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Contact: Niccole Burns
Mad Dogg Athletics
310-823-7008 x240
niccole@spinning.com

**SPINNING PROGRAM PROMOTES IMPROVEMENTS IN INDIVIDUALS WITH KNEE
OSTEOARTRITIS**

Spinning® Stationary Group Cycling Improves Temporal and Spatial Quality of Gait in Persons with Mild to Moderate Knee Osteoarthritis

PITTSBURGH, Penn.-(October 1, 2007)—A recent study, authored by Marchetti GF, Salicinski A and Krohn K and reported at the World Conference for Physical Therapy, found that 1 in 2 subjects with mild to moderate osteoarthritis (OA) of the knee demonstrated preferred gait velocity improvement after completing a 12-week community-based Spinning® group cycling program. Study participants demonstrated significant improvements in preferred gait velocity and a reduction gait asymmetry at maximum velocity over non-cycling controls.

Forty-one volunteers (29 females, 12 males) with confirmed knee OA (Kellgren-Lawrence grades K-L 1-3) were recruited from physician practices and by general media notices. Subjects aged 37-74 (mean 57) were randomly assigned to cycling and control groups and evaluated for baseline fitness by measuring $VO_{2\ max}$ and target heart rate zones on cycle ergometer evaluating gait pattern on a 12 foot walkway using the GAITRite® analysis system. No age or self-reported weight differences existed between groups at baseline.

Cycling subjects participated in a supervised, community-based 12-week Spinning program designed to maximize aerobic fitness while limiting direct knee joint stress at least twice weekly. Classes progressed from 40 to 60 minutes and included alternating efforts of fast-cadence pedaling and simulated hills-climbs as well as warm-ups, cool-downs and stretching. Subjects were instructed to maintain an average of 70-75% of predicted maximum heart rate throughout cycling classes by using heart rate monitors. Control subjects continued their current fitness activities but did not participate in supervised cycling.

Using 3-trial average, preferred/maximal velocity/cadence, step/stance times and symmetry, gait parameter changes were measured in each group after 12 weeks. Cycling and control group gait parameters were compared at baseline and 12 weeks using independent sample t-test (type I error rate = 0.05) and the proportion of subjects in each group showing velocity improvement and number needed-to-treat (NNT) was estimated.

The cycling group demonstrated greater baseline mean gait velocity (preferred, maximum) and step length differential at maximum velocity than controls. Cycling group subjects demonstrated greater mean increase in preferred velocity ($p = 0.01$), preferred cadence ($p < 0.01$) and reduction in step length asymmetry at maximum velocity ($p = 0.01$) than control subjects. Analysis of improvement in preferred velocity put NNT at 2.

Eight cycling and 5 control subjects withdrew or were lost to follow-up by 12 weeks. There were no significant age or baseline gait parameter differences between 12 week completing and dropout subjects but dropout subjects demonstrated significantly greater mean self-reported weight ($p < 0.05$). Two cycling (10%) dropout subjects reported increased knee pain as the reason for withdrawal.

This study provides evidence that the Spinning® indoor group cycling program is a viable long-term option for persons with mild-moderate knee OA may who have limited fitness choices. Future research will examine the effects of group cycling intervention on pain, functional abilities and quality-of-life among those with knee OA.

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About Mad Dogg Athletics:

The Spinning program offers an energizing, cycling-inspired group exercise training program with expert coaching, exhilarating music and a unique mind/body philosophy—all at a self-directed pace. The Spinning program has reached more than 30,000 clubs and millions of enthusiasts in 80 countries worldwide. Venice California-based Mad Dogg Athletics, Inc. is the worldwide leader in indoor group cycling bikes, education and products. The company works closely with Star Trac® on its patented line of Spinner bikes and develops and markets Spinning instructor orientations, continuing education programs and offers a complete line of Spinning-branded apparel and accessories. For more information about Mad Dogg Athletics, Inc. and the Spinning program, visit www.spinning.com.

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