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How to get a six pack from laughing: “It’s so funny I’m going to get a six pack!”

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Abstract

Laughing stimulates many muscles within the body, in particular those associated with the abdomen. A healthy 30 year old man with a body fat percentage of 29% is used as our exemplary subject. It is deduced that he would need to laugh continuously for 19.7 hours to get a body fat of 10%, the minimum value required for a visible six-pack, and a further 84 minutes for definition. Hence yields an almost impossible value - no joke this funny!

Introduction

Laughing reaps several health benefits associated with mental and physical wellbeing. Studies have illustrated that laughing everyday could increase an individual's life expectancy [1]. However, this paper aims to predominantly investigate the physical effects quantifying the length of time and intensity one needs to laugh. Laughing is assumed to be a form of both cardiovascular and strengthening exercise.

Abdominal muscles involved in Laughter

Several muscle groups are activated whilst laughing. These include those in the face, abdomen, arms and legs depending on the individual [2]. However, the main muscles involved in the generation of a six-pack, and thus the focus taken by the paper, are those of the rectus abdominis [3, 4]. They are paired sets of muscles located at the front of the abdomen with a wall (linea alba) running through the middle [5]. In individuals with low body fat percentage, the tensing of these muscles give rise to segments commonly referred to as a six-pack. In order to reveal the rectus abdominis (six-pack) males and females need to have a body fat percentage of approximately below 10% and 19 % respectively [6, 7].

Obtaining 10% body fat

The rise of the popular exercise, laughter yoga, came about when laughing was proposed as a form of fitness [4]. Laughing can be a strenuous activity; one minute of continuous laughter is equivalent to a

moderate 10-minute workout on the rowing machine [8]. The rowing machine is considered to be a form of cardio, which is claimed to be one of the most effective ways of shedding body fat [9]. The calculations undertaken are based on a healthy 30-year-old male with an average body fat percentage of 29 % [10]. An average male in the UK weighs 83.6 kg [11]. Fat loss of 15.88 kg is required in order to obtain 10 % body fat. Thirty minutes (mins) on the rowing machine at medium intensity burns 311 calories (cal) in a 185 lb male [12]. To burn 1 pound of fat you need to burn 3,500 calories [13]. The following calculations were done using an equivalent conversion of 15.88 kg to 35.00 lbs.

Calories required to lose 19 % body fat:

$$35 \text{ lbs} \times 3,500 \text{ calories lbs}^{-1} = 122,500 \text{ calories}$$

$$\frac{122,500}{311} = 393.89$$

$$393.89 \times 30 \text{ min} = 11816.7 \text{ min (rowing)}$$

$$\frac{11816.7 \text{ min}}{10} = 1181.67 \text{ min (laughing)}$$

Therefore, an individual would need to continuously laugh for 1181.67 min, which is equivalent to 19.7 hours, without eating, to lose enough body fat for a visible six-pack.

Increasing muscle mass

Skeletal muscles are made of myofibrils and sarcomeres. During exercise, the muscle fibres tear and subsequently repair themselves by fusing together. This phenomenon of increased muscle growth is termed muscle hypertrophy. There are two types of hypertrophy: microfibrillar and sarcoplasmic. Microfibrillar hypertrophy is associated with an increase in the number of actin and myosin, which ultimately adds to overall muscle strength. In contrast, sarcoplasmic hypertrophy is associated with the increase of fluid within the skeletal muscle cells, adding to overall muscle size and hence, its definition. Although, both types usually occur simultaneously and therefore cannot be targeted separately [14]. However, hypertrophy is unlikely to occur without rest periods. Thus, continuous laughter may not give optimal definition [15].

To increase muscle mass, the muscles need to be stimulated and cardio activity needs to be limited. A popular abdominal workout are crunches. As seen in figure 1) the rectus abdominis muscles are stimulated to half the magnitude via laughter, as compared to during crunches [4]. An individual with 10 % body fat is likely to have a six-pack but developing the abdominal muscles will increase their definition and size due to muscle hypertrophy. It is believed that definition can be seen within 2 weeks of regular muscle training [16]. The infamous 100 crunches a day challenge was a media frenzy due to the visible results achieved [17].

Performing one hundred 100 crunches will approximately take 3 minutes, depending on one's level of fitness. Therefore, as laughter stimulates the rectus abdominis to half the intensity of crunches, an individual would need to do 6 mins of laughter at climax daily for 2 weeks to build definition; this equates to 84 mins of laughter at its greatest intensity. In total, yielding a laughter time of 1265.67 min (1181.67 min + 84 min) or 21.1 hours in

order to gain a defined six pack. It is known that the muscles build tolerance to repetitive exercise regimes. Thus, after a month, the individual would need to increase the duration of laughter steadily to further six-pack definition. Notably, the longest recorded time for an episode of laughter is approximately 3 hours, however this was not at maximum intensity [18]. Hence, laughing for 21.1 hours at peak intensity can be deemed to be unsustainable. Furthermore, the uptake of oxygen will be limited with such intense laughter and muscles will not be able to anaerobically respire for the period of time in question [19].

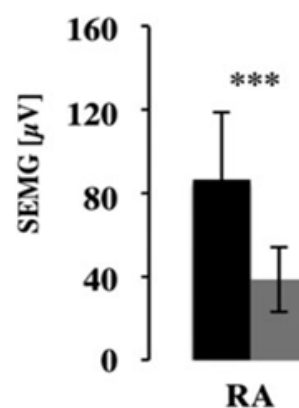


Figure 1 – Surface electromyography readings were taken from two data sets, one group during crunches (black) and the other at the climax of laughing yoga (grey). RA represents the muscle group rectus abdominis [4].

Conclusion

An average UK male with a body fat of 29 % would need to laugh 1181.67 mins to reduce their body fat to 10 % and further followed by an additional 84 mins to tone their muscles – totalling a staggering 21.1 hours of intense laughter. Hypertrophy requires rests between workouts, therefore despite achieving fat loss from continuous laughter being possible, muscle definition may not be.

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