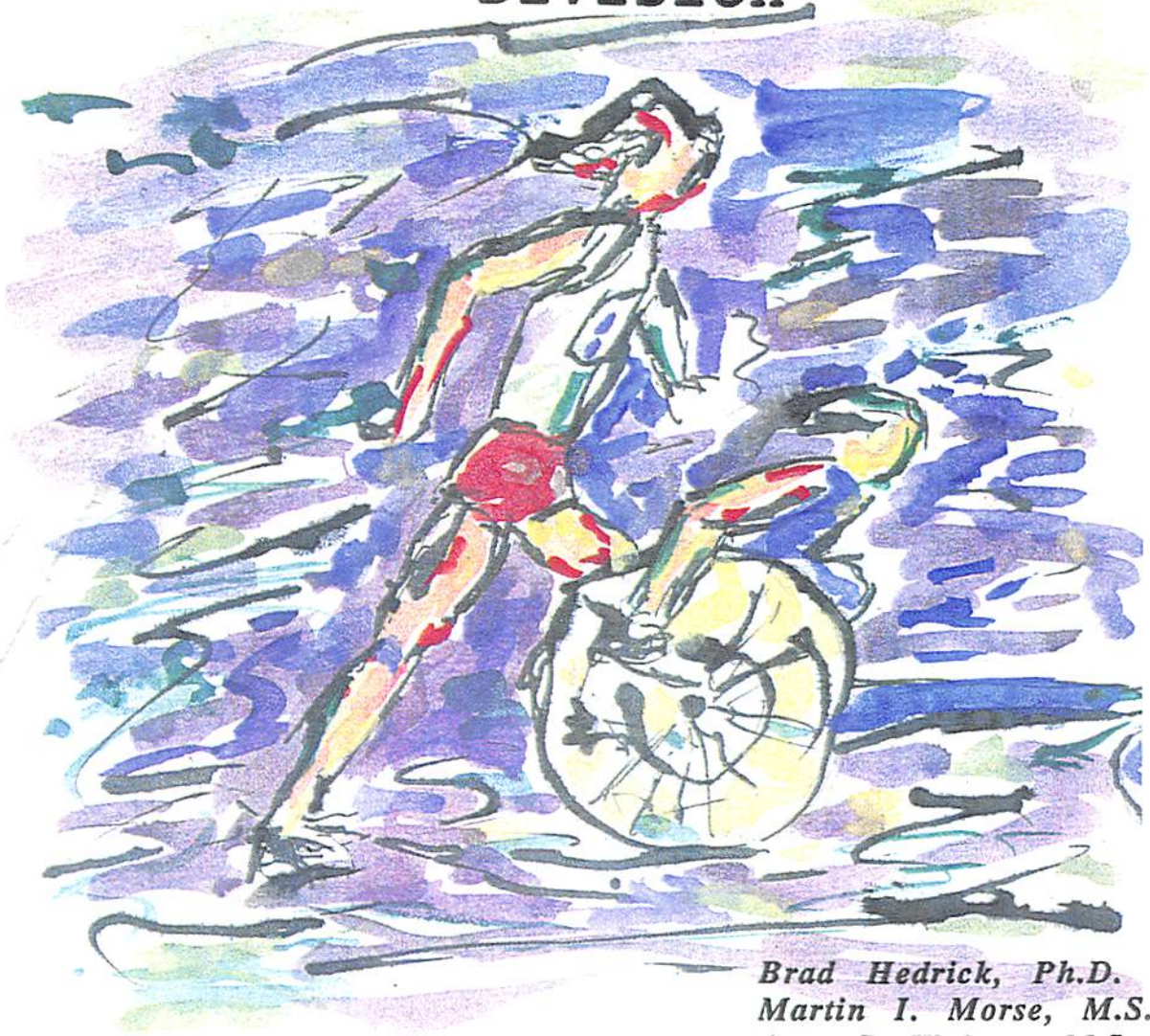


*Guidelines for the
Administration
of a Wheelchair Road Race
Division*



*Brad Hedrick, Ph.D.
Martin I. Morse, M.S.
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Rehabilitation Education Center
University of Illinois at
Urbana/Champaign

Second Edition

Updates to the 1994 edition as of March 1, 2017

The University of Illinois provided the following notes concerning updates to this book.

Course elevation: In regards to course elevation, although we continue to stress safety and look at ways to manage early down hills with a significant drop, we've moved away from controlled starts, Boston being an example (and the example cited in the guidelines). The chair technology has evolved in a way that makes navigating those types of descents safer.

Aid stations: In regards to water aid stations, there is no need to provide any special accommodations, primarily because wheelchair racers typically carry fluid on their chairs. Those that do need water can easily take it from a cup.

Rules: Disregard the reference to WA-USA when sourcing rules. We are now racing under the jurisdiction of Adaptive Sports USA (rulebook is found at https://adaptivesportsusa.org/wp-content/uploads/2016/03/2016-athletics-rb_v.2_3.16.16.pdf).

Road Race Management is grateful to Adam Bleakney for providing the rights to distribute this publication. His contact information appears below.

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**This book was published by the Division of Rehabilitation Education Services (DRES)
University of Illinois at Urbana/Champaign.**

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Guidelines for the Administration of a Wheelchair Road Race Division

Second Edition

Introduction

Over the past two decades, improved training techniques and the concurrent development of technologically more sophisticated racing wheelchairs have allowed racers to attain previously unthinkable performance levels. Additionally, wheelchair racing's assimilation within existing road races has spurred substantial growth in the availability of wheelchair road racing opportunities locally, regionally, nationally, and internationally. As a result of these developments, growing numbers of athletes are becoming interested in this fitness-enhancing, lifetime sport.

Surprisingly, this growth in the number of wheelchair road racing divisions within mainstream racing events has occurred in the absence of formal administrative guidelines and procedures for wheelchair road race management. Although wheelchair racing is analogous to running in many respects, the administration of a wheelchair division also entails unique concerns that must be addressed for the race to achieve its potential as a safe and enjoyable event for wheelchair racers and runners alike.

The Guidelines for the Administration of a Wheelchair Road Race Division, Second Edition, was created to address this informational void. To that end, it addresses the basic structure of the organizing committee relative to the wheelchair division. In addition, general administrative concerns and specific, managerial objectives related to the development and execution of a wheelchair road racing division are discussed.

Guidelines for the Administration of a Wheelchair Road Race Division, Second Edition, is meant to be a supplement for race directors interested in including a wheelchair division. The guidelines are specifically designed to complement the information found in other guideline books geared at directing a road race.



photo by Nancy Q. Walters

The staff at the Division of Rehabilitation Education Services, office of Recreation and Athletics at the University of Illinois at Urbana/Champaign, may be contacted to address other questions or concerns related to the management of a wheelchair road race division. (See Appendix B) Helpful hints have also been given in parenthesis () throughout this book. The race names appearing in parenthesis already utilize the techniques discussed in that section. By contacting these races and race directors you may be able to obtain helpful insight on how to direct a better race.

Good Luck in directing your wheelchair road racing event!

Organizational Structure

Knowledgeable Consultant

The first and most important task in organizing a wheelchair division is the *identification of a knowledgeable wheelchair athlete/coach to function as a technical consultant*. By acquiring the support of such an individual from the beginning, administrative problems resulting from a lack of familiarity with wheelchair racing can be avoided. Because every road race, like every wheelchair racer, is unique the development of comprehensive and definitive organizational and administrative guidelines applicable to all courses is impossible. This manual should be perceived as a supplement to rather than a replacement for the course specific input of an on-site consultant.

To identify a qualified wheelchair road racing consultant, race organizers should *contact Wheelchair Sports-USA (formally the National Wheelchair Athletic Association) for*

the names and addresses of members residing in their locale who could act in such a capacity. Generally, local road race organizers should not assume that any available local athlete and/or coach has sufficient expertise to act as a competent technical consultant. If a wheelchair racer is used as the consultant, the individual should be allowed to push the course, when possible. Later, during a drive-through with a representative of the race organizing committee, the consultant could pinpoint the specific concerns that arose while pushing the course. If a wheelchair racer is not available to act as the consultant, or if pushing the course in advance is impossible, those responsible for previewing the course must be especially attentive since the dynamics of driving a course are wholly different from those of pushing it. Indeed, several drive-throughs might be advisable.



photo by Peggy Martin

Wheelchair Division Coordinator

As with any road race event, the magnitude of the logistical concerns related to the administration of a wheelchair division are directly proportional to the size of the competitive field. Typically, larger and more prestigious wheelchair divisions are associated with major racing events, which also have cumbersome numbers of runners as well. Under these circumstances, the organizers of such events are already immersed in the management and coordination of the activities of a large number of volunteers and organizational subcommittees. Thus, organizers of large races with relatively large wheelchair divisions (20 or more) should include a wheelchair division coordinator to oversee preparations, execution, and wrap up for the wheelchair division. This individual would be responsible for seeing that the wheelchair division is not overlooked or neglected in any way.

The wheelchair division coordinator should have no other organizational responsibilities. This ensures that the wheelchair division will receive sufficient attention to forestall any likely problems. Novice wheelchair division coordinators should be identified a year in advance of the racing event in order to afford them sufficient time to become familiar with the unique qualities of wheelchair road racing.



photo by Nancy Q. Walters

General Administrative Concerns

Notifying Wheelchair Participants

The individual responsible for the organization and administration of the wheelchair racing division *must first identify and notify potential wheelchair division participants*. The race application should specifically provide for registration by wheelchair division entrants. The designation is too often omitted to the chagrin of the registration personnel who must rectify the situation and register the entire wheelchair division in the hectic hours prior to the race. All local and/or regional announcements regarding the race should acknowledge the existence of the wheelchair division. Additionally, local advertisements should be augmented with announcements in *Wheelchair Sports - USA (WS-USA) Newsletter, Sports In Spokes, and Palaestra* (addresses of each of these periodicals are listed in Appendix D).

Finally, to bolster the mailing lists for individual races a listing of *Wheelchair Athletics-USA (WA-USA)* members may be obtained from WS-USA and a directory of *National Wheelchair Basketball Association (NWBA)* team representatives may also be obtained from the WS-USA. This will increase the likelihood that interested parties will receive notification of the racing events (addresses of these agencies/agents are listed in Appendix B).

Competition Categories

It is recommended that races begin with the introduction of men's and women's "open" divisions. Generally, the technical advancements that have been introduced in the design of racing wheelchairs have all but eliminated inequality created by varying levels

of disability for individuals without upper extremity dysfunction. Thus, categorical distinctions based upon the level of disablement are unnecessarily patronizing and not recommended.

Of course, if a sufficient number of male and/or female quadriplegics are registered (3 or more), a competitive division can and should be created for them. In this case, the functional inequality caused by severe disablement of the upper extremities has not been technologically eliminated. Thus, *the only justifiable categorizations by disability are those created to accommodate quadriplegics*. In order to find out whether there will be a sufficient number of quadriplegics to warrant a separate division, the application form should designate three levels for wheelchair racers: open men, open women, and quadriplegic racers. Other designations, which may or may not be appropriate, are a junior's wheelchair division for racers younger than 18 years of age and a master's wheelchair division for racers over the age of 40.

Awards

Top male and female wheelchair finishers usually receive awards comparable to the top non-disabled racers within the age divisions. If grand prizes and/or monetary awards are presented to the top male and female runners, the organizers should award a grand prize to the overall wheelchair winner, assuming that there is adequate depth within the wheelchair field to warrant such an action. When a relatively large number of men and women (10 or more in each group) are competing, a grand prize for both the top male and the top female wheelchair finishers should be considered.



Wheelchair awards are included with the runners
(Pittsburgh Marathon)
photo by Nancy Q. Walters

Obviously, the quantity and quality of grand prize awards is contingent upon the level of sponsorship available.

Prize Money Distribution

The advent of prize money for wheelchair racers has been a welcome development. It has helped wheelchair racers defray the cost of both their expensive racing equipment and the large amount of travel made necessary by the sparse distribution of wheelchair racers. *When prize money is available for the wheelchair division participants, it should be distributed according to the same principles given for awards.* The actual amount offered to top wheelchair performers varies widely from race to race. Current races offer prize money to wheelchair division participants ranging from \$150 to \$10,000 for top finishers.

Once prize money has been awarded to the first place finishers, any remaining money is incrementally distributed according to the depth of the competitive fields within the various divisions. For example, in a men's division having 60 or more competitors, money might be distributed to as many as the top 10 competitors. In contrast, within the women's division, which rarely include more than 15 to 20 racers, prize money generally is not awarded beyond the top three or four places.

Typically, the top male and female are given comparable awards whenever possible. However, the remaining money should be distributed proportionately between the divisions based on the number of registered competitors within the various wheelchair division competition categories. Obviously, this means that smaller divisions will receive less prize money than larger divisions and so will make fewer and smaller awards (Pittsburgh Marathon).

Desired Competitive Field

The type of competitive field desired by race organizers will have a significant impact on the budget lines related to travel support for invited athletes and prize money. Recent surveys of wheelchair racers make it clear that the availability of travel support and/or prize money that can be used to defray expenses incurred in travel are important factors in determining whether or not they will attend a particular race. Thus, *to guarantee a large field with good representation by top performers, race directors must be able to provide complementary travel, lodging, and essential local transportation.*

Typically, races with top-rated wheelchair divisions have a minimum of \$5,000 to cover the travel expenses of invited wheelchair racers. To further guarantee a quality field, the prize money must also be competitive with alternative races occurring at or around the same time of the year. Local sponsors for such expenses are often readily available. Certain sponsors prefer identification with the wheelchair division because of the nature of their services or products. Others simply appreciate the fact that the costs of wheelchair division sponsorship are small on comparison to those of the open runner's divisions.

Of course, if representation by the sport's top athletes is not considered essential, these concerns can be disregarded. However, even local races will have to depend on individuals who must travel substantial distances to compete. Thus, when arrangements have been

made to provide lodging for invited runners, the wheelchair division should make comparable arrangements for out-of-town wheelchair competitors.

Lodging and Transportation

Accessible accommodations for the wheelchair participants must be identified early and reserved to ensure adequate availability. This does not mean that every room must be totally wheelchair accessible. Obviously, only a small number of such rooms exist within any hotel or motel complex. Rather, this means that rooms must have adequate doorway clearances (32 inches recommended), and ramps and/or elevators must be available to accommodate multilevel wheelchair access when necessary.

Lodging should also be located as close to the starting line as possible to minimize problems of transportation and parking. When primary lodging sites are far enough away to require motorized transportation, the race director should create a parking area specifically designated for use by wheelchair participants in the vicinity of the starting line. *When a large contingent of out-of-town athletes is expected, and lodging sites are far from the starting line and/or finish line, organizers should provide accessible transportation (Boston Marathon).*

At large races where many wheelchair racers are lodged, it is appropriate to have a large room where racing chairs and boxes can be stored, on the lower level of the hotel. This will alleviate congestion on race day in elevators. Racing chairs are considerably longer than conventional wheelchairs and many do not easily fit onto elevators. *It is essential, however, that 24 hour security is assigned to the equipment room.*

Finally, organizers should be aware that wheelchair racers generally travel with a considerable amount of bulky luggage. In addition to the wheelchair they use for everyday mobility, they will be bringing their specialized racing equipment in one or two

footlocker-type trunks. Thus, vans and/or buses with ramps hydraulic lifts are often necessary for a large out-of-town field (Riverside Rumble).

Race Site Accommodations

The first order of business is to *ensure that fixed and/or portable accessible restrooms are available at both the starting area and the finish area.* Just as runners must be well hydrated, wheelchair racers must also elevate their fluid intake before a race. If there are no accessible, onsite rest rooms some wheelchair racers may restrict their fluid intake to reduce the likelihood of needing restrooms. Obviously, this situation is undesirable. When permanent rest room facilities are not available on-site, accessible portable toilets may be rented along with the standard units.

The awards area should be arranged so that it can easily be traversed by wheelchair racers. An area might be set aside for wheelchair racers next to the site where awards are being presented (Crescent City Classic). Additionally, at least one path from the rear of the assembly to the presentation area should be kept clear. If the actual presentation of awards takes place on an elevated stage, there should be ramp to allow wheelchair access.



Repair facilities provided at the Start.
photo by Nancy Q. Walters

Accommodations for on-site wheelchair repair should also be available. The combination of expertise and parts from a bike shop and a medical supplier is usually sufficient to handle technical problems that occur before and during the race. Having a repair area stocked with 26 inch and 70 centimeter tubular tires, clincher tires and tubes, tubular tires of 16, 18 and 20 inch diameters as well as an air pump for both presta and schrader air valves will take care of the majority of the problems likely to arise.

Post Race Publicity

A summary of the event should be written and submitted for publication in the *WS-USA Newsletter, Sports In Spokes and Palaestra (Appendix B)* in addition to local and regional newspapers, newsletters, and so on. Results and problems of noncompliance with the rules should be submitted to the Long Distance Racing Committee of WA-USA for review and possible action.



Wheelchair division winners should be included in all post race publicity

photo by Curt Beamer & Delfina Colby

Race Related Administrative Concerns

Course Format

Whether using a point to point, loop, or an out and back format, *the course should be designed so that the wheelchair racers are not required to double back and race into the runners.* When this is unavoidable, a median should separate the roadway (Illini Inline). Within all formats it is best, when possible, to provide adjacent but separate lanes for the wheelchair division participants and runners.



Cones divide the wheelchair division from the runners (Old Kent River Bank Run)

photo by Nancy Q. Walters

Course Terrain

Smooth, paved streets and highways unquestionably constitute the best surfaces. Races that are run on grass, cinder tracks, gravel roads, or cross-country trails are unequivocally inappropriate for wheelchair divisions. Because of their uneven and typically wavy surface, brick roadways or cobblestone should also be avoided.

Races including wheelchair divisions should

be designed so that the negotiation of such obstacles as curbs, steps, railroad crossings and grated bridges is not required. If they are unavoidable, rough railroad crossings can be covered with sheets of plywood to provide a more consistent surface for the wheelchairs to cross. Temporary, plywood ramps can also be used on short curbs. Grated bridges can be covered with specialized carpeting to allow for a smoother passage for both the wheelchair racers as well as runners (Chicago Marathon).

Of course, it is better to replace such course segments with more appropriate routing. Extremely rough surfaces with broken pavement and deep potholes are potentially hazardous and should be avoided or repaired. These conditions are also dangerous for runners and their removal would make for a more enjoyable and safer race for all concerned.

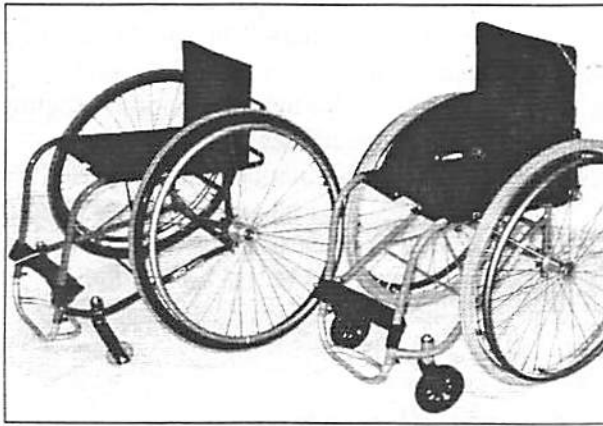
Course Elevation

Extreme variations in elevation present a diverse set of problems for wheelchair racers. Steep drops in elevation can produce speeds approaching 45 to 50 miles per hour. Conversely, the strength required to negotiate steep uphill grades can practically eliminate the participation of individuals with significantly impaired upper extremity function. Obviously, *it is ideal for the course to be relatively flat.* However, when severe elevation changes are necessary, the following considerations should be addressed.

Extremely abrupt uphill may be unmanageable for some racers whose posture in their wheelchairs inhibits their ability to execute a compensatory, forward shifting of the upper torso. Quadriplegics may also have difficulty negotiating such roadway segments. Thus, wheelchair registrants in races with severe changes in elevation should be strongly advised to practice or to drive the course to assess the likelihood of personal difficulty with the

elevation changes.

Additionally, *race officials should not hesitate to question the capacity of participants with severe disabilities in conventional wheelchairs to negotiate courses with severe elevation changes.* Just as some runners register for a road race without adequate preparation, some novice wheelchair division participants can also make potentially hazardous mistakes of judgment. Individuals should be asked whether they are aware of the demanding

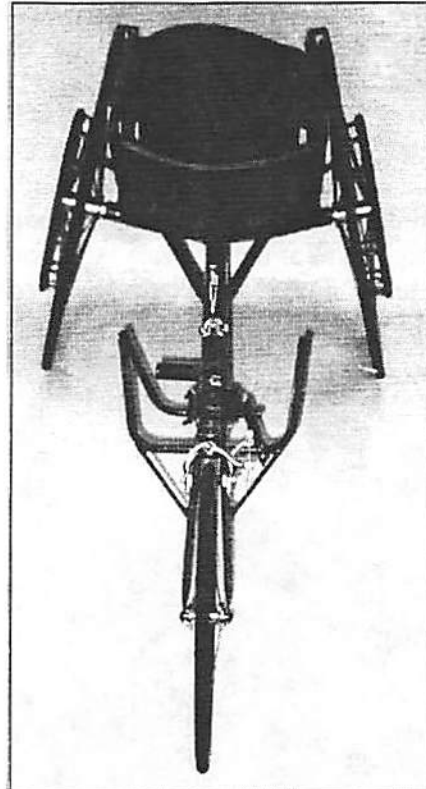


Conventional Wheelchair
Courtesy of Eagle Sportschairs

course and whether they are certain of their ability to negotiate the areas with reasonable safety. Conventional wheelchairs are generally less suited for downhill or irregular surfaces than specialized road racing wheelchairs. On relatively flat courses with smooth pavement, conventional wheelchairs are not especially hazardous, but, when steep surfaces are involved, conventional wheelchairs can be quite dangerous.

Conventional and racing wheelchairs primarily differ in three ways (See pictures). First, the racer's center-of-gravity is typically higher in a conventional wheelchair. Second, the front casters, which are used for steering, are not connected with tierods on conventional wheelchairs. Air cylinders and/or springs are use on racing wheelchairs to force the front wheel to maintain a straight course. Third, the racing wheelchair, by design, limits upper body

movement to a much greater degree and thereby increases the racer's stability. The higher center-of-gravity and independent front wheels work together to put the participant in a conventional wheelchair at increased risk on steep downhills. The independence of the front



Racing Wheelchair
courtesy of Eagle Sportschairs

wheels can cause the casters to "shimmy" violently at high speeds. This has the same effect as slamming on the brakes, and the racer can be thrown from the wheelchair. The higher center-of-gravity decreases the racer's stability in turns and when negotiating irregular or bumpy roadway surfaces.

Downhills lose much of their inherent danger when they are introduced late enough in the race to allow the division to become more dispersed. *However, steep downhills near the start should be avoided whenever possible.* When a downhill start is necessary, a multi-lane

roadway is preferable to reduce the clustering of the wheelchair field during the downhill sprint. Additionally, *race organizers should consider the introduction of qualifying standards to control the number of racers in the field under these circumstances or use a paced start to restrict the speeds achieved on such early downhills* (Boston Marathon). In the latter instances a pace car leads the wheelchair field down the hill at a controlled speed and pulls off the course at the bottom of the hill (Boston Marathon).

Abrupt turns should not be located at or near the base of steep downhills. There should be significant distance at the base of the downhill to accommodate deceleration to a speed at which a safe turn is possible. When an abrupt turn is required on or at the base of a steep downhill, the racers should be advised of the location of the turn on a map of the course included in the race packet. Furthermore, they should again be reminded of the turn during the pre-race instructions. Finally, *a course monitor should be positioned at the top of the hill to warn the racers of the impending turn ahead* (Bobby Crim Road Race).

Because races differ substantially in terms of course attributes and competitive fields, the rules for long distance wheelchair racing (Appendix A) now require that helmets be worn in all WA-USA sanctioned races. Brakes and qualifying standards may be required at the discretion of the race director. This should all be mentioned in the pre-race literature so all racers are prepared on race day. However, it is the ultimate responsibility of race officials to require such devices or standards when they are deemed prudent given the nature and/or specific attributes of the particular course. on courses with long, fast downhills, brakes should be required, (Boston Marathon) while on flat courses with small competitive fields the race officials may recommend but not require their use.



Helmet are required for all VA-USA sanctioned events
photo by Curt Beamer & Delfina Colby

Concurrent Presence of Wheelchairs and Runners

In addressing problems related to the concurrent presence of wheelchairs and runners, several factors must be considered. First, the number of runners and wheelchair racers must be evaluated with respect to the quality and quantity of their fields. *When it appears likely that wheelchair racers and runners will be negotiating a downhill together, it would be advantageous either to have the two separated by lane or to have a course policy that dictates the nature of their interaction.*

In addition, the *communication signals used by wheelchair participants to warn runners of their rearward approach should be planned in advance and included in the event's health and safety tips/procedures handout.* The event director should also remind the wheelchair racers and the runners of the system to be used before the start of the race (Christie Clinic 10K).

An interactional system that has proven effective, is to have all wheelchair participants race in the center of the roadway when they are near runners. This system avoids the ambiguity of such directional signals as "wheelchair on you right." Obviously, a wheelchair racer can be to the right of one runner and to the left of another. Thus, such directional communications can be easily misinterpreted and should be avoided when more than one runner is involved. Again, it is preferable to separate the wheelchair racers and runners on steep downhill by using segregated, parallel lanes of the roadway. This can be easily done when a very wide and/or multi-lane roadway is being used (Old Kent, Illini Inline).

As mentioned earlier, qualifying standards can also be introduced to control possible interaction (Peachtree 10K). The required performance standards can be ascertained by assessing the amount of time it is expected to take the lead runners to arrive at the downhill or race area of concern. Wheelchair racers would be required to have a qualifying time that would have them past that area before the approach of the runners. Because this type of restriction eliminates slower wheelchair racers it is preferable to solve the problem using one of the aforementioned alternative actions. *If qualifying standards are necessary, the head start can be lengthened to reduce the number of athletes excluded by such an action.*

Weather

Since most racers in the wheelchair division tend to have spinal cord injuries, race organizers should be aware of the

predisposition of high-level paraplegics and quadriplegics to experience hypothermia and hyperthermia.



Finish line wraps help to prevent hypothermia for racers (Chicago Marathon).

photo by Curt Beamer & Delfina Colby

Because of the circulatory and autonomic deficits associated with spinal cord injuries, athletes with severe damage to the spinal cord are more likely to experience hypothermia in extremely cold weather.

Conversely, because of the autonomic nervous system deficits, racers with very high lesion levels (i.e., sixth thoracic vertebrae and higher), are generally characterized by a severely limited ability to dissipate heat below the level of their injuries. Quadriplegic participants with spinal cord injuries in the cervical region (neck) must dissipate excessive body heat with only their shoulders, neck, and head. Thus, in extremely hot weather they are more likely to experience hyperthermia. It is helpful to have shelters near the start and finish areas to allow these participants to get out of the direct sun in extremely hot weather. It is always advisable to have physicians available who are familiar with spinal cord injuries.

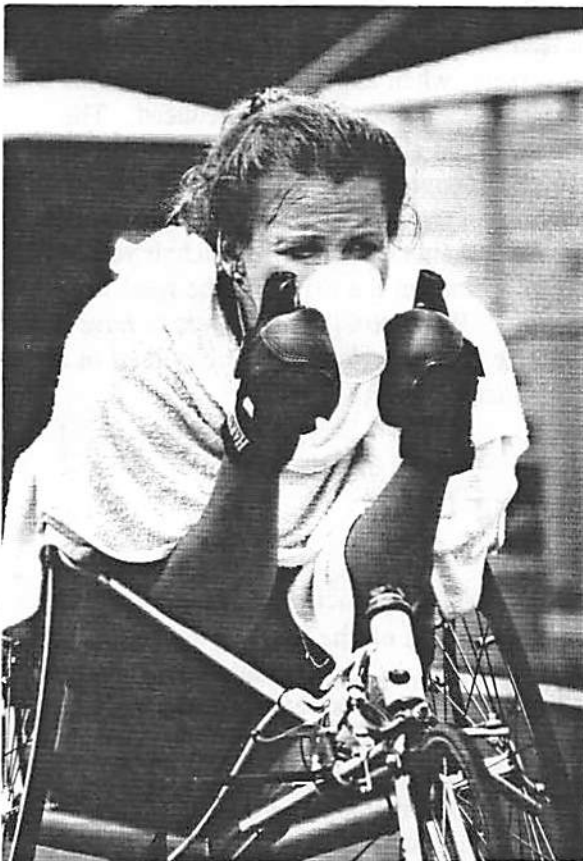
In cold weather races shelters with heaters and blankets should be available at both the start and finish areas to accommodate the wheelchair participants as well as the runners (Detroit Marathon).

Race organizers should also be aware that wet, rainy weather inhibits the wheelchair racer's ability to apply propulsive force to the pushrims, to stop quickly, and to turn sharply. Therefore, under such conditions the event director should remind wheelchair racers and runners to be especially careful.



The finish line chute should be wide enough to accommodate several racers.

photo by Nancy Q. Walters



Water and cool wet towels help to prevent hyperthermia in warm temperatures.

photo by Curt Beamer & Delfina Colby

Finish Area Design

The finish line should be wide enough to accommodate several wheelchairs finishing simultaneously. This is especially important when a relatively large competitive field of highly skilled racers is present. Also, because the final sprint of wheelchair racers can result in speeds of 18 to 24 miles per hour on a flat course, the chutes for the wheelchair participants should be no less than 30 to 50 feet from the finish line. This allows the racers more time to slow down. When the wheelchair field is relatively large, the chutes for the wheelchair racers should be separate from those used by the runners. This prevents dangerous interaction in the typically congested finish area. Finally, the chutes should be no less than 32 inches wide.

Head Starts

The WS-USA Long Distance Racing Rules prohibit simultaneous starts with wheelchair racers and runners because wheelchair generally accelerate slower than runners but attain much higher speeds. Thus in simultaneous starts, the runners rush out to the

front while the wheelchair racers accelerate. Then, as the wheelchairs attain higher speeds, they catch up to the runners and have to meander through them. Accidents can occur when runners fail to see the low-profile, fast-moving wheelchair racers. *The most common head starts range from 5 to 15 minutes.*

Start Signal

The start signal for the wheelchair division should not be the same as that used for the runners. This avoids confusion, especially on the part of runners located at the back of the field. Typically, the largest wheelchair divisions (n=150) are small enough for an air horn, whistle, or amplified voice command to suffice.

Course Monitors

Course monitors at intersections must be prepared for racers moving at speeds that are appreciably higher than those of the runners. Thus, they must be prepared to clear the intersection and restrict traffic much earlier for approaching wheelchair racers than they would for runners (Crescent City Classic).

Course monitors must use vigorous arm movements or hold clearly marked signs to



Cyclists may act as course monitors.
photo by Nancy Q. Walters

warn the racers of directional changes and/or imminent obstacles. This allows the racers to adjust their path for the safest possible line, especially if a tight turn is required. It is also helpful to have a monitor one block ahead of a turn to verbally inform all racers of the direction of the impending turn.

Lead Vehicle Position

The lead vehicle should be far enough ahead of the front-runners to preclude its use in drafting. The driver must also be constantly alert to the current speed of the wheelchair racers since they will vary their speed during a race with greater frequency and to greater extremes than runners.

When approaching a downhill, the speed of the lead vehicle should increase appreciably. Conversely, when approaching an uphill, the lead vehicle's speed should be reduced. The vehicle should also be far enough ahead to prevent the engine exhaust from inhibiting the breathing of the athletes. It is often helpful to have a hand signal that the wheelchair racers can use to inform the driver of the need to speed up. *When possible, it is best to have a knowledgeable wheelchair racing official in the lead vehicle.*

Starting Grid

Wheelchair participants should be seeded in a starting grid on the basis of their projected times. Race applications should request information on each racer's best and most recent time at the event distance or at a comparable distance within the past year.

Time trials may also be used to determine starting positions. (See the following section on time trials.) Additional aid in seeding the racers can be ascertained by reviewing race results published in the *WS-USA Newsletter*, *Sports In Spokes*, and *Palaestra* (Appendix D).

Women, quadriplegics,

Starting Line										
W1	W1	J1	M3	M1	M2	M4	MASTER 1	Q1	Q2	
W4	W3	J2	M7	M5	M6	M8	MASTER 2	Q3	Q4	
W6	W5	J3	M11	M9	M10	M12	MASTER 3	Q5	Q6	
WOMEN'S FIELD		JUNIOR'S	MEN'S FIELD				MASTER'S	QUAD'S FIELD		
Seeding for a single start.										

Starting Line									
J2	J1	Q3	Q1	Q2	W3	W1	W2	M1	M2
J4	J3	Q6	Q4	Q5	W6	W4	W5	M3	M4
J6	J5	Q9	Q7	Q8	W9	W7	W8	M5	M6
JUNIOR'S FIELD		QUAD'S FIELD			WOMEN'S FIELD			MASTER'S FIELD	
Seeding for dual starts.									

STARTING LINE									
9	7	5	3	1	2	4	6	8	10
19	17	15	13	11	12	14	16	18	20
OPEN FIELD									
Seeding for wave starts									

masters, and juniors participating in the wheelchair division should not be positioned indiscriminately on the front row in races with large competitive fields. Instead, these divisions should be clustered to the extreme left or right at the start, with the first and second ranked in each division across the front row when possible. The remaining seeded racers should be lined up behind them in adjacent grid locations according to their performance ranking.

The most important factor in a starting grid with multiple divisions is to *cluster each individual division together*. In other words keep all of open women in one area, all masters in one area, all juniors in one area, and all quadriplegics in one area. (See the various starting grids).

Time Trials

Time trials may also be used to determine starting position on race day. Time trials avoid subjectivity, bias, or discrimination when seeding athletes. Time trials can be run the day before the race and are mandatory if an athlete wants to be in contention for a seeded position (Gasparilla Distance Classic).

The distance of the time trial should be about a half mile of straight road. This distance allows the wheelchair division director to determine which racer's will be granted preferential placement in the starting grid. The course chosen for the time trial should be as similar to the actual starting area as possible.

Time trials are organized so that each individual runs separately. One minute intervals are used to separate the racers. In most cases, this insures that racers will not interfere with one another. Each division should run together to allow for the similarity of time trial conditions within divisions. Therefore, run all the women through the time trial, followed by all the quadriplegics, etc. Seeding for the time trial should be based on the information obtained from past performances.

Prizes money or awards may be added to the time trial to increase the incentive for all

the participants regardless of class.

Finally, since time trials are the most reliable method of seeding athletes in a starting grid, faster racers are better assured of a starting position forward of slower racers. As a result, the possibility of accidents attributed to faster racers weaving in and out of the pack to pass slower racers is substantially diminished.

Divided Starts and Wave Starts

As with any running event, as the competitive fields become larger, the starting area becomes more of a concern this is especially true when dealing with a small starting area. To accommodate the fairest start possible for all competitors, some races have instituted divided starts or wave starts.

In a divided start the racing field is distributed over multiple starting areas at different locations, however all racers start at the same time (Gasparilla Distance Classic). The racers usually converge to a common roadway within the first mile. This technique works well when there are parallel streets at the start of a race. In a large wheelchair division it is often advisable to have the "open" men at one starting area and all other racers at another.

A wave start is useful when there is a narrow starting area and no parallel streets. In a wave start, each wheelchair division starts separately (Crescent City Classic). These starts are staggered by increments of 30 seconds to 2 minutes, depending on the quantity and quality of the field. In a wave start, allow the faster division (open men) to be the first to start in order to minimize illegal inter-divisional co-action.

Drafting

In any race following WA-USA rules there is to be *no drafting outside of divisions*. Racers may only draft other racers in their

respective divisions and should be disqualified from the competition if they draft outside of their division.

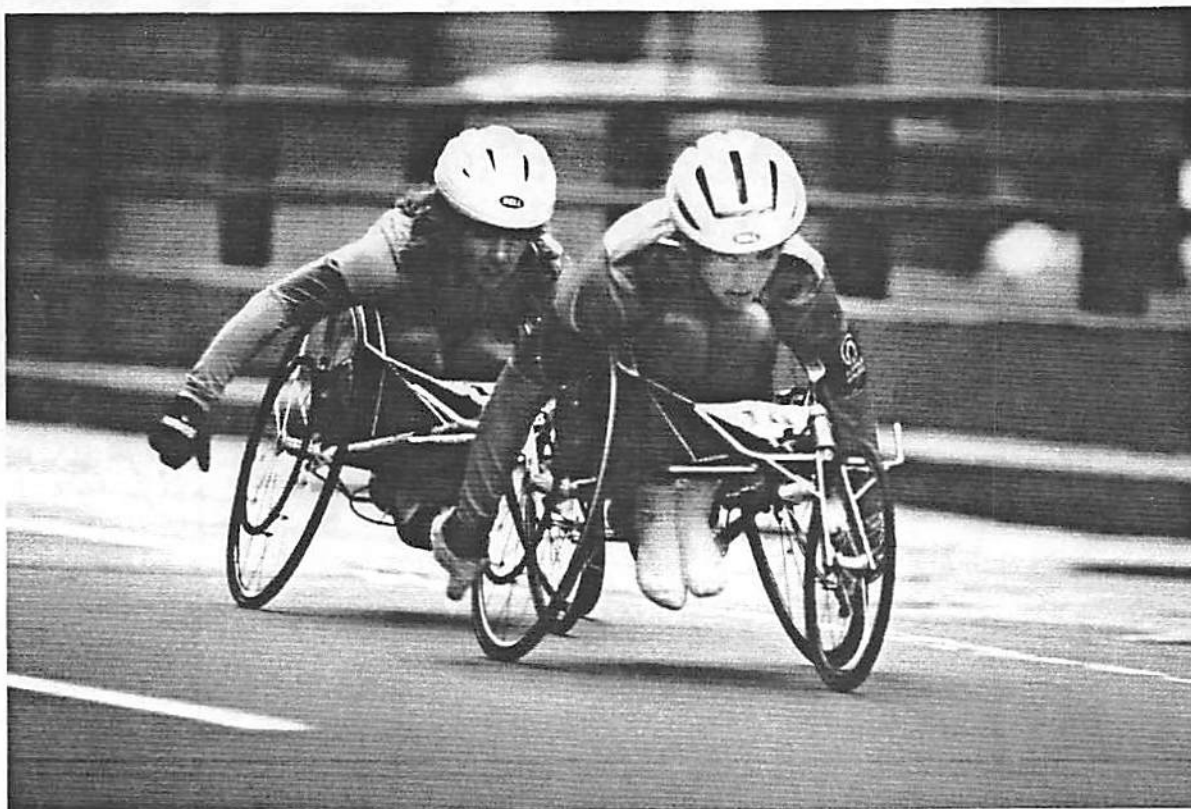
In many races this is accomplished by using the honor system, but as races become more competitive, drafting rules need to be more rigorously monitored and enforced. Some monitoring methods include, check points at every mile with spotters and cyclists riding on the course (Pittsburgh Marathon, Crescent City Classic). Another technique to control inter-divisional drafting is to make numbers for each division a different color so racers can easily tell each division (Gasparilla Distance Classic).

As noted earlier the use of separate starting areas (Gasparilla Distance Classic) or wave starts (PeachTree, Crescent City Classic) also serve to reduce the likelihood of illegal inter-divisional drafting.

Water Stations

In receiving water at water stations it is imperative that wheelchair racers not get water on their gloves. As mentioned earlier, wet gloves inhibit the racer's grip and thereby lessen propulsive efficiency. *To make it easy for the wheelchair racers to receive and drink water without spilling it on their gloves, cups with lids and straws should be used.*

Also, individuals providing water to wheelchair workers should be prepared to jog along parallel to the racer to make the passage of water less abrupt. *An effort should also be made to keep half of the roadway dry at spray stations to accommodate wheelchair racers.* Many if not most racers will carry their own water and pass up the official water stations.

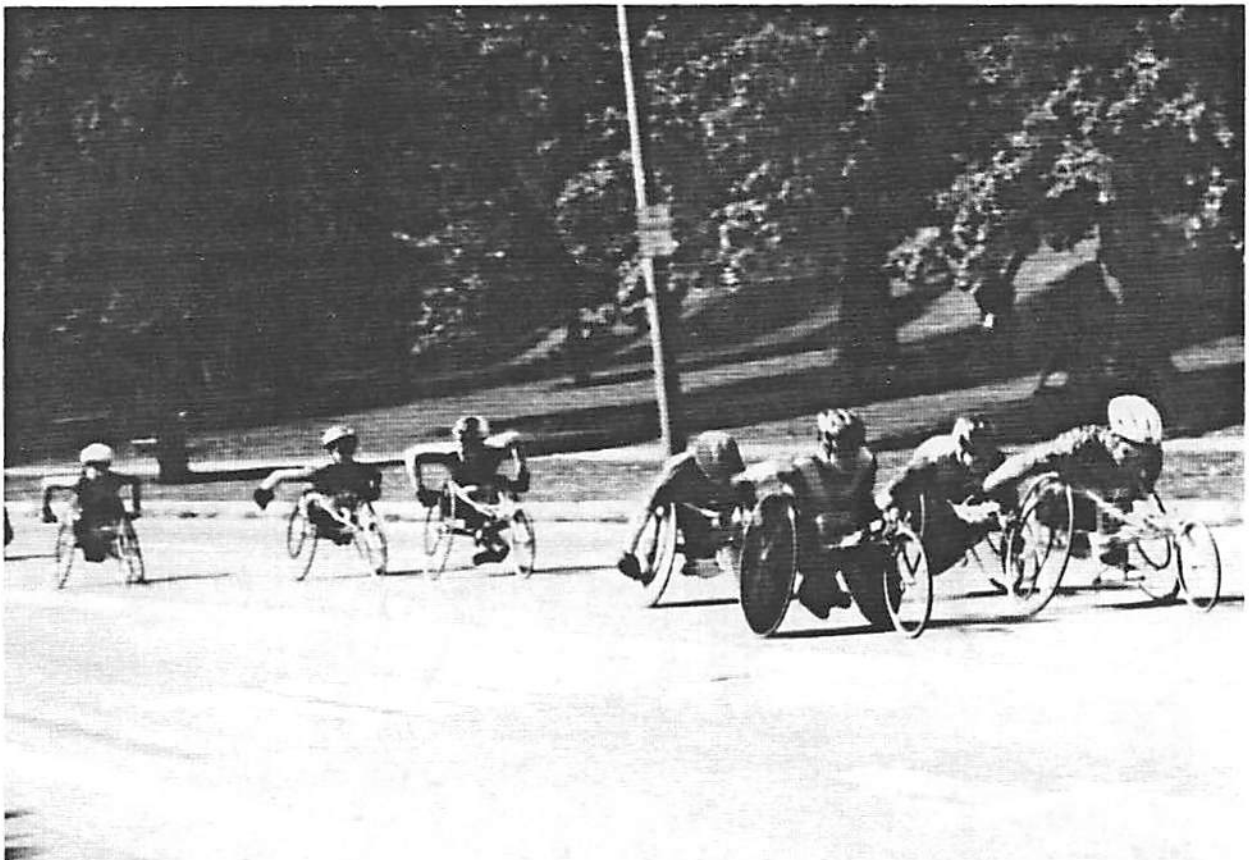


Two women drafting during the Chicago Marathon.
photo by Curt Beamer & Delfina Colby

Roadway Safety Sweep

On the morning of the race a *last minute safety sweep should be carried out to ensure that the roadway is clear of glass and/or other obstructions*. The spotters making the sweep should carry work brooms in order to clear areas of potentially hazardous materials (Illini Inline).

Also, *severe bumps (such as speed bumps), potholes and/or other hazards such as sewer grates might require that safety cones be placed in front to divert the racers* (Crescent City Classic). If this seems inadequate, a course monitor should be positioned ahead of the hazard to warn approaching athletes of its presence.



The junior division begins the national championship 10K (Riverside Rumble).

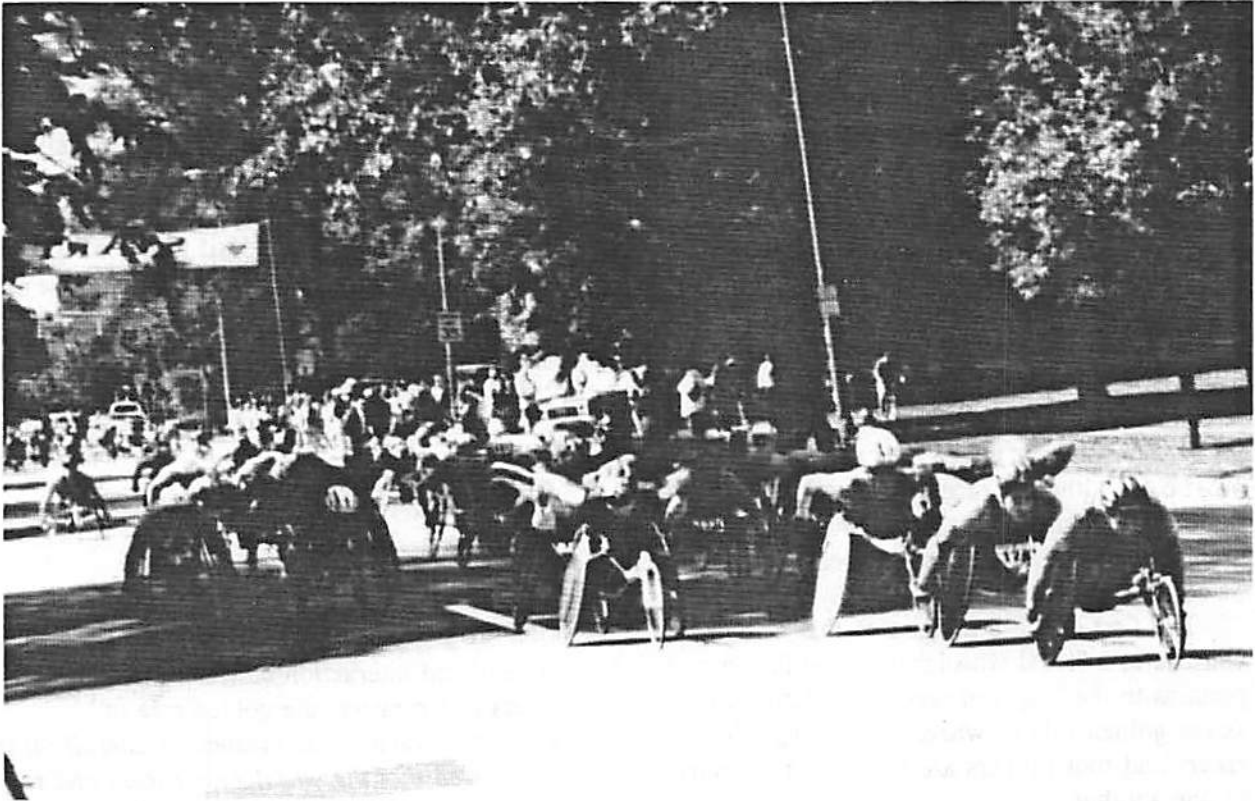
photo by Nancy Q. Walters

criterium Racing

Criterium Racing

As in cycling racing, wheelchair criterium racing is emerging as a very popular style of competition. Criterium racing allows for a new level of excitement for the racers and the spectators alike. Wheelchair criterium racing may go hand in hand with a road race (Mobil Criterium) or may be a separate race altogether (Gasparilla Distance Classic).

To organize and direct a criterium, it is best to have an official familiar with cycling criteriums. The best format to follow is outlined in the United States Cycling Federation Rule Book, which may be obtained through the United States Cycling Federation. (USCF) (See Appendix B)



The open men's division begins the national championship 10K (Riverside Rumble).

photo by Nancy Q. Walters

Formal Competition Rules

Rational for the Standardization of Rules

In order to maximize the safety of wheelchair road race divisions as well as maintain an adequate degree of competitive fairness, standardized technical regulations and competition rules are essential. Races that fail to specify rules may be surprised to find a vast array of vehicular inequity at the starting line. For example, in addition to conventional wheelchairs and specialized racing wheelchairs, participants in "wheelchair divisions" have been known to show up with motorized wheelchairs, wheelchairs with geared, cranking mechanisms, skateboards with ski poles, and numerous other configurations. Allowing such diversity within the wheelchair division renders fair and equitable competition impossible and can also be hazardous.

Racers have appeared in wheelchairs that, by design, afforded inadequate and/or precarious support for their lower extremities.

If such support systems were to fail and the athlete's legs were to fall to the ground at racing speeds, the racer could lose control of the wheelchair. Thus, technical guidelines are a necessity.

The most comprehensive and widely used racing rules are those of WA-USA, the national governing body for wheelchair racing within WS-USA. Although race officials should familiarize themselves with all of the rules for the sport, only the two most critical rules will be addressed here.

The first of these pertains to that which constitutes a "legal wheelchair," and the second pertains to the "right of way." The latter serves as the golden rule of wheelchair racing when racers and foot runners are racing in proximity to one another.

Wheelchair Specifications

1. Wheelchairs should have at least three wheels.
2. The diameter of the two large wheels, including the inflated tire, shall not exceed 70 centimeters. Other wheels shall not exceed 50 centimeters in diameter including the inflated tire.
3. Only one pushrim shall be attached to each large wheel.
4. No part of the wheelchair may protrude beyond the width of the tires or the pushrims, whichever is greater.
5. Propulsion and direct steering of the wheelchair shall be by the hands and arms only.
6. No gears, levers, chains, or any other mechanical devices may be used in propelling the wheelchair.
7. No devices shall be added to the wheelchair or worn by the athlete for the sole purpose of reducing air resistance (Exception: Taping of the frame is allowable within the lateral edges of the rear wheels).

Golden Rule of Wheelchair Racing

To avoid the potential hazard of unrestricted interaction between wheelchair racers and runners, the golden rule of wheelchair racing was created. *Generally it is recognized that the wheelchair racers and the runner are never in competition with each other!* The sports of running and wheelchair racing are similar but their performances are not comparable. Thus, under no circumstances

should wheelchair racers compete with runners or race without sufficient control of their wheelchairs to avoid hitting runners who change direction.

Specifically, the golden rule of wheelchair racing states, *when racing in proximity to foot runners, wheelchair racers must have sufficient control of their wheelchairs to yield the right-of-way to foot runners. in every case the ultimate right-of-way belongs to the runner.*

In order to reinforce absolute compliance, the race organizers should advertise the use of WA-USA Long Distance Racing Rules in all advertising and registration forms. Additionally, before the start of the race, a race official should advise the wheelchair division of hazardous course sections and should stress the use of this golden rule. Although experienced racers are aware of the rule and abide by it, novice racers often benefit from such reinforcement.

Technical Conformity

Since race organizers seldom have sufficient time or personnel to carry out rigorous inspections of wheelchairs in the marshaling area, the athletes usually assume responsibility for regulating technical conformity. Thus, the race organizers only have to get involved when a formal protest is lodged pertaining to technical impropriety and/or racing conduct. At large races, where a majority of the membership of the WA-USA Long Distance Racing Committee is available, the formal protest procedure described in the rules will be followed (Appendix A). In most circumstances, however, this will not be the case and the local race committee will have to decide protests based on their best interpretation of the WA-USA rules.



Accessible transportation is provided to the start of the Boston Marathon.

photo by Curt Beamer & Delfina Colby

Conclusion

National Championship Status

Any race wishing to apply for national championship status may do so by contacting the national office of Wheelchair Sports - U.S.A. (WS-U.S.A.) WS-U.S.A. will provide the application forms which need to be completed and resubmitted for national championship consideration. General criteria for becoming the national championship include having a USA-Track & Field certified course, and adequate background in wheelchair road racing. This may simply mean having a qualified wheelchair division coordinator.

A well-planned and successfully executed wheelchair road race division can improve the overall prestige and quality of any road racing event. More importantly, however, growth in the number of wheelchair divisions increases the availability of opportunities for individuals with physical disabilities to pursue vigorous, fitness-oriented, leisure



photo by Nancy Q. Walters

activity while simultaneously fostering their mainstream assimilation within integrated community activities.

Race officials with additional questions regarding the development and administration of a wheelchair road racing division should consult the Long Distance Racing Committee of WA-USA, WS-USA national governing body for wheelchair racing.

Appendix A

Wheelchair Athletics - U.S.A. Long Distance Racing Rules Contact WS-USA for an official rule book. (Appendix B)

Part 1. The Wheelchair

Section 1: Wheels

- a. Wheelchairs should have at least three wheels.
- b. The diameter of the two large wheels, including the inflated tire, shall not exceed 70 centimeters. other wheels shall not exceed 50 centimeters in diameter including the inflated tire.
- c. Only one pushrim shall be attached to each large wheel.

Section 2: Dimensions

- a. There is no longer a maximum length limit on the wheelchair.
- b. The widest measurement of the wheelchair shall be a straight line measured from the outside edge of the pushrim or the tire, whichever is greater at the widest point. No part of the wheelchair may protrude beyond the width of this measurement.

Section 3: Propulsion/Steering

- a. Propulsion and direct steering of the wheelchair shall be made by the hands and arms only.
- b. No gears, levers, chains or any other mechanical devices may be used in propelling the wheelchair.
- c. There shall be no device as part of the wheelchair or the athlete that functions for the sole purpose of reducing air resistance. Except the area within the plane of the rear wheels.

Section 4: Safety

- a. Athletes must ensure that no part of their lower limbs can fall to the ground during an event.
- b. An athlete's wheelchair must be structurally sound (i.e., no cracks in the frame or welds, no loose or missing spokes, etc.).
- c. An athlete must be securely seated in the wheelchair and will remain so while racing.
- d. It shall be the sole responsibility of the wheelchair race official to rule on the safety of the wheelchair and the athlete.

Section 5: Compliance

It will be the sole responsibility of the athlete to conform to all the aforementioned rules and no event shall be delayed while an athlete makes adjustments.

Part 2. Start of a Race

Section 1: Head Start

Wheelchair racers shall at no time share a simultaneous start with foot runners. Note: The most common head start allotted to the wheelchair division falls within a range of 5 to 15 minutes.

Section 2: Lead Vehicle

The wheelchair race official must insure that lead vehicles maintain a safe non-draftable distance ahead of wheelchair race participants.

Part 3. Finish of a Race

The finish of a race shall be judged when the front tire first penetrates the imaginary vertical plane passing through the leading edge of the finish line.

Part 4. Racing Conduct

Section 1: Drafting

- a. No athlete may give or accept a draft from another athlete in another divisional race being held concurrently on the same course and that is part of the same event.
- b. No athlete may solicit or accept a draft from any outside source.

Section 2: Assistance Following a Mishap

Competitors who suffer a mishap may be assisted in remounting. Assistance must be provided in a manner and location as to not impede the progress of other race participants and must be provided in a manner so as not to impact pace or forward assistance to the participant.

Section 3: Penalty for Improper Equipment Maintenance

A racer may be penalized for causing a crash or spill through inadequate tightening or adjustment of his or her chair components, including gluing of tires (disqualification and possible suspension).

Section 4: Golden Rule

When racing in proximity to foot runners, wheelchair racers must have sufficient control of their wheelchairs to yield the right-of-way to the foot runners. In every case the ultimate right-of-way belongs to the runner. The failure of a wheelchair racer to yield right-of-way may result in disqualification and/or suspension from sanctioned races for up to a year.

Part 5. Protest Procedures

Section 1: Protests Concerning the Order of Finish

All protests concerning the order of finish shall be examined and resolved by the chief judge, whose decision is final and without appeal.

Section 2: Protests Regarding the Qualifications of Racers

All protests regarding the qualifications of racers or wheelchairs or the regularity of entries or classifications should be lodged with the chief referee before the race.

Section 3: Protest Deposit

The above protests may be made verbally and no deposit is needed. All other protests must be in writing, signed by the protester, and accompanied by a \$25 deposit, which will be refunded if the protest stands. Protests must be made within the following time limits:

- a. A protest of foul racing or any other irregularity taking place during the race must be made within 15 minutes after the protester's finish time.
- b. A protest regarding the final results must be made within 15 minutes after the announcement of the results.

Section 4: Protest Jury

Protests shall be heard and decided either by the chief referee or by a jury selected by the chief referee and composed of an odd number of race officials that included the chief referee. Such a jury shall conduct its deliberations in private and shall reach decisions by a majority vote.

Section 5: Other Long Distance Racing Committee Action

The Long Distance Racing Committee must, by majority vote, render a decision regarding any action which is perceived by the LDRC to be contradictory to the best interest of wheelchair road racing.

Appendix B

National Sports Organizations

Wheelchair Sports - U.S.A.
3595 E. Fountain Boulevard,
Suite L-1
Colorado Springs, CO 80910
(719) 574-1150

Wheelchair Athletics - U.S.A.
c/o Wheelchair Sports - USA
3595 E. Fountain Boulevard
Suite L-1
Colorado Springs, CO. 80910
(719) 574-1150

**International Wheelchair Road
Racers Club, Inc.**
Joseph M. Dowling, President
30 Myano Ln.
Stamford, CT. 06902
(203) 967-2231

**MUSCLES - Michigan United
Sports Chair League Endurance
Series**
Scott McDonough
18964 Whitby
Livonia, MI. 48152 (313)
478-9325

**University of Illinois Division of
Rehabilitation Education Services**
Recreation and Athletics
1207 South Oak
Champaign, IL. 61820
(217) 333-4606

United States Cycling Federation
1750 East Boulder Street
Colorado Springs, CO. 80909
(719) 578-4581

**Race Director's Catalog Rainbow Racing
System**
P.O. Box 18510
804 W. Rosewood
Spokane, WA. 99208
(800) 962-1011

Appendix C

Incomplete Listing of major Races with Wheelchair Divisions

January/February

Quantas Oz Day 10K
NSW Wheelchair Sports Association Inc.
600 Victoria Road
PO Box 628
Ryde NSW 2112, Australia
(02) 809-5260

Gasparilla Distance Classic 15K
Mary Carol Peterson
Top End by Action
4501 63rd Circle North
Pinellas Park, FL. 34665
(800) 532-8677

March/April

Los Angles Marathon
Susan Algers
(310) 545-4295
(301) 444-5544

Mobil 10K/Criterium
Nan Harman
1820 Via Visalia
Palos Verdes, CA. 90274
(310) 373-1338

Crescent City Classic Rino 10K
Paralyzed Veterans of America
Bayou Chapter
3650 18th Street
Metairie, LA. 70002
(800) 962-9320
(504) 392-8479 - Rene de la Tour
Race Director

Illini Inline
Scot Hollonbeck
1207 South Oak
Champaign, IL. 61820
(217) 333-4606

Boston Marathon
Bob Hall
Wheelchair Coordinator
131 Clarendon Street
Boston, MA. 02116
(617) 628-7955

May/June

City of Pittsburg Marathon
Leonard Duncan
City of Pittsburgh Marathon
101 Law & Finance Building
4th Avenue
Pittsburgh, PA. 15219
(412) 765-3773

Lilac Bloomsday 12K
Tom Cameron
11906 E. 20th Ave.
Spokane, WA. 99206

Old Kent River Bank Run 25K
Pat Darling
235 Wealthy SE
Grand Rapids, MI. 49503
(616) 242-0496

Revco Marathon & 10K
Karen Godzich
MetroHealth Center for Rehabilitation
3395 Scranton Road
Cleveland, OH. 44109
(216) 459-3803

Spirit of St. Louis 10K

Robert J. Szyman
St. Louis Wheelchair Athletic Association
5420 Clayton Road
St. Louis, MO. 63117-1872
(314) 768-5325

July/August

Peachtree Road Race 10K

Shepherd Spinal Center
2020 Peachtree Road, NW
Atlanta, GA. 30309
(404) 350-7787

The Midnight Sun Ultra Challenge

Patrick Reinhart
Challenge Alaska
720 West 58th Street, Unit J
Anchorage, AK. 99518
(907) 563-2658

September/October

Riverside Rumble 10K

Kelly Martin
John Heinz Institute of
Rehabilitation Medicine
150 Mundy Street
Wilkes-Barre, PA. 18702
(717) 826-3738

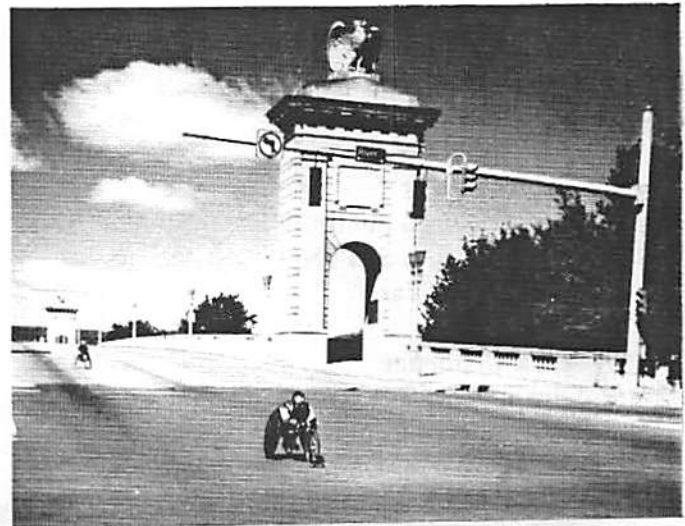
Oita International Marathon

Natsuko Hirakawa, Coordinator
Oita Sports Association for the Disabled
c/o Japan Sun Industries
Kamegawa, Beppu, Oita 874-01 Japan
(0977) 66-0277

November/December

Columbus Marathon

PO Box 26806
Columbus, OH. 43226
(614) 433-0395



photos by Nancy Q. Walters

Appendix D

Major Publications Covering Wheelchair Road Racing

Wheelchair Sports - U.S.A.
Newsletter
(Formally National Wheelchair
Athletic Association)
3595 E. Fountain Boulevard,
Suite L-1
Colorado Springs, CO. 80910
(719) 574-1150
(719) 574-9840 Fax.

Sports In Spokes
2111 E. Highland Suite 180 Phoenix, AZ.
85016-4702 (602) 224-0500
(602) 224-0507 Fax.

Palestra Challenge
Publications. LTD
P.O. Box 508
Macomb. IL 61455

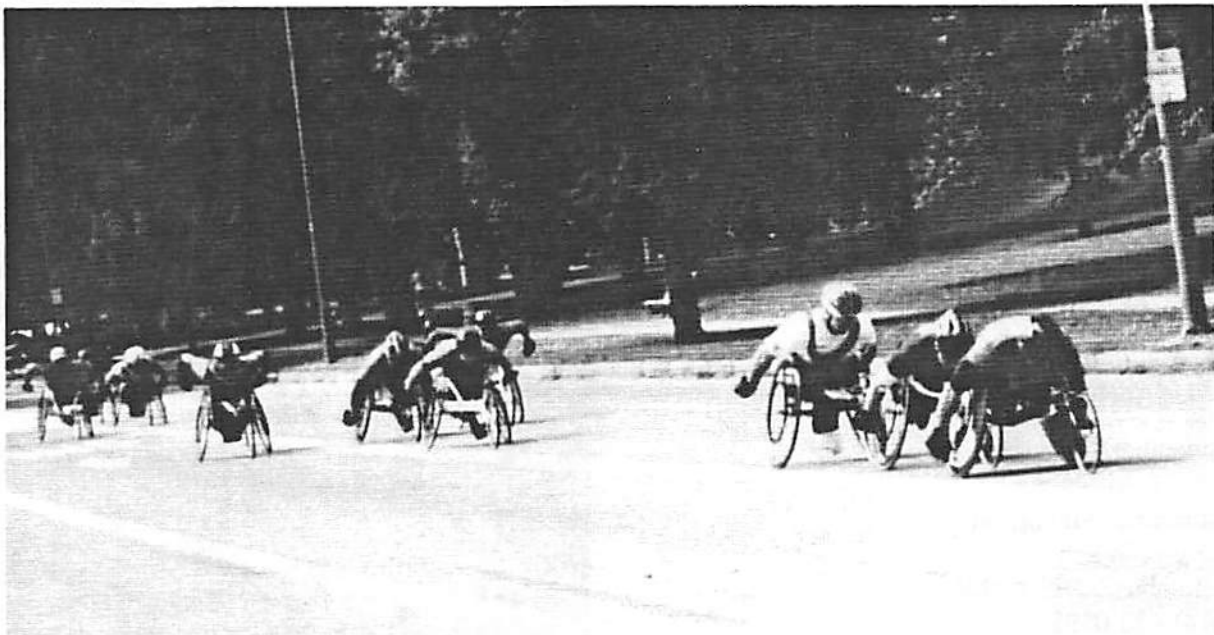


photo by Nancy Q. Walters

**Guidelines for the Administration of a Wheelchair
Road Race Division
Second Edition
Order Form**

Name: _____
Address: Street: _____ Apt. #: _____
 City: _____ State: _____
 Zip: _____

Race Name/Organization: _____
Race Director: _____
Race Address: (if different from above address)
 Street: _____ Apt. #: _____
 City: _____ State: _____
 Zip: _____
Race Date: _____

Send Check for \$10.00, book cost, plus \$1.75, shipping and handling, to:

The Division of Rehabilitation Education Services
Recreation and Athletics - Road Race Book
1207 South Oak
Champaign, Illinois 61820
(217) 333-4606

Make checks, for \$11.75, payable to The University of Illinois. Please no abbreviations.
Allow 2-3 weeks for delivery.

**Guidelines for the Administration of a Wheelchair
Road Race Division
Second Edition
Order Form**

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 City: _____ State: _____
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