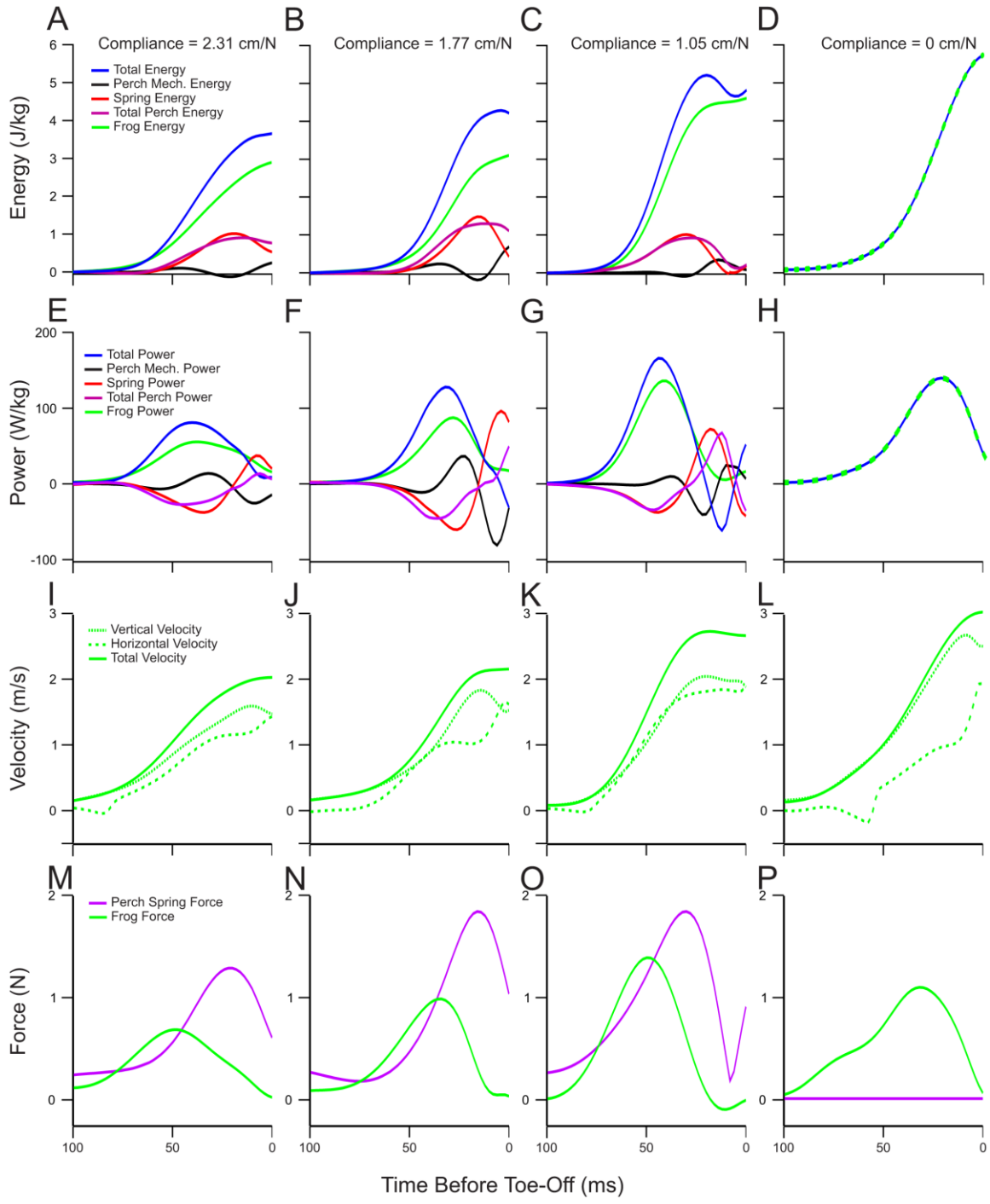

Fig. S1. (A-D) Energy through time in four representative jumps, normalized by total body mass. The blue line is total energy, the black line is the summed kinetic and potential energy of the perch, the red line is the spring energy, and the green line is the frog energy. A) a jump from the most compliant perch, B) a jump from the intermediate compliance perch, C) a jump from the

stiffest compliant perch, and D) a jump from the rigid perch. E-H) Power through time in four representative jumps, normalized by total body mass. The blue line is total power, the black line is the mechanical power of the perch, the red line is the spring power, and the green line is the frog power. E) a jump from the most compliant perch, F) a jump from the intermediate compliance perch, G) a jump from the stiffest compliant perch, and H) a jump from the rigid perch. I-L) Frog velocity through time in four representative jumps. The solid line is total velocity, the finely-dashed line is vertical velocity, and the coarsely-dashed line is horizontal velocity. I) a jump from the most compliant perch, J) a jump from the intermediate compliance perch, K) a jump from the stiffest compliant perch, and L) a jump from the rigid perch. M-P) Forces through time in four representative jumps. The green line is frog force, and the purple line is spring force. M) a jump from the most compliant perch, N) a jump from the intermediate compliance perch, O) a jump from the stiffest compliant perch, and P) a jump from the rigid perch.

Movie 1. A cuban tree frog jumps from the most compliant spring – xvid codec.

Table S1. Tests for effect of compliance on variables, evaluated using a stepwise Bonferroni correction.

Variable	P value	Stepwise Bonferroni Threshold
Relative Perch Displacement (leg lengths)	0.0001*	0.0038
Peak Perch Energy (J/kg)	0.0001*	0.0042
Perch Deflection Angle (deg.)	0.0001*	0.0045
Prop. Of Perch Energy returned by Takeoff	0.0002*	0.0050
Frog Impulse(BW*s)	0.0003*	0.0056
Frog Energy at Takeoff (J/kg)	0.0053*	0.0063
Jump Duration(ms)	0.0124	0.0071
Jump Angle (deg.)	0.0304	0.0083
Takeoff Velocity (m/s)	0.0573	0.0100
Total Energy at Takeoff (J/kg)	0.0770	0.0125
Peak Frog Power (W/kg)	0.0813	0.0167
Peak Frog Force (BW)	0.1986	0.0250
Peak Spring Force (BW)	0.3516	0.0500