Evidence Based Emmett

A demonstration of the evidence base of the Emmett Technique.

Presented by Greg Wills and Gemma Dustin

Presentation Goal

This presentation will provide you with;

- An introduction to statistics

- Examples of 'in-the-field' data collection

- A visit to some remote parts of FNQ

Statistics

Taking a closer look at our Emmett data

- Statistics is about looking for patterns of consistency that can be reproduced

- Statistics looks at the 'group' …

… to anticipate an outcome for the 'individual'.

Statistical analysis of the data from our studies show that the Emmett Technique is not a therapy of luck and chance.

These studies provide consistent evidence of the effectiveness of the Emmett Technique.

Traditional Frequency Statistic

- Central Limit Theorem

- 'Normal Distribution' and 'Bell Curve'

- Sample size

- Population size

Central Limit Theorem

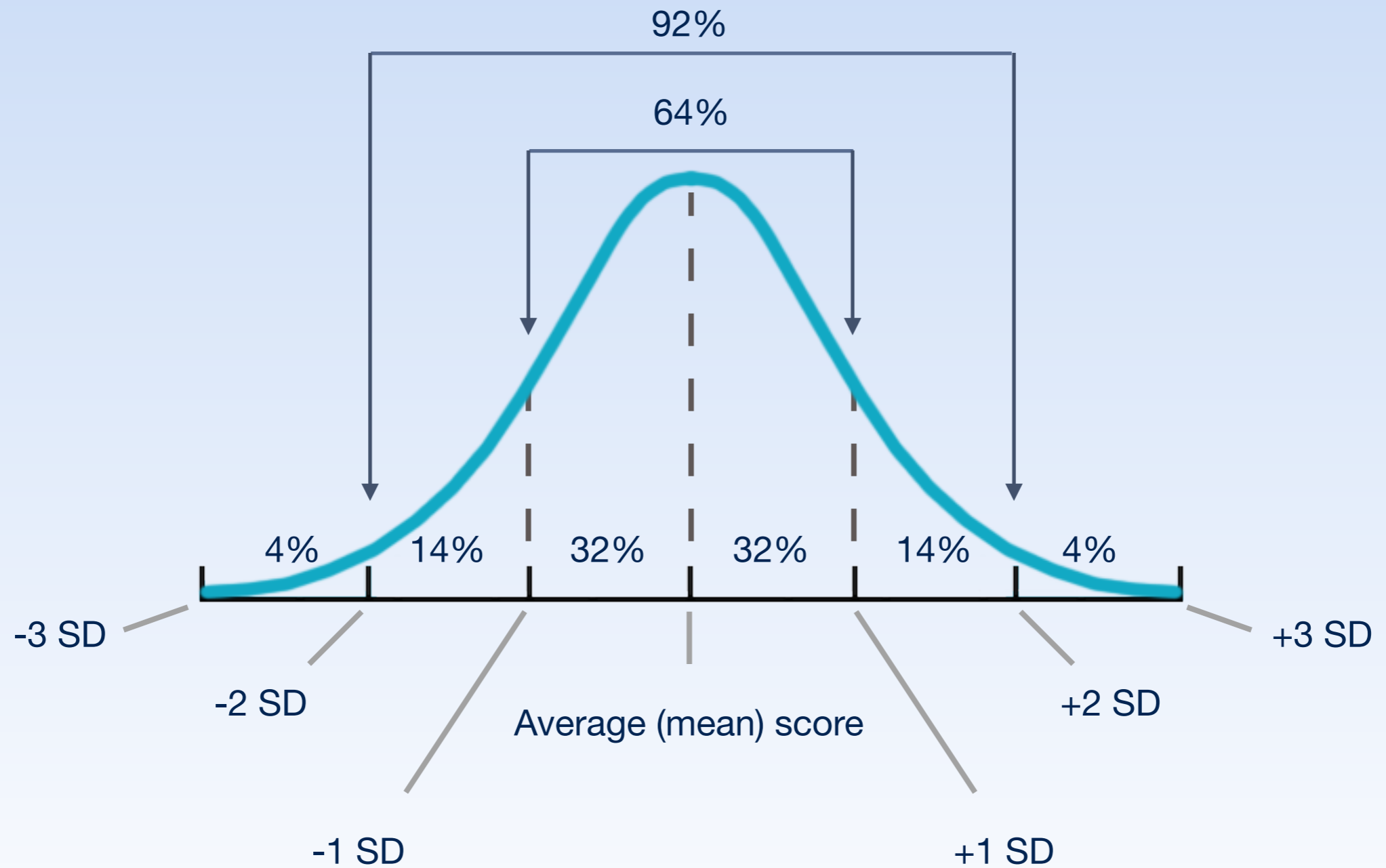This video is a demonstration of the 'normal distribution' curve.

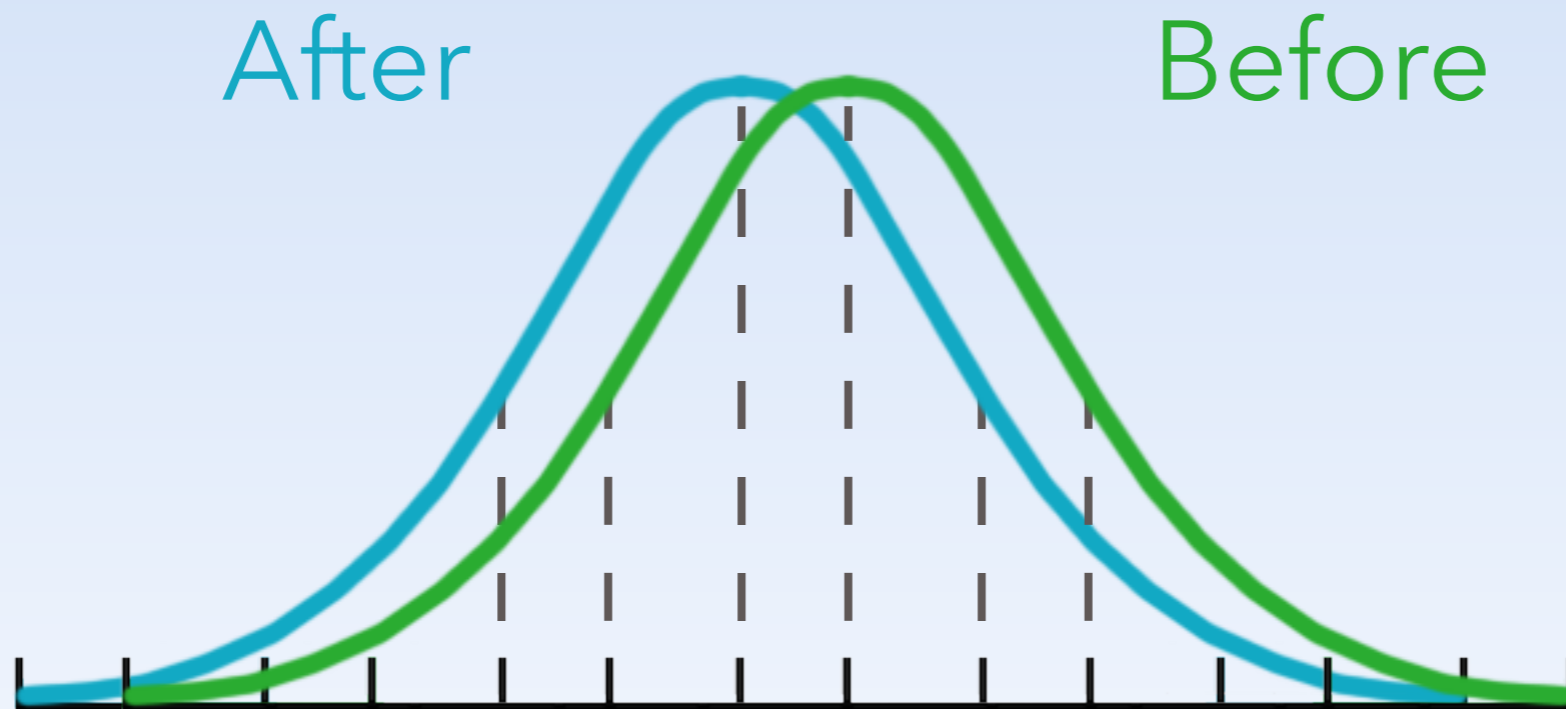Example: Pain scale scores before and after an Emmett session.
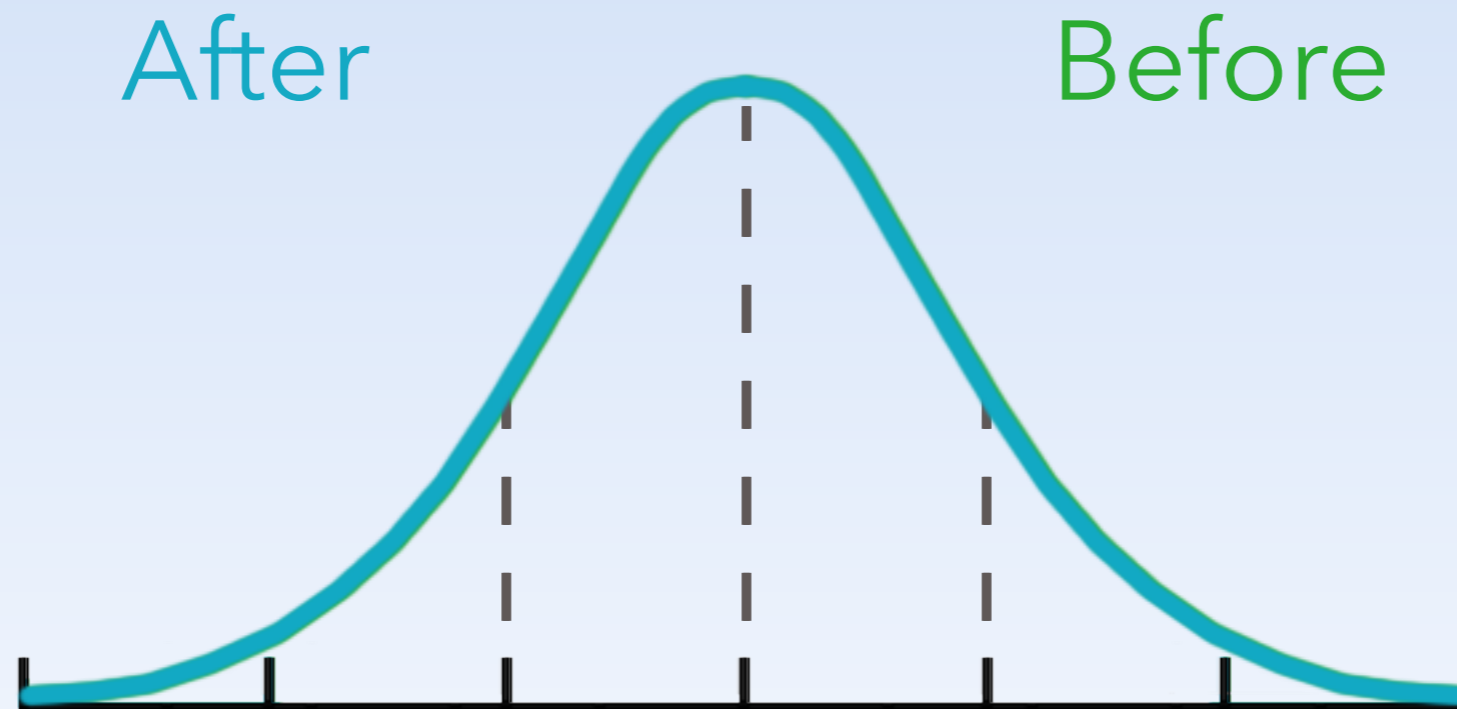
After   Before

There is no difference between Before and After scores
p-value = 0.99

p-value = 0.34

After   Before

The p-value is > 0.05,
therefore the Before and After scores are **not** significantly different.

p-value = 0.001

After

Before
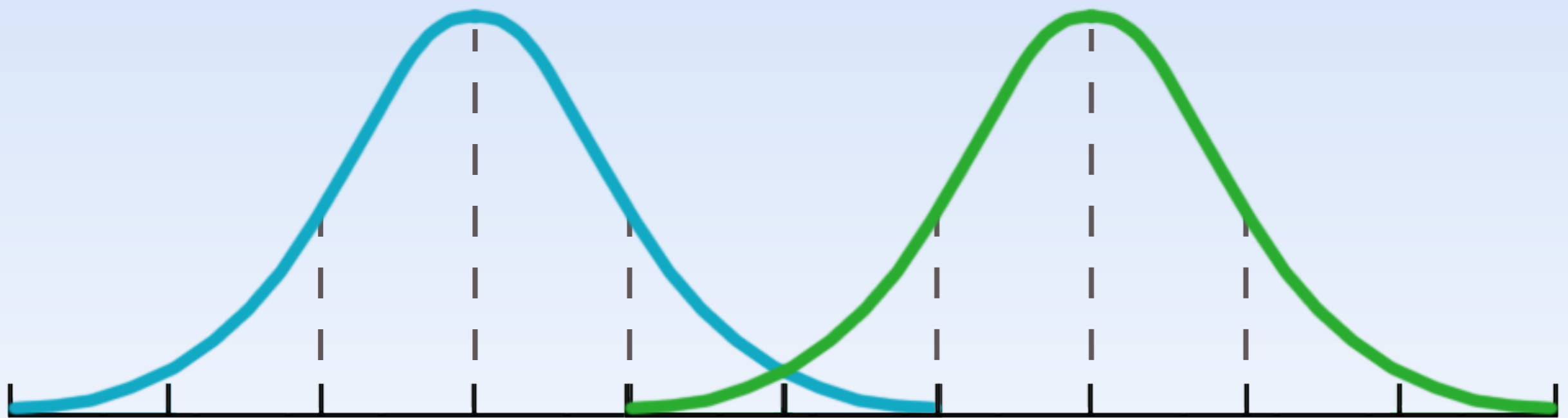
The p-value is < 0.05, therefore
the Before and After scores **are** significantly different.

Statistical Significance

- The p-value is a measure of statistical probability

- P-value < 0.05 has a 95% confidence value

- Paired T-Test

The analysis results were **ALL** less than 0.05. As you will see, they all have at least a **p-value < 0.01**.

HOW DID THIS ALL START?

Australian research sites

- 'Degrees of Difference' project (2015/16 - data

  from three locations)

- Cairns to Karumba Bike Ride 2016

- Cairns to Cooktown Cardiac Challenge 2016

- C2K - (Cairns to Karumba) - 2017

2015 Cardiac Challenge

A 3 day, 333 km bike ride!
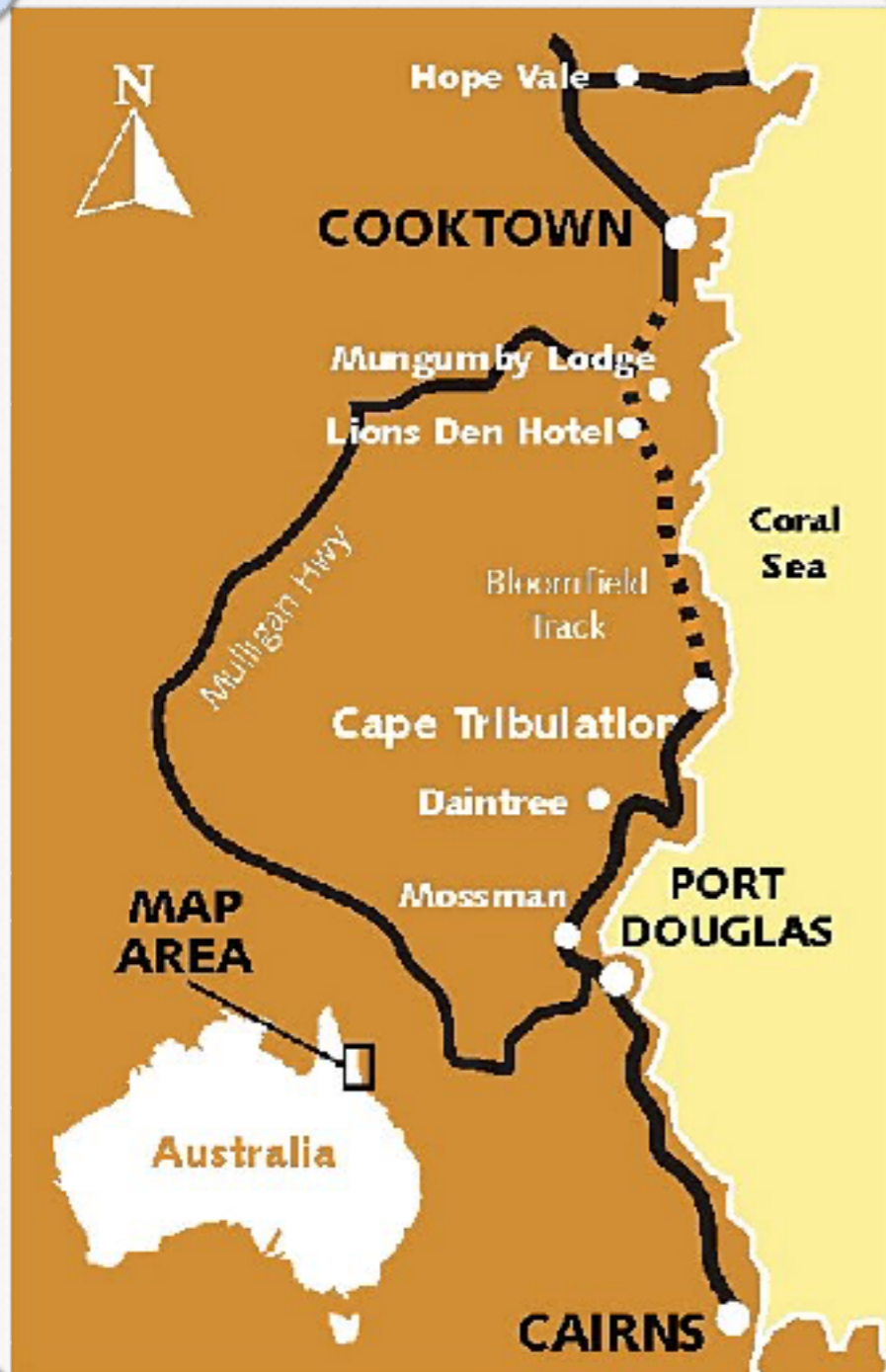
Emmett Technique Team Cardiac Challenge 2015

EMMETT TECHNIQUE

Lakeland Camp

Our team of Emmett Therapists

Rusty Allen, Gemma Dustin, Natalie Newman, Sharna Andrews and Amanda Mode

2015 Cardiac Challenge

2015 Cardiac Challenge

'Degrees of Difference' sites

Measuring the change in range of motion in 5 Emmett moves;

- Psoas / 12th rib

- Hamstring

- AC

- Biceps

- SCM

September 2015 - Cardiac Challenge - Cairns to Cooktown

November 2015 - Yungaburra fundraiser

February 2016 - Tim Donahue's clinic

Hamstring Results

Individual results of 'before' and 'after' scores of Hamstring ranges.

Paired Profiles - Hamstring - Before and After
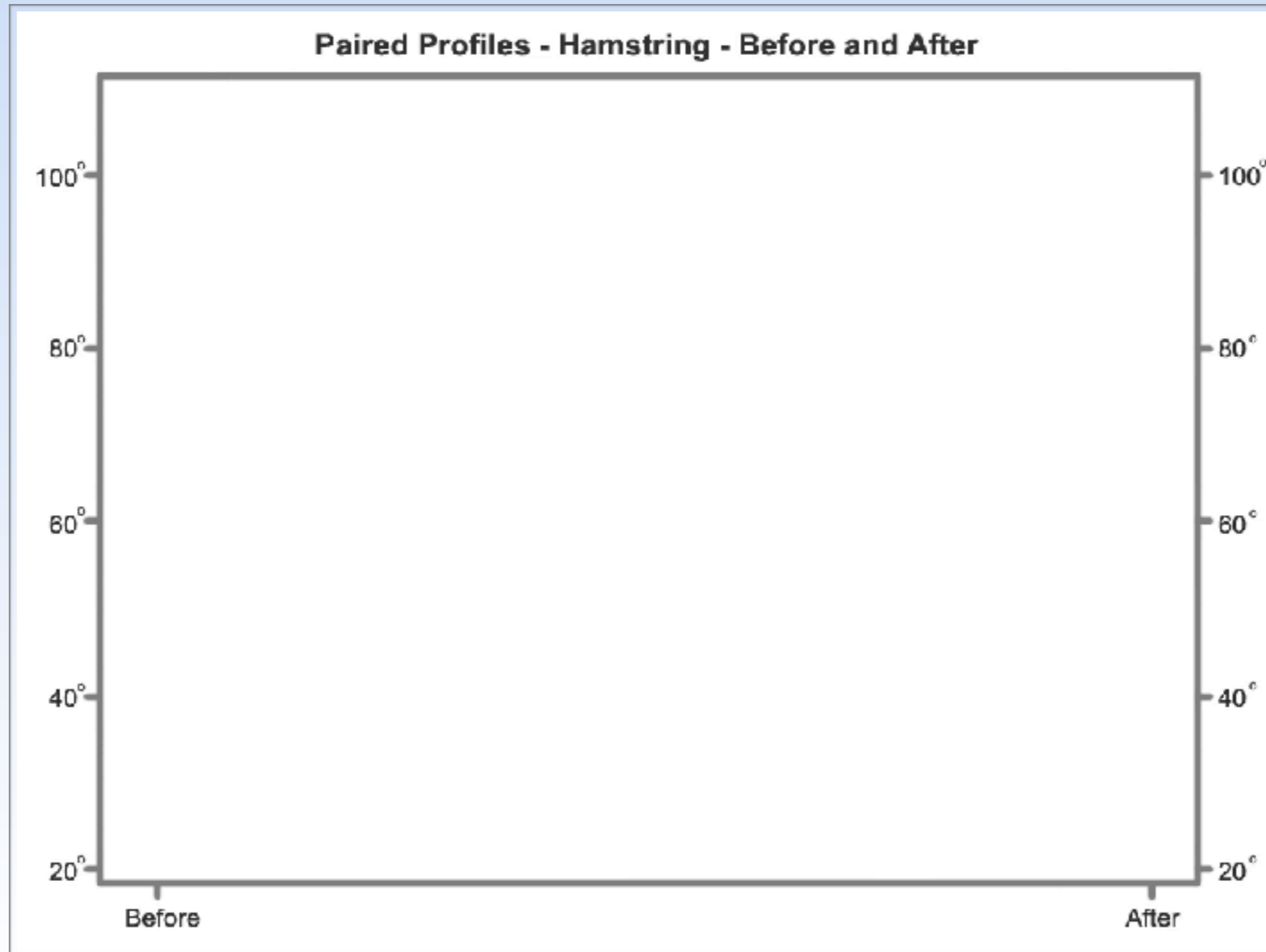
'Degrees of Difference' Data

The total number of before and after data points analysed from these three sources was **195** across the five moves.

Location	Number of participants	P-value
Psoas / 12th Rib	37	< 0.001
Hamstring - Left	33	< 0.001
Hamstring - Right	34	< 0.001
AC - Left	14	< 0.001
AC - Right	14	< 0.001
Biceps - Left	13	< 0.001
Biceps - Right	17	< 0.001
SCM - Left	16	< 0.001
SCM - Right	17	< 0.001

Degrees of Difference sample

The largest data source was the Hamstring.

Below is a summary of analysis of the Left Leg Hamstring data.

Degrees of Difference sample

Maximum Increase in Range	Initial measurement			
Hamstring - left leg	36º			

Degrees of Difference sample

Maximum Increase in Range	Initial measurement	After Emmett	Degrees of Difference	Percentage increase
Hamstring - left leg	36°	91°	55°	153%

From Range of Movement to Pain Scale

- Self reporting Pain Scale
- Easier to administer
- 12 body locations

Emmett Technique Pain Trial Cairns to Cooktown Cardiac Challenge 2016

Name_____ Date _____

PAIN ASSESSMENT TOOL

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

No Pain   Mild   Moderate   Severe   Very Severe   Worst Pain Possible

| 0 | 1-3 | 4-6 | 7-9 | 10 |

NECK
Right side ○   Left Side ○
Old pain ○   New pain ○
Before Treatment   I   After Treatment
_____ I _____

ELBOW
Right side ○   Left Side ○
Old pain ○   New pain ○
Before Treatment   I   After Treatment
_____ I _____

FOREARM
Right side ○   Left Side ○
Old pain ○   New pain ○
Before Treatment   I   After Treatment
_____ I _____

WRIST/HAND
Right side ○   Left Side ○
Old pain ○   New pain ○
Before Treatment   I   After Treatment
_____ I _____

THIGH
Right side ○   Left Side ○
Old pain ○   New pain ○
Before Treatment   I   After Treatment
_____ I _____

ANKLE/FEET
Right side ○   Left Side ○
Old pain ○   New pain ○
Before Treatment   I   After Treatment
_____ I _____

OTHER _____
Right side ○   Left Side ○
Old pain ○   New pain ○
Before Treatment   I   After Treatment
_____ I _____

SHOULDER
Right side ○   Left Side ○
Old pain ○   New pain ○
Before Treatment   I   After Treatment
_____ I _____

UPPER BACK
Right side ○   Left Side ○
Old pain ○   New pain ○
Before Treatment   I   After Treatment
_____ I _____

LOWER BACK
Right side ○   Left Side ○   Both sides ○
Old pain ○   New pain ○
Before Treatment   I   After Treatment
_____ I _____

HIP
Right side ○   Left Side ○
Old pain ○   New pain ○
Before Treatment   I   After Treatment
_____ I _____

KNEE
Right side ○   Left Side ○
Old pain ○   New pain ○
Before Treatment   I   After Treatment
_____ I _____

LOWER LEG
Right side ○   Left Side ○
Old pain ○   New pain ○
Before Treatment   I   After Treatment
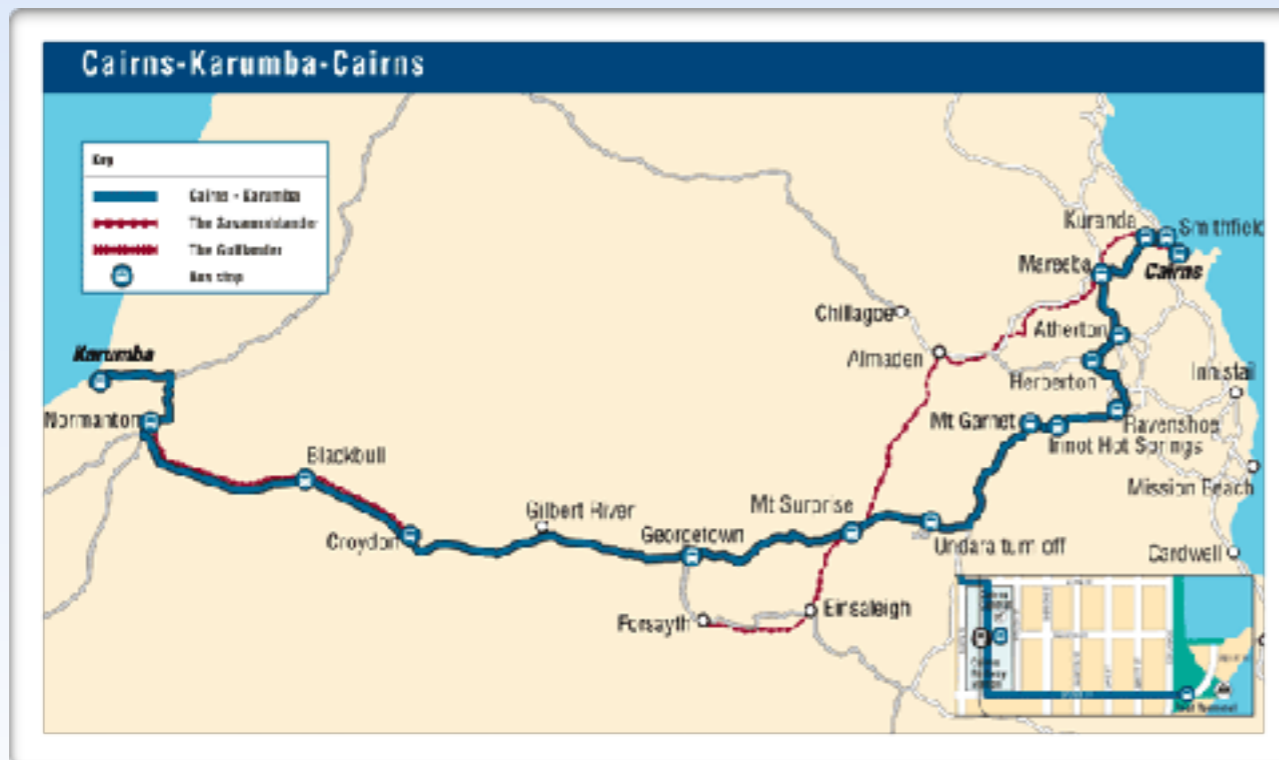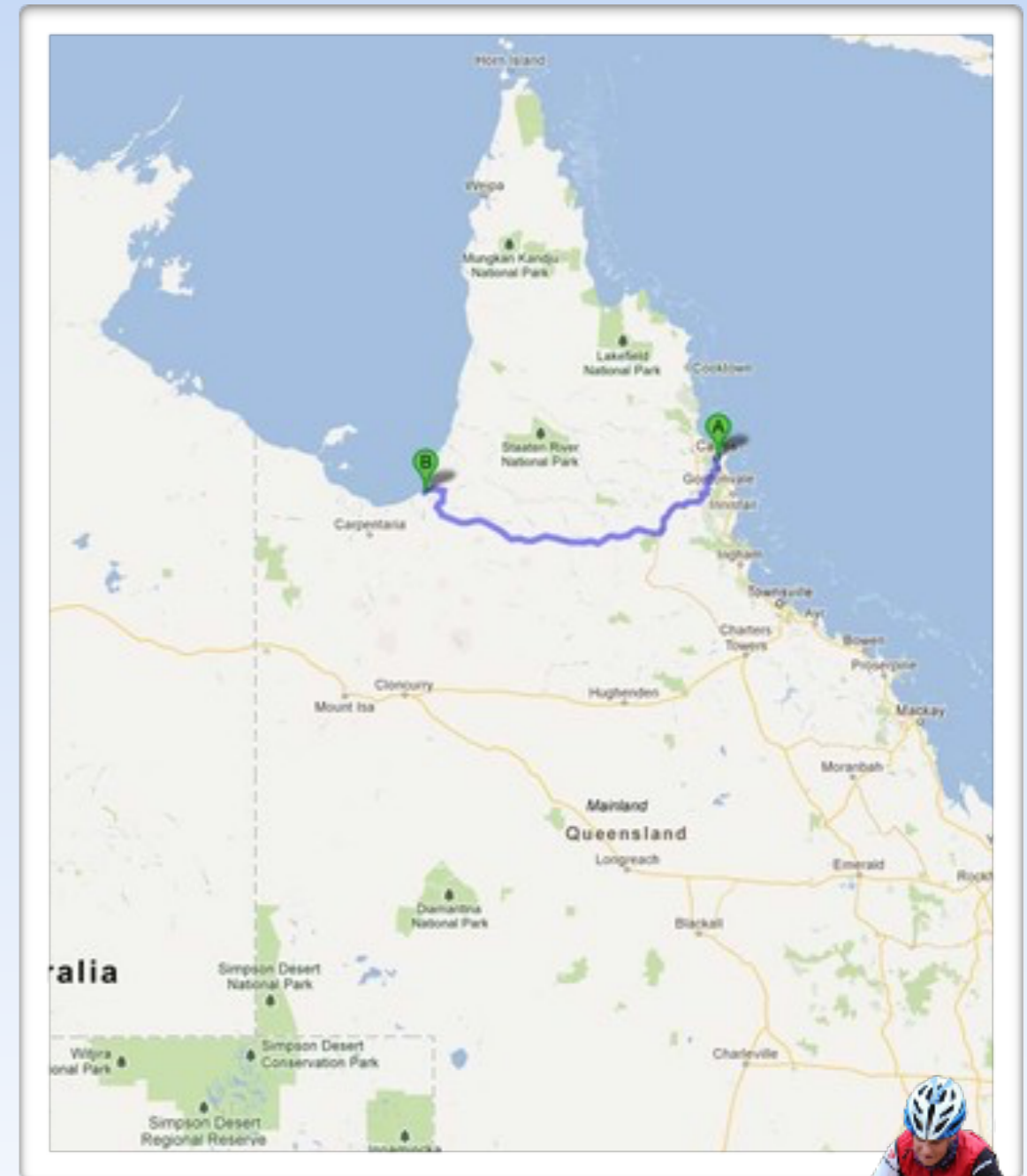_____ I _____

Cairns to Karumba 2016

A 780km, 7 day bike ride across Cape York, held between 25th June - 1st July 2016.

Cairns to Karumba 2016

Cairns to Karumba 2016
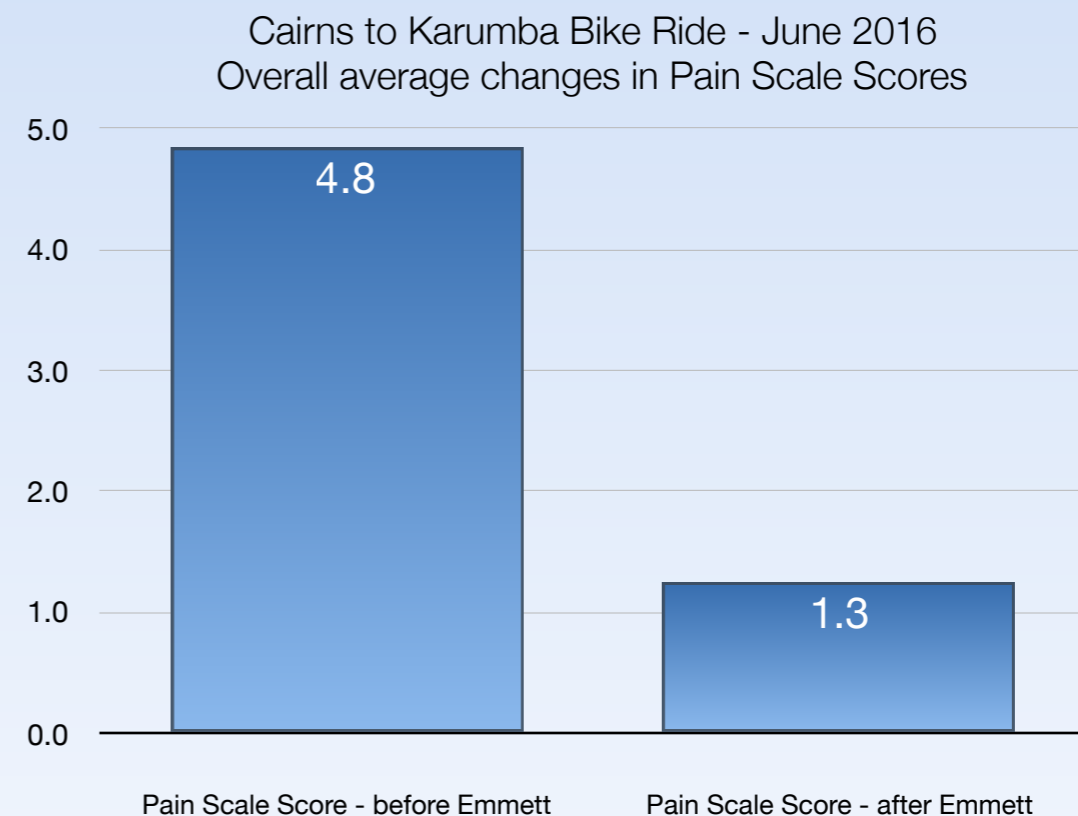
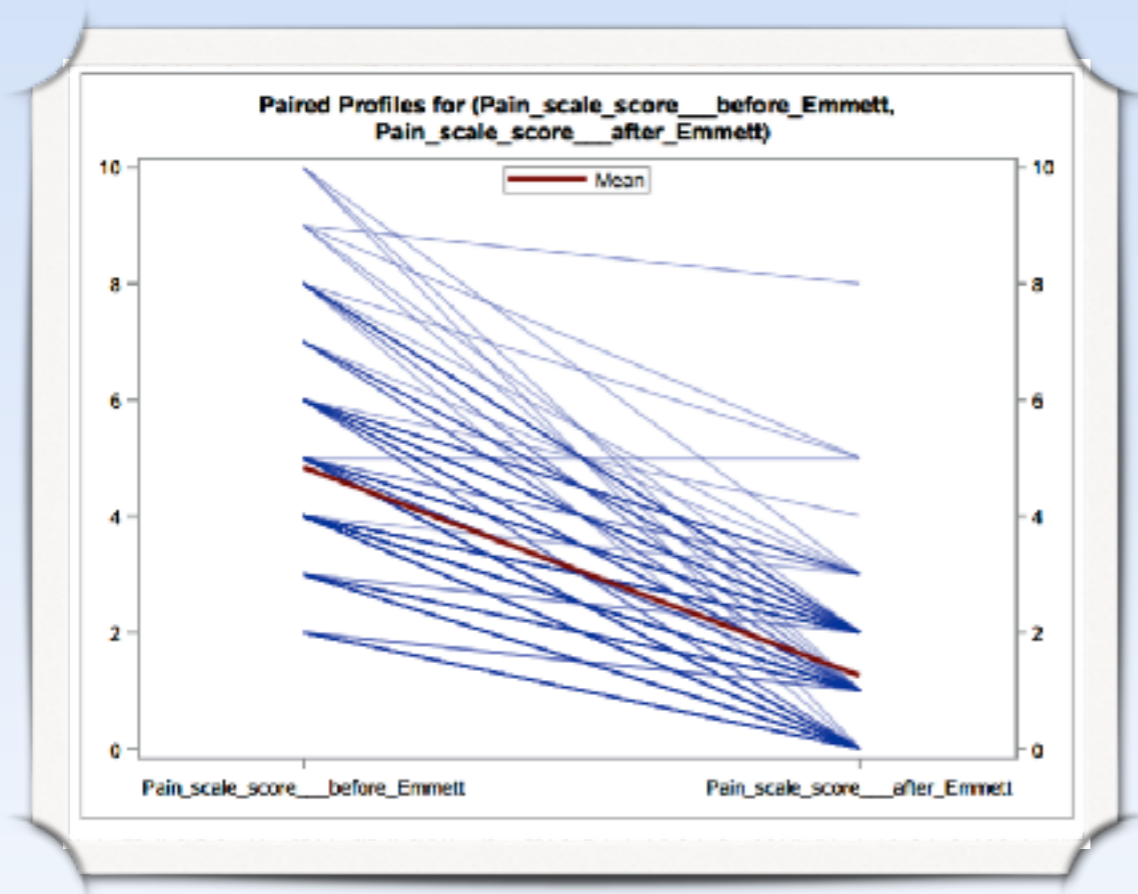**Our team of Emmett Therapists**

Rusty Allen, Gemma Dustin &
Jane Yeates

Cairns to Karumba 2016 - data

Summary of data

170 data points

Before and After Pain Scale Score
- Paired Scores -

Before and After Pain Scale Score Means

p-value < 0.01

Cairns to Cooktown 2016

September 17-19, 2016.

3 day Cardiac Challenge bike ride.

Our team of Emmett Therapists

Back (L-R): Jayne Guthrie, Heather Graham, Gemma Dustin, Amanda Mode
Front (L-R): Rusty Allen, Jane Yeates, Megan McQuillan

Cairns to Cooktown 2016

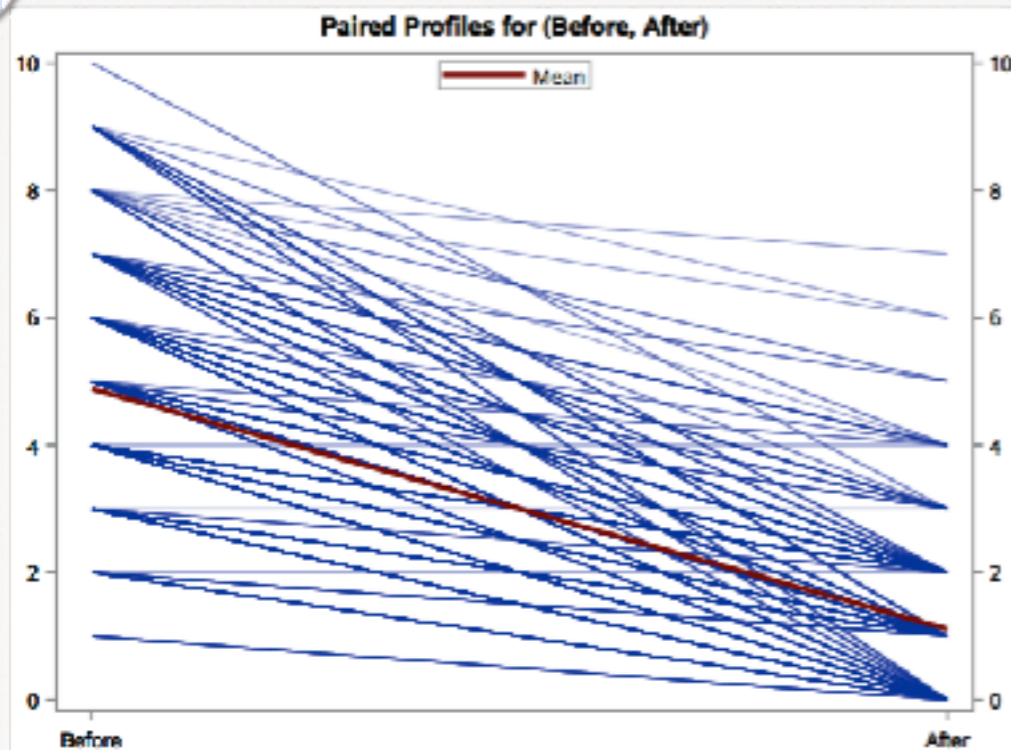# Cairns to Cooktown 2016
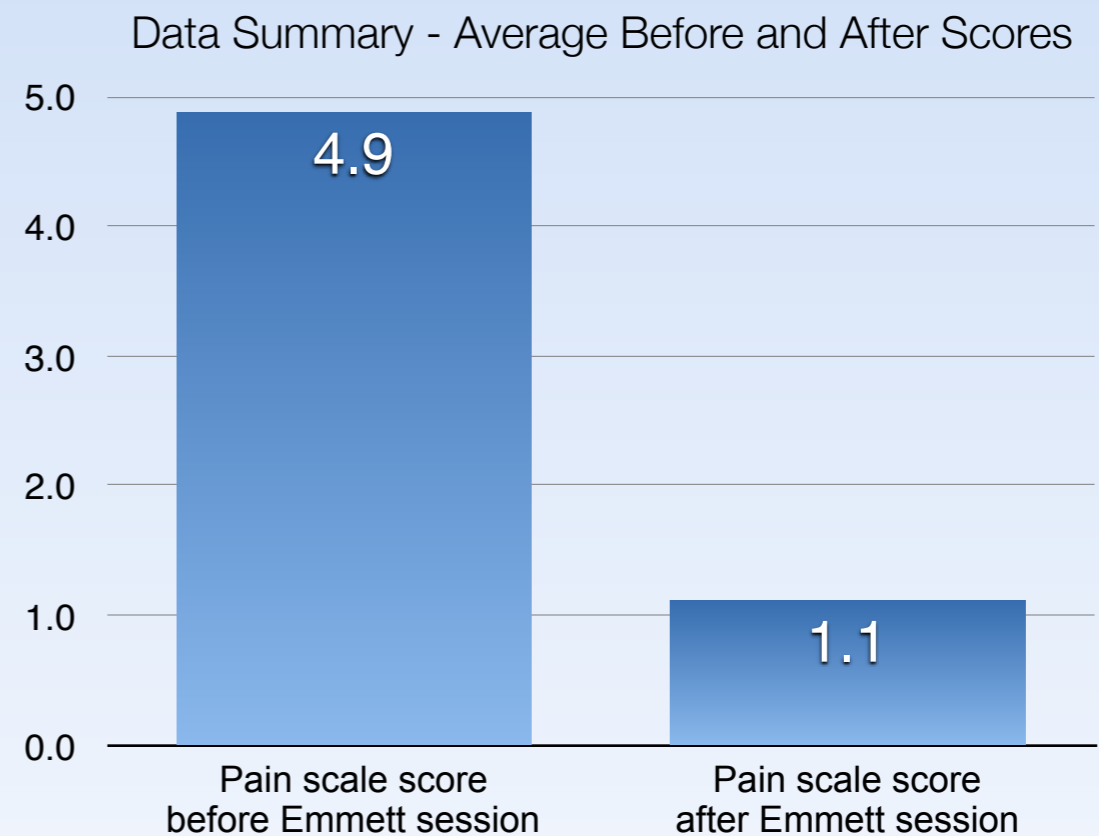

Waiting room

Waiting room and clinic

Cairns to Cooktown 2016 - data

Summary of data

520 data points

Before and After Pain Scale Score - Paired Scores -
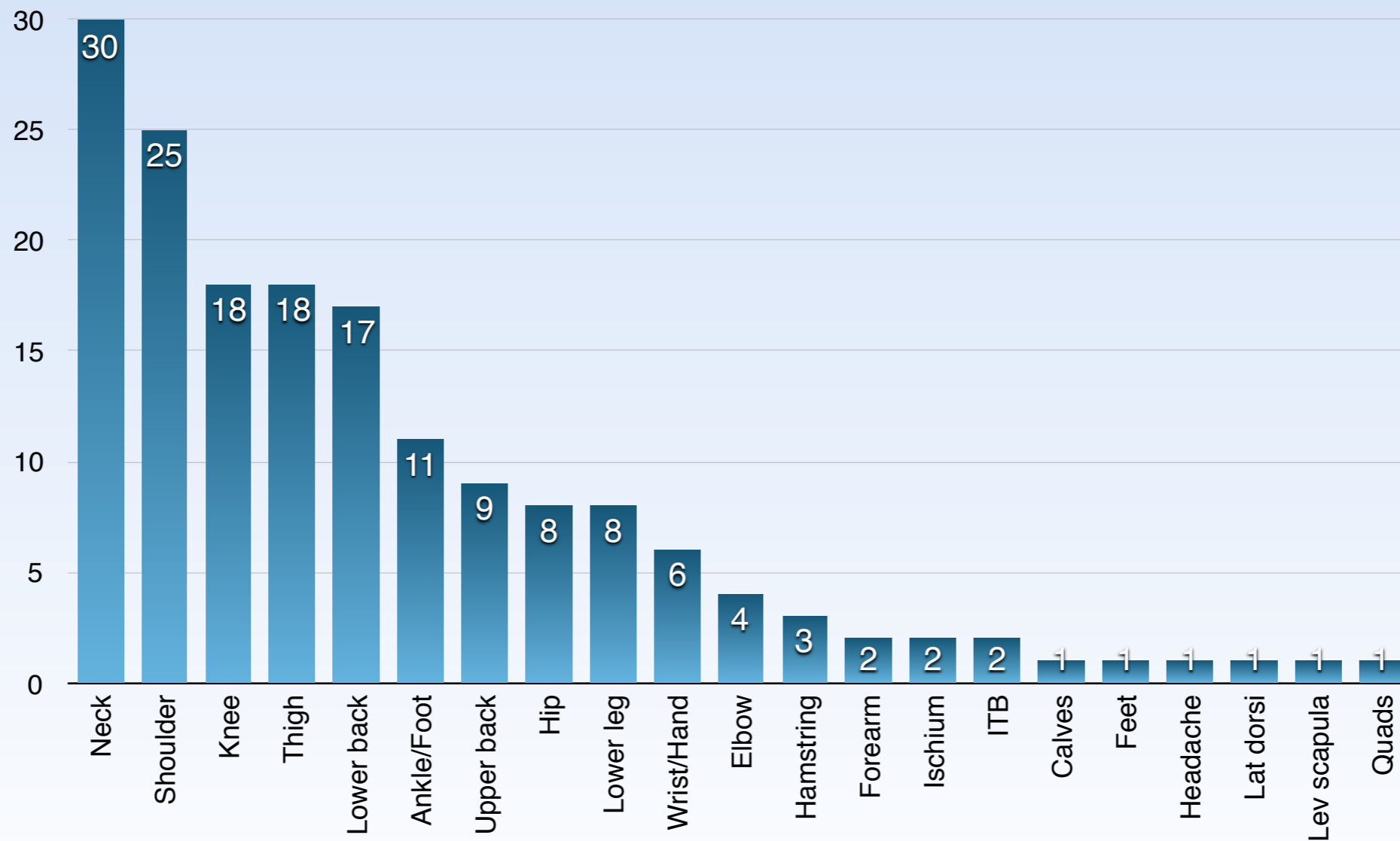

Before and After Pain Scale Score Means

p-value < 0.01

Treatment Areas

Cairns

Karumba

List of Areas of Concern and Number of Emmett Sessions Performed
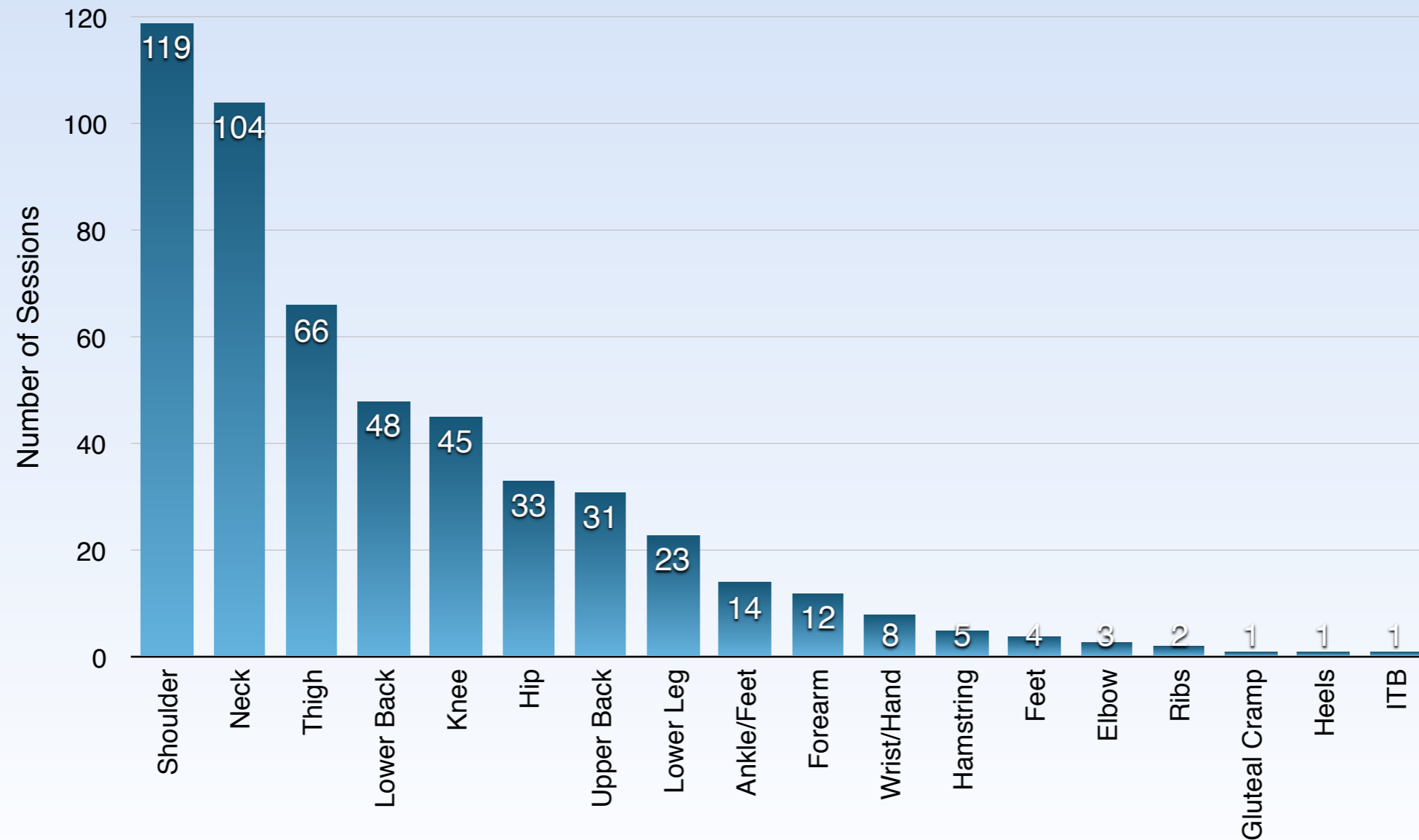Cairns to Karumba - June/July 2016

Area	Sessions
Neck	30
Shoulder	25
Knee	18
Thigh	18
Lower back	17
Ankle/Foot	11
Upper back	9
Hip	8
Lower leg	8
Wrist/Hand	6
Elbow	4
Hamstring	3
Forearm	2
Ischium	2
ITB	2
Calves	1
Feet	1
Headache	1
Lat dorsi	1
Lev scapula	1
Quads	1

Treatment Areas

Cairns → Cooktown

List of Areas of Concern and Number of Emmett Sessions Performed
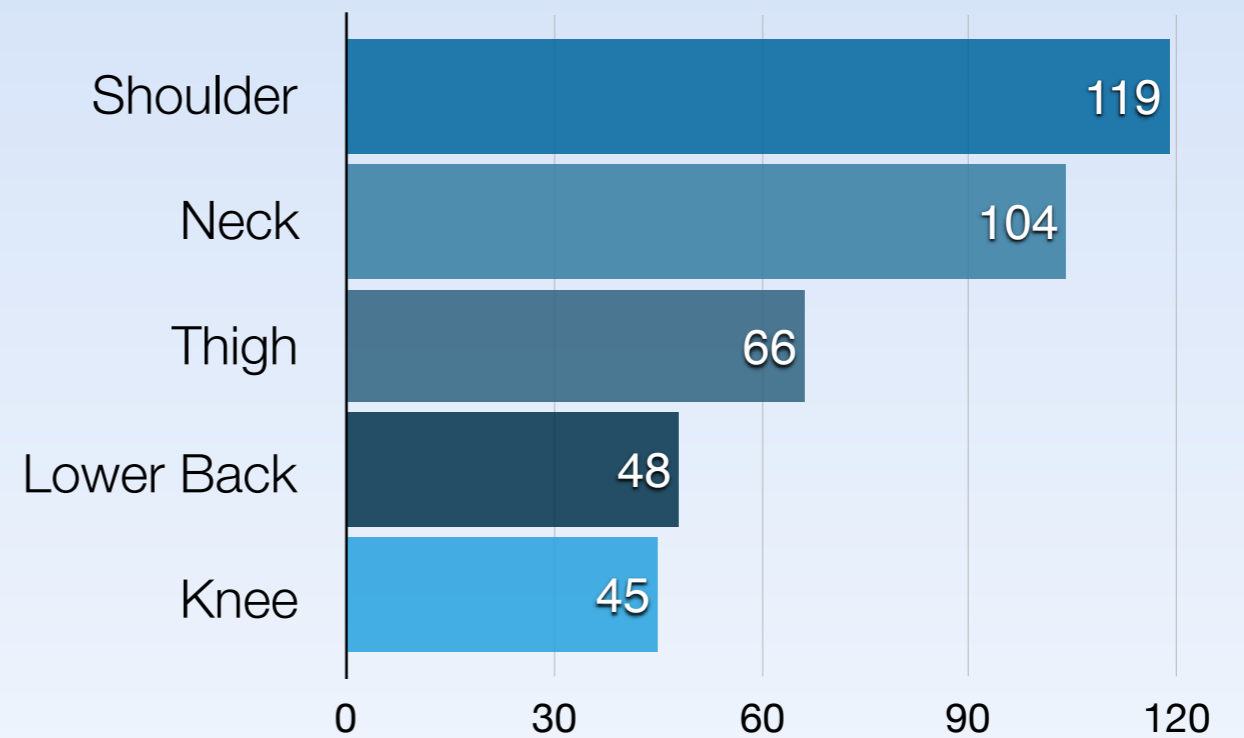### Cairns to Cooktown - September 2016
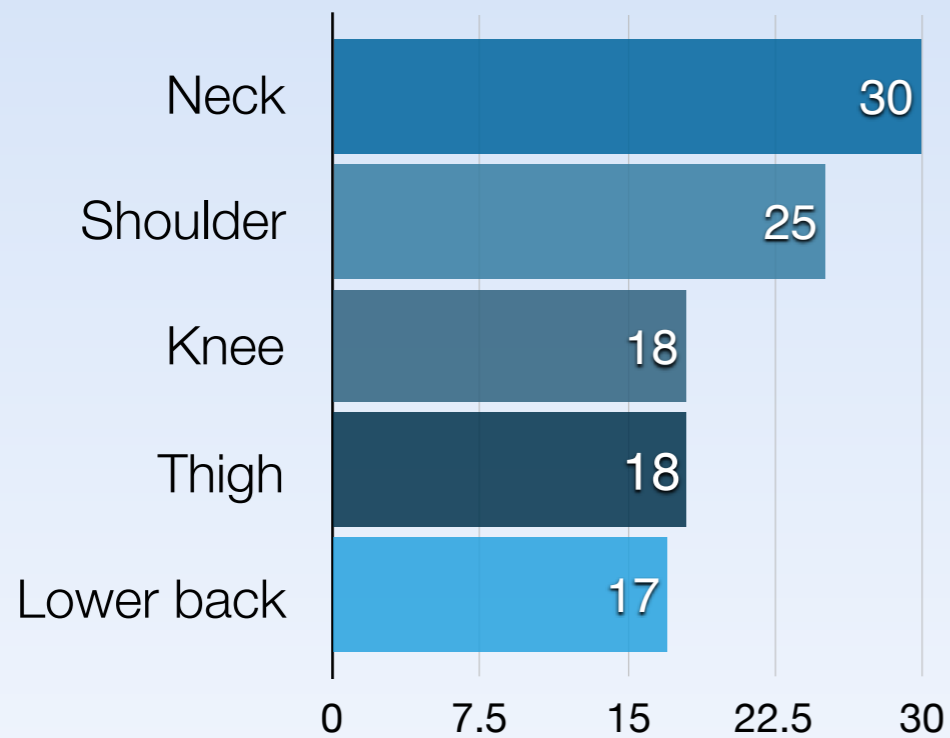
Number of Sessions (y-axis):

Area	Number of Sessions
Shoulder	119
Neck	104
Thigh	66
Lower Back	48
Knee	45
Hip	33
Upper Back	31
Lower Leg	23
Ankle/Feet	14
Forearm	12
Wrist/Hand	8
Hamstring	5
Feet	4
Elbow	3
Ribs	2
Gluteal Cramp	1
Heels	1
ITB	1

Cairns to Karumba - 2017

24th June - 30th June 2017

The 7 day, 780 km, bike ride across Cape York.

Our team of Emmett Therapists

Rusty Allen, Heather Clapham,
Megan McQuillan, Jane Yeates,
Fiona Phillips-Turner

106 Road Riders,
73 Dirt Riders,
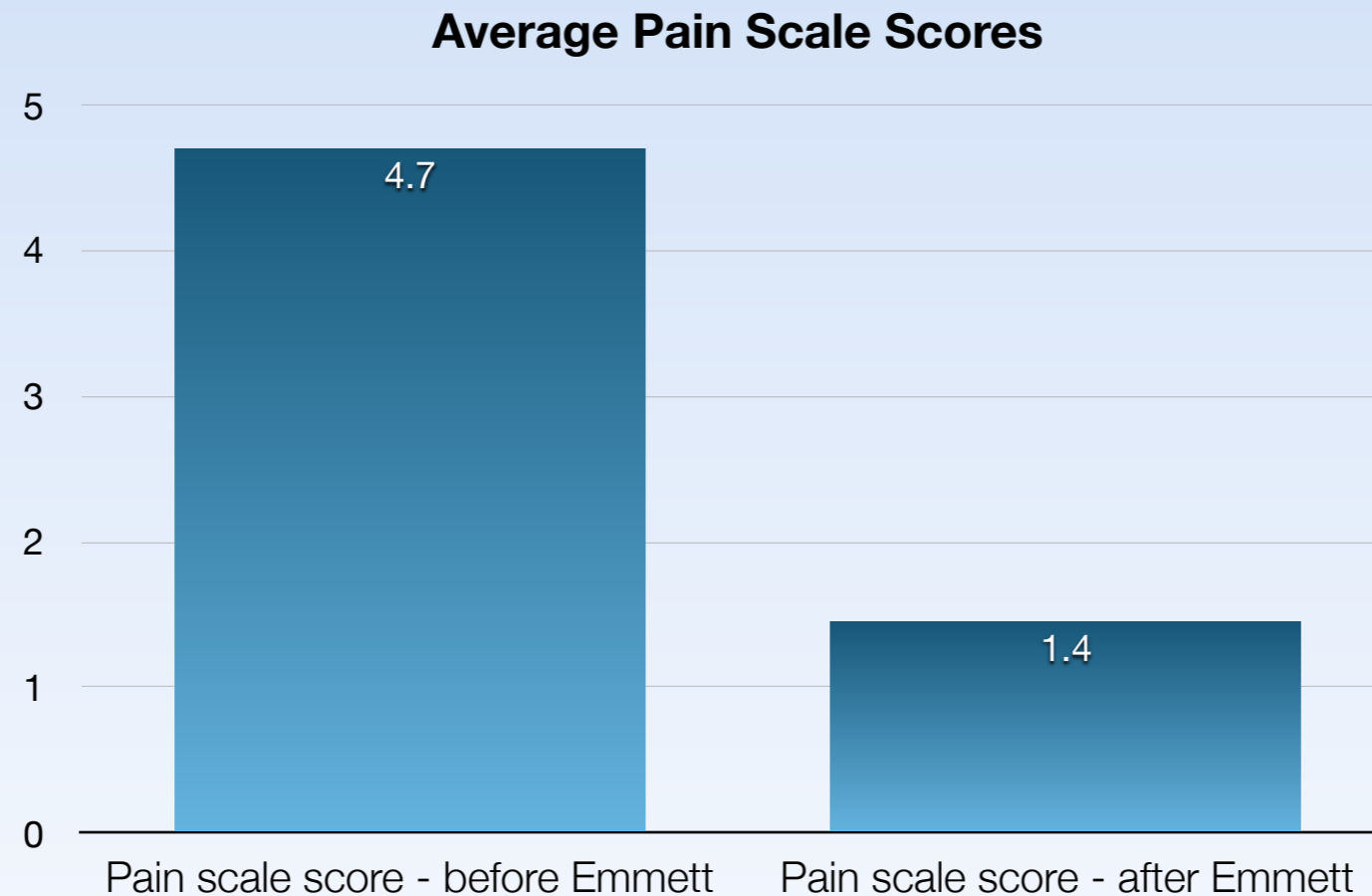24 support personnel,
64 volunteers
and 11 children.

Cairns to Karumba - 2017

Cairns to Karumba - 2017

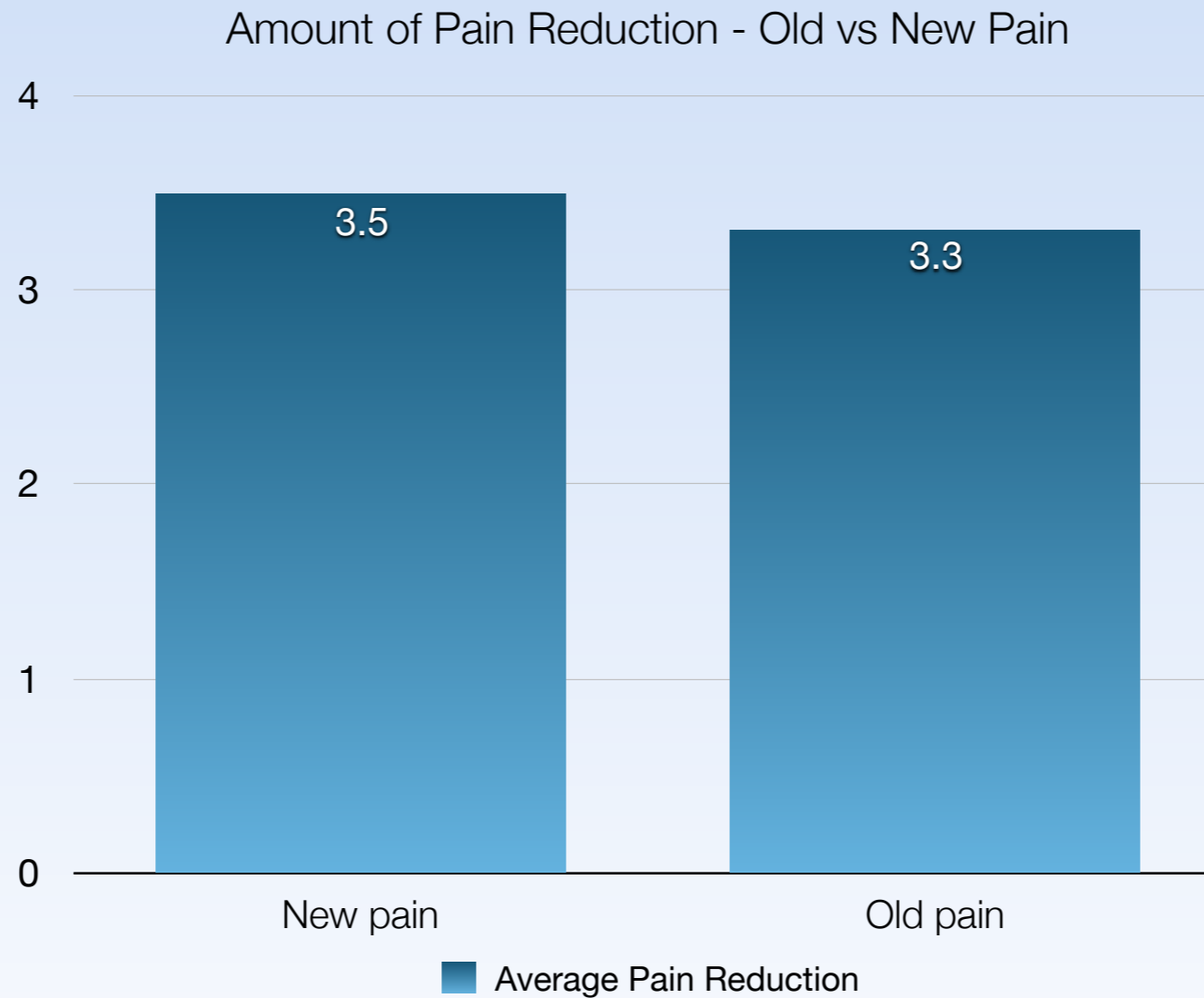A summary of **105** individuals receiving a total of **922** Emmett sessions across **15** body locations.

Average Pain Scale Scores

Statistically significant differences between 'before' and 'after' scores.

p-value < 0.001

Cairns to Karumba - 2017

Old vs New Pain (N=441)

Amount of Pain Reduction - Old vs New Pain

On analysis, **no** statistical difference was found between old or new pain

p-value = 0.261

Pain Scale Combined Data
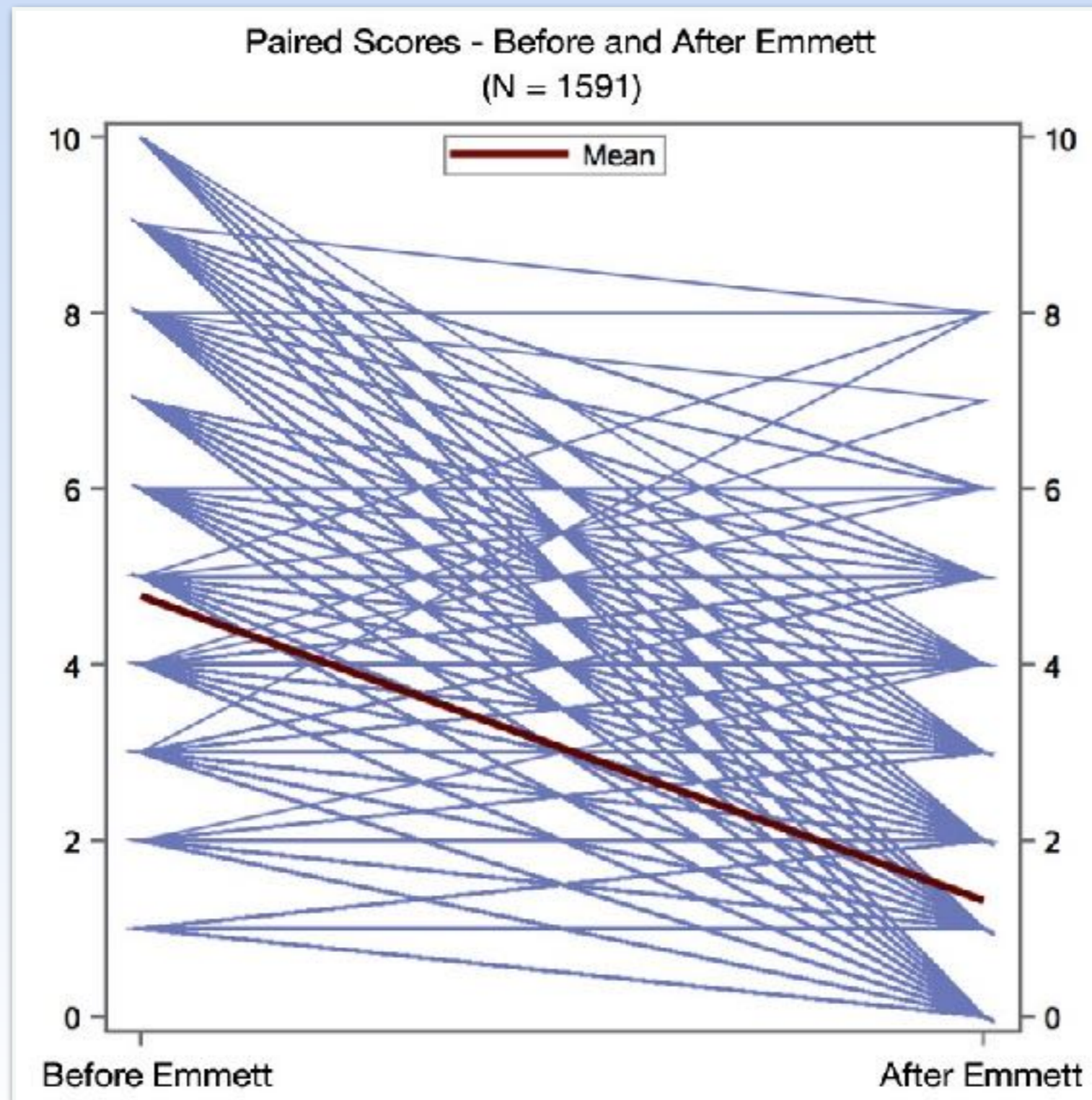
- Cairns to Karumba - 2016

- Cairns to Cooktown - 2016
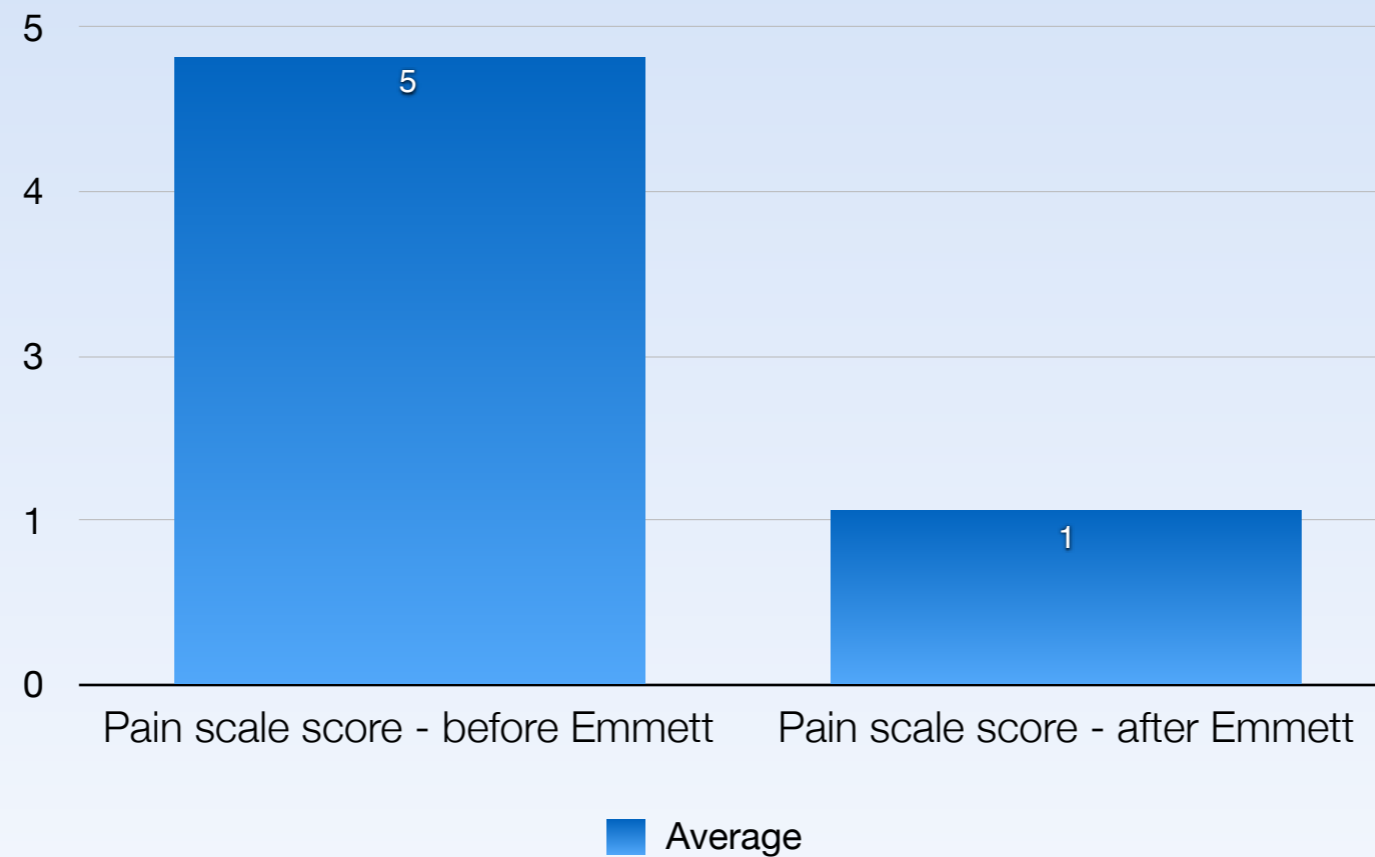
- Cairns to Karumba - 2017

1,591 data points

Combined Data

Paired Scores - Before and After Emmett
(N = 1591)

Combined Data

Average 'Before' and 'After' Pain Scale Scores

N = 1,591

p-value <0.01

However,

... there is more.

Effect Size - Cohen's d

Cohen's d uses a scale of:

d = 0.2 small effect

d = 0.5 medium effect

d = 0.8 large effect

The 'Before' and 'After' results of the combined data from all three events (1,591 data points) achieved a Cohen's d score of **2.08**.

Suggesting that (statistically) the **likelihood of change** after an Emmett session is **very strong.**

You all can be researchers

Plan what you want to measure and how

… gather data

… analyse it

… and share it.

Thank you