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Comparison between 5 and 7 nails track spikes running condition performance of athletes

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Abstract

Purpose: The study is try to find out the difference between the five nails track spikes and seven nails track spikes running conditions of sprinters in order to provide information about the potential effects of number of nails in track spikes on competitive runners.

Design/Methodology/Approach: The thirty five (n= 35) male sprinters participated at state/ inter-collegiate level competitions of their age range 16 to 21 years were purposively selected as subjects from eastern districts of Haryana State, India. The acceleration ability by 30 m run test, speed by 50 m run test, speed endurance by 100 Mts. Run, leg strength by standing broad jump and stride frequency by high knee action and back kick test were measured in two different five nails and seven nails track spikes running conditions of sprinters. To calculate the mean difference between different running conditions mean, SD and t 'ratio' were test conducted;

Findings: A statistical significant mean difference were observed for acceleration run ability, speed endurance, front and back stride frequencies ability in both two running conditions, whereas there were exist insignificant mean difference among different running conditions i.e., speed ability and leg strength ability of sprinters.

Conclusion: It is concluded that the sprinters performed better with 7 nails track spikes as compared to 5 nails track spikes running conditions in acceleration run ability and speed endurance, hence sprinters had more stride frequencies in 5 nails track spikes as compare to 7 nails track spikes running conditions.

Originality/values: The study provides a succinct introduction to the use of five and seven nails track spikes during practices and competitions and makes an innovative contribution by focusing on, how number of spikes nails helps in acceleration zone and in stride frequency.

Keywords: 7 Nails track spikes, stride frequencies and sprinters

Introduction

When any one watches the athletics games and sees the fastest men and women in the world, the camera always comes pans down to show the latest spike worn by the athletes. Each company boasts countless research and designs to create the fastest shoe ever, but much of the innovation was done before 90 years ago and not much change has been done since the days of Jesse Owens, who wore a pair of Adidas sprint spikes at the 1936 Olympic Games in Berlin.

Most of the time when an athlete is buying a pair of athletic spikes, the questions usually revolve on how that pair of shoes or spikes will make sprint faster? Many times the world speed or faster come to mind when selecting a pair of track spikes, but the main thing is that how track spikes work? How spikes help to meet maximal speed or acceleration, and how spikes interact with our legs and the ground? Most athletes just want to know one thing. How much faster will he run? A race like the 100m will have several phases where track spikes may share their impact, but track spikes mainly help during the initials in departure out of the stationary position, a lot of forces acts backwardly in order to move body forwards. Spikes help the athletes to move forward without slipping and jerking.

The first running spike was invented by Joseph William Foster in the 1890s and developed to a great extent by Adolf Dazzler who set up the Adidas Company.

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Why use Running Spikes?

- The answer to this is quite simple - running spikes allow you to run faster!
- Spikes give you extra grip and help you avoid slipping so more of your force can be in a forwards direction.

Athletes are generally using 4 to 10 nail spikes acc. to their events: A big question that arises in the minds of many athletes, coaches, trainers, physical educationists is, whether running with 5 nails track spikes or running with 7 nails track spikes is better for athletes or not and is there any effects on players performance. In the present study we try to find out the answer to this question by experimental research.

Selection of subjects

For the purpose of the present study, Thirty Five (N=35), Male Haryana (Sonipat, Panipat, Karnal and Kurukshetra districts) Inter-Collegiate and State level runners between the age group of 16-21 years were selected as subjects in the present study. The subjects were purposely selected (n=35) and tested two times of each variable in two different conditions of running i.e., running with 5 nails track spikes and running with 7 nails track spikes.

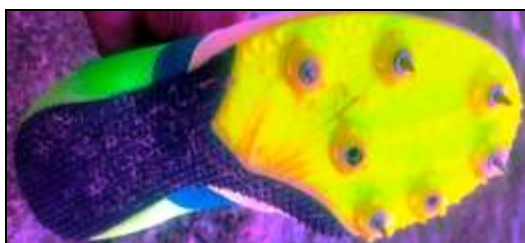


Fig 1: 5 Nails Track Spikes



Fig 1: 7 Nails Track Spikes

Selection of Variables

To find out the effects of 5 nails track spikes and 7 nails track spikes on an athlete's performance these variables were measured in both running conditions. 100 Mts. straight Clay surfaces were used by subjects for collection of data. The

subjects used their own routine training 7 nails spikes and during 5 nails trials eliminated two nails from both spikes one from center, beneath the middle foot and one from the inside of foot.

Sr. No.	Variables used	To measure
1	30 Meters	Acceleration run ability
2	50 Meters	Speed
3	100 Meters	Speed Endurance
4	SBJ	Explosive Leg Strength
5	High Knee Action	Forward Steps Stride Frequencies
6	Back Kick	Backward Steps Stride Frequencies

Statistical technique employed

The data were analyzed by applying 't' test to find out significant mean differences between running conditions of 5 nails track spikes and 7 nails track spikes of sprinters with the help of Statistical Package for the Social Science (11.5) computer software.

Results and Discussion

From Table-1 it is obvious that there exist significant mean differences in 30 Meters acceleration run ability and high knee action stride frequencies ability between 5 and 7 nails spikes running conditions at 0.01 level of significance. (Here performance is inversely proportional to score, if score decreases performance increases and vice-versa). It is also evident that there exist significant mean differences in 100 meters speed endurance and Back kick stride frequencies ability between 5 and 7 nails spikes running conditions at 0.05 level of significance. There exist insignificant mean differences in 50 Meters speed and Standing Broad Jump explosive leg strength ability of athletes between 5 and 7 nails spikes running conditions.

It indicates that athletes performed better with 7 nails spikes in 30 meters acceleration run and in 100 meters speed endurance ability as compared to 5 nails running condition due to extra ground reaction force, more grip of nails with ground surface and less slipping helps to generate more force in forward direction. On the other hand athletes performed better with 5 nails spikes in high knee action stride frequencies and back kick stride frequencies as compared to 7 nails running condition due to less ground reaction force and low resistance. It increases the athlete's frequency of steps.

During the initial departure out of the stationary position in track and field, a lot of forces are going backwards in order to go forwards. One can make a good case that the removable spikes prevent slips and errant movements and are helpful in performance enhancement.

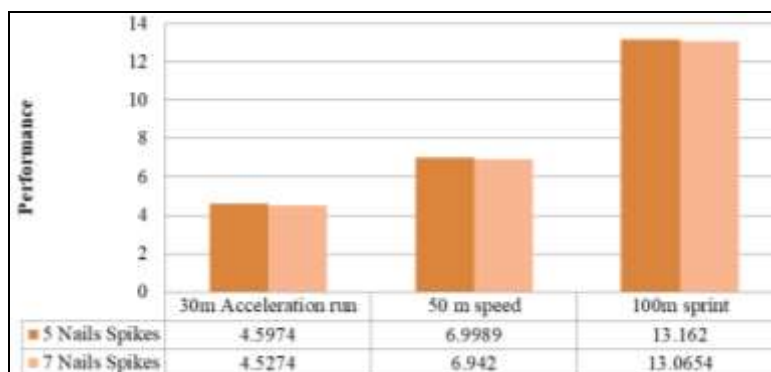


Fig 3: Performance between 5 and 7 Nails Track Spikes running conditions

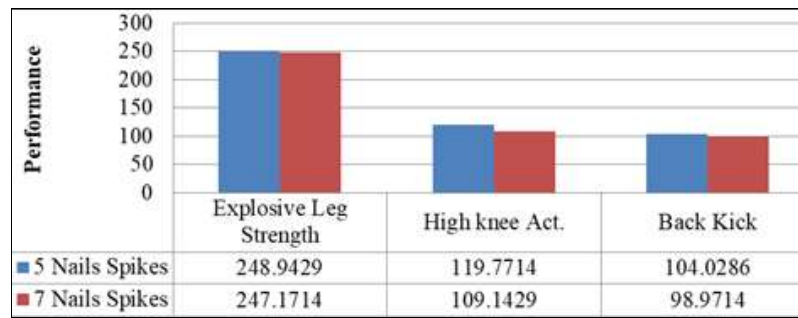


Fig 4: Performance between 5 and 7 nails track spikes conditions

Table 1: Comparison of Players Performance between 5 and 7 Nails Track Spikes running conditions. (N=35)

Variables	Mean 5 Nails Spikes	SD 5 Nails Spikes	Mean 7 Nails Spikes	SD 7 Nails Spikes	't' ratio
30 meters (Sec.)	4.597	0.244	4.527	0.216	3.743**
50 meters (Sec.)	6.999	0.338	6.942	0.287	1.860
100 meters (Sec.)	13.162	0.580	13.065	0.681	2.505*
SBJ (Standing Broad Jump) (CM.)	248.943	19.546	247.171	17.309	1.012
High knee action (60 Sec)	119.771	17.667	109.143	13.207	3.250**
Back kick (60 Sec)	104.029	12.033	98.971	6.032	2.715*

**Significant at 0.01 level of significance (2.727);*Significant at 0.05 level of significance (2.031)

Here: N = 35 d.f. = 34

Conclusion

Athletes performed better with 7 nails spikes in acceleration run and in 100 mts. race as compared to 5 nails running condition due to extra ground reaction force, more grip and less slipping helps to generate more force in forward direction.

Athletes performed better with 5 nails spikes running condition in both stride frequency i.e., high knee action and back kick as compared to 7 nails spikes condition due to less ground reaction force and low resistance.

Suggestion and Recommendation to select track spikes

Finding the exact pair of track spikes is a daunting task to anyone but after spending a bit of time players learn about which spikes will work for him better. There is no magic and witchcraft involved with track spikes, the simple thing is that a lighter and stiffer pair of shoes helps us to improve our time over distance.

The stiff plate underneath the entire foot promotes the running on the toes to provide maximum forward motion over the course of the event, but these spikes are not suited for longer distance races, since the foot strike will favor power of economy.

To select track spikes we should know which discipline the athlete is competing in. As sprinting events athletes require strong lower legs to stay on the ball of the foot and a younger athlete does not completely develop these muscles.

Before purchasing the track spikes, athletes should try it in jog or run conditions, not just in standing position, whereas if we talk about the fitment of track spikes it is totally personal; but we should remember the toe in the spikes should be able to move and not feel pinched or cramped against the front of the shoes.

The holes in the spikes plate should be covered before use even during warming up because some tracks require the use of blanks while others limit the number of spikes allowed. Another good thumb rule is that we should replace spike nails or spikes after every two seasons to avoid injury.

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