

Yoga for Veterans with Chronic Low Back Pain



Erik J. Groessl, PhD

VA San Diego Healthcare System

Associate Professor

Department of Family and Preventive Medicine

University of California, San Diego



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Chronic Low Back Pain



- ⌘ Low back pain lasting > 4 weeks.
- ⌘ Afflicts 70% of all people at some point in life.
- ⌘ 2nd most common reason for physician visits.
- ⌘ Very costly ~ billions annually in productivity and healthcare.



Veterans and CLBP



- ❧ Veterans experience higher rates of CLBP¹
- ❧ Veterans have more psychiatric comorbidity
 - Post Traumatic Stress, Substance Use, etc.
- ❧ Pain medication was the primary treatment for 68%² and yet, ineffective for 48% of them
- ❧ VA patients tend to have fewer resources than other veterans



¹Lew HL, et al. Prevalence of chronic pain, ...in OIF/OEF veterans: polytrauma clinical triad. *J Rehabil Res Dev.* 2009;46(6):697-702.

²Kerns RD, et al. Veterans' reports of pain and ... use of the healthcare system. *J Rehabil Res Dev.* Sep-Oct 2003;40(5):371-379.

Yoga Research on CLBP



- ❧ Multiple smaller RCTs - reduced pain and improved functioning compared to different comparison groups
- ❧ Larger RCTs
 - Sherman (2011) - yoga better than self-care for reducing pain, disability & medication use (but not better than stretching)
 - Tilbrook (2011) - yoga better than usual care for reducing disability
- ❧ Conducted in community HMO settings, mostly women, hard to generalize to VA patient populations

Yoga for CLBP ~ VA San Diego



- ❧ Yoga clinic for CLBP launched in 2003, Dr. Baxi
- ❧ VA patients are referred to yoga clinic by providers
- ❧ Screening visit with physician to ensure safe participation
- ❧ Yoga clinic includes yoga 1x weekly for 60 minutes
- ❧ Instructor leads patients through:
 - 23 poses (32 variations) chosen to be safe for CLBP
 - Slow to moderate pace
 - Poses are modified for many different levels of ability



Pelvic Tilt



Hip Opener
A



Hip Opener
B



Bridge



Cobra Prep



Sphinx



Locust



Head To(wards)
Knee



Seated Forward
Bend



Lying Sinal Twist
A



Lying Spinal Twist
B



Corpse

VA Yoga Clinic for CLBP



VA Yoga Clinic - Pilot Study



- ❧ In 2005, began unfunded pilot research – pre-post
- ❧ Administered validated questionnaires before and after 10 weeks of yoga in the clinic
- ❧ No compensation or follow-up calls (selection bias?)
- ❧ Sample characteristics (n=33):
 - Age: 55 years
 - 21% women
 - 73% college graduates
 - 70% non-Hispanic White
 - 37% retired, 18% disabled, 24% F-T

Results ~ Health Outcomes



Outcome Measures	n	Mean @ baseline	Mean @ 10-week follow-up	Mean change	Standard deviation	p	Effect size (d)
Pain (MOS)	33	70.94	61.36	-9.57	12.90	<0.001	0.74
Energy (MOS)	33	2.02	2.66	0.64	0.89	<0.001	0.72
Depression (CESD)	33	14.53	10.67	-3.87	5.29	<0.001	0.73
SF12-PCS	29	36.10	37.68	1.58	9.48	0.376	0.17
SF12-MCS	29	40.77	45.53	4.77	11.13	0.029	0.43

Minimal vs Moderate Home Practice



Outcome Measures	n	Minimal Home Practice	Moderate Home Practice	p	Effect Size (d)
		Δ Mean (sd)	Δ Mean (sd)		
Pain	32	-6.67 (10.86)	-13.90 (15.26)	0.016	0.55
Energy	32	0.24 (0.63)	1.23 (0.94)	0.003	1.26
Depression	32	-1.58 (4.83)	-6.82 (4.42)	0.004	1.13
SF12-PCS	29	-1.77 (6.97)	6.34 (10.76)	0.034	0.46
SF12-MCS	29	3.81 (11.64)	6.11 (10.72)	0.589	0.21

Comparison of Women (n=13) and Men(n=40)



Measure	Pre	Post	Change	P-value
Depression				0.046
Men	12.9	11.8	-1.1	
Women	15.2	10.1	-5.1	
Pain – Average				0.050
Men	5.3	4.7	-0.6	
Women	5.8	4.4	-1.4	
Energy/Fatigue				0.011
Men	2.3	2.6	0.3	
Women	1.8	3.0	1.2	
SF12 – MCS (CV = Age)				0.044
Men	41.9	42.5	0.6	
Women	39.5	48.6	9.1	

Yoga for Veterans with CLBP



- ❧ 4-yr RCT, funded by VA Rehab R&D - 10/1/2012
- ❧ Randomize 144 VA patients w/ CLBP to either
 - Yoga
 - Delayed treatment group receiving usual care
- ❧ Referrals through primary care, other clinics, flyers
- ❧ Assessments at baseline, 6-weeks, 12-weeks, and 6-months





Yoga Intervention



- ∞ 60-minute yoga sessions, 2x weekly for 12 weeks at VA San Diego Medical Center
- ∞ Classic Hatha yoga, with influences from Iyengar and Viniyoga
- ∞ Certified Yoga Instructor (7 years experience)
- ∞ Manualized protocol
- ∞ Home practice manual



Yoga Intervention



- ∞ Each session begins with meditation and breathing
- ∞ 23 main poses - 32 variations with breath (8 warm-up poses, 6 standing poses, 8 floor poses, Savasana)
- ∞ Progressively more challenging
- ∞ 25% of sessions are videotaped to assess instructor fidelity to intervention

Inclusion/Exclusion Criteria



∞ Inclusion criteria:

- Diagnosis of CLBP > 6 months
- No new pain treatments in last 30 days
- Willing to not change treatment unless medically necessary
- Not done yoga in the last 12 months

∞ Exclusion criteria:

- Back surgery in last 12 months
- Back pain due to a specific systemic problem (e.g. lupus, etc)
- Morbid obesity (BMI > 40)
- Significant sciatica or nerve compression < 3 months, chronic lumbar radicular pain* > 3 months (severe sciatica)
- coexisting chronic pain problem (e.g. migraines, fibromyalgia)
- Unstable, serious medical or psychiatric illness

Data Sources



∞ VA Medical records

- Diagnoses
- Attendance
- Healthcare utilization/costs

∞ Questionnaires

∞ Physical/Physiological

∞ Biological



Questionnaires



- ❧ **Physical Function/Disability** - Roland-Morris Disability
- ❧ **Pain** - Brief Pain Inventory (BPI)
- ❧ **Depression** - CES-D 10
- ❧ **Anxiety** - Brief Anxiety Inventory (BAI)
- ❧ **HRQOL** - SF12
- ❧ **Self-Efficacy** - Confidence in managing CLBP impact
- ❧ **Fatigue/Energy** - 5 items adapted from MOS
- ❧ **Home Practice/ Adverse Events** - weekly log
- ❧ **Non-VA Treatments and Medications**



Physical / Physiological Measurements

- ∞ Range of Motion – digital inclinometer
- ∞ Grip Strength – dynamometer, predicts disability/mortality
- ∞ Core Strength Tests – timed plank
- ∞ Balance – one-leg stand
- ∞ Height/Weight & Waist Circumference – BMI
- ∞ Heart Rate Variability - Zephyr



Biological Measurements



- ⌘ **C-Reactive Protein** - inflammation
- ⌘ **IL-6 and TNF-a** - inflammation, pain
- ⌘ **Norepinephrine, Epinephrine** - stress, immune system
- ⌘ **Salivary cortisol** - stress



Progress to Date



- ❧ Finished 2 of 6 cohorts (n = 49)
- ❧ 41 participants completed baseline and the 12-week assessment
- ❧ Some attendance challenges
- ❧ No serious adverse events
- ❧ Sample:
 - mean age = 55.3
 - 24% women
 - 33% non-white, 23% Hispanic
 - 63% single, divorced, or widowed
 - 24% employed
 - 24% homeless in the last 5 years
 - 87% some college

Qualitative Feedback



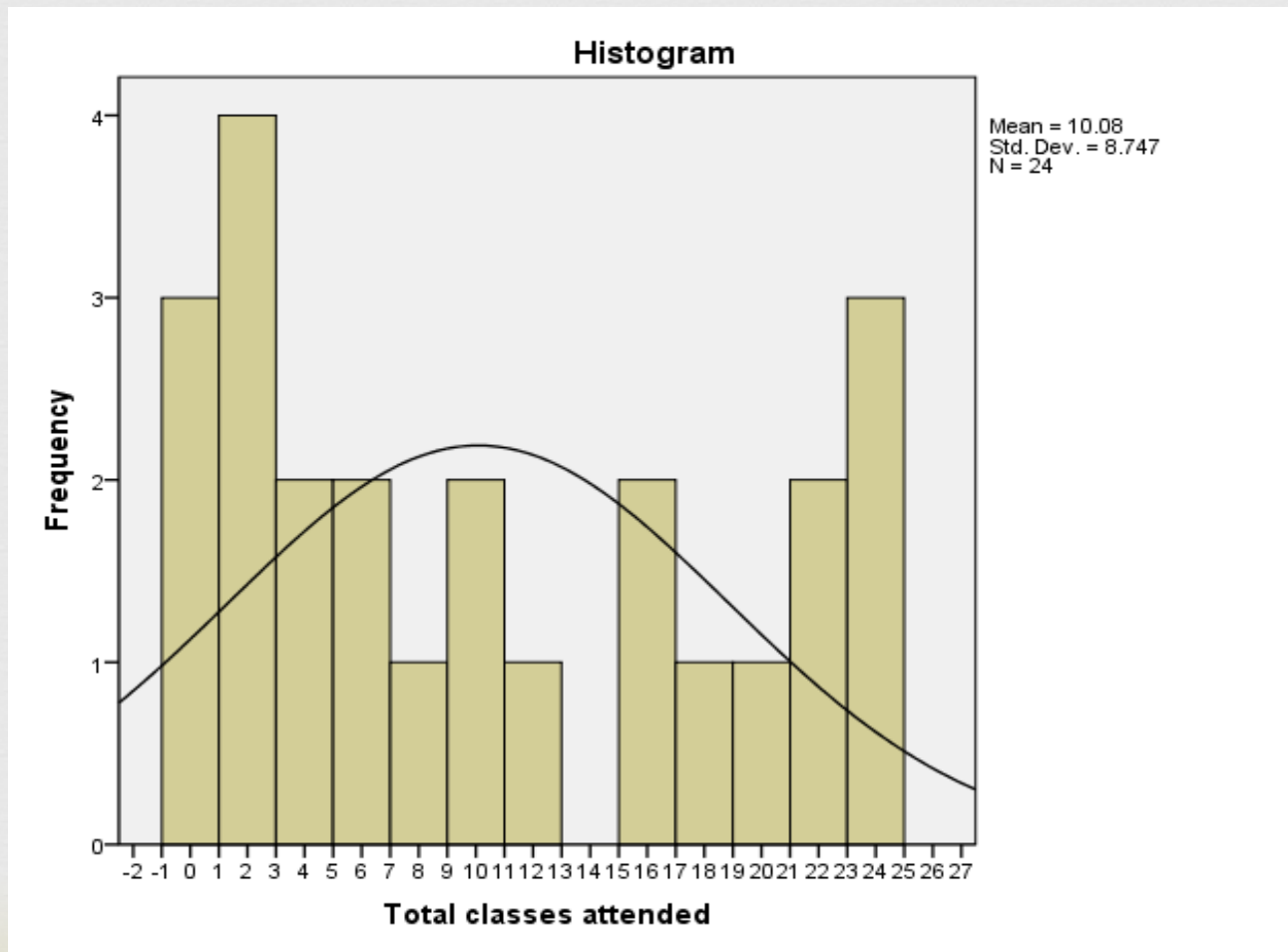
“Continuing the program would be an added benefit to disabled vets.”

“I am going to miss these classes. I like the small group.”

“I love yoga and I am so happy the VA provided me this opportunity to practice it in a safe controlled environment.”

“I’m very excited to start yoga as I am trying to discontinue or decrease my pain medications”

Attendance



Reasons for Missing Class



- ∞ People who attended < 10 yoga classes
 - Transportation problems - 3
 - Work/school conflict - 3
 - Other health issues - 2
 - No contact - 2
 - Depression - 1
 - Fight / Post Traumatic Stress issues - 1
 - SUD Rehabilitation - 1
 - Back pain worsened - 1

Efforts to Improve Attendance



- ❧ “Reasons for Participation” questionnaire
- ❧ Meet briefly 1 on 1 with P.I.
- ❧ More emphasis from instructor
- ❧ Refreshments
- ❧ Calls to people who miss each class

Questions?

