

Supplementary Material

Supplementary Table S1. *Post hoc* results of mBDNF and mBDNF/proBDNF ratio within sedentary and physically active groups following a significant interaction between experimental groups and rostrocaudal levels (for reference see Results and Figures 3D and 3E respectively).

Rostrocaudal level comparison	mBDNF		mBDNF/proBDNF	
	Sedentary	Active	Sedentary	Active
FN-480 vs. FN-240	0.222	0.166	0.063	0.642
FN-480 vs. FN+240	0.128	0.098	<0.001 ^{##}	0.507
FN-480 vs. FN+480	0.001 ^{##}	0.010 ^{##}	<0.001 ^{##}	<0.001 ^{##}
FN-240 vs. FN+240	0.754	0.775	0.024 ^{##}	0.841
FN-240 vs. FN+480	0.015	<0.001 ^{##}	<0.001 ^{##}	0.001 ^{##}
FN+240 vs. FN+480	0.030	<0.001 ^{##}	0.016 ^{##}	0.001 ^{##}

^{##}, *p* values deemed significance after Holm-Sidak adjustment for multiple comparisons.

Supplementary Table S2. Results from simple main effect testing (Holm-Sidak method) following significant main effect of rostrocaudal distribution of Fl-TrkB and Fl-TrkB/T-TrkB ratio (for reference see Results and Figures 4B and 4D respectively).

Rostrocaudal level comparison	Fl-TrkB	Fl-TrkB/T-TrkB
FN-480 vs. FN-240	0.060	0.043
FN-480 vs. FN+240	0.163	0.115
FN-480 vs. FN+480	0.002 ^{##}	<0.001 ^{##}
FN-240 vs. FN+240	0.602	0.628
FN-240 vs. FN+480	0.157	0.043
FN+240 vs. FN+480	0.057	0.014

^{##}, *p* value deemed significance after Holm-Sidak adjustment for multiple comparisons.

Supplementary Table S3. *Post hoc* results of nonGlyco-p75 within sedentary and physically active groups following a significant interaction between experimental groups and rostrocaudal levels (for reference see Results and Figure 5C) and simple main effect results following a significant main effect of rostrocaudal distribution of Glyco-p75/nonGlyco-p75 ratio (see Results and Figure 5D).

Rostrocaudal level comparison	nonGlyco-p75		Glyco-p75/nonGlyco-p75
	Sedentary	Active	Simple main effects
FN-480 vs. FN-240	0.066	0.106	0.040
FN-480 vs. FN+240	0.026	0.006 ^{##}	0.009 ^{##}
FN-480 vs. FN+480	<0.001 ^{##}	0.135	<0.001 ^{##}
FN-240 vs. FN+240	0.663	0.214	0.513
FN-240 vs. FN+480	0.004 ^{##}	0.896	0.020
FN+240 vs. FN+480	0.012 ^{##}	0.171	0.084

^{##}, *p* values deemed significance after Holm-Sidak adjustment for multiple comparisons.

Supplementary Table S4. Simple linear regression results of correlations between total running distance and protein expression levels in the RVLM and RVLM_{RE} of physically active rats (see Results for reference).

Protein	RVLM				RVLM _{RE}			
	FN-480		FN-240		FN+240		FN+480	
	R ²	<i>p</i> value	R ²	<i>p</i> value	R ²	<i>p</i> value	R ²	<i>p</i> value
proBDNF	0.168	0.419	0.002	0.933	0.065	0.627	0.002	0.936
mBDNF	0.004	0.906	0.051	0.666	0.122	0.498	0.151	0.447
mBDNF/proBDNF	0.280	0.281	0.047	0.681	0.036	0.719	0.131	0.481

Abbreviations: BDNF, brain derived neurotrophic factor; mBDNF, mature form of BDNF; proBDNF, pro-form of BDNF; RVLM, rostral ventrolateral medulla; RVLM_{RE}, rostral extension of RVLM; FN, facial nucleus.

Protein	RVLM				RVLM _{RE}			
	FN-480		FN-240		FN+240		FN+480	
	R ²	<i>p</i> value	R ²	<i>p</i> value	R ²	<i>p</i> value	R ²	<i>p</i> value
Fl-TrkB	0.312	0.250	0.720	0.033*	0.031	0.739	0.024	0.769
T-TrkB	0.037	0.716	0.157	0.437	0.003	0.916	0.069	0.614
Fl-TrkB/T-TrkB	0.220	0.348	0.833	0.011*	0.078	0.592	0.004	0.904

*, designate significant positive correlation. **Abbreviations:** TrkB, Tropomyosin kinase B receptors; Fl-TrkB, full-length TrkB isoform; T-TrkB, truncated TrkB isoform.

Protein	RVLM				RVLM _{RE}			
	FN-480		FN-240		FN+240		FN+480	
	R ²	<i>p</i> value	R ²	<i>p</i> value	R ²	<i>p</i> value	R ²	<i>p</i> value
Glyco-p75	0.009	0.856	0.100	0.541	0.050	0.670	0.253	0.310
nonGlyco-p75	0.015	0.816	0.383	0.190	0.028	0.752	0.076	0.597
Glyco-p75/nonGlyco-p75	0.053	0.660	0.192	0.385	0.021	0.785	0.001	0.944

Abbreviations: p75, 75 kDa neurotrophin receptors; Glyco-p75, glycosylated form of p75; nonGlyco-p75, non-glycosylated form of p75.