Multilateral Training: Re-examining the Concept’s Practicality

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Abstract

Multilateral Training (MT) concept is going through its second resurfacing in the world of sports and even some of the top achievements, including some recent swimming world records are partially attributed to it. Researchers in many countries including Malaysia are intensively re-looking into the concept and into practical applications of multilateral training. It is not only being reconsidered in relation to early years of training, but also in an attempt to identify and recognise its role at the advanced stages of athletes’ training towards the top performance. Originating from the merger of two completely unrelated concepts, multilateral training grew through the years of fast progress in sports in the Eastern Europe and ditched almost into the oblivion when specialisation in sports has been recognised as critical for elite sports. Though admitting its role in sport training, most specialists consider MT as feature related only to the opening stages of the long term training. Few agree that certain degree of multilaterality should be still present during specialized training and almost none believes that there is a scope for multilateral training at the advanced stages of long term preparation in sports.

Keywords: Multilateral Training, practicality.

Introduction

Multilateral development approach originally emerged resulting from the fusion of two simple and basically unrelated elements, being:

1. Concept of the necessity of overall development; and limited or late specialization;
2. Seasonal availability of training and competition facilities in climatically cold, or with distinct cold winter season, countries.

The need in MT and overall development has been frequently emphasized by Eastern Block authors who stated that athletes needed multilateral physical development as training base and for overall physical fitness. The objective was to increase endurance and strength, develop speed, improve flexibility, and refine coordination, thus achieving a harmoniously developed body. In addition, such athletes were supposed to have a superior body form, increased self-esteem and strong personality (Bompa, 1999).

Adding to the above, when training and competition facilities specific to chosen sports
were seasonably unavailable, coaches (in order to achieve their goals or to maintain the training volumes as the least) had to substitute those with other means of training and competing. Naturally, those means had to be picked from other sports, and more importantly, not just picked at random, but from among those resembling their sport of specialization in one way or another. That resemblance was typically sought in either similarity of functional requirements or in the game’s tactics. For instance, similarity of physiological responses in cycling to other endurance sports could have make it a good substitution for skating or skiing during summer time, and vice versa, skiing could be a good substitution to rowing and canoeing during cold winters. In other words, a rower was sport-specialized trained by actual means of rowing during spring, summer and early fall. During the rest of the year he/she has been exposed to running (late fall), skiing and indoor swimming in winter (Figure 1). In this way athlete’s aerobic capacity has been well taken care of throughout the year.

![Figure 1: Seasonal transformations in line with Multilateral Training](image)

Requirements of anaerobic capacity could have been met in similar logic by alternating intensity of exercise. Additionally, basketball, football and rugby have been effectively used to maintain/develop speed, agility and power.

Maintenance of high level physiological parameters in skiers/skaters could have been achieved in similar logic with season available means of training ‘mirrored’ season wise, with training means borrowed from running, cycling, swimming, football, basketball and rugby.

Representatives of cycling, swimming and basketball, at the same time, had an opportunity to stay more specialized - for matter what season it was, cyclists have used stationary cycling machines, swimmers and basketball players just kept practicing indoors throughout the year.
The Role of Multilateral Training

From the times of foundation of the theory and methodology of sports training Multilateral Training (MT) has been traditionally named among the objectives of training. Moreover, it was even occasionally considered as one of the principles of training, which role had been in fact confusing and quite exaggerated.

Strictly speaking, MT should not be listed among principles of training, since both MT and Specialized Training (ST):

- Are present in variety of proportions at any given point in time throughout the long term training
- Proved effective, with disciples of either trend reaching the world class performance in a variety of sports.

In fact MT fits better into the objectives of training and especially of the opening stages of it. It is traditionally named by most among the objectives of initial and basic training. Many consider MT as a feature and a secondary objective within specialized training as well. Harre, (1982) and Nilsen, Daigneault & Smith, (2002) expect athletes with a strong base and good overall development to improve athletic performance faster and better than those without such foundation.

The establishment of a broad base of physical development has been considered as a prerequisite for specialization in any sport. This has been emphasised particularly for youth and beginners for building an extensive base of physical fitness and skill to prepare the athlete for the increasing demands of the sport-specific training that should occur as the athlete develops.

Although the developing athletes were encouraged to maintain an all-around physical preparation, rowing-specific training was expected to become increasingly more important both during the training season and from season to season throughout the athlete’s career (Nilsen, Daigneault & Smith, 2002).

A broad, multilateral base of physical development, especially general physical preparation, has been repeatedly mentioned among the basic requirements to reaching a highly specialized level of physical preparation and technical mastery (Bompa, 1999).
Figure 2: Relationships between Multilateral Development and Specialized Training (Bompa, 1999)

Multilateral and Specialized Training: friends of foes?

Quite a while ago, the Eastern Block sports scientists came out with an assumption that North America have been purely into specialized training, whereas East Europe have followed multilateral training. Grossly generalized and marginally exaggerated, training philosophy of East Europe was contrasted to the one of North America (Bompa, 1994) and the issue had been presented as two different Training Philosophies in which:

- East Europe’s approach placed multilateral development at the base of the training pyramid, for it has been considered as the foundation for any training program conducted farther. When sought development approached some acceptable level, especially in physical development, the athlete was supposed to step into specialized phase of training and development, which has been speculated to lead to the highlights of an athletic career and training for high performance in particular.

- North America, conversely, was alleged to pay too much attention to training specificity from childhood right up to the international level competitions. It was speculated that North American sport specialists had urged young athletes to perform only sport-specific skills and physical development, which was termed as ‘narrow’ and had been claimed to
produce “robots which can hardly do any other sport”. It was further stated that such a limited approach may also lead to overuse injuries.

Born in highly ideological and politicized society, both statements need to be carefully analysed before being taken for granted.

One of the first attempts to compare training regimes was described in erstwhile USSR, when a Soviet survey by Nagorny (1978) presented comparative statements on multilateral versus specialized training (ST). As quoted in Bompa (1994), author has summarised that:

- In most sports specialization should start after the age of 15-16
- Most of the best Soviet athletes have had a strong multilateral foundation
- Most athletes started training at the age of 7 or 8 years. During the first several years, all of them participated in various sports, such as soccer, cross-country skiing, running, skating, swimming, and cycling (previously mentioned seasonal features of these sports are quite obvious)
- From 10 to 13, the children also participated in team sports, gymnastics, rowing, and track and field
  - Specialized programs started at 15 to 17, without neglecting earlier sports and activities. Best performances were achieved after 5 to 8 years in the specialized sports
  - Athletes who started specialising at an earlier age achieved their best performances at a junior age level with high level performance eventually never repeated by them in senior division (after the age of 18)
  - Some quitted before reaching senior levels. Only few of the early specialized athletes have been able to improve performance when advanced to senior divisions.
- Many top-class Soviet athletes started centralised training at the junior age being 14 to 18 years old. They had never been junior champions, whereas at the senior age many of them achieved national and international performance level
- Most athletes have attributed their success to the multilateral foundation built during childhood and junior age

With all due respect such findings could never really be scientific enough to prove right from wrong. Although there is logic in multilateral training regime, but to claim complete absence of specialization till the age of 15 in all sports is somewhat unrealistic.

Besides, there is never such thing as distinct demarcation between non-specialized and specialized training - there is just a thin margin of ratio between the two. If the training is 60% general and 40% specific, then how does it classify: as general or as specialized? Normally speaking, it still generalized. Just spending 40% of training time in specific skills and conditioning, does not constitute early specialization.

In another attempt to strengthen MT philosophy, a large group of 9- to 12-year olds were divided into two groups (Harre, 1982). The first group trained similar to North American approach of early specialization, using exercises and training methods specific to the sport. The second group followed a generalized programme, in which children participated in a variety of other sports, skills, and overall physical training in addition to specific skills and physical training. That “in addition to specific skills and physical training”, actually changes the whole scene: how general is then this general programme?
Summarizing the study findings, Bompa (1994), claims that a strong foundation leads to athletic success with MT resulting in: slower performance improvement; best performance at 18 or older, at the age of physiological and psychological maturation; consistent performance in competitions; longer athletic life and fewer injuries.

On the contrary, Early Specialization was blamed for: quick performance improvement; best performance achieved at 15-16 years because of quick adaptation; inconsistent performance in competitions; burn out by 18 with many athletes, quitting the sport; prone to injuries because of forced adaptation.

But then again as quite often happens in such studies, there is actually no concrete body of evidence provided through statistical analysis to prove either of points; hence the study ends up with assumptions only.

Another example featured in Bompa’s, 1994 book: Rolf Carlson (1988) analyzed the background and developmental pattern of Swedish tennis players successful in the international competitions and claimed that:

- Eight of the 10 best tennis players grew up in rural areas, where the lack of training facilities limited the number of workouts per week to only three! These players therefore engaged in other sports and physical activities;
- Specialization for most elite players started after the age of 13 to 15;
- One of the best Swedish players revealed that he seldom practiced tennis more than three times a week, 45 minutes a session, until he turned professional;
- Another elite player stated that he did not train too hard during early adolescence. "You should engage in other sports as well- today specialization starts too early in age."

Somewhat not surprisingly, in control (specialized) group:

- All subjects were from urban areas with many training facilities.
- Specialization started at the age of 11.
- From an early age, players participated in a tennis-intensive program.
- After the age of 10, none of the players participated in multilateral development.

Players from both groups were equal in skills up to the age of about 12 to 14; additional findings regarding the control group though were that skill development was fast during early adolescence and players trained in highly competitive environments.

That sounds interesting and could well be true for those days. However, if we count how many US players were there in the top ten of the lawn tennis in the last few decades, we’ll get: Pete Sampras, Andre Agassi, Andy Roddik, Michael Chang, James Blake – plenty. As claimed before they were supposed to be early specialized and quite inconsistent in their performance. They were not; on the contrary, they all were very much consistent.

Examples from the other parts of the world are not that encouraging. Not many representatives of West and East Europe were close to the standard of American players. There were Swedes like Bjorn Borg and Stefan Edberg, Czech like Ivan Lendl, Russians like Eugeny Kafelnikov, Marat Safin, but does it prove any of the points on the alleged supremacy of one training system over another? These were supposed to be multilateral and they quite possibly were; however, some of them were among the most inconsistent players of elite tennis.
Supporters of multilateral training regime keep claiming that athletes should participate in multilateral training throughout their careers, from the early stages of development to advanced levels of competition (Bompa, 1994), which may be correct, although not the only correct way to train as the reality of contemporary sport is such that we may not even need to discuss if multilateral training regime is somehow better that specialized one.

Analysing few examples and looking at some famous athletes’ biographies, one can see that there are outstanding achievers among the followers of both multilateral and specialised training approaches.

USSR’s Vsevolod Bobrov was the only athlete in sports history, to captain the National Team in both summer and winter Olympics: he led the USSR National Football team at 1952 Olympics and then the USSR National Ice Hockey Team at 1956 Olympics. It was truly an example of cross-seasonal multi-laterality. Bobrov began his athletic career as a soccer player with the army club CSKA Moscow. The 22-year-old led the Soviet league with 24 goals for CSKA during the 1945 season and was also invited to join Dynamo Moscow for their famous tour of Great Britain in November of that year. He began playing hockey, as well, for CSKA Moscow a year later. Bobrov actually made his debut at the Olympics with the Soviet national soccer team at the Summer Games of Helsinki in 1952. He scored five goals in three games at Helsinki. At the 1956 Winter Olympic Games at Cortina d’Ampezzo, Bobrov scored nine goals in seven games as the Soviet Union captured their first-ever gold medal in ice hockey.

*Eric Heiden* was aged 21 during his triumphant Lake Placid 1980 winter Olympic Games. What he has achieved there was never before and not ever since repeated by any speed skater. He won five gold Olympic medals in speed skating in 500m, 1.000m, 1.500m, 5.000m and 10.000m. The most astonishing thing about this achievement was the range of his winning performances: from 38.03 sec to 13min 53.51sec. That was truly unbelievable range of physical capacity. Interestingly, he switched to speed skating from ice hockey at the age of 14. Like many speed skaters, Heiden trained as a cyclist in the off-season to stay in shape, and was good at that, too. After retirement from speed skating he was an alternate on the U.S. Olympic cycling team in 1980, won the 1985 U.S. professional cycling championship, and was a member of the first U.S team to compete in the Tour de France, in 1986.

Next comes the best ever example of specialized training - none other than the greatest swimmer of all time and the most successful Olympian ever – *Michael Phelps*. He started his swimming career at the age of seven, never belonged to any other sport and delivered eight gold medals to his country at the age of 23 - during 2008 Beijing Olympics he topped at the podium for a record eight times.

After having examples of two seemingly different training regimes, the question seems more straightforward: where actually does the rivalry and controversy between the two originate from? Are those training regimes really that different as presented by the extremes in Multilateral and Specialized Training (ST) supporters? The truth seems to be quite simple: those regimes are not that different from each other and both can bring benefits, provided used scientifically.

**When does MT start and where it ends?**

Most of the specialists consider MT important only at initial and basic training stages. Few agree that certain degree of multilaterality is still present during specialized training. Almost none
believes that there is a role for multilateral training to be played at the advanced stages of long term preparation in sports.

MT by logic and by definition is the type of training aimed at the development of basic motor skills and motor qualities such as strength, speed, endurance, agility and flexibility. And yes, MT should be implicated by General Means of Training (GMT), defined as exercises used for improvements in fitness and conditioning and belonging to any sport other than the one chosen for specialization. GMTs are usually borrowed from artistic gymnastics, acrobatics, track and field, weightlifting and ball games, etc. In other words, athletes from every sport use those ‘borrowed’ training means in their general training routines.

Therefore, the equilibrium between MT or ST program features greatly depends on the inclination of coaches to general conditioning, or in other words, on their willingness to pay enough attention to general fitness of their athletes, rather than to stick to predominantly specific conditioning.

If that sounds legitimate, then it seems we have a solution at hand to share and to suggest to the coaches. It may well help combining both approaches in designing their coaching programs at any level of their athletes’ performance.

**Observing Multilaterality at Initial Training**

Analysis and systematization of scientific publications, Eastern European coaches’ practical experience and knowledge resulted in numerous theoretical and practical suggestions on the training loads for various performance level athletes. Among others, those include annual training volumes for the beginners (Krasilshchikov, 2011).

<table>
<thead>
<tr>
<th>Table 1: Distribution of Training Components for Initial Training (1st year of training)</th>
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<tbody>
<tr>
<td><strong>Components of Training</strong></td>
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<tr>
<td></td>
</tr>
<tr>
<td>Theory</td>
</tr>
<tr>
<td>General Conditioning (GC)</td>
</tr>
<tr>
<td>Specific Conditioning (SC)</td>
</tr>
<tr>
<td>Skills</td>
</tr>
<tr>
<td>Tactics</td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
<tr>
<td>Days of Training</td>
</tr>
<tr>
<td>Days of competitions</td>
</tr>
<tr>
<td>Approximate No of training weeks</td>
</tr>
<tr>
<td>Training sessions per week</td>
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<tr>
<td>Training hours per week</td>
</tr>
<tr>
<td>Approximate duration of a session</td>
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Interpreting these figures, especially the percentage of General Conditioning (GC), the question bounces back again: Is it an example of a Multilateral or a Specialized Training programme? Considering 40% allotted for GC, with remaining 60% distributed among SC, Skills and Tactics, it looks like a specialized one, but in the reality it is not so. It actually looks rather balanced with sufficient time (60 hours) dedicated to Multilateral Development. Graphically it can be presented as in Figure 3 where the distribution of hours amid major motor qualities is approximately calculated considering the sensitive periods for motor qualities development in a 10 years old kid.

![Graphical representation of training distribution](image)

**Figure 3:** Tentative annual distribution of General Conditioning time for the beginner

**Fitting Elements of Multilaterality into Basic Training**

Initial Training is followed by the Basic Training stage, which typically lasts for about two years. According to our previous study (Krasilshchikov, 1997) objectives of Basic Training in most of the sports can seemingly be achieved through the application of the training loads in the following recommended volumes (Table 2).
Table 2: Distribution of Training loads for Basic Training (2\textsuperscript{nd} and 3\textsuperscript{rd} years of training)

<table>
<thead>
<tr>
<th>Components of Training</th>
<th>First Year</th>
<th>Second Year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hours</td>
<td>% value</td>
</tr>
<tr>
<td>Theory</td>
<td>20</td>
<td>6%</td>
</tr>
<tr>
<td>General Conditioning</td>
<td>96</td>
<td>30%</td>
</tr>
<tr>
<td>Specific Conditioning</td>
<td>86</td>
<td>27%</td>
</tr>
<tr>
<td>Skills</td>
<td>86</td>
<td>27%</td>
</tr>
<tr>
<td>Tactics</td>
<td>32</td>
<td>10%</td>
</tr>
</tbody>
</table>

| Total                     | 320        | 100%        | 550        | 100%        |

Apart from obvious surge in the overall training volume, all components rise in their absolute values as well. On the other hand, per cent value of those change in a different way: every component goes up, except General Conditioning: although its absolute value increases, its per cent value actually goes 10% down as compared to the Initial Training.

This sends a simple message: given the similarity in nature of multilateral training and general conditioning, the volume of MT though increases with training age, in fact declines and falls to the 27% mark by the end of the third year of training (Figure 4). MT plays the well observed role here as well, although its absolute value gets significantly lower as compared to the previous training stage.
Is Multilaterality still present at Specialized Training?

The stage of Specialized Training stage typically lasts three to five years depending on the sports specificity and complexity. Considering the three years duration model of Specialized Training stage with an example for ball games, we get the tentative distribution of training means as follows (Krasilshchikov, 1998).
Table 3: Distribution of Training Components for Specialized Training (4 to 6 years of training)

<table>
<thead>
<tr>
<th>Components of training</th>
<th>Year 1 (total 4th)</th>
<th>Year 2 (total 5th)</th>
<th>Year 3 (total 6th)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hours</td>
<td>% value</td>
<td>Hours</td>
</tr>
<tr>
<td>Theory</td>
<td>40</td>
<td>6</td>
<td>46</td>
</tr>
<tr>
<td>General conditioning</td>
<td>180</td>
<td>28</td>
<td>150</td>
</tr>
<tr>
<td>Specific conditioning</td>
<td>140</td>
<td>21</td>
<td>160</td>
</tr>
<tr>
<td>Skills</td>
<td>180</td>
<td>28</td>
<td>230</td>
</tr>
<tr>
<td>Tactics</td>
<td>110</td>
<td>17</td>
<td>160</td>
</tr>
<tr>
<td>Total</td>
<td>650</td>
<td>100</td>
<td>746</td>
</tr>
<tr>
<td>Training days</td>
<td>250</td>
<td></td>
<td>260</td>
</tr>
<tr>
<td>Competitive days</td>
<td>25-30</td>
<td></td>
<td>30-35</td>
</tr>
<tr>
<td>Training weeks</td>
<td>45</td>
<td></td>
<td>48</td>
</tr>
<tr>
<td>Training sessions a year</td>
<td>300</td>
<td></td>
<td>330</td>
</tr>
<tr>
<td>Training sessions a week</td>
<td>6-10</td>
<td></td>
<td>6-10</td>
</tr>
<tr>
<td>Training hours a week</td>
<td>13-22</td>
<td></td>
<td>14-23</td>
</tr>
<tr>
<td>Duration of one session</td>
<td>2.2</td>
<td></td>
<td>2.3</td>
</tr>
</tbody>
</table>

The previously observed trend is becoming obvious: volumes shoot up, each and every one to back up the specificity of the event. Only one variable freezes up: volumes of general conditioning - the part of training which carries features of multilateral training. With absolute values reaching the highest by about 4th year of training, GC further goes steadily down in both volume and percentage. By 6th year of training percent value of multilateral training accounts for as little as 16% of total training volume.

By now, the distribution among the major motor qualities has to be sport-specific and inclined towards motor qualities contributing the most to the performance in the chosen sport. In the given example of games, emphasis goes more towards agility and speed, followed by power and endurance.

The inverse relationship between volumes and percent value of GC or MT becomes obvious (Fig. 4): although volumes increase until the beginning of Specialized Training, percent value increasingly goes down. The trend develops stronger when GC begins declining in volume that is where the role of MT gets drastically reduced, although still felt. Notably, even after seven years of training MT is still present in reasonable quantities.
Cross-Training: Resurfacing of the Multilateral Training Concept?

It has been known for quite a while - the result of training is directly related to the type of exercise you perform. If you spend all your aerobic training time on the treadmill, you may become a better runner; but you will not become a better swimmer. It seems cross-training is capable of fixing this problem, allowing the development of strength, skills, and endurance over a wide spectrum of exercises and movements. The benefit of cross-training is that the body will be better able to handle a variety of stresses. Muscles may be great at pushing weights through a set pattern of movement on an exercise machine; but are they ready to transfer that strength into playing softball on the weekends?

Cross-training is most often considered in terms of aerobic conditioning or cardiovascular exercises. Once again, we often find the aerobic exercise we like best and stick with it. Cross-training is important because there has been a lot of research into which aerobic exercise is the best, and the answer is still not clear. The exercise you like best may not be the best one for you. Again, because your body is made up of many different muscles that do many different things, performing one exercise does not thoroughly work your entire muscular system (Hagerman, 2002).

Austrian swimmer Markus Rogan shared his secret for breaking world records, including odd preparation such as training like a basketball player. "The way I train in swimming is touch
the wall, feel it and go,” he told reporters (Reuters). In basketball, you jump up for a rebound, so we did that a lot” (Reuters, 2008).

Doesn’t it very much resemble the Multilateral Training approach? If it does, it seems working for high level athletes as well

**Periodization Prospective**

It isn’t simple for a specialty trained coach to sacrifice the share of the training time allotted for Specific Training in favor of Multilateral Training. At the same time, it’s nothing wrong in doing so.

Coaches who keep spending hundreds of hours in ST alone without paying attention to MT quite often hit the wall of performance limitations which their athletes can’t overcome without facing the risk of being injured. These performance limitations are usually of a physical nature – athletes need higher level of basic physical fitness if they want to further improve on their specific fitness and performance. Building new performance level over the old fitness foundation is a risky gamble and can easily lead to specific overtraining born injuries. In fact MT regime often serves as a remedy to such performance improvement interruptions.

Within the Periodization perspective, with experienced athletes MT might play important role in the general part of preparatory period declining towards specific preparatory period with obviously required switch back to ST in the early competitive period. With nicely periodized annual training, most of the MT volumes will be utilized during the build-up part of the season followed by ST at its maximum when athletes approach closer to major competitions.

**References**


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