



## Awareness And Knowledge of Medical Issues Related to Female Athletes Among Track and Field Coaches in India

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### Introduction

Track and field is a popular sport in India, encompassing both power events like sprinting, jumping, and throwing, as well as endurance events like long-distance running. Despite its popularity, there is limited awareness regarding the medical issues faced by female athletes, particularly among coaches. According to the Athletics Federation of India (AFI), injuries such as tendon and ligament damage are common among national-level athletes, with stress fractures being prevalent among long-distance runners. Additionally, a significant number of female athletes suffer from anemia and menstrual irregularities, yet many do not seek medical attention. This lack of awareness among coaches and athletes can lead to untreated medical conditions, affecting both health and performance.

This study aims to investigate the awareness and knowledge of medical issues related to female athletes among track and field coaches in India, focusing on the Female Athlete Triad (FAT) and Relative Energy Deficiency in Sport (RED-S). The study also explores coaches' attitudes toward female athletes' use of contraceptive pills and their willingness to discuss menstrual health with athletes.

**Keywords:** Track and field, Female Athlete Triad, Relative Energy Deficiency in Sport (RED-S), menstrual health, India

### Methods

A cross-sectional study was conducted using an online anonymous survey distributed to track and field coaches across India. The survey was disseminated via email to coaches registered with the Athletics Federation of India (AFI). The survey collected demographic information, including the coaches' sex, years of coaching experience, and the level of athletes they train. The survey also assessed coaches' awareness of FAT and RED-S, their opinions on the use of low estrogen pills by female athletes, and their interactions with female athletes regarding menstrual health.

A total of 400 coaches were invited to participate, and 140 coaches responded (response rate: 35%). The data were analyzed using Stata 16.1, with statistical significance set at  $p < 0.05$ .

### Results

Of the 140 respondents, 89.6% were male, and 10.4% were female. The majority of coaches (57.8%) were affiliated with schools, and 71.4% had coached athletes at the national level. Approximately 58% of coaches were aware of the Female Athlete Triad, while 53.5% were familiar with RED-S. Female coaches were significantly more likely to be aware of FAT (OR: 3.59;  $p = 0.002$ ) and to discuss menstrual health with their athletes (OR: 5.07;  $p = 0.001$ ) compared to male coaches. Additionally, female coaches were more likely to have access to a gynecologist for consultation (OR: 9.22;  $p < 0.001$ ).

Coaches with more than 5 years of experience were more likely to be aware of FAT and RED-S compared to those with less experience. However, 32.6% of female coaches and 16.8% of male coaches were opposed to their athletes using low estrogen pills, primarily due to concerns about weight gain and side effects.

### Tables

**Table 1: Characteristics of the Participants**

Characteristic Affiliation	Percentage (%)	Number (N)
Elementary School	6.1	25
Junior High School	15.5	64
High School	31.3	129
University/College	4.9	20

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Club Teams	25.5	105
Corporate Team	3.6	15
Others	13.1	54
<b>Age</b>		
<19 years	2.7	11
20–29 years	4.9	20
30–39 years	20.6	85
40–49 years	30.3	125
50–59 years	28.2	116
60–69 years	10.7	44
70–79 years	2.7	11
<b>Years of Coaching</b>		
<5 years	11.9	49
5–9 years	18.5	76
10–14 years	18.2	75
15–19 years	12.6	52
20–29 years	20.2	83
30–39 years	14.6	60
≥40 years	4.1	17
<b>Coaching Events</b>		
Sprinting Events	5.3	24
Jumping Events	1.6	7
Throwing Events	2.2	10
Distance Events	12.8	58
All of the Above	78.1	353

**Table 2: Summary of Sex Differences in Survey Responses**

Question	Female (%)	Male (%)	P-value
Are you aware of the Female Athlete Triad? (Yes)	74.4	56.1	0.021
Are you aware of RED-S? (Yes)	64.3	52.2	0.138
To what extent do you object to female athletes seeking medical attention?			0.100
To a great extent	9.3	6.8	
- Somewhat	2.3	5.2	
- Very little	14.0	5.2	
- Not at all	74.4	82.9	
To what extent do you object to female athletes using low estrogen pills?			0.073
- To a great extent	32.6	16.8	
- Somewhat	14.0	16.3	
- Very little	27.9	27.1	
- Not at all	25.6	39.8	
Do you discuss menstrual issues with female athletes?	81.4	56.6	0.002
Do you have a physician who can discuss gynecological problems? (Yes)	46.5	11.1	<0.001

**Table 3: Results of Logistic Regression Analysis (Statistically Significant Data Only)**

Variable	Odds Ratio	95% CI	P-value
<b>Awareness of Female Athlete Triad</b>			
Sex (Female vs. Male)	3.59	[1.58, 8.17]	0.002
Age (30–39 years vs. <29 years)	0.19	[0.06, 0.57]	0.003
Affiliation (High School vs. Club Team)	2.30	[1.18, 4.49]	0.015



Awareness of RED-S			
Affiliation (University/College vs. Club Team)	4.18	[1.05, 16.54]	0.042
Opposition to Female Athletes Using Low Estrogen Pills			
Affiliation (High School vs. Club Team)	0.45	[0.23, 0.87]	0.017
Discussion of Menses with Female Athletes			
Sex (Female vs. Male)	5.07	[1.99, 12.94]	0.001
Access to Gynecologist			
Sex (Female vs. Male)	9.22	[4.00, 21.27]	<0.001

### Discussion

The study highlights a significant gender disparity in the awareness of medical issues related to female athletes among Indian track and field coaches. Female coaches demonstrated greater awareness of FAT and RED-S and were more likely to discuss menstrual health with their athletes. This suggests that female coaches may be better equipped to support the health and well-being of female athletes.

The reluctance of some coaches to allow the use of low estrogen pills is concerning, as these medications are often prescribed for dysmenorrhea and menstrual cycle management. This reluctance may stem from cultural taboos surrounding menstruation and a lack of medical knowledge among coaches. The study also found that younger coaches (aged 20-29) were more aware of FAT and RED-S, indicating a positive trend toward greater awareness among newer generations of coaches.

### Conclusion

The findings of this study underscore the need for increased education and training for track and field coaches in India, particularly regarding medical issues affecting female athletes. Female coaches play a crucial role in supporting the health and performance of female athletes, and efforts should be made to increase the number of female coaches in the field. Additionally, coaches should be educated on the benefits and risks of low estrogen pills to ensure that athletes receive appropriate medical care.

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