Strenght Evaluation System

University of Jordan

Lab Human

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❖ Objectives:

1. To Measure the muscle endurance time for each student.
2. To find out who has more endurance, males or females.

❖ Background:

Maximum Voluntary Contraction (MVC) assesses muscle strength through voluntary contraction. Grip tool facilitates MVC testing, evaluating endurance at 80%, 60%, 40%, and 20% of MVC. It simulates different levels of exertion to measure muscle performance over time. Grip provides precise measurement and analysis for MVC testing. This process offers insights into muscular fatigue and training adaptations. It optimizes training programs and enhances athletic performance. Grip ensures performance improvement while minimizing injury risks. MVC testing with Grip is vital for comprehensive fitness assessment and training optimization.

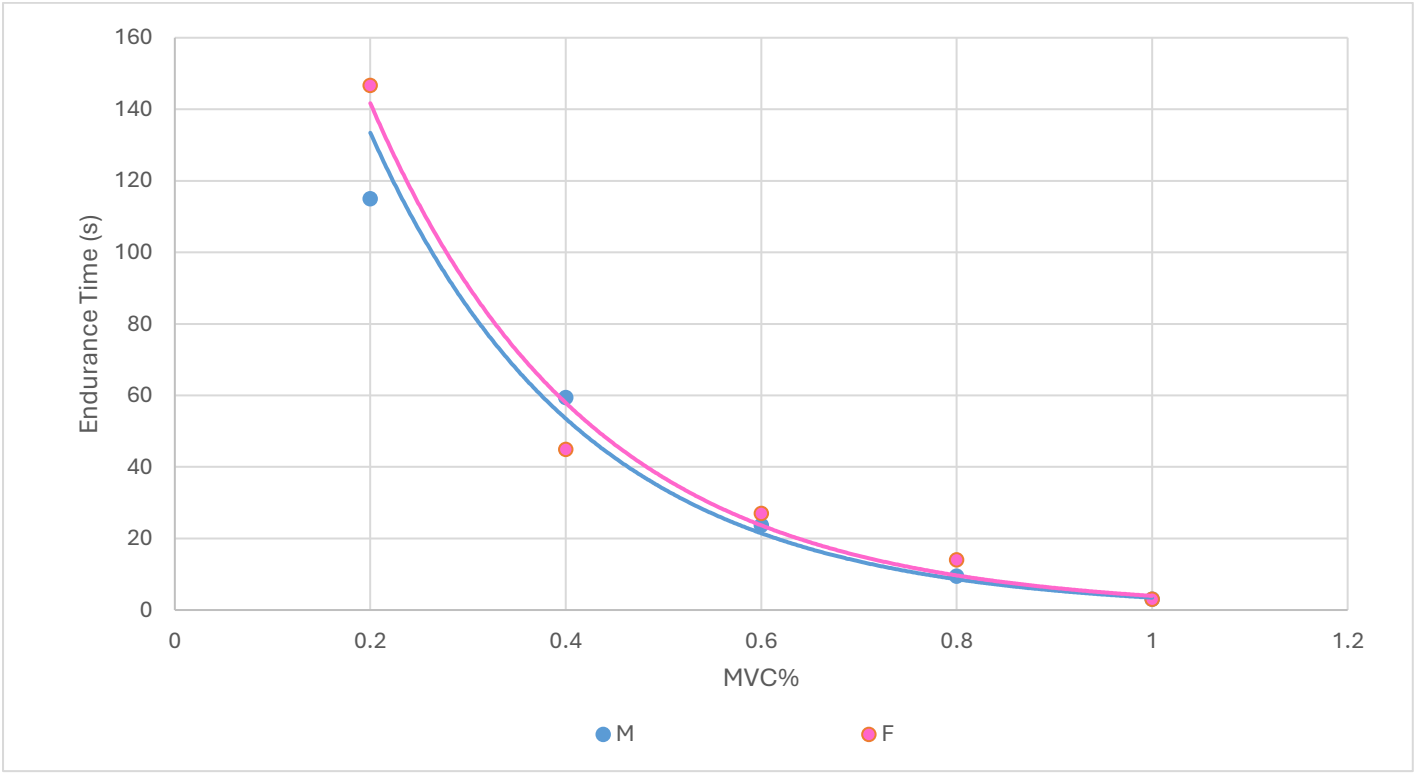
❖ Equipment:

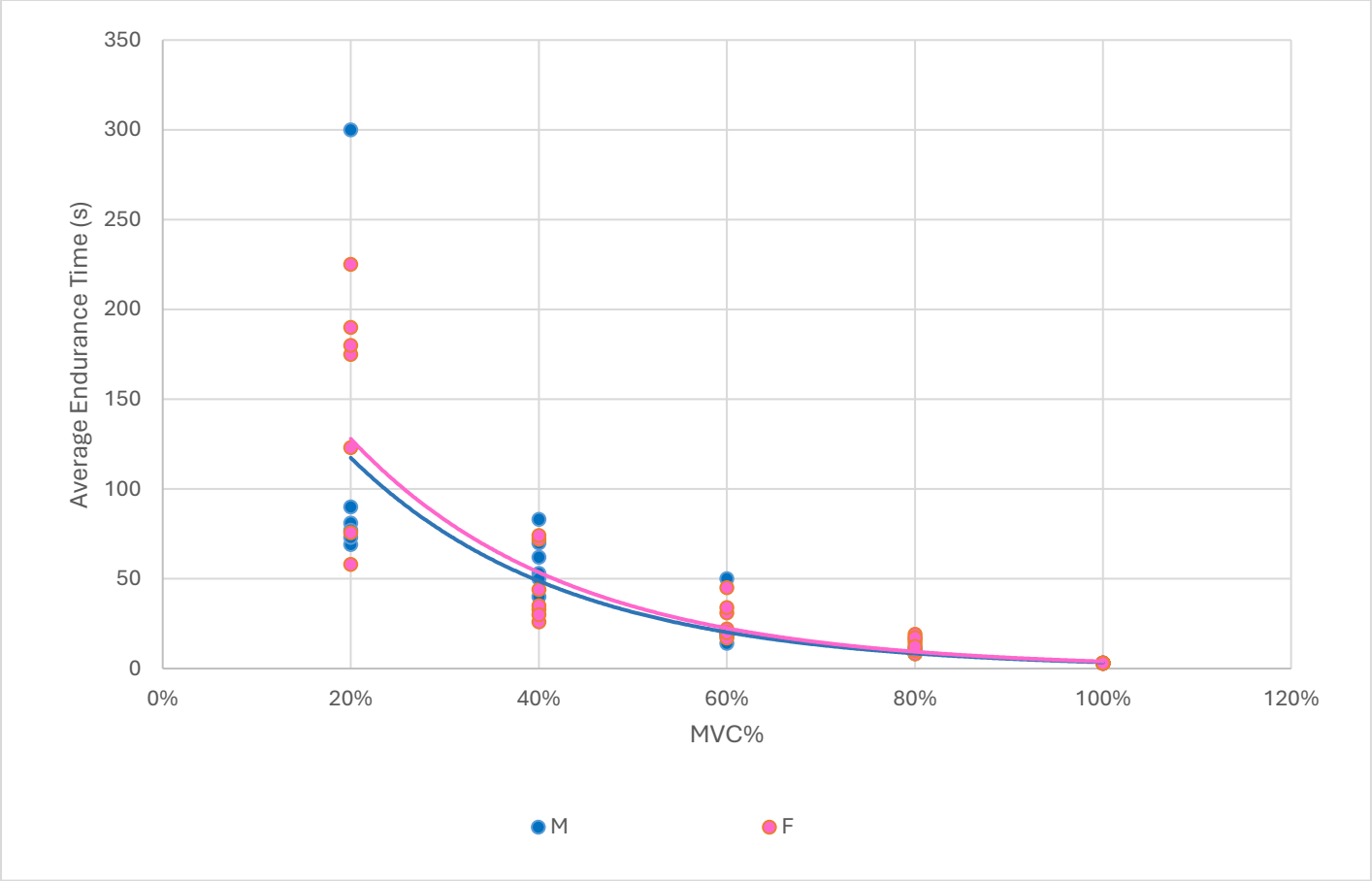
1)Hydraulic hand dynamometer

❖ Tables:

Gender	100%	Time	80%	Time	60%	Time	40%	Time	20%	Time
M	43	3	34.4	10	25.8	20	17.2	53	8.6	81
M	57	3	45.6	9.6	34.2	14	22.8	62	11.4	90
M	69	3	55.2	8.4	41.4	19	27.6	50	13.8	77
M	45	3	36	8.6	27	21	18	40	9	69
M	40	3	32	8.3	24	18	16	70	8	73
M	65	3	52	11.5	39	50	26	83	13	300
Avg		3		9.4		23.66667		59.66667		115

Gender	100%	Time	80%	Time	60%	Time	40%	Time	20%	Time
F	28	3	22.4	19	16.8	45	11.2	72	5.6	190
F	20	3	16	14.5	12	31	8	74	4	175
F	18	3	14.4	8.26	16.8	34	7.2	44	3.6	58
F	20	3	16	16.44	12	22	8	33	4	123
F	25	3	20	17.19	15	20	10	35	5	225
F	21	3	16.8	10	12.6	17	8.4	26	4.2	75.6
F	22	3	17.6	12.37	13.2	20	8.8	30	4.4	180
Avg		3		13.96571		27		44.85714		146.6571





❖ Procedure:

To assess maximal voluntary contraction (MVC) and endurance:

1. Adjust the chain's height based on standing elbow measurements from experiment 1 for each student. Have the learner stand in a neutral position with their elbow at 90 degrees, gripping the handle palm up, avoiding bending, leaning back, or grasping in the ulnar direction. Instruct them to grip the handle firmly for the adjusted time (usually 3 to 5 seconds) and record each student's Jackson weight.

2. For measuring endurance, ensure each student sits on a well-designed chair in a neutral posture: arms loosely at the sides, forearms parallel with the floor, hands in a handshake position, maintaining a natural S curve in the back, knees bent at 90-105 degrees, feet shoulder-width apart, and head

looking forward, slightly downward. Use the hand dynamometer with the dominant hand to assess endurance.

3. Zero the dynamometer or set the red cursor at the targeted value as a marker. Instruct the student to slowly squeeze the dynamometer until reaching the predetermined value and maintain it for as long as possible. Mark the moment if the white cursor drops below the predetermined value three times, indicating the person's endurance.

4. Calculate the load values for each iteration:
- 80% of the average MVC.
- 60% of the average MVC.
- 40% of the average MVC.
- 20% of the average MVC.

5. Begin with the first iteration for all students, then proceed to the next, ensuring breaks between readings to prevent fatigue. After completing all iterations, calculate the average percentage for each iteration for both males and females.

❖ Errors:

poorly positioning oneself, selecting the incorrect seat, mishandling the equipment, failing to take sufficient rests between trials, perspiring, and misreading the device and timer mistakes (may not have been calibrated correctly) or a sense of rivalry.

Conclusion:

The investigation led us to the conclusion that, at the same percentage of maximum lifting capacity, ladies have a higher endurance limit than males.
displayed increased stamina.
Males often have higher MVC, but women are more adapted to endurance-based sports and experience less post-exercise weariness, but men are stronger and possess greater physical strength, which can be explained by the longer muscular fibres seen in females.