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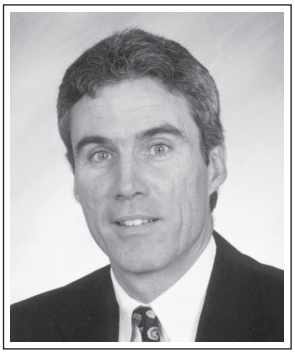
FROM THE EDITOR

RUSS EBBETS

POSTURE



There are two ways one can analyze the structure of the body—via gait or posture. Gait is a dynamic analysis that deals with the symmetry and efficiency of movement. Posture is a static quality that looks for non-moving symmetry and evenness comparing the right and left sides of the body. If one were to combine the two the concern becomes dynamic stability, a combination of postures and gaits, movements with balance.

While there are bodywork specialists who prize one quality over the other the reality for most specialists is the recognition that both posture and gait are really two sides of the same coin. To deal with one to the exclusion of the other is to get half the story or solve half the problem.

But why is posture so important? It seems like such a simple thing. It *is* a simple thing if one's understanding never gets past your mother's admonition to "stand up straight!" While she was right, simply trying to follow that cue is about as effective as the voice from the crowd yelling, "Run faster!" as the sprinters whiz by. It's not *that* simple.

We assume upright postures that are comfortable for us. For the rapidly growing adolescent that may be a "slouch." While the kid may know he is exhibiting a poor posture, standing upright (shoulders back, stomach in!) may be an uncomfortable and exhausting struggle. With adolescent growth the long bones grow faster than the muscles stretch. The resulting short, tight musculature may contort the body into undesirable body postures that not only affect how one stands but also impact respiration, digestion, circulation, recovery and gait.

While growth spurts can take some of the blame for poor postures, biologic growth is not the only culprit. Gravity is a perpetual force that is either managed or mismanaged. Twenty-four hours a day for a lifetime gravity represents a relentless drag that exacerbates the slightest imbalance or asymmetry.

Maturity and adulthood seldom solve the problem. Adaptive postures from prolonged sitting can shorten the psoas and hamstrings with this "adaptive shortening" rarely counteracted to any degree. Sleeping, ironically, can present with its own set of problems with beds that are too soft and pillows that are too large. While one's rest should be rest poor postures that are held 6-8 hours a day become another area difficult to counteract.

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EDITORIAL COLUMN

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Work and athletic activities create their own set of challenges. Hand or leg dominance may be essential to complete a task and many of sport's technique events prize asymmetric movements, like repeatedly throwing with one hand or jumping from one leg. There is a price to be paid for these uneven movements in terms of focal stresses and maldevelopment. Unfortunately, sensible solutions or suggestions may be impracticable—just try writing your name with your non-dominant hand. Finite or refined skills endlessly performed become habitual postural or movement patterns that are virtually impossible to correct.

White collar work, obesity and phone use all can have insidious and profound effects on posture. Remember that the 20-somethings have grown up knowing only the cell phone and texting. They have double-thumbed their way to adulthood with a posture that will be an orthopedic nightmare in the coming 2030's and 2040's.

So much for the "good news." Fortunately, there are some preventive measures that can counteract the physical and psychological causes of postural problems that can be an "easy sell" to a motivated group, like athletes. A conscious effort to attain and maintain good postures may be an "easy sell" by a coach or parent if the athlete can be made to see that such simple biomechanical principles as balance, force production and ground contact times can be enhanced with proper postures. Coordination and the effectiveness of the body's stretch reflexes and how they contribute to the summation of forces can become the goal for technique athletes looking for that extra inch or centimeter.

Even the aging athlete can benefit from some conscious postural attention as improved body symmetry can contribute to injury prevention and career longevity with added years to one's life and added life to one's years.

So while one's goals might not include a postural "A" grade at West Point rounded shoulders, forward head carriage or a forward body lean all represent stances that create a silent assault to the body that dilutes abilities, compromises efforts and hinders careers.

TRAINING FOR THE WOMEN'S 400 METERS, FOCUSING ON THE 2018 EUROPEAN CHAMPION

The authors are on the faculty of the Jerzy Kukuczka Academy of Physical Education, Katowice, Poland. Matusiński and Iskra are in the Department of Individual Sports, Golaś in the Institute of Sports Sciences. In this detailed study they recount the training plan and history of Poland's top women 400m runner, Justyna Święty, world ranked 9th in 2019 by T&FN.

BY ALEKSANDER MATUSIŃSKI, JANUSZ ISKRA, AND ARTUR GOŁAŚ

INTRODUCTION

The tradition of training analysis for the 400 meters dates back to the second half of the 19th century, the period of the development of track & field structures in the United Kingdom (Shearman 1894/2007) and in the USA (Potts 1993, Sears 2008). The next 150 years of track & field have seen many changes, modifications and often revolutionary solutions to the principles of training of the one-lap run.

An important source of information about effective training is scientific analyses of physiologists who have evaluated 400 meters as anaerobic exercise, with lactate levels reaching (and often exceeding) 20 mmol/l (Gupta et al. 1999, Reis and Miguel 2007, Zouhal et al. 2010).

The women's 400m run in Polish track & field has a special place. The first Polish championship in this sprinting event was held in 1952. However, it was only the athletes competing in the women's 800 (Elżbieta Katolik: indoor European champion in 1974) and the 400 hurdles (Krystyna Kacperczyk:

world record holder in 1974) that allowed the Poles to catch up with the European elite in the 400 meters.

Competition at the global level started when Irena Kirszenstein-Szewińska became interested in running this event. Szewińska's first starts in the 400-meter dash (1974) yielded the best results in the world.

In 1974 Szewińska was the first woman in history to run the 400m in less than 50 seconds (49.9), and two years later she accomplished the same with electronic timing (49.75). At the Olympic Games in Montreal (29 June 1976), she won with a huge advantage over her competitors and set another world record.

It is difficult to find such an outstanding female athlete in Poland (or elsewhere) as Irena Szewińska, who died in 2018, but in the same year, the 400 gold medal at the European Championships in Berlin was won by a Polish female athlete—Justyna Święty-Ersetic (later Justyna Święty). The result of 50.41 seconds was the best on the European continent that year and 12th in the world.

Justyna Święty-Ersetic trains in the academic center of the Jerzy Kukuczka Academy of Physical Education in Katowice and is coached by Aleksander Matusiński. Currently, Justyna Święty-Ersetic is the second fastest (after Irena Szewińska) Polish runner all-time in the 400 meters (50.41) and is the national indoor record holder (51.37 in 2020).

Our study examines the problems of training for the 400 meters. The analysis took into account women's sprinting, with particular focus on the training concepts used by the 2018 European Champion. The coaching and publication experiences of Prof. Janusz Iskra (1991-

KIRBY LEE/IMAGE OF SPORT

Mar 7, 2014, Sopot, Poland: Justyna Świety (POL) celebrates after running 52.97 in a women's 400m heat to advance at the IAAF World Indoor Championships in Athletics at Ergo Arena.

2012), partially used by Święty's coach, were also important to the success of the athlete.

1. A BRIEF HISTORY OF A SPORTS CAREER

Justyna Święty was introduced to the sport in 2003 in the 6th grade of primary school, at the age of 12 years. She was appointed to represent the school for the district indoor competition in the 400m shuttle race. In this competition, she placed second and was invited to the track & field section, with training sessions held once a week on Saturday. She liked the training and decided to continue her education in the sports class at the Athletic Championship School in Racibórz, Poland. There, at junior high school age (14 years old), she started to train regularly six times a week. First, she competed in endurance competitions and specialized in the 600 meters and cross country, repeatedly winning medals at the Silesian Championships. The transition from junior high school to secondary school in the Athletic Championship School involved a coaching change. The new coach noticed the athlete's talent for speed and decided to train her to compete in the 400 meters. In the winter season, the athlete continued to participate in cross country (2000m and 3000m) and indoor races (600m and 800m).

There was a very high level of 400-meter running in Poland at the time she was finishing her junior years. Therefore, she and her coach decided to look for a new event in which she could be the best, as she could not stand losing. That is why she participated in the Polish Junior Indoor Championships and won the 800m event. In the summer season, she made an attempt to prepare for the 400m hurdles and she achieved a very good time for a junior, but her running style (short strides, dynamic, with strong step) did not promise much progress in hurdling.

IN 2019, SHE HAD AS MANY AS 38 STARTS IN VARIOUS COMPETITIONS

Since 2009 she has been competing continuously internationally and has won medals or placed in the finals in every competition she entered. In 2019, she had as many as 38 starts in various competitions, including 35 starts in 400m and 4x400m events. The high number of competitions was due to her high sports skill level: in individual races in championships, she has successfully completed all elimination rounds and has been often forced to run elimination races in relay races.

It may be interesting to note that in her entire career, Justyna Świety has only twice won the gold medal of the outdoor Polish Championships, although she often had the fastest times among Polish women at the target events. This was due to the training plan, in which the Polish Championship fell in the period of direct preparation for the World and European level competitions.

According to her coach, the major factors in progression of the athlete's results in 2018 included consistent work in running technique (video analysis) through specific exercises, work on speed (speed exercises), running rhythm practiced on low hurdles, and modification of resistance training through, for instance, the use of post-activation potentiation (PAP), both in the gym and during maximum speed training (maximum runs preceded by sled pulls), as described below.

Personal best results in the senior category and the number of medals and starts in the target competitions reflect the very well structured training plan at the initial stage (comprehensive, general preparation) and throughout her professional career (special preparation based on high-volume training during the preparation period to develop both endurance and strength).

1. CHARACTERISTICS OF THE ATHLETE

See Table 1.

2. TRAINING MEASURES IN THE 400 METERS

This analysis of training measures (exercises) was based on a set of speed (2.1), endurance (2.2) and strength (2.3) exercises.

2.1 Speed exercises

See Table 2.

Running with slats (flat markers placed where hurdles would be) is the first element that was introduced in the first year of training with the current coach. The athlete performed strides between the slats at different distances (usually 7, 8 feet) depending on the preparation period, several times a week. This form of training was naturally integrated into classes, e.g. straight or curve strides as a warm-up in regular running shoes or running spikes. In the first stage, these strides aimed to lengthen the

Table 1: Characteristics of the athlete

1. Basic information

Born on: 3 December 1992 in Racibórz, Poland (Silesian Voivodeship)
Sports clubs: 2006-2011: Victoria Racibórz; from 2012: KS AZS AWF Katowice
Body height/weight: 167 cm/56 kg
Coaches: Beata Szyjka (children's category), Piotr Morka (junior high school, category of sub-junior athletes), Kazimierz Stępień (secondary school, category of sub-junior and junior athletes), Aleksander Matusiński (university period, youth and senior category).

2. Personal bests

Outdoor			Indoor		
400m	50.41	Berlin 2018	400m	51.37	Toruń 2020
300m	36.50	Ostrava 2019	300m	37.39	Spała 2018
200m	23.81(+0.4)	Inowrocław 2014	200m	23.64	Toruń 2020
600m	1:26.68	Sosnowiec 2014	600m	1.28.23	Spała 2014
800m	2:04.78	Gdańsk 2012	800m	2.14.83	Spała 2011
300m hurdles	44.91	Chorzów 2010			
400m hurdles	62.44	Częstochowa 2010			

3. Test results

28 April 2012	500m	1.09.82			
1 May 2013	500m	1.10.80			
14 April 2014	300	39.95			
29 April 2015	300	38.65			
06 May 2016	300m	36.91	8 May 2016	500m	1.07.55
19 April 2017	300m	36.77			
12 May 2018	350m	44.13			
08 May 2019	300m	36.64			

4. The progression of sports skills

Personal best progression at outdoor 400m				Personal best progression at indoor 400m			
59.47	8 Sep 2007	Sosnowiec	U16				
57.09	26 Jul 2008	Bydgoszcz	U18				
55.55	25 Jul 2009	Kraków	U18	57.29	23 Jan 2010	Spała	U20
55.30	15 May 2010	Sosnowiec	U20				
55.51	25 Jun 2011	Toruń	U20	54.03	26 Feb 2012	Spała	U23
52.81	16 Jun 2012	Bielsko-Biała	U23	53.94	9 Feb 2013	Spała	U23
52.22	13 Jul 2013	Tampere	U23	52.13	7 Mar 2014	Sopot	U23
52.22	20 Jul 2014	Sopot	U23	52.51	22 Feb 2015	Toruń	U20
52.44	10 Jul 2015	Gwangju	Sen	52.30	6 Mar 2016	Toruń	U20
51.62	14 Aug 2016	Rio de Janeiro	Sen	52.09	19 Feb 2017	Toruń	U20
51.15	11 Jun 2017	Hengelo	Sen	51.78	15 Feb 2018	Toruń	U20
50.41	11 Aug 2018	Berlin	Sen	52.14	6 Feb 2019	Toruń	U20
50.85	16 Jun 2019	Chorzów	Sen	51.37	8 Feb 2020	Toruń	U20

5. Best achievements

Olympic Games
6th place 4x400m Rio de Janeiro 2016
12th place 4x400m London 2012
World Championships
2nd place 4x400m Doha 2019
3rd place 4x400m London 2017
7th place 400m Doha 2019
8th place 4x400m Moscow 2013
European championship
1st place 400m Berlin 2018
1st place 4x400m Berlin 2018
4th place 4x400m Amsterdam 2016
5th place 4x400 Zurich 2014
6th place 400m Amsterdam 2016
8th place 4x400m Helsinki 2012
Indoor World Championships
2nd place 4x400m Portland 2016
2nd place 4x400m Birmingham 2017
4th place 400m Sopot 2014
4th place 400m Portland 2018
4th place 4x400m Sopot 2014
5th place 400m Portland 2016
Indoor European Championships
1st place 4x400m Belgrade 2017
1st place 4x400m Glasgow 2019
3rd place 400m Belgrade 2017
3rd place 4x400m Praga 2015
World Relays
1st place 4x400 Yokohama 2019
2nd place 4x400 Nassau 2017
5th place 4x400 Nassau 2014
5th place 4x400 Nassau 2015
Universiade
1st place 4x400m Gwangju 2015
1st place 4x400m Taipei 2017

European Athletics U23 Championships
1st place 4x400m Tampere 2013
3rd place 400m Tampere 2013
World Junior Championships
8th place 4x400m Montcton 2010
European Junior Championships
2nd place 4x400m Tallin 2011
World Youth U18 Championships
6th place Swedish relay Bressanone 2009
Military World Games
1st place 4x400m Wuhan 2019
3rd place 400m Wuhan 2019
Polish Senior Championships
1st place 400m Toruń 2013
1st place 400m Bydgoszcz 2016
2nd place 400m Szczecin 2014
2nd place 400m Lublin 2018
3rd place 400m Bielsko-Biała 2012
3rd place 400m Kraków 2015
3rd place 400m Radom 2019
Polish Senior Indoor Championships
1st place 400m Spała 2012
1st place 400m Sopot 2014
1st place 400m Toruń 2015
1st place 400m Toruń 2016
1st place 400m Toruń 2017
1st place 400m Toruń 2018
1st place 400m Toruń 2020
1st place 200m Toruń 2020
2nd place 400m Toruń 2019
3rd place 400m Spała 2013

Table 2: Characteristics of training measures. Part 1. Speed

Training Measure	Characteristics	Example
1. Maximum speed	1A. Starts from support, starts from low body position	3x start from low body position +30m run, V=100%, p=3' 5x start from support +20m run, V=95%, p=3'
	1B. Crouch starts	4x crouch start +30m run, V=95-100% p=3'
	1C. Flying runs	5x(20m run-up +30m flying) V=max p=5'
2. Technical speed	2A. Controlled speed run	3x60m entry into the curve V=85% p=4' 3x60m exit from the curve V=85% p=4' 3x60m on the curve V=85% p=4'
	2B. Increasing pace runs	6x60m V=90% p=5' on the straight 6x60m V=90% p=5' on the curve
3. Speed hurdling exercises (runs)	3A. Low hurdle (20cm) runs with fixed distances between the hurdles	3x30m curve +30m straight, V=90% p=4' distance: 7 feet 3x30m straight +30m curve, V=90% p=4' distance: 7 feet 6x60m on the straight, V=90% p=4' distance: 7 feet 6x60m on the curve V=90% p4' distance: 7 feet 6x40m +20m run, V=85% p=5'
	3B. Low hurdle (30cm) runs with fixed distances between the hurdles	
	3C. Low hurdle runs with variable distances between the hurdles	6x60m straight, V=90% p=5', distance: from 4 to 7 feet increased by 0.5 foot every hurdle 6x60m curve, V=90% p=5', distance: from 4 to 7 feet increased by 0.5 foot every hurdle 5x40m straight, V=95% p=4' distance: from 8 to 6 feet decreased by 0.5 foot every hurdle 5X40m curve, V=95% p=4', distance: from 8 to 6 feet decreased by 0.5 foot every hurdle
	3D. Running on slats	3C. Similar to low hurdles, with variable and fixed distances between the slats
4 Speed hurdling exercises (walks)	4A. Hurdles (20-30cm)	Walk A (front), 10 hurdles, distance: 3 feet Walk A (sideways), 10 hurdles, distance: 3 feet Accent A (at the side of the hurdle), 3x10 hurdles Walk through the center, 1 step, 10 hurdles, distance: 3 feet Walk through the center, 2 steps 10 hurdles, distance: 3 feet 0.5 skip A, center, distance 4 feet + 30m run, p=4'
	4B. High hurdles (84 cm)	Walk (lead and trail leg), center, 3 steps, distance: 10 feet Walk (lead and trail leg), center, 1 step, distance: 10 feet Walk (lead and trail leg), center, 1 step, distance: 7 feet

step and develop correct technique and running rhythm. In the following years, dynamic walks on low hurdles (20-30 cm) were introduced, usually in the form of a warm-up before speed training. The aim was to develop running technique, activate the foot (quick response with relation to the ground), quick change of the support leg, and correct angles of movement.

In the next period, the scope of exercises was extended from forward walk, side walk, running at the side of the hurdle, skipping strides through the center, "tight" running with 4 to 5 feet, to running through the center with increasing distance between hurdles, running through the center with reduced distance to improve maximum speed.

The warm-up in the form of walks on low hurdles is used throughout the year, both in the stadium, indoor hall and in the field. As the preparations for the season advance, the athlete performs more runs on low hurdles. In 2018, in order to improve speed, the athlete often ran low hurdles (running on the curve, running on the straight, and running on the straight with an additional short run)

2.2 Endurance exercises

See Table 3.

Although Justyna Święty won the Polish Indoor Championship at 200m in 2020, she is considered to be an endurance-type athlete. This is evidenced by her style of running, with a controlled first part of the distance and catching up on the last straight. She started running with cross country and is not afraid of long distance running: she even competed in a 10-kilometer street run. Therefore, endurance is a main characteristic of the athlete. In general, apart from the competitive and pre-competitive period, endurance training sessions in various forms are held at least four times a week. Sessions focus on endurance combined with various motor skills, e.g.

Table 3: Characteristics of training measures. Part II. Endurance

Training Measure	Characteristics	Example
1A. Interval speed endurance	Running short sections of up to 150m using the interval method at submaximal speed with a short rest	4x5x60m, V=90%, p=1/5 min 4x5x60m, V=90%, p =1/5 min 1 and 2 series of sled pulls 2x5x80m, V=90%, p=2' min/10min 2x4x100m, V=90%, p=2'/10'
1B.Classical speed endurance	Running sections of 80 to 150m using the interval method at submaximal speed with an optimal rest	2x3x150m V=90%, p=8'/10' (3x from blocks) 2x3x150m V=90%, p=8'/10' (2 series on low hurdles) 3x150+3x120m, V=85-95%, p=6-8' 2x(150+120+100m), V=90%, p=6-8'/10' 6x100m p6-8' t 95%
1C. Mixed speed endurance (classical/ interval)	Running sections of 80 to 150m using the interval method at submaximal speed with long rests combined with sections with short rests	3x100m (from block) +3x100m, p=8' 2'/10', V=95% 3x150m (from block) +3x150m, p=8' 2'/10', V=95%
2A. Special endurance 1	Running sections of 200 to 500m at submaximal speed	2x200m, V=95% and 98%, p=10' 2x300m, V=90 95%, p= 30' 3x300m, V=85% 90% 95%, p=10' 15' 1x500m, V = 98% 300m+500m+300m, V = 85 90 95%, p = 10' 20' 300+500+300+500, V=80-95%, p 6' 10' 15' 350 V=98%
2B. Special endurance 2	Running sections of 500 to 1000m at submaximal speed	1x600m, V = 98%
3A. "Stress" training	Running sections of 100 to 800m using the interval method at submaximal speed with a short rest (up to 2min)	3x300m+100m, V=95%, p=1/10' 2x4x(250m+150m), V90% ,p =1'30"/ 7' 3x200m+60m, V95%, p=1/8'
3B. Intensive intervals	Running sections of up to 150m at submaximal speed	4x5x100m, V increasing to 85%, p= 1' 1'15" 1'5" 2' /5' 7' 9' 3x4x150m, V=80% 85% 90% p=2' 3' 4' /7' 9' 3x(150m+120m+150m), V=85-90-95%, p=2' 3' 4'/5'7'
3C. Pace endurance	Running sections of 100-500m using the interval method at medium and submaximal intensity	5x300m, V = 65%70%75%80%85%, p= 4' 6' 8' 10' 4x500m, V=85%, p= 6' 8' 12' 4x(500m+300m), V=up to 85%, p5'/5'-9' 4x(500m+500m), V= up to 85%, p 5/5-9' 5x(300m+300m), V= up to 85%, p=5/5-9'
3D. Strength endurance	Uphill runs and multiple jumps, sections up to 200m	10 x 200-m, uphill, V = 80%, p = 2' 2x4x200-m uphill, V=70%, p= 2'+5x100m uphill, V90%, p=1' 5 x 100m multiple jumps, p=2'
3E. Interval strength endurance	Skips, multiple jumps, jumps in series up to 60m with a short rest	5-8x x (60m skip A + 60m jumps + 60m multiple jumps + walk on 6 hurdles 84cm, distance: 10 feet), p=15" /2'
4A. Extensive interval	Running sections of 300 to 1000m at low intensity in the form of interval	2x5x300m, V=60%, p=2-3'/5-7' 2x5x500m, V=70%, p=2-3'/5' 2x5x600m, V=60%, p=2-3'/5' 4-5x1000m, V=60% p=4' 5x(500m+300m), V=70%, p=2' 3' 4' 5'/3' 5' 7'
4B. Extensive intervals: "aerobics"	Fixed-time running efforts up to 1' at low intensity in the form of intervals, usually as a second complementary training	10x45" V up to 60%, p=45" 10x1' V up to 60%, p=1'
5A. Continuous runs	Low-intensity continuous runs over 12 minutes	3 x 12 min, p1 fitness 10', p2 running strength 20-30 min slow run as a warm-up + Mountain hikes
6. "Comprehensive" endurance	Various forms of endurance during one training session, e.g. continuous run+extensive interval+ special endurance1 or stress training	Continuous run 20' + 2x3x300m V=75% p=3'4/5' +p=7' +2-3x300, V=95% p10' Continuous run 20' + 2x3x300m p=3'4/5' t= 54 51 +p=7' +2-3x(300, V=90% p=1'100m V=95%) p=7' 4x(500+300, p=walk 150m), p=3-'5'/5'7'9' V=60-85%

aerobic endurance with strength or speed with speed endurance.

Years of specialized training in the 400 meters has transformed the athlete into a sprinter to such an extent that these days she avoids maximum efforts on distances longer than 500m (the last 600m test was performed by the athlete in 2014). Depending on the need, the coach also uses longer stretches in training, but not of high intensity.

Due to her high sports skill level and

the fact that the athlete has ideal conditions for training (she travels 4 to 5 times a year to training camps), mountain hikes and pace endurance elements (often performed in Poland) were substantially limited. In warm climates, the athlete can perform better quality training and take care of movement technique and appropriate intensity.

Low-intensity endurance is developed throughout the year, but this is used as the major part of training only in the initial part of the preparation period (in October and November) and in a shortened form after the indoor competition in March, in the period of special preparation and the competitive period (as a warm-up or recovery after a high-intensity training session or a competition). It is these low-intensity and high-volume efforts, which are often performed in the form of fixed-time segments, that are her favorite training elements.

According to the coach, speed, special and complex endurance has the greatest effect on improving endurance in the 400 meters and therefore he uses such sessions most often. During the special preparation period, the comprehensive endurance elements are often repeated, combining lower-intensity pace endurance with shorter rests with race-pace exercise with long rests. This training is a combination of work at moderate lactic load and high-volume with efforts at race distance. The athlete is not only supposed to put in miles but also to "remember" the heavy glycolytic character of the effort in the 400 meters.

Another important element to develop endurance which affected the improvement of the athlete in 2018 was speed endurance training on low hurdles. These were runs on the curve and on the straight with 150m sections. The hurdles were set at the exit of the curve to the last straight and on the straight. Speed endurance on low hurdles was to be used to refine running rhythm on the last straight in the 400 meters.

THIS TRAINING IS A COMBINATION OF WORK AT MODERATE LACTIC LOAD AND HIGH-VOLUME WITH EFFORTS AT RACE DISTANCE.

An interesting solution in speed endurance training was the use of crouch start runs. The 150m runs at an intensity of 90-95% performed from starting blocks allowed the athlete to feel the pace of the run and dare to start running faster.

2.3 Strength exercises

See Table 4.

Strength is a critical factor in the preparation of the athlete. Resistance training seemed to result in the biggest progression in results after the change to the current coach. In her years as a junior athlete, she did not perform strength training with heavy weights in the gym but she learned the correct technique of performing these exercises and strength was shaped in the form of running strength exercises and throwing medical balls. In strength training, similarly as in improving other motor skills, the athlete uses periodization, passes from initial adaptation exercises to muscle hypertrophy, maximum strength and power. Resistance training is performed twice a week throughout the entire annual training cycle. The second strength training session involves different exercises, engages different muscles or the same muscles in a different way, and is of a different nature when it comes to using energy sources. For example, the athlete performs squats on Mondays and half-squats on Thursdays or a series of up to 10 repetitions on Mondays and 10-20 repetitions on Thursdays (at the beginning of the preparation period) of a given exercise. During the competition period, the athlete performs one basic strength training session a week, with reduced volume (ca. 70% of the load from the pre-competition period) and the second training session with a barbell, focused on dynamics.

According to the coach, the most important element in strength training is not personal records in strength exercises, but the *correct performance* of the exercise and transformation into sport-specific abilities. Therefore, after each session of strength training, the athlete performs running drills such as skips, jumping, and aerobic endurance exercises.

In 2018, the coach introduced post-activation potentiation (PAP), which, according to the coach, had the greatest effect on dynamics, speed, and consequently, on Justyna's results in the 400 meters. PAP, i.e. performing a dynamic exercise specific to the event preferred by the athlete following the activation of neuromuscular connections, consisted of jumping up, jumping on the box, jumping over objects, or fast strides immediately after performing the exercise at a minimum of 70% of the maximum load

Table 4: Characteristics of training measures. Part III. Strength

Type of strength	Type of exercises	Examples
1. General leg strength	1A. General leg strength with barbell	Barbell front squats, barbell back squats, barbell lunges, hip thrusts
	1B. General leg strength on machines	Lying leg curl (m. biceps femoris)
	1C. Leg exercises with partner resistance	Lying leg curls with partner resistance (concentric/eccentric contraction, m. biceps femoris)
2. General strength	2A. Upper body exercises	Abdominal muscles: lying sit-ups, front scissors, V-ups, V-sit holds, Twisted V-sit holds back muscles: holding or lifting a weight on the back, legs in front lying on the box
	2B. Shoulder, back and shoulder girdle exercises	Pull-ups, presses, arm movement drills with weights
	2C. Classic strength exercises	Clean, snatch, deadlift
3. Dynamic strength	3A. Targeted leg exercises	Half-squats, box step-ups (with one leg, alternately with left and right legs, with attack, with strong step)
	3B. Special exercises, leg muscles	Barbell exercises: jumps from the half-squat only from feet, jumping over objects
4. Explosive strength	4A. Short jumps	Multiple jumps up to 10 takeoffs, jumps on the box: to the half-squat, to the hip thrust, on one leg
	4B. Starts with resistance	Starts with resistance band: with sled, from the block, from the support, from low body position
	4C. Explosive arm strength	Medicine ball throws with a partner or against a wall, from the chest, from behind the head, with a run-up, push-ups with resistance band
	4D. Plyometric exercises	Jumps over hurdles, jumps down: with a hop or over a hurdle, from straight legs, from a half-squat
5. Running strength	5A. Jumping ability	Multiple jumps over 10 takeoffs up to 100m
	5B. Sprints with resistance	Resisted sprints: sled pulls over a distance of 30-100m
	5C. Running drills: skips	Special running drills (skips A, B, C, and D) on sections of up to 100m
6. Other strength exercises	6A. Isometric strength	Abdominal and back muscles
7. Supplementary exercises	Supports, Swiss balls, BOSU balls,	Front and back supports (static and dynamic)

Table 5: Characteristics of training measures. Additional measures (including warm-up)

Training Measure	Characteristics	Example
1.Flexibility	1A. Dynamic stretching	Leg swings (front, side to side), reaching the floor during a walk, knee to chest exercises, lunges with body twist, reaching the straight leg during a walk, pulling the leg to the buttock during a walk and calf rises
	1B. Static stretching	Sit and reach with straight legs, in straddle sit, hurdler's stretches, wall-supported calf stretch, calf stretch on stairs
	1C. Rolling	Front, rear, and lateral parts of the legs

in a squat, half-squat, dead lift or a clean. See Table 5.

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THE EVOLUTION OF FIBERGLASS VAULTING TECHNIQUE

This historical journey through the early fiberglass era points out the continuing innovations in vaulting technique and form over the years.

BY DAVID BUSSABARGER

The writer has been involved in pole vaulting for nearly 60 years, which means he has first hand experience of nearly the entire fiberglass era in pole vaulting. This gives him perspective on how fiberglass technique has evolved over time.

Based on extensive observational evidence, it is the writer's point of view that fiberglass vaulting technique began evolving and improving from the beginning of the fiberglass era and has continued evolving and improving to the present day. Further, the constant improvement in fiberglass technique is the single most important factor leading to increases in vaulting heights over the years.

SERGEY BUBKA

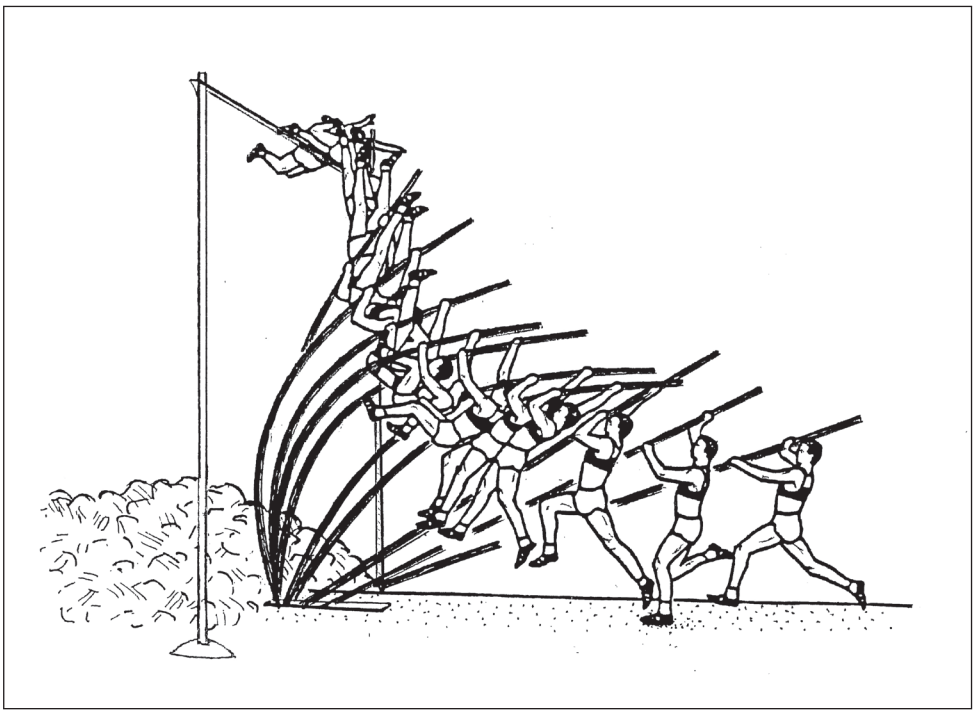
Several factors contributed to Sergey Bubka's unprecedented 27-year reign as the WR holder.

First Bubka was unquestionably the most gifted athlete ever to compete in the pole vault. And because he was so dominant for so long (he set 31 WRs from 1984 to 1993), a great many people came to believe his technique, which was based on his coach Vitaly Petrov's "model", had to be the ideal technique. A great many people still continue to believe this to this day. However, the fact that two vaulters who use markedly different technique than Bubka's have broken his WR can be considered indisputable proof that Bubka's technique was not neccessarily the *ne plus ultra.* The writer believes that Bubka achieved virtually complete psychological dominance over his competitors when he was actively competing due to the factors mentioned above.

Also note that fiberglass technique did continue to evolve during Bubka's reign, but the right man with the right technique to break Bubka's WR did not appear on the vaulting scene until 2014—Renaud Lavillenie.

With the exception of Bubka, the best vaulters of recent years are not better athletes than early greats like John Pennel, Brian Sternberg, Fred Hansen and Bob Seagren.

ALL ILLUSTRATIONS BY DAVID BUSSABARGER

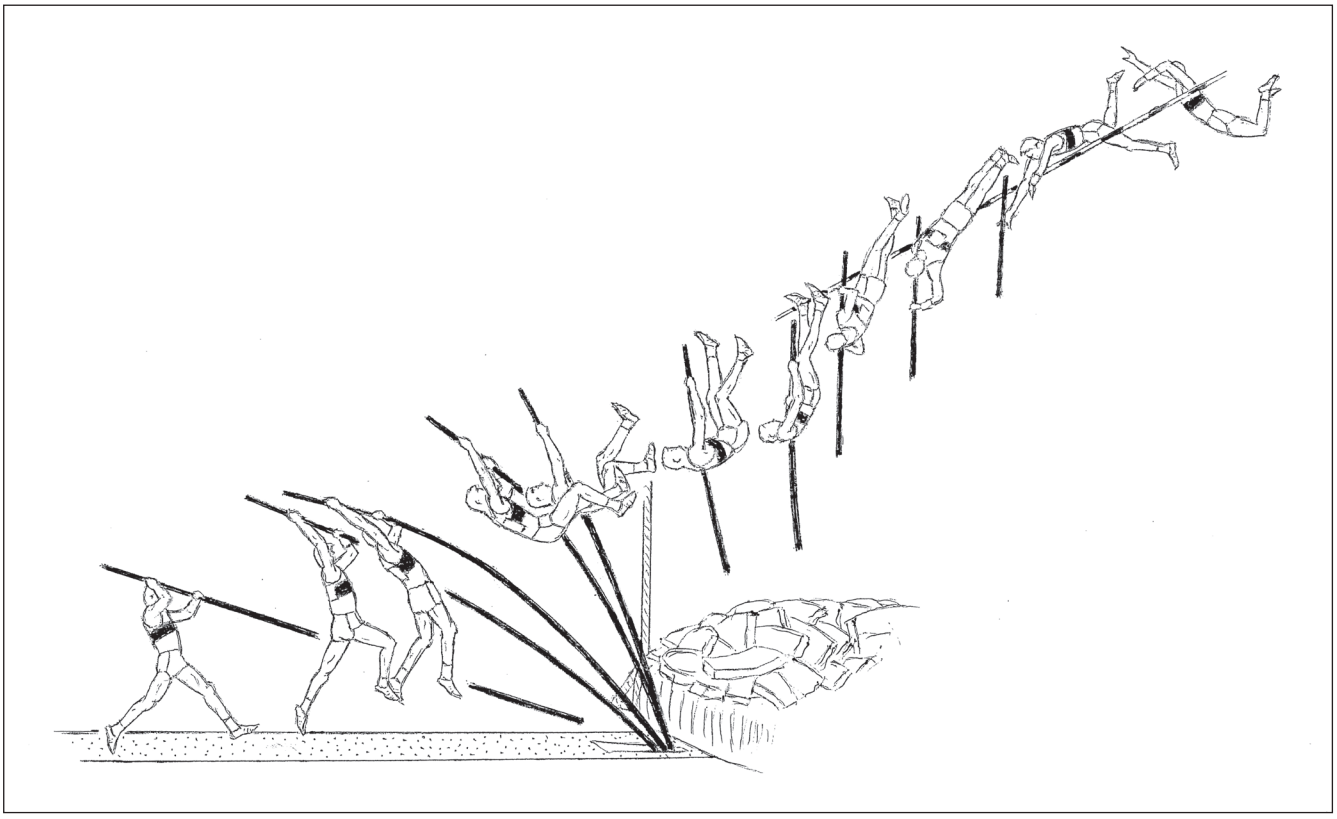


Klaus Lehnertz (West Germany): over 15'9"/4.80, 1964. PR 16'5"/5m, 1964. Olympic bronze in 1964.

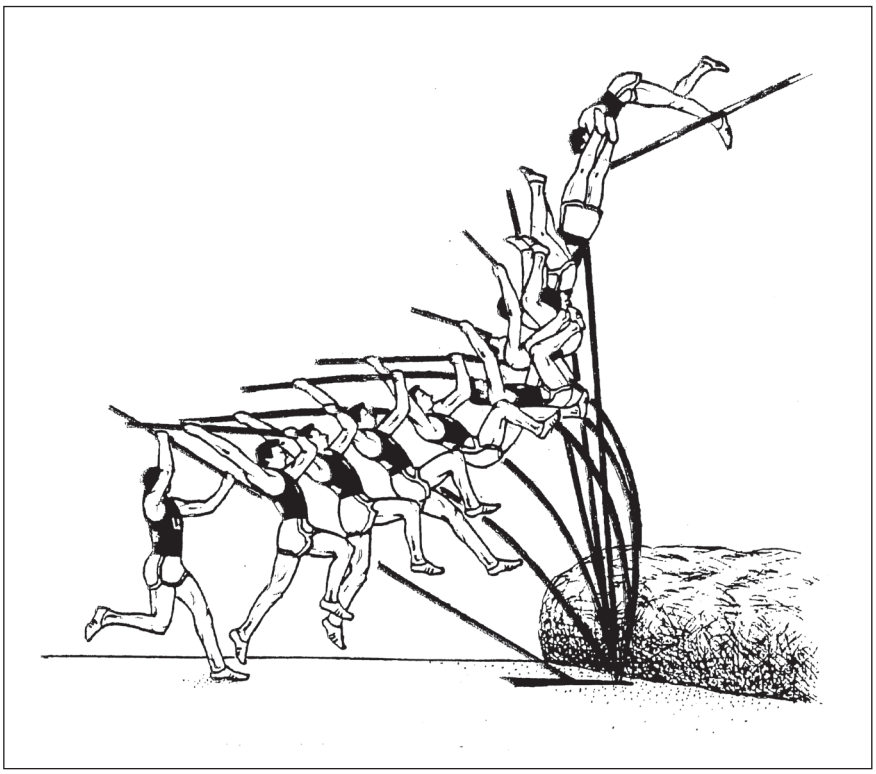
Today's best vaulters simply have the advantage of many decades of technical evolution in the event and the knowledge that comes with it.

THE EARLY YEARS OF THE FIBERGLASS ERA

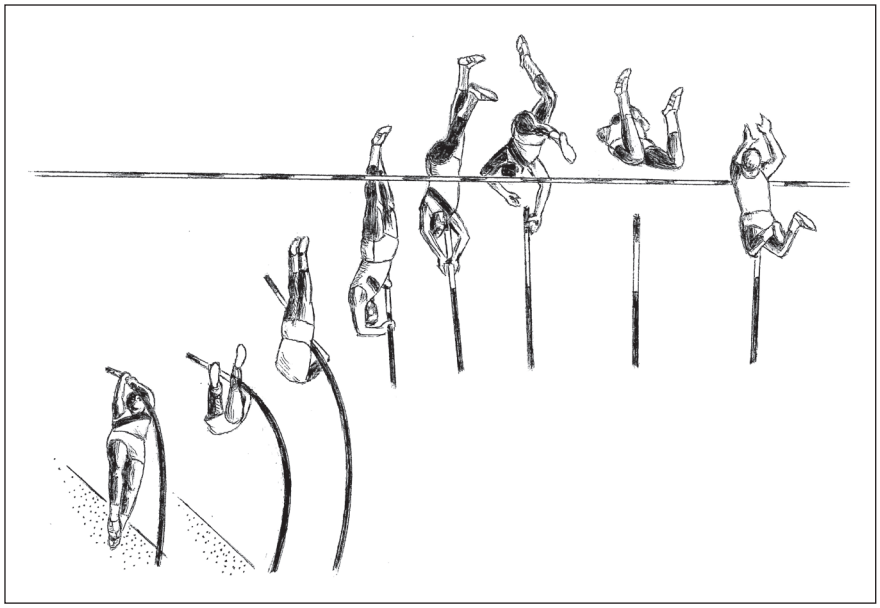
Significant numbers of elite vaulters began switching to fiberglass poles around 1960 after Herb Jenks, working for Browning Arms, introduced his Browning Sky Pole. Jenks's pole was more robust than earlier fiberglass poles that dated back to the 50's which had a high breakage rate. Once it was discovered that the new poles could be bent



Manfred Preussger (East Germany): over 16'5"/5.00, 1964. PR 16'10¾"/5.15, 1964. The third highest vaulter all-time in 1964.



John Pennel (USA): over 15'5"/4.70, 1964. PR WR 17'10¼"/5.44, 1969.



Brian Sternberg (USA): WR 16-5/5.00, 1963, WR 16-6¾/5.05, 1963, WR 16-8/5.08, 1963.

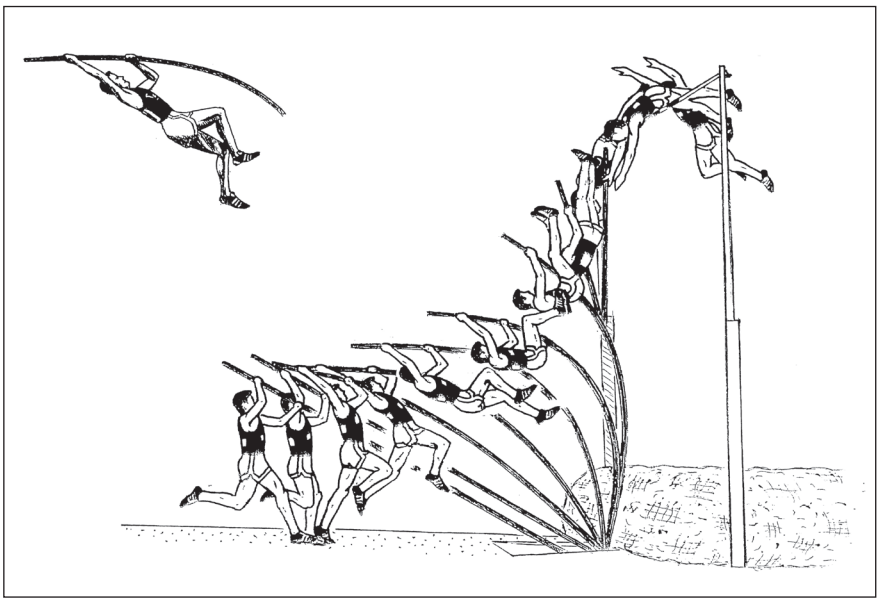
like a spring and the recoil of the pole helped boost the vaulter up and over the bar, it became obvious that a new approach to technique would be needed.

However exactly what technical modifications should be made was initially anyone's guess. Due to a lack of experience with the new poles, vault coaches were largely sidelined in the early years of fiberglass vaulting and the vaulters themselves led the way forward using trial and error experimentation based on educated guesses as to what would improve results.

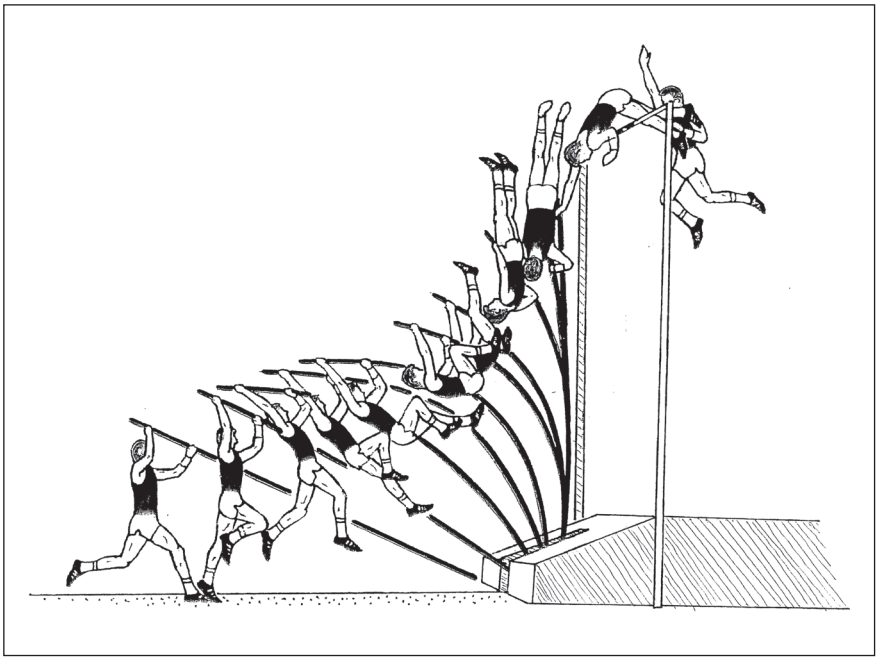
The earliest successful modification was increasing hand spread on the pole, which improved the vaulter's control during the vault (rigid vaulters shifted the hands close together during the plant). Typically very early fiberglass vaulters kept the hands about one foot apart.

Two other modifications that also occurred quite early in the fiberglass era involved the rock-back and vertical extension. Rigid vaulters did not fully complete the rock-back and had no vertical extension phase. In addition they began their pull at the end of their "rock-up" action. Early fiberglass vaulters found that if they fully completed their rock-back action, delayed pulling as long as possible and extended vertically after the rock-back, they could take much better advantage of the recoil of the pole.

Virtually all the best early fiberglass vaulters were accomplished rigid pole vaulters. Somewhat surprisingly, not all of them attempted to modify their original rigid pole takeoff technique when using fiberglass poles. Rigid vaulters sprang upwards as they left the ground to reduce takeoff shock and to initiate pole rotation (note that specific aspects of the run, plant and takeoff were designed to reduce takeoff shock in rigid vaulting). Then immediately after leaving the ground they pushed their chests toward the pole and dropped their lead leg (hung). This lowered the vaulter's center of mass and initiated their swing.



Fred Hansen (USA): PR WR 17'4"/5.28, 1964, WR 17-2/5.23, 1964, Olympic gold in 1964.



Wolfgang Nordwig (East Germany): circa 1968, PR 18'½"/5.50, 1972, WR 17-10½/5.45, 1970, QE 17-11/5.46, 1970, Olympic bronze, 1968, Olympic gold, 1972.

The most important exception to this rule was John Pennel, who set seven WRs in 1963 and was the first man to clear 17 feet. Pennel went on to set four more indoor and outdoor WRs, culminating in a WR 17-10 ¼/ 5.44 in 1969. Typically rigid vaulters took off "out" or behind the vertical plane of the toe of the takeoff foot. Pennel moved his takeoff point well forward and "ran under the pole" as he took off. He also drove his lead leg in a forward-to-upward direction throughout his takeoff (he elimated the traditional "hang" action seen in rigid vaulters).

By combining his lead leg action with a strong forward driving action Pennel lowered his takeoff angle to about 18 degrees. The combination of these changes produced much more force of movement in his body during takeoff, which facilitated a higher hand grip and increased the maximum bend in the pole. Finally, Pennel increased his hand spread to about 2' 1/2", by far the widest hand spread of any elite vaulter at this time.

The single most important technical modification Pennel developed was his low takeoff angle based on driving in a forward and slightly upward direction through the takeoff action. Over time this technique was adopted and improved on by nearly all elite fiberglass vaulters (The "penetration" action of today's elite male vaulters has become much more pronounced since Pennel's day).

THE CONTINUING EVOLUTION OF FIBERGLASS TECHNIQUE

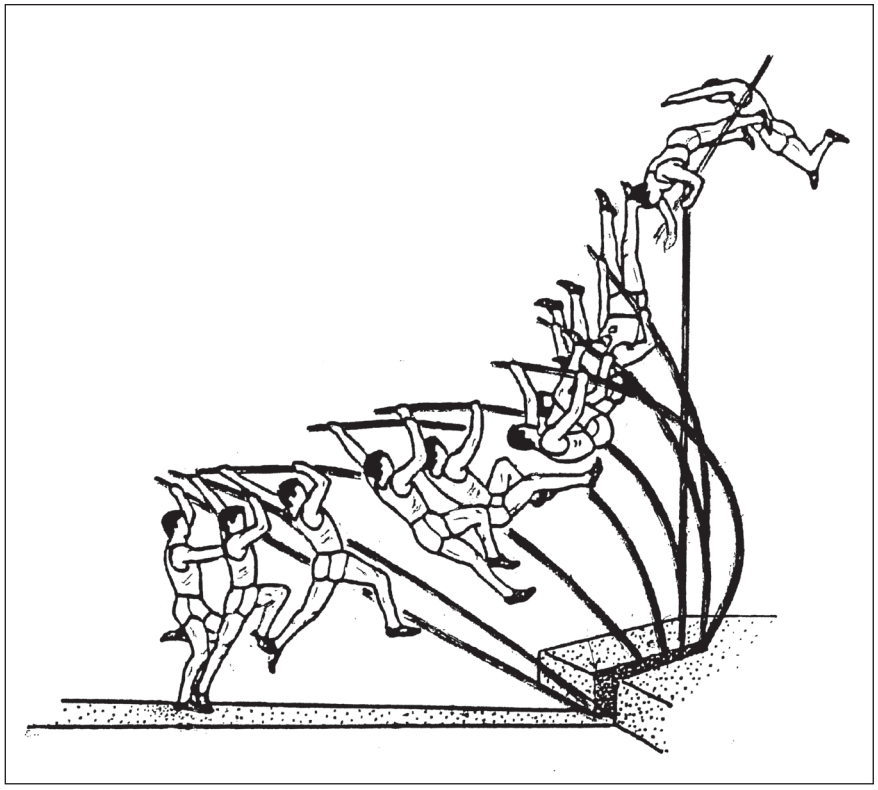
Over the years individual vaulting styles among elite vaulters have proliferated and new modifications in virtually every phase of the vault have been developed.

Some of the most notable variations in execution not previously mentioned are ....

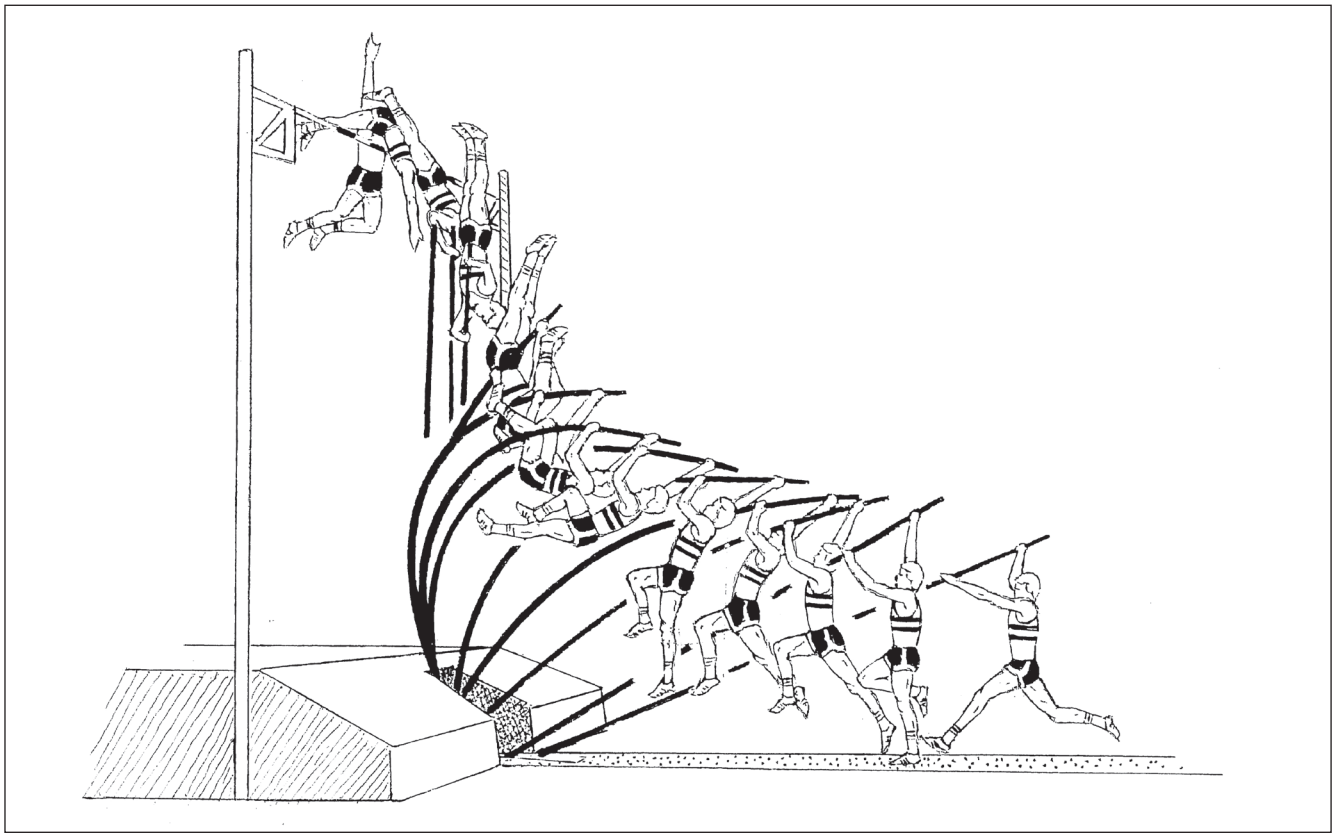
(1) Rigid vaulters typically "glided" into the takeoff to reduce takeoff shock. Note that one critical advantage of fiberglass poles is that the bending of the pole absorbs most of the takeoff shock, which allowed several new modifications in technique to be developed. Relatively early

on, fiberglass vaulters started emphasizing the development of maximum speed and drive on the final strides of the run and into the takeoff. This facilitated bending the pole and promoted higher hand grips. In addition, by the late 60's vaulters discovered that using "overweight" poles improved performance. Therefore emphasizing maximum speed and drive into the takeoff became even more critical in order to bend stiffer poles.

(2) Kjell Isaksson, the first vaulter to clear 5.50m (18'½") in 1972, introduced the vertical or high pole carry, which reduced the effective carrying weight of the pole during the run. The vertical or high pole carry is ubiquitous today.



Chris Papanicolaou (Greece): over 17'2¼"/5.25, 1968. PR WR 18'¼"/5.49, 1970. First man over 18 feet.



Kjell Isaksson (SWED): over WR 18'2"/5.54, 1972. PR WR 18'4¼"/5.60, 1972, WR 18½/5.50, 1972.

(3) Rigid vaulters used a side arm planting action. That is they continuously advanced the pole forward as they slide the bottom hand upwards towards the top hand. At the completion of the plant their hands were together and in a position slightly in front of and above of the vaulter's head. The rigid pole plant allowed the vaulter to absorb much of the takeoff shock in his arms. Virtually all early fiberglass vaulters used a modified version of the rigid pole plant. In the mid 1960's Bob Seagren was the first vaulter to develop a modern curl/press planting action, finishing his plant with the top hand as high as possible overhead. This technique increased the angle of the pole, which improved the vaulter's ability to maximize his/her hand grip.

(4) Other variations in the action and position of the lead leg have been developed in addition to Pennel's introduction of his new lead leg action (such as keeping the lead leg in a folded position throughout the takeoff or extending the lead leg outward like a hurdler, just after leaving the ground). Some vaulters have also achieved excellent results using an updated version of the rigid pole takeoff by increasing the forward driving action during the takeoff.

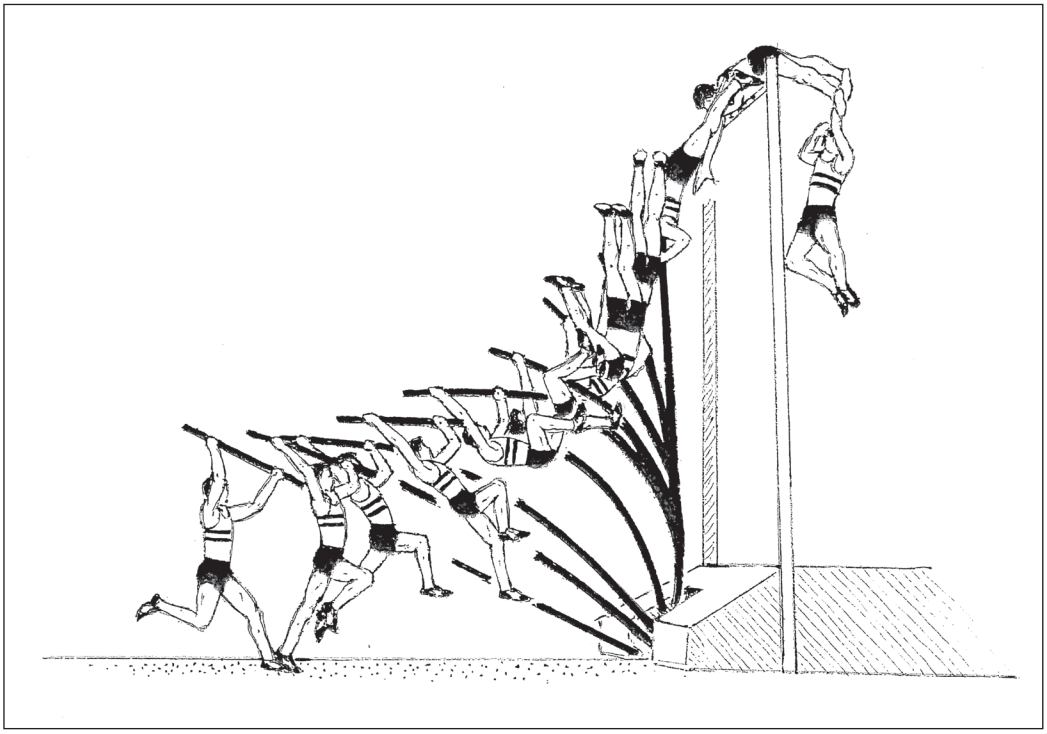
(5) In the early 70's Tom Blair was the first vaulter to achieve world class heights using a "stiff arming" action with the lower arm during the takeoff and swing. This technique enhanced the vaulter's ability to bend stiffer poles as well as helping to control centrifugal force developed during the swing.

Over time this technique was widely adopted by many elite vaulters. Note that extending the lower arm only during the swing dates back to Pennel.

(6) Extending both legs downward during the swing has recently become popular with several of the best vaulters in the world.

This action keeps the vaulter's center of gravity as low as possible during the swing, which helps conserve forward momentum. On the downside it also creates more drag during the swing.

(7) Lastly, new variations in the positioning and action of the rock-back have also been developed fairly recently to allow the vaulter to better take advantage of the recoiling pole ("tuck and shoot action").



Bob Seagren (USA): PR WR 18'5¾"/5.63, 1972, WR 17-5½/5.32, 1966, WR 17-9/5.41, 1968, WR 18-4½/5.60, 1972, WR18-5¾/5.63, 1972. Olympic gold, 1968, Olympic silver, 1972.

In conclusion, given the great number of stylistic variations that have proven to be highly effective (and the definite possibility of the invention of new variations not yet seen), there is nearly an endless number of ways that elements can be combined to make up an an individual vaulting style. Therefore it is logical to assume that fiberglass vaulting technique can continue evolving and improving for many years to come. To quote Leonardo Da Vinci, "Never be limited by whatever has been done before."

CERUTTY'S DICTIONARY OF SUCCESS

Former TC editor Kevin McGill was digging through his "archives" recently and found this piece which originally appeared in Modern Athlete and Coach*, ca. 1969. Austrailan Percy Cerutty, of course, was the unconventional coach of Herb Elliott and others, This is an edited excerpt from that article with "words of wisdom" from Cerutty for the potential "Übermensch". Cerutty's single-minded recipe for success may not be everyone's cup of tea.*

There are NOT many ways to the top in athletics, sport or life. Actually, there is only one way, the capitalization on above-average ability. This involves the knowledge of the latest and proven techniques, a dedication to intelligent practice, and finding a teacher, or teachers.

Success is a many-sided thing as life is but the wise youth, or adult, will attempt at the most two serious aims at any one time. He will only diffuse his energy, powers of concentration and ability to succeed big, when he imagines he can participate more seriously in more than one sport at a time, much less waste precious time in social pursuits.

There is not just one key word to success. There are many and they are spread throughout the dictionary. The wise, would-be successful athlete, is advised to study each word, if necessary look up the meaning, and make each word part of his/her intellectual personality. This is something few ever bother to do. Believe me, a big success is no longer wrapped around three words—run-run-run, nor train-train-train. It is the knowledge of advanced techniques, strength, application and tenacity, and as always, a high level of basic intelligence.

Let us begin with a few key words, starting in alphabetical order:

Abjure all distractions and everything that does not help you attain the goal, goals, or big success you may aim at.

Agility—Being agile does not necessarily mean quick to change or find the smart answer. It means to react quickly. It is an essential to a successful life in both the body and the mind.

Assert—Be prepared to exert yourself physically and personality-wise. Being assertive is not necessarily conceit or arrogance. After all, there is not much virtue in hiding one's light under a bushel.

Avenge defeats by finding a means to defeat your opponents. Never develop the hates or jealousy so common in sport and life. You can win without it. Strength of purpose does not necessarily spell hatred, other than a hatred of self when one is weak.

Avid—Be avid for knowledge—for success with a capital "S." Never be half-hearted. If it is worth attempting do it with all your heart and soul.

Otherwise leave it alone. Any other attitude is the path to mediocrity and nonentity.

Believe in yourself, in your innate abilities, and develop them. In the end you win, or at least win out over your own weaknesses. To believe in yourself is not conceit—it is intelligent. But do it, don't just talk about it.

Braggadocio never got anyone anywhere. Be conservative in speech but liberal and expansive in action.

Commit yourself to your ends and your goals irrevocably. Burn your bridges. You can rest a while, but not for long. When we are committed, quitting becomes impossible.

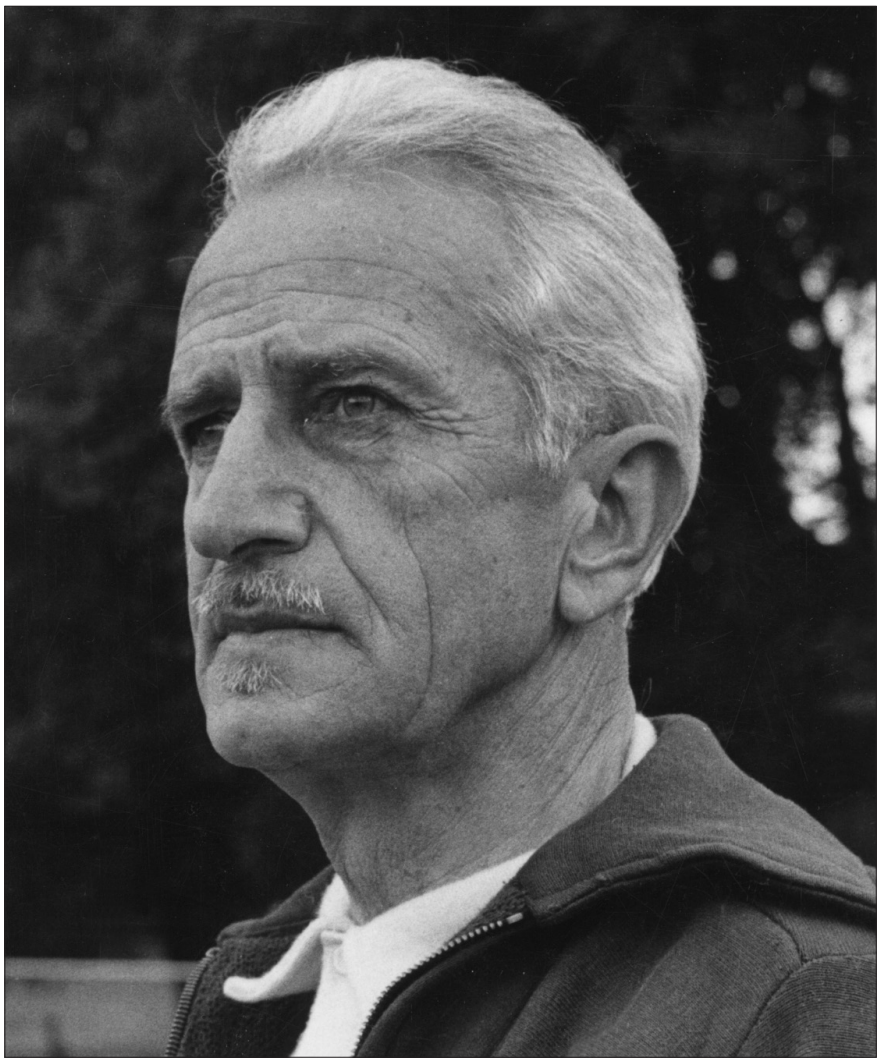
Composure—If possible, retain it on all occasions. Let the other fellow lose his over you. Elliott, amongst his other gifts, was always composed before his races. He never wasted nervous energy worrying or fretting. Neither need you.

Confide in very few. Keep your inner aims to yourself. Talk dissipates nervous energy. Keep aloof before the races.

Courage—We are born with spirit, or courage and can only husband it or add to it. It is best to forget about it. Just give your best always. No one can do more.

Discipline isn't just disciplining others, which is easy, but disciplining ourselves. The last is perhaps the hardest thing anyone attempts.

Disparage—Never disparage opposition, treat opponents lightly, or with condescension. Nature has a "funny" way of working. Just as 'miracles" can occur for us, so they can occur against us. How often is that the underdog wins and the rejected stone becomes the cornerstone of the arch. Be preoccupied in giving your best and don't spend time to disparage your opponents. As a winner you don't need to.



Percy Cerutty

Elated—Never be over-elated. Success is normal for a person who has earned it. Accept your successes modestly, but as your right, because you have earned them. After all, because no one can take them from you, so there is really no need to comment or celebrate.

Emotion—This, above all is the factor that releases your fullest potential and triggers off the superior performance. Never suppress your emotions. Merely control them. Best of all, let your emotions work inside you. This means no "prima donna" outbursts in public.

Energy—The force that makes the Universe possible. So, develop energy, both mental and physical to the highest degree. Don't waste it but retain it inside yourself until you go into action. Never be profligate with your nervous energy and waste it on sycophants, no-hopers, and those who will gather around you.

Envious—Do not be envious of the success of others. Be too busy making others envious of your performances.

Excel—Aim to excel. Never be merely just a participant or just another starter. "Excel" is one of the most valuable key words. Make it part of you.

Expect to be successful some day in something somewhere. Expectation is the first step in realization.

Fraternize—One of the worst things in the world. Never fraternize with failures and no-hopers, nor waste time talking with nonentities. Too much fraternizing can be exhausting and reduce you to the level of the people you fraternize with. Be a loner.

Heterodox—This is the opposite of orthodox. Never be afraid to be different, but not different just to be conspicuous, as the "idiot" class often make themselves. Seek the truth. It is often different from orthodoxy.

Humility—Humility, properly understood, is a wonderful gift. It is vastly different from servility and crawling and the opposite of conceit. Humility arises in us when we can truly appreciate the wonder and vastness of nature and the deed of the truly greats who have lived before us.

Ignore—Learn to ignore the criticisms, jealousies and unfair attacks that are directed to the successful. Ignore, other than the polite acceptance, all eulogies, honors and congratulations. Take it all in your stride including the hates and jealousies that may be expressed by others.

Inertia—This is something most of us suffer from at times. It means we don't get off our tails and start doing. It is another name for alibis, excuses or reasons why we didn't.

Infallible—No one is infallible. So, learn to appraise what you are taught and advised to do. Learn by trial and error, called "experience," to use your judgment. Reflection and analysis is the opposite of unqualified acceptance in sport, as in life. On the other hand, do not rush to tell someone with a lot more experience just how wrong they are. It has happened to me.

DO NOT WORRY OVER AN OCCASIONAL LAPSE OF FORM OR ABILITY

Innate—Everyone has innate abilities. They may be trifling in the beginning, but they will be there. Develop yours to the highest degree. Don't worry about the other fellows. Your job, usually a full time one, is to develop yours.

Jealousy—Perhaps nine-tenths of all human emotion is based on jealousy. Learn to live with it, accept it, but do not respond to it. In a word, live above it. Your job is to make others jealous at *your* successes.

Kindness—It is not necessarily a sign of weakness to be kind and thoughtful to others, especially to the young and children.

Lapses—We all have lapses when aiming at perfection achieved only by a few. Do not worry over an occasional lapse of form or ability.

Leisure—Something the advancing man, the up-and-coming champion, knows little or nothing about because he is too busy achieving his ends. Like happiness, it is only a concept in ordinary people's minds and something "top" men never think about because they are too busy achieving.

Mad—Be prepared to be deemed "quite mad." On the notice board at Portsea [the location of Cerutty's famous training camp] there has been a statement for many years. It reads: "To be great you don't have to be mad, but it definitely helps." Anyone who has ever accomplished the "impossible" has been deemed mad to even try. In the old days they used to burn them at the stake. Today they set world records or win medals at the Olympic Games. So, be "mad" enough to give it "a go." You will be in good company.

Melancholy—All the "great ones, and even the lesser great ones, for that matter, know what it is to become dispirited at times. Ride these moods, they soon pass away. Never make a serious decision when depressed, as no one knows what is best when down in the dumps. All the Saints knew about the "dark night of the soul." So do all great athletes.

Miracles—It is the name given to the inexplicable. Miracles still happen but you still have to earn and deserve yours. Be expectant, work and to your amazement one can happen to you.

Monastic—It I usually associated with the Middle Ages but if you want to be a great you will have to live a monastic life, cutting yourself off from the trivial and frivolous. It is living a life similar to my philosophy of the Stotan, a word coined from Stoic and Spartan.

Training ca.1959 at Cerutty's camp at Portsea, a coastal town 70 miles from Melbourne. Cerutty is in the lead.

Motives—Another word for incentives. Without motives we soon come to a standstill. Don't talk about "retiring," something great minds never do. Find worthwhile motives or incentives and you find the spirit that will take you to the top in something, someday, somewhere.

Nausea—It is the sick feeling all feel under great stress, whether physical or mental. In time, with experience, learning that we can succeed, and as we become stronger, nausea, as nerves play little part in our make-up. You will outgrow it, as we do most things that hamper us in life.

Opponent—The name given to the person who stands in the way of your achievement. Give nothing away to him, not even your best wishes when he has successfully defeated you. Set your will to beat your opponents. If they are worthy of their name they are "hellbent" to defeat you. So, grab your place on the team, the medal or championship you are after. Don't love your opponents, beat them.

Obsession—A super-state of enthusiasm and determination to succeed. It is fine to suffer from an obsession, but be careful what you become obsessed about. Obsessions of the wrong sort can land you in trouble, but an obsession to achieve and excel can land you on the Olympic team.

Participant—Never be satisfied to be a participant or just a competitor. Many boast to me that they ran in some championship or another. I always say, "Wonderful! But where did you finish?" Never be just a participant but one who excels and, if possible, wins.

Persistence—Persistence with intelligent work results in the so-called "miracles."

Perfection—Most people believe perfection cannot be attained and put it out of their minds. It can be attained. We have in the world, perfect poems, perfect arias, and perfect pieces of sculpture. Ever seen the Venus de Milo in the Louvre? Never cease striving for what your goal is in sport or life. Even to be 99 per cent perfect will put you way out in front of those who never try.

Reflection—A valuable acquisition to the personality. A little reflection at this moment will prove the truth of what I say, not only as to this word, but all words in this series. However, the power to reflect is not just "day-dreaming." There is a marked distinction here as, amongst other things, reflection is one of the bases of creativity.

Resoluteness—Another of the factors that makes for greatness and champions. Never confuse it with stupid stubbornness.

Rigidity—The opposite of relaxation. Too many have rigidity of the mind as well as the musculature. It is also the opposite of resilience, the ability to give and take. Rigidity of the mind probably prevents success more than any other single factor. It is not "strength" of mind but often just pure ignorance.

Silence—It is said to be "golden" and so it is on occasion, but it is never in the face of injustice to oneself and especially to others. All the "greats" throughout history have raised their voice against cruelty and injustice when the occasion demanded it, cost them what it may.

Spasmodic—The efforts of the lesser ones are seen to be spasmodic with sudden bursts of enthusiasm. Those destined to be great are never spasmodic in their training, studies of whatever else they do. Consistency is the opposite of spasmodic.

Spirit—Spirit transcends even willpower. It is the factor above all other factors behind the will to win. Spirit makes the achievement of the "impossible" possible. Those with good endowment can never be enslaved nor, in the end, beaten. Spirit is intangible. You either have got it in a high degree or you haven't. Be grateful if you have.

Stimulants—Something the intelligent and well-trained never need.

Success—That's the word we are after. There is nothing greater we can achieve in life. Its opposite is failure, a word erased from my dictionary for many years. All can achieve success in something sometimes, somewhere. Success comes in various dimensions according to our gifts and work/power. Never accept failure but think of it as temporary non-success.

WE ALL HAVE SOME TALENT AND NOBODY HAS THE LOT. DISCOVER YOURS AND WORK ON IT.

Talents—We all have some talent and nobody has the lot. Discover yours and work on it. Concern yourself with your own talents and let others find and develop theirs.

Tidal breathing—The name I gave to full lung aeration, seldom, if ever, observed in any athlete. Most use only one-quarter of their full lung capacity as I have proved scientifically. Tidal breathing is mastered first in slow-motion walking. It can never be mastered in running, but can be adapted to it. It is a vital factor and will prove decisive in the world records to be, even down to sheer sprints.

Tigerish—The quality that makes for determination. The "sooner-die-than-quit" ferocity vented on oneself. Through the tigerish quality we can call on our reserves and exhaust ourselves to the limit. Without it athletes tend to permit themselves to be beaten.

Undaunted—This is what we must be when the forces, or powers, are stacked against us. In the end we can "win out" be being undaunted.

Vacant—The place at the very top. It can be waiting for you to occupy it but you have to achieve it. There are no vacant places for failures and no-hopers, except in the outside, looking in.

Valuable—The only really valuable thing in life is your own self-respect. Gold medals can be stolen, records broken, but no one can steal your own self-respect from you.

Vision—Something we must have if we are to get anywhere worthwhile in life. Vision is the ability to look ahead and appraise our possibilities. Without it we are like a good automobile that doesn't work because the starter is missing.

Vitals—Another name for "guts" and intestinal fortitude which is a vital constituent in any big success. Our "vitals" are our abdominals plus a good heart. Philosophically it is "vital" that we do our uttermost to succeed in what we seriously attempt in life. Everyone should look upon success in something as vital.

Patience—Like perfection, it is slightly out of alphabetical order for a good reason. People do not realize that patience can accomplish more "miracles" than all the rest of the words in the dictionary put together. This is why it has been placed last on the list. It is similar to persistence, only slightly different in nature and quality.

INTERVIEW WITH PETER GRINBERGS

The juxtaposition of this interview with Canadian coach Peter Grinbergs directly after the Cerutty "dictionary" is instructive. Could two coaches be more different in attitude and philosophy? Could Cerutty ever have said "A falling short is tended with mirth, laughter, and acceptance?" Grinbergs supplements several of his answers with quotes from his book.

BY RUSS EBBETS, EDITOR, TRACK COACH

Peter Grinbergs has been coaching for 46 years. This has never been full-time-paid employment yet NCAA medalists Doug Consiglio (Arkansas), Kathy Butler (Wisconsin), Matt Kerr (Arkansas), Nathan Brannen (Michigan) and Ben Flanagan (Michigan) got their start in this Canadian training group. Grinbergs chronicles the journey in a small book *Coach As Poet-Survivior: Running a Tangled Dream.* Many of the interview questions are answered with excerpts from this book. Grinbergs current focus is on simplifying-adjusting the movement of limbs-idea-soul.

1. Peter, what is your current coaching position? What are some of your responsibilities there?

Last year. I stepped away from running the middle distance and cross country program at Wilfrid Laurier University. I am currently in the midst of starting/developing the Tri City Run Club. This is a concept group that revolves around personal discovery-growth as well as athletic improvement. It all starts with the ideas in my book: "Coach As Poet-Survivor: Running A Tangled Dream". The book was written over a thirty year period. The original intent was to orient any new athlete more completely to the background of the group as well as the growth and insights of the coach.

2. What are some of the similarities and/or you see between running and hockey?

In Canada, hockey is an intense, cultural activity. Everyone knows hockey. Consequently, the work is political as well as physical. Running not so much. There was more room to breath, experiment, create. As soon as work started with the track group, the contrasts with hockey fast became obvious. To quote from the book:

"I quickly recognized the large upside of consistent year-round commitment. If you arrived regularly, you created relationship as well as fitness, flow. These ingredients are still at the top of my list. Most coaches espouse the fitness but forget how important it is to forge relationship. And this does not mean stepping inside, controlling the life of your athlete. Many senior athletes also misunderstand. Fit-

ness is the easiest aspect in this process. The challenge is to find that ribbon of give-and-take that spits out the right workout at the right time and finds the words or single image that nudge the dream over the top. It takes time, contact. The difficulty is in the patient wait, the quiet stretches necessary for understanding to develop. Often, it never happens; we move too fast, too harried to heed this wisdom. Sometimes just hanging out is better than running twice a day."

My first group of distance athletes started with three runners: Mary Bauer, Beth Houston and Nick Cipp—one of my hockey players. The group grew quickly after the first winter and before long conflicts with hockey began to arise. Several years down the road, I would have to decide. What made the choice track-favourable was the difference in the kind of energy that surrounded the two sports. As much as hockey was deeply etched in my soul by Foster Hewitt's voice, "Welcome to Hockey night in Canada," I struggled with the diffident attitude of the athletes at the Junior level. As coaches, we had two or three months to sell, instill, deliver. The energy was all push-pull, coercive, too proud. There was very little room, time for a natural rhythm to develop between the work, the team and the schedule. The schedule ruled and it had a hard and insistent edge.

The track environment had its schedule but there was a large luxury that came with the athlete who trained all year round and stayed on from year to year. In this place, a relationship had time to build, slide, stretch beyond the usual surface, the short-term creature. This energy could be gentle,

Peter Grinbergs

subtle, and powerful of its own determination. Once an athlete was not threatened by performance issues, wonderful things could happen. Track was the easy choice because I was the sole purveyor of pace, rhythm, the push.

My core interest was always in things psychological. I was quick and early to buy into the idea that the "big stuff" was the give-and-take between people. The skill and technical side of running could be learned straight up. But as I was to find out, the sorcery was in the blending, merging, allowing the "psyche and soma" to become driven by the same image, word, philosophy. It was not enough to be the gentle-insistent coach and then ravage the athlete with the physical work. My prime responsibility, as coach, was to create an awareness of my own internal conflicts and issues (fear, anger, shame) so that the performance-training of the athlete would not be overshadowed. Somehow the work had to be meaningful, palatable, empowering. The work and the promised riches are only the initial lure for the athlete. It is in the process of doing the work that the athlete can expect to be pulled to this place inclusive-beyond the "running". The work is then free to take on the shape of the athlete's vision. Coaching is not manipulation or control; it is driven by the intricacies of flow."

3. Have you coached any other events in track & field or has it always been running? What age groups do you deal with? How do you cluster your athletes into groups? I'm thinking about adolescent 14-16, late adolescent 17-19, early adult 20-24, adult 24-32+, and the master athlete 40+ (feel free to re-age these groups)

I chose only to coach middle distance runners. There seemed to be more of an area for coaching growth here. I was new and needed time to understand and evolve. The first 20 years of the coaching life was an exploration of building environment-relationship. The next ten years focused on how to train

and converge it all in a seamless and gentle fashion that made sense to the athlete; mileage, intervals, fartlek, intensity, recovery. The last 15 years, the entire focus has been on the improvement of movement. The age groups have never been split.

To quote form the book: "I am not an exercise physiologist, so my explanations are homespun, direct from the front lines. I am not a psychologist, so the ideas are not always cooperatively aligned or restricted by academic boundary. I am a self-professed coaching expert. Consider this my strength as well as my limitation.

Let me begin with a quick description of the backyard: three days a week for 35 plus years. The group has grown from 10 to 60 and then 70. The age range is from 12 to 60—beginners, high school, university and masters athletes. Since the inclusion of the Wilfrid Laurier University cross country teams, some nights workout numbers are closer to 80. The energy is incredible.

Managing the numbers, getting the right workout is always a challenge but it is seldom a daunting task. I have grown into large running group management gradually. My system is geared to deal with the many as well as the lesser few that attend the Sunday morning devotional at the park. I spend most of my time observing and urging on, scanning the groups for any anomaly, anything that doesn't fit. This gets my attention. I may pull athletes out of a session and assign HOH (Hands-On-Head) work, barefoot or tempo-change strides. I talk to the lingering-devastated, discouraged, misunderstood, excited, exuberant athletes all. Seldom are the issues running-only related.

COMPETITION SEEMINGLY CREATES AN INSATIABLE THIRST, AN ACCOMPANYING DISTORTION. THE ARDOR OF ONE AGAINST THE OTHER, WINNING BLUNTS GOOD INTENTION.

It is my wish that an athlete be fearless, be able to experience deeply, become a resilient being. Consequently, I listen for her (the goddess) whisper. I am patient. If it's not working, I am willing to adjust, change in midstream. I use the word "organic" to describe the type of work that assumes a plan but shrinks not from the intuitive nudge of her whisper. It is about leaving behind notions of domination and then linking itself, not only, to the successes but the failures that mark an athlete unafraid to risk and dream. The goddess is an idea in "soul" and it is her whisper that is able to break through tired legs, the malaise of injury, a reluctant spirit. She strips away the notion of greatness to allow great performance to emerge. When it looks as if it's impossible, "stuff" just happens.

4. Do you have any particular observations about the challenges you as a coach have dealing with a particular age group? What do you see as some of the challenges facing the athletes?

Competition and its value is overwhelming in our culture. Although our training group is brimming with winners, emphasis is seldom if ever placed on this aspect of the event. "It means everything and it means nothing." Living and racing this notion is the key. No one really cares about your finish other than you, me and your mom.

Quoting from the book: Approaching the deception In persuasively researched works such as Alfie Kohn's "No Contest: The Case Against Competition" (Kohn, 1992), much surfaces that shows little advantage to the competitive structure. As a matter of fact, so pervasive is the evidence against competition that we would be negligent not to investigate, listen. Kohn points out that competition and excellence are not necessarily synonymous. It does not take an army of studies to help a parent or coach read the expressions, our children's faces, to understand that something is amiss. If the environment is reduced to a pragmatic excellence, a manipulation of numbers, it seeks not to enlarge or deepen, but rather, to fill a void created by expectation that is rooted in the myth of the conquering hero. Competition seemingly creates an insatiable thirst, an accompanying distortion. The ardor of one against the other, winning blunts good intention.

5. The Canadian collegiate system is quite different from the American system. What are some of the Canadian system's advantages? What are some of the disadvantages? Could you speak a little how the Canadian collegiate system works? (My understanding is that it is more club based)

The Canadian University system has a cross country season and an indoor season. There is no outdoor track. The system was once more

club based but no longer. In the last ten plus years, you would see little difference between our two systems. The depth of competition is much greater in the United States. The top level of competition is similar just not as populated. It seems the Canadian athletes have more time to spend on their studies. The larger schools cross the border often to take advantage of the competition.

6. The U.S. collegiate programs are stocked with Canadian athletes. What are some of the positives and negatives of this reality?

There are greater competitive opportunities in the American system. Many of my own athletes have married and stayed to raise their families as well as coach in the United States. This is all good. Given the wrong scenario, a potentially great athlete can be easily lost in the shuffle. That would be my only regret. The damage is hard to undo.

From the book: "Every fall a small exodus of athletes would head south to their new programs. This was very tough. With the first few, it felt like I was losing small pieces of myself. I was supportive but confused. It opened my eyes to the fact that my ties to these athletes needed to be less possessive, territorial, less about me. Why was I to feel this negativity when we had done a good job? Big schools were offering scholarships, free education. Every fall our training group would shift, reshape. It became an interesting fresh time of the year, watching as new energy shapes took form and athletes accepted new roles and challenges."

7. Canada has a long and rich history of track & field dating from the earliest Olympic Champions (George Orton and Bobbie Kerr) through Bruce Kidd, Harry Jerome, Debbie Brill and Diane Jones. I know that hockey is part of Canada's DNA but how much of the national sports psyche is track & field?

Canada has a wonderful tradition in running, track & field. Unfortunately, so much has been buried beneath our cultural behemoth, hockey. This has changed with the success of individuals like Damian Warner, Donovan Bailey and many others. The sport keeps growing through the public school system as well as an ever stronger university program. One of Canada's hidden secrets is its coaches. We have so many fine coaches. Many of our graduating senior athletes are staying in the game and may be the group that defines Canada's future growth in the sport.

8. How has your coaching theory evolved since you started? Who were some of your early influences in coaching? What about them spoke to you? I am sure there were coaches who helped with the scientific side of coaching, but what about the people side? Are there any distance coaches whose methods you feel are particularly effective?

Arthur Taylor was first impactful and is still always on the fringes of my thinking. He was a new Canadian arrived from England. I was a hockey player looking for fitness. Arthur was an amazing individual. He participated in many of the workouts with the group. He was a run leader in the community. He was for a stretch the world masters record holder in the marathon. His energy and love for the sport was infectious. This was my beginning with running. Then there were the obvious—the running writers that everyone was reading. This mixed with my personal interest in psychology and philosophy.

To quote from the book: "The effective fairy tale tugs at unconscious, fearful elements and allows a spinning out. By listening to the tale, the child accepts an invitation to explore unfamiliar, perhaps even frightening territory. Direct association with unrealistic characters and situations allow the child to play out innermost fears. Unconscious processes are brought to the surface without overwhelming a young, fragile ego. This happens not through rational process, analysis but rather by becoming familiar, listening to the same tale many times, spinning out daydreams, ruminating, rearranging and fantasizing. Fairy tales enrich the child's imagination, encourage new images to sprout and develop—new possibility. As the child is held in the firm grip of the tale, so the athlete submits to the tales and guidance of sport. Sport molds and shapes while we watch. Like the fairy tale, sport is ripe to play a vital role. Through physical encounter, the child teases fantasy into enactment. Dreams of attaining, winning, being champion are put into motion in the reality of the game. Just as some fairy tale is demanded to be heard many, many times, the athlete in similar fashion brushes up against the same issues again and again and again. The frustration of the beginner is gradually overcome. The emotion in winning, in losing is at some time led to a place of reflection, insight. If this opportunity is patiently re-

spected, the game, sport attains a place of meaningful encounter. There forms an understanding, a deepening."

TRADITIONAL "PEAKING" IS AVOIDED ENTIRELY UNLESS I KNOW EXACTLY WHY THE WORKOUT IS NECESSARY AND I AM CONVINCED THE ATHLETE CAN HANDLE THE SESSION AND RECOVER FOR THE NEXT WORKOUT.

9. What are some of your keys towards practice organization? Could you give a rough outline of your daily training plan? Canadian Athletics has a very well organized Coaching Education program. Have you done much work with this group? Where do you think the program is particularly strong?

My involvement with Canada's coaching education program was basic and minimal but important. It provided a grounding; It gave exposure to many fascinating coach instructors. It offered break time conversations that were stimulating. The training program grew from an intensive listening to the wise men and women of the game. The future layering came from front line service. It took new shape as the one year piled on top of the last.

"Our physical surroundings are generous with an abundance of green space in various parks and a 232m indoor behind-the-arena-seats running surface that has been available to us for the last 15 years. The group does interval work all year round; Tuesday, Thursday evenings and Sunday mornings. e.g. (10 x 2 min.) 60sec R. The park we frequent most has several soccer fields that can often be accessed for HOH (Hands-On-Head) style work, barefoot running and interval segments.

All workouts start with a group 30 minute warm-up run. Our group stays off the track in spring until the wind and the rain give way to better conditions. Racing on the track includes a very large aesthetic component. Constantly battling wind and rain seems counter-productive. Running on the track should feel special, energizing, empowering. Often our high school group enters the OFSAA Championship with less than a handful of track workouts. The track, the racing is special, fun and it feels wonderful to be on that smooth rubber surface—feels like you are flying. What about pace work? The watch can be a straight-jacket. If it is always in use, many negatives can take root unless you are an artist with the timepiece. The athlete simply needs to know if he is running too slow or too fast. Seldom do they need to hammer out repeats at a prescribed tempo. Some workouts are just slower. Some need to be gentle to allow for recovery and renewal. I prefer that athletes race, not too fixated on pace or finish time... more fun, empowering, energizing, fresh. Yes, they do run fast.

Let me outline the basic training structure. The first group of athletes is working to get to a basic level of fitness. They can partake in almost everything the rest of the group does but just in smaller chunks. When running style droops, fades, disintegrates, I remove the runner from the workout. The second is our largest group and is "training to train." This group has achieved fitness and has to now become more efficient, strong. The majority of intervals for this group is consistent in design—keep the distance the same, the recovery the same throughout. The final group has climbed to the topmost rung and may require more individualized at-

NB—rounded shoulders—cut off apices of lungs

tention with upcoming race-specific issues. The volume may be greater, and by the nature of the group, the tempo often quicker.

The exact same workout may be assigned to all (male and female). After a mass start, the groups naturally form themselves. The interval sessions almost always have a minimum and maximum number of repetitions designated. This takes care of many of the differences in range and ability. It also legitimizes an athlete's need to do less in any given session. Whatever the reason, this is no place for guilt or shame. It is all grist for the mill. The definition of these three levels is arbitrary and is based on the current needs of the group. Traditional "peaking" is avoided entirely unless I know exactly why the workout is necessary and I am convinced the athlete can handle the session and recover for the next workout. Otherwise, we are consistently building strength with work (Training To Train), doing HOH (Hands-On-Head) and barefoot running drills. How to arrange training groups is sometimes a challenge-difficult task."

10. Why are you such a big "foot guy" with your barefoot running? Where did those thoughts come from? Are there specific drills or exercises you use or do the runners simply run for a certain time or distance barefoot? What are some of the benefits you see from barefoot running? How do you measure or quantify how much is done? When is this running done in a practice session? One of the great problems many distance runners succumb to is poor posture, especially young women (see picture below). This not only alters one's running mechanics but the rounded shoulders restrict the apices of the lungs. What gave you the idea to start the running with the "hands on the head," your HOH? How much is done daily? Is it used for all recovery jogs and walks? You've mentioned an additional benefit of the HOH technique is that it "frees up" the hips. Could you explain that thought?

Perhaps the greatest impact was from watching the Kenyans and Ethiopians lead world cross country races. Their movement and rhythm was fascinating, hypnotic. How could this help us in Canada? Once an understanding was developed around the notion that everything in the body is connected, the ride down the water slide became furious and intense. It all started with putting a hockey stick on your shoulders. What developed was Running HOH.

"Run with your Hands On your Head, hence, Running HOH. Once you move beyond the HOH image, you are confronted with a difficult truth. Running style is most difficult to change and adjust. Change is even more difficult to maintain. How can placing your hands on your head change this complex, difficult-to-change activity? Running HOH isolates the lower body and also acts as a diagnostic tool. In this sense, offered are the keys to the kingdom. Running HOH opens the door to more efficient, economic running. It provides a structure and an order for effective change.

All Running HOH components arrive directly from the front lines of trial and error—direct application. The run is forced without upper body support. Weakness is quickly apparent. "Keep the upper body still." The running HOH structure reveals the initial layer of required attention. Running HOH has simplified a complex activity like running in a way that gives beginner and expert quick access. It delivers one idea, one image for every new coach that can effectively introduce Running HOH; minimal instruction and consistent repetition. "Put your hands on your head (HOH), run the length of the gym. Keep your upper body still. Put your hands down. Run again and let your body feel the same." If this is all the grade four teacher does all year, there would be marked improvement.

Running HOH can quickly become a sound diagnostic tool and a directional beacon for beginners and Olympians. Run better faster. Run more efficiently, economically. Reduce injury during training and racing. Let us describe this process as "econoficiency". Imagine if this type of focus could make a hypothetical two per cent difference in training, recovery, less injury. What might be the aggregate time improvement? Imagine the reduction of training stress, less injury, less fatigue. Imagine. Unfortunately, we are all in such a rush to performance. Shift the training model to include ideas of "econoficiency" and the American running community will have far fewer casualties among their talented collegiate community and would soon challenge the world's best distance runners en masse.

Run Better Faster Safer. The initial models used in the evolution of this thinking came from observing the male Kenyan distance runner. They were starting to dominate the world from distances 800m to the marathon. The Kenyan carriage

and gait was so very similar. They ran upright and relaxed. Their legs would spin quickly and for what seemed like forever. The arms moved in pendulum-like fashion at the shoulder socket; elbows held at 90 degrees. The women were few and even today their running style is not as obvious or consistent across the spectrum as are their male counterparts. This image of Kenyan men running has haunted the mind of this coach for the past 35 years. Many drills, commands were attempted in service of improving running style, if only to look just like the Kenyans. Quick was the discovery that changing or altering movement is the most difficult, demanding, and elusive of tasks. So began the task of finding an approach to allow runners to be more efficient, to run like the Kenyans.

Obviously, there are many other aspects of Kenyan life and training that could not be reproduced because of geography, life beliefs and culture. My interest was in the physical. Could we run similar to these Kenyans and benefit from our own version of their success? Running HOH represents this system. It has merit and value because through its many incarnations, there have evolved half a dozen Olympians, successful age groupers, teachers, parents, kids. The setting to words of Running HOH has allowed a crystallization of the many ideas in this structure—the system.

Having a system is perhaps most important. I have coached with segments of many systems beginning with my own original athletic experiences. I had amassed an assortment of concepts that had been retooled to fit my particular circumstances. The evolution of Running HOH has allowed me to look at runners differently. What in their movement structure is interfering with economical movement? What tool can be accessed to quickly begin the change to econoficiency? Remember, this system has been developed by a citizen-coach, not a physiologist. It has been prepared from 35-plus years of coaching observation, trial and error, persistence, as well as, the odd epiphany, dream-like insight. Everything that has not worked was altered, broken down, further attempted and only discarded if there was no further promise. What remains are the ideas, concepts, the drills that worked well. This might be more accurately viewed as a ""living document" because after every workout week there remains some new fragment with potential.

BEWARE, this is not a scientific document. Distance running is coached from a physiological vantage point. Things psychological and nutritional are also gaining momentum. We count the miles, extol the virtues of long tempo runs to prepare the cardiovascular system. Running twice a day, sometimes even three, strength conditioning in the gym. Speed work creeps in at the end of a workout and the season. It is good. It works. During the World Cross Country Championships several years ago, the lead group of senior men had sorted itself out and six or seven were left—primarily Kenyans and Ethiopians. With three kilometers remaining, this group was churning up the course with their quick tempo style of running and all looking eerily similar. The television people soon needed additional focus so one camera swung around to take in the action of the runners following. The first images were of the runners no longer in the lead pack—fading, struggling, done. They had lost spirit and had no more to give on this day. They struggled to lessen the loss of more ground, pride. Soon upon them came the rest of the field and here was my epiphany. They came in ones, small groups to give chase, to catch those dropping badly. They were pressing, yes, but it seemed they had lost the "grace of movement." Without exception, these runners were muscling their way to finish their race. It was ugly. The contrast was ever more apparent when the picture switched back to the lead group. The camera turned from pump-push-ponderous to smooth, quick and determined. At present, 20-plus ideas comprise the Running HOH structure. They are in a constant state of flux.

PSYCHOLOGY FOR ATHLETES BEGINS WHEN THEY TIE THE LACES ON THEIR TRAINING SHOES. FOR THE COACH IT BEGINS WITH HELLO.

11. What type of psychological prep do you recommend? Is there an author or school of thought you subscribe to? Or are there core beliefs or attitudes you try to instill? One of the tenets of your program is "it means everything and it means nothing." That is almost a zen-like quality to thought management. How well has that been received?

Psychology for athletes begins when they tie the laces on their

training shoes. For the coach it begins with hello. Everything you say is impactful and none of us can escape the errors. There are many errors but the value is in the response. That is where we grow. Rich Alapack was a professor at St. Jerome's college in Waterloo. I took every class he taught. He introduced us to many critical thinkers. Hard to remember where I tripped over James Hillman but I read almost everything he wrote. Read one of his books seven times. The spine was broken and pages were spilling out. It had to be stored in a plastic bag. And this was just a taste of many impactful thinkers.

"I knew there were no quick or easy solutions to becoming a winner. The more successful my athletes were becoming, the more it became apparent that if the focus was directly on winning, the fizzle would be louder than the hurrah. This was difficult to articulate. The notion of the "goddess" was useful in presenting sport in a somewhat different light. The emerging ideas around "paradox" were further key elements in clearing up my thinking. "It means everything and it means nothing." If the event was too "big", the response would be conservative, halting, without risk. If too little, there would be no joy or tension. Merging the two opposites successfully is a lifetime process; it gives access to the elusive river of performance; it becomes more accessible, close. The coaching challenge is to assess when and how to intervene; how to listen, interpret her whisper."

Permission to succeed. How do you manage a developing athlete who is making a breakthrough that is suddenly stalled by the doubt and insecurities created by greater expectations? Do you have a separate management strategy for unrealistic expectations from within (the athlete) and from the outside (press, parents and general public)?

Every athlete is different. I believe the trick is to immerse yourself in the individual. Listen. Listen more. Build an understanding. Create trust. This takes time. The one-to-one is critical. Being open and honest is magical. The approach to competition develops in the bubbling of this cauldron. "The only people who really care about your results are your mom, you and me. That's it."

12. Racing tactics are very much about knowing when to strike and are often delivered as surges or sprint efforts. Can you elaborate how you teach race tactics and pacing using your 7-5-3 step count system? When in a race do you recommend using the different step counts? What about weight or resistance training? Could you list some of the specific exercises you use? How often do your runners lift? At what age do they start?

Our athletes do not have a designed weight lifting program. If this is something they have been accustomed to they can continue with our guidance. The key to good racing seems to be in "staying in the present". Counting is one way of achieving this. "Every time your left foot hits the ground, count. The seven count will help maintain tempo. The five count will increase tempo (as in a race surge). The three count will start a last 100m stretch. This tactic is worked on in training. Otherwise, the heat of the race may stop it cold. This is just a tool to get the runner out of trouble. Two or three vocalizations and you are back.

13. Any advice for a new or younger coach? This could be books to read, things to focus on, things to ignore, philosophies to consider or management/ organizational skills to sharpen. What do you see as the biggest challenge in coaching?

Talk to as many of the wise coaches in your given discipline. Listen. Read whatever you are drawn to. Then coach and repeat. Coach and repeat. Sharpen your pencil often. Developing a language about what you do is our biggest challenge. The language has to be inclusive of science but larger, more direct, incisive-interesting.

"Every coach of my acquaintance has the soul of a poet: passionate, inquiring, dedicated. This is the world in which much of my discovery-growth was made possible. This is the world that tolerated and encouraged. It has allowed this soul many opportunities to spin out and chase, create, again and again. And I have also survived. The writing style is my attempt to shake and loosen, invite the reader to reframe current sport thinking, especially any sacred-cow deep structures

Poet-survivors (coaches) care deeply and, in their element, operate without FEAR. They coach and they counsel and they build supportive environments. They are the imperfect fit with the large heart. The perfect fit for your child's team. The poet-survivor may be your neighbor, your child's coach. Treat that individual with the highest regard.

USATF COACHING EDUCATION

USATF CALENDAR OF SCHOOLS

The national office and USATF Coaching Education Committee continue to expand the availability of its professional pathway courses by delivering on Zoom. Enrollment caps will apply to maintain an engaging learning environment. Early registration, along with bookmarking the Calendar of Schools link to stay current on all new course dates is advised.

https://www.usatf.org/programs/coaches/calendar-of-schools

July 10-13	Level 1 School - Zoom #3 (East)
July 17-20	Level 1 School - Zoom #4 (West)
July 24-27	Level 1 School - Zoom #5 (Central)
July 28-Aug 2	Level 2 School - Zoom
Ongoing	Level 2 Sports Science Classroom (Available on USATF Campus)

USATF LEVEL 1 COACHING EDUCATION PROGRAM APPROVED FOR RE-ACCREDITATION

The USATF Level 1 Coaching Education Program was recently approved for re-accreditation by the National Committee for Accreditation of Coaching Education (NCACE) review panel and USCCE Board of Directors. Upon completion of the folio review process, the Review Panel determined that the USATF Level 1 Coaching Education Program has successfully documented comprehensive program content in alignment with the National Standards for Sport Coaches (NASPE, 2006) and the NCACE Guidelines for program supervision, personnel and operations.

USATF is pleased that this re-accreditation continues the “gold standard” for coaching education as both its Level 1 and Level 2 Programs are accredited by NCACE.

About USCCE/NCACE

The National Committee for Accreditation of coaching Education (NCACE) is a committee maintained by the United States Center for Coaching Excellence (USCCE), a not-for-profit organization involved in supporting the professions of coaching, coaching education and coach development. Under its auspices, the purpose of NCACE is to grant accreditation to educational programs that meet or exceed the requirements outlined in the NCACE Guidelines for Accreditation of Coaching Education. Key to NCACE’s efforts are the National Standards for Sport Coaches. Originally published in 1995 and recently updated in 2019 by the SHAPE America, the standards provide the basis in which NCACE evaluates the content of coaching education programs.

FUNDS STILL AVAILABLE FOR 2020 USATF EMERGING FEMALE GRANTS

Over $10,000 in grants funds are available to minority, women track and field coaches to complete a USATF Coaching Education Level 1 or 2 course. With courses available online, USATF is proud to impact more minority, female coaches than ever before. Grants are valued at the respective course tuition fee.

Applications for Emerging Female Grants will be accepted until funds are expended. Due to high interest and program deadlines, early application is advised.

Criteria

- Be a current member of the USATF Coaches Registry.
- Provide a resume of coaching background/experience.
- Provide a letter of recommendation or three references.
- All applications should be received at least 30 days prior to the start date of the requested school. No grant funds will be awarded retroactively.

Apply at: https://www.usatf.org/programs/coaches/grants/emerging-female-coaching-grant

CLARIFYING USATF CAMPUS AND USATF CONNECT PLATFORMS

In May, both a new membership experience (USATF Connect) and learning management system (USATF Campus) launched. USATF Connect provides members a 360-degree view of their USATF membership status, while USATF Campus is home to our online coaching education courses, including administration of the Level 1 exam. To assist in better using each system for their intended purpose, we have assembled the frequently asked questions below:

Q1: How do I retrieve a copy of my Level 1 certificate or resume a USATF Campus course?

A. The login for USATF Campus differs from your USATF Connect membership. It uses a combination of your username (email address) and a password. All passwords were reset upon launching the new USATF Campus in May. You will need to request a new password reset on the login page if you did not complete previously. Click Forgot Password and enter your email address under the Email Address field and click Reset Password.

http://usatfcampus.myabsorb.com/

Once logged in, you can download a certificate copy under Transcript. Active courses can be resumed by clicking Resume on the Dashboard.

Note, only Level 1 certificates from 2015-Present are available on USATF Campus.

Q2: How do I add a USATF certification or career accomplishment to my membership profile?

A. USATF Campus and USATF Connect are not currently integrated and course completion for credit on the USATF Coaches Registry must be manually submitted. To submit a qualified education standard, you must first be SafeSport Compliant. Next, login to your USATF Connect account—select Coaching Certifications—Add appropriate course or accomplishment and documentation. The course or career accomplishment will then be reviewed by the national office for verification and you will receive approval or denial notification via email. You may add multiple Education Standards to your membership profile that will be displayed on the

new Coaches Registry List (under development).

Note, failure to provide appropriate documentation may result in denial of your education standard submission. Only Education Standards submitted through the former application site were imported to USATF Connect.

Q3: How do I recertify my USATF Level 1 certificate?

A. The recertification application and process are under development with the recent system changes requiring a conditioning period. While best efforts will be made to streamline the process, simply adding an Education Standard to your USATF Connect profile or completing a qualified course will not automatically renew your certificate for the next term. Additional information on the finalized process will be provided to all USATF members later this summer.

The current list of approved recertification courses includes (select one):

1. Complete a minimum of one course on USATF Campus
2. Complete an approved USATF specialty course
    a. USATF Learn By Doing Clinic (2017)
    b. USATF Cross Country Specialist Course
    c. USATF Emerging Elite Coaches Camp
3. Complete a new USATF Level 1 School and pass the online exam

For more information on Level 1 recertification guidelines, please review the resource page on USATF.org at the link below.

https://www.usatf.org/programs/coaches/recertification

Save $10 Off Your USATF Campus Order Through July 31

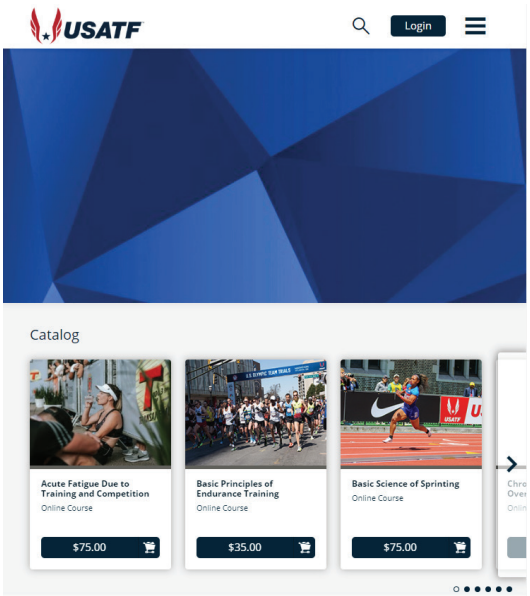
USATF Campus is the online learning platform available to all coaches, athletes, and educators with an interest in better understanding human performance. With over ten sports science courses available, coaches from all track and field and endurance disciplines can tailor their learning and continuing education to their interests.

For a limited time, USATF members can save $10 off their USATF Campus order with promo code: TrackCoach10 (enter coupon code in the shopping cart and click apply). Members with an expiring Level 1 certificate in 2020 and students are especially encouraged to take advantage of this limited time offer.

Featured Courses

- Basic Science of Sprinting
- Physiological Development Through the Athlete's Lifespan
- Reactive Strength, Pt 1 and 2
- Sport Specific Strength and Power
- Training Science

View all courses at: https://usatfcampus.myabsorb.com/#/catalog



Exclusions: Course bundles, Basic Principles of Endurance Training and the Level 2 Sports Science Classroom are excluded from the promotion. Promo code must be redeemed by July 31, 2020.

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