

Getting an Efficient Running Form Accompanied with Reggae Rhythm

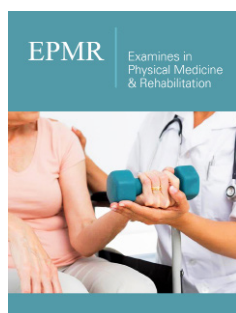
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Abstract

The authors and collaborators have continued various workshops for masters' athletes and others. To take the most of extension reflex of hamstrings and to obtain the responsive power from the ground would be recommended. The involved joints are hip, knee and ankles. For these joints, the key points of the squat exercise include instant weight removal and extension reflex. Reggae music is characteristic for its afterbeats rhythm with the accents of 2nd and 4th beats. They are upbeats, that is contrast to downbeats in classic music. Combined these, trainee can master the tips for faster and safer running method.

Keywords: Masters athletes; Extension reflex; Instant weight removal; Reggae music; Afterbeats

Introduction

The authors have provided clinical practice, research and educational activities for long [1]. The contents included exercise, nutrition, anti-aging medicine for improving Quality of Life (QOL) [2]. The subjects are patients with various diseases and various subjects such as masters' athletes, athletic club members, sports enthusiasts and people from elementary school students to the aged [3]. A variety of information has disseminated through seminars and books. There are recently new trials in the field of sports and rehabilitation [4]. The effect of training has been improved by the existence of music. Listening to rhythmical music makes the mind comfortable and the body smooth movement, which seems to be beneficial effect of music therapy. Such dual application of therapy would be found in the field of Integrative Medicine (IM).

When teaching athletics, the running forms of top athletes are sometimes found and evaluated for running style with a sense of rhythm [5]. Contacting such excellent example, one can set a goal to run with a better rhythm. Thus, one can improve the running method, after obtaining a sense of rhythm [6]. Under these circumstances, the authors have used reggae music to teach athletics [4]. Reggae music is rhythmic, and one can learn how to use the body in various ways by performing continuous squats to the music [7,8]. The effect has been already found [9]. In this article, we report the experience of effective athletic learning with music and some points of implementation. In the athletics marathon, Kipchoge has been the world record holder [10]. He runs 42.195km in less than two hours unofficially, and his running form will be discussed. There are two characteristic points that can attract attention from athletic point of view. One is a light forward leaning posture, and the other is the flexion and extension movements of the three joints of the leg that are seen when touching the ground [11].

The following four points can be mentioned as the advantages created by these postures and movements [12].

1. The degree of braking that occurs when touching down can be reduced [13].
2. The energy of dropping the center of gravity can be converted in the horizontal direction by bending (pulling out) the knee. Therefore, the forward driving force can be increased [14].
3. By utilizing the leg extension reflex, it can be converted into forward propulsion force like the power of a spring [15].

4. A series of operations are well organized according to the timing of grounding. This repetition creates an appropriate rhythm for the running itself [16].

As mentioned above, Kipchoge is able to maintain overwhelming speed and continue running by these mechanisms and effects [10].

The movements of running and jumping include a certain perspective in common, where we consider in four stages. They are

1. Vertical jump,
2. Volleyball competitions jump,
3. Long jump,
4. Running and short distance dash.

Vertical jump

When performing a vertical jump, the athlete naturally bends his knees and hips once, sinks deeply, lowers the center of gravity (pulling motion), and jumps up using the reaction. They are preparing at the same place from the beginning and need to sink deeper in order to jump higher [17].

Volleyball jump

A volleyball jump is similar to a vertical jump. However, there is a run-up, 2-3 step preliminary movement, which is to take off

with both feet. In this point, the horizontal energy is successfully converted into upward energy. Furthermore, it is important not only to fly higher, but also to jump at a faster timing. Thus, it is rather more important to jump up at a quick timing with a shallow and quick movement than to sink deeply and slowly [18].

Long jump

The horizontal moving energy from running fast is converted to upward and forward direction. When taking off, a second-class athlete tends to sink rather deeply and slowly. On the contrary, a first-class athlete can jump as quick as possible with instantaneous contact time [19]. Furthermore, the whole body becomes as if it is a hard single stick and can receive a large reaction power from the ground leading to long jumping.

Sprint dash

Running is a continuous jump on one leg. When touching down, the leg joints are bent for a moment to catch the fall of the center of gravity [5]. At that time, the force generated by the extension reflex of the stretched muscles and tendons is applied to the ground to obtain propulsive force. In order to run faster, it is important to flex and extend the three joints (hip, knee and ankle) [3]. These three joints can utilize good timing for weight removal operation and extension reflex (Figure 1). Then, it leads to a rhythmical fast run with a forward propulsive force like a spring.

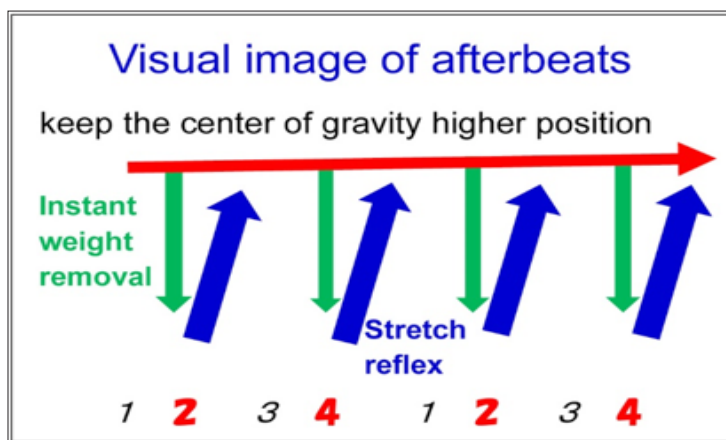


Figure 1: Reggae music can be useful for the improvement of the athletic movement.

The rhythm of running may be related to the reggae music. Reggae is characterized by the rhythmic and bright tone of the afterbeat that originated in Jamaica in the late 1960s [6]. When one listens to reggae, one's our body can move as itself naturally [7,8]. The media has reported that well-known athlete Usain St. Leo Bolt likes to listen to reggae music. One of the reasons for the strength of Jamaican sprinters may be from the fact that the rhythm of reggae permeates the body.

Regarding the rhythm of music, there are 1, 2, 3, and 4 beats in the four-quarter beat. In conventional classical music and marches, there are strong beats on the 1st and 3rd beats. This is a downbeat, which expresses the rhythm of stepping on the ground with force

and creates a "heavy sinking feeling" [20]. It creates the body movement by putting strength on the ground at 1st and 3rd beats.

On the other hand, the afterbeat in reggae music shows a strong beat in the 2nd and 4th beats [21]. This is an upbeat, and represents a movement in which the knee joint, hip joint, and spinal column are extended upward on 2nd and 4th beats. The dance movements that match the rhythm of reggae are characterized by a "light bounce" [22]. This sense of "momentum" derives from the switching movements that occur with vivid "weight removal" and "stretch reflex". This instantaneous movement is characterized for not requiring force. This kind of operation becomes an important reference for running situation.

Conclusion

Combined various data from music and sports together, the rhythm of the afterbeat is characterized for its bouncy feeling. For continuous unloading squat training on explosive movements, people can master instant weight removal methods, which can create body rhythm and elastic large power for athletic running. This article will be hopefully a reference for future research development.

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