

Physiological and Psychological Arousal in elite Sport Shooting Performance

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Outline

- **Definition of terms**
- **The purpose of the study**
- **Outcome**
- **Methodology**
 - Questionnaire
 - Electro dermal activity
- **Findings**
- **Conclusion**

Definition of terms

- Arousal / Activation

a general physiological and psychological activation varying on a continuum from deep sleep to intense excitement. (Gould & Krane, 1992).

- Physiological arousal /activation

The physiological arousal is measured by the current SCL (Barry et al, 2004)

“activation” in this paper refers to a *change* in SCL from a baseline to task activated.

- psychological arousal

- The psychological arousal is measured by AD-ACL (Thayer, 1987).

- Shooting performance (score, shot stability on 10 and 10a,shot deviation, inter shot interval, tracing distance)

The Purpose

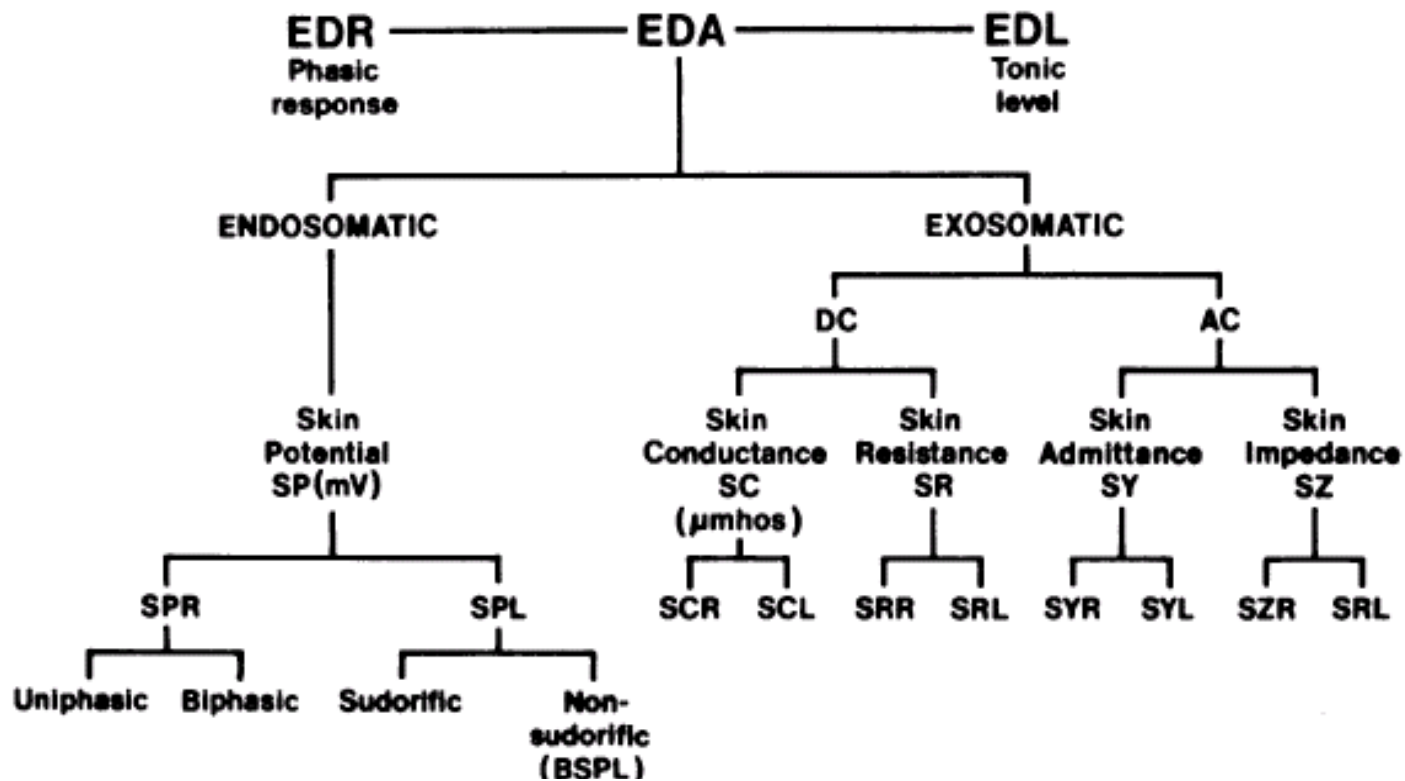
- The purpose of study was to examine the accuracy of two methods of measuring arousal in assessing elite shooting performance ;
 - A questionnaire Assessing psychological arousal
- Or
- Electro dermal activity (EDA) Assessing physiological arousal

Outcome

**Physiological arousal was a better predictor
of elite shooting performance than
psychological arousal.**

Methodology

Electro dermal activity



Activation-Deactivation Adjective checklist (Thayer, 1987)

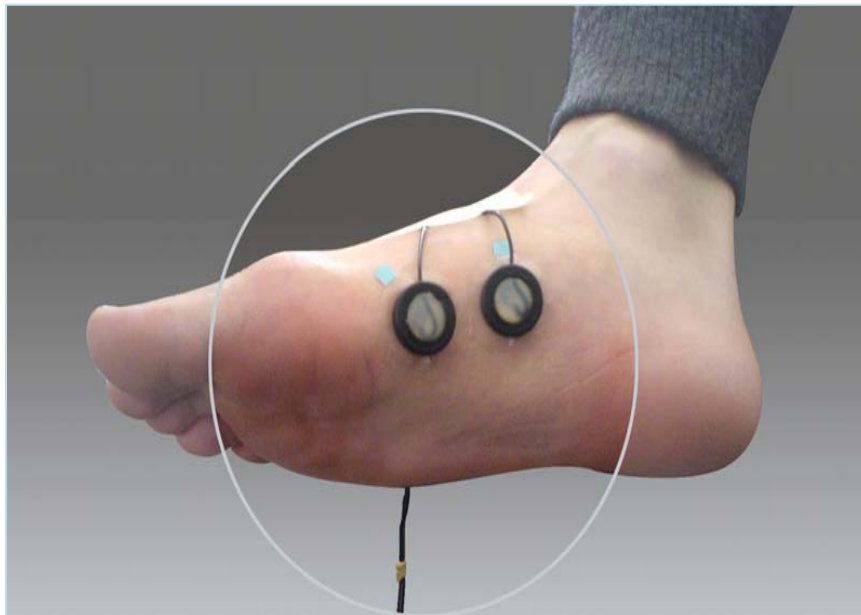
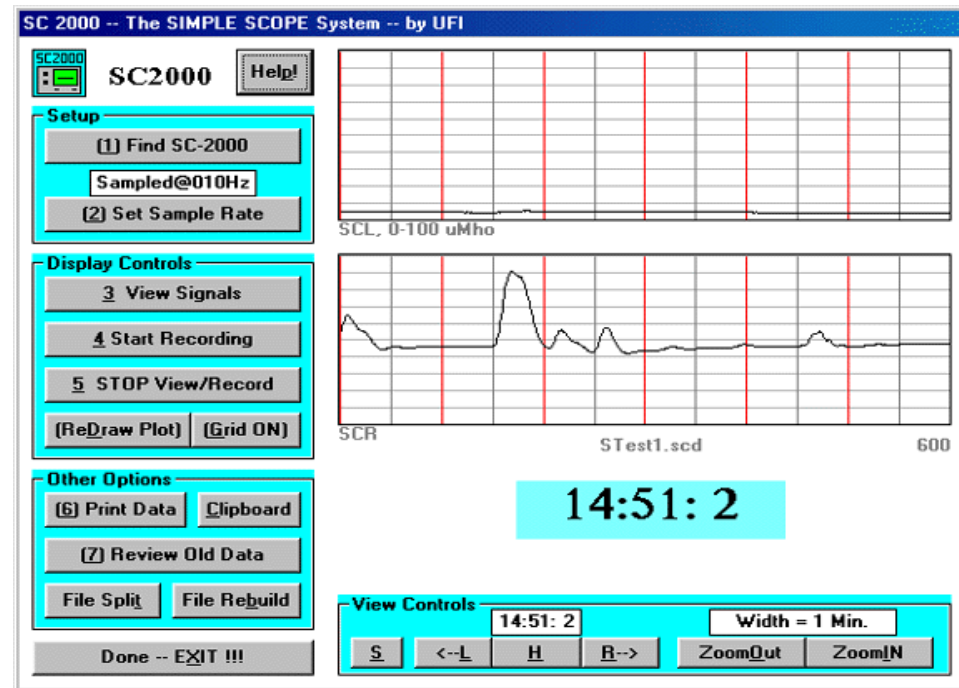
As an indicator of psychological arousal)

Energy	A1	Energy	active, energetic, vigorous, lively, full-of-pep
	A2	Tired	sleepy, tired, drowsy, wide-awake, wakeful
Tension	B1	Tension	jittery, intense, fearful, clutched-up, tense
	B2	calmness	placid, calm, at-rest, still, quiet



Participants	Age (year)	Athletic experiences (year)
Female	27.46 ± 5.93	5.4 ± 4.38
Male	31.8 ± 6.81	6.1 ± 4.28
Total	29.24 ± 6.53	5.24 ± 4.98

Electro dermal activity records as physiological indicator of Arousal



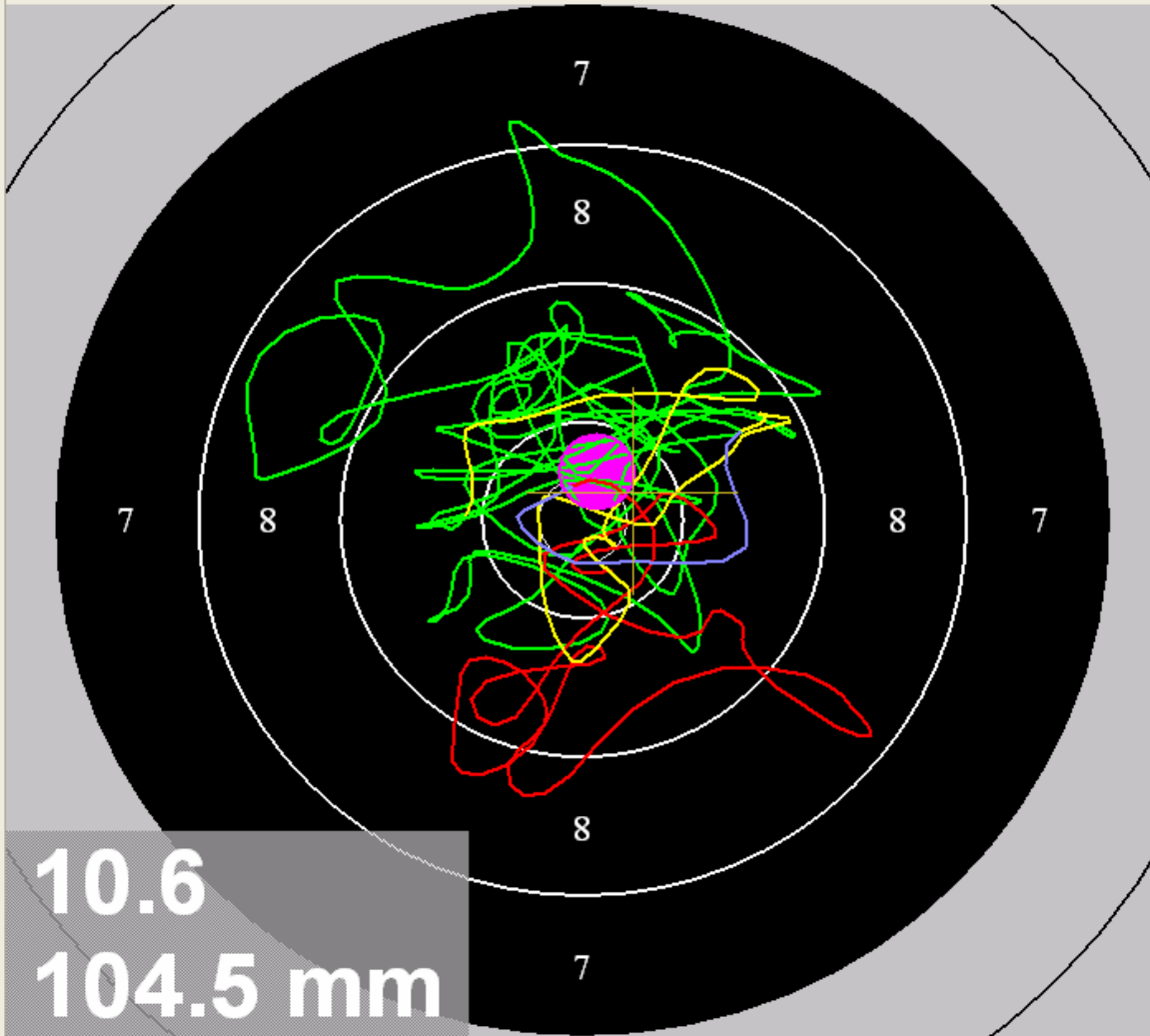
Match. 60 shot(s)



#	Result	Time	10.0	10.5	10a0	10a5	Length
1	8.5	8.3	7%	2%	83%	15%	108.9
2	10.4	7.6	62%	25%	72%	33%	117.6
3	9.0	9.2	28%	4%	86%	37%	112.5
4	9.9	5.0	76%	34%	92%	28%	88.8
5	10.0	6.5	44%	15%	73%	26%	127.1
6	9.0	6.0	57%	21%	66%	19%	133.6
7	10.0	6.7	50%	12%	73%	25%	144.7
8	10.5	9.2	83%	22%	83%	32%	121.0
9	10.6	8.1	59%	31%	68%	16%	104.5
10	9.8	8.5	37%	12%	50%	20%	100.2
94	97.7	7.5	50%	17%	74%	25%	115.9



#	Result	Time	10.0	10.5	10a0	10a5	Length
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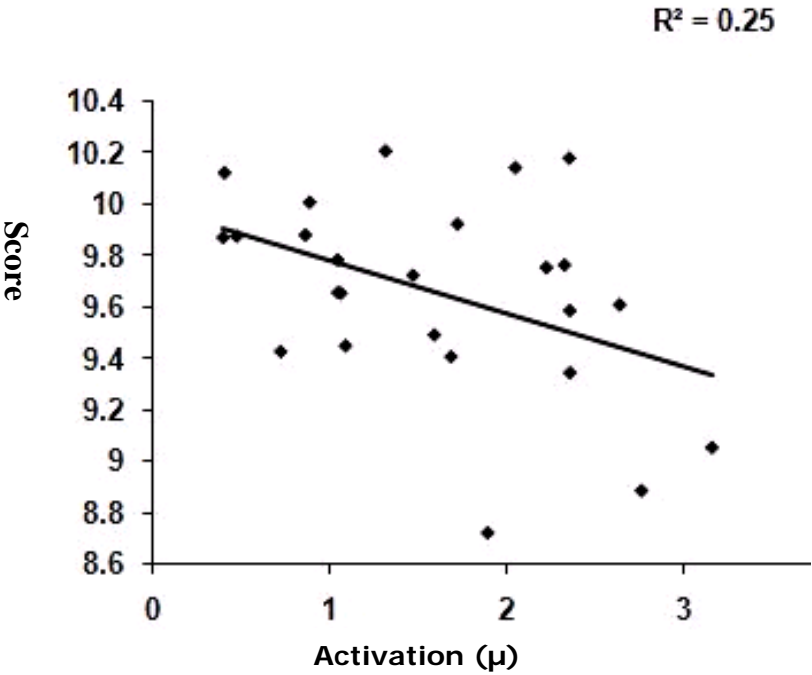
10.6
104.5 mm

Press F1 for help

Findings

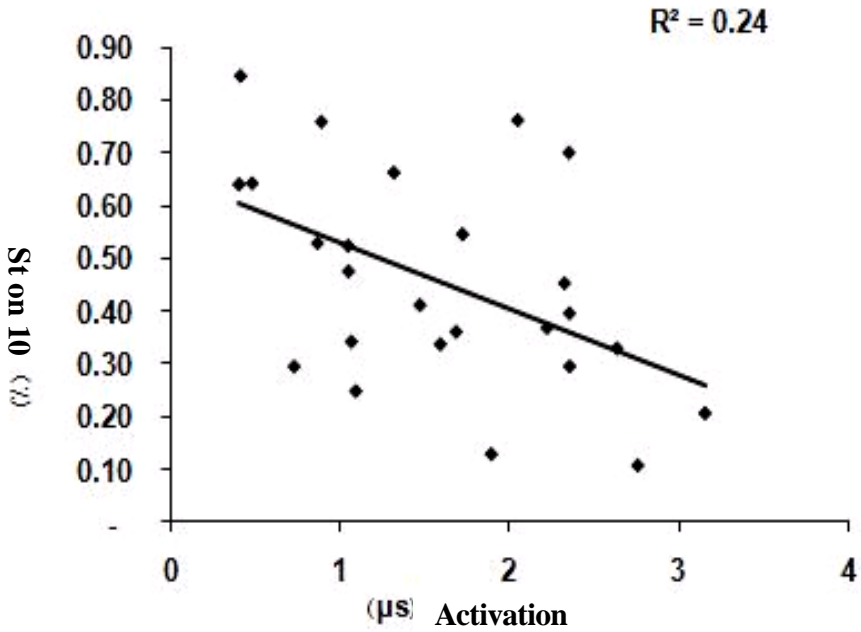
Physiological Activation-performance

Activation-score



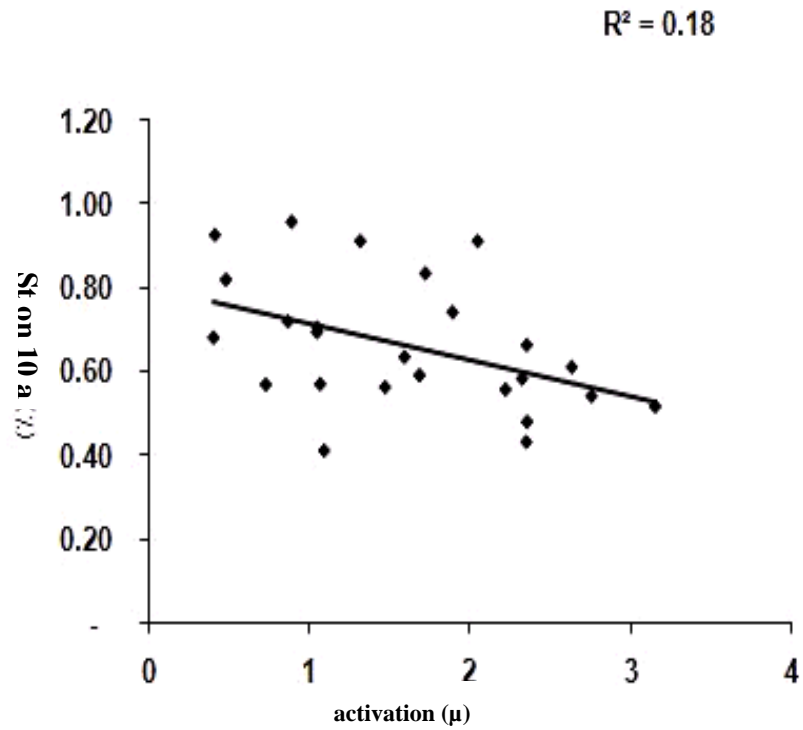
(a)

Activation- stability on 10



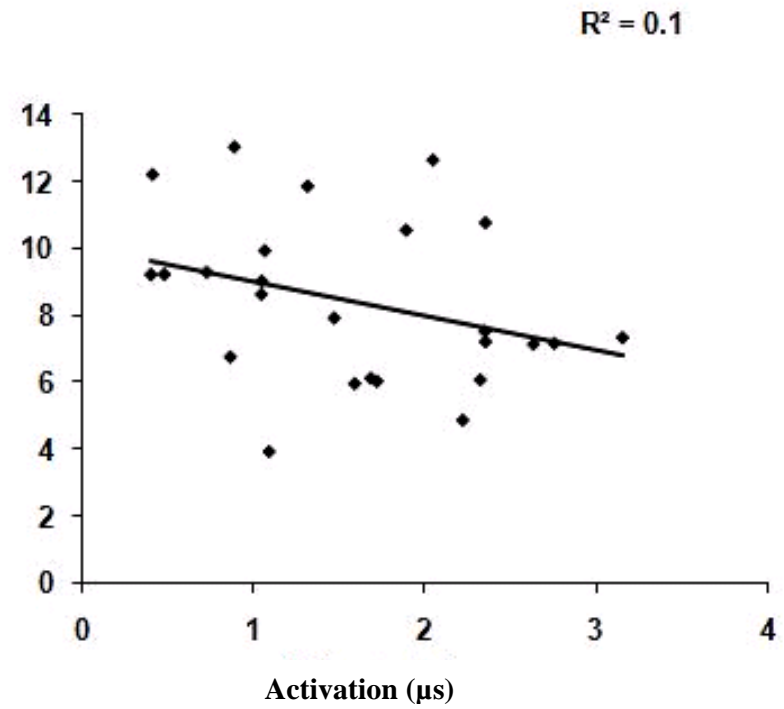
(b)

Activation-stability On 10a



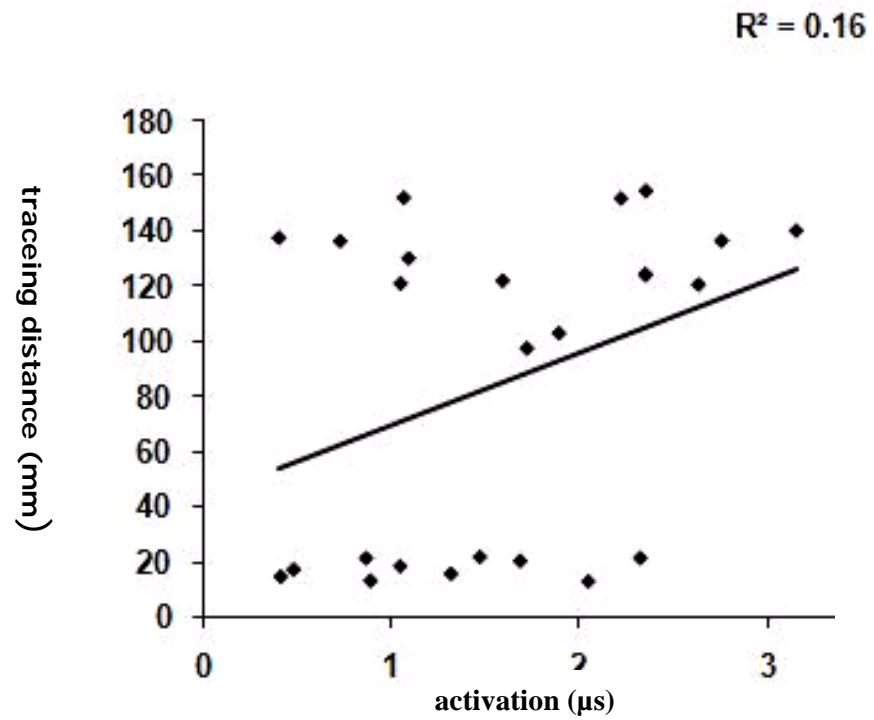
(c)

Activation-time



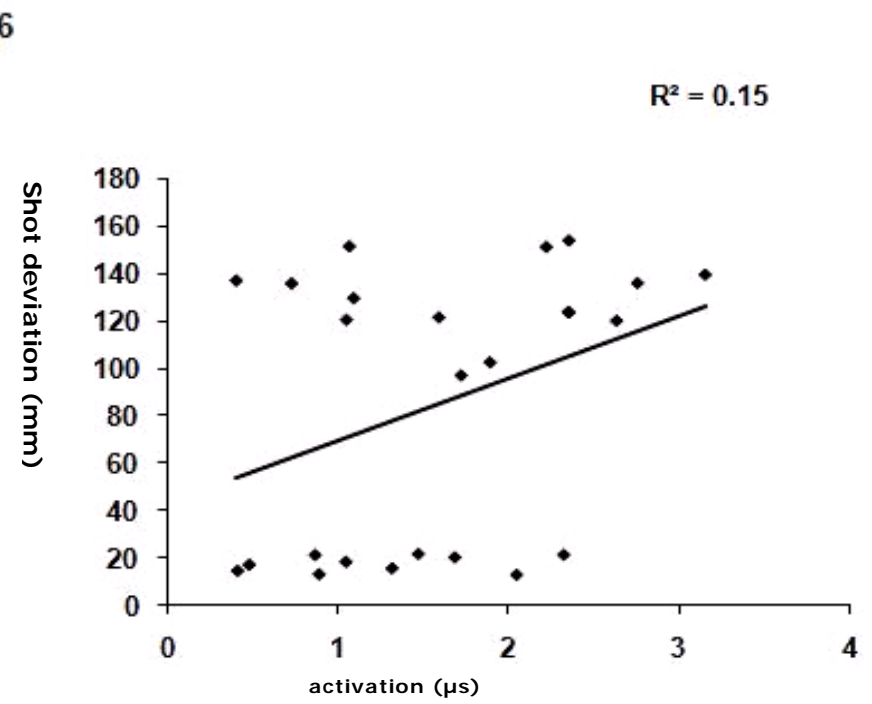
(d)

Activation-tracing distance



(e)

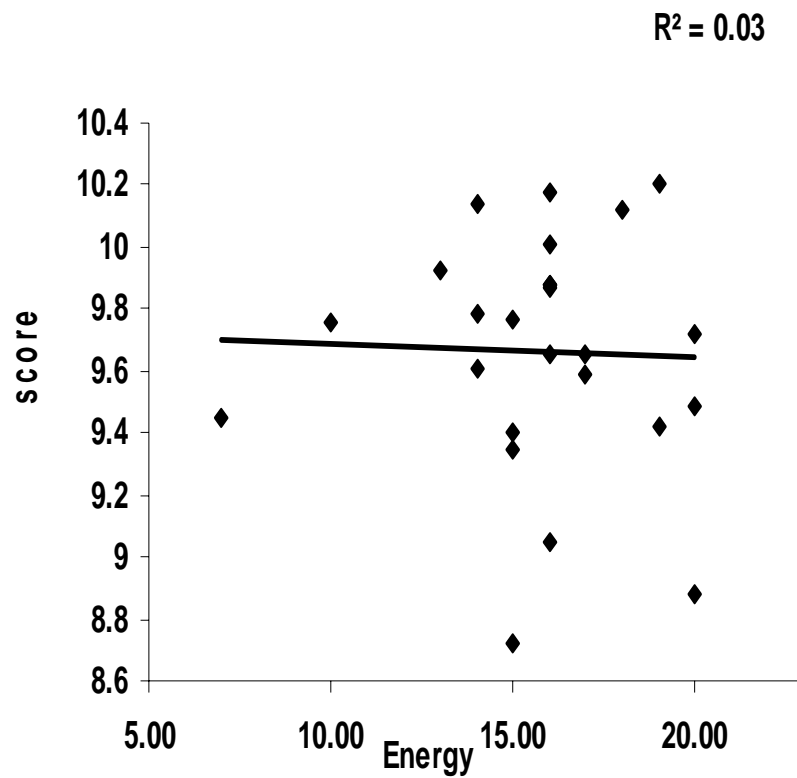
Activation-shot deviation



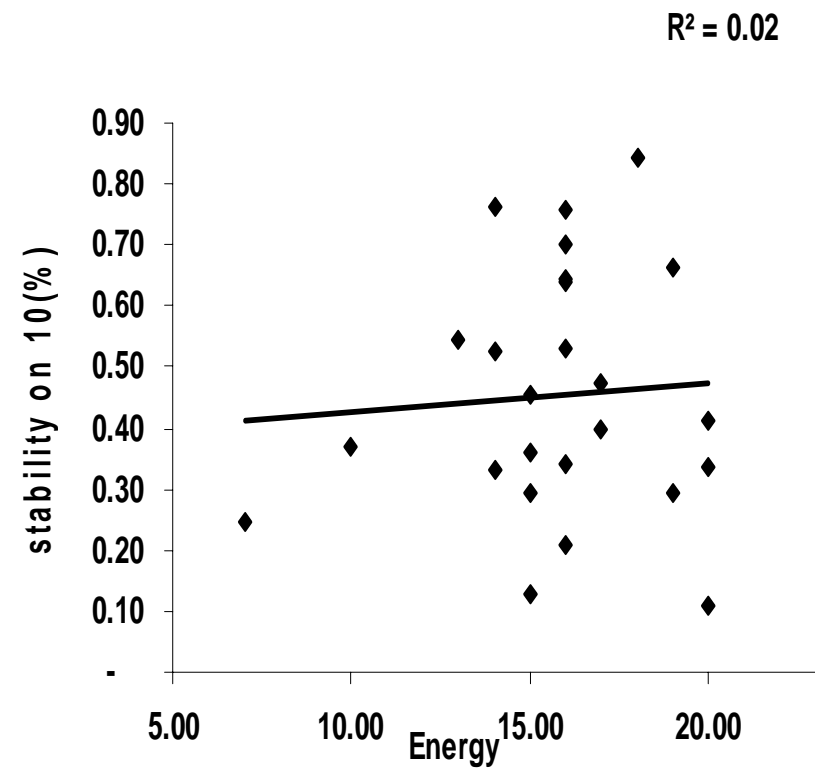
(f)

Psychological arousal/ performance

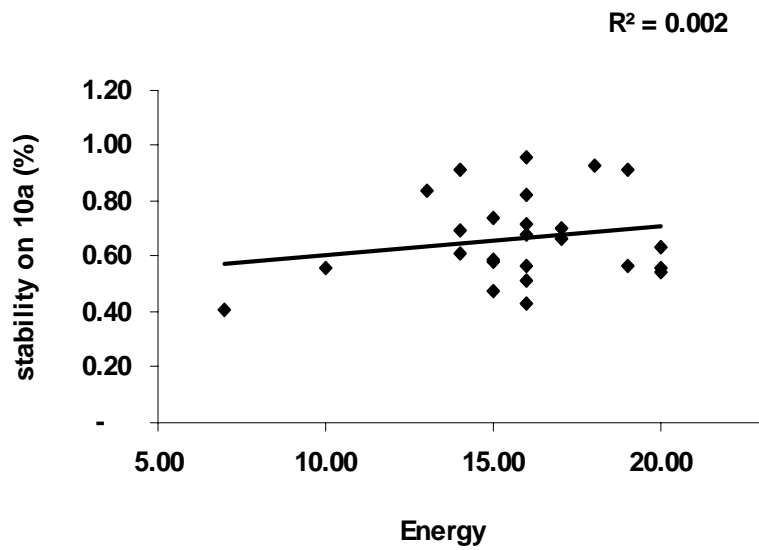
Energy-performance (Score & Stability on 10)



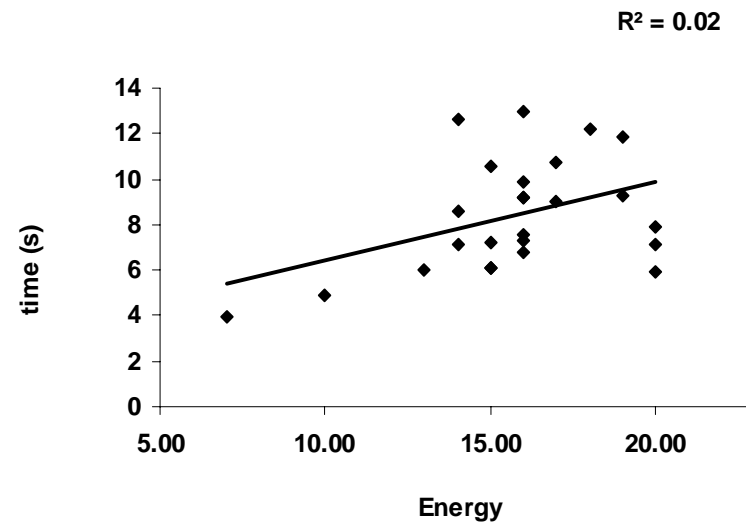
(a)



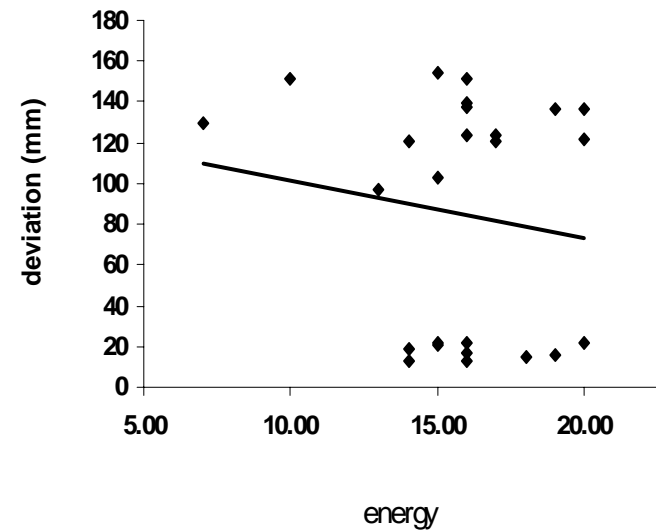
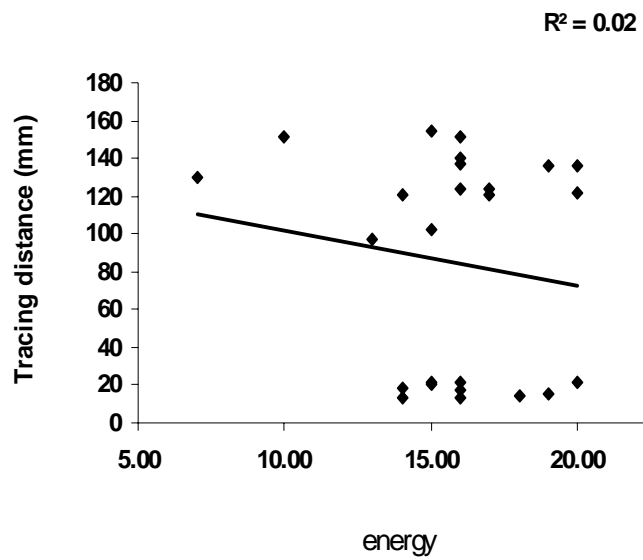
(b)



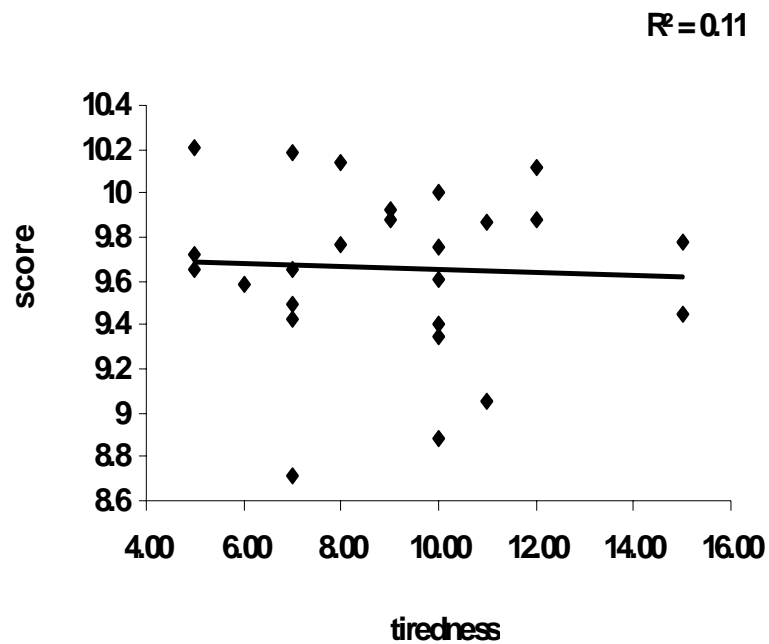
(c)



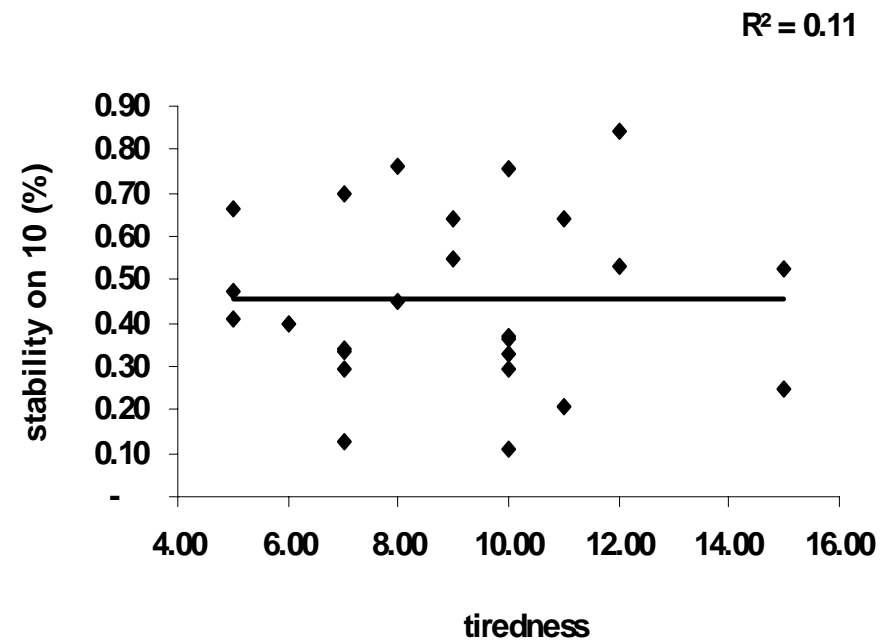
(d)



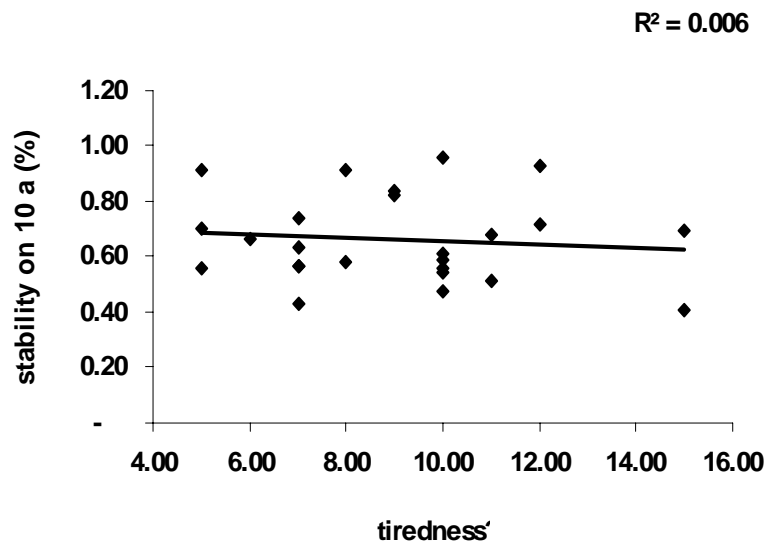
Tiredness- performance (score and stability on 10)



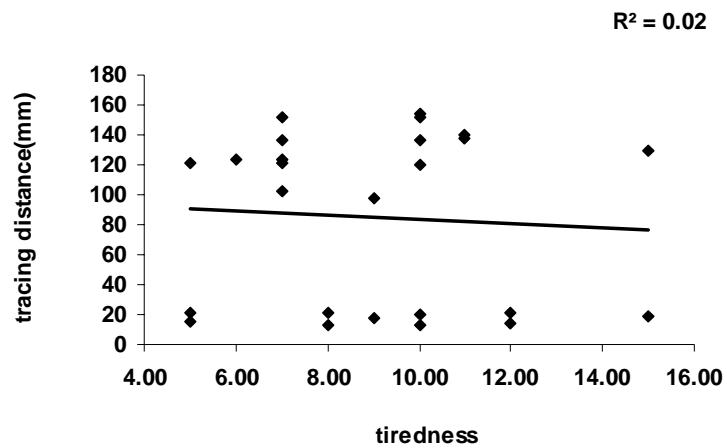
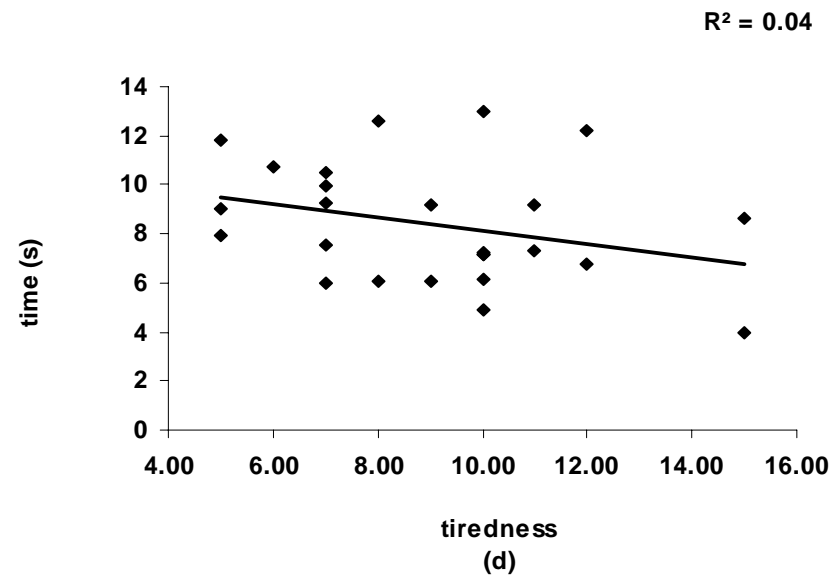
(a)



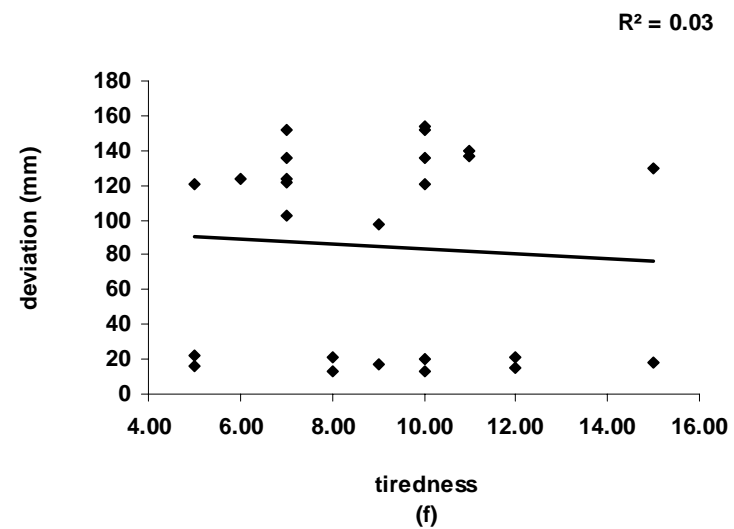
(b)



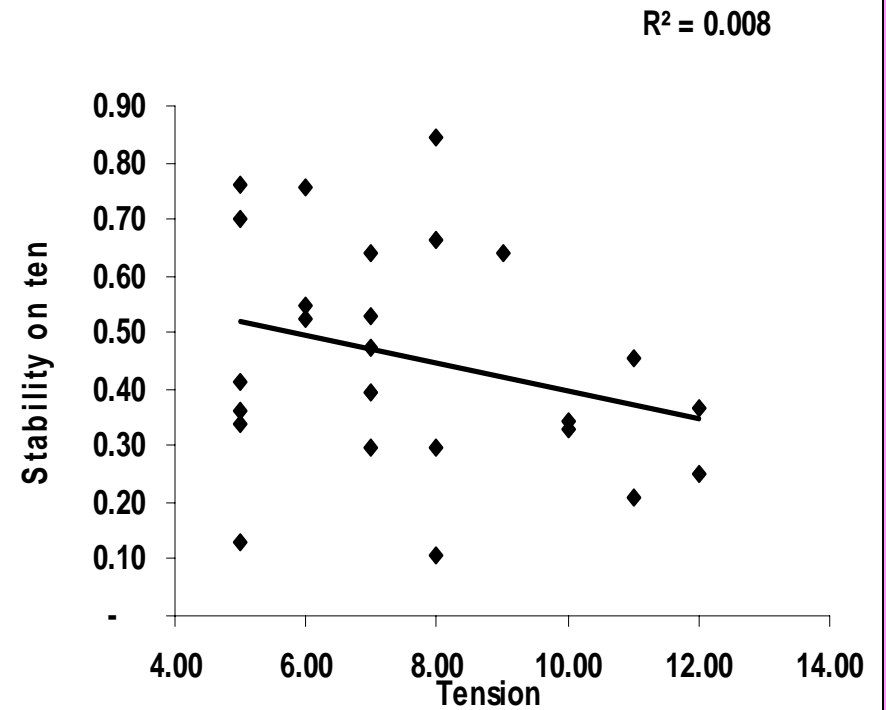
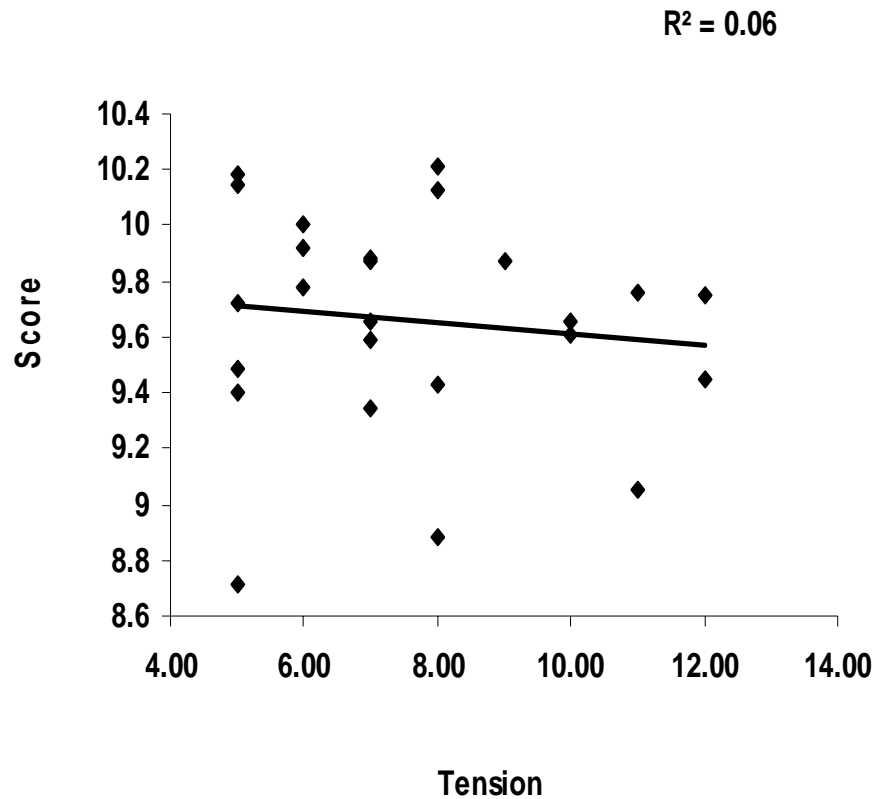
(c)

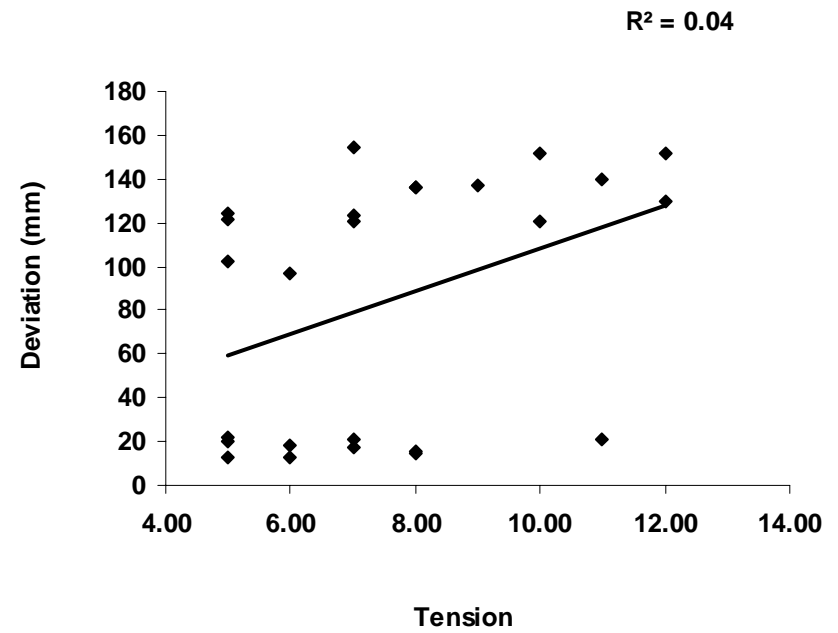
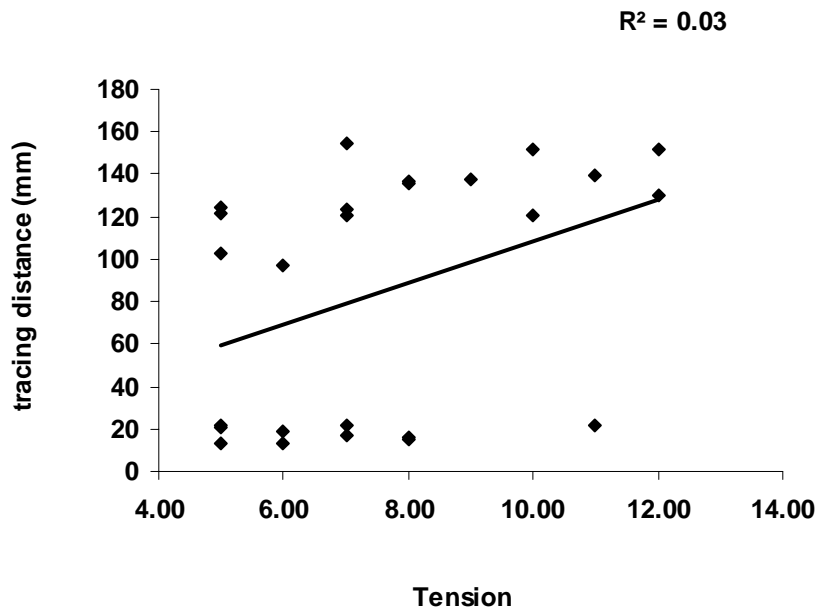
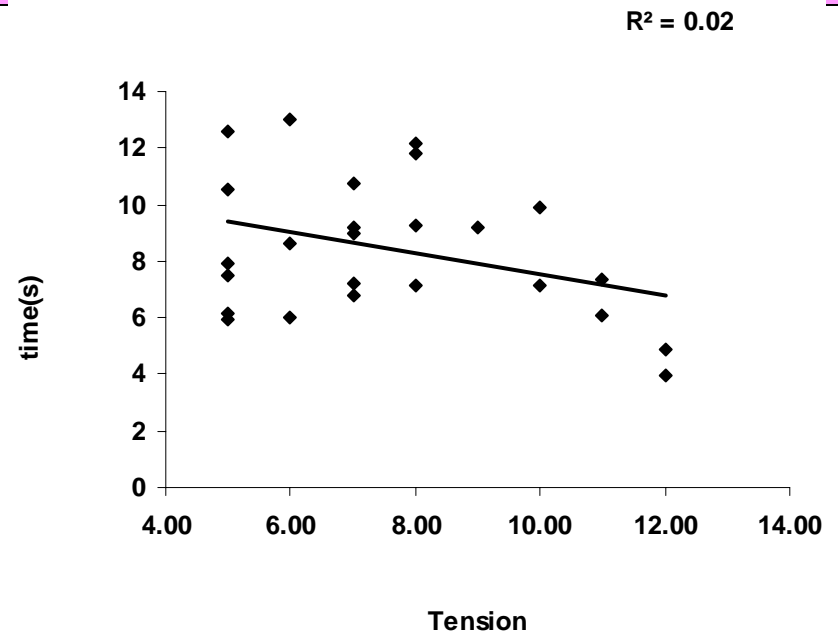
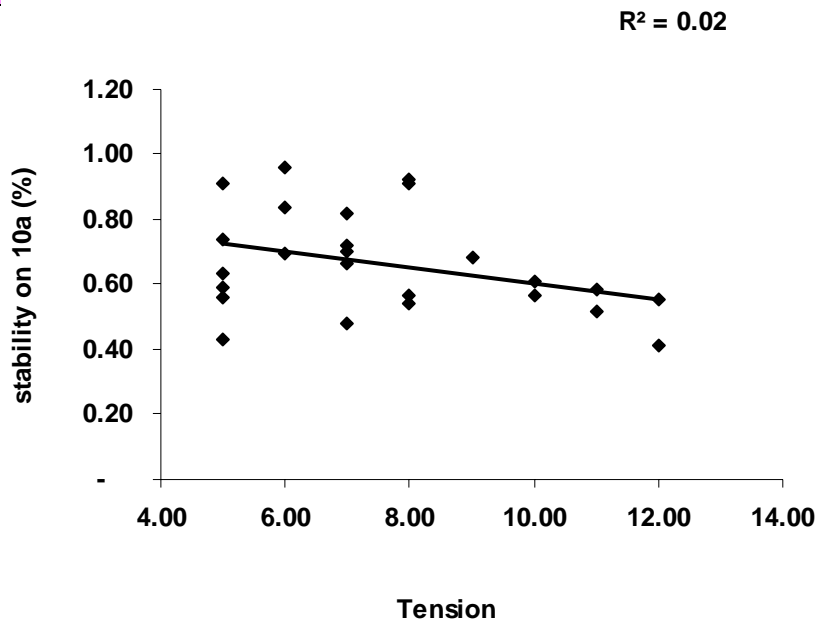


(e)

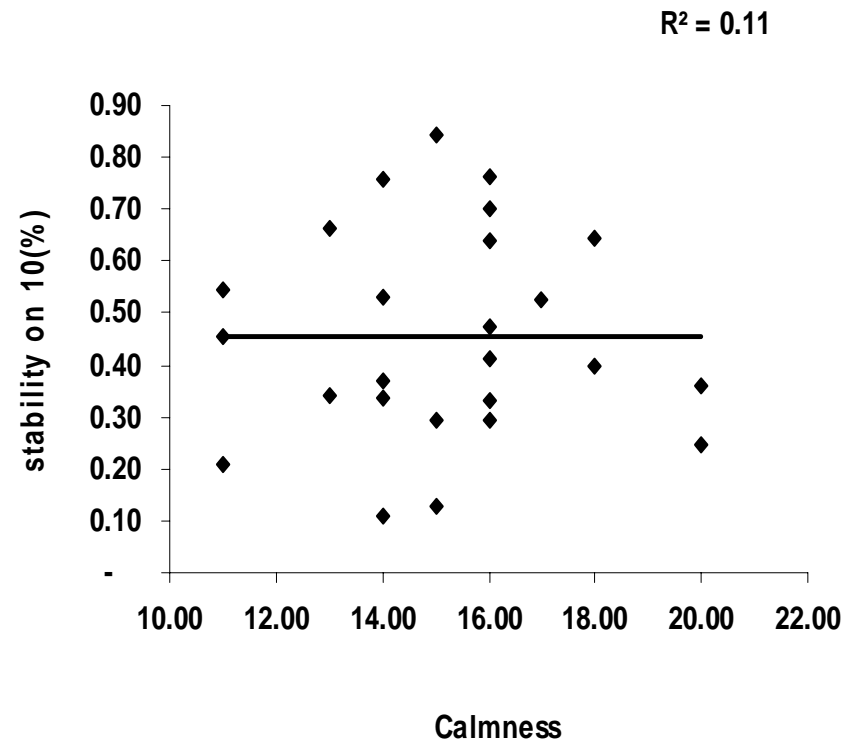
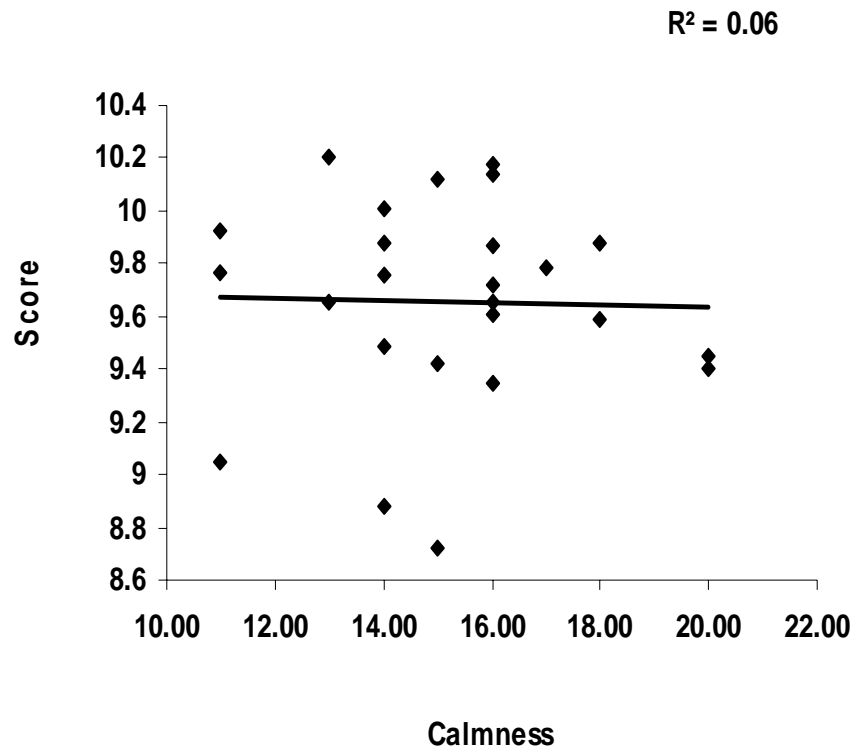


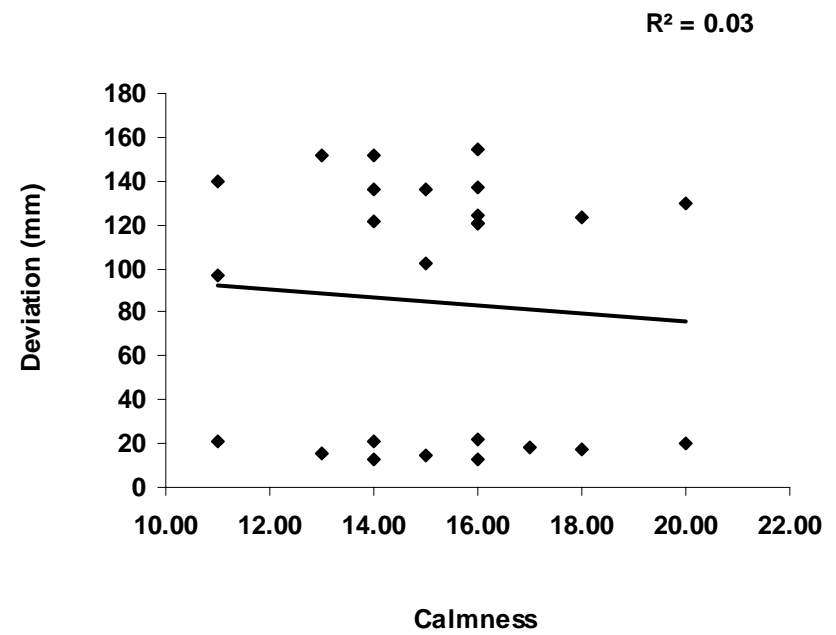
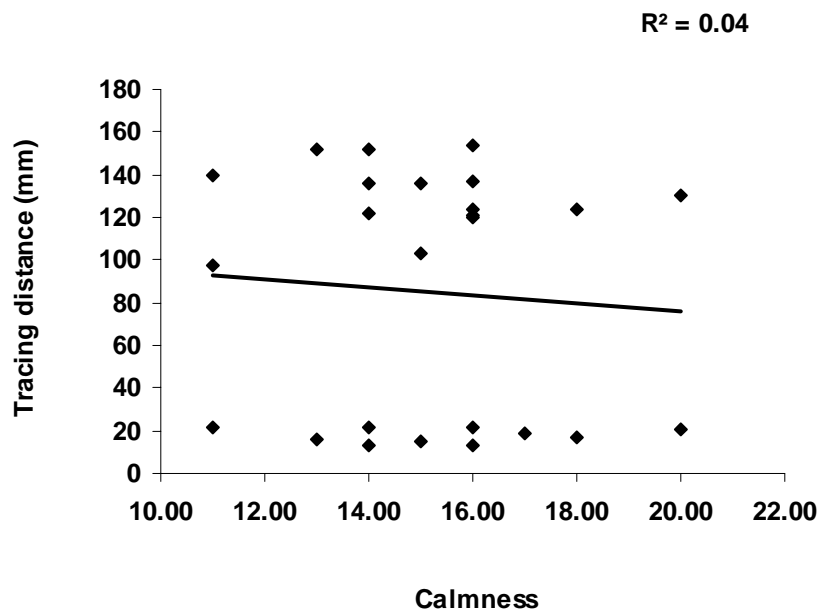
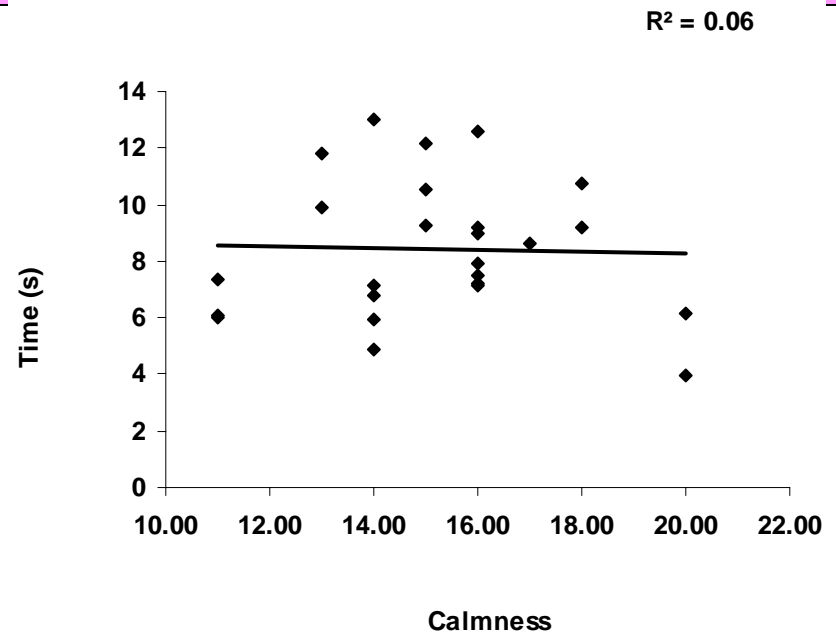
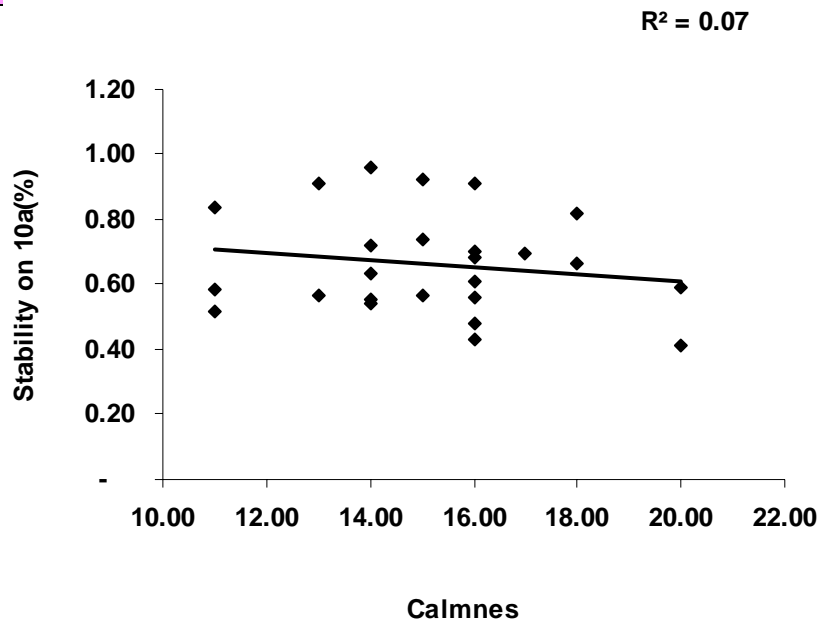
Tension-performance (score and stability on 10)





Calmness-performance (Score and stability on 10)





Conclusion

Possible explanation of the findings

Physiological arousal was a better predictor of performance because:

- Physiological is assessed during performance
-
- Physiological arousal is independent of subjective interference.

Recommendations for further studies

- To compare the effectiveness of other methods of measuring arousal in relationship with performance.
- To investigate physiological and psychological arousal in predicting performance in other athletic performance.

*Thanks
For your
attention*

