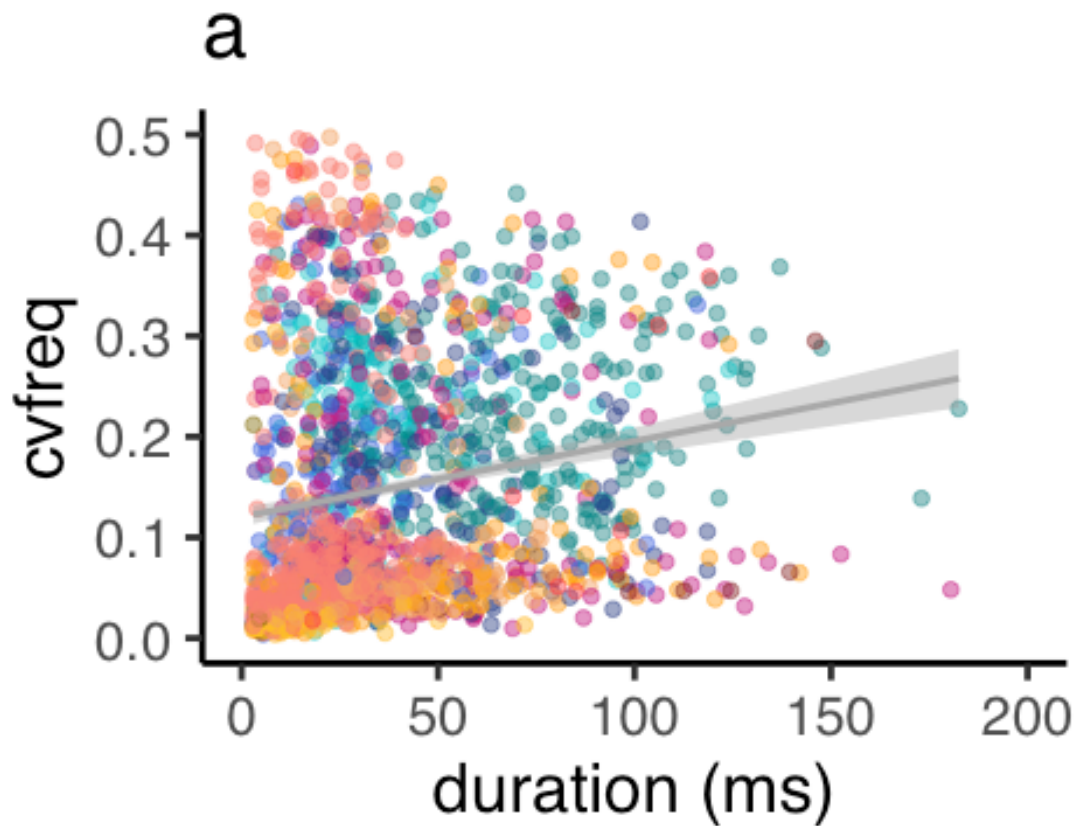


## Evaluation for cvfreq

This is an stats summary for Figs. 7-8 using R Markdown document.

Fig. S7a

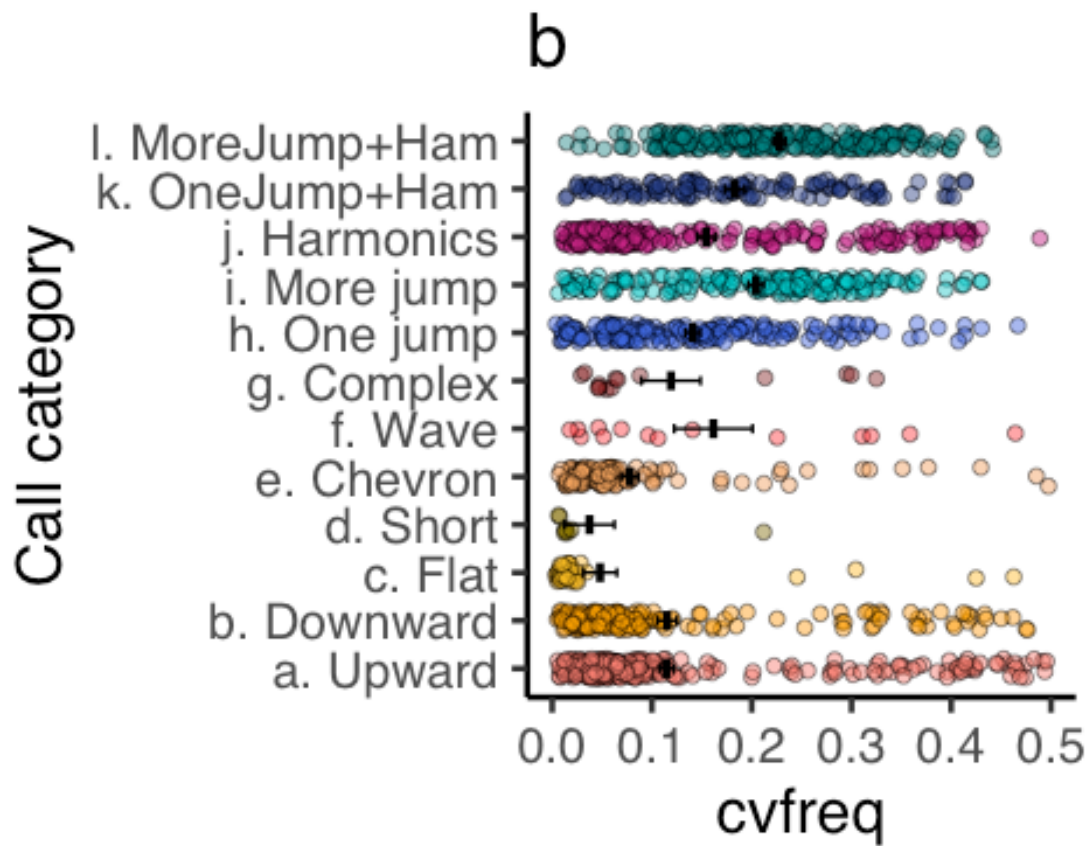


```
cor.test(x = d.cvfreq$duration, y = d.cvfreq$cvfreq, method="pearson")
```

```
##  
## Pearson's product-moment correlation  
##  
## data: d.cvfreq$duration and d.cvfreq$cvfreq  
## t = 6.6849, df = 1665, p-value = 3.143e-11  
## alternative hypothesis: true correlation is not equal to 0
```

```
## 95 percent confidence interval:
## 0.1145517 0.2080687
## sample estimates:
## cor
## 0.1616731
```

Fig. S7b



```
#Welch's one-way ANOVA
oneway.test(d.cvfreq$cvfreq ~ d.cvfreq$category.name)

##
## One-way analysis of means (not assuming equal variances)
##
## data: d.cvfreq$cvfreq and d.cvfreq$category.name
## F = 34.065, num df = 11.00, denom df = 135.92, p-value < 2.2e-16

#post-hoc multiple comparison (Welch)
pairwise.t.test(d.cvfreq$cvfreq, d.cvfreq$category.name, p.adj="holm", pool.sd=
T)
```

```
##
## Pairwise comparisons using t tests with pooled SD
##
## data: d.cvfreq$cvfreq and d.cvfreq$category.name
##
```

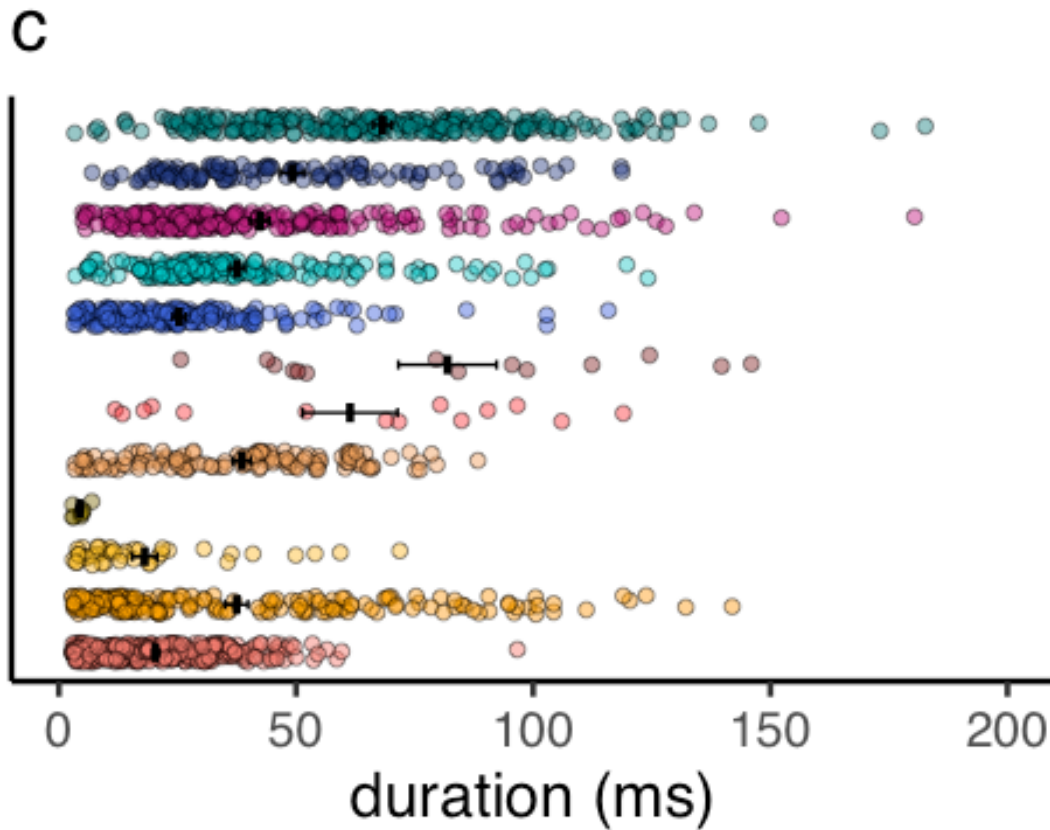
	a. Upward	b. Downward	c. Flat	d. Short	e. Chevron	f. Wave	g. Complex	h. One jump	i. More jump	j. Harmonics
b. Downward	1.00000	-	-	-	-	-	-	-	-	-
c. Flat	0.00422	0.02100	-	-	-	-	-	-	-	-
d. Short	1.00000	1.00000	1.00000	-	-	-	-	-	-	-
e. Chevron	0.00685	0.09207	1.00000	1.00000	-	-	-	-	-	-
f. Wave	1.00000	1.00000	0.07809	0.53549	0.38716	-	-	-	-	-
g. Complex	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	-	-	-	-
h. One jump	1.00000	1.00000	0.00033	0.47842	0.00029	1.00000	1.00000	-	-	-
i. More jump	4.1e-11	7.9e-10	3.1e-12	0.00458	< 2e-16	1.00000	0.31002	2.8e-05	-	-
j. Harmonics	0.15600	0.12584	9.4e-06	0.21049	7.5e-07	1.00000	1.00000	1.00000	0.00150	-
k. OneJump+Ham	0.00029	0.00033	2.8e-08	0.03186	5.8e-10	1.00000	1.00000	0.11059	1.00000	0.97069
l. MoreJump+Ham	< 2e-16	< 2e-16	< 2e-16	0.00035	< 2e-16	1.00000	0.03031	3.8e-12	0.97069	9.4e-10

	k. OneJump+Ham
b. Downward	-
c. Flat	-
d. Short	-
e. Chevron	-
f. Wave	-
g. Complex	-
h. One jump	-
i. More jump	-
j. Harmonics	-
k. OneJump+Ham	-
l. MoreJump+Ham	0.02312

```
##
## P value adjustment method: holm
```

Fig. S7c



```
#Welch's one-way ANOVA
```

```
oneway.test(d.cvfreq$duration ~ d.cvfreq$category.name)
```

```
##
```

```
## One-way analysis of means (not assuming equal variances)
```

```
##
```

```
## data: d.cvfreq$duration and d.cvfreq$category.name
```

```
## F = 188.35, num df = 11.00, denom df = 188.06, p-value < 2.2e-16
```

```
#post-hoc multiple comparison (Welch)
```

```
pairwise.t.test(d.cvfreq$duration, d.cvfreq$category.name, p.adj="holm",  
pool.sd=T)
```

```
##
```

```
## Pairwise comparisons using t tests with pooled SD
```

```
##
```

```
## data: d.cvfreq$duration and d.cvfreq$category.name
```

```
##
```

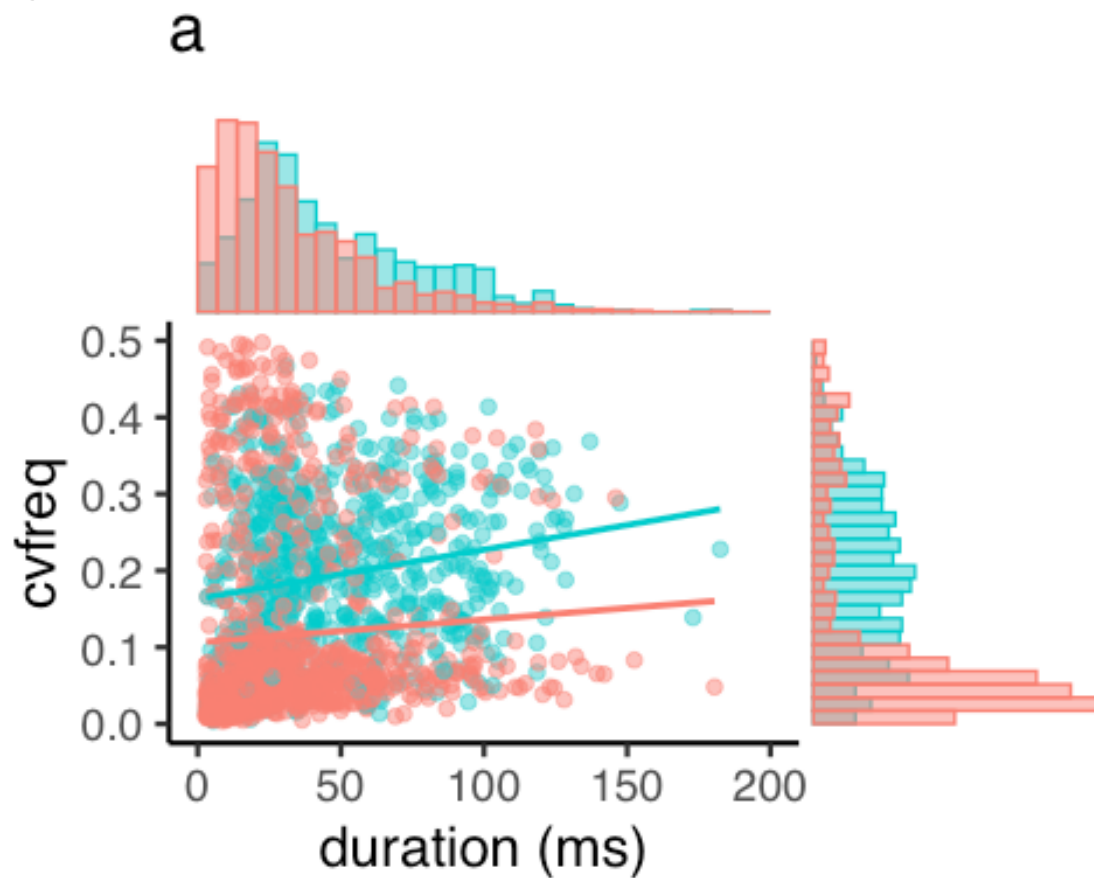
	a. Upward	b. Downward	c. Flat	d. Short	e. Chevron	f. Wave	g. Complex	h. One jump	i. More jump	j. Harmonics
b. Downward	4.7e-12	-	-	-	-	-	-	-	-	-
c. Flat	1.00000	0.00022	-	-	-	-	-	-	-	-
d. Short	0.73257	0.00576	1.00000	-	-	-	-	-	-	-
e. Chevron	2.2e-10	1.00000	0.00018	0.00442	-	-	-	-	-	-
f. Wave	8.4e-08	0.01199	9.5e-07	1.0e-05	0.02285	-	-	-	-	-
g. Complex	< 2e-16	7.3e-09	1.6e-14	1.7e-10	3.8e-08	0.44325	-	-	-	-
h. One jump	0.44325	0.00015	0.74818	0.31962	0.00020	8.4e-06	3.4e-14	-	-	-
i. More jump	7.6e-12	1.00000	0.00022	0.00576	1.00000	0.01250	8.6e-09	0.00015	-	-
j. Harmonics	< 2e-16	0.60714	5.8e-07	0.00070	1.00000	0.10181	4.2e-07	1.3e-09	0.66136	-
k. OneJump+Ham	< 2e-16	0.00203	5.0e-10	3.6e-05	0.02098	0.74818	0.00013	1.4e-13	0.00272	0.29978
l. MoreJump+Ham	< 2e-16	< 2e-16	< 2e-16	7.7e-11	< 2e-16	1.00000	0.59777	< 2e-16	< 2e-16	< 2e-16

	k. OneJump+Ham
b. Downward	-
c. Flat	-
d. Short	-
e. Chevron	-
f. Wave	-
g. Complex	-
h. One jump	-
i. More jump	-
j. Harmonics	-
k. OneJump+Ham	-
l. MoreJump+Ham	6.3e-10

##

## P value adjustment method: holm

Fig. S8a



```
#ANCOVA
anova(d.mod2)

## Analysis of Variance Table
##
## Response: cvfreq
##              Df Sum Sq Mean Sq  F value    Pr(>F)
## duration      1  0.7096  0.70958   47.9029 6.372e-12 ***
## jump_non      1  1.7249  1.72487  116.4434 < 2.2e-16 ***
## duration:jump_non  1  0.0790  0.07895    5.3301  0.02108 *
## Residuals    1663 24.6339  0.01481
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

summary(d.mod2)

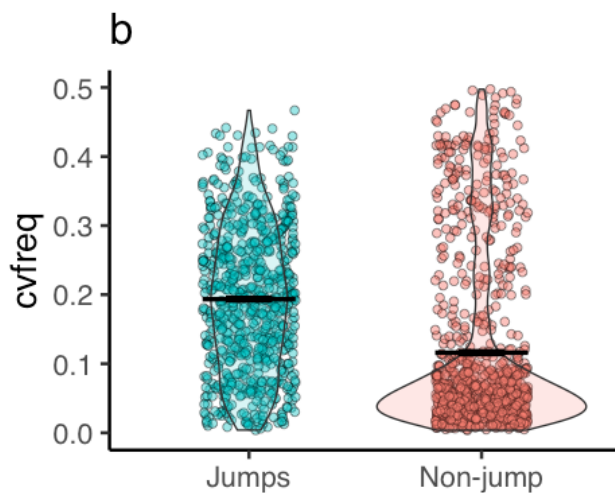
##
## Call:
## lm(formula = cvfreq ~ duration * jump_non, data = d.cvfreq)
##
## Residuals:
```

```

##      Min      1Q   Median      3Q      Max
## -0.19656 -0.08676 -0.04634  0.06314  0.42178
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)      0.1626766  0.0082692  19.673 < 2e-16 ***
## duration          0.0006622  0.0001470   4.506 7.08e-06 ***
## jump_nonNon-jump -0.0479531  0.0103104  -4.651 3.57e-06 ***
## duration:jump_nonNon-jump -0.0004778  0.0002070  -2.309  0.0211 *
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.1217 on 1663 degrees of freedom
## Multiple R-squared:  0.09258,    Adjusted R-squared:  0.09095
## F-statistic: 56.56 on 3 and 1663 DF,  p-value: < 2.2e-16

```

Fig. S8b

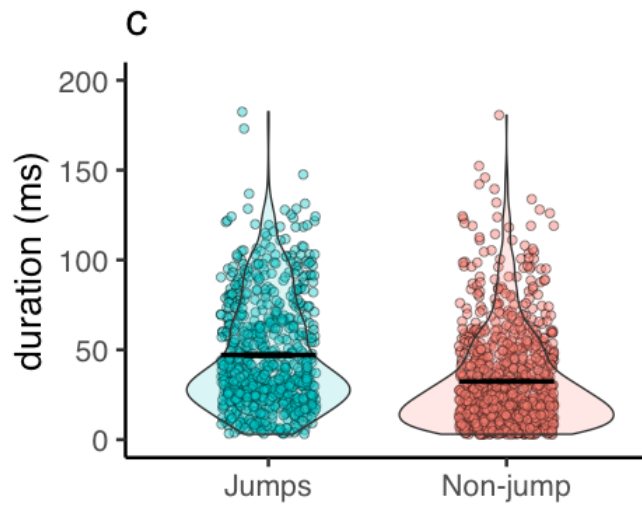


```
t.test(dJumps$cvfreq, dNonjump$cvfreq) #Welch's t-test

##
##  Welch Two Sample t-test
##
## data:  dJumps$cvfreq and dNonjump$cvfreq
## t = 12.479, df = 1663.6, p-value < 2.2e-16
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
##  0.06164654 0.08463907
## sample estimates:
## mean of x mean of y
## 0.1938395 0.1206967
```



Fig. S8c



```
t.test(dJumps$duration, dNonjump$duration) #Welch's t-test

##
## Welch Two Sample t-test
##
## data: dJumps$duration and dNonjump$duration
## t = 10.12, df = 1439.4, p-value < 2.2e-16
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
##  11.82765 17.51507
## sample estimates:
## mean of x mean of y
##  47.05825  32.38689
```