

## Movement analysis of curling stone

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youtube on curling world championship was analyzed. curl distance  $c$ , angle of spin  $n$  and sliding distance  $s$  are measured as a function of sliding time  $t$ . in initial stage, stone went to linearly, and curl started at middle stage in the neighborhood of 12 second before stop. curl distance (lateral displacement) increased linearly to sliding time  $t$ , reached about 1 m at end. stone turned at 6 to 10 second as increasing time with sliding. coefficient of friction for spin was extremely small and estimated to order of  $0.0001$  to  $0.00001$ . coefficient of friction  $f$  was value of  $0.009$  to  $0.02$  with increasing as decreasing velocity. curves  $c$ - $s$ ,  $f$ - $s$  and  $f$ - $v$  were derived.

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