

**11th ISEI SYMPOSIUM, NEWCASTLE, AUSTRALIA, 9-12 September 2013**

Exercise Immunology: Prescriptions for Health

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<b>Title</b> (up to 30 words, Arial, 11 pt, single line spaced, in sentence case. Like this:	Preventive effect of Tribulus Terrestris extract on exercise-related immunosuppression and its mechanism
<b>Authors</b> (Underline the <u>presenting author</u> )	YIN Liang, LIU Gui, <u>WANG Xiaohui</u>
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## **Preventive effect of Tribulus Terrestris extract on exercise-related immunosuppression and its mechanism**

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**YIN Liang, LIU Gui, WANG Xiaohui**

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**Department of Sport Science; Shanghai University of Sport; Shanghai, China.**

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### ABSTRACT

This is my abstract introducing the interesting study I recently completed. Reference lists are not generally included. The text is limited to 400 words and must fit on a single page. See notes on figures and tables above. Remember to direct any questions you may have about this online submission process to Dr. Brian McFarlin ([brian.mcfarlin@unt.edu](mailto:brian.mcfarlin@unt.edu)) to ensure your abstract is formatted properly and submitted successfully.

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**Introduction:** To investigate preventive effect of Tribulus terrestris extract (TT) on exercise-related immunosuppression in rats and explore the mechanisms- the role of Glucocorticoid (GC), Glucocorticoid Receptor (GR) and NF-kB inhibitor protein alpha (Ikb $\alpha$ ). **Methods:** Thirty male SD rats were randomly divided into control group, over-trained group and over-trained plus TT group. The last two groups were trained on a motor-driven treadmill with a progressively increased load for 6 weeks. The over-trained plus TT rats took the medicine by gastric irrigation while the others ingested the same amount of saline. The numbers of CD3 $^{+}$ , CD4 $^{+}$ , and CD8 $^{+}$  T cells and natural killing (NK) and NKT cells were detected by Flow Cytometry. The plasma levels of testosterone and corticosterone and the protein levels of GR and Ikb $\alpha$  in livers of rats were determined by ELISA and Western blot, respectively. **Results:** □ Distinct decreases of body weigh, testosterone/corticosterone (T/C) ratio, the numbers of CD3 $^{+}$ T and NK cells were found in over-trained rats compared with that of control rats, indicating successful establishment of exercise-related immunosuppression. □ Supplement of TT lead to significant increases of T/C ratio, CD4 $^{+}$ /CD8 $^{+}$  ratio and the amounts of CD8 $^{+}$  cells, NK and NKT cells in the over-trained rats. □ The plasma levels of GC in over-trained rats kept unchanged compared to control rats, while obvious decrease (about 50% of over-trained rats) was observed in over-trained plus TT rats. □ The protein levels of GR decreased in the livers of over-trained rats, while obvious increases of protein expression of GR were observed in over-trained plus TT rats. □ The protein levels of Ikb $\alpha$  raised significantly in the livers of over-trained rats, while reduced protein levels of Ikb $\alpha$  were shown in over-trained plus TT rats. **Conclusions:** These results indicated that: □ supplement of TT improved the suppressed immune function resulted from over-training in rats. □ TT decreased the plasma levels of GC and the protein levels of Ikb $\alpha$  in livers of over-trained rats and increased the protein levels of GR in livers of over-trained rats, which might be related to the preventive effect of TT on exercise-related immunosuppression.

**Key words:** Tribulus terrestris; exercise-related immunosuppression; glucocorticoid receptor; glucocorticoid; Ikb $\alpha$

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