THE PSYCHOLOGY OF CHOCOLATE

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THE USUAL SUSPECT (S)

Figure 1
Structural skeleton of flavonoids and classification hierarchy of common flavonoids. *Flavanol is the predominate class of flavonoid found in cocoa and chocolate.
Figure 2
Flavonoid content and antioxidant capacity (ORAC) of milk chocolate and dark chocolate versus other high flavonoid foods. * Brewed, per 2 g bag/200 ml water. Antioxidant activity is reported as oxygen radical absorbance capacity (ORAC). Adapted from: Steinberg et al. J Am Diet Assoc 103: 215-23.
HOW DOES THIS AFFECT BEHAVIOUR?
• People spend longer looking at slides in the presence of chocolate aroma

• More words recalled when learning and recall take place in presence of odour

• When paired with a nice painting, picture is rated artistically better

• Consumption greater in Parkinson’s Disease (Wolz et al, 2009)
DOES CHOCOLATE EATING AFFECT MOOD?

• Apple and chocolate eating improved mood but chocolate’s effect was stronger (Macht & Dettmer, 2006)

• Chocolate eating reduced negative mood after watching sad film; no effect on positive mood (Macht & Mueller, 2007)

• Bad mood alleviated after eating palatable chocolate (up to 70% cocoa) - but effect very short-lived
Fig. 2. Self-rated mood (mean ± SEM) before and after viewing a sad film and after ingestion of palatable chocolate (n = 38), unpalatable chocolate (n = 37) or nothing (n = 38). *: p<0.05 and *: p<0.10 for comparisons between palatable chocolate and eating nothing; ++: p<0.01 and +: p<0.10 for comparisons between palatable and unpalatable chocolate.
HERNAN CORTES

• “just one glass was sufficient to refresh a soldier for a whole day”
AN AID TO RECOVERY?

• Cyclists cycle 49%-51% longer after milk choc ingestion (Karp et al, 2006; Thomas et al, 2009)…

• …and become exhausted less quickly (Karp et al, 2006)

• Chocolate urges reduced by exercise (Taylor & Oliver, 2009)
Fig. 2. Time to exhaustion during endurance capacity trial, following ingestion of 3 different recovery drinks. CM, chocolate milk; FR, fluid replacement drink; CR, carbohydrate replacement drink. *, Significantly different from chocolate milk.
THE NEUROPSYCHOLOGY OF CHOCOLATE

• Eating chocolate to satiety (Small et al, 2001)
• Pleasantness - orbitofrontal cortex/insula
• Satiety - different regions and decrease in OFC
• There are sex diffs (Smeets et al, 2006)
Dopamine Pathways

- Frontal cortex
- Nucleus accumbens
- VTA
- Substantia nigra
- Striatum

Functions
- Reward (motivation)
- Pleasure, euphoria
- Motor function (fine tuning)
- Compulsion
- Perseveration

Serotonin Pathways

- Hippocampus
- Raphe nucleus

Functions
- Mood
- Memory processing
- Sleep
- Cognition
Martin (1998)

EEG response to synthetic/real food odour
Fig. 1. An illustration of the 19 electrode sites employed.
EFFECT OF CHOCOLATE AROMA ON MOTOR BEHAVIOUR

• No effect on hand skill/co-ordination
• Participants less tense, depressed and confused
HOW DOES CHOCOLATE AFFECT ME?

• 73% - puts me in a good mood
• 60% - makes me happy
• 50% - makes my temper disappear
• 53% - makes me feel better
• 37% - makes me feel relaxed
• 63% - the smell makes me crave/want it more
• 67% - seeing somebody else eat makes me want it
• 70% - preferred the smell to cakes/sweets
PLEASURE CHART

1. GOING ON HOLIDAY
2. HAVING SEX
3. WATCHING A GOOD FILM
4. GOING FOR A WALK IN THE PARK
5. GOING TO THE BEACH
6. GOING SHOPPING
7. EATING CHOCOLATE
8. EATING ICE CREAM
9. READING A GOOD BOOK
10. DRINKING ALCOHOL

....TO BE CONTINUED
THE PSYCHOLOGY OF CHOCOLATE

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