

SUPPLEMENTARY MATERIAL

Title:

Modelling perception-action coupling in the phenomenological experience of “hitting the wall” during long-distance running with exercise-induced muscle damage in highly trained runners

Journal:

Sports Medicine - Open

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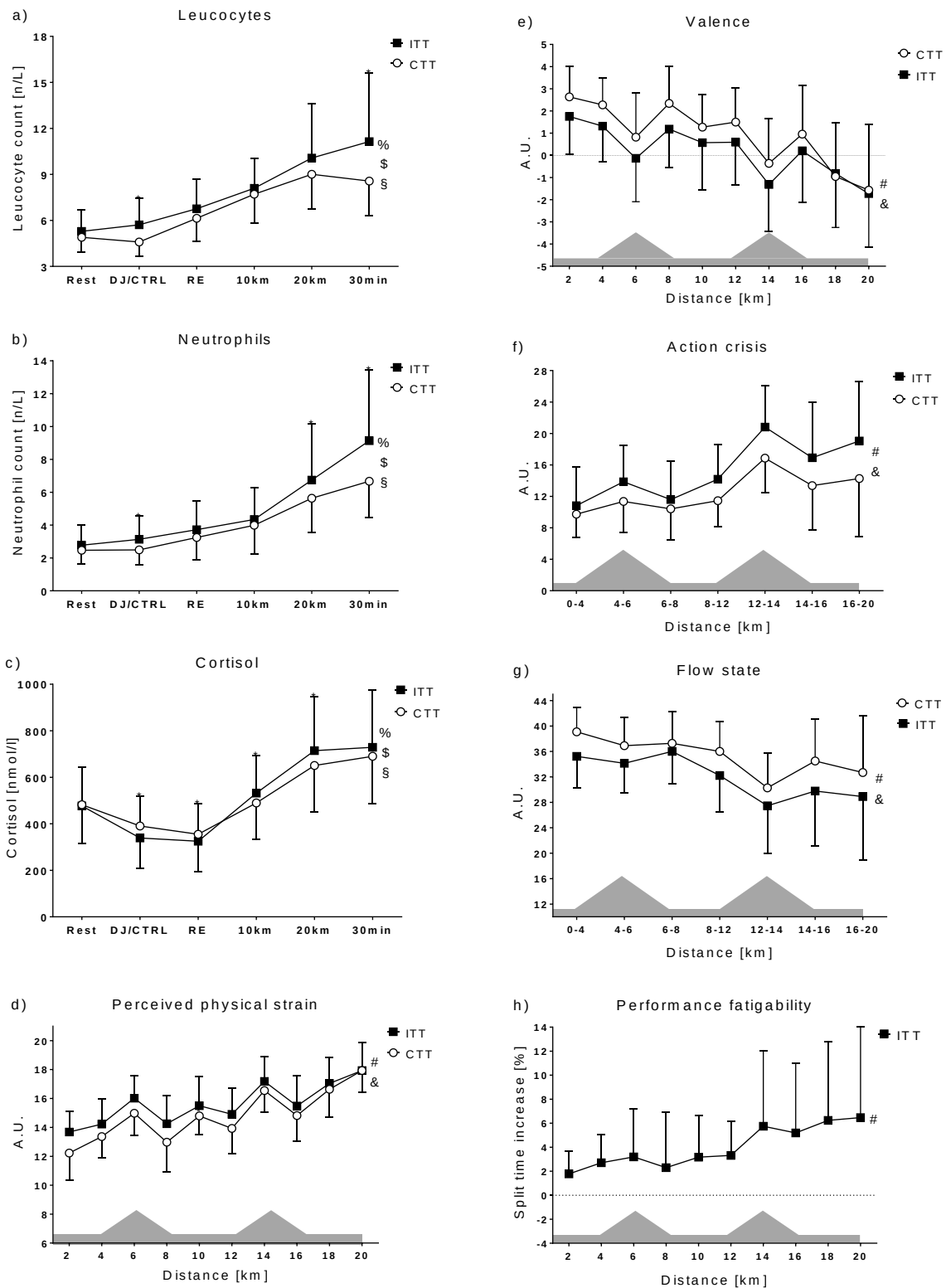


Figure SM 1 Trial-related differences in main study variables in response to running with exercise-induced muscle damage. Note the differences in x-axes of action crisis, flow state and haematological variables due to different sampling times.

Note: A.U. = arbitrary units; % = treatment $\times$ time interaction effect; \$ = simple (main) time effect for intervention trials; § = simple (main) time effect for control trials; * = simple (main) treatment effect; & = main treatment effect; # = main time effect.

Table SM 1 Zero-order correlations between trial-related differences in area under the curve of main study variables.

	1	2	3	4	5	6	7
1. Δ AUC - Leucocytes	-						
2. Δ AUC - Neutrophils	.98**	-					
3. Δ AUC - Cortisol	.56**	.59**	-				
4. Δ AUC - Perceived physical strain	.54*	.52*	.33	-			
5. Δ AUC - Valence	-.65**	-.69**	-.58**	-.78**	-		
6. Δ AUC - Action crisis	.45*	.47*	.30	.40	-.51*	-	
7. Δ AUC - Flow state	-.41	-.42*	-.23	-.43*	.44*	-.74**	-
8. Performance fatigability	.36	.39	.51*	.12	-.36	.57**	-.58**

Abbreviations: Δ AUC=Trial-related difference in area under the curve. ** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed).

Table SM 2 Multiple hierarchical regression analyses of control variables, direct predictor variables, and main study outcome variables.

Predictor	Leucocytes ⇒ Cortisol		Neutrophils ⇒ Cortisol		Cortisol ⇒ Performance fatigability		Leucocytes ⇒ Perceived physical strain		Neutrophils ⇒ Perceived physical strain		Perceived physical strain ⇒ Valence		Valence ⇒ Flow state		Flow state ⇒ Performance fatigability	
	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2	β
Step 1	.056		.056		.002		.066		.066		.022		.018		.002	
Age		-.130		-.130		.002		-.255		-.255		.035		.111		.002
Weight		.201		.201		.042		.036		.036		-.144		-.077		.042
Step 2	.196		.196		.012		.011		.011		.005		.020		.012	
Weekly mileage		.172		.172		.150		.058		.058		.029		-.148		.150
Other training		.538		.538		.124		-.063		-.063		-.051		.009		.124
Step 3	.004		.004		.047		.220		.220		.148		.003		.047	
VO ₂ peak		-.069		-.069		-.182		.463		.463		-.175		.028		-.182
Economy		.067		.067		.244		-.514		-.514		.438		.050		.244
Step 4	.372**		.395**		.291*		.307**		.276**		.528**		.209^		.346*	
Direct predictor		.708**		.726**		.626*		.643**		.608**		-.866**		.503^		-.601*

** Significant at the 0.01 level (2-tailed). * Significant at the 0.05 level (2-tailed). ^ Significant level = 0.068 (2-tailed).

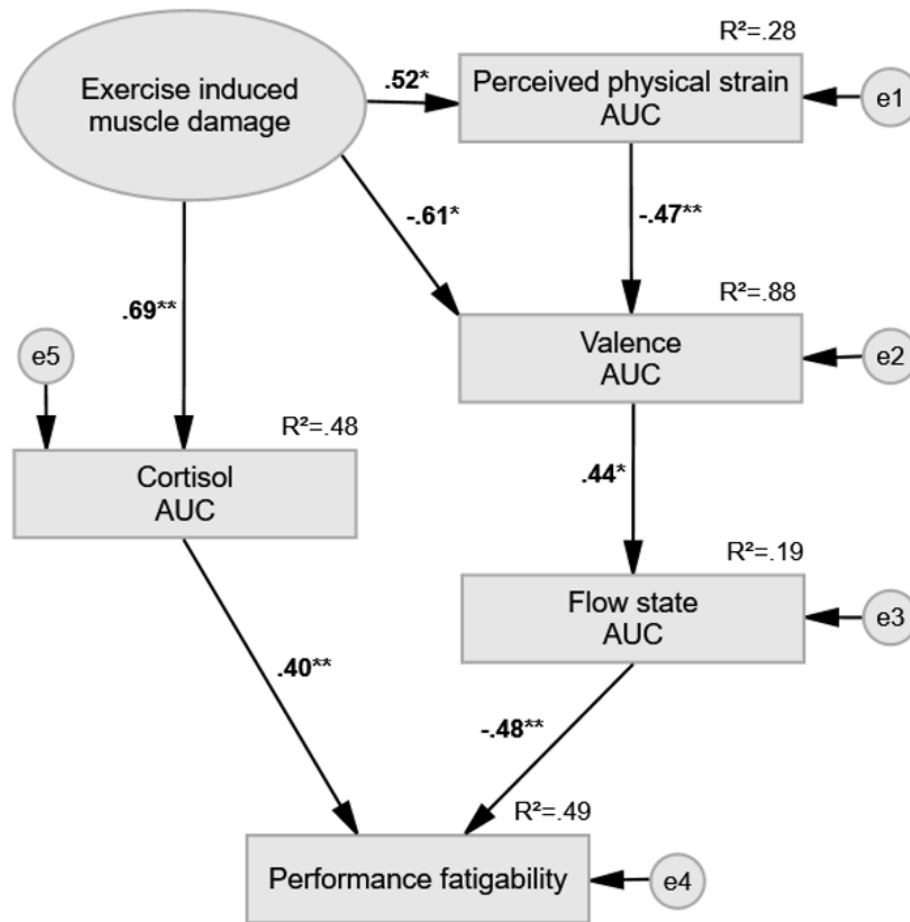


Figure SM 2 Structural equation model of physiological and perceptual effects on performance fatigability. Note: Trial-related differences in area under the curve of blood leucocyte and neutrophil count were used to indicate greater extent of exercise-induced muscle damage during intervention trials. For graphical simplicity indicators and errors are not shown.

Note: Squares represent observed variables; Ovals are latent variables; Single headed arrows represent regression paths; Bold regression paths are significant at * $p < 0.05$ and ** $p < 0.01$, respectively; AUC = area under the curve; R^2 = total variance explained; e = residual error; Standardized maximum likelihood measures are used. χ^2 = Chi-square; NFI = normed fit index; CFI = comparative fit index; RMSEA = root mean square error of approximation; PCLOSE = p of close fit; AIC = Akaike information criterion; SRMR = standardized root mean square residual.

Model fit indices are: $\chi^2 = 10.032$, $p = .528$, $\chi^2/11 = .912$, NFI = .931, CFI = 1.000, RMSEA = .000 (95%CI = [.000, .213]; PCLOSE = .573), AIC = 58.032, SRMR = .069.