMPLE: A post-polio athlete may have isolated good (4) or normal (5) muscle strength of plantar and dorsi flexors; however, should the athlete demonstrate severely

weak trunk or pelvic musculature which results in diminished trunk control and sitting balance, the athlete may still be considered for a Class I or Class II.

4.5 Primary differences between Class I and Class II

The primary divisions between Class I and Class II athletes are lack of or presence of abdominal and thoracic-lumbar spinal extensor muscles. Class I athletes should demonstrate no functional use of abdominal or thoracic-lumbar extensor muscles. A negligible to non-existent Beevor's sign cephalic may be present in Class I athletes. The superficial upper abdominal reflex may be absent. Class II athletes should demonstrate fair (3) to normal (5) strength in abdominal and thoracic-lumbar spinal extensor muscles. A strong cephalic Beevor's sign will be present and the superficial upper abdominal reflex will be present. The superficial lower abdominal reflex may be equivocal.

4.6 Primary differences between Class II and Class III

The primary divisions between Class II and Class III athletes are pelvic and lower leg control and function. Class II athletes should demonstrate poor to fair pelvic control as a result of abdominal and thoracic-lumbar extensor function. Hip flexion strength may be good (4) and hip abductors and quadriceps may demonstrate fair (3) and poor (2) strength respectively. Class II athletes should demonstrate good to normal pelvic control and zero to good control of lower leg(s). These athletes have increased motor power of hip abductors, good (4), normal (5); hip external rotators, trace (1), poor (2); and quadriceps strength good (4), normal (5). A positive patella reflex should also be present.

4.7 Note 2:

It should be apparent that not all athletes with identical disabilities will demonstrate the same degree of skill and expertise when playing softball. Likewise, not all individuals within the same class level will demonstrate the same degree of skill level, nor will they demonstrate the same degree of trunk control, pelvic control, or sitting balance.

EXAMPLE: A T-1 paraplegic would probably have diminished balance and control compared with the T-4 individual. It now becomes the responsibility of the athlete and his trainer to compensate for these balance and control deficits by training and practice. The same is true when comparing a Class II T-8 paraplegic with a T-12 post-polio paraplegic or a Class III L-3 traumatic paraplegic with a unilateral below-knee amputee. In fact, it should be easier for an L-3 paraplegic to become competitive in Class III as compared to a T-1 paraplegic becoming competitive in Class I, because the L-3 paraplegic athlete has more accessory strength, power, and mobility to develop.

4.8 Documentation of minimal disability

The following rules and by-laws apply in the consideration of the minimally disabled player. These players often cite orthopedic limitations and require careful consideration of their eligibility.

The classifier must see clear evidence of permanent loss of nerve function, muscle strength, joint range of motion, or similar loss of function. An otherwise able-bodied player with a temporary disability, (involving, for instance, the rehabilitative period following a surgery or a fracture) is not considered eligible, as the player would be expected to regain function within normal limits. The player must supply, as requested, medical documentation of the permanent lower extremity disability, which may include physician's reports, radiological findings, nerve conduction studies and associated documentation.

5.0 Factors to be considered during classification

5.1 Neurological Examination

The classification process must be initiated here. It is paramount that a motor level be established. The point above which there is increased motor function and below which motor function diminishes or stops altogether must be identified.

5.2 Manual muscle testing

The muscle strength grading system used is the standard five point grading system. It can be found in the Text *Muscle Testing*, authors Daniels and Worthingham, 4th edition, Saunders Company. This text also describes the standard test positions utilized determining muscle strength grades. It is most important that proper test positions be utilized in order to have a uniform grading system. Otherwise the muscle testing grade is only a guess and this inconsistency of testing procedure results in many athletes being placed in wrong classification levels. An acceptable muscle test form is enclosed. (see Appendix 1)

5.21 Muscle test grading

5.211	Zero	0	Total lack of involuntary contraction
5.212	Trace	1	Faint voluntary contractions without movement of joint; tendon may be palpated to tighten during voluntary contraction
5.213	Poor	2	Voluntary contraction through complete range of motion when gravity is eliminated.
5.214	Fair	3	Voluntary contraction through complete range of motion against gravity.
5.215	Good	4	Voluntary contraction through complete range of motion against gravity with some resistance.
5.216	Normal	5	Voluntary contraction through complete range of motion against gravity with full resistance.

5.22 Note 3

Some physicians and therapists use plus (+) and minus (-) numbers to indicate first third range of motion and last third range of motion. This practice is acceptable; however, consider the muscle strength as a whole number when determining athlete's classification.

5.221 Note 4: The examiner should further remember to remove tight restrictive clothing, binders, and orthotics prior to muscle testing. However, should the athlete wear such supportive devices during competition, he should be evaluated both with and without supportive equipment. Special attention should be noted if balance and trunk control are improved or diminished as a result of this supportive equipment. A firm exercise mat or plinth should be used as a testing surface and the athlete must be assured of adequate spotting so as not to fear falling.

5.3 Sensation and proprioception

Sensation level and proprioception are most important if the athlete is to maintain balance and control. Postural sense plays an important role in the athlete's ability to keep and maintain balance. No doubt, athletes with poliomyelitis or traumatic paraplegics with spared dorsal columns experience an advantage. The sensory level can also be utilized to help identify the motor level. However, it must be understood that motor and sensory levels may vary and when considering athletics, motor level takes precedence. Sensory and proprioception levels should be identified as they may assist in determining borderline classifications.

5.4 Sitting balance

Next to motor power, sitting balance is probably the most important factor determining successful athletic performance. Sitting balance ties together motor strength, power, endurance, and integrates it with sensory control and coordination. Balance is graded as: no balance, poor balance, fair balance, good balance, and normal balance.

5.41 Testing procedure for sitting balance

The test positions for sitting balance are the long sitting position and sitting unsupported with feet over side of plinth. In both positions, the arms are crossed in front of the chest. Hands should not be used to support or maintain balance. The athlete may use head or shoulder motions to key balance. Anterior, posterior and lateral balance positions should be observed in both test positions. Proper spotting techniques should be utilized to insure the safety of the athlete.

5.421 No sitting balance: Athlete cannot achieve or maintain sitting balance without direct support of one or both upper extremities. This balance is best demonstrated by athletes with high cervical lesions.

5.422 Poor sitting balance: Athlete can sit unsupported by upper extremities once sitting balance is achieved; however, the lightest disturbance causes athlete to lose balance. Athlete may use head and shoulder motions to key balance. Poor sitting balance is best

demonstrated by athletes with high thoracic lesions who demonstrate no abdominal or spinal extensor function.

5.423 Fair sitting balance: Athlete can sit unsupported by upper extremities once sitting balance is achieved; he is able to adjust balance when mildly disrupted by the examiner. Athlete will demonstrate some upper abdominal and upper thoracic extensor control. Fair sitting balance is best demonstrated by athletes with mid-thoracic lesions.

5.424 Good sitting balance: Athlete can sit unsupported by upper extremities once sitting balance is achieved. Athlete may move upper extremities freely and rapidly and maintain balance. He can maintain sitting balance when moderately disturbed by the examiner. Athlete will demonstrate both upper and lower abdominal and upper and lower extensor control. This balance is best demonstrated by athletes with low thoracic or upper lumbar lesions.

5.425 Normal sitting balance: Athlete can sit unsupported by upper extremities. Some individuals may achieve sitting balance without use of upper extremities if lower extremities are stabilized. The athlete demonstrates good to normal trunk control and fair to normal pelvic control. Sitting balance is maintained when severely disrupted by the examiner. Normal sitting balance is best demonstrated by athletes with lumbar and sacral lesions.

5.5 Spasticity

Spasticity frequently occurs when there is a spinal cord lesion. It is generally agreed that spasticity reduces or decreases athletic performance as it interferes with coordinated muscle movement. Spasticity may also cause injury when legs and feet come off the foot plates and are bumped or hit by other wheelchairs. Athletes can be unjustly penalized for mistaken spasticity which is believed to be voluntary motor power. For these reasons, spasticity should be carefully evaluated and necessary precautions taken to diminish its effect on the classification process and positive steps taken to insure the athlete's safety during competition. If spasticity is severe, a strap may be placed around the athlete's leg below the knee and anchored to the foot platform bar.

5.6 Cooperation of the athlete during the classification examination

Only the athlete and the classifier(s) should be present during the examination. All disabled athletes have been instructed to give the fullest cooperation throughout the examination. They must relate all information as requested by the physician to the best of their understanding and knowledge. When asked to perform specific tasks or assume test positions, they must give their fullest and best effort to complete the task. Should at anytime the classifier feel an athlete is not cooperating to his/her fullest or if the classifier believes an athlete is malingering his/her disability, the examination should stop. The classifier should note the athlete's behavior on the player classification form (See Appendix 2) and return the form to the conference assistant commissioner. The assistant

commissioner will send the form to the commissioner of the NWSA and appropriate and corrective action will be taken.

6.0 Functional abilities by classification.

The classifier must be aware of typical performance of players within each classification to insure that the system has been appropriately applied.

It is helpful during the classification examination to simulate function on the field. The following tests done in the athlete's wheelchair may be useful adjuncts to the previously described examinations of muscle strength, sensation, and sitting balance.

7.0 Case examples

Case 1

25 year old man, 23 years post-polio. Minimal involvement of the upper extremities with thenar wasting in the left (non-dominant) hand. Spotty involvement of the trunk muscles. Unable to clear scapula in trunk flexion from supine. Negative Beevor's sign. Has fair to good trunk balance. Right convex atrophied, except for fair ankle dorsi and plantar flexion. He is a community ambulator with bilateral KAFO's with a free ankle.

Classification: Class II

Rationale: Performance on trunk flexion is limited probably due to scoliosis and spinal fusion. Palpation of abdominal contraction is very important here. Trunk balance is consistent with Class II. Lower extremity function also consistent with Class II. Ankle motion provides little functional advantage.

Case 2

18 year old woman, 8 months post spinal cord injury. T-6 Brown Sequard syndrome secondary to gunshot wound. Upper extremity strength is normal. Upper abdominals appear atrophied but are difficult to evaluate due to hyperesthesia. Unable to clear scapula during trunk flexion, but is able to clear scapulae on trunk flexion with rotation. Beevor's sign is down-going. Lower extremity strength is fair to good in all lower extremity muscles on the right side and on the left shows only poor function at the hips.

Sensation shows intact pinprick on the left and impaired sensation on the right from T-6 down. Proprioception is intact on the right and absent on the left. Sitting balance is good. Lateral stability is good to the left, but poor to the right. Anterior posterior stability is good. She is a community ambulator, wearing a KAFO on the left leg.

Classification: Class III

Rationale: The pelvic stability afforded by the intact neurological function of the right lower extremity gives her an advantage in trunk and pelvis stability. Although she may have lower motor neuron involvement at the level of the injury (at the upper rectus abdominis) her trunk control is sufficient to afford her good sitting balance as well as anterior-posterior and reasonable lateral stability.

Observation and a review in one year is indicated to affirm that she clearly has greater function than the Class II player. Skill level may not initially reflect the neurological function that she has. Although she may seem awkward at first, as skills improve, the examiner should see motor function on the field that is consistent with her pelvic and trunk stability.

Case 3

27 year old male, bilateral above-knee amputee (short A-K stumps, amputations 6-8" below the greater trochanter) seven years post injury. He is obese and has complained that his balance is poor. Upper extremities are good strength. He is not able to clear his scapulae in trunk flexion from supine. Abdominal muscles are difficult to palpate. Sitting balance is good to normal on the examining table. Lower extremities show bilateral 40 degree hip flexion contractures.

Classification: Class III

Rationale: Despite his deconditioning, his stump length and intact neurological function clearly places him in a class III.

8.0 Player registration

The player must complete the top portion of the Player Application and Certification form and present it to the classifier. The classification shall be certified by the physician or therapist administering the examination by adding his or her signature to the Player Application and Certification Form, and shall designate the player's official classification by encircling the class number. The classifier, upon completing the disability certification portion of the form, returns the form (with the manual muscle test) to the player.

The form must then be signed by the team representative and assistant commissioner for the conference, before being submitted to the office of the commissioner.

A player may not undergo more than one physical examination for the purposes of obtaining a more favorable classification, nor may he or she submit more than one Player application and Certification form to the office of the Commissioner without prior authorization by the commissioner.

9.0 Protest of classification