Supplemental material
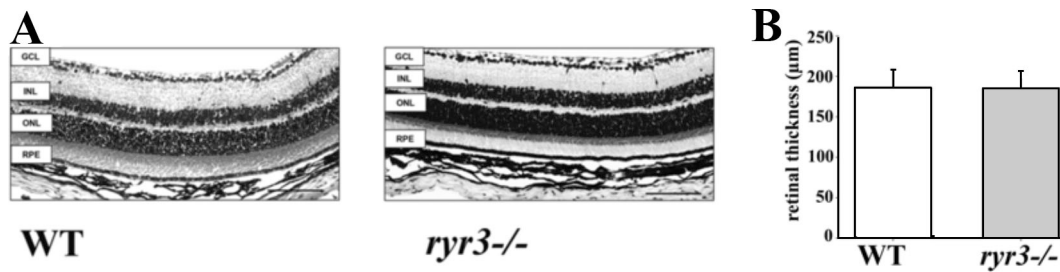
Figure S1. **Retinal morphology and layer structure is unaltered in *ryr3*−/− mice. (A)** Overview staining of 5-µm paraffin sections using hematoxylin and eosin revealed no changes in the retinal structure of *ryr3*−/− mice compared with their WT controls. GCL, ganglion cell layer; INL, inner nuclear layer; ONL, outer nuclear layer; RPE, retinal pigment epithelium. Scale bars, 100 µm. **(B)** Furthermore, no significant difference in mean (±SEM) retinal thickness was detectable.
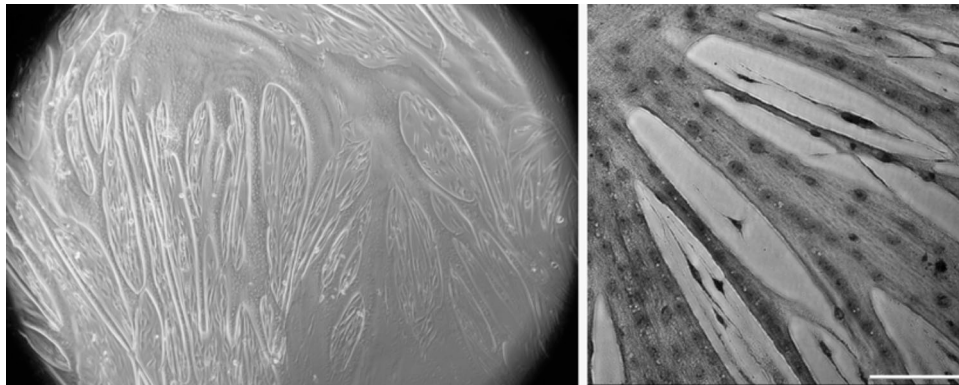

Figure S2. **Photomicrographs of myotubes from EOM**. Left: Low-magnification view of myotubes after 1–2 d in differentiation medium. Right: Cells were fixed with 3% paraformaldehyde 5 d after differentiation medium and stained with hematoxylin and eosin. Scale bar, 50 µm.

Table S1. **Primers used for qPCR and mouse genotyping**

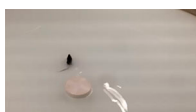| Gene	Forward	Reverse
ACTN2	5'-CATCGAGGAGGATTTCAGGAAC-3'	5'-CAATCTTGTGGAACCGCATTTT-3'
CACNA1C	5'-TCCCGAGCACATCCCTACTC-3'	5'-ACTGACGGTAGAGATGGTTGC-3'
CACNA1S	5'-TCAGCATCGTGGAATGGAAAC-3'	5'-GTTCAGAGTGTTGTTGTCATCCT-3'
CASQ1	5'-ATGAGAGCTACCGACAGGATG-3'	5'-CACCGTCGTACTCAGGGAAG-3'
CASQ2	5'-TGCTCATGGTGGGGGTTTATC-3'	5'-AGGTTCGTGGTAATAGAGACAGA-3'
JP-45	5'-CGGGCTCAAGAAGATGGAAA-3'	5'-CTTGTTGAGCGTCAGATCTCC-3'
KCNMA1	5'-GCCAACAGAGAGAGCCGAAT-3'	5'-TCTTCAAAATAGATCAGCCGCC-3'
PVALB	5'-ATCAAGAAGGCGATAGGAGCC-3'	5'-GGCCAGAAGCGTCTTTGTT-3'
RYR1	5'-GCCTTTGACGTGGGATTACAG-3'	5'-CCCCAACTCGAACCTTCTCTC-3'
RYR3	5'-ACCAGCAGG AGCAAG TAC G-3'	5'-GGGGTCGTGTCAAAGTAGTCA-3'
RYR3 genotyping	5'-ATGAAGTTGTACTCCAGTGCATTGC-3'	5'-TCCAGGAATCTCTGGTATACTAGG-3'
SLC8A3	5'-GCATATGGGGAGCTGGAGTT-3'	5'-GCTTCCTGTCTGTCACTTCTGAT-3'

Table S2. **Kinetic properties of isolated EOM from WT and *ryr3*$^{-/-}$ mice**

	EOM	Peak force (ms)	TTHP (ms)	TTP (ms)	HRT (ms)
Twitch force kinetic parameters	WT EOM	0.328 ± 0.095	2.53 ± 0.24	10.09 ± 1.06	42.28 ± 9.82
		(n = 8)	(n = 8)	(n = 8)	(n = 8)
	ryr3$^{-/-}$ EOM	0.126 ± 0.017*	8.81 ± 2.29*	42.75 ± 8.78**	147.44 ± 8.36****
		(n = 9)	(n = 9)	(n = 9)	(n = 9)

Experiments were performed at 30°C. Values represent mean ± SEM. *, P < 0.05; **, P < 0.01; ****, P < 0.0001, Student's *t* test.

Video 1. **WT mouse swimming in cued water maze.** Experiments were performed as described in the Materials and methods section.

Video 2. ***ryr3*$^{-/-}$ mouse swimming in cued water maze.** Experiments were performed as described in the Materials and methods section.