Effects of a Home-based Physical Activity Program Implemented by a Trained Caregiver On the Physical Function of Community-dwelling Older Adults

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Effectiveness of a

PHYSICAL ACTIVITY PROGRAM

On the

PHYSICAL FUNCTION & QUALITY OF LIFE of COMMUNITY-DWELLING OLDER ADULTS

Participating in

8-weeks of HOME-BASED INDIVIDUALLY-SUPERVISED PHYSICAL ACTIVITIES

Implemented by a

TRAINED NON-MEDICAL HOME AIDES

Rationale

- ✓ Growing Aging Population
- ✓ Aging in Place
- ✓ Older and Unhealthier
- ✓ Population Segment of Interest
- ✓ Health professionals are influential

- ✓ **Functional decline in older adults**
  - **Loss of ability to perform ADLs - IADLs**
  - **Loss of independence**
  - **Decrease in quality of life, overall health**

- ✓ **Physical inactivity predictor of functional decline**

- **Home Health**

  20,000 Home Health providers → 7.7 million

  Costs = $40 billion

  80% of Recipients = Age 65+

- **Home Health Workers (675,000)**

  RNs (111,000)

  LPNs (49,000)

  PTs (13,500)

  OTs (5,200)

  CNAs (170,000)

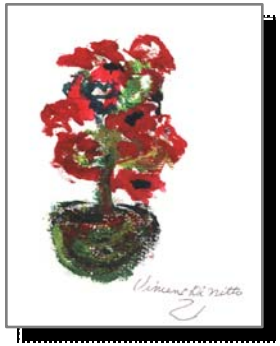
  Restorative, Medication, Hospice, Palliative…

  SWs (6,500)

Home Aides (317,888)

- **In-home Aide**
- **Home Maker**
- **Personal Care Assistant**
- **Personal Attendant**

Literature



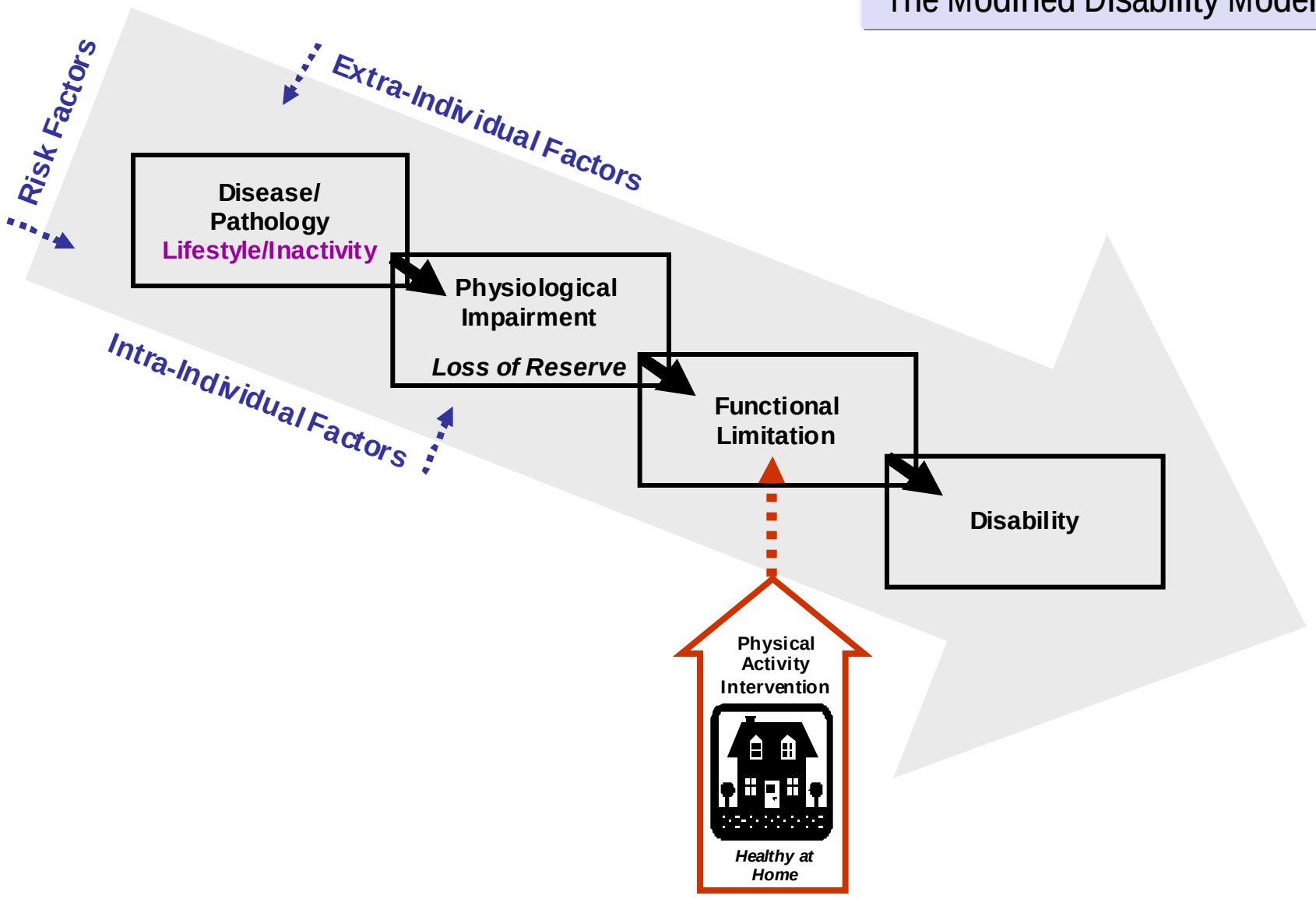
Physical Activity Interventions
Impact Functional Decline

- ✓ **Home-based studies**
- ✓ **Utilizing professionals**
- ✓ **Findings in physical functions and quality of life indicators**

Importance of Current Study

- ✓ No studies found…
- ✓ Unique methodology
- ✓ Utilizing trained home aides
- ✓ Supervising 100%

The Modified Disability Model



Design

- ✓Quasi-Experimental
- ✓Repeated Measures (time)
- ✓Group Comparisons (exp & con)

N=28	Pre	Treat	Post
Exp N=14	O	X	O
Control N=14	O		O

Independent Variables

GROUP

EXPERIMENTAL……..Intervention

CONTROL……Attention Control

TIME

PRETEST……Baseline

POSTTEST…….8 weeks from baseline
(*16 sessions)*

Dependent Variables

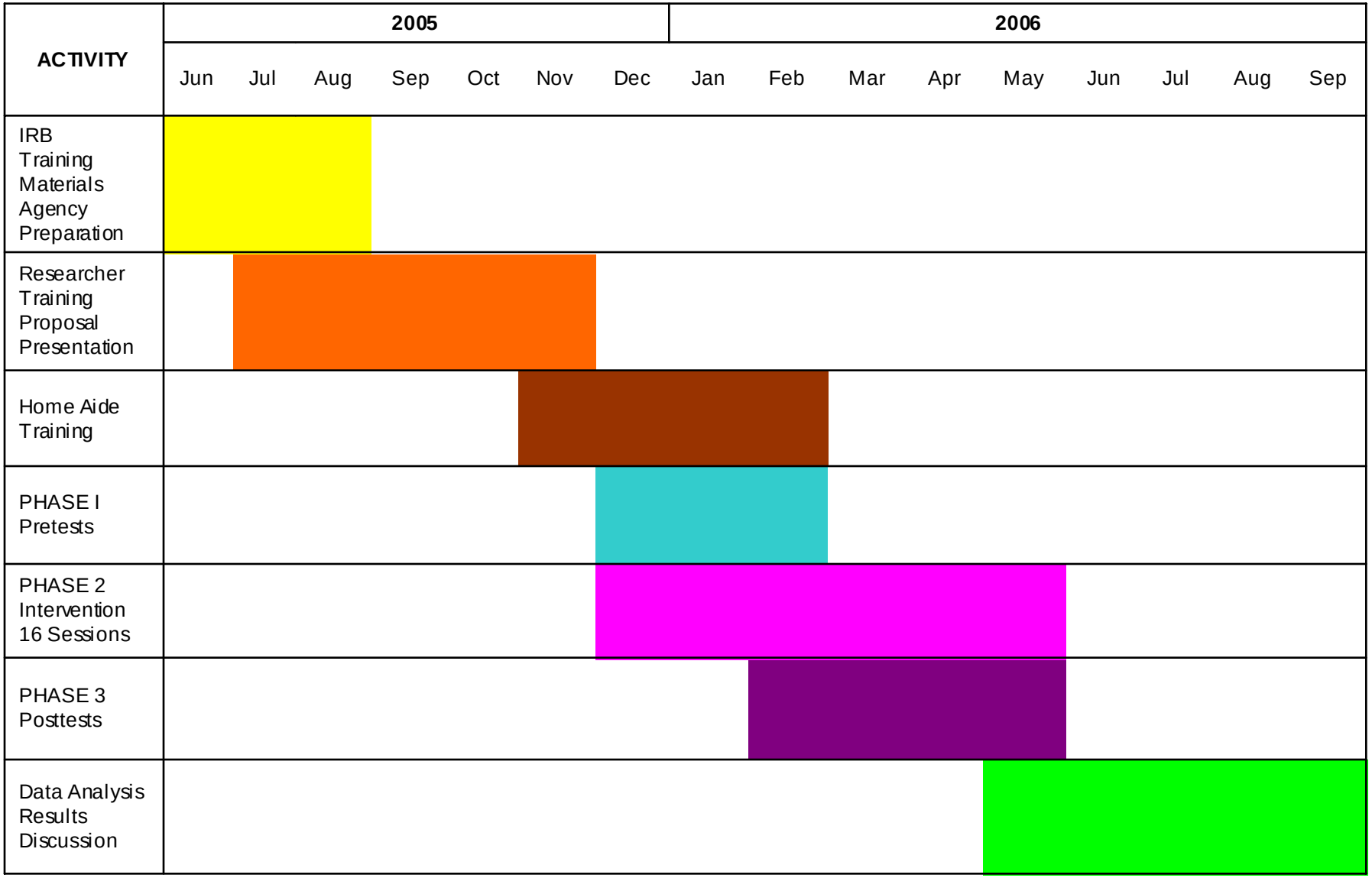
Physical Functions

Dynamic Balance	Four Square Step Test (FSST)
Lower body strength	Chair Stand (CHAIR)
Upper body strength	Arm Curl (CURL)
Flexibility	Back Scratch (BACK)
Mobility	Timed Up and Go (TUG)
Hand function	Moberg (MPUT)

Quality of Life Indicators

Depressive symptoms	CES Depression Scale (CES-D)
Functional ability	Health Assessment – Disability Index (HAQ-DI)
Executive function	Cognition (CLOX 1 & 2)
Executive function	Cognition (Trail Making A &B)

TIMELINE



Training Home Aides

Training by OT & Researcher

2-3 sessions (2-4 hrs)

Purpose
Record keeping
Cautions and safety
Procedures
Conducting physical activities

ASSESSMENTS

- Tests conducted at home
- Administered by researcher
- Together with Home Aide
- Read aloud and demonstrated

ASSESSMENTS - Pretests

PHYSICAL FUNCTION

Four Square Step Test (FSST)
Chair Stand (CHAIR)
Arm Curl (CURL)
Back Scratch (BACK)
Timed Up and Go (TUG)
Moberg Pick-Up (MPUT)

QUALITY OF LIFE

Depression Scale (CES-D)
Health Assessment Disability Index (HAQ-DI)
CLOX 1 & 2
Trail Making A &B

INTERVENTION – Experimental Group

Physical activities
Functionally relevant

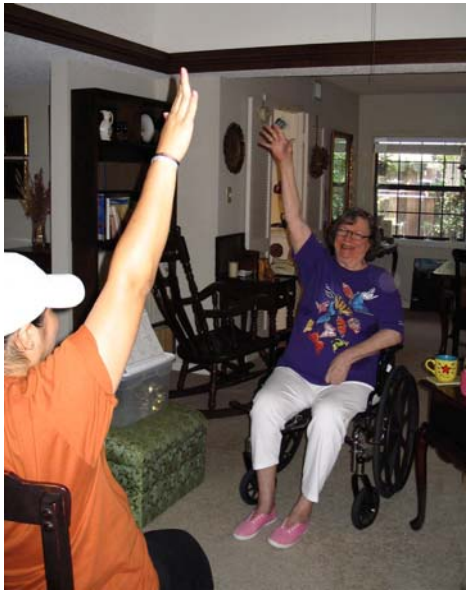
INTERVENTION – Experimental Group

Strength

Hand dexterity

INTERVENTION – Experimental Group

Range of Motion



Balance & Mobility

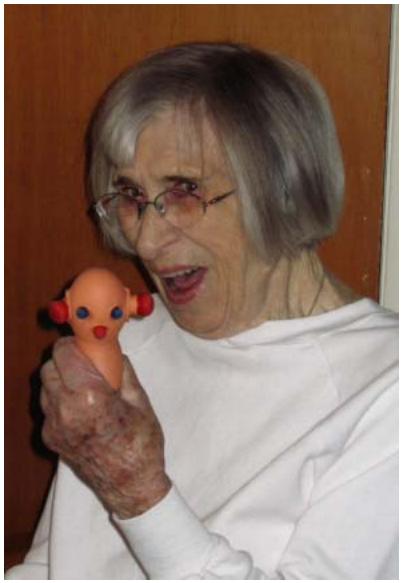
INTERVENTION – Experimental Group

Supervised by Home Aide

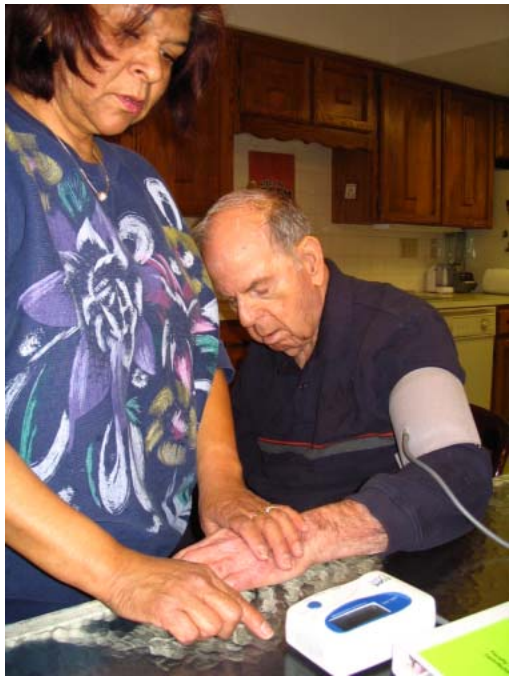
INTERVENTION – Experimental Group

30-40 Minutes/day
2x/week
8 weeks
Total = 16 sessions

INTERVENTION – Experimental Group



INTERVENTION – Experimental Group



Blood Pressure Monitor

INTERVENTION – Experimental Group

Maintain activity log
BP
Reactions

INTERVENTION – Experimental Group

INTERVENTION – Experimental Group

Participant / Home aide Activity sessions = 16

Researcher contacts = 6

INTERVENTION – Attention Control Group

Health Education

Relevant topics for discussion
AgePage (National Institute on Aging)

Presented by Researcher

30-40 minutes E/O wk ~ 8 weeks = 4 sessions

Maintain log of activities, reactions

Researcher contacts = 6

ASSESSMENTS - Posttests

- **Performance Tests of Physical Function**
  - Mobility
  - Flexibility
  - Strength (upper/lower)
  - ~~Balance~~
  - Hand Function
- **Quality of Life Indicators**
  - ~~Cognition~~
  - Disability
  - Depressive Symptoms

DATA ANALYSIS

DESCRIPTIVES

PARTICIPANTS

N	**28**
Age	**84.8 yrs** (73-96)
Gender	**72% female**
Education	**14 yrs**
Comorbidity	**6.1 diseases**
Medications	**4.8 daily**
Canes/walkers	**90%**
Visually impaired	**50%**

DATA ANALYSIS

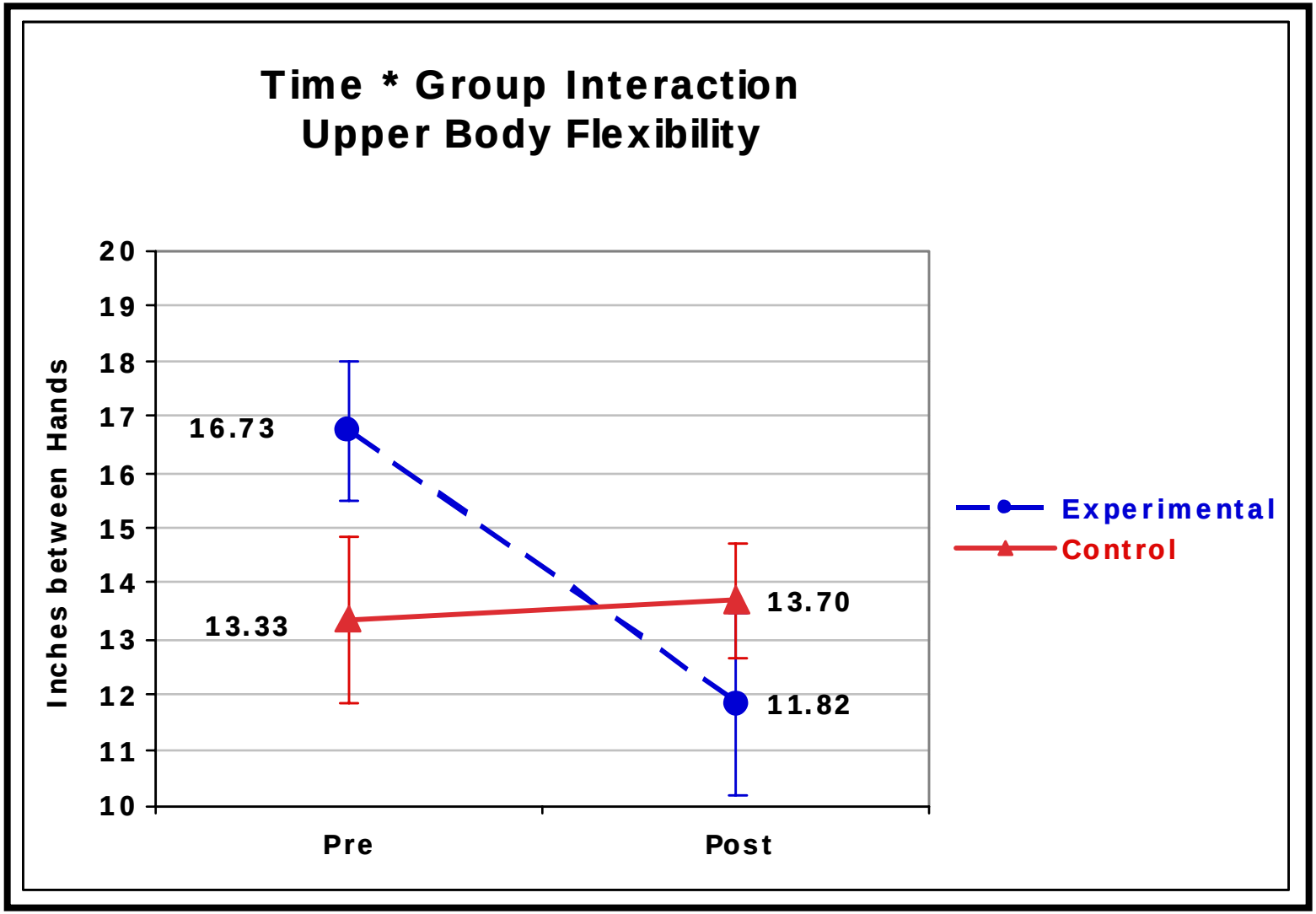
DESCRIPTIVES

HOME AIDES

Age..... **49 yrs** (21-66)
Gender..... **86% female**
Education.....**12 yrs**
Experience..... **7 yrs**
Physical activity training..**0 yrs**

DATA ANALYSIS

FINDINGS



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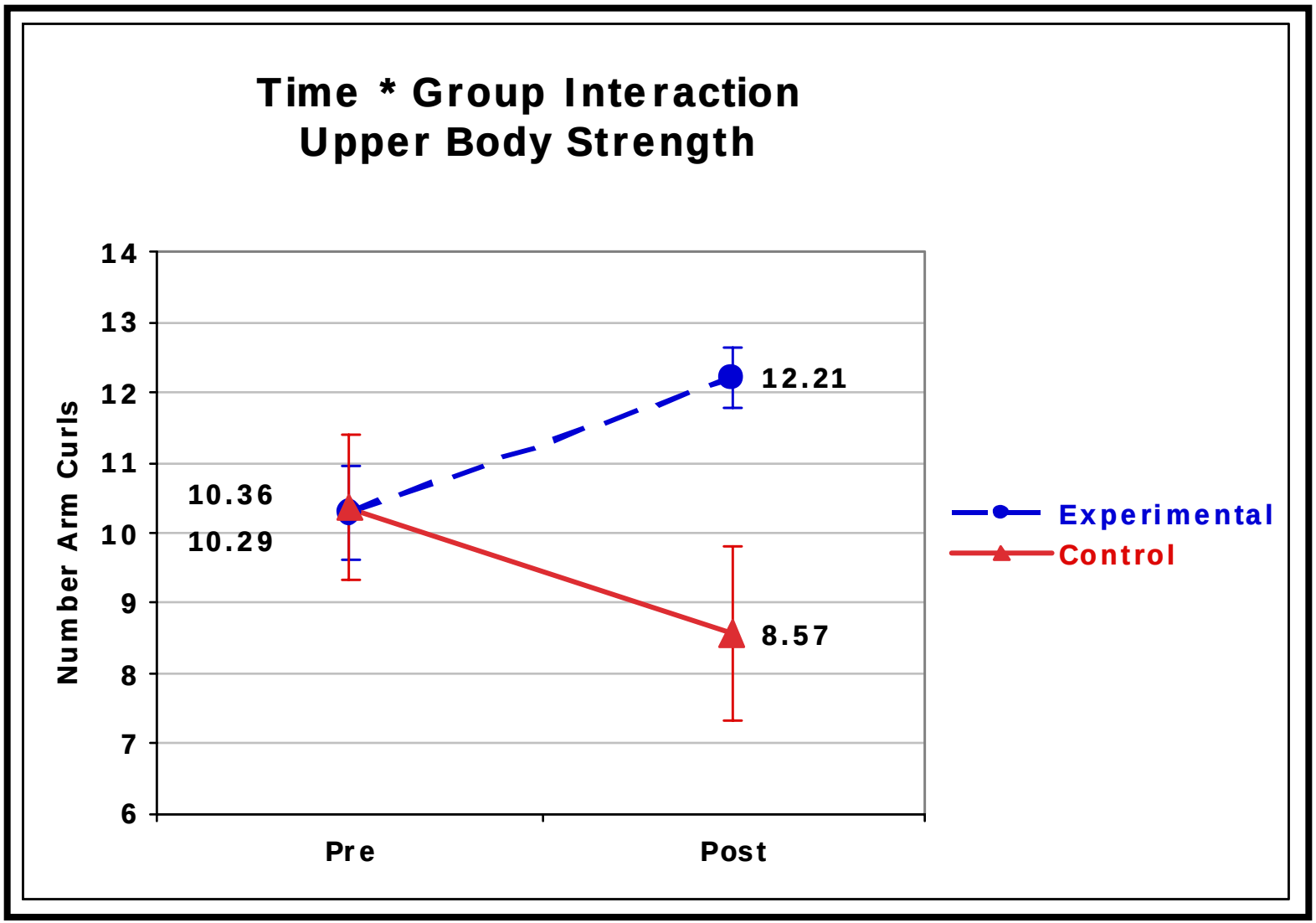

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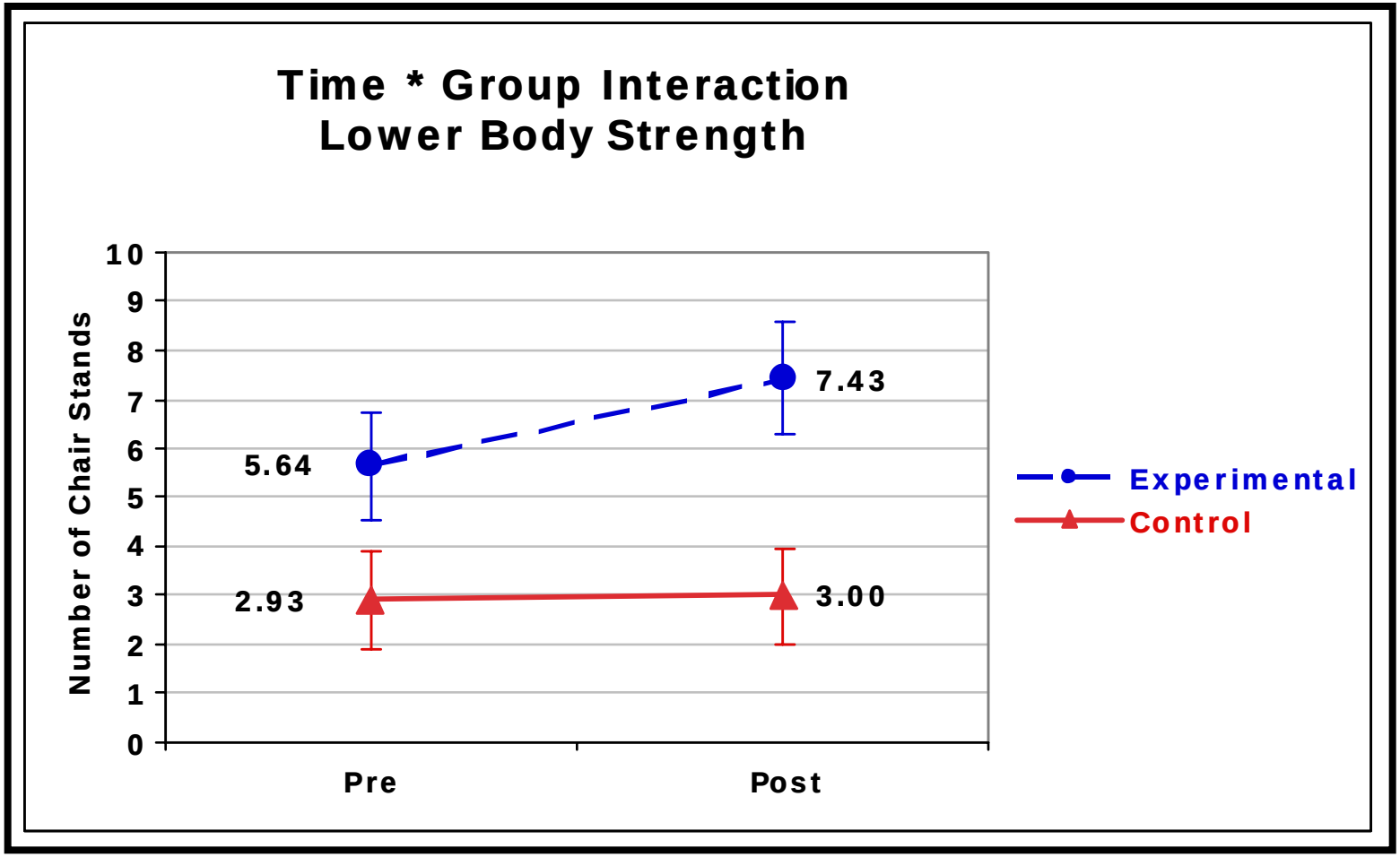

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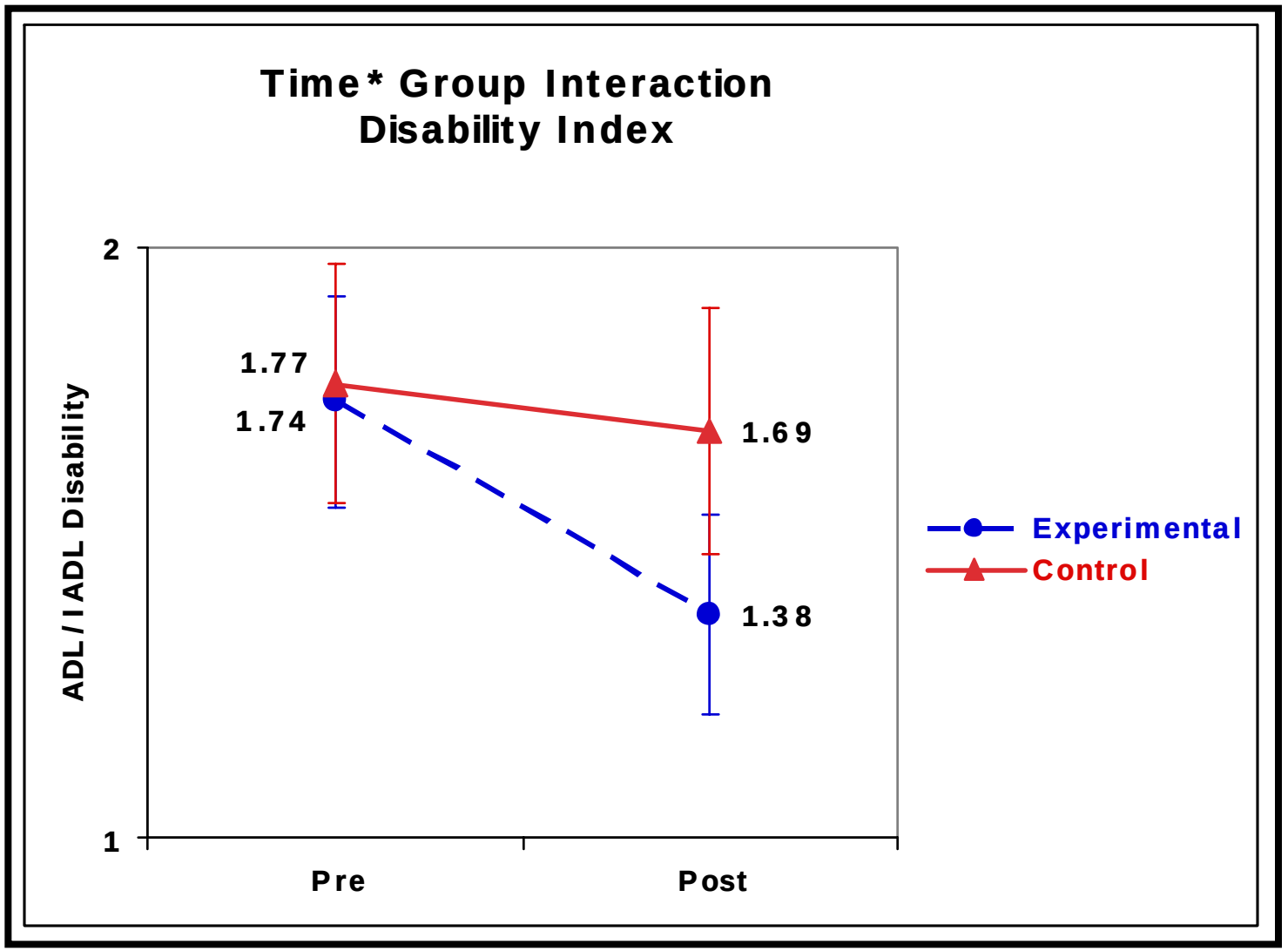

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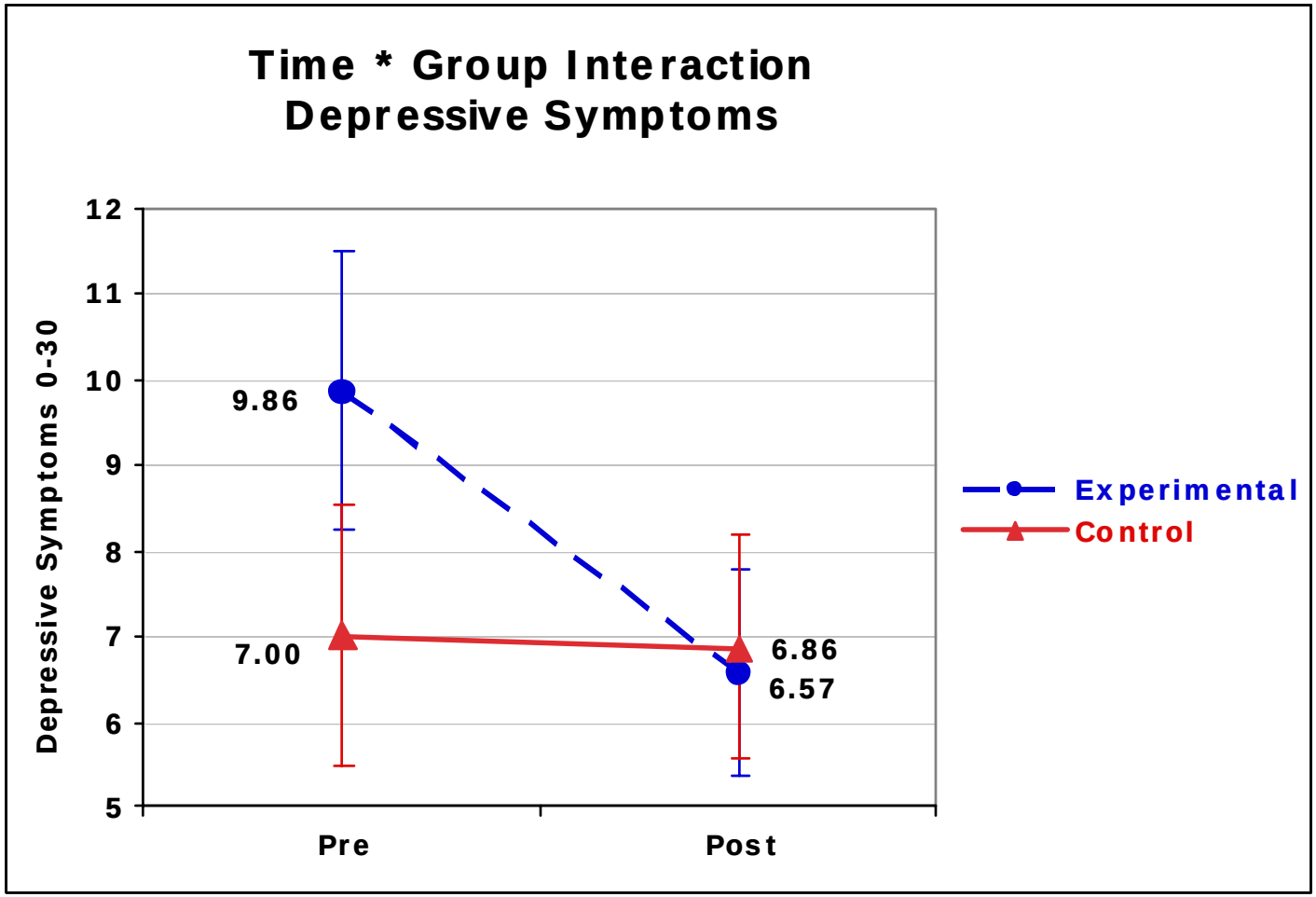
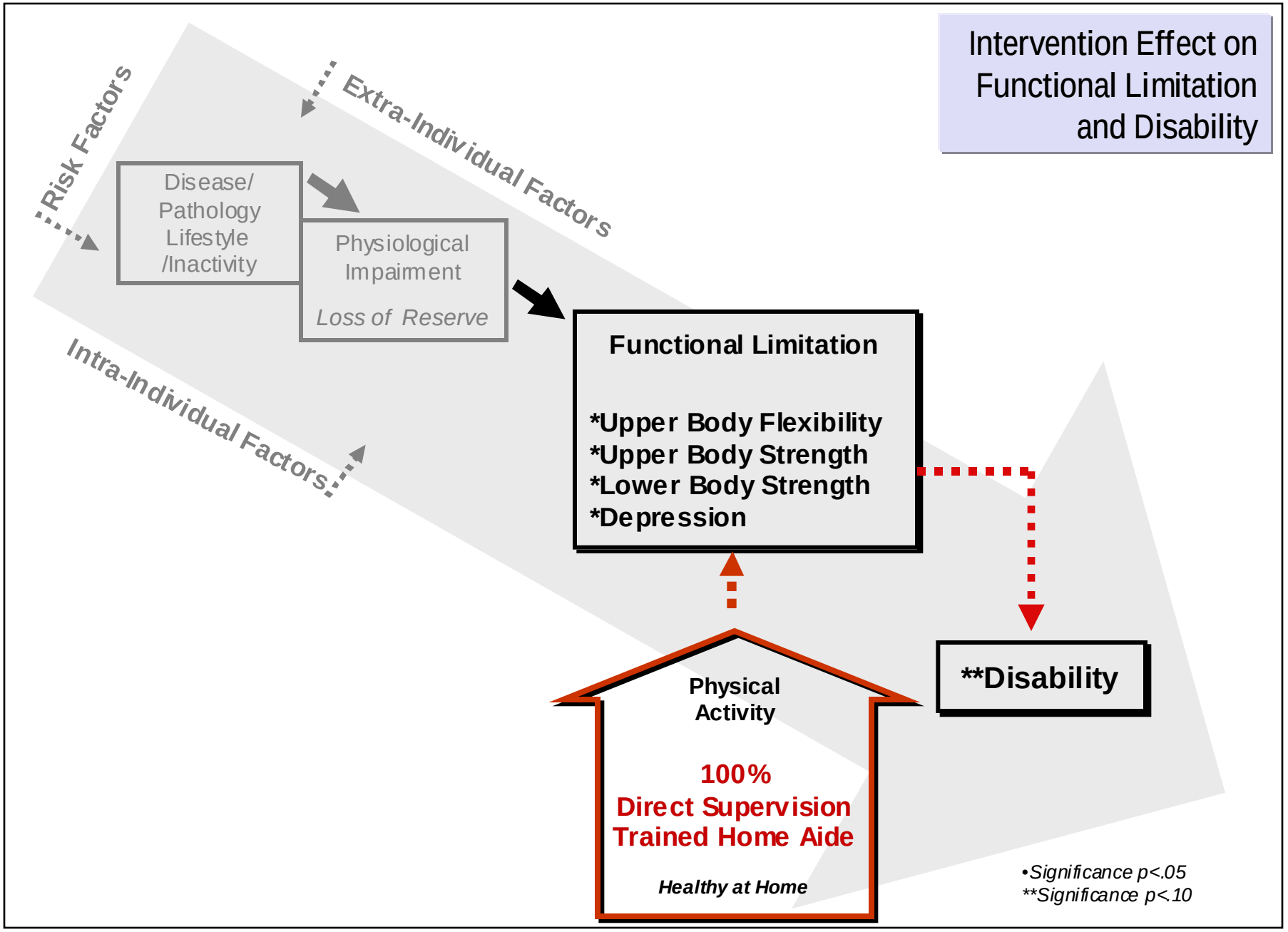
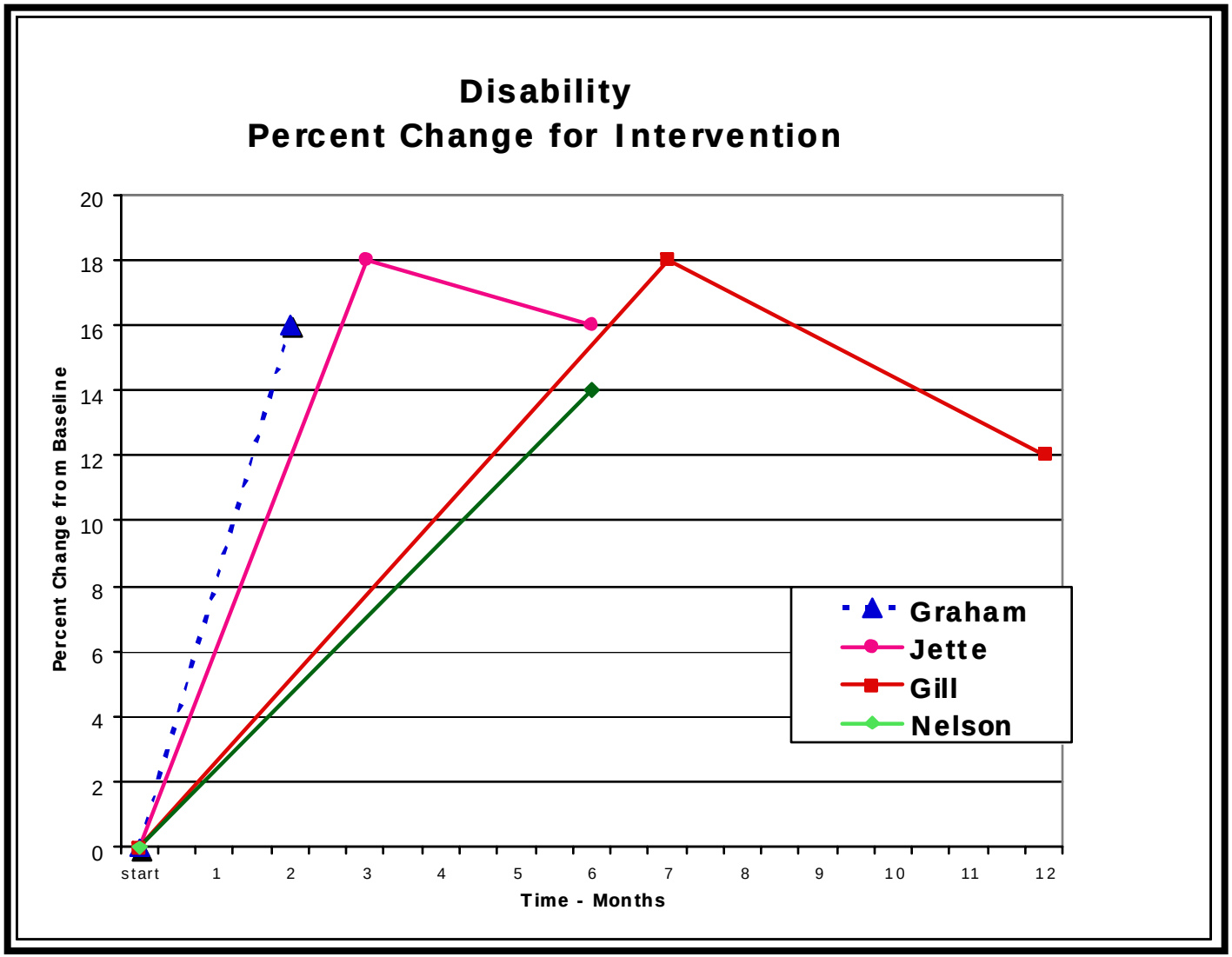




INTERPRETATION



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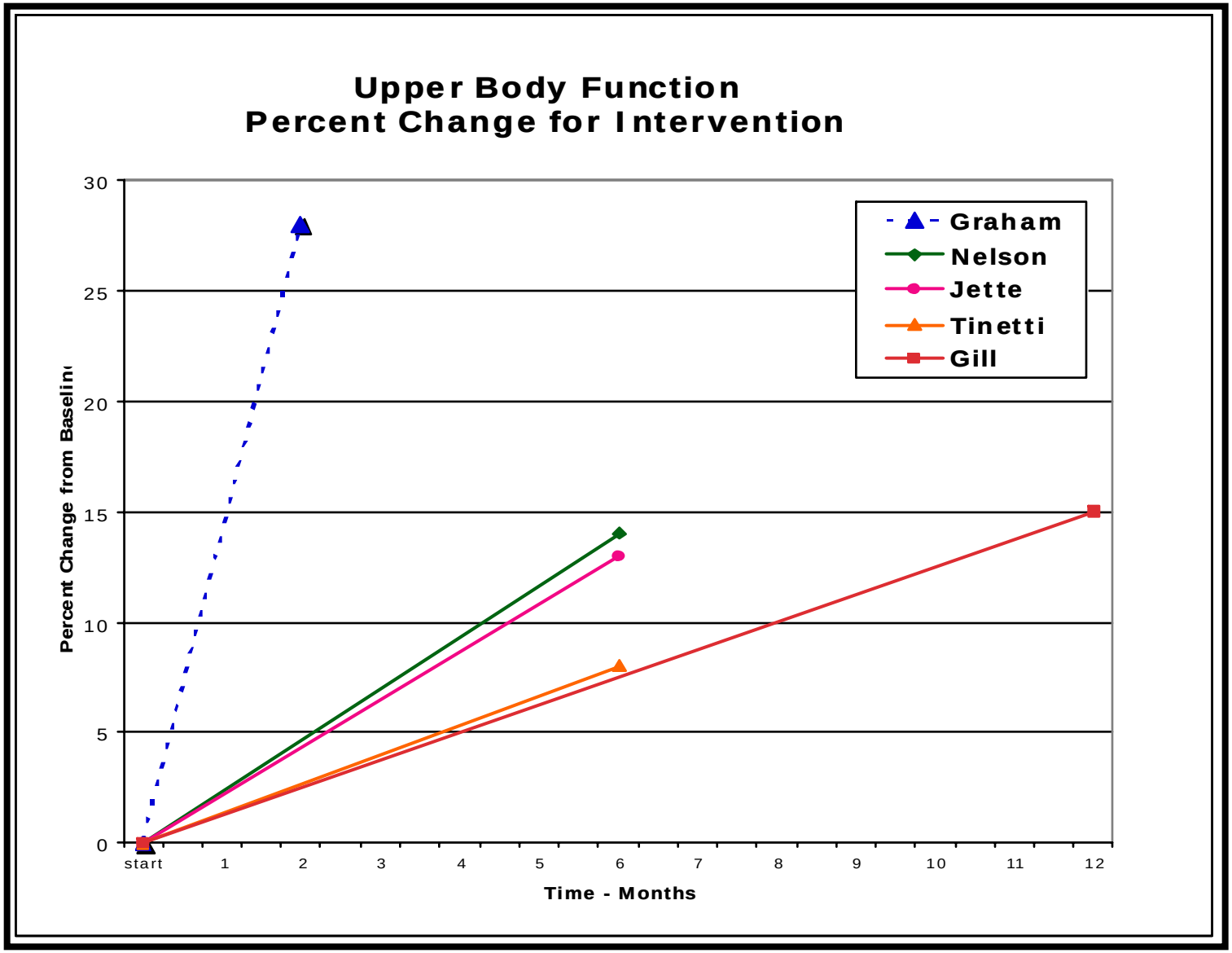
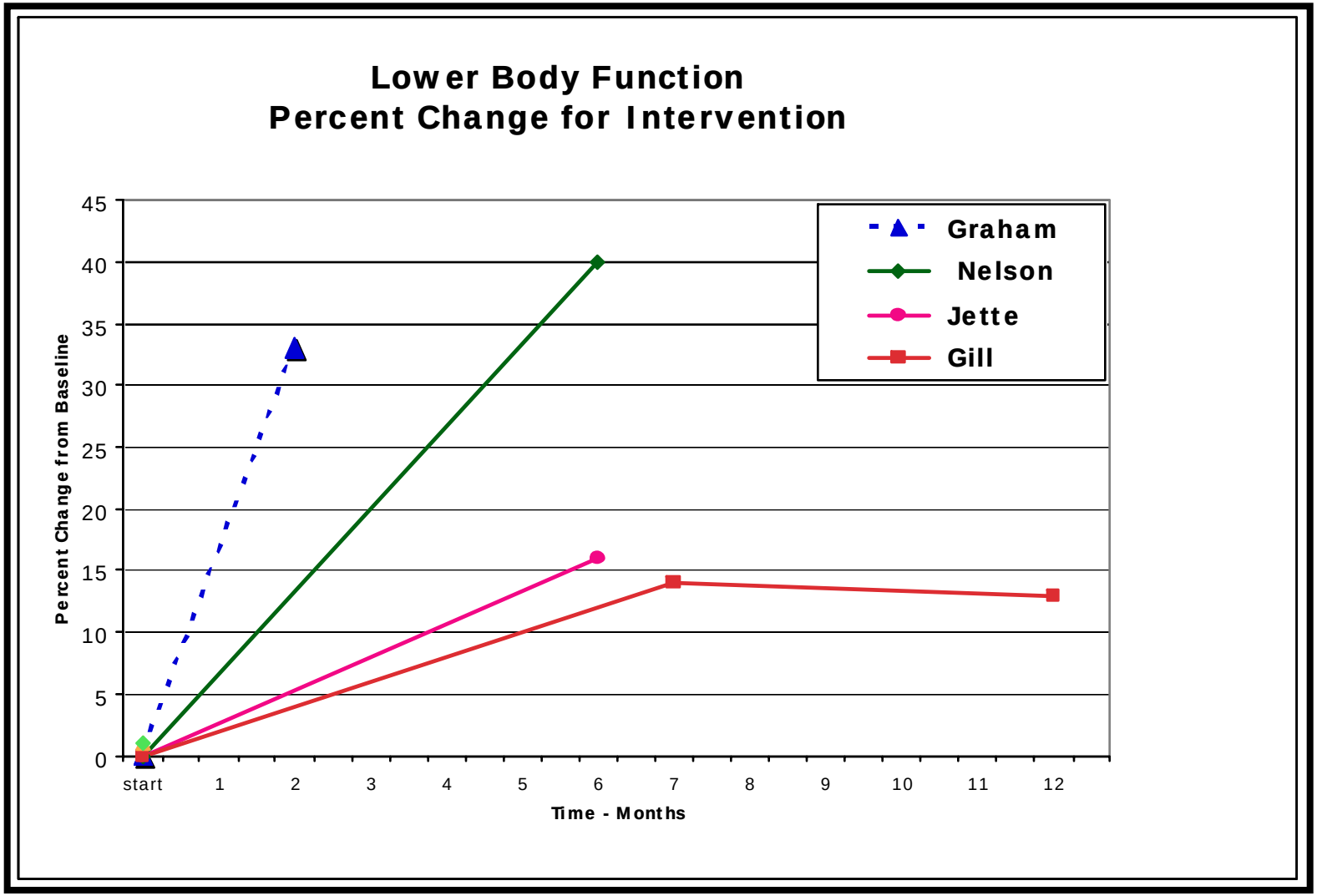


INTERPRETATION



INTERPRETATION

Graham	**28**	**85**	**2**	**2x/wk=16**	**16**	**100**	**100**

	N	*Age*	*Mos*	*Total Sessions*	*# Sessions Supervised*	*% Sessions Supervised*	*% Adherence*
Gill	188	83	6	3x/wk=72	16	**22**	75
Jette	215	75	6	3x/wk=72	10	**14**	89
Nelson	72	78	6	3x/wk=72	11	**15**	82
Tinetti	304	81	12	5x/wk=240	45	**19**	80

IMPLICATIONS

OLDER ADULTS

- Improved body functions with minimal efforts
- Create new self-image
- Exert control in self-improvement
- Experience hope
- Accepted new role for home aide

IMPLICATIONS

HOME AIDES

- Expanded role as caregiver
  Trainer, motivator, coach, teacher, partner, health promoter
  'do for' → 'do with'
- Potentially redefine 'home aide'
- Status / salary reflect new responsibilities
- Policy changes to reimburse preventive care

IMPLICATIONS

HOME CARE AGENCIES

- Specialized training of home aides
- Offer health-promoting services
- Provide monitoring and early detection
- Successful collaboration with research
- Assist in further research development

STRENGTHS

- Strong experimental/control design
- Controlled assessments, training, supervision
- One agency, dyads
- Unique Study: Trained home aides
  100% direct supervision
- Met NIH fidelity recommendations
- Cost effective, efficient

WEAKNESSES

- Limited Generalizability
  - Selection bias
  - Homogenous sample
  - Small sample size
  - Short duration
- Assessment Difficulties (balance, cognition)
- Recruiting (time/labor intensive)

FUTURE RESEARCH

- ✓ Larger sample size
- ✓ More diverse sample
- ✓ Longer duration
- ✓ Utilize caregivers: family, volunteers, friends
- ✓ Training, monitoring, supervision by someone than researcher

FUTURE RESEARCH

- ✓ Assessment tools:
  balance, cognition, hand strength

- ✓ Characteristics of home aides
- ✓ Characteristics of older adults

- ✓ Conducting larger studies and translating findings into useful tools and programs for use in community