

Regression models for strength assessment method selection and performance predictions.

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PURPOSE: The purpose of this study was to develop an objective approach for fitness professionals to select the best assessment method when determining a client's strength capabilities based on their resistance training backgrounds. **METHODS:** Seventy college resistance training students (19 men and 51 women; 20 untrained, inexperienced group; 29 untrained, experienced group; 21 trained, experienced group) completed the flat bench press using four strength assessment methods: (a) Trial and Error, (b) Body Weight, (c) 10RM, and (d) 1RM. Students also completed questionnaires seeking their resistance training background and descriptive information. Stepwise regression analyses used sex, body weight [BW], and resistance training characteristics (status [TS], frequency [TF], intensity [TI], experience [TE], bench press experience [BPE]) to develop models for strength assessment method selection and performance predictions. **RESULTS:** The variables identified by the stepwise regression analysis included in the strength assessment selection model were sex, BW, TS, TI, TE, BPE ($r^2 = 0.941$). The ability to predict strength performance for each assessment included the following variables for each model: (a) Trial and Error = BW ($r^2 = 0.098$), (b) Body Weight = Sex, TS, TE, and BW ($r^2 = 0.891$), (c) 10RM = Sex, BW, TS, TF, TI, and BPE ($r^2 = 0.92$), and (d) 1RM = Sex, BW, TS, TF, and TI ($r^2 = 0.905$). **CONCLUSION:** These stepwise regression models can be used to estimate strength assessment performances of clients based on resistance training status and experience. **APPLICATION:** Fitness professionals will find the models useful when assessing clients prior to designing strength-training programs.