



PROTOCOLS FOR FUNCTIONAL TRAINING IN FOOTBALL

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Abstract

Improvement of the joint mobility, muscles strengthening, or injuries prevention are all goals that can be achieved through a correct functional training. This article tries to figure out how to build a model (a progression of movements and variables) of a functional training based on the target, defined by the specific of the sport discipline, the characteristic of the entities which train, or the available time. In the final part of the article there are some concret examples of protocols with particular reference to the football, with objectives relating to accident prevention, the acceleration, or the improvement of the hip motion range and stiffness.

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Introduction and content

The nature of the proposed movements look of equilibrium (static, dynamic and in flight) the multiplanar and executive progression are some of the theoretical assumptions. For methodological convenience and based on experience, I feel easier to use a subdivision proposal by combining the 3 movements that determine the horizontal force (push, pull and rotate), eliminating the "movements" (which depend mainly on the specific discipline of programming, and accordingly they should be included in the specific work) and inserting the work for the stiffness. Consequently, the 6 main movements will be:

- **Core stability decubitus:** represents the first stage, but at the same time requires **maintenance to prevent a weakening of the core, during the season, causing imbalances**.
- **Horizontal force:** all movements of pull, push and rotate.
- **Squat:** remember that the force that the body can enter in this movement falls the more it is "**bent**" and especially if you use **the on one foot**. These considerations are critical to avoid using loads with rocker in the long term can lead to **problems at the spine**.
- **Cut to:** if, considering the stroke as a set of continuous accelerations (the boost phase) and deceleration (impact of phase), it is obvious to understand how **the monopodal detachment may be, from the biomechanical**

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point of view, the preferred motion for the development of the phase thrust (acceleration)

- **Coming** : another movement that fits in perfectly with the rotations (which could be regarded as a category of "unique movements", but inserted in the horizontal force). It has the peculiarity to **transmit forces both in horizontal and vertical manner**.
- **Stiffness** : is not to be considered as a real movement but it is (as functional movements) **an essential prerequisite for many sports** . Without going into complex biomechanical concepts, just consider how adequate stiffness is able to allow you to use the most of the **muscle elasticity** while running.

The difference between the stiffness and the squat movements is that the squat provides for the extension of all 3 joints (hip, knee, ankle) while the stiffness is particularly accentuating the work on the ankle and minimized the work on the knee and also. Recall that the stiffness is as important as the running speed is high and straight (sprinters or fastest distance runners), but an adequate job of this capability is able to achieve improvements to in-team sports. Election for this quality workouts are jumping rope, jump low obstacles and functional strengthening exercises for the triceps.

There are 4 steps to be followed in order to establish a functional training program:

Step 1: Definition of objectives

To this step could be exemplified some objectives like:

- improve mobility associated with joint stability for the prevention of injuries in a football team
- increase the acceleration for soccer players.
- custom work for improving hip articular flexibility, in relation to movements of extension for runners and football players.
- custom work for the improvement of stiffness to the player.

Step 2: Changes from embracing

More generic is the goal (ex joint mobility or preventing injuries in football) and more movements are to be embedded in the path. Similarly, the objective is more specific and greater must be the degree of difficulty (and depth) associated with (or to) chosen movements. For example, a custom job to increase the hip hike will have as main movement the lunge, and the secondary movements racing stability and horizontal force.

Step 3: Define level of depth/difficulty movement



As stated above, depends on the sports considered (soccer, running etc). The number of athletes who train (the program for a single runner can have a higher customization level compared to a football team), the age of the group who trains (adults, youth, masters, etc) and the time available. The later is a very important variant, because it defines the space which can have functional training within the training time, and accordingly to the difficulty of level that can reach the program.

Step 4: Establish the path of the training

It divides the program into step storms of progressive difficulty, which aim to achieve the goals. Objective which is often of a general nature (accident prevention, increase of the stiffness, etc.) and accordingly once reached, it requires a regular maintenance for the rest of the competition season .

Protocol examples – below are some examples of how it can be structured a functional training program, based on the objectives:

Example objective 1 - improvement of mobility associated with joint stability for the prevention of injuries in football

Before listing the movements and its variants, should be said that at a level of mobility must also be related a degree of strength, stability and proprioception. Should be clarified that a player must have definitely a good joint mobility, but at this level of articulation must be able to have joint stability (balance) and force/proprioception, to "revive" the movement from an athletic point of view, and master the technique.

Without going into too much details, the scientific literature shows that:

- limited mobility of the hip flexors and knee earlier in the season predispose to a higher incidence of strains in these muscles
- athletes with greater force of rotators and hip abductors earlier in the season are less susceptible to injury. Hence the importance of the intrinsic muscles of the pelvis.
- imbalance of power between the extensors of the right knee/left or between flexors/extensors of the leg itself increase the risk of accidents. In particular, the muscles of the behind leg must be able to "be strong as they become longer"; more precisely, the critical phases of the movement are the extension movement of the leg at a time.

At this point it is possible to understand how the mobility of the hip joints and knees must necessarily be accompanied by levels of strength and joint stability of the muscles of pelvis and lower limbs . As a result, the steps of the journey may be:



1. *Step 1* : (initial phase of preparation) Basic exercises for the abs, static plank bipodalic (4 positions), pushups, squats full life-loading, single leg deadlift, lunge.
2. *Step 2* : pushups, static plank bipodalic (4 positions), full squat life-loading, single leg deadlift, lunge with torso rotation, diagonal lunges/behind.
3. *Step 3* : Static bipodalic plank (up to monopodalic dynamic), squat full life-loading, single leg deadlift, lunge with torso rotation, diagonal lunges/behind, Nordic hamstring, burpees bipodalic (with no jump).

How many times a week - those who train 2-3 times a week, can make 2 times the Step 2 (if on earth there is a lot of mud and there is a chance to find a dry place to do the plank and pushups, for sometimes these two movements can be avoided); those who train four or more times a week could be done 1-2 times the Step 2 and 1 time the Step 3.

How many sets and reps - for most of the movements, in my opinion is necessary monoserie; only in the initial stage of preparation you can do more sets, to "break" the repetitions by short pauses. The number of repetitions depends on the degree of fatigue that is to be achieved.

What degree of fatigue is needed to achieve - of course it should not be excessive. It is important to start with graduation, especially for those are not used to this kind of work.

Example objective 2 - acceleration curve for soccer players

Obviously all exercises for explosiveness train the acceleration, which is why functional training should treat those most neglected aspects of the specific training. A phase particularly critical in accelerating is the first moment of the movement, not surprisingly in the first shooting distance (3m) there is a 27% difference between amateurs and professionals. In this phase, both that there is in a stationary shutter, which in a change of direction it is evident that the joints are in a situation of accentuated bending, and at that stage, the musculature is weaker, compared to more open corners.

So the purpose of a functional path should be precisely to increase the strength and activation of the muscles when the body is better "bend". The basic movements are those of the squat, the deadlifts and the horizontal force. The secondary movements (to do with a smaller volume) are the lunge and core stability. Assuming that the secondary should still made in the protocol for mobility associated with joint stability, below there is a sample of protocol with the fundamental ones:

1. Step 1: initial phase of preparation that is similar to the example above for the mobility/joint stability.



2. Step 2: Arnold press squat (or Burpees bipodalic without jump), slipping from side parallel squat position lenses, lunges diagonally / behind, detachment leg (also called as Nordic Hamstring).
3. Step 3: burpees monopodalic, side lunge jump, various throwings of medicine balls.

How is it possible to guess, the first step in football is common to different objectives; Step 2 you can do so by all categories, while for Step 3 is only recommended to those who make 3 or more workouts weekly. Even for those who make more than 3 workouts per week or more, the Step 3 is to be administered every other week, because it is very challenging from neuromuscular point of view. It is not included in this protocol horizontal force movements. In the amateurs (who do not have isoinertial or torsion pulley equipment) the election exercises are the thrusts (front/side) in pairs .

Example objective 3 – improvement of the hip articular movement range for runners and football players

Hip extension is a key aspect for the high-level runners. Adequate excursion allows to obtain a proper step length and therefore an appropriate relationship between frequency and amplitude of the movement. In a top athlete, a level of this articulation deficits do not allow to maximize their quality neuromuscular. In amateur runners is different, because the relative speeds allows to compensate (at least partially) a reduced step size with an increase of frequency.

In football are the same considerations, because it is easier (even amateur) to reach high speeds and movements that require high hip joint movement (also in intensity not high). Subjects lacking in this type of movements, should do targeted work to fill these gaps, because may be the result of feedback that cause accidents. A specific functional training program for this purpose, should include both the motion lunge (primary movement) those movements that can increase the strength of the extensors (squat and deadlifts).

Example objective 4 - custom work for the improvement of stiffness to the football players

This protocol was used for a player equipped with a high muscle strength (compared to the category average), but reduced stiffness. The player complained to perceive a situations in which it sought muscle brilliance (extensions, changes of direction) he felt a little too explosive working with the backs of the thighs. Therefore it was planned a custom protocol to be made before the 2nd weekly training (of 3 total) lasting 20-25 minutes. This included not only exercises for the stiffness, but also for the prevention of injuries to the hamstring, which the



player had suffered in the past .

1. Step 1: abdominal ground, plank (2 laps bipodalic), parallel squats (2 sets of 15 repetitions to exhaustion), detachment in the leg (2 sets of 10 repetitions to exhaustion), jumps monopodalic left/right and forward/backward through the ground line (6×10 total).
2. Step 2 : same as above, but additionally: dynamic static work for pubalgia (2×20 seconds, prone and supine), monopodalic jumps between low hurdles.
3. Step 3: same as above, but additionally 2-3 run repetitions jumped shuttle ($20 + 20m$) with references of 2-3 meters leap.

The protocol, according to the feelings of the player, has given excellent results; in the game he felt brighter and less fatigued even to the final. Only slight side effect was that in the final part of the training team of the day corresponding to the functional work he felt very tired . In the training period there has been no reported accidents. The conclusion is that functional training is fruitful and effective; it is still a recommended protocol (when administrated in amateur sectors) only for highly motivated athletes.

Conclusions

The theoretical and practical training knowledges should be the basis of all the professionals (regardless of level) that deal with athletic training . The argument is not easy, because it requires serious knowledge of biomechanics and anatomy.

REFERENCES

1. Burns, Tim, 2004. Holistic futsal. Lulu Publishing.
2. Dulceata, V., 2014. Testarea capacitatii de efort la jucatorii de fotbal junior 2. Raport de progres 2, ANEFS.
3. Hermans, Vic-Engler, Rainer, 2001. Futsal, technique, tactics, training.
4. Lozano, Javier & Hermans, Vic, 2003. Futsal – trainer. FIFA, Zurich.
5. Mănescu, C.O., 2013. Futsal. Editura ASE.
6. Manescu, C.O., 2010. Modelarea pregatirii in jocul de fotbal. Ed. ASE
7. Manescu, C.O., 2008. Fotbal – aspect privind pregatirea fizica a juniorilor. Ed. ASE