NSA, 2: 95-100, 1986
© by I.A.A.F.

TRAINING FOR TAKE-OFF WITH GIRL ATHLETES IN THE JUNIOR CATEGORIES FOR JUMPING AND COMBINED EVENTS

Klaus Gehrke

This article was first given in 1983 at the "IAAF Seminar on Women's Athletics", held from 9-11 December in Mainz, Federal Republic of Germany. An official Report of this inaugural Women's Congress is currently in production by the IAAF, and will appear in its Development Aid Series of books.

"The Author sustains that the successful results achieved in women's long jump and multi-discipline events in the Olympic Games and Junior European Championships are due to an all-round general preparation in strength and take-off power in the training at juvenile level. He here presents guidelines and suggestions for the organization of the training of young athletes."

As the starting point for my specific statements on the subject of training young people, I would like to refer to the state of current achievements in the sphere of Long Jump and the Multi-discipline events for women between 1960 and 1983 in the Athletics Association of the GDR.

A summary of the results achieved in long jump and multi-discipline events by women in the Olympic Games and Junior European Championships from 1960 to 1983 is given in Table 1.

These successes are based upon an all-round general preparation in strength and take-off power in training at junior level, with a simultaneous preparation of characteristics of speed and stability of technique. For this reason, the Long Jump is developed in combination with Multi-discipline training.

In my further observations, I would like to describe some experiences I have had in using proportional

Table 1 - Performance by GDR women athletes in jumping and multi-discipline events 1960/83

YEAR	EVENT	LONG JUMP WOMEN	MULTI-DISCIPLINE EVENT
1960	Olympic Games	3rd place	
1964	Olympic Games	7th place	
1968	Olympic Games	4th place	7th place
1968	JEC	3rd place	1st, 3rd place
1970	JEC		1st, 3rd place
1972	Olympic Games	8th place	3rd, 4th place
1973	JEC	1st place	1st, 4th place
1975	JEC	2nd place	1st, 10th place
1976	Olympics Games	1st, 4th place	1st, 2nd, 3rd place
1977	JEC	3rd, 4th place	1st, 6th place
1979	JEC	3rd place	3rd place
1980	Olympic Games	2nd, 5th place	4th, 6th place
1981	JEC	1st place	1st, 2nd place
1983	JEC	2nd, 3rd place	1st place

amounts of certain of the principal means of training in the sphere of training women athletes for Long Jump and Multi-discipline events in the age range 13-18 years, with the intention of extending the experience gained in our Association, to the training of juveniles and juniors.

The tables I use are intended as guidelines and suggestions for the organization of training in this age range.

Since the requirements and conditions of the individual Athletic Associations are very different, a creative approach is required if specific experience is to be given general application.

Question time with head coach Klaus Gehrke (GDR)

Table 3 represents our ideas on the structure of training over several years by means of an example of how the principal means of training given in Table 2 might be distributed.

My standpoint on some of the questions concerning loading over several years in junior training for girl High Jump athletes and Multi-discipline athletes is illustrated in Tables 4-6.

Table 4 shows the increase in loading in the age-groups 14-16 for a number of selected principal means of training which are intended for the purpose of developing the fundamental characteristics of strength.

Table 2 - Distribution of a number of the principal means of training over several years

AGE	TECHNIQUE		SPEED	ELASTICITY
13/14 yrs	Long Jump	Rhythm training, use of spring elements – jump with short run-up	Basic forms of running technique coordination exercises	In principle without additional loading. Learning of horizontal and vertical forms of jumps
	Triple Jump	Training in horizontal form of jumps, active plant	Accelerating tempo runs and alternating runs	
15/16 yrs	Long Jump	Training in rhythm with short and Medium run-up Co-ordination exercises	Development of running speed Co-ordination exercises, transition to tempo. Runs over 30-70 m	In principle without additional loading, increase loading by intensity and specific character of means of training in all horizontal and vertical types of training
	Triple Jump	Horizontal jumps Bounding and alternate jumps as direct preparation of Triple Jump with short run-up	Run-up training begins	Begin classic barbell exercises
16/17 yrs	Long Jump	Emphasis on (individual) technique Work up to long run-up	Exercises for co-ordination, increase intensity, tempo runs up to 150 m, increased training in run-up	Increase training of specific points, particularly in the horizontal forms of jump, transition to single leg jumps, increase intensity by extending run-up

18 yrs	Performance requirements	Speed		
	Long Jump			
	Short run-up - 5.10-5.60 m	30 m flg	3.4-3.6 sec	Jump of 3 7.80-8.20
	Medium run-up - 5.70-6.20 m		3.2-3.4 sec	(triple jump) 6.40-8.60
	Long run-up - 6.20-6.60 m	70 m mst	8.5-8.7 sec	Jump of 5
			8.2-8.4 sec	Jump of 10
		100 m wk	12.2-12.4	
			11.8-12.0	

Table 3 - Annual distribution of various means of training for age group 14/16 (in hours)

MEANS OF TRAINING	MEASURED IN	14	15	16
Gymnastics	Hours	67	69	71
General strength	Hours	40	42	44
Games	Hours	80	80	80
Swimming	Hours	30	40	50
Apparatus work and sport	Hours	50	60	70
General throwing	Hours	30	20	22
Endurance running	Hours	23	25	27
Perfection of technique	Hours	110	125	135
Speed	Km	25	31	38
Speed endurance	Km	85	95	105
All-round jumping practice	Nb.	8000	9700	11700
Additional multi-disc. exercise: jumps	Nb.		9300	11100
Additional multi-disc. exercise: throws	Nb.		2000	3000

Table 4 - Examples of the use of training methods to develop take-off power in the age groups 14-17 years

AREA OF TRAINING	TRAINING METHOD	14 yrs	15 yrs	16 yrs	17 yrs and over
Vertical take-off power and elasticity up to 10 jumps	Distance jumps and squat jumps	X	X	X	X with loading
	Ankle joint jumps	X	X	X	X with loading
	Alternate and upward jumps	—	X	X	X with loading
	Deep jumps	—	—	X	X with loading
	Hurdle jumps	X	X 2 legs	X inc. hgt	X one leg
	Classic barbell exercise and knee bends	—	—	X	X
Vertical take-off power endurance more than 10 jumps	Squat jumps	X	X	X	X with loading
	Deeps squat jumps	—	X	X	X with loading
	Final jumps	X	X	—	—
	Box jumps	—	X	X	X
	Multistage jumps	—	—	X	X
Horizontal take-off power up to 10 jumps	Running hops	X	X	X	—
	Running jumps	—	X	X	X with run
	Alternate jumps	—	X	X	X
	Stair jumps	—	—	X	X
	One leg jumps	—	—	X	X with run
Horizontal take-off power more than 10 jumps	Running hops	X	X	X	—
	Running jumps	—	X	X	X
	Alternate jumps	—	X	X	X
	One leg jumps	—	—	X	X

(—) Not used
(X) Used

Table 4 shows in concrete form the methods of training for take-off power that are to be used in the age groups 14-17 years, and at the same time characterizes the exercises that are to be used within the particular age groups.

(–) means they are not used (x) means they are used

At the same time, a number of forms of increased loading in the methods of training are shown.

Table 5 represents our views on the distribution of general all-round training (40%) in relation to many-sided training directed to a specific end (60%). At the same time, this table shows the distribution of some of the main training methods for the young athletes. (Times are given in minutes).

Table 6 shows selected principal methods of training at various ages within the two principal periods of the year's training (preparation period/ competition period). It is clear that the main emphases of training are basically:

— development of jumping capacity and

— development of specialized technique.

The table also shows the selection of methods of training, the purposeful direction of training and the increase of loading.

Some attitudes to strength training:

1. No highly specialized training for young athletes, but all-round co-ordinative development. Development

Table 5 - Examples of distribution of time over some means of training in the course of a year for 13/14 year old athletes (in minutes)

Month	Training units	Games	Gymnastics	Circuit training	General coordination exercises	Sprint and running technique	General runs	Start and relay racing	Hurdle training	Running endurance	General jumping strength	Long jump	High jump	General throws	Competitions (total)
September	18	190	—	—	120	130	25	170	120	65	40	—	40	210	4
October	22	300	—	30	155	130	40	155	100	100	40	—	20	420	2
November	22	100	145	65	140	210	20	20	65	165	100	40	—	260	—
December	18	205	170	65	85	180	20	—	45	155	100	50	—	215	—
January	22	200	180	70	125	175	20	—	120	140	140	20	—	170	—
February	15	285	140	65	60	190	20	—	70	125	60	20	60	120	2
Training camps	8	140	120	60	60	165	—	—	60	110	80	—	—	180	—
March	22	230	150	70	60	270	40	40	105	110	80	20	50	250	—
April	22	200	85	—	20	305	20	170	70	115	120	—	90	340	—
May	20	180	—	—	20	315	—	185	75	80	40	20	50	350	3
June	17	155	—	—	20	260	—	150	125	70	45	40	60	330	4-6
July	10	130	—	—	—	135	—	190	30	50	40	60	40	150	4-6
August	4	60	—	—	—	80	—	30	30	25	—	20	—	50	2
Aprox. 40% general multilateral development								Aprox. 60% specific multilateral development							

Table 6 - Selected exercises for take-off power in the various age groups 14-17 years

AGE	PREPARATION PERIOD	COMPETITION PERIOD
13/14 yrs	Vertical (technique and endurance) ball jumps - distance jumps - final jumps	(Technique and elasticity) rope jumps - ankle joint jumps - stretch jumps
	Horizontal (technique and endurance) hop with reaching movement and co-ordination	(Technique and elasticity) hop runs with reaching movements (fixed distance + time) A start is made in jump-runs
14/15 yrs	Vertical distance jumps - squat jumps - hurdling	Stretch jumps and squat jumps, increasing intensity staircase jumps
	Horizontal (technique and endurance) hop runs - bounding	(Technique and elasticity) jump run - begin alternate jumps
16/17 yrs	Vertical deep squat jumps - box jumps - classic barbell exercises - jump in tiers, squat jumps - barbell exercise	
	Horizontal (endurance) bounding over 50 m (number and time; alternating 30-50 m jumps) High/long jumps with short run-up	Bounding runs - jumps in tens; jumps in fives jump runs - jumps in tens; jumps in fives start with "one-leg jumps"
over 17 yrs	Bounding runs up to 100 m (number/time/alternating 50 m jumps)	One leg jumps from a standing position; High/long jumps with short and medium run-ups

of the necessary elements of strength by means of general methods of training.

2. Therefore we reject the downward form of jump and jumps with extra weight in training young people.

3. In the process of strength training, every effort is made to maintain minimum intervals of 48 hours between session, and in jumps with high specialized loading, the compensation period should be even longer.

4. We consider the most important prerequisite for the optimal exploitation of strength potential to be the co-ordinative capacities, and the development of a stable, individual form of technique with a high degree of precision. This provides all the necessary pre-conditions for full development of potential and a new, higher level of performance in competition.

5. As is generally known, one of the differences between the sexes is that in women, the capacities of maximum strength and elastic strength can be developed to a lesser extent than in men.

Even by training, this difference cannot be eliminated. Nevertheless, we are convinced that particularly in girls, there can be a good deal more training for increased strength without any risk to the figure.