Estimating 1RM Strength Test Procedure

REQUIRED EQUIPMENT: Strength fitness equipment (leg press, seated row, bench press), pen, clipboard, Fitness Testing Recording Form

PROCEDURE:

1. Explain the testing protocol to your client.
    a. You are about to do a strength test for your chest, back and legs
    b. You will need to do a warm up first
    c. I will choose a weight that you will find challenging and you are going to complete as many repetitions are you possibly can.
    d. If you reach 10 reps, we will stop, you will rest for 3 - 5 minutes and then I will add some more weight for you to have a second attempt.
    e. Our goal is to find a weight that you can lift to RM within 10 reps
    f. If we can't do this in 3 sets we will stop and do the test another day
2. Warm up the client so they are prepared to do a chest workout
3. Choose a weight that you think your client will only be able to lift for 7 - 8 reps
    a. You can always ask them what they have lifted in the past
4. Start the first set
    a. Stop if the client if they lift more than 10 reps.
    b. If you have chosen a weight that they can only lift < 10 times then record the weight lifted and number of reps and use the formula to calculate their 1RM.
    c. If not, continue to the next set
5. Give your client complete rest (3 - 5 mins)
    a. Increase the weight
    b. Do another set.
    c. Stop if the client if they lift more than 10 reps.
    d. If you have chosen a weight that they can only lift < 10 times then record the weight lifted and number of reps and use the formula to calculate their 1RM.
    e. If not, continue to the next set
6. Give your client complete rest (3 - 5 mins)
    a. Increase the weight
    b. Do another set.
    c. Stop if the client if they lift more than 10 reps.
    d. If you have chosen a weight that they can only lift < 10 times then record the weight lifted and number of reps and use the formula to calculate their 1RM.
    e. If not, stop and retest another day

FORMULAS AND CALCULATIONS

Convert the weight lifted into pounds (lbs). Do this by multiplying the weight lighted (kg) x 2.2

1RM = weight lifted (LB) / [1.0278 – (reps to fatigue x 0.0278)]

1RM = _____LB / [1.0278 – (_____ x 0.0278)]

1RM = _____LB / [1.0278 – _____]

1RM = _____ LB / _____

1RM = _____LB

Now convert your response back into kg by dividing it by 2.2

1RM = _____LB / 2.2

1RM = _____kg

Once 1RM has been calculated divide 1RM result by client's body weight and this will you a strength rating. Example: A male client who is 25 yrs old and weights 90kgs had a test on the bench press of 1RM = 100kgs on chest press

= 100kg ÷ 90kg

= 1.11

NORMATIVE / COMPARATIVE DATA

Strength Ratings – 1RM Leg Press

Male Rating (1RM divided by body weight)						
Rating	**Age (years)**					
	<20	**20-29**	**30-39**	**40-49**	**50-59**	**60+**
Superior	>2.28	>2.13	>1.93	>1.82	>1.71	>1.62
Excellent	2.05 - 2.27	1.98 – 2.12	1.78 – 1.92	1.69 – 1.81	1.59 – 1.70	1.50 – 1.61
Good	1.91 - 2.04	1.84 – 1.97	1.66 – 1.77	1.58 – 1.68	1.47 – 1.58	1.39 – 1.49
Fair	1.71 - 1.90	1.64 – 1.83	1.53 – 1.65	1.45 – 1.57	1.33 – 1.46	1.26 – 1.38
Poor	<1.70	<1.63	<1.52	<1.44	<1.32	<1.25
Female Rating (1RM divided by body weight)						
Rating	**Age (years)**					
	<20	**20-29**	**30-39**	**40-49**	**50-59**	**60+**
Superior	>1.71	>1.68	>1.47	>1.37	>1.25	>1.18
Excellent	1.60 – 1.70	1.51 – 1.67	1.34 – 1.46	1.24 – 1.36	1.11 – 1.24	1.05 – 1.17
Good	1.39 – 1.59	1.38 – 1.50	1.22 – 1.33	1.14 – 1.23	1.00 – 1.10	0.94 – 1.04
Fair	1.23 – 1.38	1.23 – 1.37	1.10 – 1.21	1.03 – 1.13	0.89 – 0.99	0.86 – 0.93
Poor	<1.22	<1.22	<1.09	<1.02	<0.88	<0.85

Source: Morrow, J.R., Jackson, A.W., Disch, J.G., and Mood, D.P. (2010). Measurement and Evaluation in Human Performance. Human Kinetics: United States of America.

Strength Ratings – 1RM Bench Press

Male Rating (1RM divided by body weight)	
Rating	**Age (years)**

	<20	20-29	30-39	40-49	50-59	60+
Superior	>1.34	>1.32	>1.12	>1.00	>0.90	>0.82
Excellent	1.2 – 1.33	1.15 – 1.31	0.99 – 1.11	0.89 – 0.99	0.80 – 0.89	0.72 – 0.81
Good	1.07 – 1.19	1.00 – 1.14	0.89 – 0.98	0.81 – 0.88	0.72 – 0.79	0.67 – 0.71
Fair	0.90 – 1.06	0.89 – 0.99	0.79 – 0.88	0.73 – 0.80	0.64 – 0.71	0.58 – 0.66
Poor	<0.89	<0.88	<0.78	<0.72	<0.63	<0.57

Female Rating (1RM divided by body weight)						
Rating	**Age (years)**					
	<20	**20-29**	**30-39**	**40-49**	**50-59**	**60+**
Superior	>0.78	>0.81	>0.71	>0.63	>0.56	>0.55
Excellent	0.66 – 0.77	0.70 – 0.80	0.61 – 0.70	0.55 – 0.62	0.49 – 0.55	0.48 – 0.54
Good	0.59 – 0.65	0.60 – 0.70	0.54 – 0.60	0.51 – 0.54	0.44 – 0.48	0.43 – 0.47
Fair	0.54 – 0.58	0.52 – 0.59	0.48 – 0.53	0.44 – 0.50	0.40 – 0.43	0.39 – 0.42
Poor	<0.53	<0.51	<0.47	<0.43	<0.39	<0.38

Source: Morrow, J.R., Jackson, A.W., Disch, J.G., and Mood, D.P. (2010). Measurement and Evaluation in Human Performance. Human Kinetics: United States of America.