

Reproducibility of bat swing in tee batting and dry swing

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- 2)
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Key words baseball, batting, dry swing, reproducibility, feedback

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7cm

6cm

1

)

(

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(

1897

(1972)

(2015)

)
(
(2006)
()

(1989)

()

Tabuchi (2007)

(2010)

(KR Knowledge of result)

(2002)

(868)

(2010) 1963

)

1

10 (1.71 ± 0.04m 75.3 ±
 9.9kg 20.9 ± 0.9 12.3 ± 1.4
 ±) (1CJWH10184
 10 0.840 m 0.9 kg)

2

(Evernew EKC 103)

3

E2) 2 (1000
 frame/s 1/2000 sec)

10

10 m

(1)

)

(0 m) (0.500 m)

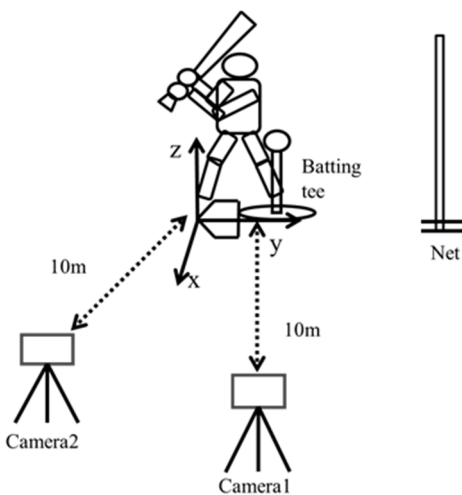
()

y y

x

z

DLT



1

4

(Frame- Dias5

DKH)

1000Hz

10

DLT

1

1.1 (x)

1.2 (z)

5

x

(2013)

- 0.028 m

0.150 m

0.042 m

(p < 0.01)

z

0.014 m - 0.021 m

0

40 frame

(- 0.160)

250 Hz

3

3

10

1000 Hz

x

z

x

0.030

m

0.054 m z

10

0.016 m 0.077 m x

z

(p

x

z

x- z

< 0.01) z

t

(t- test)

5 % (p < 0.05)

10

250 Hz

(2)

x- z

0.100

0.004

0.038 m

0.102 m

(x

z

)

(2)

0.008

t

5 % (p < 0.05)

1.1

x

m

1.1 1.2

a	-0.021	0.053	0.013	0.021	0.021	0.053
b	-0.052	0.078	0.012	0.021	0.052	0.078
c	-0.023	0.112	0.019	0.048	0.023	0.112
d	-0.059	-0.011	0.014	0.020	0.059	0.011
e	-0.040	0.047	0.016	0.039	0.040	0.047
f	-0.020	0.006	0.018	0.025	0.020	0.006
g	0.012	0.042	0.013	0.017	0.012	0.042
h	-0.026	-0.046	0.012	0.028	0.026	0.046
i	-0.016	0.069	0.008	0.014	0.016	0.069
j	-0.037	0.072	0.013	0.016	0.037	0.072
	-0.028	0.042	0.014	0.025	0.030	0.054
	0.020	0.047	0.003	0.011	0.016	0.031
t		**		**		n.s

t * p < 0.05 ** p < 0.01 n.s

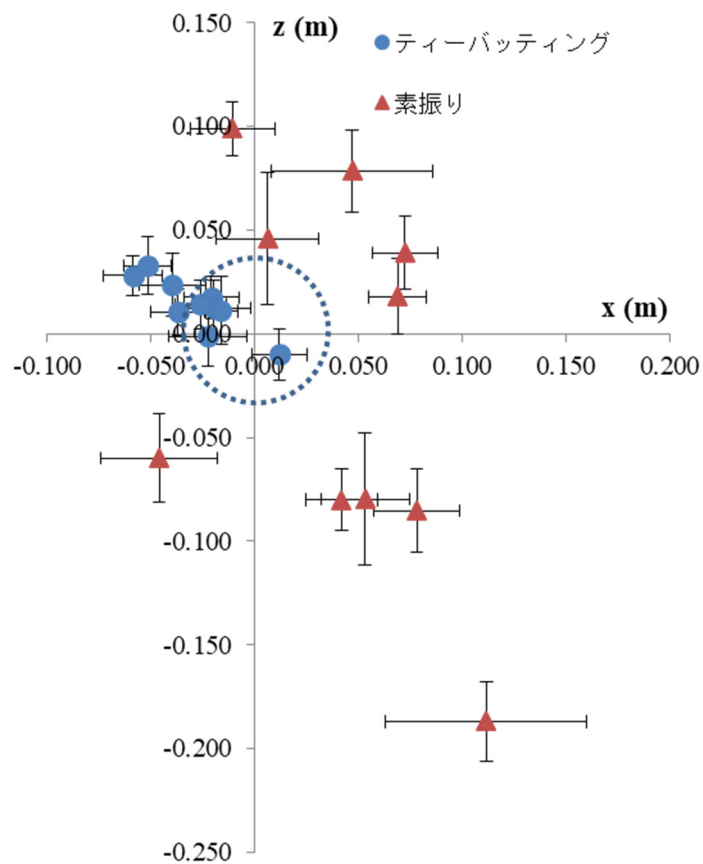
1.2

z

m

a	0.018	-0.080	0.010	0.032	0.018	0.080
b	0.033	-0.085	0.014	0.020	0.033	0.085
c	-0.001	-0.187	0.014	0.019	0.001	0.187
d	0.028	0.099	0.010	0.013	0.028	0.099
e	0.023	0.078	0.015	0.020	0.023	0.078
f	0.012	0.046	0.013	0.032	0.012	0.046
g	-0.010	-0.080	0.013	0.015	0.010	0.080
h	0.014	-0.060	0.012	0.021	0.014	0.060
i	0.011	0.018	0.016	0.018	0.011	0.018
j	0.010	0.039	0.011	0.018	0.010	0.039
	0.014	-0.021	0.013	0.021	0.016	0.077
	0.013	0.091	0.002	0.006	0.009	0.046
t		n.s		**		**

t * p < 0.05 ** p < 0.01 n.s



2

10

x-z

2

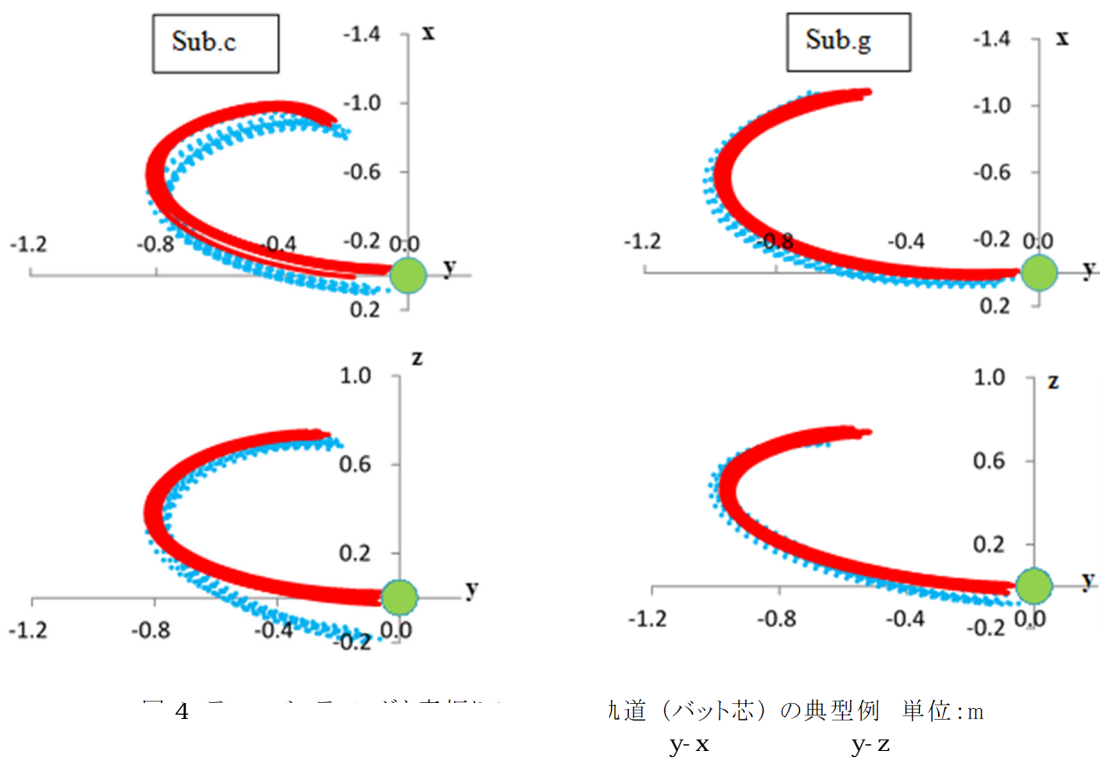
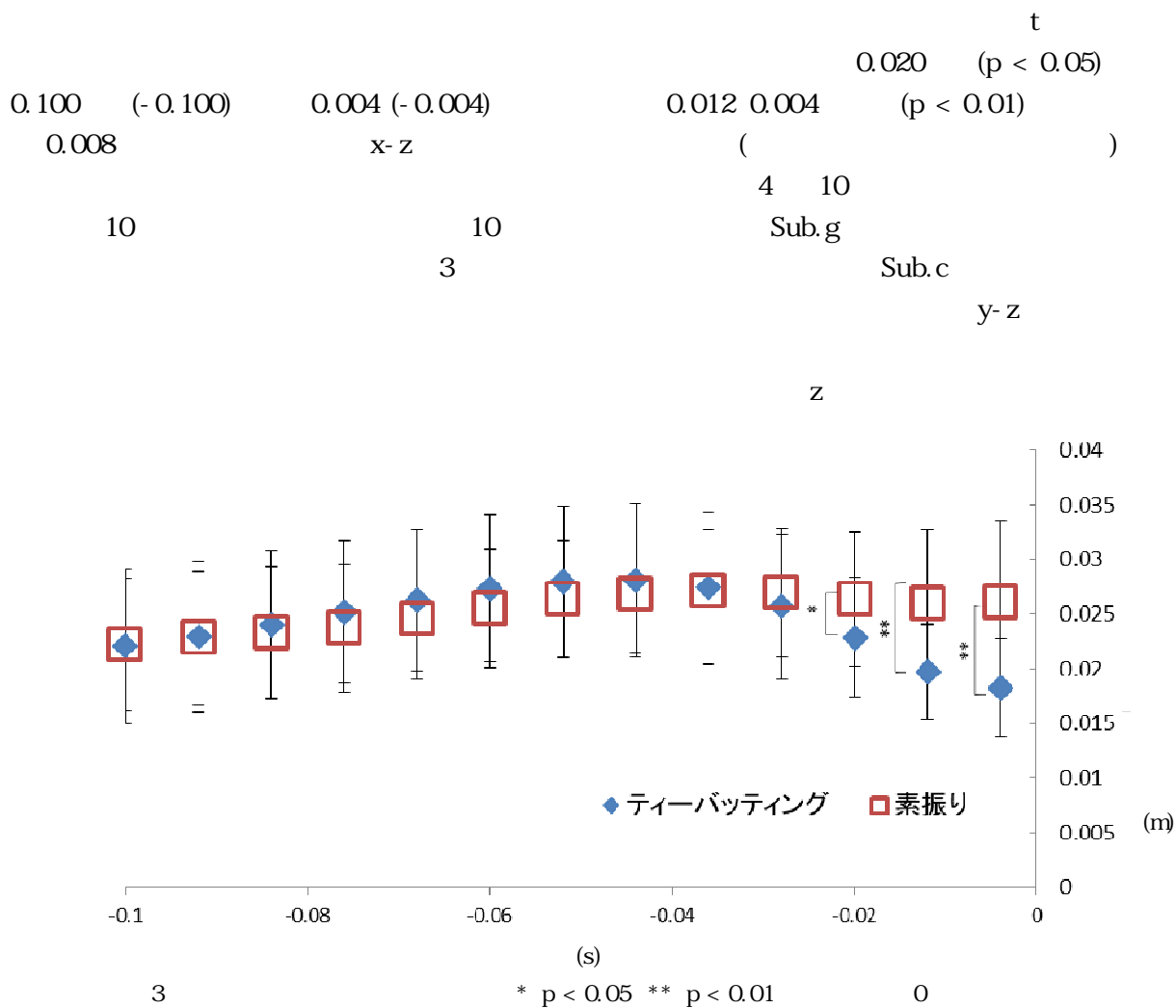
()

(m)

a	0.030	0.099	0.010	0.029
b	0.063	0.118	0.011	0.014
c	0.029	0.220	0.013	0.039
d	0.066	0.101	0.014	0.013
e	0.047	0.097	0.020	0.027
f	0.029	0.056	0.012	0.023
g	0.021	0.092	0.012	0.013
h	0.032	0.082	0.012	0.011
i	0.024	0.073	0.010	0.014
j	0.040	0.084	0.013	0.014
	0.038	0.102	0.013	0.020
	0.016	0.045	0.003	0.009
t		**		**

t * p < 0.05 ** p < 0.01 n.s

4.



x
 z
 0.020
 z
 x
 z ()

2

1

2

x z
 ()

(2006)

10

8

150

3

()
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4

(2001) ()
() 10 ()

(2014) ()
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(2003)

1 10 (1972) pp103

2 10 (2006)

3 10 (2001) 14

(1) 1- 11 2001.

2 10 (2014)

3 10 Sportsmedicine, 163, 6- 12

(1989)

, 25 , 1 2 3 , 53- 60

(2009)

, 1, 202- 210.

(2010)

(2010) 1962- 1969 4(1) 39- 43

pp. 131 (2015) pp. 21

(2002) (2006)

, 88, 73- 83 pp. 128- 130

(2013) • Tabuchi N, Matsuo T, Hashizume K (2007) Bat speed, trajectory, and timing for collegiate baseball batters hitting a stationary. Sports Biomechanics January, 6(1), pp17-30

10 26- 33 (2003)

29, 89- 97

