ISSN (ELECTRONIC): 2945-3135

Amit Pramanik & Mahesh Singh Dhapola (2026). Comparative Effects of Autogenic Training and Yogic Exercises on Emotional Intelligence, Anxiety, Mental Fatigue, and Social Maturity Among College-Level Athletes. International Journal of Multidisciplinary Research & Reviews, 5(5),135-149.

INTERNATIONAL JOURNAL OF MULTIDISCIPLINARY RESEARCH & REVIEWS

journal homepage: www.ijmrr.online/index.php/home

COMPARATIVE EFFECTS OF AUTOGENIC TRAINING AND YOGIC EXERCISES ON EMOTIONAL INTELLIGENCE, ANXIETY, MENTAL FATIGUE, AND SOCIAL MATURITY AMONG COLLEGE-LEVEL ATHLETES

Amit Pramanik[1], Dr Mahesh Singh Dhapola[2]

[1]PhD Research Scholar, Department of Physical Education, Guru Ghasidas Vishwavidayalaya Bilaspur, (C. G) India, ORCID ID- 0009-0003-8945-9247.

[2]Associate Professor, Department of Physical Education, Guru Ghasidas Vishwavidayalaya Bilaspur, (C. G) India.

How to Cite the Article: Amit Pramanik & Mahesh Singh Dhapola (2026). Comparative Effects of Autogenic Training and Yogic Exercises on Emotional Intelligence, Anxiety, Mental Fatigue, and Social Maturity Among College-Level Athletes. International Journal of Multidisciplinary Research & Reviews, 5(5),135-149.

https://doi.org/10.56815/ijmrr.v5i5.2026.135-149

Keywords	***Abstract***
Autogenic Training; Yoga; Emotional Intelligence; Anxiety; Mental Fatigue; Social Maturity; RCT.	**Background:** Competitive athletes face significant psychological stress. Autogenic Training (AT) and Yogic Exercises (YE) enhance psychosocial health, but comparative research among Indian college athletes is limited. **Objective:** To compare 12 weeks of AT, YE, and Combined Training (AT+YE) on emotional intelligence, anxiety, mental fatigue, and social maturity in team sports persons. **Methods:** 160 athletes (22–28 years) were randomized to four groups (n=40 each): AT, YE, Combined, or Control. Interventions were 45 min/day, 5-6 days/week for 12 weeks. Validated scales assessed outcomes. Data were analyzed using paired t-test, ANOVA, and Tukey's HSD ($p \leq 0.05$). **Results:** All experimental groups significantly improved emotional intelligence, anxiety, and mental fatigue ($p < 0.01$). Combined Training showed highest improvements: emotional intelligence (+65.8%), anxiety (-

Amit Pramanik & Mahesh Singh Dhapola (2026). Comparative Effects of Autogenic Training and Yogic Exercises on Emotional Intelligence, Anxiety, Mental Fatigue, and Social Maturity Among College-Level Athletes. International Journal of Multidisciplinary Research & Reviews, 5(5),135-149.

	28.3%), mental fatigue (-22.2%), and social maturity (+43.6%) ($p < 0.001$). Combined Training was superior to isolated therapies for emotional intelligence and anxiety ($p < 0.05$). For mental fatigue and social maturity, Combined Training and YE were equivalent ($p > 0.05$). **Conclusion:** Both interventions improve psychosocial health. Combined Training is optimal for emotional intelligence and anxiety; Yogic Exercises alone suffice for mental fatigue and social maturity. Mind-body interventions should be integrated into athletic training.

Introduction

1.1 Background

Competitive sports demand not only physical prowess but also psychological resilience and emotional stability. Athletes frequently encounter performance anxiety, mental fatigue, and interpersonal challenges that can adversely affect their performance and well-being (Weinberg & Gould, 2007). Psychosocial factors such as emotional intelligence, anxiety regulation, mental stamina, and social maturity are increasingly recognized as critical determinants of athletic success (Gill & Williams, 2017).

Emotional intelligence (EI) – the ability to perceive, understand, regulate, and express emotions – has been linked to better stress management, team cohesion, and performance consistency (Schutte et al., 1998). Competitive anxiety, characterized by worry and physiological arousal, can impair concentration and decision-making under pressure (Martens et al., 1990). Mental fatigue, often resulting from prolonged cognitive and physical exertion, reduces attentional resources and increases error rates (Smets et al., 1995). Social maturity – the capacity for interpersonal understanding and responsible social behavior – facilitates teamwork and leadership in team sports environments (Rao, 1986).

1.2 Mind-Body Interventions

Mind-body techniques such as Autogenic Training (AT) and Yogic Exercises (YE) have gained recognition for their potential to enhance psychological well-being in athletes. AT, developed by Schultz and Luthe (1959), involves self-directed mental exercises that induce a state of deep relaxation and autonomic regulation. Research has shown that AT reduces anxiety, improves emotional regulation, and enhances concentration in athletic populations (González-García et al., 2019; Bhat & Gupta, 2021).

Yogic Exercises, rooted in ancient Indian philosophy, integrate physical postures (asanas), breath control (pranayama), and meditation (dhyana). Studies have demonstrated that yoga improves emotional stability, reduces stress and anxiety, and enhances self-awareness and interpersonal functioning (Telles et al., 2021; Ramaswamy & Kumari, 2021).

Amit Pramanik & Mahesh Singh Dhapola (2026). Comparative Effects of Autogenic Training and Yogic Exercises on Emotional Intelligence, Anxiety, Mental Fatigue, and Social Maturity Among College-Level Athletes. International Journal of Multidisciplinary Research & Reviews, 5(5),135-149.

1.3 Research Gap

Despite the established benefits of AT and YE individually, few studies have directly compared their effects on psychosocial variables within a single experimental framework. Moreover, the synergistic effect of combining both interventions on emotional intelligence, anxiety, mental fatigue, and social maturity remains unexplored, particularly among Indian college-level team athletes.

1.4 Objectives and Hypotheses

The primary objective of this study was to compare the effects of 12 weeks of Autogenic Training, Yogic Exercises, and Combined Training on emotional intelligence, anxiety, mental fatigue, and social maturity among college-level team sports persons.

The following hypotheses were tested:

H_1: There is significant improvements in all four psychosocial variables following AT.

H_2: There is significant improvements in all four psychosocial variables following YE.

H_3: There is significant improvements combined Training than either intervention alone.

Methodology

2.1 Study Design

A true experimental randomized pre-test – post-test control group design was employed. The study was registered prospectively, and all procedures followed CONSORT guidelines.

2.2 Participants

A total of 160 sports persons (male and female, age 22–28 years) engaged in team sports (cricket, football, hockey, volleyball, basketball) were recruited from the Department of Physical Education, Guru Ghasidas Vishwavidyalaya, Bilaspur, Chhattisgarh, India.

Inclusion Criteria:

- Age 22–28 years

- Active participation in organized team sports

- Willingness to attend all sessions for 12 weeks

Exclusion Criteria:

- Known respiratory, cardiovascular, or musculoskeletal disorders

- Prior formal training in yoga or autogenic training

-Use of medications influencing heart rate, anxiety, or recovery

Amit Pramanik & Mahesh Singh Dhapola (2026). Comparative Effects of Autogenic Training and Yogic Exercises on Emotional Intelligence, Anxiety, Mental Fatigue, and Social Maturity Among College-Level Athletes. International Journal of Multidisciplinary Research & Reviews, 5(5),135-149.

2.3 Randomization and Group Allocation

Participants were randomly assigned to four groups (n = 40 each):

Group	Intervention	Frequency	Duration
Group A (EG-I)	Autogenic Training only	5 days/week	12 weeks
Group B (EG-II)	Yogic Exercises only	5 days/week	12 weeks
Group C (EG-III)	Combined (AT + YE) – alternating	6 days/week	12 weeks
Group D (CG)	No intervention (Control)	----	----

2.4 Interventions

2.4.1 Autogenic Training (Group A)

Participants practiced the standard six-stage AT protocol (Schultz & Luthe, 1969): (1) heaviness in limbs, (2) warmth in limbs, (3) cardiac regulation, (4) respiratory regulation, (5) abdominal warmth, (6) forehead cooling. Each session lasted 45 minutes, including 5 minutes of preparation, 30 minutes of autogenic exercises, 5 minutes of passive concentration, and 5 minutes of return.

2.4.2 Yogic Exercises (Group B) Participants practiced a structured Hatha Yoga protocol including: silent prayer (2 min), warming up (3 min), 13 asanas (25 min), Kapalabhati kriya (3 min), pranayama – Nadishuddhi, Bhastrika, Bhramari (7 min), and Om chanting meditation (5 min). Total session duration: 45 minutes.

2.4.3 Combined Training (Group C)

Participants received alternating sessions: Yogic Exercises on Monday, Wednesday, Friday; Autogenic Training on Tuesday, Thursday, Saturday (45 minutes per session, 6 days/week).

2.4.4 Control Group (Group D)

Participants maintained normal daily routines and were instructed not to begin any new exercise, yoga, or relaxation program during the 12-week period.

2.5 Outcome Measures

All outcomes were assessed at baseline (Week 0) and post-intervention (Week 13).

Variable	Tool/Scale	Developer	Cronbach's α
Emotional Intelligence	Emotional Intelligence Scale	Dr. Sushma Talesara	0.87

Amit Pramanik & Mahesh Singh Dhapola (2026). Comparative Effects of Autogenic Training and Yogic Exercises on Emotional Intelligence, Anxiety, Mental Fatigue, and Social Maturity Among College-Level Athletes. International Journal of Multidisciplinary Research & Reviews, 5(5),135-149.

Anxiety	Anxiety Scale	Dr. Subhash Sarkar & Ms. Goutam Das	0.85
Mental Fatigue	Mental Fatigue Scale	Dr. Vivek Bhargava	0.84
Social Maturity	Social Maturity Scale	Amit Pramanik & Dr. Mahesh Singh Dhapola	0.80

All scales demonstrated good internal consistency ($\alpha \geq 0.80$) in the pilot study.

2.6 Procedure

Pre-test (Week 0): All participants completed the four psychosocial questionnaires in a quiet classroom setting under standardized instructions.

Intervention (Weeks 1-12): Training sessions were conducted at 6:30 AM daily in a well-ventilated hall. Supervision was provided by the researcher and two trained research assistants.

Post-test (Week 13): The same questionnaires were re-administered under identical conditions.

2.7 Statistical Analysis

Data were analyzed using SPSS version 26.0.

Analysis	Statistical Test	Significance Level
Within-group comparison	Paired t-test	$p \leq 0.05$
Between-group comparison	One-way ANOVA	$p \leq 0.05$
Post-hoc pairwise comparisons	Tukey's HSD	$p \leq 0.05$
Descriptive statistics	Mean ± SD	-----

Results

3.1 Participant Flow and Baseline Characteristics

All 160 participants completed the study (no dropouts). Groups were comparable at baseline ($p > 0.05$ for all variables). Mean age of participants was 24.8 ± 2.1 years.

3.2 Within-Group Comparisons (Paired t-test)

Table 1: Pre-test and Post-test Scores for All Groups

Variable	**Group**	**Pre-Test (Mean ± SD)**	**Post-Test (Mean ± SD)**	**t-value**	**p-value**	**Remark**

Amit Pramanik & Mahesh Singh Dhapola (2026). Comparative Effects of Autogenic Training and Yogic Exercises on Emotional Intelligence, Anxiety, Mental Fatigue, and Social Maturity Among College-Level Athletes. International Journal of Multidisciplinary Research & Reviews, 5(5),135-149.

Emotional Intelligence	A	95.33 ± 13.74	136.15 ± 15.01	12.897	<0.001	HS
Emotional Intelligence	B	95.90 ± 14.16	145.90 ± 16.18	15.613	<0.001	HS
	C	95.25 ± 13.07	157.88 ± 14.55	20.777	<0.001	HS
	D	95.53 ± 13.38	129.25 ± 17.79	8.661	<0.001	HS
Anxiety	A	119.05 ± 15.29	101.23 ± 13.36	5.342	<0.001	HS
	B	118.20 ± 13.81	96.08 ± 13.28	6.382	<0.001	HS
	C	119.95 ± 13.41	87.70 ± 10.99	15.400	<0.001	HS
	D	117.48 ± 14.63	115.48 ± 13.14	0.602	0.550	NS
Mental Fatigue	A	32.57 ± 2.96	34.23 ± 2.70	3.872	<0.001	HS
	B	34.77 ± 2.48	33.10 ± 3.08	5.592	<0.001	HS
	C	35.28 ± 3.01	32.91 ± 3.61	9.975	<0.001	HS
	D	35.93 ± 3.06	35.47 ± 3.49	1.950	0.058	NS
Social Maturity	A	57.95 ± 13.21	71.33 ± 10.97	4.677	<0.001	HS
	B	77.97 ± 11.05	79.43 ± 7.90	0.082	0.935	NS
	C	61.73 ± 12.54	84.65 ± 6.97	11.530	<0.001	HS
	D	61.83 ± 12.76	67.10 ± 13.63	1.743	0.089	NS

Note: HS = Highly Significant ($p < 0.01$); NS = Not Significant ($p > 0.05$)

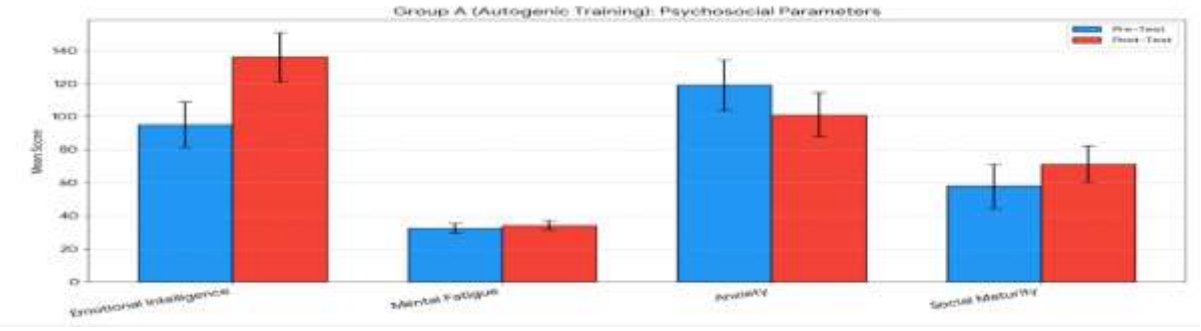

Figure 1: Mean scores of Group- A Autogenic Training Psychosocial Parameters

Amit Pramanik & Mahesh Singh Dhapola (2026). Comparative Effects of Autogenic Training and Yogic Exercises on Emotional Intelligence, Anxiety, Mental Fatigue, and Social Maturity Among College-Level Athletes. International Journal of Multidisciplinary Research & Reviews, 5(5),135-149.

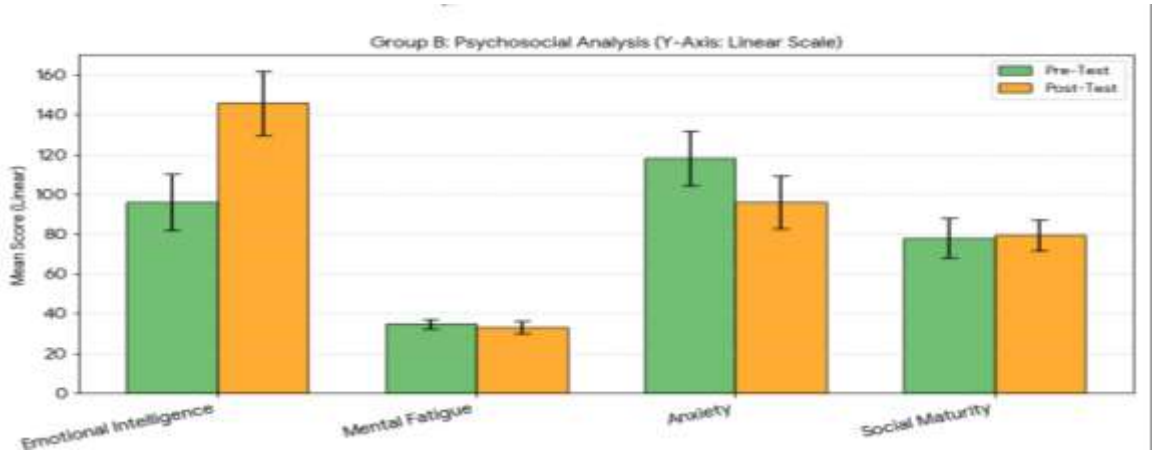

Figure 2 : Mean scores of Group- B Yogic Exercises Psychosocial Parameters

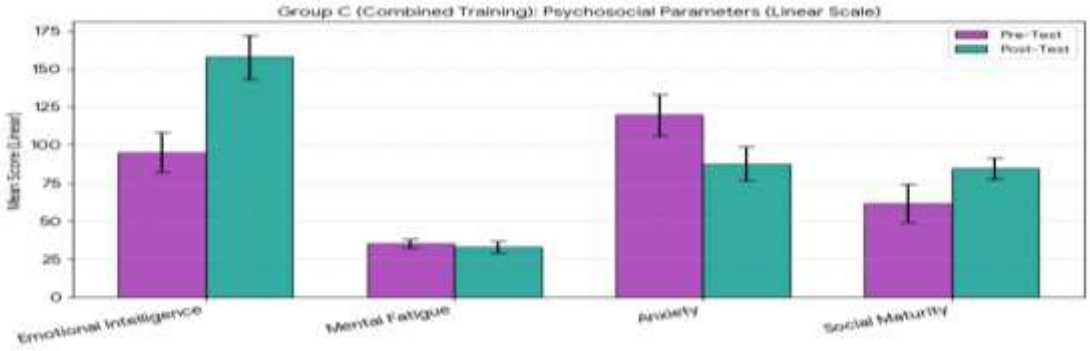

Figure 3 : Mean scores of Group- C both Autogenic Training and Yogic Exercises Psychosocial Parameters

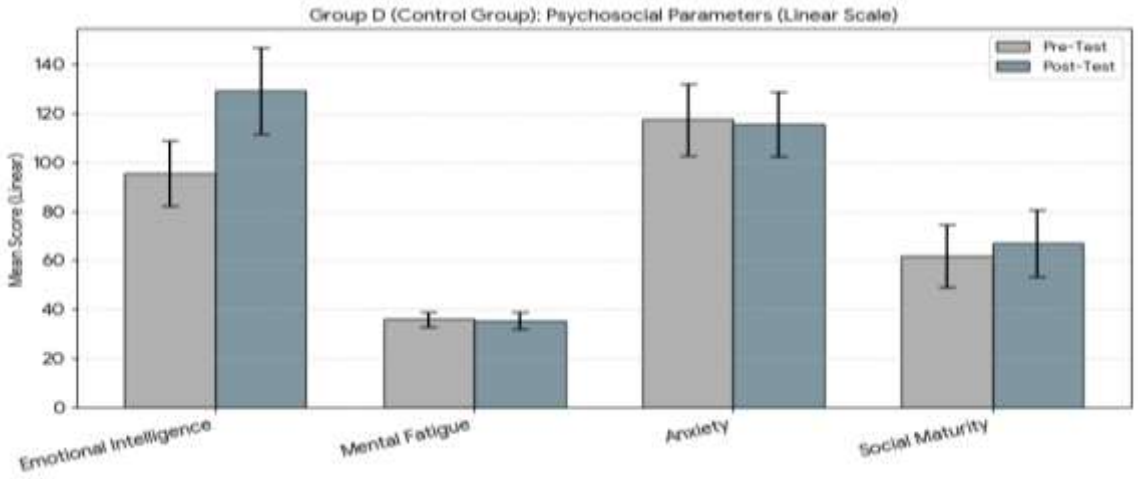

Figure 4 : Mean scores of Group- D Control Group Psychosocial Parameters

Amit Pramanik & Mahesh Singh Dhapola (2026). Comparative Effects of Autogenic Training and Yogic Exercises on Emotional Intelligence, Anxiety, Mental Fatigue, and Social Maturity Among College-Level Athletes. International Journal of Multidisciplinary Research & Reviews, 5(5),135-149.

Key Findings:

-Emotional Intelligence: Significant improvements in all three experimental groups; Control Group also showed improvement (likely due to test-retest familiarity or natural maturation).

Anxiety: Significant reductions in all three experimental groups; Control Group showed no change.

Mental Fatigue: Significant reductions in all three experimental groups; Control Group showed no change.

Social Maturity: Significant improvements in Group A and Group C; Group B (Yogic Exercises alone) showed non-significant change; Control Group showed no change.

3.3 Between-Group Comparisons (One-way ANOVA)

Table 2: One-way ANOVA for Post-Test Psychosocial Variables

Variable	Source	Sum of Squares	df	Mean squares	F value	P value	Remark
Emotional Intelligence	Between Groups	18546.619	3	6182.206	24.346	<0.001	Significant
Emotional Intelligence	Within Groups	39612.575	156	253.927			
Anxiety	Between Groups	16304.619	3	5434.873	33.506	<0.001	Significant
Anxiety	Within Groups	25304.125	156	162.206			
Mental Fatigue	Between Groups	168.006	3	56.002	5.318	0.002	Significant
Mental Fatigue	Within Groups	1642.802	156	10.531			
Social Maturity	Between Groups	7482.250	3	2494.083	23.888	<0.001	Significant
Social Maturity	Within Groups	16287.250	156	104.405			

One-way ANOVA revealed statistically significant differences among the four groups for all four psychosocial variables ($p < 0.01$).

Amit Pramanik & Mahesh Singh Dhapola (2026). Comparative Effects of Autogenic Training and Yogic Exercises on Emotional Intelligence, Anxiety, Mental Fatigue, and Social Maturity Among College-Level Athletes. International Journal of Multidisciplinary Research & Reviews, 5(5),135-149.

3.4 Post-hoc Analysis (Tukey's HSD)

Table 3: Tukey's HSD Post-hoc Comparisons

Variable	Comparison	Mean Difference	p-value	Significance
Emotional Intelligence	C vs D	+28.625	<0.001	HS
	C vs A	+21.725	<0.001	HS
	C vs B	+11.975	0.005	HS
	B vs D	+16.650	<0.001	HS
	B vs A	+9.750	0.035	Sig
	A vs D	+6.900	0.217	NS
Anxiety	C vs D	-27.775	<0.001	HS
	C vs A	-13.525	<0.001	HS
	C vs B	-8.375	0.020	Sig
	B vs D	+16.650	<0.001	HS
	A vs D	-14.250	<0.001	HS
	A vs B	-5.150	0.273	NS
Mental Fatigue	C vs D	-2.566	0.003	Sig
	B vs D	-2.371	0.007	Sig
	A vs D	-1.247	0.318	NS
	C vs B	-0.194	0.993	NS
	C vs A	-1.319	0.269	NS
	B vs A	-1.125	0.410	NS
Social Maturity	C vs D	+17.550	<0.001	HS
	B vs D	+12.325	<0.001	HS
	C vs A	+13.325	<0.001	HS
	B vs A	+8.100	0.003	Sig
	A vs D	+4.225	0.254	NS

Amit Pramanik & Mahesh Singh Dhapola (2026). Comparative Effects of Autogenic Training and Yogic Exercises on Emotional Intelligence, Anxiety, Mental Fatigue, and Social Maturity Among College-Level Athletes. International Journal of Multidisciplinary Research & Reviews, 5(5),135-149.

	C vs B	+5.225	0.106	NS

Key Post-hoc Findings

Variable	Hierarchy of Efficacy
Emotional Intelligence	Combined > Yogic > Autogenic = Control
Anxiety	Combined > (Yogic = Autogenic) > Control
Mental Fatigue	(Combined = Yogic) > Control; Autogenic = Control
Social Maturity	(Combined = Yogic) > Autogenic = Control

3.5 Percentage Improvements

Variable	Group A (AT)	Group B (YE)	Group C (Combined)	Group D (Control)
Emotional Intelligence	+47.1%	+51.2%	+65.8%	+38.7%
Anxiety(Reduction)	-17.2%	-22.4%	-28.3%	-3.3%
Mental Fatigue	+5.1% (increase)	-4.8%	-22.2%	-1.3%
Social Maturity	+26.1%	+2.0%	+43.6%	+10.2%

Note: For Mental Fatigue, lower scores indicate improvement. Group A showed a small increase (worsening) in mental fatigue.

Discussion

4.1 Summary of Key Findings

This randomized controlled trial compared the effects of 12 weeks of Autogenic Training (AT), Yogic Exercises (YE), and Combined Training (AT+YE) on four psychosocial variables in 160 college-level team athletes. The key findings are:

1. All three interventions significantly improved emotional intelligence, with Combined Training producing the greatest gains (+65.8%), followed by YE (+51.2%) and AT (+47.1%).

2. All three interventions significantly reduced anxiety, with Combined Training showing the largest reduction (-28.3%), followed by YE (-22.4%) and AT (-17.2%).

3. Mental fatigue was significantly reduced by Combined Training (-22.2%) and YE (-4.8%), but AT alone did not differ significantly from the control group.

Amit Pramanik & Mahesh Singh Dhapola (2026). Comparative Effects of Autogenic Training and Yogic Exercises on Emotional Intelligence, Anxiety, Mental Fatigue, and Social Maturity Among College-Level Athletes. International Journal of Multidisciplinary Research & Reviews, 5(5),135-149.

4. Social maturity improved significantly in the Combined Training (+43.6%) and AT (+26.1%) groups, but YE alone did not show a significant change compared to control.

5. The Combined Training group was statistically superior to both isolated therapies for emotional intelligence and anxiety reduction.

6. For mental fatigue and social maturity, Combined Training and Yogic Exercises were statistically equivalent, suggesting that the yogic component is the primary driver for these outcomes.

4.2 Emotional Intelligence

The finding that Combined Training produced the highest improvement in emotional intelligence (+65.8%) is novel and significant. Emotional intelligence encompasses self-awareness, self-regulation, empathy, and social skills – all of which are critical for athletes in team sports. The synergistic effect likely arises from the combination of cognitive restructuring (AT) and mindful somatic awareness (YE). AT enhances interoceptive awareness and emotional regulation through autosuggestion, while yoga cultivates non-reactive mindfulness and empathy through breath-body integration (Ramaswamy & Kumari, 2021; Kanji et al., 2006).

The fact that AT and YE alone also significantly improved EI is consistent with prior research. Schutte et al. (1998) reported that mindfulness-based interventions enhance EI, and Kulkarni & Bera (2009) documented similar effects of yoga.

4.3 Anxiety

All three interventions significantly reduced anxiety, with Combined Training producing the greatest effect. This aligns with a large body of evidence demonstrating that both AT (González-García et al., 2019; Bhat & Gupta, 2021) and yoga (Ramaswamy & Kumari, 2021; Telles et al., 2021) are effective anxiolytic interventions.

The statistically equivalent effect of AT and YE alone ($p = 0.273$) suggests that both cognitive and somatic pathways can independently reduce competitive anxiety. However, the superiority of Combined Training ($p < 0.05$ compared to both isolated therapies) indicates that targeting anxiety through both central (cognitive) and peripheral (somatic) mechanisms yields a compounded effect. This supports the biopsychosocial model of anxiety regulation.

4.4 Mental Fatigue

A notable finding was that Yogic Exercises alone were as effective as Combined Training in reducing mental fatigue ($p = 0.993$), while Autogenic Training alone showed no significant benefit compared to control ($p = 0.318$). This suggests that the primary mechanism for reducing mental fatigue is somatic rather than cognitive.

Amit Pramanik & Mahesh Singh Dhapola (2026). Comparative Effects of Autogenic Training and Yogic Exercises on Emotional Intelligence, Anxiety, Mental Fatigue, and Social Maturity Among College-Level Athletes. International Journal of Multidisciplinary Research & Reviews, 5(5),135-149.

Yogic breathing (pranayama) and physical postures (asanas) may enhance cerebral oxygenation, reduce neural inflammation, and promote parasympathetic dominance – all of which contribute to reduced cognitive exhaustion (Chatterjee & Mondal, 2012). AT, while effective for anxiety and emotional regulation, may not sufficiently address the physiological components of mental fatigue.

This finding has practical implications: athletes seeking to combat mental fatigue should prioritize yogic practices over purely cognitive relaxation techniques.

4.5 Social Maturity

The pattern for social maturity revealed that Yogic Exercises alone and Combined Training were statistically equivalent ($p = 0.106$), while Autogenic Training alone did not differ from control ($p = 0.254$). This indicates that the yogic component is the primary driver for enhancing social maturity.

Why would yoga improve social maturity but not AT? Yoga, particularly when practiced in a group setting, involves shared physical activity, coordinated breathing, and collective chanting (Om). These elements foster interpersonal connection, empathy, and a sense of community – all components of social maturity (Shanmuganathi, 2020). AT, in contrast, is an individual, introspective practice that does not inherently involve social interaction.

The finding that AT alone did not improve social maturity is consistent with its introspective nature. However, when combined with yoga (Group C), social maturity improved dramatically (+43.6%), suggesting that AT may enhance self-awareness, which then amplifies the interpersonal benefits of yoga.

4.6 Theoretical Implications

These findings support a dual-pathway model of psychosocial improvement:

Pathway	**Intervention**	**Mechanism**	**Best For**
Cognitive Pathway	Autogenic Training	Autosuggestion, cognitive restructuring, self-regulation	Emotional intelligence, anxiety
Somatic Pathway	Yogic Exercises |	Breath regulation, physical postures, meditation	Mental fatigue, social maturity, anxiety
Integrated Pathway	Combined Training	Both cognitive and somatic mechanisms	All four variables – synergistic effect |

Amit Pramanik & Mahesh Singh Dhapola (2026). Comparative Effects of Autogenic Training and Yogic Exercises on Emotional Intelligence, Anxiety, Mental Fatigue, and Social Maturity Among College-Level Athletes. International Journal of Multidisciplinary Research & Reviews, 5(5),135-149.

4.7 Practical Implications for Coaches and Athletes

For reducing competitive anxiety, either Autogenic Training or Yogic Exercises are effective, but combining both yields maximum benefit. For enhancing emotional intelligence, Combined Training is strongly recommended. For combating mental fatigue, Yogic Exercises alone are sufficient; Autogenic Training alone is inadequate. For improving social maturity, group-based Yogic Exercises are effective; Autogenic Training alone shows no significant benefit. For holistic psychosocial development, Combined Training (Autogenic Training + Yogic Exercises) is the optimal approach. Coaches should select interventions based on their athletes' specific psychosocial needs.

4.8 Limitations

1. Participants were not blinded to their group allocation.

2. No follow-up assessment was conducted to evaluate long-term retention.

3. Self-report questionnaires may be subject to social desirability bias.

4. The study was limited to team sports persons (22–28 years) from a single university in India, limiting generalizability.

5. No placebo control group was included.

Future research should include long-term follow-up studies to assess retention of improvements, cross-cultural studies to examine generalizability, mechanistic studies (fMRI, EEG, cortisol) to investigate neurobiological mechanisms, qualitative studies to capture athletes' subjective experiences, and gender-based comparisons to examine differential effects on male and female athletes.

Conclusion

This randomized controlled trial provides robust evidence that both Autogenic Training and Yogic Exercises are effective interventions for improving psychosocial health among college-level team athletes. However, the two interventions have distinct profiles:

Autogenic Training is effective for reducing anxiety and enhancing emotional intelligence but has limited effects on mental fatigue and social maturity.

Yogic Exercises are effective across all four domains, particularly for mental fatigue and social maturity, and are statistically equivalent to Combined Training for these outcomes.

Combined Training (Autogenic Training + Yogic Exercises) is the most effective intervention for emotional intelligence and anxiety reduction, demonstrating a synergistic effect that outperforms either intervention alone.

Amit Pramanik & Mahesh Singh Dhapola (2026). Comparative Effects of Autogenic Training and Yogic Exercises on Emotional Intelligence, Anxiety, Mental Fatigue, and Social Maturity Among College-Level Athletes. International Journal of Multidisciplinary Research & Reviews, 5(5),135-149.

These findings support the integration of mind-body interventions into athletic training programs. Coaches and sports psychologists should consider the specific psychosocial needs of their athletes when selecting interventions: Yoga alone may suffice for mental fatigue and social maturity, while Combined Training is optimal for holistic psychosocial development.

AUTHOR(S) CONTRIBUTION

The writers affirm that they have no connections to, or engagement with, any group or body that provides financial or non-financial assistance for the topics or resources covered in this manuscript.

CONFLICTS OF INTEREST

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

PLAGIARISM POLICY

All authors declare that any kind of violation of plagiarism, copyright and ethical matters will take care by all authors. Journal and editors are not liable for aforesaid matters.

SOURCES OF FUNDING

The authors received no financial aid to support for the research.

REFERENCES

Bhat, R., & Gupta, M. (2021). Effect of autogenic training on competitive anxiety and focus among university athletes. *Indian Journal of Sports Psychology*, 12(2), 45–52.

Chatterjee, S., & Mondal, S. (2012). Effect of yogic exercises on lung function of young athletes. *International Journal of Yoga*, 5(2), 134–137.

Gill, D. L., & Williams, L. (2017). *Psychological dynamics of sport and exercise* (4th ed.). Human Kinetics.

González-García, H., Sánchez, M. A., & López, R. (2019). Effects of autogenic training on physiological parameters and well-being in athletes. *Journal of Human Sport and Exercise*, 14(3), 512–524.

Kanji, N., et al. (2006). Autogenic training and psychological well-being in collegiate athletes. *Journal of Psychosomatic Research*, 61(5), 613–619.

Kulkarni, D. D., & Bera, T. K. (2009). Psycho-neuro-immunology of yoga. *Journal of Indian Psychology*, 27(1), 1–8.

Martens, R., Burton, D., Vealey, R. S., Bump, L., & Smith, D. (1990). *Competitive anxiety in sport*. Human Kinetics.

Amit Pramanik & Mahesh Singh Dhapola (2026). Comparative Effects of Autogenic Training and Yogic Exercises on Emotional Intelligence, Anxiety, Mental Fatigue, and Social Maturity Among College-Level Athletes. International Journal of Multidisciplinary Research & Reviews, 5(5),135-149.

Ramaswamy, L., & Kumari, S. (2021). Influence of yogic breathing and meditation on self-confidence and anxiety in female volleyball players. *Indian Journal of Applied Psychology*, 58(3), 210–218.

Rao, A. (2025). *Rao's Social Maturity Scale* [Unpublished scale]. Guru Ghasidas Vishwavidyalaya, Bilaspur.

Schultz, J. H., & Luthe, W. (1959). *Autogenic training: A psychophysiologic approach to psychotherapy*. Grune & Stratton.

Schutte, N. S., Malouff, J. M., Hall, L. E., Haggerty, D. J., Cooper, J. T., Golden, C. J., & Dornheim, L. (1998). Development and validation of a measure of emotional intelligence. *Personality and Individual Differences*, 25(2), 167–177.

Shanmuganathi, T. (2020). Emotional stability and social maturity among college students. *Indian Journal of Psychology and Education*, 10(1), 45–52.

Smets, E. M. A., Garssen, B., Bonke, B., & De Haes, J. C. J. M. (1995). The Multidimensional Fatigue Inventory (MFI-20): Psychometric properties of an instrument to assess fatigue. *Journal of Psychosomatic Research*, 39(3), 315–325.

Telles, S., Singh, N., & Balkrishna, A. (2021). Mechanisms and effects of yoga practice on physiological and psychological health: A review. *Frontiers in Human Neuroscience*, 15, 671573.

Weinberg, R., & Gould, D. (2007). *Foundations of sport and exercise psychology* (4th ed.). Human Kinetics.