

How I used NEAT Fit to train for the “Coast to Coast” walk from St Bees in Cumbria to Robin Hoods Bay in Yorkshire UK



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## The Plan

I am always looking for new methods of training for long treks. While historically I would use high intensity training, for this walk I developed a movement program based on Non-Exercise Activity Transitions (NEAT). Typically, NEAT is all the movements performed during the day outside of the 30-60 minutes fitness sessions.

I called this program "NEAT Fit" with the aim of converting daily inactive periods into meaningful active periods. This requires an assessment of the role of movement in daily lives and a prescription based on MET minutes that create active homes, active work/retirement/unemployment, active transport and active leisure.

## The Program

My NEAT Fit Training program is based on using MET Minutes (METs x Minutes) as a workload, accumulated throughout the day in a variety of low to moderate intensity lifestyle physical activities.

To design my training program, I did a performance analysis on the Coast to Coast walk and from my research I used the following information to determine my workloads and training program.

TREK: UK Coast to Coast Walk across Cumbria and Yorkshire from St Bees to Robin Hoods Bay over 13 days (190 miles/320 km)

MET requirements per average per day = 4 METs

Time walked per day = average = 6 hours (360 minutes per day)

Total hours walked = 80-85 hours

Total MET Hours Goal = 320-350 or 19,200 MET Minutes-21,000 MET Minutes Daily

The walk would consist of track walking, hill walking, carrying, lifting, stepping, lunging, squatting, pulling, pushing.

Average MET Minutes per day = 360 minutes (6 hours) x 4 METs = 1440 MET Minutes Training

Training Dose: 50-75% of average daily MET Minutes = approximately 1,000 MET minutes per day or 6,000 MET Minutes per week with 1 recovery day per week.

The NEAT Fit Training program consisted of selecting a combination of daily sit to stand transitions, all types of walking, hill walking, active home activities, active work opportunities, active transport opportunities @ 1,000 MET Minutes for 4 weeks (6,000 x 4 = 24,000 MET Minutes) followed by the 5th week which was an unloading recovery week of 700 MET Minutes per day.

The 5 weeks block program was followed for 15 weeks (3 workload cycles) prior to the commencement of the walk for a total of 84,800 MET Minutes, which was equivalent to completing the walk 4 times.

As a means of monitoring my progress and the degree of difficulty of the walk, I collected the data given the limitations of a backpack and its contents. I used my Garmin tracker to track distances and my Fibion to measure energy expenditure and different degrees of intensity

I walked with a group of 11 people, 10 of whom were over 50 years, with the youngest 40 and the oldest 70 years. We walked for 13 days and covered over 340 km/190 miles without any rest days.

Data collected on the walk included;

The following is a daily breakdown of distance covered, steps taken, energy expended, floors climbed, time walking and intensity levels (METs) of that journey.

Distance covered: measured in kilometres over the course of the day.

Steps walked: measured over the course of the day.

Floors climbed: measured over the course of the day. One floor is reportedly equivalent to climbing 10 feet or 3 metres.

Energy expended: measured as kcals over the course of the day and includes daily resting energy expenditure.

Oxygen consumption: measured in METs over the daily distance of the walk, not the entire day. One (1) MET is equivalent to  $3.5 \text{ mlO}_2/\text{kg}/\text{min}^{-1}$  and is equivalent to resting energy expenditure based on oxygen consumption. < 1.5 METs is resting or sedentary, 1.5-3 METs is classified as low intensity, 3-6 METs is classified as moderate intensity, while > 6 METs is classified as vigorous intensity.

Walking time: measured as hours and minutes for the duration of the walking day

## The Walk

### Day 1: St Bees to Ennerdale Bridge

The Coast to coast walk is typically completed from West to East, starting at St Bees on the Irish Sea. The walk starts on the beach at St Bees and after picking up a pebble that will be thrown in the North Sea on journeys end as well as wetting your boots in the sea it begins along the coastal cliffs then inland over the hills of the Lakes district. The climb up Dent hills is the first tough physical test and then finishes with a long walk into Ennerdale Bridge.

Distance covered: 27 km

Steps walked: 42,142

Floors climbed: 100

Energy Expenditure: 4,305 kcals

Oxygen consumption: 3 hours 35 minutes > 6 METs (6 times resting energy expenditure) = >21 ml/kg/min<sup>-1</sup>

2 hours 25 minutes between 3.5 METs-6 METs (3.5 – 6 times resting energy expenditure) = 12.5 ml/kg/min<sup>-1</sup>- 21 ml/kg/min<sup>-1</sup>

12 minutes at < 3.5 METs (12.5 ml/kg/min<sup>-1</sup>) (3.5 times resting energy expenditure)

Walking time: 6 hours 12 minutes

## Day 2: Ennerdale Bridge to Borrowdale

Walk along the shores of Ennerdale waters and then along forest track to Black Sail hut. This is followed by a steep climb up the Lowther Beck and then across lake fells, reaching the descending path into the Honister Slate Mines and then to Borrowdale.

Distance covered: 26 km

Steps walked: 40,104

Floors climbed: 128

Energy Expenditure: 4,646 kcal

Oxygen consumption: 3 hours 13 minutes > 6 METs (6 times resting energy expenditure) > 21 ml/kg/min<sup>-1</sup>

2 hour 39 minutes between 3.5 METs-6 METs (3.5 times- 6 times resting energy expenditure) = 12.5 ml/kg/min<sup>-1</sup>-21 ml/kg/min<sup>-1</sup>

40 minutes at < 3.5 METs (12.5 ml/kg/min<sup>-1</sup>) (3.5 times resting energy expenditure)

Walking time: 6 hours 32 minutes

## Day 3: Borrowdale to Grasmere

Walk along the lakes across the ridges and descending into into Grasmere.

Distance covered: 23 km

Steps walked: 32,345

Floors climbed: 104

Energy Expenditure: 4,429 kcal

Oxygen consumption: 2 hours 43 minutes > 6 METs (6 times resting energy expenditure) > 21 ml/kg/min<sup>-1</sup>

3 hours 28 minutes between 3.5 METs-6 METs (between 3.5 - 6 times resting energy expenditure) = 12.5 ml/kg/min<sup>-1</sup> - 21 ml/kg/min<sup>-1</sup>

23 minutes at < 3.5 METs (12.5 ml/kg/min<sup>-1</sup>)(3.5 times resting energy expenditure)

Walking time: 6 hours 34 minutes

#### Day 4: Grassmere to Patterdale

Walk over Grisedale pass (2,000 ft) around the lake and into Patterdale.

Distance covered: 14 km

Steps walked: 19,368

Floors climbed: 99

Total Daily Energy Expenditure: 3,553 kcal

Oxygen consumption: 1 hours 57 minutes > 6 METs (6 times resting energy expenditure) > 21 ml/kg/min<sup>-1</sup>

2 hours 31 minutes between 3.5 METs- 6 METs (3.5 - 6 times resting energy expenditure) = 12.5 ml/kg/min<sup>-1</sup> - 21 ml/kg/min<sup>-1</sup>

38 minutes at < 3.5 METS (12.5 ml/kg/min<sup>-1</sup>) (3.5 times resting energy expenditure)

Walking time: 5 hours 6 minutes

#### Day 5 Patterdale to Shap

A demanding day starting with a steep climb past Angle Tarn and then continue upwards to Kirsty peak (2,560 ft) the highest point in the walk and then a descent into Haweswater and then a gentler walk into Shap. This is the most easterly point of the Lakes district.

Distance covered: 24.15kms

Steps walked: 33,500

Floors climbed: 286

Energy Expenditure: 4,882 kcal

Oxygen consumption: 3 hours 25 minutes > 6 METs (6 times resting energy expenditure) > 21 ml/kg/min<sup>-1</sup>

2 hours 50 minutes between 3.5 METs- 6 METs (3.5 - 6 times resting energy expenditure) = 12.5 ml/kg/min<sup>-1</sup>- 21 ml/kg/min<sup>-1</sup>

40 minutes at < 3.5 METS (12.5 ml/kg/min<sup>-1</sup>) (3.5 times resting energy expenditure)

Walking time: 6 hours 55 minutes

#### Day 6: Shap to Kirkby Stephen

Walking between Cumbria and the Yorkshire Dales there is a hilly section across the Limestone Moors. There are many ascents and descents around Smartdale Ridge and then into Kirkby Stephen.

Distance covered: 33.71 kms

Steps walked: 46,755

Floors climbed: 129

Energy Expenditure: 5,525 kcals

Oxygen consumption: 5 hours 42 minutes > 6 METs (6 times resting energy expenditure) > 21 ml/kg/min<sup>-1</sup>

1 hours 34 minutes between 3.5- 6 METs (3.5- 6 times resting energy expenditure) = 12.5 ml/kg/min<sup>-1</sup> - 21 ml/kg/min<sup>-1</sup>

20 minutes at < 3.5 METs (12.5 ml/kg/min<sup>-1</sup>) (3.5 times resting energy expenditure)

Walking time: 7 hours 36 minutes

### Day 7 Kirkby Stephen to Keld

Climb out of Kirkby Stephen to the Nine Standards (2,170 ft) then across the muddy Moors and down into Keld.

Distance covered: 24 km

Steps walked: 33,150

Floors climbed: 137

Energy Expenditure: 4,352 kcal

Oxygen consumption: 2 hours 54 minutes > 6 METs (6 times resting energy expenditure) > 21 ml/kg/min<sup>-1</sup>

3 hours 26 minutes between 3.5 – 6 METs (3.5- 6 times resting energy expenditure) = 12.5 ml/kg/min<sup>-1</sup> - 21 ml/kg/min<sup>-1</sup>

28 minutes at < 3.5 METS (12.5 ml/kg/min<sup>-1</sup>) (3.5 times resting energy expenditure)

Walking time: 6 hours 48 minutes

### Day 8 Keld to Reeth

We took the higher alternative over the windy moorland and through the lead mines

Distance covered: 25.3 km

Steps walked: 34,198

Floors climbed: 135

Energy Expenditure: 4,952 kcal

Oxygen consumption: 4 hours 10 minutes > 6 METs (6 times resting energy expenditure) > 21 ml/kg/min<sup>-1</sup>

1 hours 50 minutes between 3.5 – 6 METs (3.5- 6 times resting energy expenditure) = 12.5 ml/kg/min<sup>-1</sup> - 21 ml/kg/min<sup>-1</sup>

23 minutes at < 3.5 METS (12.5 ml/kg/min<sup>-1</sup>) (3.5 times resting energy expenditure)

Walking time: 6 hours 23 minutes

### Day 9 Reeth to Richmond

Walk through Swaledale and into Richmond.

Distance covered: 22.3 km

Steps walked: 30,837

Floors climbed: 104

Energy Expenditure: 4,484 kcal

Oxygen consumption: 3 hours 51 minutes > 6 METs (6 times resting energy expenditure) > 21 ml/kg/min<sup>-1</sup>

1 hours 34 minutes between 3.5 – 6 METs (3.5- 6 times resting energy expenditure) = 12.5 ml/kg/min<sup>-1</sup> - 21 ml/kg/min<sup>-1</sup>

35 minutes at < 3.5 METS (12.5 ml/kg/min<sup>-1</sup>) (3.5 times resting energy expenditure)

Walking time: 6 hours

### Day 10 Richmond to Osmotherley

This is the longest and flattest day of the walk bringing together the Yorkshire Dales and the North York Moors National Park.

Distance covered: 39.40 km

Steps walked: 54,654

Floors climbed: 63

Energy Expenditure: 6,202 kcal

Oxygen consumption: 6 hours 20 minutes > 6 METs (6 times resting energy expenditure) > 21 ml/kg/min<sup>-1</sup>

1 hours 11 minutes between 3.5- 6 METs (3.5- 6 times resting energy expenditure) = 12.5 ml/kg/min<sup>-1</sup> - 21 ml/kg/min<sup>-1</sup>

18 minutes at < 3.5 METS (12.5 ml/kg/min<sup>-1</sup>) (3.5 times resting energy expenditure)

Walking time: 7 hours 49 minutes

## Day 11 Osmotherley to Blakely

A demanding day with many ascents and descents in the Cleveland hills then across the moors to Rosedale and then up to Claybank Top followed by a long flat walk to Blakely.

Distance covered: 32.07 km

Steps walked: 44,470

Floors climbed: 196

Energy Expenditure: 5,965 kcal

Oxygen consumption: 5 hours 37 minutes > 6 METs (6 times resting energy expenditure) > 21 ml/kg/min<sup>-1</sup>

1 hours 37 minutes between 3.5- 6 METs (3.5- 6 times resting energy expenditure) = 12.5 ml/kg/min<sup>-1</sup> - 21 ml/kg/min<sup>-1</sup>

12 minutes at < 3.5 METS (12.5 ml/kg/min<sup>-1</sup>) (3.5 times resting energy expenditure)

Walking time: 7 hours 26 minutes

## Day 12 Blakely to Egton Bridge

Walk on the road past Fat Betty and then undulating descent down into Eskdale, along the river Esk and into Egton Bridge.

Distance covered: 21.5 km

Steps walked: 29,910

Floors climbed: 33

Energy Expenditure: 4,264 kcal

Oxygen consumption: 4 hours 2 minutes > 6 METs (6 times resting energy expenditure) > 21 ml/kg/min<sup>-1</sup>

46 minutes between 3.5 – 6 METs (3.5- 6 times resting energy expenditure) = 12.5 ml/kg/min<sup>-1</sup> - 21 ml/kg/min<sup>-1</sup>

20 minutes at < 3.5 METS (12.5 ml/kg/min<sup>-1</sup>) (3.5 times resting energy expenditure)

Walking time: 5 hours 8 minutes

## Day 13 Egton Bridge to Robin Hoods Bay

Walk along roads up the moors looking down to Whitby. From the high moors, the last 5 km is along the coastal track to Robin Hoods Bay.

Distance covered: 28.39 km

Steps walked: 39,380

Floors climbed: 175

Energy Expenditure: 4,855 kcals

Oxygen consumption: 3 hours 13 minutes > 6 METs (6 times resting energy expenditure) > 21 ml/kg/min<sup>-1</sup>

2 hours 35 minutes between 3.5 – 6 METs (3.5- 6 times resting energy expenditure) = 12.5 ml/kg/min<sup>-1</sup> - 21 ml/kg/min<sup>-1</sup>

16 minutes at < 3.5 METS (12.5 ml/kg/min<sup>-1</sup>) = 12 (3.5 times resting energy expenditure)

Walking time: 6 hours 4 minutes

## Data Summary from the “Coast to Coast” Walk

Distance Covered: 340.82 km

Average daily distance covered: 26.2 km

Total walking time: 84 hours 11 minutes

Average walking time per day: 6 hours 25 minutes at a daily average speed of 4 km per hour.

Steps taken: 480,813

Average daily steps: 36,985

Energy expended: 62,814 kcal

Average daily energy expenditure: 4,831 kcal

Floors climbed: 1,639

Average daily floors climbed: 126

Time spent at > 6 METs (> 21 ml/kg/min<sup>-1</sup>) is 51 hours 39 minutes (vigorous intensity)

Average daily time > 6 METs is 3 hours 58 minutes

Average daily MET Minutes > 6 METs is 1,428 MET Minutes

Time spent between 3.5 – 6 METs (12.5 ml/kg/min<sup>-1</sup> - 21 ml/kg/min<sup>-1</sup>) is 27 hours 07 minutes (moderate intensity)

Average daily time spent between 3.5- 6 METs is 2 hours and 5 minutes

Average daily MET Minutes between 3.5 METs – 6 METs is 437-750 MET Minutes

Time spent < 3.5 METs (<12.5 ml/kg/min<sup>-1</sup>): 5 hours 25 minutes (low intensity)

Average daily time < 3.5 METs = 25 minutes per day

Average daily MET Minutes < 3.5 METs = 87 MET Minutes

\*\*\* For health benefits the World Health Organisation (WHO) recommends a minimum of 150 minutes of moderate intensity activity per week (5 days) at an intensity of 4 METs = 600 MET Minutes or 75 minutes of vigorous intensity activity per week (5 days) at 6 METs = 450 MET minutes.

Average daily MET minutes based on the WHO recommendations at a moderate intensity = 120 MET Minutes.

Average daily MET Minutes based on the WHO recommendation at a vigorous intensity = 90 MET Minutes.

The daily MET minutes for moderate intensity on the Coast to Coast was between 437-750 MET Minutes, which is 3-8 times the WHO daily recommendations.

The daily MET minutes for vigorous intensity on the Coast to Coast was 1,428 MET Minutes, which is over 15 times the WHO daily recommendations of 90 MET Minutes!!

The Bottom Line

Before the walk I was told by many fitness experts that using non-conventional training methods that apparently lacked specificity would be doomed to failure. The trekking company suggested a training program that was gym based with a combination of high intensity interval training, circuits, spin classes and weight training sessions. They also suggested a few long walks to ensure the distance could be covered. The overall training program was a typical general fitness program that is typically prescribed in a fitness environment.

The NEAT Fit program exceeded my expectations and prepared me for the demands of a long walk so much better than any conventional fitness program that I have ever undertaken. I built the program into my lifestyle and trained my body in the movements that it was designed to perform over the past 100,000 years.