

Physical training: more than just training muscles

For almost ten years I have been putting a compilation video online once or twice a year in which an impression is given of the training activities of the sprinters of Eindhoven Athletics. The most important reason for this is the creation of support within the club and the social environment of the athletes. Athletics is a sport with a clear training and competition season. In the winter in particular, an athlete invests a lot of time and energy in his training sessions, without the results being directly visible in competitions. The recordings then show what an athlete is mainly doing during such a training period and why he makes significant demands on himself and his environment in terms of sleep, nutrition and rest.

I myself am not a real enthusiastic video producer because, as an idealist, I mainly coach based on feeling, rhythm and a deep concentration. For me, filming is primarily an annoying interruption that gets me out of my own flow. But sometimes you have to show technical errors through a recording. In addition, some athletes, often with a preference for analysis as a dominant or secondary cognitive function, simply need it.

Recently I put the enclosed video online. <https://www.youtube.com/watch?v=cfqGnGTXA74>. I get the necessary questions about this and especially about the strength exercises. And increasingly about the substantiation from the ActionType® approach.

For me, strength training has different functions within the total training program. First of all, make the athlete stronger. This can be in an absolute sense, lifting as many kilos as possible, or in a relative sense, namely being able to deliver a lot of power per kilo of body weight or per time unit. In the latter case we speak of power. The strength program is an important part of improving athletes at all points on the strength-speed diagram. In addition, the power program must directly contribute to the sport-specific performance. In this case, increasing the different force values should contribute to a better sprint performance.

My experience is that this is easy to achieve with young athletes. They start sprinting harder, so to speak, when they regularly do simple plank exercises (Planking is an activity consisting of lying in a face down position, sometimes in an unusual or incongruous location). But with well-trained athletes, the strength training will have to be made quite specific. A quick and powerful hip stretch is the most important goal. And this is achieved most efficiently by quickly lifting the free half of the pelvis, a so-called attractor within the movement.

In addition, strength training also has a therapeutic effect, namely reducing balance disruptions between muscle chains or limitations within a muscle chain. Finally, on some days I use a short strength session prior to the track training to activate the body and especially the nervous system. Certainly after a day of rest an athlete needs time to start up again and then power and fast power exercises can be an efficient step for an explosive and high-quality training on the track.

Explanation of the clips:



The athlete has a preference for Walking from the Bottom (WB, concentric dynamics) combined with the use of fine motor skills (ST). These athletes often have a tendency to shortening of the large loin muscle (Psoas) because the hip stretch is broken off relatively early in order to use fine motricity. This exercise brings the Psoas more to length and ensures that especially the large body muscles will be used. The athlete is then trained in his or her so called shadow profile. This exercise is suitable for this because it is performed slowly and with a low weight and therefore does not burden the nervous system intensively.



This athlete reacts well with acceleration with heavy resistance from the Walking from the Bottom preference (WB, concentric dynamic). The movement is controlled from the hips, but the so-called mobile point (chest vertebra 8-10) is high. In other words, the acceleration about the vertical body axis is initiated at shoulder level. This ensures that trunk stability is a challenge and coordination between the upper and lower body is a constant point of attention.



The challenge described above also applies to this athlete. Because an athlete with Walking from the Bottom preference (WB, concentric dynamics) does not get much profit from a pre-movement, the starting position must be good. In this case, the tibia and trunk must be parallel to each other in order to provide strength. In addition, the swingleg should not be left behind too much. The athlete is relatively far from the elevation to force her to use the gluteal muscles (Gluteas) instead of the four-headed thigh muscle (Quadriceps). By giving instructions on the landing with the foot and placing it relatively far from the body, the fine motor skills (ST) are activated.



This is a good example of an athlete with a so-called horizontal organization of motor skills, because the elbows are constantly pointing outwards, while according to biomechanical reasoning it would be better to keep the elbows close to the body. The preference for fine motor skills (ST) also ensures that the hands are kept relatively far away from the body, which enhances this effect. As long as this does not visibly affect the sprinting capacity, the athlete will not be corrected for this.



This is a running circuit where the fine motor skills (ST) are trained, which is the preferred motor skills of this athlete. However, she tends too much to overuse her fine motor preference because the hip is not fully deployed and there is walking with peak feet.



Squatting is an exercise that many athletes can experience significant adverse effects. This athlete with a strong preference for Walking from the Bottom (WB, concentric dynamics) responds very well to this exercise, making it the most important element of strength training for him. Athletes with a preference for Walking from the Top (WT, plyometric dynamics) require more caution with regard to this exercise.



An athlete with a strong preference for the use of the large body muscles (SF) tends to stretch the hip too long during sprinting, so that the contact times become too long. During this exercise, she is placed in a position that gives her strength from her familiar concentric muscle use, but uses it so quickly that the swing leg is brought forward quickly.



This athlete has a high mobile point (chest vertebra 8-10). That is why she likes to catch the barbell (bar with weight) in a split position instead of with the feet next to each other. Because of her strong preference for using fine motor skills (ST), lifting the weight straight up is an important point of attention. If she keeps the weight too far away from her body, she cannot handle it directly above her head.



An athlete with a clear preference for Walking from the Top (WT, plyometric dynamics) generally responds well to jump forms and needs little dorsal flexion in the ankle to create a good jump up. This athlete has a so called Concept motricity (NT) and therefore makes many two-legged jumps with his feet side by side. These athletes get out of shape relatively quickly or injured from strength training with heavy weights that are moved slowly

Strength training is therefore not only about strengthening muscles and tendons, but also about activating the nervous system, improving neural control and optimizing movement chains. Understanding the motor preferences of the athletes gives the coach a huge toolbox to select the right exercises and execution for every athlete.

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