

# Effects of a nutritional supplement on maximum strength in resistance trained males

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- Dietary practices to enhance performance dates back to 400 B.C. (Applegate & Grivetti 1997)
- Nutritional supplements (NS) are used by 40-100% of athletes (may use several at the same time and in very high doses; Burke and Read 1993)
- NS are not tested for safety and are not fully regulated by the Food and Drug Administration (FDA)
  - Dietary Supplement Health & Education Act of 1994 – *manufacturers must submit information about new products to the FDA, but this information is for notification rather than authorisation* (Ross 2000)
- Some NS may contain prohibited substances (WADA i.e. anabolic agents); unfair advantage to athletes during competition; athletes may risk disqualification from competition according to IOC regulations

# Jack3d™ – the magic supplement?



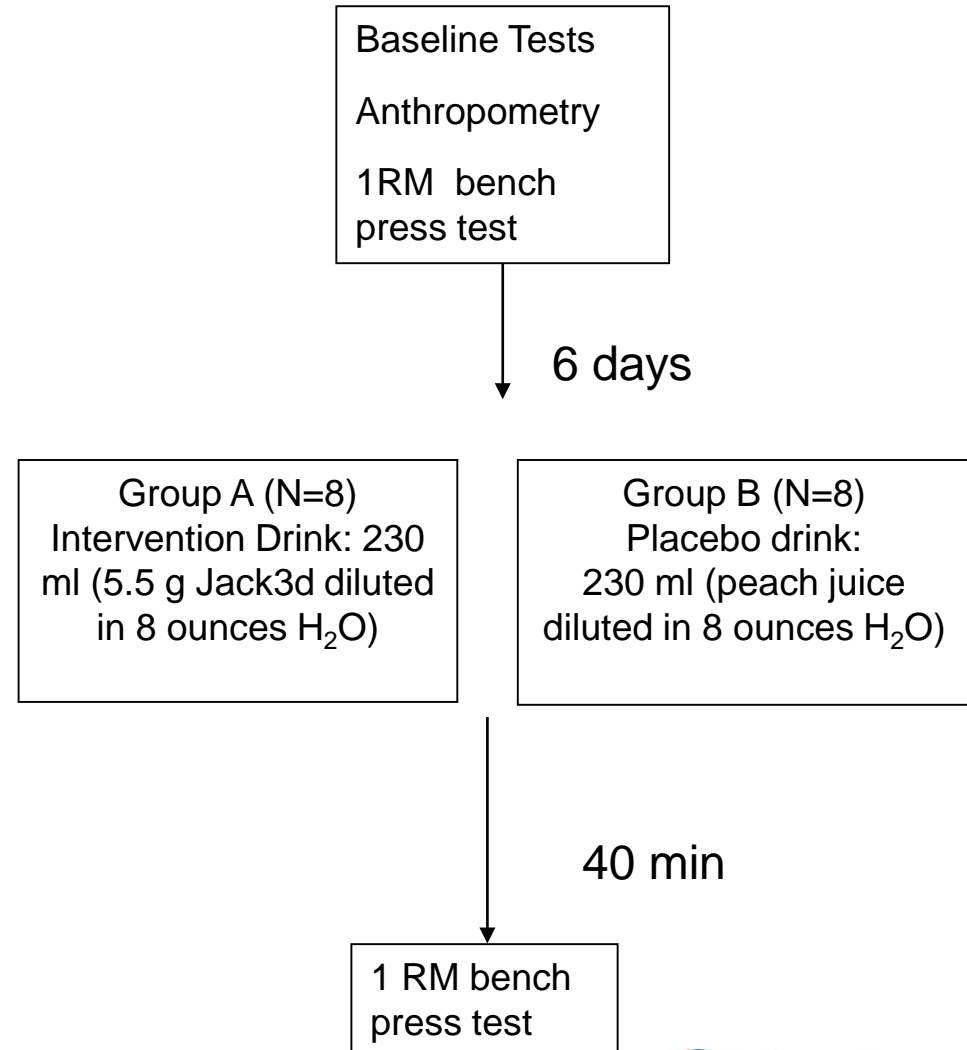
Round about 2008, news about Jack3d hit my gym in south London. Suddenly everyone was talking about it: how this stuff was better than anything else anyone had tried; it gives you **incredible focus, determination, limitless energy and enhanced ability to lift more weight**

<http://www.guardian.co.uk/lifeandstyle/2013/feb/01/experiment-jack3d-laser-focus-lockjaw>

1. Jack3d™ is designed for those engaging in regular resistance training. It contains: **creatine, caffeine, beta-alanine, arginine** that have been shown to improve muscular strength, increase alertness, buffer waste products or mobilise fatty acids (Buell et al., 2012; Cramer, 2007) and **1,3-dimethylamylamine (DMAA)** that manufacturers claim is what separates Jack3d™ from other products; no published findings investigating the supplement's effectiveness in athletic populations.
2. Therefore, the aim of this study was to investigate the effects of Jack3d™ on physical and mental strength.

# Method: participants & experimental protocol

- Following institutional ethics approval
- Resistance trained males (recreational gym users)
- Signed an informed consent and participated in the study
- Training experience:  $3.5 \pm 2.1$  years
- $N=16$  (mean  $\pm$  s)
  - age:  $23.88 \pm 3.73$  years,
  - body mass:  $74.06 \pm 7.73$  kg,
  - stature:  $174.63 \pm 5.0$  cm



# Results & Discussion

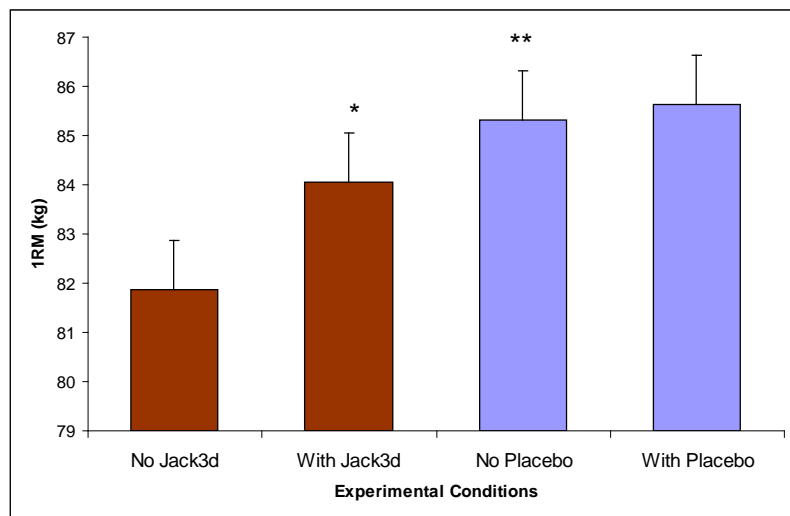


Fig. 1. Mean 1RM in Jack3d (\* $P=0.04$ ), Placebo ( $P=0.11$ ) and No Jacked v No Placebo (\*\*  $P=0.02$ ) Sig. at  $P<0.05$ ).

**Jack3d group:**  $1.90 \pm 0.03\%$  improvement in 1RM

**Placebo group:** no sig. improvement ( $0.36 \pm 0.03\%$ )

Participants in the Jack3d group reported increased alertness and competitive drive

Jack3d improved muscular strength which agrees with other studies that have used one or more of its isolated ingredients (Goldstein 2010; Cramer, 2007)

Exact mechanism of Jack3d action is difficult to ascertain due to its complex matrices (NATA, 2013)

**Jack3d™** does not elevate RHR, SBP, DBP when ingested for 14 d (Farney et al., 2012), however 5 cardiac deaths in consumers and 2 soldiers who used DMAA products since 2008 reported (Zhang et al., 2012).

Athletes Mike Rogers (US sprinter) and Nico Steencamp (rugby union forward) have both received bans for using DMAA

**DMAA is a listed drug** in US and New Zealand and a banned substance on the World Anti-Doping Agency list (WADA, 2012)

**FDA Moved to Seize Jack3d™ from GNC Warehouses (July 16, 2013):** Prosecutors seized 3,200 cases of DMAA products (Jack3d and OxyElitePro) from warehouses in Pennsylvania & S. Carolina

Buell J., Powers M., Laquale K., Carson-Phillips A. (2013). National Athletic Trainers' Association Position Statement: Evaluation of Dietary Supplements for Performance Nutrition. *Journal of Athletic Training*, 48(1): 124-136

Farney M., McCarthy C., Canale R., Altman R., Bloomer R. (2012). Hemodynamic and hematologic profile of healthy adults ingesting dietary supplements containing 1,3-dimethylamylamine and caffeine. *Nutrition and Metabolic Insights*, 5:1-12.

Goldstein E., Jacobs P., Whitehurst M., Penhollow T., Antonio J. (2010). Caffeine enhances upper body strength in resistance-trained women. *Journal of the International Society of Sports Nutrition*, 7:18.

Zhang Y., Woods R., Breitback Z., Armstrong D. (2012). 1,3-Dimethylamylamine (DMAA) in supplements and geranium products: natural or synthetic? Wiley Online Library. [www.drugtestinganalysis.com](http://www.drugtestinganalysis.com)