Data in Brief ∎ (∎∎∎∎) ∎∎∎–∎∎∎

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Data Article

High-frequency electrical stimulation (HFES) data lean and obese Zucker rat tibialis anterior muscle: Regulation of glycogen synthase kinase 3 beta (GSK3B) associated proteins

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ABSTRACT

Anaerobic exercise has been advocated as a prescribed treatment for the management of diabetes: however, alterations in exercise-induced signaling remain largely unexplored in the diabetic muscle. Here, we compare the basal and the in situ contraction-induced phosphorylation of the AMPK, GSK3beta, and Shp2 in the lean and obese (fa/fa) Zucker rat tibialis anterior (TA) muscle following a single bout of contractile stimuli. This article represents data associated with prior publications from our lab (Katta et al., 2009; Katta et al., 2009; Tullgren et al., 1991) [1–3] and concurrent

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High-frequency electrical stimulation (HFES)
Zucker rat
Tibialis anterior
GSK3b

Specifications Table

Subject area	*Biology*
More specific subject area	*Diabetic skeletal muscle response to exercise*
Type of data	*graph, figure*
How data was acquired	*immunoblotting*
Data format	*analyzed*
Experimental factors	*A high-frequency electrical stimulation (HFES) was used to produce 10 sets of 6 contractions over a 22-minute period. Tissues were collected and protein was then isolated from tissue for western blot analysis.*
Experimental features	*TA obtained from Lean and Obese male Zucker rats were used in this experiment*
Data source location	*Huntington, WV USA*
Data accessibility	*Data is with this article and is related to articles published and in review* [1–7].

Value of the data

- The data presented in this Brief is vital to understanding the effect of diabetes on skeletal muscle mechanotransduction.
- This data gives insight into the how diabetes alters tissue response to stimuli.
- This data provides a more thorough understanding of the mTor pathway involvement in exercise mediated signaling in both diabetic and non-diabetic muscle tissue.

1. Data

1.1. AMPK

Q3 To determine the effect of HFES on soleus from diabetic male obese syndrome-X Zucker (OSXZ) diabetic and nondiabetic male normal lean Zucker (LNZ) animals we evaluated the expression of AMPK. TA basal AMPK content was higher ($20.7 \pm 3.69\%$, $p < 0.05$) in the OSXZ when compared to LNZ. HFES resulted in an increase in AMPK in the LNZ TA ($24.9 \pm 1.4\%$, $30.3 \pm 1.3\%$, at 1 and 3 h, $p < 0.05$) when compared to LNZ contralateral control. However, HFES resulted in an increase ($17.7 \pm 1.3\%$, at 3 h, $p < 0.05$) in the OSZX TA when compared to contralateral OXSZ control (Fig. 1).

To determine the effect of HFES on TA from OSXZ and LNZ animals we evaluated the phosphorylation of AMPK at Threonine 172. TA basal phosphorylation of AMPK Thr 172 demonstrated no difference in the OSXZ when compared to LNZ. HFES resulted in a decrease ($29.8 \pm 7.9\%$, at 1 h, $p < 0.05$) in phosphorylation of AMPK Thr 172 in the LNZ TA when compared to LNZ contralateral control. HFES resulted in an increase in phosphorylation of AMPK Thr 172 in the OSXZ TA ($16.9 \pm 4.9\%$, at 0 h, $p < 0.05$) when compared to OSXZ contralateral control (Fig. 1).

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