

# ***Caring for Precious Cargo***

## ***Part 1:***

### ***Emergency Aircraft Evacuations With Infants Onto Inflatable Escape Slides***



***Cynthia L. Corbett***  
***Protection and Survival Laboratory***



# ***Moving Kids Safely***

- ★ FAA is committed to one level of safety for every occupant in an aircraft.
- ★ How should adults with infants evacuate airliners when emergencies occur?
- ★ Information obtained from this study is intended for use in developing pre-evacuation briefings.



# ***Participants***

- ★ Six groups of 32 adult evacuees
  - ♦ Military personnel
  - ♦ Airline industry representatives
- ★ 8 from each group were selected to carry an anthropomorphic dummy on 6 trials
  - ♦ 27 males, 21 females
  - ♦ Mean age 29.32 years

<b>Dummy number</b>	<b>Weight/lb</b>	<b>Length/in</b>	<b>Estimated age representation</b>
<b>1</b>	<b>10.91</b>	<b>16.75</b>	<b>2 months</b>
<b>2</b>	<b>10.51</b>	<b>16.75</b>	<b>2 months</b>
<b>3</b>	<b>17.04</b>	<b>24.50</b>	<b>6 months</b>
<b>4</b>	<b>18.06</b>	<b>26.00</b>	<b>6 months</b>
<b>5</b>	<b>24.76</b>	<b>33.00</b>	<b>18 months</b>
<b>6</b>	<b>25.65</b>	<b>31.00</b>	<b>18 months</b>
<b>7</b>	<b>28.96</b>	<b>31.00</b>	<b>24 months</b>
<b>8</b>	<b>29.92</b>	<b>31.00</b>	<b>24 months</b>

# ★ Aircraft Cabin Evacuation Facility (ACEF)

- ◆ Right front Type I exit
- ◆ Boeing 737 evacuation slide
- ◆ Sill height 9' 6"

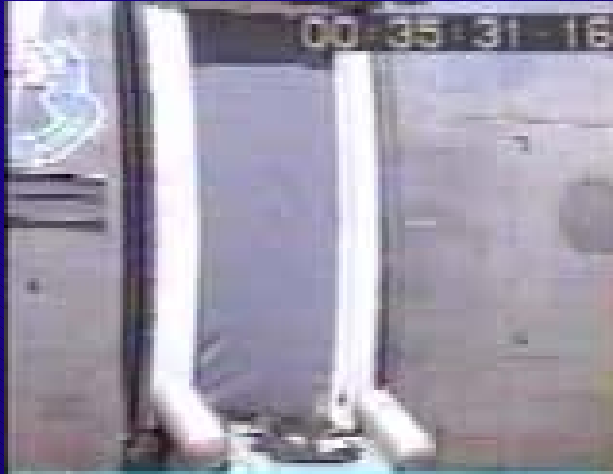


# ★ Carry infant dummy vertically or horizontally

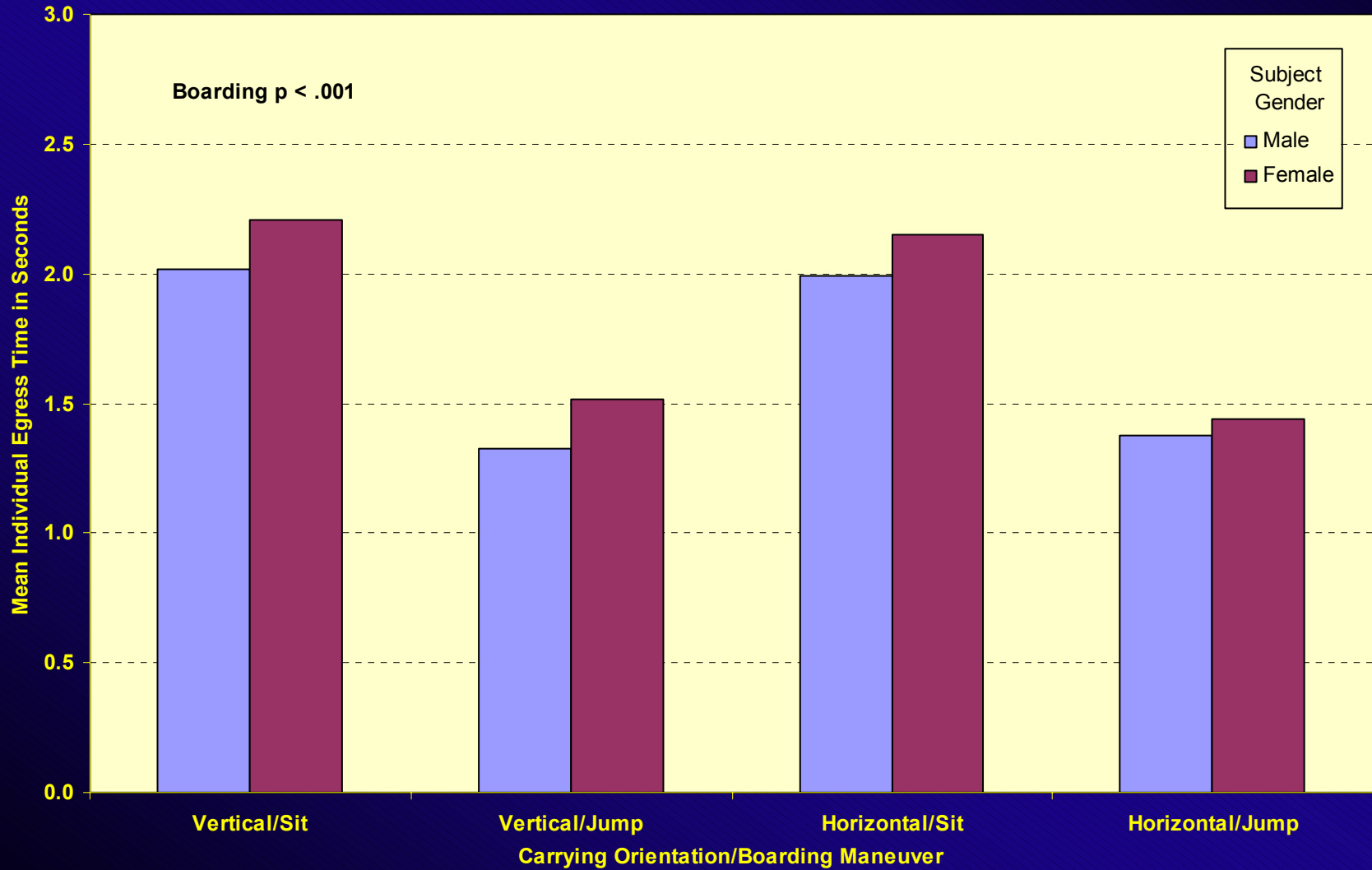


# ★Jump or sit on slide to board



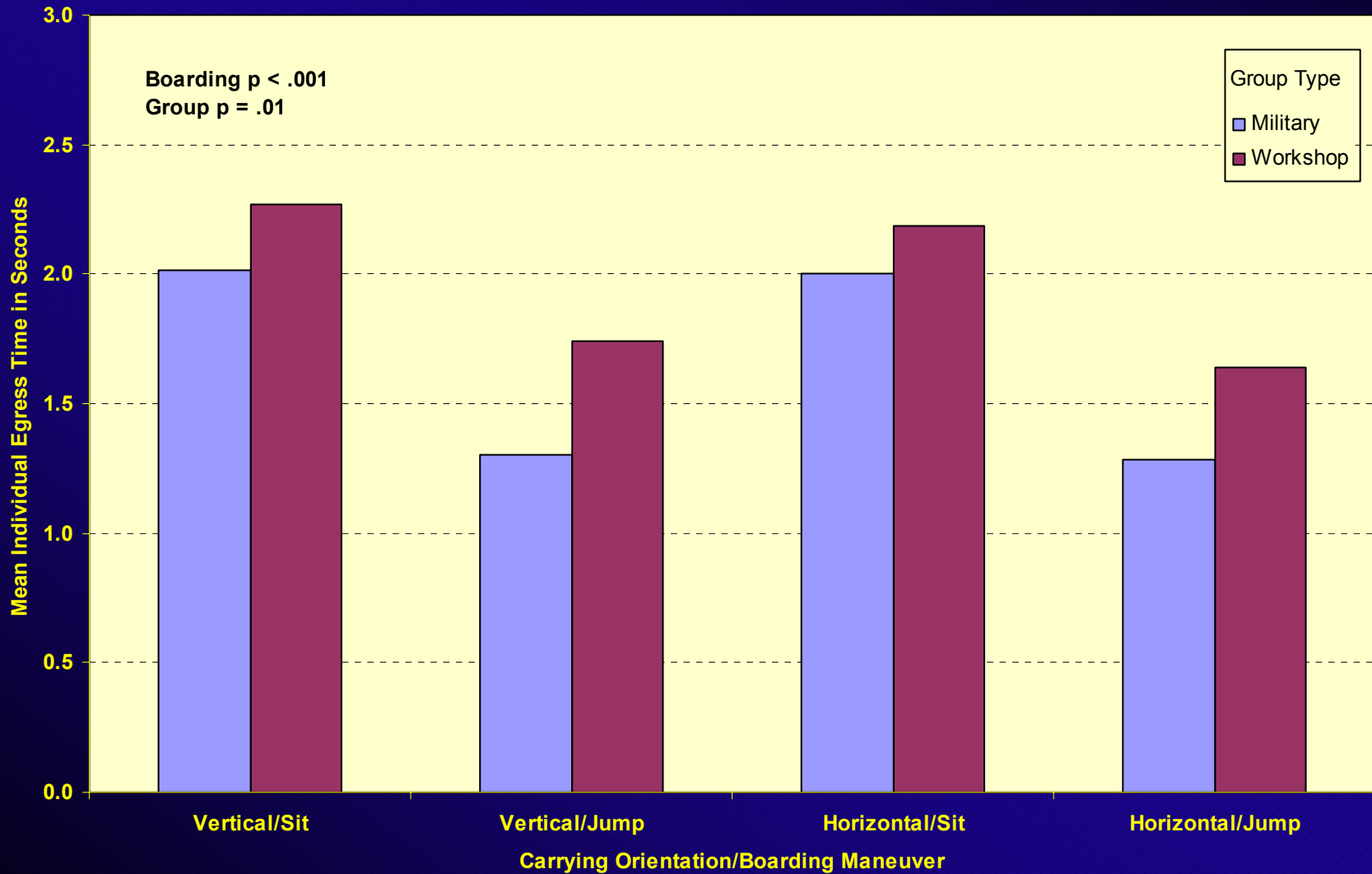


**Speed of Egress Multivariate Analysis of Variance**  
**Boarding Maneuver Main Effect**



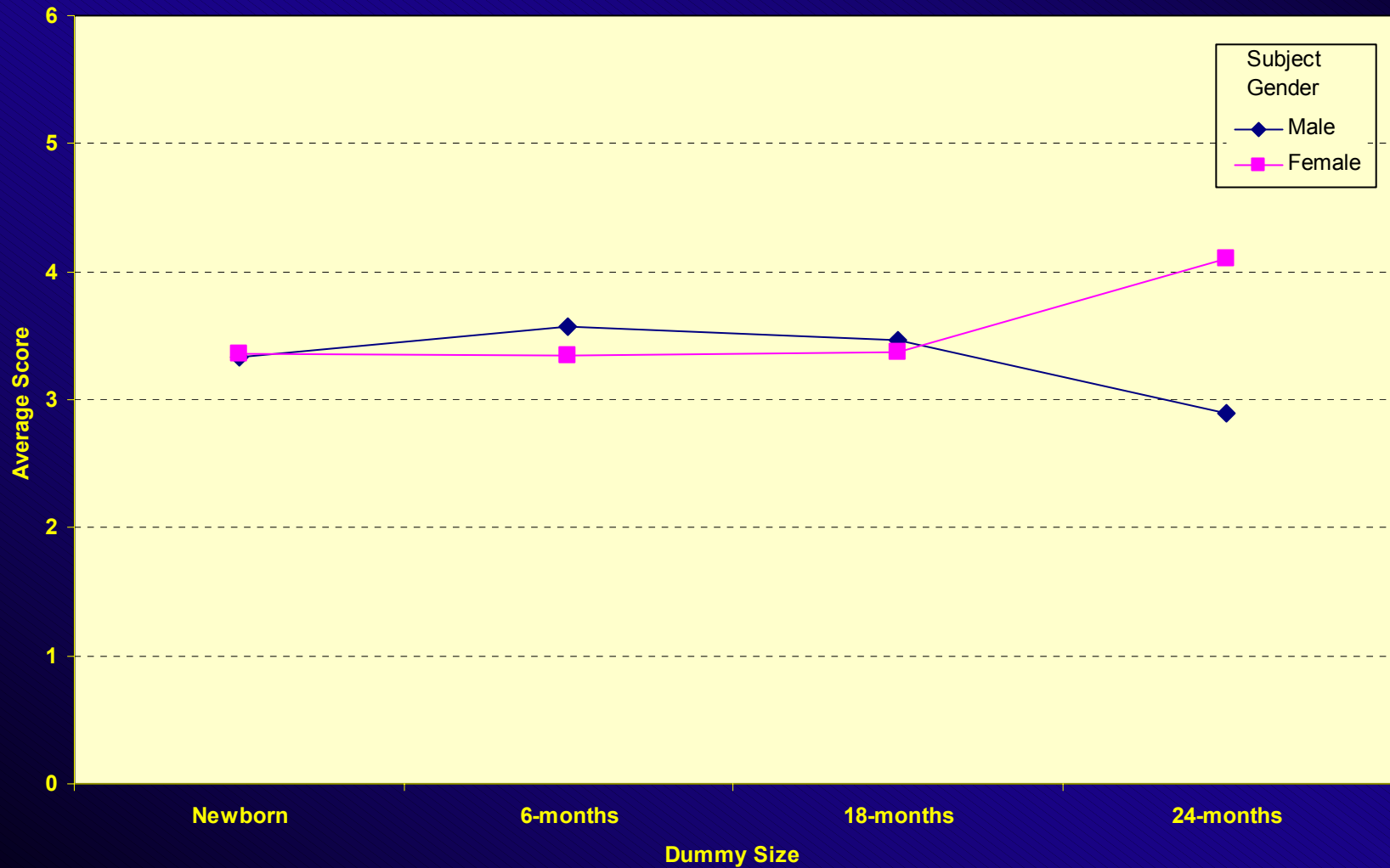
# Speed of Egress Multivariate Analysis of Variance

## Boarding Maneuver and Group Type Main Effects



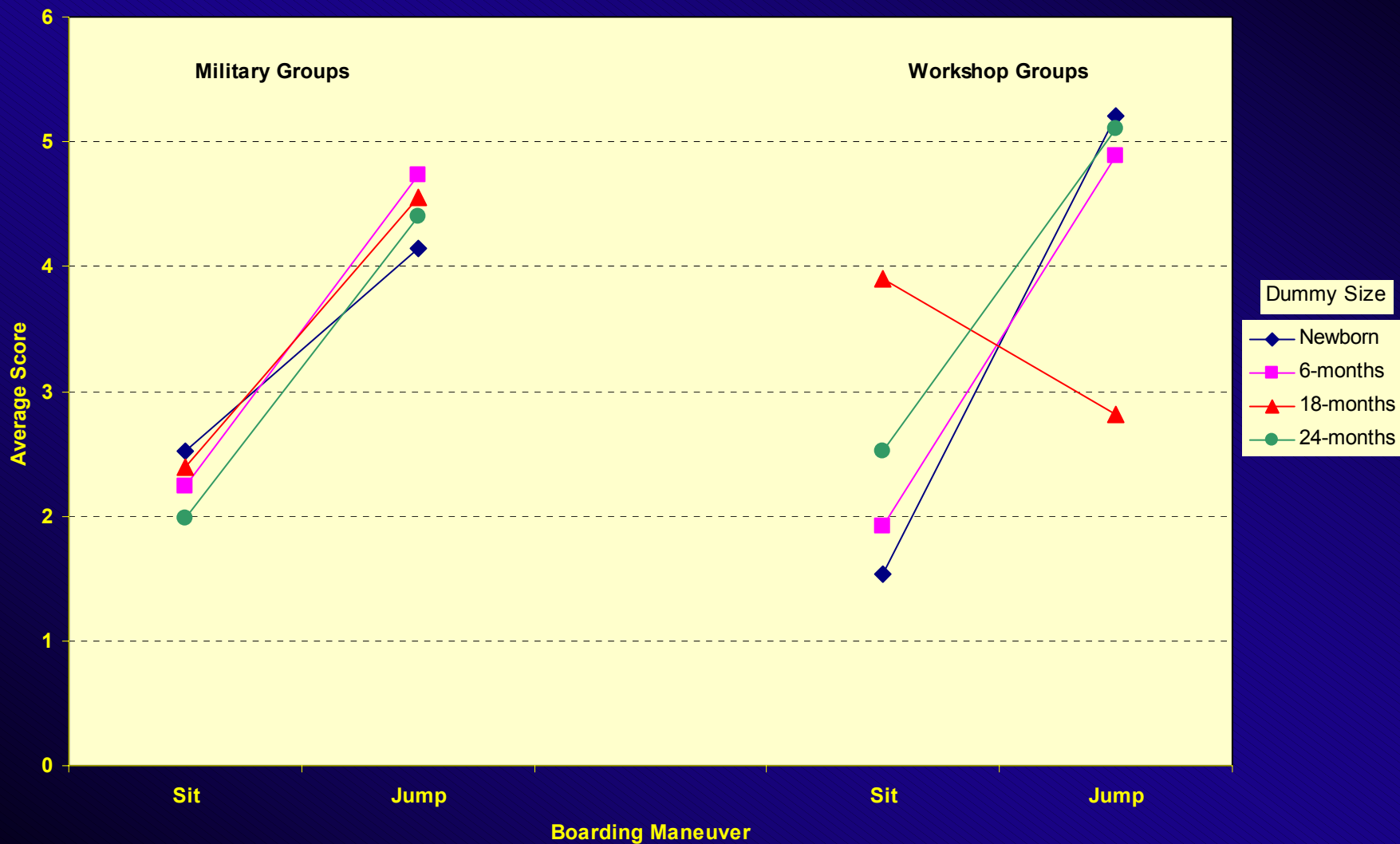
# Degree of Ease of Carrying Orientation and Boarding Maneuvers

## Subject Gender by Dummy Size Interaction



# Degree of Ease of Carrying Orientation and Boarding Maneuvers

## Boarding by Group Type by Dummy Size Interaction



## Distribution of responses to “Which maneuver would you recommend to parents?”

Carrying/Boarding Maneuver	Dummy Size				Total
	Newborn	6 months	18 months	24 months	
Vertical/Sitting	2	0	6	0	8
Vertical/Jumping	5	6	2	5	18
Horizontal/Sitting	0	1	2	1	4
Horizontal/Jumping	5	5	2	6	18
Total:	12	12	12	12	48



## ***“No instruction” Trials***

- ★ 64% of those who held dummy vertically and 75% of those who held the dummy horizontally *jumped* onto the slide on both *first* and *final* trials.
- ★ Majority of those who changed positions changed from vertical to horizontal orientation, but still jumped.
- ★ Only four infant carriers changed to the sitting position.



# ***Conclusions***

- ★ Results suggest that jumping onto the slide *should be* the favored boarding maneuver.
- ★ Carrying orientation should provide most protection for the child.
- ★ It is critical to consider how a parent might react in an emergency.
- ★ Instruct parents about properly boarding the slide to increase their confidence and proficiency.