Helen Julia Lavelle, J Sports Med Dop Stud 2018, Volume 8
DOI: 10.4172/2161-0673-C1-014

A rowing ergometer test to assess the arm contribution in force production during the rowing stroke

Helen Julia Lavelle
Cambridge University Womens Boat Club, UK

Rib stress fracture is a common injury in rowing affecting 8.1-16.4% of athletes in elite training regimes. Vinther (2005) found that his sample of rowers who had suffered from a rib stress fracture had stronger arm to leg power ratio and concluded that if a greater proportion of the power is created from the arms this would increase rib load. He used isokinetic dynamometry to measure elbow flexion versus leg extension power. This data is accurate and reproducible but dynamometers are expensive as well as few and far between. Reybrouck et al. (1975) measured VO2 max and heart rate to compare exertion between different parts of the stroke legs only, arms only and the full stroke but this is also an expensive and time consuming method of investigating power output. This test protocol proposes an easier and cheaper test solution. The results of this test may help identify rowers at risk of stress fracture and become a training aid to modify technique. A cohort of 48 non elite but experienced rowers was used to collect normative data using the test. None had a history of rib stress fracture. When tested at a slow stroke rate (18 strokes/min) the average arm contribution in men was 27.8% and women 21.85%. Testing at a higher rating (26 strokes/min) average arm contribution for men was 23.2% and for women 18.35 %. The test was then applied to a small sample (9) elite woman. Seven women who had no history of stress fracture averaged from 10% arm contribution for the 18 s/m test and just 7.47% at the higher stroke rating of 26. There were two subjects who in the last season had stress fractures but at the time of testing were healed and asymptomatic. Their results were dramatically higher than their non-injured colleagues. Test retest data was done on a sample of 12 subjects and revealed 1.6% and 1.8% average variance in the percentage arm contribution in the two tests. This new erg test is a cheap easy reliable method to assess arm power contribution whilst rowing on a Concept II ergometer.

Biography

Helen Julia Lavelle has completed her MCSP and MSc. She is an experienced Physiotherapist who has worked in elite sport at the highest level. She has worked in premiership rugby and cricket in the UK before her current role in rowing. She has lectured on many occasions both nationally and internationally and is best known for her work in knee rehabilitation. She recently presented at the MAT fest conference on meniscal allograft transplantation and at the national exhibition centre in Birmingham rehabilitation post ACL reconstruction.

Hellieju2003@yahoo.com

Notes: