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## **INTRODUCTION:**

Musculoskeletal system conditions are the leading cause of hospitalization and disability for the U.S. Armed Forces. The Department of Defense pays over \$1.5 billion per year to disabled service members, and musculoskeletal conditions account for 40-50% of this amount. The medical discharge of one active duty U.S. military member in their twenties has been estimated to cost the government approximately \$250,000 in lifetime disability costs, excluding health-care costs. Despite continuous advances in military medicine, the rates of disability cases within the U.S. military have been increasing at an alarming rate, and nearly doubled between 1985 and 1994. Fortunately, numerous studies with civilian populations have demonstrated the efficacy of an interdisciplinary chronic pain rehabilitation program (ICPRP) at facilitating return-to-work in workers' compensation patients with occupational musculoskeletal disorders and work disability. Return-to-work rates with this population administered ICPRP often approach 80-85% at one year, compared to no-treatment or standard care comparison groups that demonstrate only a roughly 40% return-to-work.

Without changes in the current approach to the treatment of musculoskeletal conditions, recognized trends of increasing disability rates and tremendous associated costs will very likely continue in the future. Thus, there is a clear need for clinical research to develop evidence-based assessment and treatment approaches to decrease the enormous costs associated with chronic musculoskeletal conditions within the U.S. Armed Forces. The purpose of this study is to evaluate the effectiveness of an ICPRP designed to decrease chronic musculoskeletal pain, increase functioning, and retain military members on active duty. The major hypothesis is that the ICPRP will significantly increase the likelihood that active duty military personnel suffering from musculoskeletal disorders will remain on active duty and be fully qualified to perform all of their military duties, as well as positively impact other socioeconomic outcomes. All participants are active duty military members recruited from all four branches of the military and treated at Wilford Hall Medical Center at Lackland Air Force Base, Texas.

This is a pre-to post-treatment evaluation design, with evaluations conducted immediately before and after treatment, as well as at 6-, 12-, and 18-month follow-up periods in order to determine differential outcomes on variables such as return to full duty status, work retention, and additional health-care utilization. The specific aims of the study are to evaluate the efficacy of ICPRP in reducing patient-reported pain symptoms, unnecessary health-care utilization, health-care costs, and number of military members on medical profile, disability, or separated from active duty. Additional aims include improving functioning, increasing the number of military members remaining fit for duty and worldwide qualified, and increasing military members' ability to pass their physical fitness test for their respective military service. In summary, this research project addresses the clear need for clinical research to develop evidence-based assessment and treatment approaches to decrease the enormous cost associated with chronic musculoskeletal conditions within the U.S. Armed Forces.

**BODY:**

This study used a two-group randomized experimental design to compare the ICPRP +SAPC to the SAPC Group. For the purposes of our study, the ICPRP program has been named the FORT program (Functional Occupational Restoration Treatment Program), but will be referred to as ICPRP for the purposes of this document. ICPRP+SAPC participants were expected to show significantly higher rates of return to active duty, as well as positively impact other socioeconomic outcomes such as work retention and additional health-care utilization. Evaluations of these two groups were conducted at pretreatment, immediately at the post-treatment, and at 6, 12, and 18 month follow-up periods in order to determine differential outcomes on variables such as self-reported pain and disability, functional gains, satisfaction, return to active duty, work retention, and additional health-care utilization. For the ICPRP+SAPC group, the initial post-treatment evaluation occurred at the end of the 3-week ICPRP+SAPC. To maintain the fidelity of the research design, the initial post-treatment evaluation for the SAPC also occurred 3 weeks after the initiation of the pain clinic treatment. Changes in functional activity status, psychosocial functioning, and satisfaction with treatment were systematically evaluated before, immediately after, and during the post-treatment periods.

All subjects were assessed individually, in order to determine a pre-treatment baseline for all measures, after signing an informed consent document. They were then randomly assigned to one of two experimental groups: (1) Standard Anesthesia Pain Care (SAPC); or (2) the Interdisciplinary Chronic Pain Rehabilitation Program + Standard Anesthesia Pain Care (ICPRP+SAPC). The two groups were matched for age, gender, race, and time since original injury or onset of pain, based upon an urn randomization procedure. This is an adaptive randomization procedure to insure careful, ongoing matching on important variables. This procedure can be easily implemented using a uniform random number generator on a computer. An independent individual, who was not responsible for determining the eligibility of patients for the study, was responsible for the randomization assignment.

In February, 2007 we decided to conduct a preliminary analysis of some of our data collected to date. This decision was made because of slower than anticipated recruitment of participants and because of the potential significant military relevance of this study. This data analysis showed a variety of desirable outcomes. Pre-treatment between-groups analysis revealed that the groups did not initially differ significantly on any of the variables assessed, suggesting that randomization has been successful in developing two similar groups for comparison. Furthermore, examination of change in pre-treatment scores (from pre-Anesthesiology to pre-FORT) revealed few changes in the outcomes assessed within the groups, suggesting that the groups were both relatively stable during the Anesthesiology interval. This was expected because the majority of the participants seen in the study so far were already being followed for Anesthesiology pain care treatment before enrollment. The FORT group showed a significant increase in lifting capacity (from waist to eye-level) between the pre-intervention assessment intervals. The FORT intervention resulted in significant lifting capacity increases beyond the gains made during the pre-intervention interval, while the treatment-as-usual group showed no continued benefit for physical health-related quality of life during the intervention interval. These results indicated that, although there may have been some benefit in these domains from ongoing Anesthesiology pain care, the introduction of the interdisciplinary treatment yielded significant increases beyond those already experienced. Finally, a review of the pre- to post-

treatment score changes between and within the two groups revealed significant beneficial changes in almost all domains for the FORT group compared to few beneficial changes for the TAU group. Based on these results, we were able to conclude that the FORT intervention was of significant benefit for those who were treated. Long-term follow-up data (collected at 6- and 12-months) further revealed that treatment gains were maintained. FORT participants showed no significant change in pain from post-treatment to long-term follow-up and show continuing physical and psychosocial benefits after treatment. These data preliminarily supported the hypothesis that an interdisciplinary functional restoration treatment program could be successfully applied in a military environment, and that treatment gains could be maintained for an extended period of time after treatment.

The following is an outline of progress pertinent to the tasks outlined in our statement of work:

*Hire and train treatment team members* – All grant-related personnel were hired as of December 2003 and trained by the Principal and Co-Investigators. Ongoing supervision of study personnel is accomplished through weekly meetings with Dr. Peterson (PI), regular telephone contact with Dr. Gatchel (PI), and frequent site visits by Dr. Gatchel. Day-to-day project management is accomplished through the study coordinator, Dr. McGeary, who reports to the PIs. Protocol questions or concerns are brought up with the PIs for discussion as soon as possible.

*Oversee the implementation of the interdisciplinary treatment program and guide any necessary changes to the treatment protocol* – The interdisciplinary treatment program (dubbed the Functional Occupational Rehabilitation Treatment –FORT-- program) has been implemented at Wilford Hall Medical Center and has been running since January 2004. The program is overseen by Dr. McGeary and problems/required changes are addressed to the PIs. If Drs. Gatchel and Peterson deem a change necessary, it is addressed to the IRBs of record for consideration through amendments to the original protocol. To date, six amendments have been submitted and accepted throughout the course of the study.

*Coordinate and oversee the development and maintenance of the study database, including quality assurance and database security in compliance with HIPAA and DoD regulations* – The database for the FORT program was established in December 2003 with assistance from technical support personal at the University of Texas Southwestern Medical Center at Dallas and Wilford Hall Medical Center. Presently, the database exists as a password-protected and encrypted Microsoft Access database. Access is only available to Dr. McGeary and his on-site study staff at Wilford Hall Medical Center (Christin Pasker, Karen LeRoy, Mysti Clifton). It is housed on a single computer located in a locked office on the fourth floor of Wilford Hall. Data coding sheets have been developed to minimize errors in data interpretation and all study staff have been trained in data coding. Data are entered by Ms. LeRoy and Ms. Clifton. Data quality is monitored bi-weekly by the study coordinator through a review of data coding sheets and the database. A formal data collection checklist was developed and implemented over the past year to ensure the completion of all records. This is further supported through monthly inter-rater reliability checks in which Dr. McGeary re-codes 5 to 10% of the records input for that month and compares his entries with those of the previous coder.

*Enroll 90 patients as established by the study protocol* – As of 2 February 2006, we have enrolled 83 participants in the study protocol. Ten of those participants were enrolled in the past year. Recruitment was slower than originally anticipated due to widespread OIF/OEF deployments that strained manning throughout the Armed Services and made it difficult for Commanders to release soldiers for a 3-week pain treatment program (as was required for this study). Randomization checks confirm that we have managed to balance our enrolled participants between the Treatment-As-Usual (TAU) and FORT groups to ensure that they are comparable. This has been accomplished through the use of block randomization controlling for site of injury, length of disability, and gender. A summary of existing participant demographics is included below:

<b>Variable</b>	<b>Level</b>	
<b>Group</b>	<i>FORT</i>	36
	<i>TAU</i>	46
<b>Branch of Service</b>	<i>Army</i>	22
	<i>Air Force</i>	57
	<i>Navy</i>	3
<b>Gender</b>	<i>Male</i>	51
	<i>Female</i>	31
<b>Race</b>	<i>Asian</i>	2
	<i>African American</i>	14
	<i>Caucasian, not Hispanic</i>	58
	<i>Hispanic</i>	7
	<i>Other</i>	1
<b>Rank</b>	<i>Enlisted (E1-E9)</i>	71
	<i>Officer (O1-O10)</i>	11
<b>Site of Pain</b>	<i>Lumbar</i>	62
	<i>Thoracic</i>	6
	<i>Cervical</i>	5
	<i>Multiple Spinal</i>	2
	<i>Upper Extremity</i>	1
	<i>Lower Extremity</i>	6

Demographics have been periodically analyzed after randomization to ensure equal distribution of participants across the two study groups. The following is the most recent analysis of 82 participants. At the time the table was developed, one additional record was awaiting coding into the database.

<b>Demographic</b>	<b>Levels</b>	<b>FORT</b> (% in grp)	<b>TAU</b> (% in grp)	<b>Significance</b> <b>Level *</b>
<b>Branch of Service</b>	<i>Army</i>	7 (19%)	15 (33%)	NS
	<i>Air Force</i>	29 (81%)	28 (61%)	
	<i>Navy</i>	0 (0%)	3 (7%)	
<b>Gender</b>	<i>Male</i>	22 (61%)	29 (63%)	NS
	<i>Female</i>	39 (39%)	37 (37%)	

<b>Race</b>	<i>Asian</i>	1 (3%)	2 (4%)	NS
	<i>African American</i>	4 (11%)	8 (17%)	
	<i>Caucasian, Non-Hispanic</i>	23 (64%)	35 (76%)	
	<i>Hispanic</i>	5 (14%)	2 (4%)	
	<i>Other</i>	3 (8%)	0 (0%)	
<b>Rank</b>	<i>Enlisted</i>	31 (86%)	40 (87%)	NS
	<i>Officer</i>	5 (14%)	6 (13%)	
<b>Site of Pain</b>	<i>Lumbar</i>	27 (75%)	35 (76%)	NS
	<i>Thoracic</i>	3 (8%)	3 (7%)	
	<i>Cervical</i>	3 (8%)	2 (4%)	
	<i>Multiple Spinal</i>	1 (3%)	1 (2%)	
	<i>Upper Extremity</i>	1 (3%)	0 (0%)	
	<i>Lower Extremity</i>	1 (3%)	5 (11%)	

\* NS = no significant differences among variables based on Chi-square analyses

*Problems and Set-backs:* We had originally hoped to complete all of our initial recruitment, treatment, and assessment by the end of the third year as stated in our proposal. It should be noted that, because of the Iraqi war during the first part of 2003 and continuing to the present, there was a major deployment of personnel from Wilford Hall Medical Center. This interfered somewhat with the early implementation of all aspects of initial activities of YEAR 01, and continuing deployments also impacted some aspects of YEARS 02 through 04. Some potential participants found it difficult to leave their duty stations long enough to participate in a study of this magnitude, making it somewhat difficult to meet our recruitment goals as quickly as we hoped. However, we have recruited tirelessly through a variety of mechanisms with success, and managed to recruit enough participants (83) to allow for powerful post-hoc data analyses. Finally, a look at the demographic data above reveals that although our randomization protocol allowed for no significant difference between groups in any demographic category, there is some imbalance between the two treatment groups based on demographics. The reason for this imbalance is the ineligibility of some individuals for early participation in the study due to deployments and changes in duty assignments. Based on our randomization process, once an individual is randomized into a block, he or she remains in that block. As a result, when one participant is removed from a block due to inability to participate at the time of randomization, the blocks fall out of balance. We are comforted, however, that our block randomization design yielded two groups that are not different based on any of our demographics of concern.

In line with our Statement of Work, we have periodically examined our study data to determine the efficacy of the FORT treatment compared to the Treatment-As-Usual group. A summary of our outcomes is presented in the table below. Because our database allows us to examine over 200 variables, we have included just a handful of relevant outcomes for the purposes of this final report (the most relevant outcome variables). When examining the tables in the appendices below, please keep in mind the assessment intervals utilized for this project:

- **Pre-FORT:** assessment completed after the 4-week Anesthesiology follow-up, right before the FORT participants begin participation in the FORT program (this is a *pre-treatment* interval)
- **Post-FORT:** assessment completed after the 3-week FORT interval (this is a *post-treatment* interval)



- **One-Year:** psychosocial outcomes collected through pen-and-paper questionnaires and personal interviews one year after the Post-FORT assessment

Also, in preparation for data review, a list of the included measures is listed below with explanations of the domains assessed:

- **Pain VAS:** visual analog pain scale rating, ranging from 0 (no pain) to 10 (extreme pain)
- **MVAS:** a measure of self-reported physical disability. Score ranges include 0 (no disability), 1-40 (Mild disability), 41-70 (Moderate disability), 71-100 (Severe disability), 101-130 (Very Severe disability), 131-150 (Extreme disability)
- **BDI-2:** a measure of depressive symptomatology. Score ranges include 0-13 (Minimal depression), 14-19 (Mild depression), 20-28 (Moderate depression), 30+ (Severe depression)
- **Lift-FW:** floor-to-waist lifting capacity in pounds
- **Lift-WE:** waist-to-eye-level lifting capacity in pounds
- **SF-36 PCS:** a measure of health-related quality of life. The Physical Composite Score measures the impact of one’s physical health on his or her life. The measure mean is 50, with a standard deviation of 10. Lower scores indicate worse quality of life.
- **SF-36 MCS:** same as above, but the Mental Composite Scale measures the impact of one’s psychosocial functioning in his or her life.

One-Year Outcomes (N=24): Below is a summary of one-year outcomes for 24 of our participants. Due to the small size of groups (N=12 in each), comparisons are under-powered, so Odds Ratios are used to show outcomes so far. There are additional data available to bolster this dataset. However, those data have not been fully encoded into the database and were not used for these analyses. The results below are intended to be a preliminary view of our socioeconomic outcomes. To see additional one-year data for physical and psychosocial variables, please see the attached appendices.

Variable	OR	Conclusion
Met Medical Board within One Year after FORT	OR=1.8	Control patients were almost twice as likely to meet a medical board as FORT patients.
Continued Seeking Medical Care for Pain One Year after FORT	OR = 3.1	Control patients were over three times more likely to seek additional treatment for pain than were FORT patients.
Continued Taking Pain Medication One Year after FORT	OR = 2.5	Control patients are more than twice as likely to continue taking pain medications as FORT patients.

**ONE-YEAR OUTCOMES (group means)**

Variable	FORT	Control	Conclusion
Number of MD and/or ER visits for pain care in the last year after FORT (p=.18)	5.1	23.1	Control patients accounted for many more MD and ER visits for pain than FORT patients.
Number of different healthcare providers seen for pain treatment in the last	1.8	2.8	Control patients sought out more healthcare options for their pain management.

year after FORT (p=.06)			
Average pain VAS rating One-Year after FORT (p=.05)	3/10	5/10	Self-report pain intensity ratings indicate no drop-off in pain relief for FORT patients over the one-year follow-up.

Compared to our previous preliminary data analyses (described above), the final data presented in the appendices below serve to more fully support the fact that the ICPRP (FORT) treatment combined with SAPC was significantly more efficacious in addressing chronic musculoskeletal pain than was SAPC treatment alone. Furthermore, ICPRP+SAPC treatment resulted in beneficial post-treatment outcomes that were mostly sustained to one year post-treatment. In summary, pre-to-post treatment analyses reveal significant improvements in both psychosocial and physical variables for those who participated in the FORT program. Individuals in the Treatment as Usual (TAU) condition showed no significant changes in these variables. These results suggest good benefit for the FORT patients while the TAU patients showed ongoing chronicity of their symptoms. When compared to one another, the two groups showed no significant pre-treatment differences suggesting that any later differences could be attributed to treatment effects and not pre-treatment differences. Post-treatment analyses confirmed that the FORT patients showed significantly better physical and psychosocial results than their TAU counterparts. Long-term evaluation of outcomes showed that many of the FORT treatment gains were maintained by the FORT patients, and the outcomes continued to show better physical performance by FORT patients compared to TAU participants.

## KEY RESEARCH ACCOMPLISHMENTS:

For the Entire Study:

- Development of a comprehensive musculoskeletal pain database tapping over 100 variables
- Development and implementation of data entry quality assurance procedures including measures of inter-rater reliability
- Development and implementation of participant recruitment protocol
- Training of key personnel in recruitment of participants with close adherence to IRB guidelines for ethical research practice
- Training of all study personnel in research methodology
- Development and implementation of interdisciplinary chronic musculoskeletal pain treatment program at Wilford Hall Medical Center
- Development of participant and provider manuals for 12-session psychosocial classes for pain management
- Development of presentations on: “Sex and Back Pain,” “Fear Avoidance and Chronic Musculoskeletal Pain,” and “Pain and Sleep” for presentation to participants in the study as part of their treatment
- Development and implementation of treatment quality assurance protocol including checklists for achieving key treatment objectives and mechanisms for tracking participation in all aspects of program participation
- Development and training of comprehensive research team employing a Physical Therapist, Registered Nurse, and Clinical Psychologist
- Acquisition of equipment and software for a comprehensive functional capacity evaluation for chronic pain patients and development of a functional capacity evaluation protocol
- Development of a comprehensive psychosocial and behavioral assessment battery tapping multiple domains of chronic musculoskeletal pain including: Physical, Behavioral, Cognitive, Emotional, and Environment concerns
- Recruitment of 83 participants as of 15 FEB 2008
- Randomization of 38 treatment participants and 45 control participants
- Randomization balanced along key demographic and pre-treatment variables due to block (urn) randomization design
- Preparation of one manuscript for publication (though more are in preparation)
- At the time of this report, 28 participants have completed 1-year follow-up measures
- Development of a follow-up grant utilizing the accomplishments of this study to help improve treatment for active duty service members experiencing co-morbid pain and post-traumatic stress disorder. This grant was submitted as an intramural grant through the CDMRP and was denied funding, though the score was quite good. The grant will be re-submitted after undergoing changes based on reviewer feedback

## REPORTABLE OUTCOMES:

For the Entire Study:

- 2 posters developed and presented at the biennial Peer Reviewed Medical Research Program Military Health Research Forum in April 2004 and April 2006
- One manuscript prepared and submitted to Military Medicine in November 2007
- Additional manuscripts in preparation
- Dr. McGeary received training through the Clinical Health Psychology Postdoctoral Fellowship at Wilford Hall Medical Center (Lackland AFB) based on his affiliation with this research project
- Dr. McGeary has now been hired as an NSPS Clinical Health Psychologist at Wilford Hall Medical Center based on his affiliation with this research project
- Dr. McGeary was fully-funded to attend the Pittsburgh Mind Body Center's annual Health Psychology Workshop due to his work on this project
- Presentation given at the Department of Defense Force Protection Health Conference in August 2007 at Lexington, KY
- Presentation given at 2004 Wilford Hall Medical Center Research Appreciation Day based on this project

## CONCLUSION:

Data analysis to date shows a variety of desirable outcomes. Pre-treatment between-groups analysis revealed that the groups did not initially differ significantly on any of the variables assessed, suggesting that randomization has been successful in developing two similar groups for comparison. The FORT intervention resulted in significant lifting capacity increases for treatment participants, while the treatment-as-usual group showed no continued benefit for physical health-related quality of life during the intervention interval. A review of the pre- to post-treatment score changes between and within the two groups revealed significant beneficial changes in almost all domains for the FORT group compared to few beneficial changes for the TAU group. Based on these results, we can more firmly conclude that the FORT intervention is of significant benefit for those who are treated. Preliminary review of our one-year outcomes in 2007 revealed that FORT participants were less likely to medically retire from service, less likely to seek ongoing care from multiple providers after treatment, and experience less pain even one-year after treatment than treatment-as-usual control patients. Further analysis based on our final data set confirmed that these trends continued to hold up allowing us to more safely conclude that the amazing treatment gains of FORT program participation can be maintained for a period of at least 12 months. We enjoyed the opportunity to determine if this program could further contribute to military quality of life by helping our service members stay on active duty after developing a chronic musculoskeletal condition when they may have been otherwise medically retired. Furthermore, we hope that the information gathered in this study and presented through the products generated from our study results will help the military improve its ability to care for our injured and pain-afflicted warriors; a need quite salient today.

APPENDICES AND SUPPORTING DATA:

- APPENDIX A:** Summary of Pre-Treatment Outcomes
- APPENDIX B:** Summary of Post-Treatment Outcomes - Psychosocial
- APPENDIX C:** Summary of Post-Treatment Outcomes - Physical
- APPENDIX D:** Summary of One-Year Outcomes - Psychosocial
- APPENDIX E:** Summary of One-Year Outcomes - Physical
- APPENDIX F:** Database Variables (Coding Sheet)
- APPENDIX G:** Informed Consent Document
- APPENDIX H:** Personnel Supported by Grant

**APPENDIX A**  
**SUMMARY OF PRE-TREATMENT OUTCOMES**

PRE-TREATMENT

Variable	FORT	Control	Finding	Conclusion
BDI	10.5	11.8	p=.577	No difference
SF-36 PCS	34.1	35.4	p=.561	No difference
MVAS	73.0	77.1	p=.439	No difference
OSW	17.5	18.7	p=.487	No difference
FABQ	14.5	16.1	p=.223	No difference
ISI	10.8	13.3	p=.067	No difference
Pain VAS	6.0	5.9	p=.814	No difference
MPI Interf	36.7	37.1	p=.878	No difference
MPI Affect	38.6	42.9	p=.053	No difference

PRE-TREATMENT

Variable	FORT	Control	Finding	Conclusion
Lift Floor to Waist (lbs)	46.8	40.9	p=.453	No difference
Lift Waist to Eye-Level (lbs)	38.9	33.8	p=.303	No difference
Lumbar Flexion (deg)	40.1	41.7	p=.676	No difference
Lumbar Extend (deg)	14.5	14.6	p=.975	No difference
Lumbar Side Bend Rt (deg)	15.1	15.9	p=.529	No difference
Lumbar Side Bend Lt (deg)	16.5	15.0	p=.279	No difference
Lumbar Rotation Rt (deg)	5.2	5.3	p=.979	No difference
Lumbar Rotation Lt (deg)	3.9	5.1	p=.234	No difference



**APPENDIX B**  
**SUMMARY OF POST-TREATMENT OUTCOMES**  
**PSYCHOSOCIAL VARIABLES**

POST-TREATMENT

Variable	FORT	Control	Finding	Conclusion
BDI	5.6	12.5	p=.005	FORT = less depression
SF-36 PCS	44.5	35.3	P<.001	FORT = better physical health-related quality of life
MVAS	52.5	82.6	p<.001	FORT = less self-report functional disability
OSW	11.1	18.6	p<.001	FORT = less self-report functional disability
FABQ	7.0	16.3	p<.001	FORT = less unrealistic fear of re-injury with activity
ISI	8.4	13.7	p=.026	FORT = less insomnia
Pain VAS	3.4	6.2	p<.001	FORT = less pain
MPI Interf	30.1	40.2	p=.007	FORT = less interference of pain on functioning
MPI Affect	34.3	45.1	p=.001	FORT = less impact of emotional distress on pain

PRE-POST TREATMENT CHANGE (**FORT PATIENTS**)

Variable	Pre-Tx	Post-Tx	Finding	Conclusion
BDI	10.5	5.6	p=.001	Significantly less depression
SF-36 PCS	34.1	44.5	p<.001	Significantly better physical health-related quality of life
MVAS	73.0	52.5	p<.001	Significantly less self-report functional disability
OSW	17.5	11.1	p<.001	Significantly less self-report functional disability
FABQ	14.5	7.0	p<.001	Significantly less unrealistic fear of re-injury with activity
ISI	10.8	8.4	p<.001	Significantly less insomnia
Pain VAS	6.0	3.4	p<.001	Significantly less pain
MPI Interf	36.7	30.1	p<.001	Significantly less interference of pain on functioning
MPI Affect	38.6	34.3	p=.004	Significantly less impact of emotional distress on pain

**PRE-POST TREATMENT CHANGE (CONTROL PATIENTS)**

Variable	Pre-Tx	Post-Tx	Finding	Conclusion
BDI	11.8	12.5	p=.380	No significant difference
SF-36 PCS	35.4	35.3	p=.719	No significant difference
MVAS	77.1	82.6	p=.369	No significant difference
OSW	18.7	18.6	p=.099	No significant difference
FABQ	16.1	16.3	p=.958	No significant difference
ISI	13.3	13.7	p=.897	No significant difference
Pain VAS	5.9	6.2	p=.055	No significant difference
MPI Interf	37.1	40.2	p=.122	No significant difference
MPI Affect	42.9	45.1	p=.042	Less affective distress at Post-Tx

**APPENDIX C**  
**SUMMARY OF POST-TREATMENT OUTCOMES**  
**PHYSICAL VARIABLES**

POST-TREATMENT

Variable	FORT	Control	Finding	Conclusion
Lift Floor to Waist (lbs)	76.0	52.8	p<.001	FORT patients significantly stronger floor-to-waist
Lift Waist to Eye-Level (lbs)	64.5	41.2	p<.001	FORT patients significantly stronger waist-to-eye level
Lumbar Flexion (deg)	48.6	42.3	p=.147	FORT patients better lumbar flexion
Lumbar Extend (deg)	18.5	12.2	p=.056	FORT patient better lumbar extension
Lumbar Side Bend Rt (deg)	20.9	16.4	p=.053	FORT patients better side-bend ROM to the right
Lumbar Side Bend Lt (deg)	19.9	15.8	p=.055	FORT patients better side-bend ROM to the left
Lumbar Rotation Rt (deg)	7.4	3.6	p=.003	FORT patients significantly better right rotation of lumbar
Lumbar Rotation Lt (deg)	5.4	3.5	p=.071	FORT patients better rotation to the left, but not significant

PRE-POST TREATMENT CHANGE (FORT PATIENTS)

Variable	Pre-Tx	Post-Tx	Finding	Conclusion
Lift Floor to Waist (lbs)	46.8	76.0	p=.008	Significant strength increase
Lift Waist to Eye-Level (lbs)	38.9	64.5	p<.001	Significant strength increase
Lumbar Flexion (deg)	40.1	48.6	p=.313	No significant ROM increase
Lumbar Extend (deg)	14.5	18.5	p=.405	No significant difference, but increase noticeable
Lumbar Side Bend Rt (deg)	15.1	20.9	p=.228	No significant ROM increase
Lumbar Side Bend Lt (deg)	16.5	19.9	p=.283	No significant difference, but increase noticeable
Lumbar Rotation Rt (deg)	5.2	7.4	p=.043	Significant ROM increase
Lumbar Rotation Lt (deg)	3.9	5.4	p=.831	No significant difference, but increase noticeable

PRE-POST TREATMENT CHANGE (CONTROL PATIENTS)

Variable	Pre-Tx	Post-Tx	Finding	Conclusion
Lift Floor to Waist (lbs)	40.9	52.8	p=.124	No difference
Lift Waist to Eye-Level (lbs)	33.8	41.2	p=.089	No difference
Lumbar Flexion (deg)	41.7	42.3	p=.077	No difference

Lumbar Extend (deg)	14.6	12.2	p=.361	No difference
Lumbar Side Bend Rt (deg)	15.9	16.4	p=.705	No difference
Lumbar Side Bend Lt (deg)	15.0	15.8	p=.911	No difference
Lumbar Rotation Rt (deg)	5.3	3.6	p=.315	No difference
Lumbar Rotation Lt (deg)	5.1	3.5	p=.308	No difference

**APPENDIX D**  
**SUMMARY OF ONE-YEAR OUTCOMES**  
**PSYCHOSOCIAL VARIABLES**

ONE-YEAR FOLLOW-UP PSYCHOSOCIAL

Variable	FORT	Control	Finding	Conclusion
BDI	6.3	8.6	p=.467	FORT = less depression
SF-36 PCS	46.6	38.6	p=.033	FORT = better physical health-related quality of life
MVAS	41.2	71.1	p=.017	FORT = less self-report functional disability
OSW	8.2	16.4	p=.009	FORT = less self-report functional disability
FABQ	13.1	12.6	p=.451	FORT = less unrealistic fear of re-injury with activity
ISI	9.9	11.7	p=.246	FORT = less insomnia
Pain VAS	2.9	4.7	p=.080	FORT = less pain
MPI Interf	24.4	33.7	p=.091	FORT = less interference of pain on functioning
MPI Affect	44.9	38.2	p=.124	FORT = less impact of emotional distress on pain



POST-TREATMENT TO ONE-YEAR FOLLOW-UP PSYCHOSOCIAL (**FORT**)

Variable	Post-Tx	One Year	Finding	Conclusion
BDI	5.6	6.3	p=.615	No significant change
SF-36 PCS	44.5	46.6	p=.557	No significant change
MVAS	52.5	41.2	p=.227	No significant change
OSW	11.1	8.2	p=.311	No significant change
FABQ	7.0	13.1	p=.401	No significant change
ISI	8.4	9.9	p=.787	No significant change
Pain VAS	3.4	2.9	p=.880	No significant change
MPI Interf	30.1	24.4	p=.023	less interference of pain on functioning at one year
MPI Affect	34.3	44.9	p=.249	No significant change

POST-TREATMENT TO ONE-YEAR FOLLOW-UP PSYCHOSOCIAL (**CONTROL**)

Variable	Post-Tx	One Year	Finding	Conclusion
BDI	12.5	8.6	p=.566	No significant change
SF-36 PCS	35.3	38.6	p=.690	No significant change
MVAS	82.6	71.1	p=.211	No significant change
OSW	18.6	16.4	p=.258	No significant change
FABQ	16.3	12.6	p=.636	No significant change
ISI	13.7	11.7	p=.406	No significant change
Pain VAS	6.2	4.7	p=.123	No significant change
MPI Interf	40.2	33.7	p=.604	less interference of pain on functioning at one year
MPI Affect	45.1	38.2	p=.173	No significant change

**APPENDIX E**  
**SUMMARY OF ONE-YEAR OUTCOMES**  
**PSYCHOSOCIAL VARIABLES**

ONE-YEAR FOLLOW-UP PHYSICAL

Variable	FORT	Control	Finding	Conclusion
Lift Floor to Waist (lbs)	69.6	30.2	p=.012	FORT patients significantly stronger floor-to-waist
Lift Waist to Eye-Level (lbs)	57.4	21.7	p=.012	FORT patients significantly stronger waist-to-eye level
Lumbar Flexion (deg)	47.1	37.8	p=.047	FORT patients significantly better lumbar flexion
Lumbar Extend (deg)	13.8	12.2	p=.350	No significant difference
Lumbar Side Bend Rt (deg)	19.9	15.4	p=.063	FORT patients somewhat better side-bend ROM to the right
Lumbar Side Bend Lt (deg)	17.2	16.5	p=.373	No significant difference
Lumbar Rotation Rt (deg)	6.2	4.5	p=.224	No significant difference
Lumbar Rotation Lt (deg)	3.6	5.9	p=.045	FORT patients better rotation to the left, but not significant

**ONE-YEAR FOLLOW-UP PHYSICAL (FORT PATIENTS)**

Variable	Post-Tx	One Year	Finding	Conclusion
Lift Floor to Waist (lbs)	76.0	69.6	p=.156	No significant difference
Lift Waist to Eye-Level (lbs)	64.5	57.4	p=.215	No significant difference
Lumbar Flexion (deg)	48.6	47.1	p=.468	No significant difference
Lumbar Extend (deg)	18.5	13.8	p=.981	No significant difference
Lumbar Side Bend Rt (deg)	20.9	19.9	p=.514	No significant difference
Lumbar Side Bend Lt (deg)	19.9	17.2	p=.339	No significant difference
Lumbar Rotation Rt (deg)	7.4	6.2	p=.873	No significant difference
Lumbar Rotation Lt (deg)	5.4	3.6	p=.318	No significant difference

**ONE-YEAR FOLLOW-UP PHYSICAL (CONTROL PATIENTS)**

Variable	Post-Tx	One Year	Finding	Conclusion
Lift Floor to Waist (lbs)	52.8	30.2	p=.246	No significant difference
Lift Waist to Eye-Level (lbs)	41.2	21.7	p=.268	No significant difference
Lumbar Flexion (deg)	42.3	37.8	p=.003	Significant decrease
Lumbar Extend (deg)	12.2	12.2	p=.502	No significant difference
Lumbar Side Bend Rt (deg)	16.4	15.4	p=.642	No significant difference
Lumbar Side Bend Lt (deg)	15.8	16.5	p=.444	No significant difference
Lumbar Rotation Rt (deg)	3.6	4.5	p=.429	No significant difference
Lumbar Rotation Lt (deg)	3.5	5.9	p=.076	No significant difference

**APPENDIX F:**  
**DATABASE VARIABLES (CODING SHEET)**

**FORT Data Management System**

**Variable Coding Sheet**

\*\* Note: Any missing data (not asked, skipped by pt, unavailable, ambiguous, more than one non-numerical answer circled, etc..) = N/A

1	Last Name		
2	First Name		
3	FMP/SSN	3a. ____ / 3b. ____ -- ____ -- ____	
4	Group	3b. Patient Group: ICPRP = 1 Control = 2 CODE: _____	
5	Follow-up Projected	Projected Follow-up date for PRE-I / POST-1 / 6MO / 12MO / 18MO ____ / ____ / ____ MM DD YY	
6	Follow-up Actual	Follow-up date for PRE-I / POST-I / 6MO / 12MO / 18MO ____ / ____ / ____ MM DD YY	
7	Date of First Appointments	4a. Date First Seen By Anesth ____ / ____ / ____ MM DD YY	4b. Date Finished Anesth Tx ____ / ____ / ____ MM DD YY
8	Date of Injury – LOD	5a. Date pain began ____ / ____ / ____ MM DD YY	5b. Date Of ICPRP Intake ____ / ____ / ____ MM DD YY
9	Age in years	____ N/A=-9 Date of Birth: ____ / ____ / ____ MM DD YY	6b Duration of Symptoms in months for the chief complaint N/A= -9 _____
10	Service of Patient (or sponsor)	US Army = 1 US Air Force =2 US Navy = 3	US Marine =4 US Coast Guard =5 N/A=-9 CODE: _____
12	Patient's beneficiary classification:	List of Values: Active Duty.....1	

		Dependent of Active Duty.....2 Guard/Reserve.....3 Dependent of Guard/Reserve.....4 Retiree.....5 Dependent of Retiree.....6 Other.....7 Unknown .....8 N/A.....9
13	Gender	Male.....1 Female.....2 N/A.....9
14	<b>Race Ethnic</b> <b>Code: Definition:</b> The code which represents a non scientific division of the population based on assumed primordial biological properties combined with a segment population that possesses common characteristics and/or cultural heritage.	<b>List of Values:</b>  American Indian or Alaskan Native.....1 Asian or Pacific Islander.....2 Black (not Hispanic).....3 White (not Hispanic).....4 Hispanic.....5 Other.....6 Unknown .....7
15	<b>Marital Status</b> <b>Code: Definition:</b> The code that represents the marital status of the patient.	<b>List of Values:</b>  Single, not married.....1 Married.....2 Divorced.....3 Legally Separated.....4 Widowed.....5 Annulled.....6 Not defined.....7 Unknown .....8

		Interlocutory decree.....9 Never Married .....10
16	Years Married	_____ N/A = -9
17	Kids	Yes = 1 NO = 2 N/A = -9 If Yes, Number: _____
18	Rank of patient (or rank of spouse if pt not AD)	E-1 = 01 E-6 = 06 O-2 = 11 O-7 = 16 E-2 = 02 E-7 = 07 O-3 = 12 O-8 = 17 E-3 = 03 E-8 = 08 O-4 = 13 O-9 = 18 E-4 = 04 E-9 = 09 O-5 = 14 O-10=19 E-5 = 05 O-1 =10 O-6 = 15 N/A = -9 CODE: _____
19	Years of Service	_____ N/A = -9
20	Clearance Status (check all that apply)	__ PRP SCI Clearance __ Flying Status Weapons Bearing __ Top Secret
21	Years of Education	Number of years of education: _____ N/A = -9
22	Highest Degree Received	No degree = 01 G.E.D. = 02 High School = 03 High School + Some College/Tech School = 04 Associates = 05 Bachelors = 06 Graduate = 07 N/A = -9
23	Referral Source (clinic)	Pain = 01 Neurology = 06 Hemat/Onc=11 Sleep = 02 Neuropsych = 07 Cardiology=12 Dental = 03 Ment Health = 08 Rheum =13 Prim Care=04 Internal Med = 09 Other =14 Pulmonary=05 Orthopedics = 10 N/A = -9 CODE: _____



24	Other clinic	IF Above is OTHER, specify clinic: _____
25	Current Injury	Current pain due to injury where? Lumbar = 01      Multiple Spinal = 05 Thoracic = 02      Upper Extremity = 06 Cervical = 03      Lower Extremity = 07 Other = 08
26	Patient Described	How patient describes site of injury: _____
27	Previous Injury	Previous injury/pain resulting in inability to work? YES = 01    NO = 02    N/A = -9 If YES, where? Lumbar = 01      Multiple Spinal = 05 Thoracic = 02      Upper Extremity = 06 Cervical = 03      Lower Extremity = 07 Other = 08                                  CODE: ____
28	New Injury	Sustained new injury/pain resulting in inability to work? YES = 01    NO = 02    N/A = -9 If YES, new injury to same site? YES = 01    NO = 02    N/A = -9 If NOT SAME SITE – Site of new injury: Lumbar = 01      Multiple Spinal = 05 Thoracic = 02      Upper Extremity = 06 Cervical = 03      Lower Extremity = 07 Other = 08                                  CODE: ____
29	Patient Described Previous Inj	How patient describes site of previous injury: _____
30	Drug Allergies	Are you allergic to any medications or food? YES = 01    NO = 02    N/A = -9                                  CODE: ____
31	Health Care	Total # of healthcare visits since pain began: _____

	Visits	Total # of healthcare visits due to current injury/pain: _____
32	Type – Health Care Visits	Type of Visit(s) related to your pain:  00 None                      06 Psychologist 01 Medical Doctor    07 Licensed 02 Orthopedist            Professional Counselor 03 Physical Therapist 08 Massage Therapist 04 Chiropractor    09 Acupuncturist 05 Psychiatrist    10 Other Specialist  CODE-1: ___ ___ CODE-2: ___ ___ CODE-3: ___ ___
33	Hospitalization	Were you hospitalized since pain began? YES = 01    NO = 02    N/A = -9                      CODE: ___ ___
34	Hospitalization #	If YES, how many times hospitalized?  # = _____ # days in hospital = _____
35	Pain Hospitalization #	How many times hospitalized due to current injury/pain?  # = _____ # days in hospital = _____
36	Previous Passive Treatments?	Undergone any previous surgical/medical procedures for your pain since pain began? YES = 01    NO = 02    N/A = -9  If YES, how many procedures? _____
37	Procedure 1	If 16-6 is YES, which procedure(s)?  01 = fusion 02 = morphine pump 03 = spinal cord stimulator 04 = injection(s) 05 = TENS unit 06 = Other _____ -9 = N/A    CODE: ___ ___
38	Procedure 2	If 16-6 is YES, which procedure(s)?

		01 = fusion 02 = morphine pump 03 = spinal cord stimulator 04 = injection(s) 05 = TENS unit 06 = Other _____ -9 = N/A CODE: ____
39	Procedure 3	If 16-6 is YES, which procedure(s)? 01 = fusion 02 = morphine pump 03 = spinal cord stimulator 04 = injection(s) 05 = TENS unit 06 = Other _____ -9 = N/A CODE: ____
40	Other Health Problems	Any other problems with your health not indicated above? YES = 01 NO = 02 N/A = -9 CODE: ____
41	Sleep	17a. Average self-reported hours of sleep a night _____ N/A = -9  <u>Symptoms checked as occurring 3 or more days a week:</u> 17b. Difficulty falling asleep.....1 17c. Difficulty staying asleep.....2 17d. Waking up earlier than planned.....3 17e. Restless legs.....4 17f. Excessive snoring.....5 17g. Taking sleep medication.....6 17h. Stop breathing briefly.....7 17i. Nightmares.....8 17j Excessive daytime sleepiness.....9 17k. Not feeling rested when you wake-up.....10
42	Sleep Efficiency	17.2 <u>(Time Spent Asleep)</u> (Time Spent in Bed) * 100 = _____%

43	Sexuality	<p>Satisfaction from 0-10 with 10 = very satisfied: N/A = -9</p> <p>Code 11 if the marked "I prefer not to answer."</p> <p>CODE: _____</p>
44	Alcohol Use	<p>19a. Trouble with alcohol in the past? Yes=1 No=2 N/A = -9</p> <p>19b. Current Use: Yes =1 No =2 N/A = -9</p> <p><u>If Yes:</u></p> <p>19c. Average number of drinks per week: _____</p> <p>19d. Have you ever felt you should cut down on your drinking?</p> <p>Yes=1 No=2</p> <p>19e. Have people annoyed you by criticizing your drinking?</p> <p>Yes=1 No=2</p> <p>19f. Have you ever felt bad or guilty about your drinking?</p> <p>Yes=1 No=2</p> <p>19g. Have you ever had a drink first thing in the morning to steady _____ your nerves or get rid of a hangover (e.g. eye opener)? Yes=1 No=2</p> <p>19h. CAGE score (0-4)_____</p>
45	Current (past 30 days) Tobacco Use Status	<p>20a. Not current tobacco user = 01</p> <p>Prior tobacco user = 02</p> <p>Current tobacco user (any daily use) = 03</p> <p>N/A = -9</p> <p>20b. <u>If yes to current tobacco use:</u></p> <p>Type of tobacco</p> <p>Cigarettes = 01</p> <p>Pipe/Cigar = 02</p> <p>Smokeless = 03</p>

		20c. Duration of Tobacco Use in Years: _____
46	Current Caffeine Use	21a. Yes =01 No =02 N/A = -9  21b. <u>If Yes:</u> Average number of drinks per week: _____
47	BMI	22-1a. Height (inches) _____ 22-1b. Weight (pounds) _____
48	Diet	22-2. Currently on a diet trying to lose wt? Yes = 01 No = 02 N/A = -9
49	Diet – 2	Do you eat too much/too little? YES = 1 NO = 2 N/A = -9
50	Exercise on Regular Basis	Yes = 1 No = 2 N/A = -9
51	History of Mental Health Treatment (any tx the pt indicated as MH including Chaplain, etc...)	Yes = 1 No = 2 N/A = -9
52	History of Physical, Sexual, or Emotional abuse	Yes = 1 No = 2 N/A = -9
53	Satisfaction with Social Support from Family & Friends	Very Unsatisfied.....1 Unsatisfied.....2 Satisfied.....3 Very Satisfied.....4 N/A.....-9

54	Hours Worked	<p>How many hours a week, on average, do you work?</p> <p>_____</p>
55	Job History	<p>26a. Disability/Workers Comp:    Yes = 1    No = 2    N/A = -9</p> <p><u>26b. Work Status:</u></p> <p>Full-time outside the home.....1</p> <p>Full-time in the home.....2</p> <p>Part-time.....3</p> <p>Retired.....4</p> <p>N/A.....-9</p> <p><u>26c. Job Title:</u></p> <p>What is your current job title? _____</p> <p><u>26c. If Working, Satisfaction with Current Occupation:</u></p> <p>Very Unsatisfied.....1</p> <p>Unsatisfied.....2</p> <p>Satisfied.....3</p> <p>Very Satisfied.....4</p> <p>N/A.....-9</p>
56	Return to Work	<p><u>Present Vocational Status:</u></p> <p>01 RTW, Full Time, Same Job Type</p> <p>02 RTW, Full Time, New Job Type</p> <p>03 RTW, Light/Part Duty, Same Job Type</p> <p>04 RTW, Light/Part Duty, New Job Type</p> <p><b>05 RTW, But Not Pres Worki BC of New Injury</b></p> <p>06 RTW, But Not Pres Work BC Original Injury</p> <p>07 Self-Employed</p> <p>08 Vocational Training or School/Retraining</p> <p>09 Never Returned to Work Because of Injury</p> <p>10 Denies Work BC of Employment Factors Exc</p> <p>11 Denies Work, But Engag in Incom Prod Act</p> <p>12 Denies Work,Participates Non-Income Prod Activities</p> <p>13 Was Not Working Before Injury</p>
57	RTW Date	<p><u>Date pt returned to work:</u></p>

		____ / ____ / ____ MM DD YY
58	Quality of Life	Satisfaction with Quality of Life: Very Unsatisfied.....1 Unsatisfied.....2 Satisfied.....3 Very Satisfied.....4 N/A.....-9
59	Spirituality	28a. Importance from 0-10 with 10 = very important: ____ N/A=-9  28b. Current difficulties affecting spirituality: Yes = 1 No= 2
60	Legal Issues	Current litigation pending concerning pt's condition:  Yes = 1 No= 2 N/A=-9
61	Disciplinary Action	Any history of disciplinary action (e.g., LOC, LOR, LOA)? YES = 01 NO = 02 N/A = -9
62	Goals	Top Three Goals from Goal sheet (1-51) 1:____ 2:____ 3:____ N/A=-9
63	Primary Axis I Diagnosis	296.2 MD, sing ep = 01 316 Psych fac/Med Cond= 06 296.3 MD, recurrent = 02 V71.09 No diagnosis = 07 307.xx Pain Disorder = 03 799.9 Deferred = 08 307.42 Prim Insomnia = 04 Other Diagnosis = 09 309.xx Adjustment DO= 05 PTSD = 10 GAD = 11 Panic Dis = 12 N/A=-9 CODE: ____
64	Other diagnosis	IF above is OTHER, specify diagnosis:
65	Secondary Axis	296.2 MD, sing ep = 01 316 Psych fac/Med Cond= 06

	I Diagnosis if appropriate	296.3 MD, recurrent = 02 V71.09 No diagnosis = 07 307.xx Pain Disorder = 03 799.9 Deferred = 08 307.42 Prim Insomnia = 04 Other Diagnosis = 09 309.xx Adjustment DO= 05 N/A=-9 CODE: ____ ____
66	Other diagnosis	IF above is OTHER, specify diagnosis:
67	Primary Axis III (Choose ONE most directly related to referral)	Headache=01 Fibromyalgia = 08 Myofac. Pain = 15 RSD/CRPS=02 HTN= 09 Other = 16 IBS = 03 Other chron pain=10 N/A=-9 TMD = 04 Cardiac = 11 COPD = 05 Cancer =12 Arthritis = 06 Obesity = 13 Chron Back= 07 Insomnia = 14 CODE: ____ ____
68	Other Axis III	IF above is OTHER, specify diagnosis:
69	Secondary Axis III	Headache=01 Fibromyalgia = 08 Myofac. Pain = 15 RSD/CRPS=02 HTN= 09 Other = 16 IBS = 03 Other chron pain=10 N/A=-9 TMD = 04 Cardiac = 11 COPD = 05 Cancer =12 Arthritis = 06 Obesity = 13 Chron Back= 07 Insomnia = 14 CODE: ____ ____
70	Other Axis III	IF above is OTHER, specify diagnosis:
71	Site Treated	WHMC = 01 BAMC = 02 CODE: ____ ____



### JOB REQUIREMENTS EVALUATION

72	Standing	Indicate the amount of time spent at your job doing this activity: NONE = 01 OCCASIONAL = 02 FREQUENT = 03 CONSTANT = 04 CODE: ___ ___
73	Walking	Indicate the amount of time spent at your job doing this activity: NONE = 01 OCCASIONAL = 02 FREQUENT = 03 CONSTANT = 04 CODE: ___ ___
74	Sitting	Indicate the amount of time spent at your job doing this activity: NONE = 01 OCCASIONAL = 02 FREQUENT = 03 CONSTANT = 04 CODE: ___ ___
75	Squatting	Indicate the amount of time spent at your job doing this activity: NONE = 01 OCCASIONAL = 02 FREQUENT = 03 CONSTANT = 04 CODE: ___ ___
76	Kneeling	Indicate the amount of time spent at your job doing this activity: NONE = 01 OCCASIONAL = 02 FREQUENT = 03 CONSTANT = 04 CODE: ___ ___
77	Stooping/Bending	Indicate the amount of time spent at your job doing this activity: NONE = 01 OCCASIONAL = 02 FREQUENT = 03 CONSTANT = 04 CODE: ___ ___
78	Crawling	Indicate the amount of time spent at your job doing this activity: NONE = 01 OCCASIONAL = 02 FREQUENT = 03 CONSTANT = 04 CODE: ___ ___
79	Driving	Indicate the amount of time spent at your job doing this activity: NONE = 01 OCCASIONAL = 02 FREQUENT = 03 CONSTANT = 04 CODE: ___ ___
80	Repetitive Handwork	Indicate the amount of time spent at your job doing this activity: NONE = 01 OCCASIONAL = 02 FREQUENT = 03 CONSTANT = 04 CODE: ___ ___
81	Reaching	Indicate the amount of time spent at your job doing this activity: NONE = 01 OCCASIONAL = 02 FREQUENT = 03 CONSTANT = 04 CODE: ___ ___
82	Lifting	Indicate the amount of time spent at your job doing this activity: NONE = 01 OCCASIONAL = 02 FREQUENT = 03

		CONSTANT = 04 CODE: ___ ___
83	Carrying	Indicate the amount of time spent at your job doing this activity: NONE = 01 OCCASIONAL = 02 FREQUENT = 03 CONSTANT = 04 CODE: ___ ___
84	Pushing/Pulling	Indicate the amount of time spent at your job doing this activity: NONE = 01 OCCASIONAL = 02 FREQUENT = 03 CONSTANT = 04 CODE: ___ ___
85	Climbing	Indicate the amount of time spent at your job doing this activity: NONE = 01 OCCASIONAL = 02 FREQUENT = 03 CONSTANT = 04 CODE: ___ ___

**PSYCHOSOCIAL TEST DATA**

*Reminder: Any missing data (unavailable, ambiguous, more than answer circled, etc..) = N/A*

86	BDI – Front	_____	10 2	MPIPS	_____ . _____ _____
87	BDI - Back	_____	10 3	MPII	_____ . _____ _____
88	BDI - Total	_____	10 4	MPILC	_____ . _____ _____
89	BDI – Item 9	_____	10 5	MPIAD	_____ . _____ _____
90	SF36 – PF	_____	10 6	MPIS	_____ . _____ _____
91	SF36 – RP	_____	10 7	MPIPR	_____ . _____ _____
92	SF36 – BP	_____	10 8	MPISR	_____ . _____ _____
93	SF36 – GH	_____	10 9	MPIDR	_____ . _____ _____
94	SF36 – VT	_____	11 0	MPIHC	_____ . _____ _____
95	SF36 – SF	_____	11 1	MPIOW	_____ . _____ _____

						—
96	SF36 – RE	_____		11 2	MPIAAH	_____ . _____ —
97	SF36 – MH	_____		11 3	MPISA	_____ . _____ —
98	SF36 – PCS	_____		11 4	MPIGA	_____ . _____ —
99	SF36 – MCS	_____		11 5	MPI Profile	Dysfunctional..... 1 Interpers/Distr..... 2 Adaptive Cop.....3 Anomolous..... 4 Hybrid..... 5 Unanalyzable..... 6
100	SF36 – PCS %	_____				
101	SF36 – MCS %	_____		11 6	PCI	High: _____ Low: _____ AVG: _____

*Reminder: Any missing data (unavailable, ambiguous, more than answer circled, etc..) = N/A*

117	SF36q1	_____		13 3	SF36q17	_____ . _____
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					—
11 8	SF36q2	— —		13 4	SF36q18 — — . — —
11 9	SF36q3	— —		13 5	SF36q19 — — . — —
12 0	SF36q4	— —		13 6	SF36q20 — — . — —
12 1	SF36q5	— —		13 7	SF36q21 — — . — —
12 2	SF36q6	— —		13 8	SF36q22 — — . — —
12 3	SF36q7	— —		13 9	SF36q23 — — . — —
12 4	SF36q8	— —		14 0	SF36q24 — — . — —
12 5	SF36q9	— —		14 1	SF36q25 — — . — —
12 6	SF36q10	— —		14 2	SF36q26 — — . — —
12 7	SF36q11	— —		14 3	SF36q27 — — . — —

12 8	SF36q12	_____	14 4	SF36q28	_____ . _____ _____
12 9	SF36q13	_____	14 5	SF36q29	_____ . _____ _____
13 0	SF36q14	_____	14 6	SF36q30	_____ . _____ _____
13 1	SF36q15	_____	14 7	SF36q31	_____ . _____ _____
13 2	SF36q16	_____	14 8	SF36q32	_____ . _____ _____

14 9	SF36q33	_____	16 4	THQgc	_____ . _____ _____
15 0	SF36q34	_____	16 5	FABQpa	_____ . _____ _____
15 1	SF36q35	_____	16 6	FABQw	_____ . _____ _____
15 2	SF36q36	_____	16 7		_____ . _____ _____
15 3	MVAS	_____	16 8	PainVAS	_____ . _____ _____
15 4	MVAScat	0 = None (MVAS = 0) 1 = Mild (1-40) 2 = Moderate (41-70) 3 = Severe (71-100) 4 = Very Severe (101-130) 5 = Extreme (131-150) -9 = no MVAS score	16 9	POMStot	_____ . _____ _____
			17 0	POMS anx	_____ . _____ _____
15 5	THQwp	_____	17 1	POMSdep	_____ . _____ _____
15 6	THQmed	_____	17 2	POMSang	_____ . _____ _____

					—
15 7	THQpsy	— —		17 3	POMsvig — — . —
15 8	THQpt	— —		17 4	POMsfat — — . —
15 9	THQdr	— —		17 5	POMscon — — . —
16 0	THQip	— —		17 6	
16 1	THQdiag	— —		17 7	
16 2	THQwat	— —		17 8	ORQtot — — . —
16 3	THQpe	— —		17 9	ORQdep — — . —



18 0	ORQpi	_____	
18 1	ORQdwr	_____	
18 2	ORQpwh	_____	
18 3	ORQssw	_____	
18 4	ORQwsl	_____	
18 5	ORQwks	_____	
18 6	ORQfss	_____	
18 7	ORQppwr	_____	
18 8	PCLM	_____	
18 9	OSW	_____	
19 0	ISI	_____	
19 1	CEQ	_____	

**DSM-IV AXIS I DIAGNOSIS**

19 2	AxisId1	1 = Major Dep – Single Episode (296.2) 2 = Major Dep – Recurrent (296.3) 3 = Pain Disorder (307.xx) 4 = Primary Insomnia (307.42) 5 = Adjustment Disorder (309.xx) 6 = Psych Fac to Med Cond (316) 7 = Gen Anx Dis (300.02) 8 = PTSD (309.81) 9 = Panic Disorder (300.2x) 10 = Deferred (799.9) 11 = No Diagnosis (V71.09) 12 = Other Diagnosis -9 = N/A
19 3	AxisId2	1 = Major Dep – Single Episode (296.2) 2 = Major Dep – Recurrent (296.3) 3 = Pain Disorder (307.xx) 4 = Primary Insomnia (307.42) 5 = Adjustment Disorder (309.xx) 6 = Psych Fac to Med Cond (316) 7 = Gen Anx Dis (300.02) 8 = PTSD (309.81) 9 = Panic Disorder (300.2x) 10 = Deferred (799.9) 11 = No Diagnosis (V71.09) 12 = Other Diagnosis -9 = N/A
19 4	AxisId3	1 = Major Dep – Single Episode (296.2) 2 = Major Dep – Recurrent (296.3) 3 = Pain Disorder (307.xx) 4 = Primary Insomnia (307.42) 5 = Adjustment Disorder (309.xx) 6 = Psych Fac to Med Cond (316) 7 = Gen Anx Dis (300.02) 8 = PTSD (309.81) 9 = Panic Disorder (300.2x) 10 = Deferred (799.9) 11 = No Diagnosis (V71.09) 12 = Other Diagnosis -9 = N/A

**FCE DATA**

19 5	Tflex	_____	
19 6	Text	_____	
19 7	PILEwt-waist	_____	
19 8	PILEhr-waist	_____	
19 9	PILEwt-shoulder	_____	
20 0	PILEhr-shoulder	_____	
20 1	Aerovo2	_____	
20 2	Aerotime	_____	
20 3	Aerohr	_____	
20 4	Aeroefft	_____	
20 5	GripstrL	_____	
20 6	GripstrR	_____	
20 7	DomHand	<i>Circle one:</i> <b>Left</b> <b>Right</b>	

**Past Treatment Received**

*Reminder: Any missing data (unavailable, ambiguous, etc..) = N/A*

208	Individual	No.....0 Yes.....1 Intake Only .....2  Number of Sessions:_____
209	Biofeedback	No.....0 Yes.....1 Number of Sessions:_____
210	Interdisciplinary Chronic Pain Management Program <i>or</i> Interdisciplinary Chronic Pain Rehabilitation Program Pain Group	No.....0 Yes.....1 Number of Sessions:_____
211	4-session Pain Group or similar	No.....0 Yes.....1 Number of Sessions:_____
212	TMD Group	No.....0 Yes.....1 Number of Sessions:_____
213	COPD (Pulmonary Rehab Group)	No.....0 Yes.....1 Number of Sessions:_____
214	LEARN	No.....0

		Yes.....1  Number of Sessions:_____
215	Behavioral Cardiac Rehab Program	No.....0 Yes.....1  Number of Sessions:_____
216	Tobacco Cessation Program	No.....0 Yes.....1  Number of Sessions:_____
217	Relaxation Group	No.....0 Yes.....1  Number of Sessions:_____
218	Insomnia Group	No.....0 Yes.....1  Number of Sessions:_____
219	Previous Passive Treatments?	Undergone any previous surgical/medical procedures for your pain since pain began? YES = 01 NO = 02 N/A = -9  If YES, how many procedures? _____
220	Procedure 1	If 16-6 is YES, which procedure(s)? 01 = fusion 02 = morphine pump 03 = spinal cord stimulator 04 = injection(s)

		05 = TENS unit 06 = Other _____ -9 = N/A CODE: ____ ____
221	Procedure 2	If 16-6 is YES, which procedure(s)? 01 = fusion 02 = morphine pump 03 = spinal cord stimulator 04 = injection(s) 05 = TENS unit 06 = Other _____ -9 = N/A CODE: ____ ____
222	Procedure 3	If 16-6 is YES, which procedure(s)? 01 = fusion 02 = morphine pump 03 = spinal cord stimulator 04 = injection(s) 05 = TENS unit 06 = Other _____ -9 = N/A CODE: ____ ____

**Post-FORT Treatment(s) Received**

*Reminder: Any missing data (unavailable, ambiguous, etc..) = N/A*

223	Individual	No.....0 Yes.....1 Intake Only .....2  Number of Sessions:_____
224	Biofeedback	No.....0 Yes.....1 Number of Sessions:_____
225	Interdisciplinary Chronic Pain Management Program <i>or</i> Interdisciplinary Chronic Pain Rehabilitation Program Pain Group	No.....0 Yes.....1 Number of Sessions:_____
226	4-session Pain Group or similar	No.....0 Yes.....1 Number of Sessions:_____
227	TMD Group	No.....0 Yes.....1 Number of Sessions:_____
228	COPD (Pulmonary Rehab Group)	No.....0 Yes.....1 Number of Sessions:_____
229	LEARN	No.....0

		Yes.....1  Number of Sessions:_____
230	Behavioral Cardiac Rehab Program	No.....0 Yes.....1  Number of Sessions:_____
231	Tobacco Cessation Program	No.....0 Yes.....1  Number of Sessions:_____
232	Relaxation Group	No.....0 Yes.....1  Number of Sessions:_____
233	Insomnia Group	No.....0 Yes.....1  Number of Sessions:_____
234	Passive Treatments?	Undergone any previous surgical/medical procedures for your pain since completing the FORT program? YES = 01 NO = 02 N/A = -9  If YES, how many procedures? _____
235	Procedure 1	If 16-6 is YES, which procedure(s)? 01 = fusion 02 = morphine pump 03 = spinal cord stimulator



		04 = injection(s) 05 = TENS unit 06 = Other _____ -9 = N/A CODE: ____ ____
236	Procedure 2	If 16-6 is YES, which procedure(s)? 01 = fusion 02 = morphine pump 03 = spinal cord stimulator 04 = injection(s) 05 = TENS unit 06 = Other _____ -9 = N/A CODE: ____ ____
237	Procedure 3	If 16-6 is YES, which procedure(s)? 01 = fusion 02 = morphine pump 03 = spinal cord stimulator 04 = injection(s) 05 = TENS unit 06 = Other _____ -9 = N/A CODE: ____ ____

**APPENDIX G:**  
**MOST RECENTLY APPROVED INFORMED CONSENT DOCUMENT**

**FWH20030036H**  
BROOKE ARMY MEDICAL CENTER/WILFORD HALL MEDICAL CENTER  
INFORMED CONSENT DOCUMENT  
(ICD Template Version 4. Feb 02)

**A Randomized Trial of Musculoskeletal Pain Treatment in a Military Population**

**PRINCIPAL INVESTIGATOR** – Lt Col Alan L. Peterson

If you choose not to participate in this research study, your decision will not affect your eligibility for care or any other benefits to which you are entitled.

**DESCRIPTION/PURPOSE OF RESEARCH**

You are being asked to consider participation in this research study. The purpose of this study is to evaluate the effectiveness of two different treatments designed to decrease chronic pain, increase functioning, and retain military members on active duty.

This study is being conducted at Wilford Hall Medical Center in San Antonio, Texas and Brooke Army Medical Center, San Antonio, Texas. The study will enroll approximately 90 active duty military personnel with musculoskeletal pain over a period of 18 months. The overall duration of the study will be about 4 years, but the time requirement for individual participants will be about four weeks with follow-up evaluations occurring at 6 months, 12 months, and 18 months.

The two approaches to pain management that will be evaluated in this study are as follows:

**Group A, Standard Anesthesia Pain Clinic Medical Care:** Participants in this group will be thoroughly evaluated by physicians trained in medical pain management techniques. Appropriate medical recommendations will be made and may include any of the following: pain medications, antidepressant medications, and nerve block and steroid injections. This treatment will include about 6 patient visits over a three-week period.

**Group B, Standard Anesthesia Pain Clinic Medical Care AND Interdisciplinary Chronic Pain Rehabilitation Program:** This group will receive all of the treatment as described in Group A above, as well as an interdisciplinary functional restoration treatment program, which consists of three major components. Each participant will be evaluated and treated by physical therapy, occupational therapy, and clinical health psychology in coordination with a supervising nurse-physician team. This group will include 3 weeks of full-time treatment including supervised physical exercise and learning pain management skills.

**RANDOMIZATION OF STUDY PARTICIPANTS:** As a participant, you will be randomly assigned to one of these two groups. Randomization is a process much like flipping a coin and means you will have the same chance of being assigned to either of

these two groups.

**PROCEDURES:** As a participant, you will undergo the following procedures:

**Meeting One:** The first meeting with Clinical Health Psychology service will involve a full assessment of your pain condition. You will then receive an overview of the study, complete the informed consent document, and be asked to complete several questionnaires about your functioning in many areas (estimated time 1 1/2 hours).

During the first session you will also be randomly assigned to one of the two groups. If you are assigned to Group A or B, you will be treated at the Anesthesia Pain Clinic at Wilford Hall or Brooke Army Medical Center as directed by your physicians. Should it be necessary for you to have a standard anesthesia pain clinic treatment requiring additional informed consent, a separate consent form will be completed at the time of the procedure. If you are selected for Group B, you will also be scheduled for inclusion in the Interdisciplinary Chronic Pain Rehabilitation Program. This three-week program will be offered at Wilford Hall Medical Center once each month.

**Phone Contacts and Mailings:** Participants in both Groups A and B will be contacted for follow-up information 3 weeks after the initiation of treatment and then at the 6 month, 12 month and 18 month point. Each of these follow-up contacts will involve gathering the same information on functioning as previously assessed. I understand that if I am no longer on active duty in the U.S. military at the time of one of my follow-up assessments, I will be contacted at my civilian address to request completion of the outcome questionnaires.

Should it be necessary for you to have a procedure requiring additional informed consent, a separate consent form will be completed at the time of the procedure.

**RISKS OR DISCOMFORTS:**

There is minimal psychological and/or physical risk from the early interventions to be used in this study. In past research, none of the subjects had any problems. You could experience stress from participating in this kind of research. Knowing that researchers have personal information about you may trouble you. There is a possibility that your low back pain may worsen if you are assigned to the early intervention; however, this is not anticipated.

For those in Group A and B, the risks and discomforts of participating are the same as those that would be expected when under the care of the Anesthesia Pain Clinic for any other patient. An additional informed consent for a standard anesthesia pain clinic treatment may be obtained at the time of treatment. These treatments include the use of medications and injections, and the potential adverse effects include infection, bleeding, nerve damage, allergic reactions and either no change or a worsening of your pain.

For those in Group B, there are some risks, which involve engaging in a functional restoration program although these are expected to be minimized since you will be

following the recommendations of an interdisciplinary staff of healthcare providers (e.g., physician, nurse, psychologist, physical therapist, and occupational therapist). It is also possible that your pain could become somewhat worse during the course of treatment. There may also be unforeseen risks associated with this study. A previously unknown problem could result from your participation in this research. It is not possible to estimate the chances of such problems or how serious problems could be. Consequently, we ask that you inform the study doctor or any of the Investigators listed on this form of any problems that arise during this study, and also inform your physician. Finally, if you should ever report current or recent thoughts, plan or intent to harm or kill yourself or evidence of self-harm is ever indicated during the course of your participation in this study, your commander will be notified and appropriate action will be taken to help ensure your safety, including assessment of risk by a credentialed Mental Health Provider and referral to an appropriate level of care (e.g., outpatient follow-up or inpatient hospitalization).

### **BENEFITS:**

While there is no guarantee you will benefit from participating in this study, it is intended to reduce your pain, increase your functioning, and retain your active duty status. The treatments are believed to be beneficial, and how well they work is the focus on this study. The investigators have designed this study to learn if there is a difference and how they can better treat active duty members who often times are concerned about their ability to remain in the military until they decide to retire. There will also be a scientific benefit if this study can tell us which treatment for musculoskeletal pain is better.

### **PAYMENT (COMPENSATION):**

You will not receive any compensation (payment) for participating in this study.

**ALTERNATIVES TO PARTICIPATION:** Alternatives may be available to you, including other pain management programs or individual consultations with Physical Therapy, Occupational Therapy, Mental Health, or Clinical Health Psychology available through your medical treatment facility. Other alternatives would be to seek follow-up care with your primary care manager or to participate in treatment at the Anesthesia Pain Clinic but to decline participation in the data collection or to decline any treatment at all.

### **CONFIDENTIALITY OF RECORDS OF STUDY PARTICIPATION:**

Records of your participation in this study may only be disclosed in accordance with federal law, including the Federal Privacy Act, 5 U.S.C. 552a, and its implementing regulations. DD Form 2005, Privacy Act Statement- Military Health Records, contains the Privacy Act Statement for the records. By signing this consent document, you give your permission for information gained from your participation in this study to be published in medical literature, discussed for educational purposes, and used generally to further medical science. You will not be personally identified; all information will be presented as anonymous data.

Your records may be reviewed by the U.S. Food & Drug Administration (FDA), other government agencies, the BAMC/WHMC Institutional Review Boards, and by research staff. Further, representatives of the U.S. Army Medical Research and Materiel

Command are eligible to review research records as a part of their responsibility to protect human subjects in research. Complete confidentiality cannot be promised, particularly for military personnel, because information regarding your health may be required to be reported to appropriate medical or command authorities.

**ENTITLEMENT TO CARE:**

In the event of injury resulting from this study, the extent of medical care provided is limited and will be within the scope authorized for Department of Defense (DoD) health care beneficiaries.

Your entitlement to medical and dental care and/or compensation in the event of injury is governed by federal laws and regulations, and if you have questions about your rights as a research subject or if you believe you have received a research-related injury, you may contact the Wilford Hall Clinical Research Squadron Commander, (210) 292-7069 or Wilford Hall Medical Center Risk Manager, 210-292-6004. Brooke Army Medical Center Protocol Coordinators, 210-916-2598 or BAMC Judge Advocate, 210-916-2031.

Preparation in this study does not alter your ongoing medical benefits as a military beneficiary, and you will continue to receive any needed medical treatment should you experience illness or injury as a result of this study. In the event of injury resulting from the investigational procedures, the extent of medical care provided is limited and will be within the scope authorized for DoD health care beneficiaries.

**BLOOD & TISSUE SAMPLES:** “No blood or tissue samples will be taken as part of this study.”

**STATEMENT OF GOOD FAITH:** The investigator cannot guarantee or promise that you will receive benefits from this study; however, the investigator will keep you informed of any serious complications, which may result from your participation in this study.

**VOLUNTARY PARTICIPATION:**

The decision to participate in this study is completely voluntary on your part. No one has coerced or intimidated you into participating in this project. You are participating because you want to. Lt Col (Dr) Alan Peterson, (Wilford Hall Medical Center, DSN 554-5968, Commercial (210) 292-5968), Dr. Robert Gatchel, (University of Texas Southwest Medical Center, Dallas and the University of Texas at Arlington, (817) 272-1207), or one of their associates has adequately answered any and all questions you have about this study, your participation, and the procedures involved. Dr. Peterson, Dr. Gatchel, or a member of the Clinical Health Psychology staff at Wilford Hall Medical Center ((210) 292-5968) will be available to answer any questions concerning procedures throughout this study. If significant new findings develop during the course of this study that may relate to your decision to continue participation, you will be informed.

You may withdraw this consent at any time and discontinue further participation in this study without affecting your eligibility for care or any other benefits to which you are

entitled. Should you choose to withdraw, you must inform one of the investigators. Your condition will continue to be treated in accordance with acceptable standards of medical treatment.

The investigator of this study may terminate your participation in this study at any time if he/she feels this to be in your best interest. Your consent to participate in this study is given on a voluntary basis. All oral and written information and discussions about this study have been in English, a language in which you are fluent.

**CONTACT INFORMATION:**

**Principal Investigator (PI)**

The principal investigator or a member of Clinical Health Psychology staff will be available to answer any questions concerning procedures throughout this study.

Principal Investigator: Lt Col Alan L. Peterson

Phone: (210) 292-5968

**Institutional Review Board (IRB)**

The WHMC Institutional Review Board (IRB), the hospital committee responsible for safeguarding your rights as a research subject, has assigned a member of the IRB, who is not part of the study team, to serve as an outside monitor for this study (this person is the Medical Monitor). If you have any questions about your rights as a research subject or any other concerns that cannot be addressed by the PI, you can contact the medical monitor, Joseph Schmelz, PhD, RN at (210) 292-5687. Or mail to: 59th Clinical Research Squadron/MSRP, 1255 Wilford Hall Loop, Lackland Air Force Base, Texas 78236.

In addition, if you have any comments, questions, concerns or complaints, you may also contact the Chairperson of the IRB, at (210) 292-7558. Or mail to: 59th Medical Wing/CM, 2200 Bergquist Drive, Lackland Air Force Base, Texas 78236.

A copy of this form has been given to you.

\_\_\_\_\_  
**VOLUNTEER'S SIGNATURE**      **VOLUNTEER'S SSN**      **DATE**

\_\_\_\_\_  
**VOLUNTEER'S PRINTED NAME**      **FMP**      **SPONSOR'S SSN**      **DOB**

\_\_\_\_\_  
**VOLUNTEER'S ADDRESS (street, city, state, zip)**

\_\_\_\_\_  
**ADVISING INVESTIGATOR'S SIGNATURE  
NUMBER)**

\_\_\_\_\_  
**DATE**

\_\_\_\_-\_\_\_\_-\_\_\_\_\_  
**(PHONE  
NUMBER)**

*(can only be signed by an investigator whose name is listed in the protocol)*

\_\_\_\_\_  
**PRINTED NAME OF ADVISING INVESTIGATOR**

\_\_\_\_\_  
**WITNESS' SIGNATURE**  
(Must witness ALL signatures)

\_\_\_\_\_  
**DATE**

\_\_\_\_\_  
**PRINTED NAME OF WITNESS**

\_\_\_\_\_  
Subject's Stamp Plate  
PRIVACY ACT OF 1974 APPLIES.  
DD FORM 2005 FILED IN MILITARY HEALTH RECORDS



**APPENDIX H:**  
**PERSONNEL SUPPORTED BY GRANT**

SUPPORTED PERSONNEL:

<b>Don McGeary, PhD</b>	<b>Clinical Psychologist</b>	<b>Coordinator</b>
<b>Mysti Moore, PT</b>	<b>Physical Therapist</b>	<b>Physical Therapist</b>
<b>Karen LeRoy, RN</b>	<b>Registered Nurse</b>	<b>Case Manager</b>
<b>Christin Pasker</b>	<b>Counselor</b>	<b>Research Assistant</b>
<b>Carol Gentry</b>	<b>Research Associate</b>	<b>Administrative Coordinator</b>
<b>Robert J. Gatchel, PhD</b>	<b>Principal Investigator</b>	<b>PI</b>