Investigating the Controversy Surrounding Caloric Restrictions in Humans: Are the Potential Benefits of Slower Aging Worth the Risks?

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Overview

What is it?
- A defense
- Ingests too few calories to support its usual routines, but obtains all necessary micronutrients

Underlying Mechanism
- Reduction of oxidative damage,
- Changes in hormones,
- Alterations in gene expression
- Maintenance homeostatic mechanisms.
- Not a single factor, rather a combination

Underlying Mechanism

The number of pathogens are greatly reduced in monkeys that were calorically restricted

Effects on higher order cognitive functions
- Recent studies of Alzheimer's disease and Parkinson's disease models
- CR may reduce the probability of incidences
- This is due to an increase in neuroprotective effects
- The body will focus more on the protection of the body when faced with limited resources
- The cognitive effects most certain to affect humans on sustained CR cannot be assessed in non-primate animals.
- They think solely about food At the expense of abstract, creative and interpersonal thought content.
- The same preoccupations are reported by: The human subgroups likely to find CR appealing are rigorously socialized
- The need to plan and enforce one's own CR regimen demands the allocation of additional cognitive resources

Effects on Basic Cognitive Abilities
- Largely spared
- Even in the absence of fully satisfactory nutrition.
- Underfed humans may feel stupid, but for the most part they do not test stupid.
- Long-term effects
- Later in life, CR rodents begin to differ such that they do not lose nearly as much cognitive function

Effect on Basic Cognitive Abilities

Physical Aspect

When to begin
- Animal research has established that CR can begin at any time
- Recommended that it is deferred until the growth phase is completed

Physical Reactions
- Less likely to have an active sex life along the way
- To avoid squandering energy on heat
- Basal body temperature is turned down
- Better handle exposed to higher temperature
- Increased capacity for more rapid wound healing

Behavioral Aspect

Activity levels in CR research specimen rise selectively at feeding time
- The body will focus more on the protection of the body when faced with limited resources
- As well as the probability of the impairment associated with these conditions

Animals
- Activity levels in CR research specimen rise selectively at feeding time
- Depressed activity all other times
- Higher average activity score over a 24 hour period
- Low in locomotor activity

Humans
- The human subgroups likely to find CR appealing are rigorously socialized
- Inhibitions eventually begin to break down under the pressure of imposed starvation.
- The longer and more severe of CR, the more Inhibitions and investments dwindle
- Parenting responsibilities are typically the last interpersonal investments to be withdrawn.

Cognitive Assessment
- Aged Control made significantly more errors than Aged Restricted
- Age Restricted remained at a similar error rate as the adult groups

Implications
- We can better advise patient with AN
- They think solely about food At the expense of abstract, creative and interpersonal thought content.
- The need to plan and enforce one's own CR regimen demands the allocation of additional cognitive resources

- Some researchers think that the CR regimen is an ethical issue for human use
- We can better advise patient with AN

- Go humans even have the fortitude to self-apply extreme restriction?
- A more accurate overview of CR would read something like this: "Since animals (housed separately in stable, protected environments) thrive (physically) on (correct, sustained, externally controlled) CR, people will too".

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