Is Exercise more important than Diet

Health

Weight loss
What does the body need for health?

4. **Air** \((O_2)\)
   Adequate \(O_2\) for all cells

5. **Sun** exposure

6. **Toxins** - Avoid &/or eliminate chemical & biological

7. **Psychosocial** wellness
   purpose-meaning-context

1. **Raw materials (nutrition)**
   (water, vitamins, minerals, phytonutrients, protein, CHO) for machinery of cells to function

2. **Activity**
   Use all Cells & organs of the body
   Brain muscles immune etc

3. **Time** for rest & repair of body’s cellular components
Key point!

A lifestyle deficient in any one of these 7 areas will result in suboptimal performance and... (often with time) result in disease.
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Benefits of Exercise (muscle movement)
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Physical

• Increases tissue perfusion with blood
• Creates forces on muscles causing them to contract, increasing mechanical load on bone, ligaments, tendons → stimulating growth
• Increases need for energy (ATP)
  – Increases use of body’s energy (e.g. CHO, fat)
  – Increases mitochondria (muscle & adipose tissue) → energy use
  – Reduces blood lipids (Chol, trig)
• Increases oxygen consumption (to generate ATP)
  – Increases free radical production (oxidative stress)
  – Increases antioxidant capacity (SOD, GPX, Cat)
Benefits of Exercise (muscle movement)

Psychological
• Gives a little endorphin ‘high’
• Reduces the stress response (resets HPA axis)
• Reduces the desire for food
Exercise stimulates healthy tissue but........ it does not nourish it.
Nutrition and Health
What nutrients does the body need for health?

- **Fuel**
  - CHO
  - Fats
- **Building material**
  - Protein/aa's
  - Vitamins
  - Minerals & trace elements
  - Essential fatty acids (Ω-3, Ω-6)
- **Specialised components**
  - Polyphenols – (flavanoids etc)
- **Inflammation/oxidative/hormone - modifiers**
  - Fibre – soluble & insoluble
- **Bulking agents**
  - Healthy gut motility
- **Hydration**
  - Water

A diet deficient in any of these 6 groups will result in disease.
What we eat is the only way of providing the body with all the elements needed for health.

Physical activity....though beneficial to the body mechanically, provides NO nutrients and actually creates metabolic stress requiring increased availability of nutrients.
The greatest negative of our current western food supply is the over abundance of foods that are **high in energy** but....... often **low** in the other important **nutritional elements** (incl., vitamins, minerals, fibre, phytonutrients)
Phytonutrient benefits!

- More than 25,000 phytonutrients are found in plant foods.
  - Carotenoids (600 types)
    - α & β carotene
    - Leutein
    - lycopene etc
  - Flavonoids (400 types, e.g. quercetin, genistein)
    - Phytoestrogens (isoflavones, e.g. genistein)
  - Ellagic acid
  - Resveratrol
Phytonutrient benefits!

Evidence suggests that fruits with high concentrations of flavonols, anthocyanins and procyanidins; (e.g. pomegranates, purple grapes and berries), are effective at reducing CVD risk factors;

» anti-hypertensive effects,
» inhibition of platelet aggregation
» increasing endothelial-dependent vasodilatation

Chong et al. (Review) British Journal of Nutrition (2010), 104, S28–S39

Dark Chocolate and CVD: The blood pressure and cholesterol lowering effects of dark chocolate consumption are beneficial in the prevention of cardiovascular events in a population with metabolic syndrome.

Too much fuel (e.g. sugar & fat) – increases metabolic stress resulting in:

- Oxidative stress/inflammation
- Metabolic disease (diabetes, dyslipidaemia)
- Depressed mood (e.g. depression/anxiety)
- Altered gut microbiota (reduced gut efficiency, short chain fatty acids, etc)
- Increased risk of disease (e.g. CVD, stroke, dementia, arthritis, etc)
- Overweight (subcutaneous & visceral fat)
Global secular childhood obesity epidemic. (UK government Foresight programme)
Tackling Obesities: Future Choices – International Comparisons of Obesity Trends, Determinants and Responses – Evidence Review,
http://www.bis.gov.uk/assets/foresight/docs/obesity/06%20part%203.pdf.
“A meta-analysis was performed to assess the effects of exercise or diet on VAT (quantified by radiographic imaging). Relevant databases were searched through May 2014. One hundred seventeen studies (n = 4,815) were included.

“We found that both exercise and diet cause VAT loss (P<0.0001). When comparing diet versus training, diet caused a larger weight loss (P = 0.04).

Changes in weight and VAT showed a strong correlation after diet (R2 = 0.737, P<0.001), and a modest correlation after exercise (R2 = 0.451, P<0.001).

Comparisons: burning 500 calories vs eating 500 calories

Anthony Balduzzi “Fit Father project”

#1: Jogging (for 55 min) -vs- 1 bagel w/ cream cheese

Swimming laps (47 min) -vs- 1 McDonald’s Big Mac

#2: 1000 situps -vs- 5 tablespoons peanut butter

Punching bag (45 min) -vs- 1 medium blueberry muffin
Running stairs (43 min) - vs - waffle w/ 1.5 tbsp syrup

Lifting Weights (55 min) - vs - 1 Fruit Smoothie

The TRUTH: Exercise is important. BUT....

https://www.fitfatherproject.com/is-it-better-to-exercise-or-diet-to-lose-weight/
Key point!

It’s absolutely IMPOSSIBLE to “out-exercise” a bad diet.

Anthony Balduzzi “Nutrition Before Exercise”
Founder, The Fit Father Project
Exercise & Nutrition & Metabolic syndrome

“Metabolic syndrome (MS) is associated with poor diet and obesity. A healthy diet with good nutrition benefits the MS patient and associated conditions such as obesity and diabetes. Exercise, in conjunction with a healthy diet and good nutrition, helps maintain optimal weight and provides CV benefit such as decreased inflammation and increased vasodilatation”.

We compared key physiological and biochemical markers of health against responses to a modified, Schools Physical Activity and Nutrition Survey (SPANS) using one-way and two-way Analysis of Variance. 215 adolescents (14-15 yrs) from 5 Adventist secondary schools in the Sydney and Hunter regions of New South Wales, Australia, participated in this study. Adolescents consuming predominantly vegetarian foods showed significantly better scores on markers of cardiovascular health, including, body mass index (BMI), waist circumference, Cholesterol/High density lipoprotein ratio and low density lipoprotein. Adolescents consuming nuts more than once per week, also showed lower scores for BMI and serum glucose irrespective of their vegetarian status. Markers of general health including haemoglobin and average height were not different between groups; however a lower serum level of vitamin B12 was apparent in the vegetarian cohort. Surprisingly, exercise on its own was not statistically associated with any of the risk factors tested suggesting that diet may be the most significant factor in promoting health in this age group.

Exercise & Nutrition (Adolescent health study)

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Increasing age is associated with declines in both muscle mass and function (e.g. strength-related performance, power). Both resistance and aerobic-type exercises are likely to confer functional and health benefits in older age, and a clutch of research suggests that enhancement of anabolic responsiveness to exercise and/or nutrition may be achieved by optimizing modifications of muscle-loading paradigms (workload, volume, blood flow restriction) or nutritional support (e.g. essential amino acid/leucine) patterns. Nonetheless, more work is needed in which a more holistic view in ageing studies is taken into account. ...”

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Exercise may be a priority, but not separate from nutrition in this case.
Health is not simply being thin, i.e. weight loss…

Health is achieved by regularly using all of the physical features of the body (muscles, mind, immune function) while providing the raw materials needed (i.e. nourishment) to maintain body tissues in good condition and eliminating or reducing intake of anything that will damage the body and any of its functions.
Exercise, Nutrition & Longevity

Dan Beuttner: Oldest populations on earth

“Diet does tend to be the entrance ramp for better health.”
Key points identified for longevity

“The people inhabiting Blue Zones share common lifestyle characteristics that contribute to their longevity”. D. Beutner

1. Psychosocial health (purpose in life)
   1. Religious affiliation
   2. Family – put ahead of other concerns)
   3. People of all ages are socially active and integrated into their communities

2. Vegetable rich diets (esp legumes)

3. Constant moderate physical activity as an inseparable part of life

4. Eliminate smoking
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Is Exercise more important than Diet?

You cannot exercise your way to health if your diet is poor

Even if your diet is excellent you still need to move (use) your body to retain health....
Exercise!

The Poor Man’s Plastic Surgery!
Exercise (Physical Activity Guidelines 18-64 yrs)

1. Doing any physical activity is better than doing none. If you currently do no physical activity, start by doing some, and gradually build up to the recommended amount.

2. Be active on most, preferably all, days every week.

3. Accumulate 150 to 300 minutes (2 ½ to 5 hours) of moderate intensity physical activity or 75 to 150 minutes (1 ¼ to 2 ½ hours) of vigorous intensity physical activity, or an equivalent combination of both moderate and vigorous activities each week.

1. Do muscle strengthening activities on at least 2 days each week.
Exercise (Physical Activity Guidelines >65 yrs)

5 Recommendations

1. Do some form of physical activity, no matter your health or abilities.

2. Be active every day in as many ways as possible that incorporates fitness, strength, balance and flexibility.

3. Accumulate at least 30 minutes of moderate intensity physical activity on most, preferably all, days.

4. Start at a level that is easily manageable and gradually build up the recommended amount, type and frequency of activity.

5. Older people who continue to enjoy a lifetime of vigorous physical activity should carry on doing so in a manner suited to their capability into later life, provided recommended safety procedures and guidelines are adhered to.