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Use of force plate form for long jump studies

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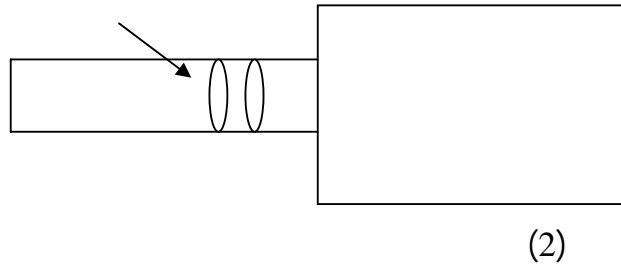
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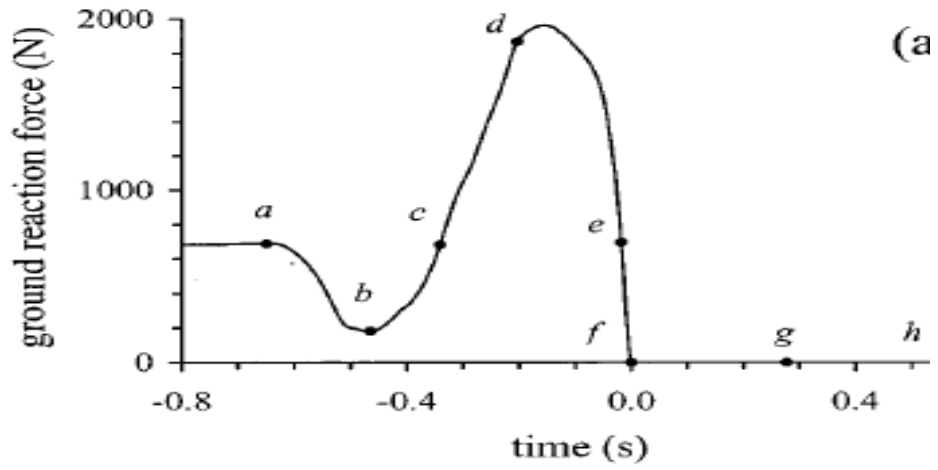
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11- Alhashmi Sameer : The relation ship between run-up velocity and take off impulse in high jump – flop style. Doctoral dissertation academy of physical education department of biomechanics, Poland 1984.

12- Cooper and et al. : Kinesiology. 4 th edition, C.V. Mosby Company, 1976.

13- Debrunner, H.V. and et al. : Computeraided analysis by means four-dimensional vector diagrams and characteris parageter. International series of biomechanics, Vol.3 B Warsaw, 10981.

14- Doherty, Ken : Track and field Omini-book. 2nd edition, California 1976.

15- Hay G.J. : The biomechanics of the long jump. Exercise and sport science reviews, New York, Macmillan publishing company, 1985.

16- Hay G.J. and et al. : Technique used in the transition from approach to takeoff in long jump. International Journal of sport biomechanics, 1985.

17- Meivin R. Ramey : Use of force platform for long jump studies. Medicine and sport, Vol.8, biomechanics California, 1973.

18- Payne A. R. : The use of force platform for the study of physical activity. Biomechanics medicine and sport. Vol.2, New York, 1968.

19- Popov V. : The long jump run up technique analysis. Track technique, summer, 1983.

20- Unger J. : Swinging movement at take off track technique world round, 1979.

21- Wolfgang. B. : On Mechanical loads on the human body during sports activities. Biomechanics, Poland Warsaw, 1981.

