

# Key Factors Influencing Adherence to High-Intensity Functional Training

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# Exercise Adherence

- Structured exercise programs (Marcus et al., 2006)
  - Average of **45% drop out** in first 6 months
  - Social support
  - Enjoyment
- Unclear if high-intensity functional training (HIFT) has similar **rates** and what factors influence **adherence**



# High-Intensity Functional Training (HIFT)

- Group-exercise program
- Temporally combines aerobic, body weight, and weight lifting exercises in constantly-varied time domains and patterns
- Focus on functional movements
- Shorter-duration than moderate exercise

(Heinrich et al., 2014)



# Behavioral HIFT Research

- Overweight and obese adults sustained **exercise enjoyment** and increased **intentions** to continue (Heinrich et al., 2014).
- Teens (15–16y) reported high **satisfaction** for perceived benefits and **enjoyment** possibly due to focus on **mastering** skills (Eather et al., 2015).
- HIFT improved **emotional functioning** among cancer survivors (Heinrich et al., 2015).

# HIFT Programs

- Various HIFT programs exist and have been growing in popularity
- This study focused on **CrossFit®**



# Purpose

- To examine differences in social-behavioral characteristics between HIFT dropouts versus adherers

# Design

- Program evaluation study at university CrossFit® gym (Feb. 2013–April 2014)
  - Continuous enrollment
  - Assessments at baseline, 2-, 6-, & 12-months



# Methods



## Participants (N=89)

- Students, staff, faculty, community members
- 88.8% white
- 12.4% Hispanic/Latino
- 97.8% had some college education
- CrossFit experience from none to >2 years
- Weekly CrossFit participation:  $3.7 \pm 1.2$  days

## Measures

- Baseline Questionnaire
  - General health (BRFSS)
  - Physical Activity Enjoyment Scale (Kenderzierski & DeCarlo, 1991)
  - Fitness Attitudes Scale (Kerner & Grossman, 2001)
  - Exercise self-confidence (Bandura, 2006)
  - Exercise intentions (Kerner & Grossman, 2001)
- Adherence



# Analysis

- SPSS 21
- Independent samples t-tests
  - For inclusion in regression  $p < .01$
- Binary logistic regression
  - Controlled for sex, age, and frequency of weekly class attendance
  - Adherence as dependent variable
  - Social-behavior predictor variables
  - Statistical significance set at  $p < .05$

# Results – Adherence

- 60 participants (67.4%) adhered to CrossFit by end of study
- 9 dropouts provided a reason(s)
  - 4 = cost and/or lack of time
  - 2 = graduated and other
  - 1 = training for other sports



# Results – independent samples t-tests

Variable	Dropouts (n=16-17)	Adherers (n=53-54)	t	p
Days in past 30 mental health was not good	6.7	2.5	2.7	.007
Day in past 30 you felt very healthy/full of energy	14.8	23.8	4.6	<.001
Motivation to exercise—1 (very low) to 10 (very high)	7.2	8.7	3.3	.004
Exercise Self-Confidence Scale – 11 items rated from 1 (cannot do this at all) to 10 (certain I can do this successfully)	Dropouts (n=16-17)	Adherers (n=53-54)	t	p
Do physical exercises that require resistance	6.8	8.4	3.3	.002
Do physical exercises or compete in a sport that requires agility	6.1	7.7	2.9	.005
Do physical exercises or compete in a sport that requires strength	5.9	8.0	4.0	<.001

(Adapted from Bandura, 2006)

# Results – independent samples t-tests

<b>Fitness Attitudes Scale Items – 19 items rated from -3 (strongly disagree) to 0 (neutral) to +3 (strongly agree)</b>	<b>Dropouts (n=16-17)</b>	<b>Adherers (n=53-54)</b>	<b>t</b>	<b>p</b>
I have more control of my life as a results of my CrossFit activities	0.4	1.6	3.1	.003
CrossFit activities help my body to relax	0.3	1.7	3.4	.001
Exercise activities let me mentally unwind	1.9	2.6	3.1	.003
I give CrossFit activities high priority among other activities	1.1	2.2	3.9	<.001
CrossFit activities allow me to draw more pleasure from other leisure activities	0.9	1.9	3.1	.003

(Kerner & Grossman, 2001)

# Results – independent samples t-tests

<b>Activities of Daily Living –</b> <i>7 items rated from 1 (unable to do) to 3 (sometimes is difficulty) to 5 (not at all difficult)</i>	<b>Dropouts (n=16-17)</b>	<b>Adherers (n=53-54)</b>	<b>t</b>	<b>p</b>
How difficult is it for you to engage in strenuous physical activity for 30min, such as running, playing basketball, biking, skiing, or swimming laps?	3.1	4.5	5.7	<.001

# Logistic Regression Predicting HIFT Adherence

Variable	OR	90% CI	p value
Sex	1.33	0.39-39.35	.249
Age	5.68	1.03-1.32	.017
Weekly class frequency	5.11	1.18-10.47	.024
Days in past 30 you felt very healthy/full of energy	1.12	0.94-1.23	.291
Confidence to do physical exercises or compete in a sport that requires strength	4.88	1.09-4.12	.027
Ability to engage in strenuous physical activity for 30 minutes	3.89	1.01-11.21	.049

$\chi^2$  (6, N=69) = 45.5,  $p < .001$ ; Predicted 91.3% (96.2% adherers, 75.0% dropouts)



# Conclusions

- HIFT adherence was **higher** than average (Marcus et al., 2006).
- Those with **greater self-efficacy** for exercise/sport requiring **strength** and less difficulty with **strenuous exercise** were more likely to adhere to CrossFit.

# Implications

- Dropouts provided common barriers to exercise (cost, time; Marcus et al. 2006)
  - Access to other CrossFit gyms increased adherence
- Future research should assess preferences for intense exercise requiring strength
  - Current research with Army personnel and HIFT (R01DK099516) includes the PRETIE-Q (Ekkekakis et al., 2005).



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