

## Boyles Impressive In 20 Km Debut

Yellow Springs, Ohio, April 21--Rio Grande University's Matt Boyles was impressive in the junior ranks last year. His 45:18.03 put him just .02 seconds behind Ben Shorey in the National Junior 10 Km, less than 6 months after he had taken up the sport. Only Tim Seaman had gone faster than these two in a junior national.

Well, today he bettered that time by nearly a minute. . . over the second half of his first try at 20 Km. That's entering the senior ranks with quite a splash. In his first race at any distance over 10 km, the 19-year-old sophomore won the Jack Mortland 20 Km in 1:30:27 accelerating the second half of the race when a 45:59 first 10 apparently seemed a bit too leisurely. This despite no competition and a driving, bone-chilling rain (temperature in the mid the low to mid 40s, with winds picking during the race.) Only Chad Eder with a 1:29:56 in 1996 has gone faster on this course, which has seen the likes of Gary Morgan and Jonathan Matthews. Morgan still holds the meet record of 1:27:30, set when the Mortland races were held in Columbus at Whetstone Park.

Matt may be rather small in stature, he may represent a small school, and he may come from a small town (Tuppers Plains, Ohio), but he has a big heart. He set out with the goal of bettering 1:36, which would have been an impressive enough debut. Gosh, it would have bettered the best ever by the guy the races are named after. That required a 9:36 pace on the 2-km loop. After a 9:30 on the first lap, he started to pick up the pace and was sailing along in the 9:05 to 9:10 through the first 10 km. Then he pushed it down to 8:50 and under and had a possible sub-1:30 effort in sight with two laps to go. His form held up beautifully, but with no one to push him and with the cold starting to stiffen him up, he could 'only' maintain a 9 minute-pace to the finish. Has any U.S. walker in history gone faster in his first 20 Km?

In second place, Rod Craig improved on his last year's winning time by 21 seconds with a 1:45:43, but was about a lap-and-a-half behind the fleet-footed Boyles. But besides his improved time, he had the consolation of collecting the \$100 winner's prize, which Matt couldn't collect if he wants to keep competing for Rio Grande. The women's winner, Debbie Topham also took home \$100 for her efforts. 10 Km winners were Bill Reed and Miriam Jackobs and 5 Km titles went to Ken Lampar and Katie Rulapaugh. In the 5, 14-year-old Tina Peters, daughter of race director Vince, competed in her seventh straight Mortland race, finishing third among the women. The results:

Men's 20 Km: 1. Matt Boyles, Rio Grande U. 1:30:26 2. Rod Craig (40+), Peasus TC 1:45:43 3. Max Walker (55+), Indiana Walkers 1:53:04 4. Chris Knotts (45+), Miami Valley TC 1:55:48 5. Al Cowen (45+), MVTC 2:08:49 6. Craig Woodal (45+), Indiana Walkers 2:11:45 7. Jack Blackburn (66), MVTC 2:25:21 (2 DNF, 1 DQ)

Women's 20 Km: 1. Debbie Topham (45+), Pegasue TC 2:03:59 2. Lynette Heinlein (45+), GLOW 2:12:04 3. Janet Higbie (60+), Indiana Walkers 2:12:06 (DNF--Jill Cobb (nee Zenner), New Balance

Men's 10 Km: 1. Bill Reed (45+), Kalamazoo Valley 57:32 2. Ed Fitch (40+), MVTC 58:11 3. John Fischer (55+) 65:44 4. Wayne Hinaman (65+), Cincinnati Walkers 75:45

Women's 10 Km: 1. Miriam Jackobs (50+), Cin. Walkers 72:34

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Men's 5 Km: 1. Ken Lampar, Pegasus 28:09 2. David Kreimer (45+), Cin. Walkers 31:06 3. Ralph Dehner (50+), CW 31:15 4. Bill Whipp (55+), MVTC 32:57 6. Jack Shuter (70+), Buckeye Striders 36:55  
 Women's 5 Km--1. Kaatie Rulapaugh, Cedarville U. 28:26 2. Sara Sheets, CW 28:47 3. Tina Peters (14), MVTC 30:49 4. Mary Franklin, Pegasus 32:10 5. Tichy Walda (60+), Pegasus 33:14 6. June Marie Provost (65+), Canada 33:42 7. Gwen Thomas (50+) 34:39 8. Julia Puzdrowski (50+) 36:18 9. Pat Walker (50+), Indiana Walkers 37:00 10. Barb Whipp (55+), MVTC 38:05 (13 finishers)

## Eastler, Vaill Top National Invitational Races

Manassas, Vir., April 14--After a year away from the racewalking wars because of his Air Force 1st Lt. Kevin Eastler successively launched his 2002 campaign with a win in the National Invitational 20 Km today. His 1:33:51 qualifies him for the National s in June, a key step in his comeback. On the women's side, Teresa Vaill remains as the only winner of the Invitational Women's 20 km with her fourth straight title. Prior to 1999, the women contested a 10 Km.

The 24-year-old Eastler, who was ranked fourth in the nation in 2000 and fifth in 1999, before his hiatus walked a well-planned, conservative race to overcome Canadians Arturo Huerta and Patrick Boisclair. Letting the Canadians set a fast pace in the oppressive heat, Eastler layed back early, but stepped up his own pace on each 2 km lap. By 16 km, he was well clear of Boisclair and had reeled in Huerta. By 18 km, Kevin was 30 seconds ahead and increased his lead to well over a minute by the finish, as Huerta, usually very strong in hot conditions, struggled home.

Vaill, who walked a 1:33:23 here last year, scored an easy win over Joanne Dow in 1:37:56. Now 39, Teresa won the first of her many national titles in 1984 and first represented the U.S. internationally a year later. Today, she finished better than 4 minutes ahead of Dow, also a veteran at 38, but with just 6 years of racewalking under her belt. Susan Armenta, the 50 Km national the past 2 years, was further back in third. Junior 10 Km races went to Maine's Adam Staier and Jasmine Brooks. Results:

Women's 20 Km: 1. Teresa Vaill 1:37:56 2. Joanne Dow 1:42:08 3. Susan Armenta 1:44:25 4. Bobbi Jo Chapman 1:48:41 5. Marina Crivello, Cnaada 1:53:22 6. heide Hauch (42) 1:56:44 7. Nance Sweazey, Canada 1:58:45 8. Erin Taylor 2:04:59 9. Sherry Watts (49) Canada 2:06:44 10. Jeanne Tenan 2:09:38 11. Virginia Inglese (41) 2:14:23 12. Janine Stuart (41) 2:21:42 (14 finishers, 2 DNF, 2 DQ)

Men's 20 Km--1. Kevin Eastler 1:33:51 2. Arturo Huerta, Can. 1:35:13 3. Patrick Boisclair, Can. 1:41:20 4. Dave McGovern 1:47:25 5. Vill Vayo 1:48:26 6. John Soucheck 1:49:59 7. Steve Pecinovsky (47) 1:50:14 8. Nicholas Bdera (53) 1:55:21 9. Dave Doherty 1:55:56 10. Dave Lawrence (46) 1:57:31 11. Israel Soto-Duprey 1:58:56 12. Donald Cote (19), Can. 2:04:15 13. Vlado Haluska (49) 2:05:47 14. Victor Mallett, (46), Can. 2:07:51 15. Victor Litwinski (58) 2:15:02 16. Jack Starr (73) 2:20:20 17. Stuart Summerhayes (67), Can. 2:26:20 (2 dnf, 2DQ)

Jr. Women's 5 Km--1. Jasmine Brooks (16), Maine 56:44 2. Li Mei Alice Tan (18), New York 58:47 3. Caroline Emond (14), Can. 63:36

Jr. Men's 10 Km--1. Adam Staier (17, Maine 51:28 2. Billy Wides (14), N.J. 58:54 3. Michel Mallett (15), Can. 61:23

Women's 5 Km--1. Maryanne Torrellas (42) 25:45 2. Chelsea Rodriquez (16), Can. 26:36 3. Dana Vered (14), 29:21 4. Rachel Lavallee (16), Can. 29:42 5. Lilian Whalen (50), Can. 30:30 6. Sayward Spooner (17), Can. 7. Eileen Lawrence (48), 32:22 8. Lois Dicker (62), Maryland 33:13 (15 finishers)

Men's 5 Km--1. Jim Carmines (58) 28:08 2. Ed Fitch (41) 28:32 3. George Fenigsohn (54) 28:38 5. Don Ramsden (55), Can. 28:52 6. Harry Watson (61) 29:47 7. Mark Adams (63) 30:07 8. Jerry Goodwin (46) 30:41 9. John Gersh (54) 32:24 10. Allyn Evans (67) 32:26... 14. Charles Boyle (78) 35:09 (16 finishers, 1 DQ)

Girl's 3 Km--1. Allison Snochowski (12) 17:02 2. Victoria Dell'Aquila (10) 18:28 3. Sarah Stark (11) 18:31

## Other Results

**Boston Marathon, April 15 (unofficial racewalk)--**1. Bob Keating (55) 5:03:51 2. Ole Holsti (68) 5:09:10 3. Steve Attaya (53) 5:13:25 **8 Km, Westerly, R.I., April 21--**1. Brian Savilonis (50+) 40:53 2. Bob Keating (50+) 41:40 3. Richard Mdelvery (40+) 42:25 4. Andy Cable 46:37 5. Bill Harriman (50+) 46:42 6. James Gawle (50+) 47:49 7. Richard Tuquist (60+) 49:47 8. Charlie Mansbach (50+) 51:13 (14 finishers) **Women--**1. Marcia Gutsche (40+) 41:43 2. Lee Chase (40+) 43:44 3. Maryanne Torrellas (40+) 45:53 4. Jean Tenan 47:01 5. Joanne Harriman (50+) 54:12 (11 finishers) **3 Km, New York City, Feb. 15--**1. Maryanne Torrellas (43) 14:34.11 2. Lauren Olivieri 15:26.03 3. Maria Michta 15:31 4. Li Mei Alice Tan 16:45 4. Mallory Delaney 16:58 6. Elba Melendeez 17:31 **Men--**1. Bill Vayo 13:42.36 2. Gary Null (57) 15:40 3. Israel Soto-Duprey 16:01 4. Bob Barrett (68) 16:15 5. Allen Sangeap (40) 16:39 **1 Mile, same place--**1. Rob Williams 7:08.95 2. Greg Dawson 7:05 3. Bill Vayo 7:20 4. Joseph Trapani 7:37 5. Israel Soto-Duprey 7:42 **10 Km, Plainview, N.Y., April 6--**1. Nicholas Harding 52:21 2. Michael Roth 65:22 **Women--**1. Maria Michta 58:37 2. Lauren Olivieri 58:37 3. Loretta Schuellein 60:39 **Masters--**1. Jim McGrath (65) 60:28 **10 Km, New York City, April 7--**1. Bill Vayo 49:43 2. Nicholas Bdera (53) 52:08 3. Bruce Logan 54:22 4. Vlado Haluska (49) 54:43 5. Shawn Frederick (48) 55:13 6. Erin Taylor 55:24 7. Alexis Davidson (46) 57:33 8. David Wolf (42) 58:50 9. Richard Harper (52) 58:50 10. Bob Barrett (68) 59:14 10. Alan Sangeap (41) 60:01 12. Sherwin Wilk (63) 60:48 13. Alice Tan (18) 61:46 14. Nicole Lewin (19) 63:18 15. Louanne Pennesi (47) 65:07 16. Pat Bivona (61) 65:48 (29 finishers, 1 DQ, 4 DNF) **Capt. Ron Zinn Memorial 10 Km, Wall Twp., N.J., April 21--**1. Jose Perez 48:17 2. Bill Vayo 48:52 3. Cliff Mimm (40+) 49:06 4. John Soucheck 50:33 5. Israel Soto-Duprey 54:17 6. Jack Lach (50+) 55:44 7. Shawn Frederick 56:37 8. Alexis Davison 58:13 9. Tom Quattrocchi 58:34 10. Bob Barrett (60+) 59:26 11. Dick Van Benthuyzen 60:47 12. John Fredericks 60:47 13. Ben Ottmer 63:42 14. Ed Dunphy 64:25 15. Bob Mimm (1st 70+) 68:01 (18 finishers) **Women--**1. Sherry Brosnahan (1st 50+) 61:50 2. Elma Melendez 65:50 3. Joan Venslavsky 67:47 (7 finishers) **10 Km, Winter Park, Fla., March 23--**1. Sandra DeNoon 61:55 (12 finishers) **Men--**1. Don DeNoon 53:42 2. John Fredericks 63:11 3. Ray Jenkins 64:30 4. Steve Christlieb 66:08 5. Rob Carver 66:48 6. Carl Barsch 66:49 7. Paul Cole 66:59 **5 Km, Coconut Creek, Fla., March 16--**1. Mike Felling 26:31 2. Paul Johnson (55+) 29:12 3. John Fredericks (50+) 29:13 + 4. Bob Cella (60+) and Gerry Gomes (65+) 30:17 6. Lee Duffner (65+) 30:30 7. Bob Fine (70+) 32:44 8. Jake Jacobson (70+) 34:09 (15 finishers) **Women--**1. Sarah Perry 26:31 2. Lisa Sonntag 27:02 3. Tammy Corley 30:16 4. Linda Stein 31:23 5. Eleanor Perry-Smith (50+) 33:16 (12 finishers) **Open Races, same place--**1. Juan Yabes 26:26 **Women--**1. Joan Veslavsky 31:12 2.



June Marie Provost 31:15 **1 Hour, Miami area, April 14**--1. Mike Felling (45+) 10,208 meters  
 2. Paul Johnson (60+) 10,194 3. Bob Cella (60+) 9732 4. Dan Koch (55+) 8957 5. Bob Fine (70+) 8852 **Women**--1. Carol Simonds (45+) 9802 2. Tammi Corley 9206 3. Eleanor Perry-Smith (50+) 8426 **5 Km, Cincinnati, Ohio, March 30**--1. Matt Boyles 21:49 2. Jim Robinson 22:50 3. Bobby Kemp 26:02 4. Paul Hammer (60+) 28:57 5. Ralph Dehner (50+) 30:12 6. John Fisher (55+) 31:10 7. Daryl Davis (45+) 32:00 8. Mike Johnson (45) 33:40 **Women**--1. Sarah Sheets 28:01 2. Tina Peters (14) 29:22 3. Kristin Barnett 30:46 4. Katie Rulapaugh 30:46 5. Gwen Thomas (50+) 34:31 6. Miriam Jacobs (60+) 34:58 **3 Km, Wilmington, Ohio, April 6**--1. Cherly Rellinger 15:59.8 2. Katie Rulapaugh 16:01 2. Tina Peters 16:09 4. Kristen Barnett 16:33 5. Jenni Gerber 18:40 **Men**--1. Matt Boyles 11:47.7 2. Jim Robinson 12:51 3. Bobby Hemp 15:08 4. Vince Peters (48) 15:25 5. Daryl Davis (49) 18:30 **5 Km, Columbia, Missouri, April 7**--1. Alex Kangethe 27:56 2. Jane Hall 29:52 3. Beth Lewis 29:54 4. Alan Poisner (67) 32:11 5. Fred Adams (68) 34:34 (7 finishers, 1 DQ) **10 Km, same place**--1. Gayle Johnson (53) 61:36 2. Jennifer Reekie (16) 62:03 3. Gary O'Daniels (59) 65:09 (5 finishers) **1 Mile, Houston, March 23**--1. Bob Watson 8:12.5 2. Bertrand Myers 3. Dave Gwyn **7 Km, Denver, March 17**--1. Mike Blanchard (40) 40:07 2. Terry Femmer (50) 41:16 3. Lorie Rupoli (50) 43:12 **5 Km, Littleton, Col., April 7**--1. George Novak (42) 27:37 2. Terry Femmer 29:35 3. Daryl Myers (59) 30:15 4. Lorie Rupoli 31:01 5. Peter Cukale (48) 31:53 **5 Km, Carlsbad, Cal., April 7**--1. Tim Seaman 19:45 2. Al Heppner 20:16 3. John Nunn 20:35 4. Curt Clausen 20:55 5. Philip Dunn 21:56 6. Susan Armnta 23:20 7. Dave Doherty 24:15 **10 Km, Walnut, Cal., April 14**--1. Tim Seaman 40:34 2. Curt Clausen 43:05 3. JHoe Nieroski 54:20 4. Mark Green 49:24 5. Pedro Santi 56:31 6. Dave Crabb 56:54 7. Rick Camell 62:05 8. Bob Weeks 66:40 9. Arvid Rolle 67:33 **Women**--1. Donna Cunningham 61:27 2. Karen Bartolo 65:37 3. Roberta Hatfield 69:43. .6. Jane Dana (80+) 75:42 (Breaks U.S. age group record) **5 Km, same place**--1. Joe Nieroski 24:54 2. Jesus Orendain 31:47 3. Mario Lopez 32:17 **Women**--1. Elizabeth Paxton 26:50 2. Carol Bertino 31:56 3. Mary Schoenbaum 32:12 **5 Km, Sacramento, April 21**--1. Karen Stoyanowski (45+) 30:23 2. Paula Mendell (50+) 30:32 3. Nicolle Goldman (40+) 31:10 4. Mary Schoenbaum (45+) 31:33 5. Doris Cassels (60+) 32:24 6. Shirley Dockstader (65+) 32:35 7. Ann Lee (50+) 33:03 8. Trish Caldwell (55+) 33:11 (29 finishers) **Men**--1. Joe Berendt (45+) 27:22 2. Jack Bray (65+) 27:37 3. Jim Currier (50+) 28:50 4. Ed Flint (50+) 29:38 5. Ed Lane (65+) 30:58 6. Pete Corona (70+) 31:02 7. Jim Scheller (60+) 32:12 8. Mark Quilantang (10-14) 32:51 9. James Beckett (60+) 32:57 (19 finishers, 2 DQs) **5 KM, Palo Alto, Cal., March 17**--1. Jack Bray 27:54 2. Peter Corona 30:37 3. Doris Cassels 31:22 4. Stu Kinnery 31:27 5. John Doane 32:34 (24 finishers) **3 Km, Kentfield, March 10**--1. Jack Bray 16:11 **5 Km, same place**--1. Kevin Killingsworth 28:19 2. Ed Lane 31:37 3. Doris Cassels 32:01 4. Ann Lee 32:43 5. Virginia Fong 33:21 6. Jim Scheller 33:32 (9 finishers) **2.8 Miles, Seattle, March 9**--1. Stan Chraminski 24:29 2. Bob Novak 24:32 3. Bart Kale 26:39 4. Ann Tuberg and Joslyn Slughter 27:41 6. Bev LaVeck 28:32 (10 finishers) **10 Km, Seattle, April 20**--1. Tim Berrett, Can. 41:13.7 2. Blair Miller, Can. 46:08.8 3. Kim Cathro, Can. 49:49.8 4. Han-Hung Li (18), Can. 49:50.7 5. Gerry Dragomir (50), Can. 50:22 6. Eric Smith (19) 52:28 (former Miami Valley TC standout now in school in Washington) 52:28 7. Stan Chraminski (54) 54:52 8. Bob Novak (52) 55:55 9. Mary Snyder (50) 57:09 10. Doug Vermeer (48) 59:22 10. Ann Tuberg (42) 60:25 11. Bev LaVeck (65) 61:48 12. George Opsahl (60) 61:53 (17 finishers, 1 DQ)  
**Australian Championships, Brisbane, April 14:** Women's 20 Km--1. Jane Saville 1:34:18 2. Natalie Saville 1:36:22 3. Simone Wolowiec 1:38:21 4. Gabrielle Gorst, N.Z. 1:40:45 (11 finishers, 2 DNF, 1 DQ) Men's 20 Km--1. Nathan Deakes 1:23:36 2. Luke Adams 1:23:56 3. Darren Brown 1:27:34 4. Duane Cousins 1:28:44 5. Liam Murphy 1:30:24 (14 finishers, 2 DNF, 1 DQ) Men's Under 20 10 Km--1. Scott Holloway 46:19 2. Jarred Tallent 47:25 Women's Under 20 10 Km--1. Sarah Walkley 50:21 2. Laura Johnson 51:14 **Manchester Grand Prix of**

**Racewalking, Manchester, Eng., April 21: Women's 20 Km**--1. Gillian O'Sullivan, Ireland 1:29:53 2. Kjersti Plaetzer, Norway 1:31:08 3. Lisa Kehler 1:39:13 4. Niobe Menendez 1:39:59 (12 finishers, 3 DNF, 2 DQs) **Men's 20 Km**--1. Erik Tysse, Norway 1:26:39 2. Andy Penn 1:27:06 3. Sean Albert, USA 1:27:58 4. John Nunn, USA 1:28:27 5. Curt Clausen, USA 1:29:42 6. Philip Dunn, USA 1:31:02 7. Dom King 1:32:23 8. Matt Hales 1:33:11 (15 finishers, 6 DNF, 3 DQs) **Men's 50 Km**--1. Al Heppner, USA 4:11:14 (48:17, 1:35:52, 2:23:52, 3:15:22) 2. Steve Hollier 4:11:36 3. Mark Easton 4:14:33 4. Gaareth Brown 4:16:45 **Rio Maior Grand Prix, Portugal, April 13:** Men's 20 Km--1. Aigars Fadejevs, Latvia 1:21:26 (20:09, 40:18, 60:54) 2. Joao Vieira 1:22:14 3. Jiri Malysa, Czech. Rep. 1:25:28 4. Augusto Cardoso 1:26:39 5. Milos Batovsky, Slovak Rep. 1:26:47 6. Peter Korcok, Slov. Rep. 1:28:29 7. Jorge Costa 1:29:20 8. Ignacio Romera, Spain 1:29:52 9. Jorge Grespo, Spain 1:30:18 10. Niko Katsilas, Greece 1:30:24 11. Jose Urbano 1:32:44 Women's 10 Km--1. Maria Vasco, Spain 43:57 2. Susana Feitor 44:24 3. Kristina Saltavovic, Lithuania 45:35 4. Beatriz Pascoal, Spain 46:06 5. Athina Papagiana, Greece 46:17 6. Vera Santos 46:54 7. Jolanta Dukure, Estonia 47:35 8. Ines Henriques 47:56 Jr. Men's 10 Km--1. Francisco Aller, Spain 43:47 Jr. Women's 1- Km--1. Lorena Luances, Spain 49:44 **Spanish Championships** (Partial results last month): Men's 50 Km--1. Miguel Odriozola 3:47:55 2. Santiago Perez 3:52:44 3. Mario Avellaneda 3:56:56 4. Silvio Casandra, Romania 3:59:02 5. Francisco Pinardo 4:03:27 6. Juan Porras Hidalgo 4:03:40 Women's 20 Km--1. Maria Vasco 1:28:47 2. Beatriz Rascual 1:33:50 3. Encarna Granados 1:35:13 4. Rocio Florido 1:35:29 6. Maria Cruz Diaz 1:36:09 Men's 20 Km--1. David Dominguez 1:31:11 2. Jesus Tomero Hernandez 1:33:14 Jr. Men's 10 Km--1. Benjamin Sanchez 43:51 2. Javier Perez Osorio 43:58 3. Luis Corchete 44:23 4. Luis Osorio 44:46 5. Francisco Arcilla Aller 44:51 Jr. Women's 10 Km--1. Iratxe Perez 50:50

### All Sorts of Races At Exotic Places

|             |  |
|-------------|--|
| Fri. May 2  | 3 Km, Alexandria, Vir. (O)   |
| Sat. May 4  | Howard Wood Relays 5 Km, Sioux Falls, S. Dak., 6:45 am (J)<br>10 Km, Prescott, Ariz. (CC)<br>5 and 10 Km, Lafayette, Col., 8 am (H)  |
| Sun. May 5  | <b>USATF National 30 Km, Sacramento, Cal. and Western Regional 20 (V)</b><br>5 Mile, Denver, 8 am (H)<br>5 Km, Albuquerque, N.M. (T)   |
| Sat. May 11 | 2.8 Miles, Seattle, 9 am (C)<br>5 Km, Littleton, Col., 8 am (H)  |
| Sun. May 12 | East Region 20 Km, Hauppauge, N.Y. (K)<br>5 Km, Cambridge, Mass., 9:30 am (AA)<br>20 Km, Kenosha, Wis. (N)<br>3 Km, Alexandria, Vir., 8:30 am (O)  |
| Sat. May 18 | 1 Hour, Los Altos, Cal. (R)<br>5 Km, Thorton, Col., 8 am (H)<br>Youth Road Walk Nationals (18 and younger), West Valley, Utah<br>(USATF@earthlink.net)   |
| Sun. May 19 | West Region 15 Km and 5 Km, Riverside, Cal. (I)<br>5 Km, Littleton, Col., 8 am (H)<br>10 Km, Ft. Collins, Col. (H)<br>5 Km, Needham, Mass., 9:30 am (AA)<br>Ohio 15 Km (also a 3 Km), Middleton, 9 am (M)<br>20 Km, New York City, 8:30 am (G)<br>5, 10, and 20 Km (Track), Point Pleasant, N.J., 9 am (A) |

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|--------------|---|
| Sat. May 25  | 3 Km, Alexandria, Vir., 8:30 am (O)<br>Track 5, 10, and 20 Km, Broomfield, Col. (H)   |
| Sun. May 26  | 5 Km, Kentfield, Cal. (P)<br>Eastern Regional 20 Km, Hauppauge, N.Y. (K)<br>Sanford Kalb 9 Mile, Lakewood, N.J., 9am (A)<br>Art Keay Memorial 10 Km, Toronto, 11 am (B) |
| Mon. May 27  | 10 Km, Boulder, Col., 8 am (H)  |
| Wed. May 29  | 1 Mile, Seattle (C)   |
| Sat. June 1  | East Region 5 Km, Albany, NY (BB)<br>3 Km, Seattle (C)  |
| Sun. June 2  | <b>USATF National 15 Km, Evansville, Ind. (V)</b>   |
| Wed. June 5  | 1 Mile, Seattle (C) (And each Wednesday through Aug. 14)  |
| Sat. June 8  | West Region 5 Km, Las Vegas, Nev., 8 am (DD)<br>2.8 Miles, Seattle, 9 am (C)<br>5 Km, Ewing Twp., N.J. (A)  |
| Sun. June 9  | 10 Km, Sacramento, Cal. (E)<br>3 Km, Alexandria, Vir., 8:30 am (O)<br>5 Km, Cambridge, Mass., 9 am (H)  |
| Mon. June 10 | 5 Km, Long Branch, N.J., 6:30 pm (A) (And every Monday through Aug. 26.)  |
| Sat. June 15 | 1500 meters and 5 Km, Springfield, Mass. (AA)<br>Ohio 1 Hour, Yellow Springs, 8:30 am (M)<br>5 Km, Aurora, Col., 8:30 am (H)  |
| Sun. June 16 | 5 Km, Denver, 9 am (H)  |
| Fri. June 21 | <b>National USATF Junior 10 Km men and women, Palo Alto, Cal.</b><br>(www.usatf.org)  |
| Sat. June 22 | <b>National USATF 20 Km, men and women, Palo Alto, Cal. B (same)</b><br>North Region 8 Km, Kalamazoo, Mich., 9 am (EE)<br>5 Km, Denver, 8:30 am (H)                     |
| Sun. June 23 | 3 Km, Alexandria, Vir., 8:30 am (O)<br>1 Hour, Kentfield, Cal. (P)  |
| Sat. June 29 | 5 Km, Eugene, Ore. (C)  |
| Sun. June 30 | New Jersey Masters 5 Km, Monmouth (A)<br>10 Km, Long Island, 8:30 am (K)  |
| Wed. July 3  | 1500 meters, Yellow Springs, Ohio (M)   |
| Thur. July 4 | 8 Km, Alexandria, Vir., 7:30 am (O)<br>4 Miles, Sacramento, Cal. (E)  |
| Sun. July 7  | 3 Km, Alexandria, Vir., 8:30 am (O)<br>East Region 5 Km, New London, Conn. (D)  |
| Sat. July 13 | 2.8 Miles, Seattle, 9 am (C)  |
| Sun. July 14 | 1 Hour, Kentfield, Cal. (P)   |

## Contacts:

A--Elliott Denman, 28 N. Locust, West Long Branch, NJ 07764  
 B--Joan Sutherland, 676 Balliol Street, Toronto, ON M4S 1E7 Canada  
 C--Bev LaVeck, 6633 N.E. Windermere Road, Seattle, WA 98115  
 D--Maryanne Torrellas, ctracewalk@aol.com  
 E--Sierra Race Walkers, P.O. Box 5221, Fair Oaks, CA 95628  
 G--Stella Cashman, 320 East 83rd St., New York, NY 10028  
 H--Bob Carlson, 2261 Glencoe St., Denver CO80207  
 I--Dave Snyder, 909-824-2336, lyndavel@juno.com

J--Dr. Glen Peterson, 1906 South Hawthorne Avenue, Sioux Falls, SD 57105,  
[racewalk57105@yahoo.com](mailto:racewalk57105@yahoo.com)

K--Gary Westerfield, 350 Old Willets Path, Smithtown, NY 11757  
 L--Daniel Koch, 3331 N.W. 22nd St., Coconut Creek, FL 33066, 954-970-9364  
 M--Vince Peters, 607 Omar Circle, Yellow Springs, OH 45387, 937-767-7424  
 N--Mike DeWitt, Track Coach, UW Parkside, Kenosha, WI [dewitt@uwp.edu](mailto:dewitt@uwp.edu)  
 O--Sal Corrallo, 72 Creek Drive, Millsboro, DE 19966  
 P--Jack Bray, Marin Racewalkers, P.O. Box 21, Kentfield, CA 94914  
 Q--Florida Athletic Club-Walkers, 3331 NW 22nd St., Coconut Creek, FL 33066  
 R--Ron Daniel, 1289 Balboa Court, Apt. 149, Sunnyvale, CA 94086  
 S--Frank Soby, 3907 Bishop, Detroit, MI 48224  
 T--New Mexico Racewalkers, P.O. Box 16102, Albuquerque, NM 87191  
 V--Mike Hudson, 812-422-5924  
 X--Steve Vaitones, P.O. Box 1905, Brookline, MA 02446 (617-566-7600)  
 Y--Walkers Club of Los Angeles, 233 Winchester Avenue, Glendale, CA 91201  
 AA--Justin Kuo, 30 Oakland Road, Brookline, MA 02146  
 BB--Cheryl Rellinger, 152 River Walkway, Cohoes, NY 120  
 CC--Prescott YMCA, 750 Whipple Street, Prescott, AZ 86301  
 DD--Roberta Hatfield, 2747 Crown Ridge Drive, Las Vegas, NV 89134  
 EE--Steve Atkins, [scatkins@ameritech.net](mailto:scatkins@ameritech.net)

## From Heel To Toe

**Errata.** Results of the Freehold, N.J. 10 Mile race in last month's issue should have shown Shawn Frederick finishing second in 1:31:22. We apologize for the error. Also, our schedule of races showed a CC contact for the National 15 Km in Evansville, but we also used CC as the contact for a Prescott, Arizona race and showed the address for that race in the list of contacts. However, the first CC was cleverly hidden at the end of the AA contact line. The proper contact is shown in this month's schedule. . . **Robling right on.** Michelle and Michael Rohl welcomed Gabriel Orion Rohl to their household on March 28. He joins siblings Sebastian, Molly, and Ayla. Michelle Rohl is probably back on the road training by this time. . . **More next time.** This an abbreviated From Heel to Toe in order to leave space to conclude the Gary Westerfield article we started last month. We will catch up next month.

## Biomechanics For the Racewalk Judge

by Gary Westerfield

*(This is the second and final installment of an article by Gary, an IAAF judge, former competitor and coach. See the March 2002 ORW for the first installment.)*

## The Biomechanics of A Straightened Leg

1. **Muscle Contractions.** An explanation of how the racewalker straightens the leg in front of the body, and maintains it in a straightened position until the body passes the vertical position, requires a basic understanding of the way muscles work. Muscles are either contracted (at work) or relaxed (not at work). They receive nerve impulses to turn them on. When that impulse is not present, they are off. Contracting (working) muscles are turned on in three ways: statically,

concentrically, or eccentrically. During static contraction, muscle fiber length is unchanged. Enough force has not been applied to cause movement. Accordingly, this type of contraction need not be discussed further, because it is not used to describe motion. Racewalk judges must know: a.) the difference between concentric and eccentric contractions; b.) how these contractions affect movement; and, c.) what these contractions look like in the leg, particularly at the front of the thigh.

**2. Concentric Contraction.** When muscle fibers undergo concentric contractions, the muscle shortens and becomes thicker. The muscle bulges. Concentric contractions are employed to move a limb and a weight away from the pull of gravity.

**3. Eccentric Contraction.** During eccentric muscle contractions, muscle fibers become elongated and thinner over the length of the muscle. Converse to concentric contractions, eccentric contractions are employed to resist the pull towards gravity.

To illustrate the difference, grab a heavy object and bend or flex your elbow to lift it. As your forearm moves towards your shoulder, your biceps will bulge as it contracts to move your forearm and the object away from the pull of gravity. Release the contraction and slowly allow your forearm and the object to return to the starting position. To prevent your arm and the object from falling too quickly, your biceps changes the work it does to contract eccentrically. The biceps lengthens to resist the pull of gravity.

**4. Straightening the Leg.** To understand how muscle functions when straightening or bending the leg (at the knee), stand with both feet together, with your legs fully straightened (not bent at the knee). Lift one leg slightly and straighten it, while pointing the heel towards the ground. Notice the contraction in the front of the upper thigh, in your quadriceps? You should feel it bulging. What type of contraction is that? If you say concentric, you are right. Now put the foot on the ground, keeping the leg straightened. Where is the tension? If you feel any, it should be at the knee, (unless you bent the leg.) That tension is the knee locking. The unique design of the knee allows the bones of the leg to take up the weight of the body without using large muscle contractions in the leg. Walk forward for a few steps, relaxing the thigh muscles after you have made contact. Feel the knee drop backward in a locked position. If you are walking with a straightened leg, you should feel no muscle contraction in the quadriceps except for a brief concentric contraction while extending the leg and heel towards the ground. After that, the leg relaxes. What happens if you do not feel a relaxed thigh? The muscle contraction will be different.

**5. When the Knee Unlocks What Happens?** When the knee is unlocked, the knee flexes or, bends. And simultaneously, to avoid falling, eccentric contractions in the leg muscles resist further flexion in the joint. Falling of the body with the pull of gravity is resisted. This eccentric contraction causes the muscle to noticeably lengthen, and is seen throughout the entire quadriceps muscle group. Likewise, when a step is taken without full straightening of the knee, the quadriceps must work eccentrically. When the athlete runs forward, this contraction is even more pronounced. Why did the quadriceps contract eccentrically? Because of the unlocked and flexed knee joint.

**6. Racewalking and Straightening.** When the body is in racewalking mode, the quadriceps muscle behaves in similar fashion to the straightening exercise described above. The quadriceps muscle must begin to contract in order to extend the leg, and straighten the knee before heel contact. It contracts concentrically. At contact, muscles of the leg must be committed to straightening and locking the knee in full extension, not preventing a fall to the ground. When the knee locks, the quadriceps muscle is turned "off," and is relaxed at the moment of full extension. As stated before, if the knee does not lock, the body's weight will cause further bending at the knee and marked eccentric contraction of the quadriceps, recruited to resist gravity's pull. If carried out correctly, the quadriceps briefly fires concentrically and then relaxes, allowing the race walker's forward movement to straighten the leg as it moves into a locked position. Momentum of the leg will allow the leg to fall into the locked position without visible contraction of the quadriceps.

**7. Quads are "Off" When Legal.** The key to making correct "bent knee" calls is to keep in mind that quadriceps activity ceases then when the leg is properly straightened. It is relaxed, or "off". If the leg is not straightened, the knee will not lock and then the quadriceps will have to contract eccentrically, in order to resist gravity and a collapse to the ground. In addition to noticeable muscle activity when the knee is not locked, a bounce occurs as the elasticity of the muscles are allowed to recoil and spring the athlete forward, like a runner. This bounce is very obvious and should result in a warning for failure to straighten the advancing leg on contact.

**8. How to Judge the Leg.** The key to judging the straightening of the leg is to look at how the thigh muscles are contracted. If the anterior thigh exhibits little or no tension, the quadriceps muscle is off. The leg is straightened, or it is being straightened. If there is an obvious outline of the anterior thigh after the competitor has made contact with the ground, the quadriceps has contracted eccentrically to resist gravity's pull. The leg is not straightened, and has not functionally begun to straighten (at contact). The athlete who lands with a bent knee, and who is not in the process of straightening, will allow the angle of the knee joint to get smaller (or sharper as is the case visually) as weight is put on the leg. The knee will also continue to move forward, until an attempt is made to straighten after contact. On the other hand, the athlete who straightens the leg will demonstrate an increase in the angle moving towards 180 degrees or greater (hyperextension) as the knee moves backward into straightening.

**9. Hyperextension and Judging Calls.** In no case, should a walker be warned or cautioned if he or she hyperextends at contact. The process of straightening will take longer for athletes who do. The key is that the athlete is straightening, and the athlete's quadriceps has relaxed while the bones of the leg do the work of holding the body erect.

**10. Bending After Straightening.** The competitor, who after fully straightening the leg, cannot resist the pull of gravity, and therefore unlocks the knee at or after contact, must also utilize an eccentric contraction of the quadriceps to resist gravity to keep from falling to the ground. The athlete who does this is in violation of the second part of the straightened-leg definition for failure to keep the leg straightened until in the vertical position. This athlete will also demonstrate a pronounced up and down bounce as well, as if he or she had not straightened at all. Violating the second part of the straightening rule, the athlete should be warned as well.

**11. Bent Knee Cautions.** It is worth further noting, that since muscles are either turned on (to contract), or left off in a relaxed state, race walkers will either have bent knees or knees that are straightened or straightening. A muscle or muscle group cannot simultaneously be in both states. In most cases then, cautions given by race walk judges for bent knees are nothing more than acts of kind-heartedness.

**12. Straightened Knees and Efficiency.** For the race walker, the straightened-knee on contact rule results in a more efficient utilization of energy. Energy is conserved with each forward step because less muscle activity is required to land with a straightened leg than not. The locking mechanism of the knee does not require large muscle function. Also, by landing on the calcaneus, or back of the heel, with the toe up, the efficient race walker with enough forward momentum, can ride the body over the locked leg, like a pole vaulter riding a pole. The foot is the fulcrum for rotation about this single locked lever. If the toe is kept off the ground, the fulcrum is a smaller point (the heel rather than the whole foot), forefoot loading is delayed, and the body can continue to rotate forward using the momentum of the moving body.

**13. Leaning Forward and Straightening.** A race walker that leans forward from the waist generally has little forward pelvic rotation. While this athlete may straighten the leg upon contact, he or she will straighten late; violating the second part of the straightened-leg rule for straightening after the body has passed the vertical position.

**14. Overstriding and Bent Legs.** The race walker that overstrides, and makes contact on a flat foot will not be able to straighten the leg. A walker with too long a stride, that lands



straightened, and then immediately flattens the foot, may also find it hard to keep the leg straightened after contact. Because of loss of momentum he or she will flex the knee.

## The Visible Loss of Contact Rule

Although it may be more difficult for racewalk judges to visualize double contact, a minimal period of this is implied by the rules and is therefore required of the race walker. This rule, by definition, clearly distinguishes the act of walking from the act of running.

**1. Double Contact or Not?** This so-called "heel and toe" rule has generated much controversy in the athletic community. At higher speeds, such as in elite racewalking, double contact is hard to see and even disappears. The rules were re-written in 1995 to require that judges see "visible loss of contact," before issuing a warning. Double contact is no longer required if loss of it can not be seen. The old rules of walking (before 1995) required double support where "unbroken contact with the ground is maintained," and, "that the advancing foot...make contact with the ground before the rear foot leaves..." Biomechanical studies showed periods of flight phasing for almost all walkers at this level. The old rules were more stringent with regard to continuous contact, and nobly made racewalking more like normal walking. In the 1990's, the proponents of liberalized rules advocated elimination of the contact provision altogether. The rule changes of 1995 altered the wording to "no visible (to the human eye) loss of contact," prohibiting video or still photo analysis by the judges, putting the onus completely in the eyes of the judges. To the event's discredit, walkers may very well be off and can get away with it when not visible to the judges. Today's rules are bewildering to the non-racewalking public. And, rightly so, because they have further separated racewalking from normal walking and running and have transformed it into a unique discipline unto itself.

**2. Attempts to Slow Walkers Down.** It was hoped that the straightened-leg on contact revision would make loss of contact easier to see. Without the heel contact provision, it has not. Another solution to reduce speed was to increase the distance of serious competition for women, doubling the international distance to 20 kilometers. It was hoped that the judges would have more opportunity to see loss-of-contact violations. The women have not slowed much. Videotapes still show many instances of loss of contact by athletes (both male and female) who escape the scrutiny of the judges.

**3. Electronic Devices?** Many in the highest circles of sport are calling for radical change in officiating to bring race walkers back to constant contact. Some call for an electronic device to send a signal when the competitor has lost contact. Such a device, if reliable, would obviously affect athletes with illegal technique by forcing them to slow down or to quit the sport. However, without such technology, we must still rely on the vision of the race walk judge. Perhaps judges with greater visual acuity will be impaneled to judge the important events.

**4. Chief Judge's New Power.** In 2001, the IAAF added a provision that gave the Chief Judge power to disqualify competitors in major international events during the return to the stadium, or in the last 100 meters of a race, if they obviously fail to comply with the definition of racewalking. Having discussed the mechanics of a straightened leg, and how it is "obvious" when the leg is not straightened, when is it obvious that a competitor has ceased to comply with the continuous contact provision of the definition of racewalking?

## The Biomechanics of Double Contact

**1. The Gait Cycle.** To understand contact in racewalking, it is necessary to first discuss the human gait cycle. The gait cycle, the interval of time from heel strike from one foot to heel

strike by the same foot at the next step, is divided into two phases: the stance phase, or contact period; and the swing phase, the period when the foot is not in contact. The stance phase begins with heel strike and ends with toe off of the same foot. During stance, the foot supports body weight. Swing occurs between toe off and heel strike, and is non-weight bearing.

**2. Stance.** There are three periods to stance: contact, mid-stance, and propulsion. Contact is from heel strike until flatfoot, when the whole foot is on the ground. Mid-stance occurs from flat foot until heel lift, when the calf flexes the knee and the heel is raised. Propulsion is initiated with heel lift and terminates with toe off. In normal walking, unlike running, there is a period of double support, when both feet are on the ground.

**3. Oscillation of Center of Mass.** In normal walking, the center of mass oscillates. The center of mass is lowered at double support, and at mid-stance, it is raised again. To conserve energy, normal walkers usually bend their leg at mid-stance to decrease the up and down movement, avoiding excess muscle work from raising and lowering body weight with each stride.

**4. Heel and Toe.** In racewalking, pronounced arm swing and emphasis on strong toe off and heel lift replaces much of the oscillation and levels the center of mass as it moves forward. Compared to the normal walking gait, the heel is lifted higher and toe off appears more exaggerated. At the moment of contact, the back of the heel is directed at the ground. To raise the center of mass at double support, the swinging arms are bent and swung upward. To lower center of mass, but to keep from bending the knee at mid-stance, the center of mass is lowered slightly by dropping the arms as they pass the hip, and the hip on the swing side is dropped slightly producing pelvic list. Some very legal racewalkers avoid pelvic list altogether, by dropping their arms more at mid-stance.

**5. Walkers Do It With Their Hips.** In order to lengthen the stride without reaching with the leg too far in front of the center of mass (and encountering braking ground reaction forces), racewalkers must rotate the hip forward and fully extend the opposite leg behind them. Forward hip rotation repositions the body's center of mass without forward lean of the torso and lengthens the stride by as much as one tenth of a meter. To reduce side-to-side pelvic motion, or sway, foot placement is on line with arms not crossing the vertical.

**6. Calves and Buttocks.** In the propulsive phase of stance, eccentric contractions of the posterior leg muscles, the hamstrings and gastrocnemius (in the calf), function primarily to provide stability, preventing the leg from moving forward and down into the pull of gravity, and work to hyperextend the leg to the posterior. Simultaneous concentric contraction of the gluteus muscles in the buttock, thrusts the torso and pelvis forward, enhancing external hip rotation and movement of the swing leg. Together, the result of these contractions is a push back in line with the torso and the forward moving swing leg, and a greater percentage of the support phase behind the center of mass.

**7. Heel Lift and Toe Off.** At the end of mid-stance, the gastrocnemius muscle contracts concentrically to begin heel lift. The straightened knee bends with hamstring muscle contraction, and hip flexion begins with psoas muscle contraction.

**8. Appearance of Contact.** So then, how do elite race walkers appear to be in contact? Because there is no visible flight phase, as in running, a legal racewalker demonstrates increased use of the upper body. To counter-balance lower body activity, arm action is more pronounced. Emphasis is on the backward swing, counterbalancing forward moving legs. The torso is kept upright, and there is increased hip flexion and forward pelvic rotation. To avoid braking while overstriding in front of the center of mass, the legal racewalker demonstrates a greater percentage of the stance phase behind the center of mass than that which is to the front. Pelvic rotation (which because of momentum, is always forward, not forward and backward as many coaches teach), moves footfall anterior by as much as 10 centimeters without the affects of overstriding. A further increase in stride length is achieved through a "lengthening" of the leg, by landing on the heel at contact. The normal walker increases speed by lengthening the stride by reaching forward with the



legs. The normal walker does not usually lose contact unless he or she starts to run. In order to be judged for contact and a straightened leg through mid-stance, the legal racewalker cannot walk like a normal walker, and certainly cannot run to increase speed. The center of mass must be raised at double support, and lowered at single support without flexion of the supporting leg, allowing for a smooth transfer of weight forward with minimal up and down oscillation.

## Forward Motion Without Loss of Contact

To determine if the race walker has lost contact, we must consider why the body moves forward.

**1. Three Sources of Forward Motion.** There are three primary sources of forward motion related to bi-pedal locomotion. The body can be propelled or pushed forward. The body can fall forward, as if pulled by gravity. And the legs can be lifted and swung forward, generating momentum and repositioning the body one step ahead. In racewalking all three are used. The questions that relate to this understanding involve the degree to which these sources are used in legal racewalking. One should remember that legal racewalking should yield a technique that conserves energy through efficient motion, that is constant and smooth, and of course that is fast.

**2. Propulsion.** The muscles of the lower leg, or calf and foot propel the body forward. This is fundamental to all forms of upright human locomotion. The action of propulsion is highly developed in racewalking technique. Without it, the initial step would not occur, and the following steps would not be very long. Without the ability to push against the ground, the racewalker can only rely on the arms to raise the body at double support. Propulsion and arm swing make racewalkers more point-to-point, or heel-to-toe. There is a sense in which "point-to-point" racewalkers seem to float over the ground. Floating implies contact (boats float on the water). However, to what degree can the race walker use push before there is obvious visible loss of contact? What should the racewalk judge look for when there is too much propulsion? Plantarflexion of the foot causes the ankle and foot to extend, or point down towards the ground. The muscles of the calf, primarily through the Achilles tendon, pull the toes backward and push the body upward and forward. When there is too much propulsion, the race walker presents a foot that points backward after toe-off. The ankle is extended close to 180 degrees. Such over reliance on push may also be accompanied by increased knee flexion in the swing phase. If the swing leg is prematurely lifted from knee flexion and increased propulsion, the result is premature heel lift. The foot appears to "pop up," and the racewalker will appear to prance. When this series of joint actions is performed, and they are accompanied by inadequate forward rotation of the hips, contact shifts from the heel to the ball or fore part of the foot. In extreme cases the advancing leg makes contact and straightens (often it is bent) behind the body's center of mass, or past the vertical upright position. Racewalk judges should caution walkers in all of these situations, and warn them for illegal technique when they clearly see loss of contact.

**3. The "Fall" Into Gravity.** Forward fall implies a gravitational force that acts on the body. Obviously the racewalker does not fall onto their face because the advancing swing leg breaks the fall, and the postural muscles of the supporting stance leg contract eccentrically to prevent disaster. However, what happens when the racewalker lifts and swings the leg anterior to their center of mass? From heel lift through toe off, the walker's position becomes unstable because the swing leg has shifted the body's center of mass far ahead of the stance foot. Momentum and gravitational pull accelerate the body forward. As the height of toe off and heel strike increases, the body becomes less stable. Compare stance when both feet are flat on the ground with stance when the toes are elevated. The first position is very stable, but in the second, balance is affected. Standing still, a high "heel-and-toe" racewalker will lose his or her balance as gravity pulls against the unstable body. However, with sufficient forward momentum this racewalker flows forward using the pull of gravity to his or her advantage. If the heel is directed to the ground while the

forefoot or toe is elevated, ground- braking forces are minimized maintaining momentum. As mentioned earlier, stride length increases with this technique. And, the longer that the forefoot is kept up, instability is maintained and the body continues to fall forward. High arm action raises the body's center of mass even more. It should be emphasized that rear arm swing is upward while forward arm swing is downward with little effort to drive the arms up in front of the body. Otherwise there may be the appearance of loss of contact. When the forward arm swing is accentuated the pelvis is pushed backward. Hip rotation is reduced, and the torso bends at the waist. As mentioned earlier, too much lean can result in flat-footed "tramping" behind the center of mass. This will result in either loss of contact or a bent knee warning because the leg does not straighten until past the vertical. The torso should be kept upright throughout each stride. The dynamic instability of hip rotation is accentuated by legal race walkers with good technique. They demonstrate proper upright body alignment and maximize the pull of gravity.

**4. Momentum, the "Progressive Force".** The lift and forward swing of the advancing leg not only repositions the body but generates momentum which can be seen as a "progressive" force. Hip and knee joint flexion lift the heel and act to pull the leg off the ground, accelerate it forward, and help to position the foot at the moment of contact at the same angle as the previous toe off. Just before the swing leg makes contact the hamstring muscles contract to decelerate heel strike. To prevent the appearance of increased upward motion of the leg, it is brought forward, close to the ground. A high swing leg and flat foot tramping are signs of loss of contact.

## Efficient Racewalking

Which of the three sources of forward movement is most efficient and smooth; the push, the fall, or lift and swing? Technically, the racewalker must use all of these movements. Common sense would dictate that the use of the hip and knee flexors to lift and swing the weight of the leg (which is about one fifth of the body's weight) forward requires less effort than pushing the whole body weight forward each step. As the body moves forward, the rear foot is pulled off the ground without the use of the calf and foot muscles to push against the total body weight. If contact is at the back of the heel and toe off is high, and if the arms raise the center of mass, shifts in the center of mass are reduced. Emphasis on proper motion of the swing leg reduces calf muscle and ankle joint motion. To perfect technique, the race walker must make a compromise between stride length and turnover. Turnover utilizes the hip flexors, accelerates the body, and thereby increases momentum. It alone does not contribute to loss of contact. However, overstriding and increased propulsion from pushing too much, and forward lean does.

## Warning Signs of Illegality

To make calls as a racewalk judge, a list of "faults" must be delineated.

### 1. Visible Contact Faults:

- Full extension of the ankle at toe off from an over emphasis of pushing.
- Forefoot (on the ball of the foot) contact, at or near the vertical position because of a lack of hip rotation.
- Extreme bouncing.
- High swing leg and flat-footed contact.

### 2. Failure to Straighten the Leg at Contact:

- Eccentric contraction of the quadriceps at, or after contact because the leg was not locked by the knee
- A decreasing angle of the leg, and forward movement of the knee after contact.



### 3. Failure to Maintain a Straightened Leg until Past the Vertical:

- a. Decreasing of the angle of the leg (from 180°).
- b. Up and down bounce caused by recoil of the leg after absorbing the shock at contact

## Conclusions

This paper has had three goals: To clarify what is mandated by the IAAF definition of racewalking; to present a biomechanical model based on that definition for accurate judging; and to educate coaches on how a mandated legal technique is also the most efficient way to race walk.

A judge that understands the definition of racewalking will use the same terminology when enforcing or discussing the rules. No judge should say, "The leg was not straight." Rather they will say, "The leg was not straightened."

Secondly, by presenting the biomechanics of legal racewalking in motion, the racewalk judge now has a model to compare legal race walkers with racewalkers that are at variance with the definition. Using this model of a legal racewalking, the judge can make observations and judgements about competitors who deviate from the technique mandated by the IAAF definition. The racewalk judge needs no longer to rely on simple intuition: "I think the leg has straightened." He or she can now understand what is required for the leg to be straightened before or at the moment of contact and how it is kept straightened through the moment when the body is vertical. The judge will no longer say, "I think the walker is off", because he or she will now know the causes for loss of contact and how the judge can see it.

Finally, the race walk athlete, in addition to avoiding disqualification, can now work with his or her coach on efficient forward motion based on the proper straightening of the leg and double-contact mandated by the IAAF definition of racewalking.

## Looking Back

**40 Years Ago** (From the April 1962 American Race Walker, edited by Chris McCarthy)--John Allen won the National 40 Km in Buffalo in 3:30:22, beating Ron Laird by more than 12 minutes. Laird was just 3 seconds ahead of Bob Mimm, with Ron Daniel, Carl Kurr, and Jack Blackburn taking the next three spots, just 2 to 2 1/2 minutes behind Mimm. . . The Penn AC 12 miler in Philadelphia went to Ron Zinn in a course record 1:33:31 with Jack Mortland 1:23 back in second. Ron Laird (1:36:02 and Bob Mimm (1:37:00) followed. . . In discussing the World Lists for 1961, McCarthy noted he would like to talk to Rein Leius of the USSR and ask him how it feels to turn in a 4:44:05 50 km and finish in 55th place in a national. There was some depth over there 40 years ago, too.

**35 Years Ago** (From the April 1967 ORW)--On the West Coast, Don DeNoon took the measure of Ron Laird by 22 minutes, winning a 30 Km race in 2:30:00. Then Laird turned the tables at 20 Km, winning by just 1 second in 1:33:23. . . The Ohio 20 Km title went to Jack Mortland in 1:41:13.

**30 Years Ago** (From the April 1972 ORW)--The National 25 Km title went to Larry Young in 1:57:28 following a race-long duel with Goetz Klopfer. Goetz hung tough until the final mile and finished a half-minute back, only to find that he had been DQd. So second with to Bill Ranney in 2:03:13 with Todd Scully third. The race was held in Seatle. . . The annual 50-miler in New Jersey went to Shaul Ladany in 7:23:10, with Bill Walker a half-hour behind. Shaul went through

the 50 Km mark in 4:30:36. . . Young added the National 20 Km title to his laurels, winning on Long Island in 1:32:43. Ron Daniel was second in 1:34:10, followed by Floyd Godwin, John Knifton, Jerry Brown, and Todd Scully. Your editor decided Long Island didn't like him as he received the second DQ of his career, the first having come 12 years earlier in the National 10 Km--on Long Island. . . In East Germany, Karl-Heinz Stadtmuller bettered the world record for 30 Km with a 2:14:16 on the track.

**25 Years Ago** (From the April 1977 ORW)--Wayne Glusker and Dave Himmelberger shared the National 35 Km title, finishing in 3:03:50 in Palo Alto. Bryan Snazelle was just 40 seconds back. . . Shaul Ladany continued his domination of the ultras, winning the National 75 Km title in a record 7:04:48 (4:35:44 at 50 Km). Martin Kraft was second in 7:27:15, Alan Price third, and Gerry Bocci fourth. . . In Turku, Finland, Reima Salonen did an indoor 3 Km in 11:05.1, passing 1 mile in 5:53.2.

**15 Years Ago** (From the April 1987 ORW)--Tim Lewis and Debby Lawrence emerged victorious in the DC Invitational walks. Lewis had 1:27:16 for 20 Km, 38 seconds ahead of Carl Schueler. Ray Sharp had 1:29:24 and Mike Stauch and Steve Pecinovsky 1:29:59. Dave McGovern was 3 seconds over the 1:30 mark. Lawrence was convincing as her 47:33 put her 63 seconds ahead of Lynn Weik, with Maryanne Torrellas third in 48:56. The Vaill sisters, Teresa and Lisa, also broke 50 minutes.

**10 Years Ago** (From the April 1992 ORW)--Carl Schueler and Marco Evoniuk both qualified for their fourth Olympic team at the 50 Km trial in New Orleans. Joining them was Herm Nelson, who gutted it out in second place for a 4:04:38, just under the qualifying standard of 4:05. Evoniuk, in third (4:09:44) already had met the standard. Schueler won the race in 4:02:10, after going through 25 Km in 1:56:57, which proved a bit quick on the day, but he was never in danger of losing the race. Following the first three were Andrej Chylinski (4:11:53), Jonathan Matthews (4:12:28), and Dan O'Connor 4:13:53. . . At the National Invitational in Washington, DC, Canada's Janice McCaffrey edged Teresa Vaill in the 10 Km, 45:07 to 45:16. Lynn Weik (45:38) and Maryanne Torrellas (48:06) followed. Tim Lewis won another title at 20 Km in 1:28:47, 25 seconds ahead of Ian Whatley. Dave McGovern led a closely bunched pack for third in 1:29:31, as five more (Ray Funkhouser, Mark Manning, Steve Pecinovsky, Carl Schueler, and Marc Varsano came in under 1:30. . . Alan James passed on the D.C. race, but a week earlier blasted a 1:25:01 in Long Beach. Dave Marchese followed in 1:28:56. . . A competitive 20 Km in Monterey, Mexico saw Czech Igor Kollar winning in 1:22:57, with six others at 1:24 or better. Another Czech, Roman Mrazek was second, followed by Russia's Mikhail Schennikov, Ernesto Canto, Italy's Walter Arena, Joel Sanchez, and Daniel Garcia. . . In a show of strength, Spain had five walkers under 3:50 in their National 50, won by Jaime Barroso in 3:48:08.

**5 Years Ago** (From the April 1997 ORW)--Russia dominated the World Cup races held in the Czech Republic, taking both men's and women's team titles. They finished one-two in the women's 10 Km race with Irina Stankina finishing in 41:52 and Olimpiada Ivanova in 41:59. China's Yan Gu was third in 42:15, with Erica Alfridi of Italy fourth. Italy, China, and Belarus followed the Russians in the team standings. The U.S. finished 14th of the 31 teams, led by Victoria Herazo's 46:31 in 50th place. The men's 20 went to Olympic Champion Jefferson Perez, Ecuador, in 1:18:24, just 3 seconds ahead of Mexico's Daniel Garcia, who led Russia's Ilya Markov by just 3 seconds. Curt Clausen led the U.S. contingent with a 1:24:41 in 60th. At 50, Spain's Jesus Garcia won in 3:39:54, 18 seconds ahead of Oleg Ishutkin, Russia. Finland's Valentin Kononen and Russia's Nikolay Matyukhin were third and fourth. Andrzej Chylinski was the top U.S. finisher with a 4:07:15 in 44th place. In the team standings, Russia finished well ahead of Mexico and Belarus. The U.S. was 16th among the 44 teams competing.