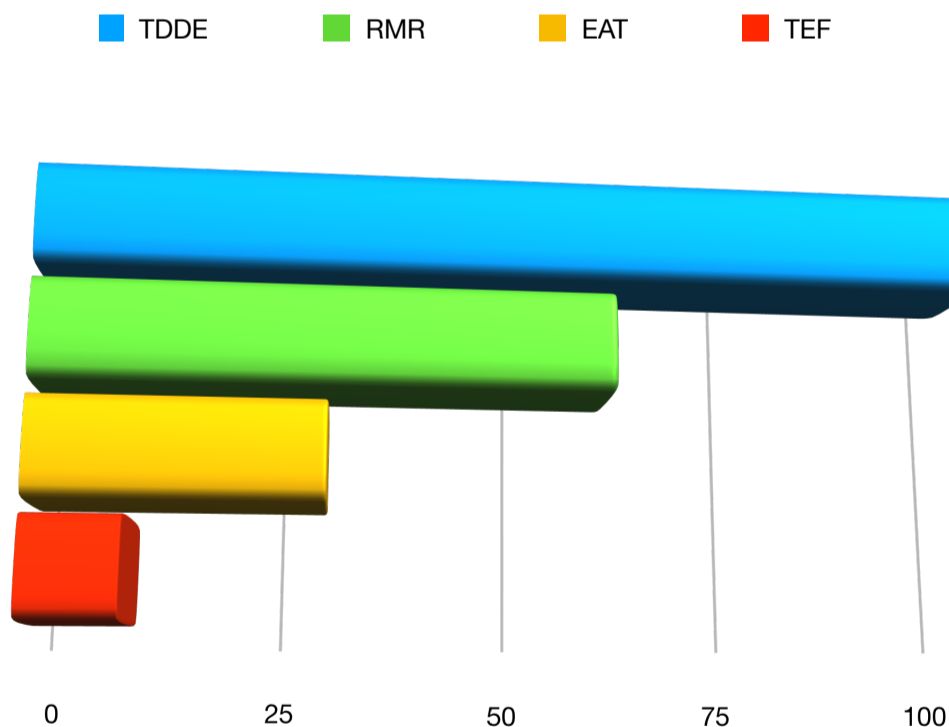


# Transformation Numbers.

Want to Transform the way your body looks? Have you heard of the need for a calorie deficit but have no idea on how to calculate it? The first stage is to get an idea of the estimated total calorie requirements to keep your body weight the same. This gives us a starting place to estimate the deficit required to lose weight. This is know as:

■ TDEE (Total Daily Energy Expenditure) and is made up of 3 key areas.



RMR is the resting metabolic rate. This figure is the energy required to carry out vital functions at rest such as a beating heart and breathing which amounts to between 50-70% of your TDEE based on how active you are per day. The more active the smaller the percentage of TDEE your RMR makes up.

■ TEF is the Thermic effect of food. This is the number of calories burned during digestion, absorption and processing of foods for use and storage. Each macronutrient

has a different effect (see table below) but it is widely recognised that this value, assuming a balanced diet, will only account for around 10%. This means that regardless of if you consume 5-6 small meals or 3 larger meals, the TEF for the day will be the same. The advise then is to do what works for you!


PROTEIN	FATS	CARBOHYDRATE
20-30% EFFECT	1-3% EFFECT	5-10% EFFECT

EAT stands for Exercise Activity Thermogenesis. This is the required amount of calories burned whilst performing not only purposeful exercise such as weight training or cardio, but also all other physical activity such as you day to day job, gardening, shopping walking the dog etc.

It's important to note that these calculations are based on tons of research and theory from text books because as humans we don't tend to fit the mould. We use the figures to make informed "best guess" estimates. Realistically, it's just to give us a starting point to be fined tuned and reviewed in a response to how progress is being made.

### STAGE 1: Calculating your RMR.

We need some basic data here to get us started. The first is measurements



- .....| 1. Height (without shoes) in cm
- .....| 2. Neck circumference measured just below the larynx
- |
- .....| 3. Natural waist measured over the narrowest part of the waist
- .....| 4. Navel measured over the belly button
- .....| 5. Hips measured over the greatest protrusion of your buttocks
- | as viewed from the side
- |
- .....| MEN: measure height, neck and navel at first assessment

WOMAN: measure height, neck, natural waist, navel and hips.

From the information gathered from the above measurements, the first number we need to acquire is your estimated body fat percentage. Whilst there are numerous ways of doing so from skin fold calliper measurements, bio impedance machines etc, a rough guide is all that is needed to set the starting data, so I favour using the Navy Body fat calculation method which requires a neck measurement, hips and abs for females, neck, abs and chest for males. There are various websites that can be used, I personally go to [www.omnicalculator.com](http://www.omnicalculator.com) . Fill in the online boxes for instant info.

Once the body fat percentage figure has been calculated the next step is to work out your BMR. **Basal Metabolic Rate** (BMR) is the estimated number of calories required to keep your body functioning at rest which includes heart beating, hormone regulation, cellular repair etc. BMR is also known as your body's metabolism; therefore, any increase to your metabolic weight, such as exercise, will increase your BMR. The BMR will change as your weight does so its definitely worth recalculating this figure regularly when progress is made. I use the Katch-McArdle equation for this. The best way I can describe the process is by going through an example.

Lets met Mary. She is a 48yr old office worker who hasn't exercised for 4 years after the birth of her twins. She wants to get back to her pre pregnancy weight and improve her fitness. Prior to her children she was a keen gym user and loved all of the classes. At 5ft 4in she is 78kg and overweight for her height. Her sedentary occupation means long hours behind a desk but the twins keep her on her toes when she is at home. From taking her basic measurements at our consultation I found:

Neck 35.5cm

Waist 90cm

Hips 104.5cm

Right Arm 33.5cm

Left Arm 33cm

Right Leg 63.5cm

Left Leg 63cm

From the Navy Body Fat calculator this gave her a Body Fat estimate at 38.4%

Now we can use these figures in the Katch-McArdle equations to work out our starting point, and we'll use Marys data.

Calculate Body Fat Mass: (BFM)

Starting body weight (KG) x Body Fat Percentage % (decimal form so divide by 100)  
= Body Fat Mass (KG)

$$78kg \times 0.384 = 29.9kg \text{ LBM}$$

Calculate Lean Body Mass: (LBM)

Starting Body Weight (KG) - Body Fat Mass (KG)  
= Lean Body Mass (KG)

$$78kg - 29.9kg = 48.1kg \text{ BFM}$$

Calculate Resting Metabolic Rate (RMR):

Katch-McArdle:-  $(21.6 \times \text{LBM}) + 370 = \text{RMR}$

$$21.6 \times 48.1 = 1038Kcal + 370 = 1408Kcal$$

Calculate Total Daily Energy Expenditure (TDEE):

Activity Ratios

1.1 - Very Sedentary both occupationally and lifestyle

|

1.5 - Baseline starting point which is the reviewed based on rate of progress.

|

1.8 - For those with an active occupation

|

2.2 - Very active occupation/Lifestyle

To Calculate:-

RMR x Activity Ratio = TDEE

$$**1408 Kcal x 1.5 = 2112 Kcal**$$

Calculate Calorie Deficit:

Aim for weight loss at a rate of 0.5%-1.0% of starting body weight (KG) depending on goal. To begin, I highly recommend a starting point of 0.75% which is reviewed after progress is seen. If too rapid a drop with negative effects, tiredness, dizziness, hunger, lack of concentration, adjust to 0.5%.

Starting Body weight (KG) x 0.75% (in decimal form so divide by 100)

= Weekly weight loss target. (KG)

$$**78 kg x 0.0075% = 0.585 kg**$$

Weekly weight loss target (KG) x 7700 = Weekly Calorie Deficit (Kcal)

$$**0.585 x 7700 = 4504.5 Kcal**$$

Weekly Calorie Deficit / (divide) 7 = Daily Calorie deficit (Kcal)

$$**4505 / (divide) 7 = 643 Kcal**$$

Daily Calorie Target for weight loss:

Estimated TDEE - Daily calorie Deficit + New Daily Calorie target for Weight Loss (Kcal)

***2112 Kcal - 643 Kcal = 1469 Kcal***

Calculating Macronutrient Targets:

Protein:-

2.0g/kg LBM Lower Limit for those who struggle to hit target but train

2.4g/kg LBM Starting point for average trainee

2.8g/kg LBM Upper limit for trainees to leave enough calories for carbs and fats

LBM (KG) x Protein Multiplier + Protein target (g)

***48.1 kg x 2.4g/kg = 115g***

Protein Target (g) x 4 = Protein target Kcal

***115g x 4 = 460 Kcal***

Fats:-

25% Lower Limit

35% Recommended starting point

45% Upper Limit

New Calorie Target for weight loss x Fat % target (in decimal form so divide by 100)

= Fat target (Kcal)

$$1469 \text{ Kcal} \times 0.35\% = 514\text{Kcal}$$

$$\text{Fat Target (Kcal)} / (\text{divide}) 9 = \text{Fat Target (g)}$$

$$514\text{Kcal} / (\text{divide}) 9 = 57\text{g}$$

Carbohydrate:-

$$\begin{aligned} \text{New Calorie target for weight loss (Kcal)} - (\text{Protein} + \text{Fat calorie targets (Kcal)}) \\ = \text{Carbohydrate Calories targets (Kcal)} \end{aligned}$$

$$1469 \text{ Kcal} - (460\text{Kcal} + 514\text{Kcal} = 974\text{Kcal}) \quad 974\text{Kcal} = 495\text{Kcal}$$

$$\text{Carbohydrate calorie Targets (Kcal)} / (\text{divide}) 4 = \text{Carbohydrate targets (g)}$$

$$495 \text{ Kcal} / (\text{divide}) 4 = 124\text{g}$$

***So in conclusion, I would look to start Mary for the initial 2 weeks on:***

***1469Kcal***

***115g protein***

***124g Carbohydrate***

***57g Fat***

***It's important to stress that these figures will be constantly reviewed as progress is made. The initial review is set at 2 weeks based not only on progress in terms of measurements and scale weight but also by feed back on feelings, cravings etc.***