

APPENDICES

APPENDIX I

INSTITUTIONAL ETHICS COMMITTEE APPROVAL



स्वामी विवेकानन्द योग अनुसंधान संस्थान Swami Vivekananda Yoga Anusandhāna Samsthāna

(Declared as Deemed-to-be University under Section 3 of the UGC Act, 1956)

Ekmath Bhavan, # 19, Gavipuram Circle, Kempegowda Nagar, Bangalore - 560 019

Ph: 080 - 2661 2669, Telefax: 080 - 2660 8645

E-mail: svyasa@svyasa.org Website: www.svyasa.org

RES/IEC-SVYASA/93/2016

06 February 2017

To,
Dr. T M Srinivasan,
Professor,
Division of Yoga and Physical Science,
S-VYASA University,
Bengaluru.

Reference:

"Effect of Add-on of Yoga Therapy to Physiotherapy in the management of Spinal Cord Injury Patients". - Committee Approval of the above mentioned study.

Dear Dr. T M Srinivasan,

We have received from you the following study related documents vide your letter dated 06 February 2017

1	Project Proposal
2	Informed consent form

Ethics committee meeting was held on **24 September 2016** between 2:00 PM and 5:00 PM at Ekmath Bhavan, Bengaluru. Above documents were examined and discussed in the meeting. After due consideration, the committee has decided to approve conducting the aforementioned study.





स्वामी विवेकानन्द योग अनुसंधान संस्थान
Swami Vivekananda Yoga Anusandhāna Samsthāna

(Declared as Deemed-to-be University under Section 3 of the UGC Act, 1956)

Ekmath Bhavan, # 19, Gavipuram Circle, Kempegowda Nagar, Bangalore - 560 019

Ph: 080 - 2661 2669, Telefax: 080 - 2660 8645

E-mail: svyasa@svyasa.org Website: www.svyasa.org

This is to confirm that neither Dr. Srinivasan TM nor any staff participating in this study were involved in the voting procedures and decision making.

The Institutional Review Board / Institutional Ethics Committee (IEC) are expected to be informed about the progress of the study / any changes in the protocol and patient information / informed consent. The investigators are also expected to submit a copy of the final report to IEC for records.

This approval is valid up to the completion of the study at the site.

Please submit to the IEC, the status report of the study as per the SOPs.

The IEC is organized & operates according to the requirements of ICH-GCP, Indian Council of Medical Research Guidelines & Schedule Y.

Best Wishes,

Subramanya P

Dr. Subramanya P,
Member Secretary,
Institutional Ethics Committee,
S-VYASA, Bengaluru.

APPENDIX II

INFORMED CONSENT FORM

TO BE FILLED BY THE PARTICIPANTS PARTICIPATING IN THE STUDY

Title: *Effect of Add-on Yoga Therapy to Physiotherapy in the Management of Spinal Cord Injury Patients.*

Information to the participants:

I understand that you, Mr./Ms. _____, is a candidate with paraplegia, sustained from spinal cord injury. We invite you to take part in our study titled, “Effect of add-on of Yoga Therapy to Physiotherapy in the management of spinal cord injury patients”. Yoga therapy has been found to be useful in patients with Paraplegia to improve their sensory function, motor function, functional independence and quality of life. If you consent, you will have an equal chance of being allotted randomly to either into one of the following groups.

- 1. Group ONE: Intervention (Yoga + Physiotherapy) group**
- 2. Group TWO: Wait-list Control group**

If you are allotted to the experimental group, you will be required to attend the daily (except holidays) Yoga Therapy classes conducted at SVNIRTAR for one month along with the routine Rehabilitation program. After the Yoga Therapy training, you will be required to continue the practice regularly at home for three months. Yoga is not expected to have any serious adverse effect on your physical or mental health.

By participating in this research, it is possible that you will be at greater risk than you would otherwise be. There is, for example, a risk of fall or you may feel dizzy or light-headed and maybe even faint (orthostatic hypotension), or you may have risen in blood pressure, pounding headache, flushed face, sweating above the level of injury, goose flesh below the level of injury, nasal stuffiness, nausea and a slower pulse (autonomic dysreflexia), occurrence during the Yoga Therapy session. If, however, such incidences occur we will manage the emergency with our team of medical doctors and rehabilitation experts who are available in service at the Rehabilitation Centre. While the possibility of this happening is very low, you should still be aware of the possibility. We will try to decrease the chances of these events occurring, but if something unexpected happens, we will provide you with immediate first-aid and trauma care.

You will undergo some physical tests and laboratory tests and we will collect a blood sample for studying certain changes. We will take blood from your arm using a syringe and needle, twice, at the beginning of the study and the end of 30 days. Each time we will take about 10 ml blood. Your symptoms will be measured by questionnaires. You will have an opportunity to see these instruments and procedures before undergoing the process. In case, if you develop any discomfort during any of these procedures, you always have the freedom to inform us at the earliest. If you participate in this research, you will not have to pay for any of the assessments you undergo. We will provide you the facility to continue your Yoga therapy practice at the end of the study by appointing a qualified Yoga instructor for the purpose.

We will keep the information that you provide us with the utmost confidentiality. The results of these examinations may not be of any benefit to you but may help advance our understanding of the nature of the disease and the potential benefits of Yoga therapy in spinal cord injury. During the period of study, you will be advised to continue the treatment as per your treating doctor. Please be informed that you have every right to refuse to take part in this study at any point in time. Your refusal to take part in the study will not adversely affect your treatment in any way.

All subjects will have to be available for the assessments and test procedures at the beginning of the study, at one month, and at the end of four months.

You will undergo some physical tests and laboratory tests, and we will collect a blood sample for studying certain changes. Your symptoms will be measured by questionnaires. You will have an opportunity to see these instruments and procedures before undergoing the procedures. In case, if you develop any discomfort during any of these procedures, you always have the freedom to inform us at the earliest.

We will keep the information that you provide us with the utmost confidentiality. The results of these examinations may not be of any benefit to you but may help advance our understanding of the nature of the disease and potential benefits of yoga in spinal cord injury therapy. Taking part in this study does not involve any risks to your health. During the period of study, you will be advised to continue the treatment as per your treating doctor. Please be informed that you have every right to refuse to take part in this study at any point in time. Your refusal to take part in the study will not adversely affect your treatment in any way.

Undertaking by the Principal Investigator:

Your consent in the above study is sought. You have a right to refuse consent without giving any reason. Without any prejudice, I undertake to maintain complete confidentiality regarding the information obtained from your ward during the course of the study. If you have any doubts about the study, please feel free to clarify the same. Even during the study you are free to contact the investigator for clarifications if you so desire. The phone number of the investigator is given below:

Investigator Name	Phone Number
Dr. John Ebnezer	9986015128
Dr. T M Srinivasan	9445810676
Dr.Patitapabana Mohanty	9437487139
Dr. Deepeswar Singh	9036367402

Signature of the Principal Investigator

Prof. T M SRINIVASAN

Dean of Yoga and Life Sciences,

SVYASA.

CONSENT

I have been informed about the procedures of the study conducted on me. The possible risks, too have been explained to me as stated in the information. I have understood that I have the right to refuse my consent or withdraw it any time during the study without adversely affecting my health. I am aware that by subjecting to this investigation, I will have to give time to assessments by the investigating team and that these assessments do not interfere with the benefits.

I, _____, the undersigned, give my consent to allow the wards in my home care center to be participants of this investigation/study program.

Date:

Signature of the Participant

Place:

(Name and Address)



APPENDIX III

CLINICAL TRIAL REGISTRY OF INDIA- REGISTRATION FORM

Clinical Trial Details (PDF Generation Date :- Mon, 24 Dec 2018 08:24:03 GMT)

CTRI Number	CTRI/2018/07/014779 [Registered on: 09/07/2018] - Trial Registered Prospectively		
Last Modified On	06/07/2018		
Post Graduate Thesis	No		
Type of Trial	Interventional		
Type of Study	Yoga & Naturopathy Physiotherapy (Not Including YOGA)		
Study Design	Randomized, Parallel Group Trial		
Public Title of Study	Yoga and Physiotherapy for Spinal Cord Injury		
Scientific Title of Study	Effect of Add-on of Yoga Therapy to Physiotherapy in the management of Spinal Cord Injury Patients		
Secondary IDs if Any	Secondary ID	Identifier	
	NIL	NIL	
Details of Principal Investigator or overall Trial Coordinator (multi-center study)	Details of Principal Investigator		
	Name	Deepeshwar Singh	
	Designation	Assistant Professor	
	Affiliation	Swami Vivekananda Yoga Anusandhana Samsthana (S-VYASA)	
	Address	Department of Yoga and Life Science, S-VYASA Yoga University, 19 Eknath Bhavan, Gavipuram Circle, K.G. Nagar, Bangalore Bangalore KARNATAKA 560019 India	
	Phone	9036367402	
	Fax		
	Email	deepeshwar.singh@gmail.com	
	Details Contact Person (Scientific Query)	Details Contact Person (Scientific Query)	
		Name	Deepeshwar Singh
Designation		Assistant Professor	
Affiliation		Swami Vivekananda Yoga Anusandhana Samsthana (S-VYASA)	
Address		Yoga and Life Sciences, S-VYASA Yoga University, 19 Eknath Bhavan, Gavipuram Circle, K.G. Nagar, Bangalore Bangalore KARNATAKA 560019 India	
Phone		9036367402	
Fax			
Email		deepeshwar.singh@gmail.com	
Details Contact Person (Public Query)		Details Contact Person (Public Query)	
	Name	Monali Madhusmita	
	Designation	PhD Scholar	
	Affiliation	Swami Vivekananda Yoga Anusandhana Samsthana (S-VYASA)	
	Address	Yoga and Life Sciences, S-VYASA Yoga University, 19 Eknath Bhavan, Gavipuram Circle, K.G. Nagar, Bangalore Bangalore KARNATAKA 560019 India	



	Phone	9078924100		
	Fax			
	Email	monaliyoga@gmail.com		
Source of Monetary or Material Support	Source of Monetary or Material Support			
	> Swami Vivekananda Yoga University (S-VYASA), ANVESANA Research Laboratory, 19 Eknath Bhavan, Gavipuram Circle, K.G. Nagar, Bangalore			
Primary Sponsor	Primary Sponsor Details			
	Name	Swami Vivekananda Yoga University SVYASA		
	Address	19 Eknath Bhavan, Gavipuram Circle, K.G. Nagar, Bangalore		
	Type of Sponsor	Research institution		
Details of Secondary Sponsor	Name	Address		
	NIL	NIL		
Countries of Recruitment	List of Countries			
	India			
Sites of Study	Name of Principal Investigator	Name of Site	Site Address	Phone/Fax/Email
	Monali Madhusmita	Swami Vivekananda National Institute of Rehabilitation, Training & Research (SVNIRTAR)	Department of Rehabilitation, Olatpur, Bairoi, Cuttack Cuttack ORISSA	9078924100 monaliyoga@gmail.com
Details of Ethics Committee	Name of Committee	Approval Status	Date of Approval	Is Independent Ethics Committee?
	Institutional Ethics Committee, S-VYASA University	Approved	26/06/2018	No
Regulatory Clearance Status from DCGI	Status		Date	
	Not Applicable		No Date Specified	
Health Condition / Problems Studied	Health Type		Condition	
	Patients		Spinal Cord Injury Patients (Paraplegics)	
Intervention / Comparator Agent	Type	Name	Details	
	Intervention	Add on Yoga with Physiotherapy	The specific module of 'Integrated approach of Yoga therapy (IAYT)' for Spinal Cord injury management was developed by using the concepts from traditional yoga scriptures (Patanjali Yoga Sutras, Upanishads and Yoga Vasishtha) that highlights a holistic approach to health management at physical, mental, emotional and intellectual levels. The practices consisted of asanas chosen specifically for Spinal Cord Injury (yoga postures), pranayama, kriyas, relaxation techniques, meditation and yogic counseling for stress management. The physical practices (spinal cord injury	



		special techniques) progressed from safe yogic movements to yoga postures to provide traction like effect and channelize the vital energy flow all through the spine.
	Comparator Agent	Physiotherapy
		Pro-prioceptive Neuromuscular Facilitation, sustained and slow stretching, prolong icing, strengthening of anti-spastic muscles, functional electrical stimulation and gait training.
Inclusion Criteria	Inclusion Criteria	
	Age From	25.00 Year(s)
	Age To	60.00 Year(s)
	Gender	Both
	Details	(i) Incomplete SCI patient (American spinal injury Association impairment scale (AIS)C and (AIS)D with injury to the spinal cord from level anywhere between T1 to L5. (ii) Patients admitted to Swami Vivekananda National Institute Rehabilitation, Training and Research (SVNIRTAR), Odisha. (iii) Patients of both genders and with the age range of 18-60 years. (iv) Patients who are willing to participate in the study and who are English literate. (v) Have sustained a traumatic spinal cord injury for a minimum of 6 months prior to consent and have completed their primary rehabilitation.
Exclusion Criteria	Exclusion Criteria	
	Details	(i) Have any contraindications to FES such as a cardiac pacemaker, epilepsy, lower limb fracture or pregnancy. (ii) Are likely to experience clinically significant autonomic dysreflexia and/or orthostatic hypotension in response to electrical stimulation or prolonged upright postures. (iii) Have chronic systemic diseases, e.g., hepatitis C or HIV-AIDS. (iv) Have an existing stage 3 or 4 pressure ulcer according to the National Pressure Ulcer Advisory Panel classification. (v) Have had recent major trauma or surgery within the last 6 months. (vi) Have degenerative myelopathy, neoplasm, or congenital spinal cord anomalies. (vii) Have concomitant medical problems that might have influenced everyday function, such as malignancy, brain injury or mental diseases were excluded.
Method of Generating Random Sequence	Other	
Method of Concealment	Sequentially numbered, sealed, opaque envelopes	
Blinding/Masking	Outcome Assessor Blinded	
Primary Outcome	Outcome	Timepoints
	(i) Walking index for SCI II (WISCI II) (ii) American Spinal Injury Assessment (ASIA) motor and sensory scores (iii) Modified Modified Ashworth Scale to measure spasticity (iv) Anthropometry : Body Mass Index (BMI) (v) Bio-markers: C-reactive protein (CRP), Erythrocyte sedimentation rate (ESR)	Day 1 Day 30
Secondary Outcome	Outcome	Timepoints
	(i) Spinal Cord Injury Quality of Life -23 (SCI	Day 1



	QL-23) Questionnaire (ii) Spinal cord Injury Measure (SCIM) (iii) Multidimensional Pain Inventory (Spinal Cord Injury Version) – MPI-SCI (iv) Medical-Based Emotional Distress Scale (MEDS) (v) In depth interview method for qualitative analysis	Day 30
Target Sample Size	Total Sample Size=124 Sample Size from India=124	
Phase of Trial	N/A	
Date of First Enrollment (India)	16/07/2018	
Date of First Enrollment (Global)	No Date Specified	
Estimated Duration of Trial	Years=0 Months=3 Days=0	
Recruitment Status of Trial (Global)	Not Applicable	
Recruitment Status of Trial (India)	Not Yet Recruiting	
Publication Details	Not yet	
Brief Summary	<p>The global incidence of spinal cord injury (SCI) varied from 8.0 to 246.0 cases per million inhabitants per year. The global prevalence varied from 236.0 to 1,298.0 per million inhabitants (Furlan et al., 2013). In India, as in most developing countries, very little is known about the exact incidence of spinal cord injuries (SCI). Approximate 20,000 new cases of SCI are added every year. 60-70% of them are illiterate, poor villagers (Sinha DK, 2000). Mortality risk is highest in the first year after injury and remains high compared to the general population. People with spinal cord injury are 2 to 5 times more likely to die prematurely than people without SCI (WHO, 2013).</p> <p>Therefore, strategies that seek out the complementary effects of combination treatments and that efficiently integrate relevant technical advances in biomechanics represent an untapped potential and are likely to have an immediate impact. There are no published randomized control trials till date available to explore the efficacy of the combination of complementary alternative therapies with conventional mainstream rehabilitation treatments, in the management of SCI. Herein, we want to compare the effect of add-on of Yoga to Physiotherapy in the management of spinal cord injury patients.</p>	

APPENDIX IV

SOCIO-DEMOGRAPHIC DATA SHEET

Participant No.	
Date of Birth	
Gender	
Educational Status:	
Languages known. Tick the appropriate one (s)	<ul style="list-style-type: none"> • Odiya • English • Others
Postal address	
Phone no:	
General Physical parameters	<ul style="list-style-type: none"> • Height • Weight
MOI	<ul style="list-style-type: none"> • Fall from height • Fall of Weight • MVA • Miscellaneous
Level of Injury	<ul style="list-style-type: none"> • Cervical • Thoracic • Lumbar
Neurological Deficit	<ul style="list-style-type: none"> • No • Yes
Co-morbid psychiatric/medical illness?	
Are you indulging in any other activities to take care of your health?	
Any habits	Specify

APPENDIX V

APPENDIX = MEDICALLY BASED EMOTIONAL DISTRESS SCALE

NOTE: Each interview section begins with a "Skip" question. If the individual reports no problem in that area, the interviewer may skip the rest of the items in that section. However, if the individual reports a problem, or the "equal amounts of both" response, then all questions in that section must be answered.

TIME FRAME: All questions refer to your feelings during the past week.

SCORING: As you proceed through this interview, two types of questions are used: **FREQUENCY** (How Often?) and **INTENSITY** (How Much?). Use the following rating scales for the different questions.

HOW OFTEN?	0 = Never	HOW MUCH?	0 = Not at all
	1 = Rarely		1 = A little bit
	2 = Sometimes		2 = Somewhat
	3 = Frequently		3 = A fair amount
	4 = Always		4 = Very much

DEPRESSED How has your mood been this past week; have you been feeling
CHEERFUL fairly depressed or fairly cheerful or equal amounts of both?
EQUAL

- | | | | | | |
|---|---|---|---|---|--|
| 0 | 1 | 2 | 3 | 4 | In the last week, how often have you felt depressed? |
| 0 | 1 | 2 | 3 | 4 | How often have you felt like crying? |
| 0 | 1 | 2 | 3 | 4 | How often have you actually cried? |
| 0 | 1 | 2 | 3 | 4 | How often have you felt sorry for yourself? |
| 0 | 1 | 2 | 3 | 4 | How often have you felt that nothing matters anymore? |
| 0 | 1 | 2 | 3 | 4 | When you have felt very sad, how often did you
hold it in and keep your feelings to yourself? |

- BOTH** or equal amounts of both?
- | | | | | | |
|---|---|---|---|---|---|
| 0 | 1 | 2 | 3 | 4 | How often do you feel better if your are with other people? |
| 0 | 1 | 2 | 3 | 4 | How often do you discuss your feelings with your friends? |
| 0 | 1 | 2 | 3 | 4 | How much does your mood improve when you're with friends? |
| 0 | 1 | 2 | 3 | 4 | How often do you feel lonely even when you're with others? |

0 1 2 3 4	How often do you wish you could avoid other people?
0 1 2 3 4	How often do you feel close to other people?
0 1 2 3 4	How much do you feel isolated from others?
0 1 2 3 4	How often can you find companionship when you want it?
BETTER	When you think about your past, does it make you feel better or worse..... or doesn't it make any difference?
WORSE	
NO DIFFERENCE	
0 1 2 3 4	How often do you think about the way things were before your injury?
0 1 2 3 4	How often do you become depressed when you think about your injury?
0 1 2 3 4	How much do you blame yourself for your injury?
0 1 2 3 4	How much do you think you could have avoided what happened?
0 1 2 3 4	How often do you ask yourself "Why did this happen to me?"
PLEASANT	Do you tend to think more about pleasant things or upsetting things or equal amounts of both?
UPSETTING	
BOTH	
0 1 2 3 4	How often can you find something to do to take your mind off your problems?
0 1 2 3 4	How often are you able to just ignore your problems?
0 1 2 3 4	How often do you feel your life has been destroyed?
0 1 2 3 4	How often can you find something to do to take your mind off your problems?
0 1 2 3 4	How often are you able to just ignore your problems?
0 1 2 3 4	How often do you feel your life has been destroyed?
0 1 2 3 4	How often do you tend to think about your problems over and over again?
0 1 2 3 4	When you feel very sad, how often do you try to focus on the good things you still have in your life?
0 1 2 3 4	How often do you tell yourself you can handle any problems that happen to you?
0 1 2 3 4	How often do you tell yourself you can make the best of your situation?
WORRY	When you think about your future, do you worry about how things will be or do you plan what you'd like to do..... or equal amounts of planning and worrying?
PLAN	
BOTH	
0 1 2 3 4	How often do you tell yourself things will be better in the future?
0 1 2 3 4	How much pleasantness can you see ahead of you?
0 1 2 3 4	How happy do you think you will be in the future?
0 1 2 3 4	How much do you feel life is still worth living?
0 1 2 3 4	How often do you tell yourself life will never be the same again?
0 1 2 3 4	How often do you live one day at a time and try to not think about the future?
0 1 2 3 4	How often do you tell yourself you will still be able to do things you enjoy?
0 1 2 3 4	How much hope do you have for the future?

- 0 1 2 3 4 How often have you felt sad because of your injury?
- IRRITABLE** Lately, would you say you've been feeling irritable
EASY-GOING or easy-going or equal amounts of both?
BOTH
- 0 1 2 3 4 In the past week how often have you felt angry / irritable?
0 1 2 3 4 How often have people bothered you just by being around you?
0 1 2 3 4 How often have you felt like a powder keg ready to explode?
0 1 2 3 4 How often do you feel others have better luck than you?
0 1 2 3 4 When you are feeling low, how often do you
take it out on other people?
0 1 2 3 4 How often have you felt like yelling or screaming at people?
0 1 2 3 4 How often have you really lost your temper and shouted or
snapped at others?
0 1 2 3 4 How often do you get angry with yourself or call yourself names?
- ENJOY** Are there still some things in your life you really enjoy or has
EMPTY everything seemed empty lately..... or does everything just seem
DIFFERENT different?
- 0 1 2 3 4 How often do you feel nothing matters to you anymore?
0 1 2 3 4 When you feel very sad, how often do you try to do some things
that you enjoy doing?
Please list one activity you really enjoyed doing before your injury,
and that you can still do?
-
- 0 1 2 3 4 How often have you done this activity during the last week?
0 1 2 3 4 If you did it now, how much would you enjoy it?
0 1 2 3 4 How much do you enjoy: Having a pleasant chat w/ a friend
0 1 2 3 4 Watching a good movie on TV
0 1 2 3 4 Getting a compliment from someone
0 1 2 3 4 Giving someone else a compliment
0 1 2 3 4 Winning a small amount in a lottery.
- OTHERS** During this past week, have you enjoyed spending time with other
ALONE people or did you just want everyone to leave you alone...
BOTH or equal amounts of both?
- 0 1 2 3 4 How often do you feel better if your are with other people?
0 1 2 3 4 How often do you discuss your feelings with your friends?
0 1 2 3 4 How much does your mood improve when you're with friends?
0 1 2 3 4 How often do you feel lonely even when you're with others?

- 0 1 2 3 4 How often do you wish you could avoid other people?
- 0 1 2 3 4 How often do you feel close to other people?
- 0 1 2 3 4 How much do you feel isolated from others?
- 0 1 2 3 4 How often can you find companionship when you want it?
- BETTER** When you think about your past, does it make you feel better or
WORSE worse..... or doesn't it make any difference?
NO DIFFERENCE
- 0 1 2 3 4 How often do you think about the way things were before your injury?
- 0 1 2 3 4 How often do you become depressed when you think about your injury?
- 0 1 2 3 4 How much do you blame yourself for your injury?
- 0 1 2 3 4 How much do you think you could have avoided what happened?
- 0 1 2 3 4 How often do you ask yourself "Why did this happen to me?"
- PLEASANT** Do you tend to think more about pleasant things or upsetting things
UPSETTING or equal amounts of both?
BOTH
- 0 1 2 3 4 How often can you find something to do to take your mind off your
 problems?
- 0 1 2 3 4 How often are you able to just ignore your problems?
- 0 1 2 3 4 How often do you feel your life has been destroyed?
- 0 1 2 3 4 How often do you tend to think about your problems over and over
 again?
- 0 1 2 3 4 When you feel very sad, how often do you try to focus on the good
 things you still have in your life?
- 0 1 2 3 4 How often do you tell yourself you can handle any problems that
 happen to you?
- 0 1 2 3 4 How often do you tell yourself you can make the best of your situation?

APPENDIX VI



LOEWENSTEIN HOSPITAL REHABILITATION CENTER

Affiliated with the Sackler Faculty of Medicine, Tel-Aviv University

Department IV, Medical Director: Dr. Amiram Catz Tel: 972-9-7709090 Fax: 972-9-7709986 e-mail: amiram@clalit.org.il

Patient Name: _____ ID: _____ Examiner Name: _____

(Enter the score for each function in the adjacent square, below the date. The form may be used for up to 6 examinations.)

SCIM-SPINAL CORD INDEPENDENCE MEASURE

Version III, Sept 14, 2002

Self-Care

DATE

Exam 1 2 3 4 5 6

1. **Feeding** (cutting, opening containers, pouring, bringing food to mouth, holding cup with fluid)
 0. Needs parenteral, gastrostomy, or fully assisted oral feeding
 1. Needs partial assistance for eating and/or drinking, or for wearing adaptive devices
 2. Eats independently; needs adaptive devices or assistance only for cutting food and/or pouring and/or opening containers
 3. Eats and drinks independently; does not require assistance or adaptive devices
2. **Bathing** (soaping, washing, drying body and head, manipulating water tap). **A-upper body; B-lower body**
 - A. 0. Requires total assistance
 1. Requires partial assistance
 2. Washes independently with adaptive devices or in a specific setting (e.g., bars, chair)
 3. Washes independently; does not require adaptive devices or specific setting (not customary for healthy people) (adss)
 - B. 0. Requires total assistance
 1. Requires partial assistance
 2. Washes independently with adaptive devices or in a specific setting (adss)
 3. Washes independently; does not require adaptive devices (adss) or specific setting
3. **Dressing** (clothes, shoes, permanent orthoses: dressing, wearing, undressing). **A-upper body; B-lower body**
 - A. 0. Requires total assistance
 1. Requires partial assistance with clothes without buttons, zippers or laces (cwobzl)
 2. Independent with cwobzl; requires adaptive devices and/or specific settings (adss)
 3. Independent with cwobzl; does not require adss; needs assistance or adss only for bzl
 4. Dresses (any cloth) independently; does not require adaptive devices or specific setting
 - B. 0. Requires total assistance
 1. Requires partial assistance with clothes without buttons, zips or laces (cwobzl)
 2. Independent with cwobzl; requires adaptive devices and/or specific settings (adss)
 3. Independent with cwobzl without adss; needs assistance or adss only for bzl
 4. Dresses (any cloth) independently; does not require adaptive devices or specific setting
4. **Grooming** (washing hands and face, brushing teeth, combing hair, shaving, applying makeup)
 0. Requires total assistance
 1. Requires partial assistance
 2. Grooms independently with adaptive devices
 3. Grooms independently without adaptive devices

SUBTOTAL (0-20)

Respiration and Sphincter Management

5. Respiration

0. Requires tracheal tube (TT) and permanent or intermittent assisted ventilation (IAV)
2. Breathes independently with TT; requires oxygen, much assistance in coughing or TT management
4. Breathes independently with TT; requires little assistance in coughing or TT management
6. Breathes independently without TT; requires oxygen, much assistance in coughing, a mask (e.g., peep) or IAV (bipap)
8. Breathes independently without TT; requires little assistance or stimulation for coughing
10. Breathes independently without assistance or device

6. Sphincter Management - Bladder

0. Indwelling catheter
3. Residual urine volume (RUV) > 100cc; no regular catheterization or assisted intermittent catheterization
6. RUV < 100cc or intermittent self-catheterization; needs assistance for applying drainage instrument
9. Intermittent self-catheterization; uses external drainage instrument; does not need assistance for applying
11. Intermittent self-catheterization; continent between catheterizations; does not use external drainage instrument
13. RUV < 100cc; needs only external urine drainage; no assistance is required for drainage
15. RUV < 100cc; continent; does not use external drainage instrument

7. Sphincter Management - Bowel

0. Irregular timing or very low frequency (less than once in 3 days) of bowel movements
5. Regular timing, but requires assistance (e.g., for applying suppository); rare accidents (less than twice a month)
8. Regular bowel movements, without assistance; rare accidents (less than twice a month)
10. Regular bowel movements, without assistance; no accidents

8. Use of Toilet (perineal hygiene, adjustment of clothes before/after, use of napkins or diapers).

0. Requires total assistance
1. Requires partial assistance; does not clean self
2. Requires partial assistance; cleans self independently
4. Uses toilet independently in all tasks but needs adaptive devices or special setting (e.g., bars)
5. Uses toilet independently; does not require adaptive devices or special setting

SUBTOTAL (0-40)

Mobility (room and toilet)

DATE

--	--	--	--	--	--	--	--

9. Mobility in Bed and Action to Prevent Pressure Sores

- 0. Needs assistance in all activities: turning upper body in bed, turning lower body in bed, sitting up in bed, doing push-ups in wheelchair, with or without adaptive devices, but not with electric aids
- 2. Performs one of the activities without assistance
- 4. Performs two or three of the activities without assistance
- 6. Performs all the bed mobility and pressure release activities independently

--	--	--	--	--	--	--	--

10. Transfers: bed-wheelchair (locking wheelchair, lifting footrests, removing and adjusting arm rests, transferring, lifting feet).

- 0. Requires total assistance
- 1. Needs partial assistance and/or supervision, and/or adaptive devices (e.g., sliding board)
- 2. Independent (or does not require wheelchair)

--	--	--	--	--	--	--	--

11. Transfers: wheelchair-toilet-tub (if uses toilet wheelchair: transfers to and from; if uses regular wheelchair: locking wheelchair, lifting footrests, removing and adjusting armrests, transferring, lifting feet)

- 0. Requires total assistance
- 1. Needs partial assistance and/or supervision, and/or adaptive devices (e.g., grab-bars)
- 2. Independent (or does not require wheelchair)

--	--	--	--	--	--	--	--

Mobility (indoors and outdoors, on even surface)

12. Mobility Indoors

- 0. Requires total assistance
- 1. Needs electric wheelchair or partial assistance to operate manual wheelchair
- 2. Moves independently in manual wheelchair
- 3. Requires supervision while walking (with or without devices)
- 4. Walks with a walking frame or crutches (swing)
- 5. Walks with crutches or two canes (reciprocal walking)
- 6. Walks with one cane
- 7. Needs leg orthosis only
- 8. Walks without walking aids

--	--	--	--	--	--	--	--

13. Mobility for Moderate Distances (10-100 meters)

- 0. Requires total assistance
- 1. Needs electric wheelchair or partial assistance to operate manual wheelchair
- 2. Moves independently in manual wheelchair
- 3. Requires supervision while walking (with or without devices)
- 4. Walks with a walking frame or crutches (swing)
- 5. Walks with crutches or two canes (reciprocal walking)
- 6. Walks with one cane
- 7. Needs leg orthosis only
- 8. Walks without walking aids

--	--	--	--	--	--	--	--

14. Mobility Outdoors: (more than 100 meters)

- 0. Requires total assistance
- 1. Needs electric wheelchair or partial assistance to operate manual wheelchair
- 2. Moves independently in manual wheelchair
- 3. Requires supervision while walking (with or without devices)
- 4. Walks with a walking frame or crutches (swing)
- 5. Walks with crutches or two canes (reciprocal walking)
- 6. Walks with one cane
- 7. Needs leg orthosis only
- 8. Walks without walking aids

--	--	--	--	--	--	--	--

15. Stair Management

- 0. Unable to ascend or descend stairs
- 1. Ascends and descends at least 3 steps with support or supervision of another person
- 2. Ascends and descends at least 3 steps with support of handrail and/or crutch or cane
- 3. Ascends and descends at least 3 steps without any support or supervision

--	--	--	--	--	--	--	--

16. Transfers: wheelchair-car (approaching car, locking wheelchair, removing arm- and footrests, transferring to and from car, bringing wheelchair into and out of car)

- 0. Requires total assistance
- 1. Needs partial assistance and/or supervision and/or adaptive devices
- 2. Transfers independent; does not require adaptive devices (or does not require wheelchair)

--	--	--	--	--	--	--	--

17. Transfers: ground-wheelchair

- 0. Requires assistance
- 1. Transfers independent with or without adaptive devices (or does not require wheelchair)

--	--	--	--	--	--	--	--

SUBTOTAL (0-40)

--	--	--	--	--	--	--	--

TOTAL SCIM SCORE (0-100)

--	--	--	--	--	--	--	--

APPENDIX VII
Ferrans and Powers
QUALITY OF LIFE INDEX®
SPINAL CORD INJURY VERSION - III

PART 1. For each of the following, please choose the answer that best describes how *satisfied* you are with that area of your life. Please mark your answer by circling the number. There are no right or wrong answers.

HOW SATISFIED ARE YOU WITH:	Very Dissatisfied	Moderately Dissatisfied	Slightly Dissatisfied	Slightly Satisfied	Moderately Satisfied	Very Satisfied
1. Your health?	1	2	3	4	5	6
2. Your health care?	1	2	3	4	5	6
3. The amount of pain that you have?	1	2	3	4	5	6
4. The amount of energy you have for everyday activities?	1	2	3	4	5	6
5. Your ability to take care of yourself without help?	1	2	3	4	5	6
6. Your ability to go places outside your home?	1	2	3	4	5	6
7. Your ability to clear your lungs?	1	2	3	4	5	6
8. The amount of control you have over your life?	1	2	3	4	5	6
9. Your chances of living as long as you would like?	1	2	3	4	5	6
10. Your family's health?	1	2	3	4	5	6
11. Your children?	1	2	3	4	5	6
12. Your ability to have children?	1	2	3	4	5	6
13. Your family's happiness?	1	2	3	4	5	6
14. Your sex life?	1	2	3	4	5	6
15. Your spouse, lover, or partner (if you have one)?	1	2	3	4	5	6
16. Not having a spouse, lover or partner (if you do not have one)?	1	2	3	4	5	6
17. Your friends?	1	2	3	4	5	6

(Please Go To Next Page)

© Copyright 1984 & 1998 Carol Estwing Ferrans and Marjorie J. Powers

HOW SATISFIED ARE YOU WITH:

	Very Dissatisfied	Moderately Dissatisfied	Slightly Dissatisfied	Slightly Satisfied	Moderately Satisfied	Very Satisfied
18. The emotional support you get from your family?	1	2	3	4	5	6
19. The emotional support you get from people other than your family?	1	2	3	4	5	6
20. Your ability to take care of family responsibilities?	1	2	3	4	5	6
21. How useful you are to others?	1	2	3	4	5	6
22. The amount of worries in your life?	1	2	3	4	5	6
23. Your neighborhood?	1	2	3	4	5	6
24. Your home, apartment, or place where you live?	1	2	3	4	5	6
25. Your job (if employed)?	1	2	3	4	5	6
26. Not having a job (if unemployed, retired, or disabled)?	1	2	3	4	5	6
27. Your education?	1	2	3	4	5	6
28. How well you can take care of your financial needs?	1	2	3	4	5	6
29. The things you do for fun?	1	2	3	4	5	6
30. Your chances for a happy future?	1	2	3	4	5	6
31. Your peace of mind?	1	2	3	4	5	6
32. Your faith in God?	1	2	3	4	5	6
33. Your achievement of personal goals?	1	2	3	4	5	6
34. Your happiness in general?	1	2	3	4	5	6
35. Your life in general?	1	2	3	4	5	6
36. Your personal appearance?	1	2	3	4	5	6
37. Yourself in general?	1	2	3	4	5	6

(Please Go To Next Page)

© Copyright 1984 & 1998 Carol Estwing Ferrans and Marjorie J. Powers

PART 2. For each of the following, please choose the answer that best describes how *important* that area of your life is to you. Please mark your answer by circling the number. There are no right or wrong answers.

HOW IMPORTANT TO YOU IS:	Very Unimportant	Moderately Unimportant	Slightly Unimportant	Slightly Important	Moderately Important	Very Important
1. Your health?	1	2	3	4	5	6
2. Your health care?	1	2	3	4	5	6
3. Having no pain?	1	2	3	4	5	6
4. Having enough energy for everyday activities?	1	2	3	4	5	6
5. Taking care of yourself without help?	1	2	3	4	5	6
6. Being able to go places outside your home?	1	2	3	4	5	6
7. Your ability to clear your lungs?	1	2	3	4	5	6
8. Having control over your life?	1	2	3	4	5	6
9. Living as long as you would like?	1	2	3	4	5	6
10. Your family's health?	1	2	3	4	5	6
11. Your children?	1	2	3	4	5	6
12. Being able to have children?	1	2	3	4	5	6
13. Your family's happiness?	1	2	3	4	5	6
14. Your sex life?	1	2	3	4	5	6
15. Your spouse, lover, or partner (if you have one)?	1	2	3	4	5	6
16. Having a spouse, lover or partner (if you do not have one)?	1	2	3	4	5	6
17. Your friends?	1	2	3	4	5	6

(Please Go To Next Page)

© Copyright 1984 & 1998 Carol Estwing Ferrans and Marjorie J. Powers

HOW IMPORTANT TO YOU IS:

	Very Unimportant	Moderately Unimportant	Slightly Unimportant	Slightly Important	Moderately Important	Very Important
18. The emotional support you get from your family?	1	2	3	4	5	6
19. The emotional support you get from people other than your family?	1	2	3	4	5	6
20. Taking care of family responsibilities?	1	2	3	4	5	6
21. Being useful to others?	1	2	3	4	5	6
22. Having no worries?	1	2	3	4	5	6
23. Your neighborhood?	1	2	3	4	5	6
24. Your home, apartment, or place where you live?	1	2	3	4	5	6
25. Your job (if employed)?	1	2	3	4	5	6
26. Having a job (if unemployed, retired, or disabled)?	1	2	3	4	5	6
27. Your education?	1	2	3	4	5	6
28. Being able to take care of your financial needs?	1	2	3	4	5	6
29. Doing things for fun?	1	2	3	4	5	6
30. Having a happy future?	1	2	3	4	5	6
31. Peace of mind?	1	2	3	4	5	6
32. Your faith in God?	1	2	3	4	5	6
33. Achieving your personal goals?	1	2	3	4	5	6
34. Your happiness in general?	1	2	3	4	5	6
35. Being satisfied with life?	1	2	3	4	5	6
36. Your personal appearance?	1	2	3	4	5	6
37. Are you to yourself?	1	2	3	4	5	6

© Copyright 1984 & 1998 Carol Estwing Ferrans and Marjorie J. Powers

APPENDIX VIII

Walking Index for Spinal Cord Injury (WISCI II) Descriptors

Physical limitation for walking secondary to impairment is defined at the person level and indicates the ability of a person to walk after spinal cord injury. The development of this assessment index required a rank ordering along a dimension of impairment, from the level of most severe impairment (0) to least severe impairment (20) based on the use of devices, braces and physical assistance of one or more persons. The order of the levels suggests each successive level is a less impaired level than the former. The ranking of severity is based on the severity of the impairment and not on functional independence in the environment. The following definitions standardize the terms used in each item:

- Physical assistance:** ‘Physical assistance of two persons’ is moderate to maximum assistance.
‘Physical assistance of one person’ is minimal to moderate assistance.
‘Contact guarding’ is minimal assistance
- Braces:** ‘Braces’ means one or two braces, either short or long leg.
(Splinting of lower extremities for standing is considered long leg bracing).
‘No braces’ means no braces on either leg.
- Walker:** ‘Walker’ is a conventional rigid walker without wheels.
- Crutches:** ‘Crutches’ can be Lofstrand (Canadian) or axillary.
- Cane:** ‘Cane’ is a conventional straight cane.

Level Description

- 0 Unable to stand and/or participate in assisted walking.
- 1 Ambulates in parallel bars, with braces and physical assistance of two persons, but less than 10 meters.
- 2 Ambulates in parallel bars, with braces and physical assistance of two persons, 10 meters.
- 3 Ambulates in parallel bars, with braces and physical assistance of one person, 10 meters.
- 4 Ambulates in parallel bars, no braces and physical assistance of one person, 10 meters.
- 5 Ambulates in parallel bars, with no braces and no physical assistance, 10 meters.
- 6 Ambulates with walker, with braces and physical assistance of one person, 10 meters.
- 7 Ambulates with two crutches, with braces and physical assistance of one person, 10 meters.
- 8 Ambulates with walker, no braces and physical assistance of one person, 10 meters.
- 9 Ambulates with walker, with braces and no physical assistance, 10 meters.
- 10 Ambulates with one cane/crutch, with braces and physical assistance of one person, 10 meters.
- 11 Ambulates with two crutches, no braces and physical assistance of one person, 10 meters.
- 12 Ambulates with two crutches, with braces and no physical assistance, 10 meters.
- 13 Ambulates with walker, no braces and no physical assistance, 10 meters.
- 14 Ambulates with one cane/crutch, no braces and physical assistance of one person, 10 meters.
- 15 Ambulates with one cane/crutch, with braces and no physical assistance, 10 meters.
- 16 Ambulates with two crutches, no braces and no physical assistance, 10 meters.
- 17 Ambulates with no devices, no braces and physical assistance of one person, 10 meters.
- 18 Ambulates with no devices, with braces and no physical assistance, 10 meters.
- 19 Ambulates with one cane/crutch, no braces and no physical assistance, 10 meters.
- 20 Ambulates with no devices, no braces and no physical assistance, 10 meters.

Scoring Sheet for the Walking Index for Spinal Cord Injury II (WISCI II)

Name _____

Date _____

Check descriptors that apply to current walking performance, and then assign the highest level of walking performance. (In scoring a level, one should choose the level at which the patient is safe as judged by the therapist, with patient's comfort level described. If devices other than those stated in the standard definitions are used, they should be documented as descriptors. If there is a discrepancy between two observers, the higher level should be chosen.)

Descriptors: Make ONE selection only in each section

Devices	Comments	Braces	Comments
D1 Parallel bars < 10 meters		B1 Long Leg Braces - Uses 2 - Locked at knee	
D2 Parallel bars 10+ meters		B2 Long Leg Braces - Uses 1 - Locked at knee	
D3 Walker - Standard		B3 Short Leg Braces - Uses 2 - Unlocked	
D4 Walker - rolling platform		B4 Short Leg Braces - Uses 1 - Unlocked	
D5 Walker - other > describe >>>		B5 Alpine boots	
D6 Crutches - Uses 2		B6 Ace bandages	
D7 Crutches - Uses 1		B7 High tops	
D8 Canes- Quad - Uses 2		B8 Other braces / bracing methods > describe >	
D9 Canes- Quad - Uses 1		B9 No braces	
D10 No devices			
Assistance	Comments	Patient reported comfort level	Comments
A1 Max assist x 2 people*		C1 Very comfortable	
A2 Min/Mod assist x 2 people*		C2 Slightly comfortable	
A3 Min/Mod assist x 1 person [†]		C3 Neither comfortable nor uncomfortable	
A4 No assistance		C4 Slightly uncomfortable	
Patient safety comments			

*Applies only to WISCI II levels 1 and 2; [†]Applies to WISCI II levels 3,4,6,7,8,10,11,14,17

WISCI Levels

Level	Devices	Braces	Assistance	Distance
0				Unable
1	Parallel bars	Braces	2 persons	Less than 10 meters
2	Parallel bars	Braces	2 persons	10 meters
3	Parallel bars	Braces	1 person	10 meters
4	Parallel bars	No braces	1 person	10 meters
5	Parallel bars	Braces	No assistance	10 meters
6	Walker	Braces	1 person	10 meters
7	Two crutches	Braces	1 person	10 meters
8	Walker	No braces	1 person	10 meters
9	Walker	Braces	No assistance	10 meters
10	One cane/crutch	Braces	1 person	10 meters
11	Two crutches	No braces	1 person	10 meters
12	Two crutches	Braces	No assistance	10 meters
13	Walker	No braces	No assistance	10 meters
14	One cane/crutch	No braces	1 person	10 meters
15	One cane/crutch	Braces	No assistance	10 meters
16	Two crutches	No braces	No assistance	10 meters
17	No devices	No braces	1 person	10 meters
18	No devices	Braces	No assistance	10 meters
19	One cane/crutch	No braces	No assistance	10 meters
20	No devices	No braces	No assistance	10 meters

Baseline/Self-Selected Level assigned _____

Maximum WISCI Level assigned _____

APPENDIX IX

RAW DATA

S.No.	Grp	Age	Gender	ASIA PRE	ASIA POST	WISCI II PRE	WISCI II POST	MAS PRE	MAS POST	BMI PRE	BMI POST	CRP PRE	CRP POST	ESR PRE
1	1	40	1	3	3	3	4	3	2	26.1	25.8	0	0	20
2	1	18	1	3	4	5	13	2	2	22.22	23.2	1	0	29
3	1	32	1	3	3	3	8	3	1	19.3	19.1	1	1	45
4	1	56	1	3	3	4	11	2	1	23.1	22.4	1	1	125
5	1	25	2	3	3	8	15	3	2	25.2	25.6	1	0	35
6	1	25	1	3	4	6	16	2	1	19.8	19	0	0	20
7	1	20	1	3	4	2	7	3	1	29.3	29	1	0	35
8	1	48	1	3	4	3	6	2	2	27.6	26.9	1	0	22
9	1	33	1	3	3	2	16	3	2	22.1	21.2	0	0	15
10	1	20	1	4	4	9	16	2	1	17.8	18.9	1	0	55
11	1	19	2	4	4	3	13	2	1	18.1	19.4	1	0	20
12	1	18	2	3	3	7	9	3	2	24.2	23.4	0	0	30
13	1	23	1	4	4	3	19	1	1	19.9	18.9	1	0	38
14	1	24	1	3	3	2	3	3	2	21.7	21.2	1	0	45
15	1	39	1	3	3	6	10	2	1	23.1	21.8	1	0	22
16	1	41	1	3	4	13	17	3	1	21.2	21.8	1	0	60
17	1	22	1	3	4	5	11	2	1	30.1	28.3	1	1	15
18	1	34	1	3	3	6	16	4	2	23	22.6	1	0	38
19	1	32	1	4	4	11	17	2	1	23.6	22.4	0	0	45
20	1	36	1	4	4	6	10	3	2	23.5	22.5	1	0	20

21	1	38	1	3	4	4	6	4	2	30.1	28.2	1	0	30
22	1	35	1	3	3	9	10	3	1	30	29.2	1	0	106
23	1	44	1	3	3	5	12	3	1	22.7	22.4	0	0	35
24	1	31	1	4	4	11	12	2	1	25.4	24.2	1	0	45
25	1	25	1	3	3	8	15	2	2	23.4	22.2	1	0	30
26	1	30	1	3	4	10	11	3	1	31.1	30.6	0	0	48
27	1	51	1	3	3	5	7	3	2	25.3	24.7	1	0	28
28	1	36	1	3	4	2	5	2	1	29.2	27.5	0	0	25
29	1	45	2	3	4	4	9	3	1	28.3	26.9	1	0	105
30	1	23	1	4	4	6	13	1	1	29.5	28	1	0	22
31	1	31	2	3	4	13	16	2	1	25.1	23.4	1	1	55
32	1	48	1	3	3	11	16	3	2	17.8	17.6	0	0	20
33	1	23	2	3	3	9	13	2	1	29.8	28.1	1	1	30
34	1	32	1	3	4	5	6	2	1	23.8	22.4	1	1	78
35	1	21	1	4	4	5	10	3	2	19.7	18.26	1	1	15
36	1	23	1	3	4	3	5	3	2	22.7	21.6	1	1	63
37	1	45	1	4	4	6	12	3	2	24.8	24.5	1	1	35
38	1	49	1	3	3	14	19	2	1	25.6	24.72	1	1	20
39	1	23	1	3	4	1	6	2	2	20.9	20.4	1	1	45
40	1	37	1	3	3	2	8	2	1	24.9	24.6	0	0	55
41	1	26	1	3	4	5	12	3	2	30.2	24.72	1	0	20
42	1	38	1	3	3	4	13	2	1	22.1	20.4	1	0	62
43	1	47	1	3	3	6	9	3	2	25	24.6	0	0	20
44	1	24	1	4	4	5	9	1	1	28.5	29.2	1	1	70
45	1	36	1	3	3	13	17	2	2	23.5	22.8	1	0	38
46	1	41	1	3	4	10	14	2	1	29.7	24.6	1	0	35
47	1	39	1	3	4	4	9	3	2	28.8	26.8	1	0	27

48	1	34	1	3	3	12	17	2	1	25.9	23.8	0	0	32
49	1	29	1	3	4	14	18	3	2	25.63	28.1	1	0	27
50	1	22	2	4	4	3	13	2	1	26.2	28	1	0	95
51	1	51	1	4	4	9	17	1	1	25.6	24.72	1	0	45
52	1	23	1	4	4	16	19	2	1	20.9	20.4	1	0	25
53	1	41	1	3	3	5	9	3	2	24.9	24.6	0	0	30
54	1	48	1	3	4	11	12	2	1	30.2	29.2	0	0	20
55	1	36	1	3	3	7	8	3	2	22.1	22.8	1	0	15
56	1	45	1	4	4	6	8	2	1	25	24.6	1	0	40
57	1	35	1	3	4	13	14	3	2	28.5	26.8	1	1	100
58	1	46	1	3	3	8	9	2	1	23.5	23.8	1	0	35
59	1	41	1	4	4	11	13	2	1	29.7	28.1	1	0	100
60	1	27	2	4	4	13	17	2	1	28.8	28	1	1	25
61	1	47	1	4	4	14	15	2	1	25.9	24.6	1	0	40
62	1	35	1	3	4	7	11	3	2	18.9	19.4	1	0	87

S.No.	grp	Age	Gender	ESR POST	SCI-QoL Index PRE	SCI-QoL Index POST	SCIM PRE	SCIM POST	MPI-SCI PRE S1	MPI-SCI PRE S2	MPI-SCI PRE S3	MPI-SCI POST S1	MPI-SCI POST S2	MPI-SCI POST S3	MED S PRE	MED S POST
40	1	3	3	5	5.035	8.126	45	52	4.35	2.16	0	3.45	2.91	0.22	13.77	6.04
18	1	3	4	15	8.791	11.67	59	61	4.15	3.66	3.16	0.85	1.08	0.16	14.98	8.91
32	1	3	3	25	4.69	7.75	55	73	5.01	4.23	3.16	3.27	4	2.01	18.77	12.69
56	1	3	3	100	6.305	6.128	45	50	5.02	3.99	4.19	3.67	3.02	2.18	24.11	14.61
25	2	3	3	30	4.053	9.38	53	75	2.61	2.22	4.66	1.03	1.96	3.07	15.18	9.68
25	1	3	4	15	5.695	10.67	61	79	6.09	3.23	2.6	4.67	2.89	2	24.61	19.23

20	1	3	4	20	3.772	7.718	67	55	4.15	4.08	0.5	4.25	3	0.61	10.814	6.37
48	1	3	4	8	13.66	14.91	47	61	3.1	4.16	3.94	1.66	3.03	3.01	9.732	4.17
33	1	3	3	18	3.83	7.73	37	60	2.15	4	0.05	1.67	3.07	0.85	17.03	12.29
20	1	4	4	10	3.388	4.59	52	63	3.71	4.83	2.27	2.19	4	1.61	22.65	12.517
19	2	4	4	5	10.568	13.69	53	61	4.7	5.33	4.02	3.19	4.9	2.66	14.73	8.61
18	2	3	3	35	8.92	11.67	42	52	5.39	3.66	2.19	5.01	2.91	2	12.68	3.19
23	1	4	4	30	4.909	10.376	61	69	4.1	2.91	3.94	3.01	2	2.76	6.02	2.96
24	1	3	3	25	6.63	9.11	35	47	3.61	4.29	4.12	3.06	3.91	2.86	18.75	14.39
39	1	3	3	15	5.17	8.63	47	53	5.68	2.91	3.33	4.09	1.99	2.06	21.67	14.01
41	1	3	4	30	4.54	7.18	55	64	4.29	3.67	1.09	3.91	2.78	1	8.96	5.12
22	1	3	4	5	7.79	11.71	43	57	5.17	4.62	2.91	4.31	3.09	0.16	16.66	3.16
34	1	3	3	30	3.29	5.97	57	65	4.93	2.91	1.93	3.66	3.06	0.89	9.73	4.62
32	1	4	4	28	10.29	11.96	69	71	3.25	4.01	1.99	2.86	3.76	1.03	20.61	12.81
36	1	4	4	5	8.06	12.69	49	56	5.61	3.96	2.01	4.71	3	1.61	11.12	6.69
38	1	3	4	35	6.19	8.61	35	41	4.61	3.09	2.73	3.11	2.96	2.17	13.17	6.29
35	1	3	3	80	5.91	7.21	46	53	5.11	2.23	3.01	4.06	2	1.69	8.91	4.01
44	1	3	3	20	6.99	10.62	37	45	4.06	4.11	4.19	3.72	3.06	2.11	24.56	15.02
31	1	4	4	32	11.27	13.59	59	70	2.67	2	4.11	2.07	2	3.86	11.23	7.99
25	1	3	3	25	8.11	9.87	52	58	5.91	3.52	2.91	4.16	4.03	1.27	15.67	11.26
30	1	3	4	20	4.23	6.38	41	57	3.18	5.01	2.63	3.01	4.45	1.96	11.11	8.63
51	1	3	3	5	7.16	9.71	49	61	3.62	4.16	3.35	2.43	4.01	2.89	21.69	16.11
36	1	3	4	20	10.52	12.63	56	73	5.07	2.63	2.71	4.11	2.63	1.07	8.67	4.02
45	2	3	4	82	9.71	13.16	57	66	4.91	4.02	4.11	3.62	3.61	3.19	17.15	9.96
23	1	4	4	10	12.32	14.61	63	78	4.07	3.61	1.96	3.27	2.19	2.46	22.61	15.69
31	2	3	4	60	9.11	14.17	45	49	2.19	2.16	3.91	1.63	2.07	2.61	13.19	9.63
48	1	3	3	25	6.22	11.23	43	54	4.71	4.26	2.19	3.09	4	1.85	22.97	18.01
23	2	3	3	35	7.71	11.25	37	41	4.91	3.06	3.91	3.31	2.16	1.93	23.67	15.07

32	1	3	4	50	11.26	14.49	51	57	3.72	2.62	3.01	2.78	2.01	2.22	15.61	9.08
21	1	4	4	20	4.25	8.11	63	68	2.37	4.63	3.35	1.89	4.56	2.35	13.13	11.23
23	1	3	4	25	6.79	9.01	41	47	6.01	2.74	2.28	5.21	2	1.51	15.63	10.62
45	1	4	4	15	9.86	13.18	65	79	3.01	3.93	2.17	2.43	3.11	1.53	9.21	5.67
49	1	3	3	25	5.29	7.85	47	41	4.73	3.28	2.81	5.6	3.72	3	13.85	15.02
23	1	3	4	20	10.2	13.09	52	57	5.97	3.28	4.89	6.21	3.97	5.02	15.92	17.29
37	1	3	3	25	4.372	6.39	42	49	4.02	3.1	1.19	4.75	3.62	2	12.12	15.69
26	1	3	4	38	0.892	6.29	22	28	3.75	3.12	0.08	4.5	4	2	18.53	13.12
38	1	3	3	18	12.12	14.69	45	53	3.11	4.26	3.16	4.27	2.91	3.94	6.23	10.12
47	1	3	3	25	5.21	7.72	59	60	3.91	2.16	0	4.36	3.11	1	9.65	13.75
24	1	4	4	48	5.79	8.72	41	52	5.29	3.1	2	4.72	2.99	1	24.18	10.81
36	1	3	3	22	6.17	8.93	37	42	5.11	4.29	1.37	4.35	4.08	2.15	12.69	15.28
41	1	3	4	15	2.33	5.49	47	55	5.33	2.67	1.99	4.13	2.67	1.02	14.17	12.39
39	1	3	4	20	8.91	9.17	35	41	3.6	4.83	1.05	3.82	2	2.87	19.98	11.11
34	1	3	3	30	6.32	8.91	37	69	4.36	1.92	3.36	5.22	3.92	3	13.67	7.23
29	1	3	4	20	6.37	9.99	60	50	5.67	3.92	4.02	2	2.37	0.6	9.16	20.32
22	2	4	4	72	7.97	10.17	37	55	3.45	3	0.87	5	3	3.83	23.67	12.26
51	1	4	4	30	5.29	7.85	47	41	4.73	3.28	2.81	5.6	3.72	3	13.85	15.02
23	1	4	4	7	10.2	13.09	52	57	5.97	3.28	4.89	6.21	3.97	5.02	15.92	17.29
41	1	3	3	25	4.372	6.39	42	49	4.02	3.1	1.19	4.75	3.62	2	12.12	15.69
48	1	3	4	25	4.896	6.29	22	28	3.75	3.12	0.08	4.5	4	2	11.39	13.12
36	1	3	3	18	12.12	14.69	45	53	3.11	4.26	3.16	4.27	2.91	3.94	6.23	10.12
45	1	4	4	25	5.21	7.72	59	60	3.91	2.16	0	4.36	3.11	1	9.65	13.75
35	1	3	4	45	5.79	8.72	41	52	5.29	3.1	2	4.72	2.99	1	24.18	10.81
46	1	3	3	20	6.17	8.93	37	42	5.11	4.29	1.37	4.35	4.08	2.15	12.69	15.28
41	1	4	4	30	2.33	5.49	47	55	5.33	2.67	1.99	4.13	2.67	1.02	14.17	12.39
27	2	4	4	35	6.32	9.17	35	41	4.36	1.92	3.36	3.82	2	2.87	13.67	11.11

47	1	4	4	22	6.37	8.91	60	69	5.67	3.92	4.02	5.22	3.92	3	9.16	7.23
35	1	3	4	40	7.97	9.99	37	50	3.45	3	0.87	2	2.37	0.6	23.67	20.32

S.No.	grp	Age	Gender	ASIA PRE	ASIA POST	WISCI II PRE	WISCI II POST	MAS PRE	MAS POST	BMI PRE	BMI POST	CRP PRE	CRP POST	ESR PRE
63	2	39	1	3	3	4	6	2	3	24.6	23.86	1	1	96
64	2	28	1	3	3	4	5	3	3	20.22	18.11	1	1	35
65	2	56	1	4	4	5	7	2	2	21.7	22	1	1	65
66	2	21	1	3	4	6	6	2	1	22.6	18	1	1	43
67	2	42	1	3	3	6	8	2	2	23.9	23.09	1	0	25
68	2	29	1	4	4	7	9	1	3	22.66	21.56	1	1	30
69	2	22	2	4	4	4	6	1	2	25.2	23	0	0	25
70	2	32	2	3	3	4	5	3	3	25.7	25.7	1	1	47
71	2	33	1	3	3	3	5	3	2	22.3	22.3	1	0	40
72	2	26	1	4	4	11	11	2	2	21.8	22.79	0	1	10
73	2	31	1	3	3	4	5	3	3	19	17.25	1	1	35
74	2	42	1	3	3	7	8	2	2	27.8	28.19	1	1	20
75	2	36	1	3	3	5	5	3	2	20.4	26	1	1	45
76	2	25	1	4	4	3	5	1	2	22	19.22	1	0	15
77	2	21	1	3	4	8	9	2	2	18.2	17	0	0	38
78	2	29	1	3	3	7	9	2	1	27.6	27.6	1	0	22
79	2	55	1	3	3	4	4	3	3	27.8	25.18	1	1	115
80	2	22	1	4	4	8	10	1	1	21.3	17	0	0	5
81	2	27	1	3	3	9	10	3	3	17	16.71	1	0	25
82	2	37	1	3	4	5	6	3	2	27	25	1	1	55
83	2	42	1	3	3	5	7	2	2	28	26.22	1	1	63

84	2	26	1	3	4	5	5	3	3	25.5	23.12	0	0	25
85	2	40	2	4	4	6	9	1	1	30.2	28.62	0	1	20
86	2	29	1	3	3	8	9	2	1	24.7	22.09	1	1	85
87	2	39	1	3	3	5	6	3	2	25.9	23.62	1	0	68
88	2	42	1	3	3	9	8	3	2	26.2	24.39	1	1	32
89	2	35	1	4	4	6	7	2	2	23.12	22.31	0	1	44
90	2	25	1	3	4	4	6	3	2	30.6	32.06	1	0	50
91	2	33	1	3	3	7	10	2	1	32.68	30.07	1	0	30
92	2	41	1	3	4	6	6	3	2	22.08	21.16	0	0	25
93	2	26	1	3	3	6	6	2	2	19	18.23	1	1	29
94	2	23	1	4	4	8	10	2	3	26.07	26	0	0	35
95	2	48	1	3	3	6	7	3	2	18.09	17.12	1	0	105
96	2	37	1	4	4	7	8	2	2	24.06	26.11	1	1	115
97	2	32	2	4	4	9	11	1	1	17.04	15.69	1	1	62
98	2	51	1	3	4	5	8	3	2	30.09	30.79	0	0	22
99	2	45	1	3	3	4	4	2	1	18.62	15.16	0	1	25
100	2	28	1	3	3	9	10	2	2	23.31	20.23	1	1	35
101	2	21	1	4	4	9	10	2	1	20.69	19.16	1	0	55
102	2	34	1	3	4	8	10	3	2	30.14	32.63	1	1	45
103	2	42	2	3	3	5	6	4	3	25.67	23.19	0	1	5
104	2	22	1	4	4	5	8	2	1	24	23.62	1	1	72
105	2	42	2	3	3	6	6	3	2	21.32	19.16	1	1	20
106	2	35	1	3	4	4	3	2	2	27.98	26.32	1	1	45
107	2	18	1	4	4	9	10	1	1	23.02	24.11	1	0	30
108	2	26	2	3	3	9	12	3	3	31.22	29.71	1	0	15
109	2	25	1	3	3	2	3	3	2	25.01	27	0	1	27
110	2	22	1	3	3	8	9	3	2	26.67	27	1	0	20

111	2	36	2	4	4	9	10	2	1	22.11	21.23	1	1	37
112	2	42	1	4	4	7	10	1	1	24.32	26.61	0	0	65
113	2	40	1	3	4	8	9	2	2	29.67	31.26	1	1	75
114	2	45	2	3	4	8	11	2	2	18.07	22.21	1	1	20
115	2	47	1	4	4	6	9	2	2	22.36	23.16	1	1	65
116	2	44	1	3	3	9	9	3	2	29.19	26.71	0	0	15
117	2	19	1	4	4	8	9	1	1	26.62	24.66	1	0	55
118	2	24	1	3	3	5	7	3	2	28.91	30.53	1	0	42
119	2	25	1	3	3	11	12	3	2	22	21.16	1	1	35
120	2	19	1	4	4	7	9	2	1	21.81	19.72	1	0	20
121	2	25	1	3	3	10	9	2	3	25.32	23.07	0	0	25
122	2	35	1	3	4	8	9	3	2	24.69	22.54	0	0	63
123	2	22	1	4	4	10	12	2	2	29.01	30.96	1	1	110
124	2	28	1	3	3	10	12	3	3	20.23	22.71	1	1	45
125	2	36	2	3	3	4	6	2	1	22.73	25.07	1	0	15

S.No.	Grp	Age	Gender	ESR POST	SCI- QoL Index PRE	SCI- QoL Index POST	SCIM PRE	SCIM POST	MPI- SCI PRE S1	MPI- SCI PRE S2	MPI- SCI PRE S3	MPI- SCI POST S1	MPI- SCI POST S2	MPI- SCI POST S3	MEDS PRE	MEDS POST
63	2	39	1	105	5.23	8.02	45	55	6.67	3.26	4.67	5	3	3.83	14.15	16.36
64	2	28	1	35	3.75	5.16	39	42	4.15	4.22	1.5	5.2	4.22	1.51	12.63	12.63
65	2	56	1	40	4.06	8.99	52	55	6.13	5.11	4.39	6.13	5.11	4	9.13	11.99
66	2	21	1	50	11	12.78	59	65	5.13	3.89	3.01	4.62	3.89	3.01	14.98	15.66
67	2	42	1	15	13.69	15	57	65	3.69	3.22	4.96	3.69	3.22	4.96	10.18	9.32
68	2	29	1	45	7.13	18.67	43	50	6.66	4.13	2	5.23	4	1.6	16	15.16
69	2	22	2	30	12.61	14.23	45	49	4.61	2.83	1.66	3.92	2.83	0.98	13.02	15.63
70	2	32	2	65	4.39	6	33	35	7.37	4.69	2.99	6.96	4.29	2.73	7.17	8.01
71	2	33	1	25	5.17	7.33	41	43	4.01	4.69	0.5	3.85	4.23	0.5	8.16	8.96

72	2	26	1	40	8.62	10.21	61	67	3.62	4	3.16	2.88	4	2.66	10.09	10.09
73	2	31	1	47	6.33	8.27	45	45	6	5.2	3.19	5.85	4.92	3	15.43	16.11
74	2	42	1	36	5.82	5	51	55	5.63	3.21	2.15	4.66	3.21	1.26	8.69	9.13
75	2	36	1	35	7.89	9.16	65	65	4.62	3	3.32	3.66	3	2.98	24.53	22.13
76	2	25	1	25	10.02	12.37	65	69	6.03	0.89	2.61	5.66	0.89	1.66	18.61	20.07
77	2	21	1	50	7.63	9.11	23	30	3.33	2.61	1.85	2.73	1.97	1.85	14.51	13.86
78	2	29	1	15	9.11	13.62	51	51	4.71	3.22	2.37	4.71	2.85	2	21.07	23.17
79	2	55	1	90	6.63	9.01	47	47	6.23	2.01	3.06	5.66	2.01	2.85	22.83	24.62
80	2	22	1	25	10.29	12.36	62	66	5.29	4.63	1.08	5	4.01	0.96	16.25	17.73
81	2	27	1	20	4.54	6.17	47	47	5.27	3.91	2.25	4.67	3.91	2	19.71	20.53
82	2	37	1	60	5.62	5.62	37	40	3.18	2	4.11	3.18	2	3.86	18.01	17.56
83	2	42	1	55	9.11	8.16	35	35	6.02	3.11	3.35	5.71	3.11	2.68	23.21	23.32
84	2	26	1	30	6.07	6.23	59	62	2.67	4.13	2.66	1.81	4	2.03	12.63	12.96
85	2	40	2	35	11.53	11.53	67	69	2.61	1.63	0.18	2.15	2.3	1.16	14	15.27
86	2	29	1	60	8.6	7.02	43	43	4.15	3.27	3.67	3.97	2.86	3.51	8.69	18.69
87	2	39	1	55	9.23	9.86	36	36	5.61	4.19	3.02	5.61	4.33	2.73	9.71	10.52
88	2	42	1	45	6.306	7.11	55	60	3.19	4.61	3.63	3.07	4.82	2.96	22.63	24.37
89	2	35	1	20	10.2	10.86	67	70	1.89	2.67	1.19	1.24	2.67	0.96	18.18	19.54
90	2	25	1	42	6.91	6.09	37	37	2.76	4.02	4.11	2.17	4.23	4.02	15.23	16.71
91	2	33	1	25	5.27	6.11	41	41	5.02	2.19	3.21	4.71	2.39	2.94	20.71	23.11
92	2	41	1	37	4.07	4.07	56	56	3.93	3.12	2.65	3.07	3.12	2.16	16.59	15.26
93	2	26	1	30	13.55	14.16	43	47	5.23	4.01	2.19	4.79	4.22	2.02	14.23	13.86
94	2	23	1	25	12.69	11.13	65	65	3.32	4.96	2.01	2.85	4.23	1.85	6.76	6.17
95	2	48	1	80	4.37	4.37	42	50	5.16	4.52	3.11	4.77	4.52	4.96	11.79	13.39
96	2	37	1	95	8.02	10.16	52	52	4.93	3.91	1.96	4.21	3.71	1.52	9.01	10.52
97	2	32	2	40	8.63	9.39	67	70	5.78	2.63	3.99	5.27	2.83	3.26	21.22	23.07
98	2	51	1	20	4.19	4.19	37	39	4.21	2.91	3.94	3.75	2.96	3.25	11.39	11.49

99	2	45	1	42	5.62	6.73	41	41	3.66	4.29	4.12	2.79	2.56	3.91	6.79	5.09
100	2	28	1	27	3.36	4.51	47	47	4.17	5.22	4.67	3.82	5.22	4.17	8.93	8.16
101	2	21	1	25.62	7.19	7.19	59	63	4.11	2	3.94	3.82	2	3.07	21.22	21.07
102	2	34	1	23	4.43	5.31	39	39	4.73	5.33	4.62	4.21	5.67	4.09	15.79	16.18
103	2	42	2	15	7.76	6.13	45	49	4.17	3.17	2	3.79	3.54	2	11.52	11.91
104	2	22	1	50	10.29	11.69	75	81	5	3.98	4.11	4.17	3.98	3.86	14.63	15.12
105	2	42	2	37	4.53	4.71	42	45	5.21	3.1	2.71	4.87	3.27	1.96	8.89	10.09
106	2	35	1	32	6.73	6.73	53	53	3.72	4.16	3.15	3.51	4.37	3.01	11.63	11.23
107	2	18	1	47	11.01	12.61	72	75	3.28	4.88	2.73	3.06	4.88	2.27	23.22	23.03
108	2	26	2	20	5.73	7.07	35	40	5.85	4	3.11	6.11	4	3.27	17.16	18.26
109	2	25	1	52	6.69	6.69	55	55	3.62	2.32	4.11	3.15	2.46	3.92	9.73	10.57
110	2	22	1	37	6.32	7.16	42	45	4.06	3.92	4.29	3.72	3.96	4.12	15.26	16.03
111	2	36	2	25	9.11	7.02	65	71	5.22	2.63	2.29	4.76	2.78	2.11	22.39	22.04
112	2	42	1	60	10.52	13.72	59	59	4.71	2.93	2.63	4.23	2.16	2.09	17.79	17.16
113	2	40	1	85	3.91	5.16	49	49	3.71	4	2.27	3.89	4.02	2.73	5.63	6.57
114	2	45	2	37	8.23	9.53	25	31	2.05	4.23	0.65	1.81	4.31	1.03	11.77	12.53
115	2	47	1	55	9.61	9.61	62	65	3.22	3.19	3.85	3.63	3.92	3.94	24.631	25.46
116	2	44	1	15	4.89	6.09	37	37	4.26	4.08	1.05	3.91	4.22	0.97	15.91	15.51
117	2	19	1	40	10.73	10.73	42	45	6.09	3.33	2.76	5.72	3.33	2.56	22.13	24.32
118	2	24	1	40	3.71	5.62	37	40	2.61	2.32	4.25	2.51	2.32	3.97	14.63	16.24
119	2	25	1	25	6.98	7.41	45	46	5.26	3.39	4.78	5.52	3.69	7.97	16.79	16.59
120	2	19	1	32	5.32	6.15	72	75	5.23	4.23	3.16	5.05	4.37	3.06	20.61	22.42
121	2	25	1	20	4.39	6.77	45	49	4.25	3.02	3.37	3.85	3.27	2.91	11.23	10.94
122	2	35	1	60	6.17	6.17	38	38	4.35	2.11	0.05	4.16	2.56	0.05	13.85	14.73
123	2	22	1	95	10.71	9.02	55	61	4.71	5.03	4	4.86	5.03	4.27	25.43	26.52
124	2	28	1	62	7.63	9.16	61	66	3.29	4.19	4.22	3.05	4.19	4.05	12.63	13.76
125	2	36	2	10	3.97	5.12	37	41	4.16	3.67	1.09	3.72	3.67	0.83	13.69	15.44

APPENDIX X

PLATES

Plate 1: Patients learning kneeling standing



Plate 2: Patients learning wheelchair transfer



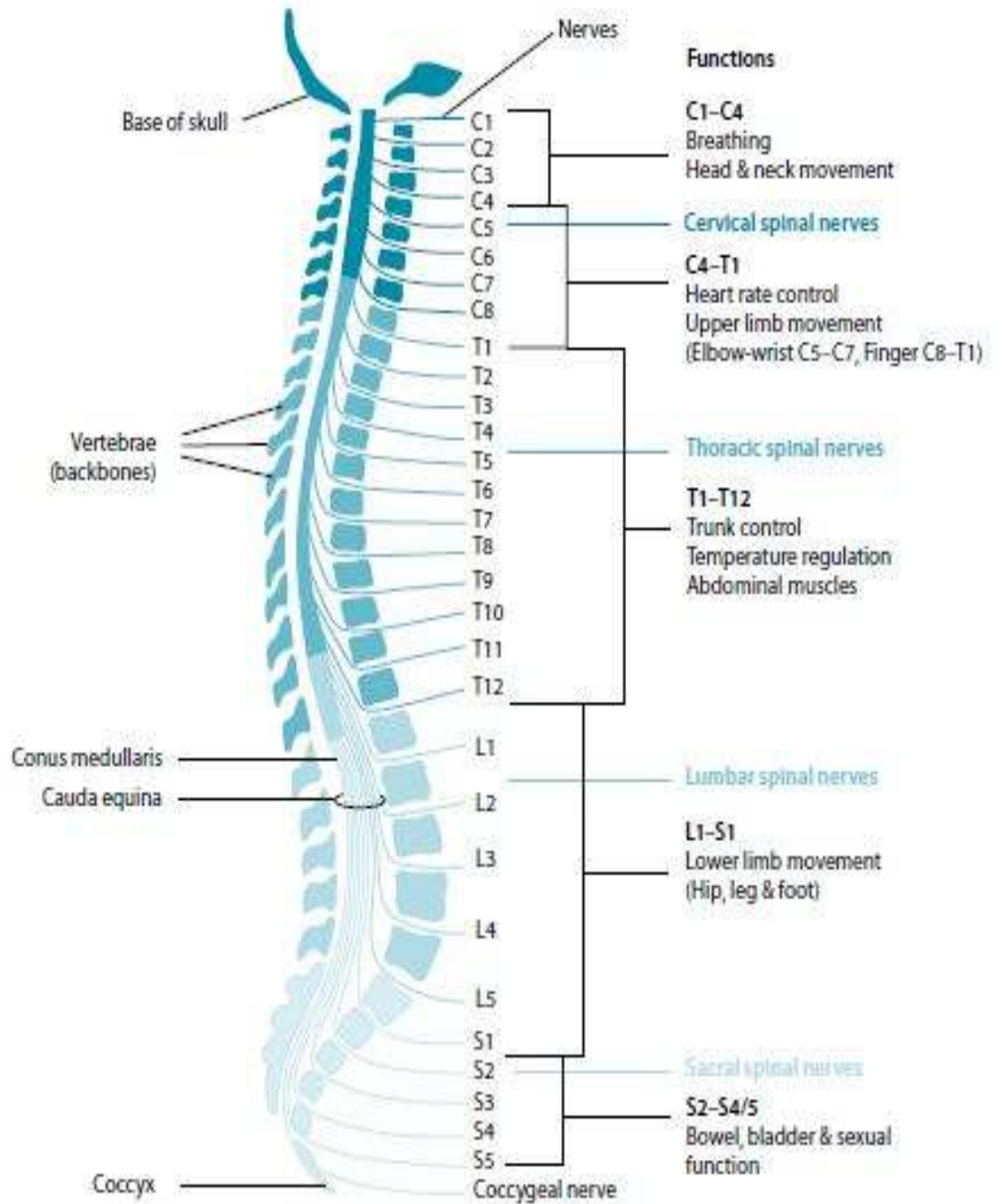
Plate 3: Sport activity on wheelchair



Plate 4: AUM chanting by patients at SVNIRTAR, Odisha



Plate 5: Spinal cord segments and their functions



APPENDIX X

Publications from this Thesis

- ◎ **Madhusmita, M.,** Srinivasan, T. M., Ebnezar, J., Nagendra H.R., & Mohanty, P. P. (2018). Effect of Integrated Yoga as an Add-On to Physiotherapy on Walking Index, ESR, Pain, and Spasticity among Subjects with Traumatic Spinal Cord Injury: A Randomized Control Study. *Journal of Stem Cells*, 13(1), 57–66.
- ◎ **Madhusmita, M.,** Srinivasan, T. M., Ebnezar, J., Metre, K., & Mohanty, P. P. (2018). Integrating Yoga in Rehabilitation of Spinal Cord Injury to Improve benefits of Stem Cell Therapies. *Journal of Stem Cells*, 13(4), 63–74.
- ◎ **Madhusmita, M.,** Srinivasan, T. M., Ebnezar, J., Mohanty, P. P., Singh, D., & Pradhan, B. (2019). Efficacy of Yoga as an add-on to Physiotherapy in the management of Patients with Paraplegia: Randomized Controlled Trial. *Journal of Clinical and Diagnostic Research*, 13(3), 1-6.

MANUSCRIPT UNDER PREPARATION

- **Madhusmita, M.,** Srinivasan, T. M., Ebnezar, J., Singh, D. (2019). *Awareness of CAM in Individuals with Spinal Cord Injury: A Qualitative Study* [Manuscript is under preparation].

