

Figure S1: PHD3 null mice show decreased expression of select HIF-1 target genes in NP tissue at 5 months old. a-h') Representative immunofluorescence staining of intervertebral disc sections from 5-month-old wild-type ($PHD3^{+/+}$) and knock-out ($PHD3^{-/-}$) mice shows decreased staining of HIF-1 targets VEGF-A (a-b'), LDHA (c-d'), and GLUT1 (e, f) in knock-out mice compared to wild-type mice. In contrast, another HIF-1 target, ENO1, shows comparable expression in $PHD3^{+/+}$ (g, g') and $PHD3^{-/-}$ (h, h') mice. Krt19 was used as a marker to label NP tissue compartment with VEGF-A, LDHA, and ENO1. Scale bar = 50 μ m. Images are representative from three independent littermate groups.

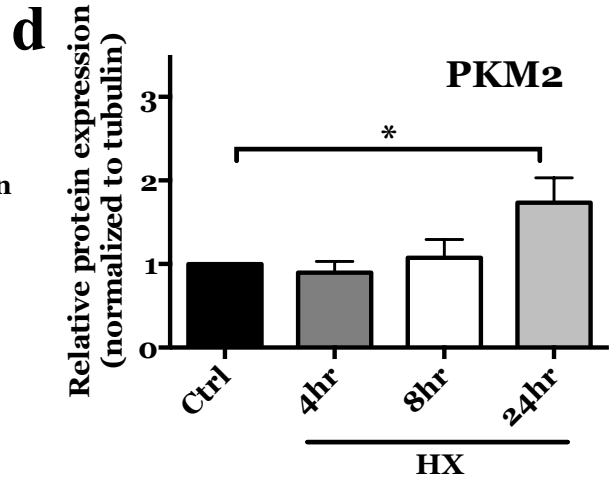
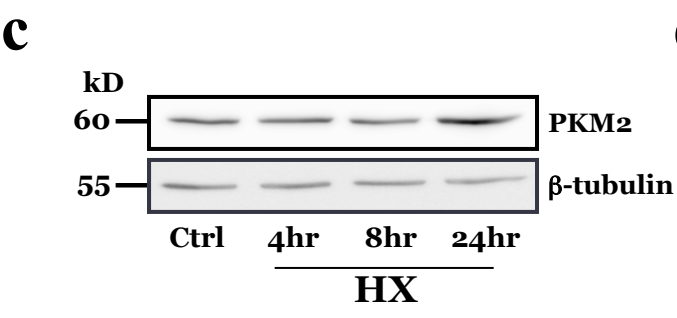
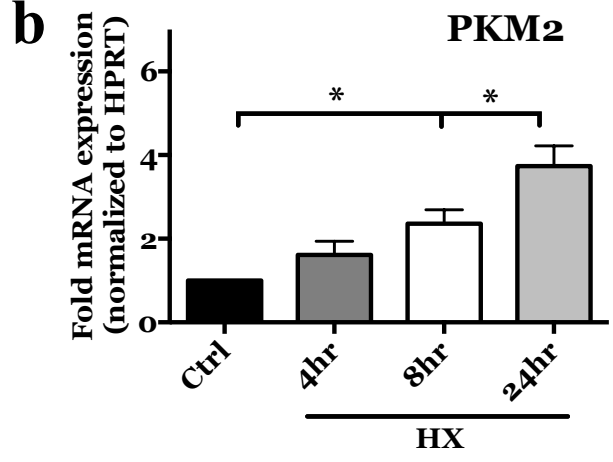
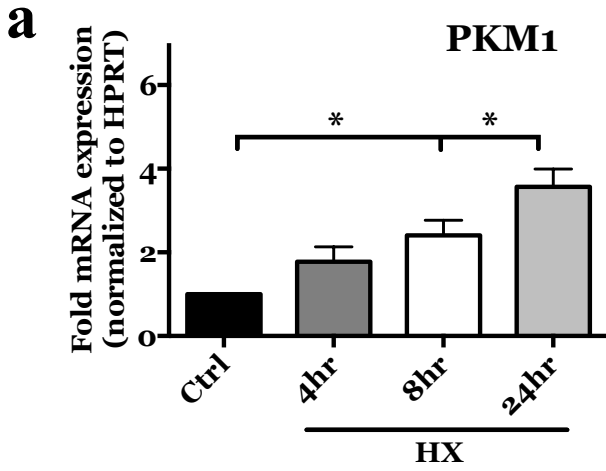


Figure S2: PKM2 expression in NP cells is hypoxia sensitive. a, b) mRNA expression of *Pkm1* (a) and *Pkm2* (b) isoforms in rat NP cells following hypoxic culture for 4-24 h. c, d) Western blot (c) and corresponding densitometric analysis (d) of PKM2 expression in NP cells cultured under hypoxia for 4-24 hours. Data is represented as mean \pm S.E. of three independent experiments ($n = 3$); *, $p < 0.05$.

Table S1: Primer sequences used for Chromatin Immunoprecipitations

Gene Name	Primer Location		Primer Sequence	
HRE Region	Start	End	Forward	Reverse
Vegfa	-1026	-900	5'-agttccctggcaacatctgg-3'	5'-gagggagacgacctgtggaa-3'
Slc2a1	-3207	-3038	5'-ccgggctgtcttactcactc-3'	5'-ccaggtgcacatgatgattc-3'
Ldha	-175	-26	5'-ccacccttacagagccatcg-3'	5'-aaatggaagctccgtgctga-3'