

Appendix

Table 1: Cognitive tasks of studies assessing the effects of short-term fasting (i – ii)

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Table 3: Cognitive tasks of studies assessing the effects of restrained eating (viii – xi)

Table 1: Cognitive tasks of studies assessing the effects of short-term fasting, (i – ii).

Study	Task	Description
Benton & Parker, 1998, experiment 2	Brown-Petersen Tasks (Brown J., 1958; R11) as noted by Benton & Parker, 1998	This task has been used as a measure of short-term memory decay and information processing capacity. Subjects are required to remember a trigram (e.g. QCN or KSF) while counting backwards, in threes, for various lengths of time. Recall accuracy is tested as a function of retention interval.
Benton & Parker, 1998, experiment 3	Word list	Measures of long-term memory. Thirty-one syllabic, five-letter words were presented. Participants are required to recall as many words as possible.
	Wechsler Story, from the Wechsler Memory Scale (WMS). (Wechsler 1987; R12)	WMS is a subtest of the Wechsler Adult Intelligence Scale (WAIS). The test was used to measure learning memory and working memory. A story is read aloud. Then the subjects are given two minutes to write down as much as they could recall. The WMS comprises a set of 18 separate `subtests`, yielding information about various kinds of memory and learning processes. Summary memory indices are provided in addition to the individual scores of the subtests. The whole set of tests takes about an hour to administer.
Wesnes et al., 2003	Cognitive Drug Research (CDR), (for details see: www.cognitivedrugresearch.com)	A computerised assessment system which comprises a wide range of tests of various aspects of human cognitive function. It is a automated test system. To assess attention, working memory and episodic secondary memory, Wesnes et al. (2003) used a selection from the CDR: Word presentation, Immediate Word Recall, Picture Presentation, Simple Reaction Time, Digit Vigilance, Choice Reaction Time, Spatial Working Memory, Numeric Working Memory, Delayed Word Recall, Word Recognition and Picture Recognition

Table 1: Cognitive tasks of studies assessing the effects of short-term fasting, (i – ii).

Study	Task	Description
Mahoney et al., 2005, experiment 1 and 2	Map task	Assess spatial memory: „Three fictitious maps were created to control for previous exposure. Each map consisted of twenty-four countries within four continents. Names of the countries were chosen from three categories, nature, animals, and colors. For example, a few of the country names from the „nature“ map were Soil, Rock and Ocean. The „color“ map included countries such as Green, Red and Brown. During the task, country names appeared on the screen one at a time. Participants advanced through the country names at their own pace using a designated computer key. Once a participant cycled through all twenty-four countries, the names started from the beginning, appearing in the same order each time. Each participant studied for eight minutes, cycling through the country names as many times as they liked during that time. Once the study portion was complete, the children received a blank map and filled in as many country names as they could recall“ (p. 636-637).
	Digit span task	Assess short term memory: The children heard a sequence of numbers (e.g. „1 2 3“) and were required to repeat it. They received both a forward and backward version of the task (e.g. the reverse order of „1 2 3“).
	Rey Complex Figure Copy and Recall Test (Helmes, 2000; R13)	Assess visual perception: Children were required to copy a complex figures on a blank piece of paper, without tracing and as exactly as possible.
	Continuous performance task (CPT)	Assess visual attention: Letters flashed on a computer screen. The children were instructed to look for a target combination (e.g., „X“ immediately followed by „B“) and to hit the space bar when they saw this combination. The task also assess auditory attention: The children listened to words through headphones hooked up to a computer. They were instructed to perceive a target combination of words (e.g., „mouse“ followed by „house“) and to hit the space bar when ever they heard this combination.
	Verbal task	Assess verbal memory: Participants had 5 min to read two stories as many time as they wanted. After the study time, they retold the stories to the experimenter

Table 2: Cognitive tasks of studies assessing effects of extended fasting, (iii - vi).

Study	Task	Description
Roky et al., 2000	Critical Flicker Fusion (CFF), (Hindmarch, 1982; R14)	Measure of information processing capacity. CFF is the lowest level of continuous flicker that is perceived as a steady source of light. Subjects discriminate flicker from fusion in a set of four red light emitting diodes.
	Choice Reaction Time (CRT), (Hindmarch, 1980; R15)	Measures both reaction and decision making time. Subjects extinguish, as quickly as possible, one of six LED lights, illuminated at random, by pressing the appropriate response button. There are three components of reaction time observable (motor reaction time, movement reaction time, and recognition time) and the total reaction time, from the stimulus onset to completion of response. In the study only movement reaction time (MRT) values were reported
	Visual Analogue Scale (VAS), (Monk, 1989; R16)	VAS is a measurement instrument that tries to measure a characteristic or attitude that is believed to range across a continuum of values and cannot easily be directly measured. Eight unipolar visual analogue scale (VAS) ratings were used. Four concerned subjective alertness and vigor, four concerned subjective mood and affect
Sünram-Lea et al., 2001	California Verbal Learning Test (CVLT), (Delis et al., 1987; R17)	Modified version. The test includes several subtests, measuring immediate, short delay and long delay long-term memory (free recall, cued recall, and recognition) for a supraspan word list. The list of words in this study contained 24 words, each of which belongs to one of four categories. In each trial the list was read loud. A complex hand motor sequence was performed at the same time as the list was presented. "Carrying out an additional task divides the participant's allocation of cognitive resources between the hand sequence and the memory task." (p.47). Participants are required to recall as many of words as possible. The test included five trials.
	Rey-Osterrieth complex figure drawing (Osterrieth, 1944; R18)	Measure of long-term memory for non-verbal materials. This drawing and visual memory test examines ability to construct a complex figure and remember it for later recall. It measures memory as well as visual-motor organisation.
	Digit span (Wechsler 1987; R12).	Modified version of the WAIS (see table 1, Benton & Parker, 1998) subtest. This task was used to measure working memory span. Digit span is the measure of how many sequential digits can be taken in, stored, processed, and recalled in the correct order. Digit span assessment is conducted visually and orally.

Table 2: Cognitive tasks of studies assessing the effects of extended fasting, (iii – vi).

Study	Task	Description
Poenicke et al., 2005.	Frankfurter Aufmerksamkeitsinventar (FAIR), (Moosbrugger & Oehlschlaegel, 1996, R19)	The test assess attention and concentration. The tests require a fast and precise recognition of similar visuell items, e.g. a circle with two or three scores. The items are presented in a line way. Two target items are to be marked. There were two testforms (A and B) with each of four similar visuell items. Participants were required to detect two target items.
	Trail-Making-Test A, (Lezak, 1995; R20), (Spren & Strauss, 1998; R21).	Test of visual conceptual and visuomotor tracking (involves motor speed and attention functions). Part A consists of encircled numbers from 1 to 25 randomly spread across a sheet of paper. The object of the test is for the subject to connect the numbers in order, beginning with 1 and ending with 25, in as little time as possible.
	Trail-Making-Test B (see above).	Part B requires the subject to connect numbers and letters in an alternating pattern (1-A-2-B-3-C, etc.) in as little time as possible.
	Rey-Osterrieth Complex Figure Test (ROCF), (Osterrieth, 1944; R22).	Measures of visuo-spatial constructional ability and visual memory. The test consists of three conditions: Copy, Immediate Recall and Delayed Recall. At the first step, subjects are given a painting presentation, and then asked to draw the same figure. Subsequently, they are instructed to draw what they remembered. Then, after a delay of 30 min, they are required to draw the same figure once again. In this study, there was a second delay recall required after 72 h.
	California Verbal Learning Test (CVLT), (Delis et al., 1987; R17).	See above (Sünram-Lea et al., 2001). The test was used to assess verbal learning. The list of words in this study contained 16 words (each of which belongs to one of four categories (fish, vegetable, kitchen utensil, clothes). The subject then were asked to recall and to assign to the categories as many of these items as possible. The test included five trials.
	Conditional-associative-learning (CAL), (Petrides, 1985; R23)	These tasks required the learning of arbitrary associations between a set of stimuli and a set of responses. Arbitrary associations between different items of two modalities (e.g. with six items and six abstract figures each) were given from the experimenter. Participants were required to learn them. In each trial all figures and one item were presented. The correct association must be found.

Table 2: Cognitive tasks of studies assessing the effects of extended fasting, (iii – vi).

Study	Task	Description
Doniger et al., 2006.	<u>Mindstream Test:</u>	
		„Mindstream consists of custom software that resides on the local testing computer and serves as a platform for interactive cognitive tests that produce accuracy and reaction time data“ (p. 805).
	Go-NoGo Responde Inhibition (Standard)	Time continuous performance test during participants are presented with a series of colored squares at variable delays. Response must be made if the square is any color but red.
	Verbal Memory	Measurement of immediate and delayed recognition memory for verbal paired associates. 10 pairs of words followed by a recognition test in which one member of a previously presented pair appears together with four candidates for the other member of the pair. The matching member must be selected. Four repetitions followed immediately and one delayed repetition 10 min. after.
	Nonverbal Memory	The test is similar to the verbal memory test. Instead of words there are geometric figures.
	Problem Solving	An incomplete 2x2 table shows three squares containing simple geometric forms with a certain spatial relationship. For the missing (fourth) square the best fit from among six possible candidates must be selected.
	Stroop Interference	Timed test of set shifting and response inhibition, adapted from the paper-based test (MacLeod, 1991, rx). For example, participants must choose the color named by a word presented in non-colored letters. Or, in the final (3.) phase, they must choose the letter-color of a word that names a different color.
	Finger Tapping	Over 12 sec. participants must tap with their dominant hand on the mouse button as many times as possible
Catch Game	The test includes motor-related reaction time, motor learning, motor planning, and performance speed. A „falling object“ must be „caught“ bevor it reaches the bottom of the computer screen by positioning a „paddle“ horizontally.	

Table 2: Cognitive tasks of studies assessing the effects of extended fasting, (iii – vi).

Study	Task	Description
	Staged Information Processing Speed	The test measures three levels of information processing load: single digits, two-digit arithmetic problems (e.g., 5-1) and three-digit arithmetic problems (e.g., 3+2-1). For each test levels, stimuli are presented at different rates, incrementally increasing as testing continues. Participants must respond as quickly as possible by pressing the left mouse button if the digit or result is less than or equal to 4 and the right mouse button if it is greater than 4.
	Verbal function (rhyming/naming)	Pictures of common objects are presented. In the rhyming phase, the word that best rhymes with the name of the object must be indicated from among four choices. In the naming phase, the name of the preceding picture must be selected.
	Visual spatial (Imagery)	Computer-generated scenes containing a red pillar are presented. From among four views of the scene, participants must select the view of the scene which corresponds to the point of the red pillar.

Table 3: Cognitive tasks of studies assessing the effects of restrained eating, (vii – xi).

Cognitive tasks of studies assessing the effects of restrained eating.		
Study	Tasks	Description
Green & Rogers, (1998)	Mental rotation	Assessed the capacity of the visuo-spatial sketchpad subsystem of the working memory system. Pairs of geometric forms are presented on a screen simultaneously shown in different inclinations. The participants were required to mentally rotate the form on the right hand side of the screen until they believed it to be in the same orientation as the form on the left hand side of the screen. Than participants are required to assess wether the forms are mirror images or same images. The participant will be jugded on how accurately and rapidly they can distinguish between the mirrored and non-mirrored pairs.
	Phonological similarity (Wilding & Mohindra, 1980; R24)	A modified version was used to assess the storage capacity of the Phonological Loop subsystem of working memory. Subjects were presented with a number of letter recall trials sets. Each trial set comprised a set of five letters, appearing on the centre of the screen. After each trial set, subjects were given 5 seconds to recall and write down the letters, in the same order in which they had appeared. There were either sets of phonologically confusable letters (e.g. CPTDG) or phonologically non-confusable letters (e.g. HMJRZ). Additionally, subjects were required to perform the task under articulatory suppression, with having to articulate verbally the numbers 1 and 2 while the letters appeared on the screen, or without articulatory suppression.
	Tower of London task (TOL), (Shallic, 1982; R25)	Manual version, to assess the capacity of the Central Executive system within working memory. The task comprised a three peg board with three moveable wooden discs, in three different colors. The subjects were required to move the discs from a standard start position to a target position in a minimum number of moves.
	Self-report measures:	
<ul style="list-style-type: none"> • Dutch Eating Behaviour Questionnaire (DEBQ) (van Strien et al, 1986; R26) • Body Shape Questionnaire (BSQ) (Cooper et al., 1987, R27) • Hospital Anxiety and Depression Scale (HADS) (Snaith & Zigmond, 1994; R28) 		

Table 3: Cognitive tasks of studies assessing the effects of restrained eating, (vii – xi).

Study	Task	Description
Jones & Rogers, 2002.	Two finger-tapping	Over few seconds, participants must tap with their dominant hand on the mouse button as many times as possible. It is a manual test of motor speed. Subjects are required to finger-tap a response button as quickly as possible during a short period of time (e.g. 60 s). The number of taps per second is used as a measure of psychomotor speed. There was no specific description of the test in the study.
	Rapid visual information processing (RVIP) task	It is a continuous performance test (assess attention). In the RVIPT, subjects monitored digits which are presented sequentially on a computer screen at a rate of 100/min for 7.5 min. Subjects are instructed to detect and respond to targets of three consecutive odd or even digits as quickly as possible. Measures can be made of both the speed and accuracy of decision making. There was no specific description of the test in the study
	Simple reaction task (SRT)	The simple reaction is defined as the time between the onset of a stimulus and the beginning of a movement. There was no specific description of the test in the study.
	Immediate memory task	There were two word lists, one of which was used before the food test and the other was used after the food test. There was no specific description of the test in the study.
	Self-report measures: • Revised Restraint Scale (RRS), (Polivy, Herman, & Warsh, 1978; R 29)	
Green et al., 2003.	Mental rotation	See above, Green & Rogers (1998).
	Letter string recall (analogue of the modification of the Wilding and Mohindra (1980), (R24)	Modified Version. Assessed the capacity of the Phonological Loop component of working memory. Participants were presented with sets of letters. Thereafter they wrote down the letters in the sequential order they remembered. Each set of letters either comprised phonologically confusable letters (e.g. CPTDG) or phonologically non-confusable letters (e.g. JMHRZ). Furthermore half of the trials were under conditions of articulatory suppression (participants were required to verbally repeat the numbers 1 and 2 during the presentation of the letters).

Table 3: Cognitive tasks of studies assessing the effects of restrained eating, (vii – xi).

Study	Task	Description
	Tower of London (Shallic, 1982; R25)	Assessed the capacity of the Central Executive component of working memory. Participants must - in a set number of moves - rearrange the positions of three colored discs from a standard start position to a target position. Measurement of three task components: Planning time, execution time and the number of moves taken to achieve the target position.
	Self-report measures: <ul style="list-style-type: none"> • Dutch eating behaviour questionnaire (DEBQ) (van Strien, Frijters, Bergers, & Defares, 1986; R26) • The Body Attitudes Questionnaire (BAQ) (Ben-Tovim & Walker, 1991; R30) • The Hospital Anxiety and Depression Scale (HADS) (Snaith & Zigmond, 1994; R28) 	
Vreugdenburg et al., 2003.		„All secondary tasks started 3 s prior to the presentation of the first addition problem in each list and continued until the participants completed their written or verbal answer of the final total. Participants in the spatial tapping condition were asked to report their answer verbally. The control condition was performance on mental arithmetic without any concurrent secondary task. Performance was assessed by the total percentage of errors in the arithmetic problems for each condition and the sum of the time taken to complete each problem“ (p. 295).
	Mental Arithmetic (primary task)	„The test loads on the phonological loop and the central executive of the working memory. Participants were required to complete a set of 48 addition problems. They were presented in 4 lists tests, preceded by three practice problems, with each problem presented individually on a card. Each test and practice list contained an equal number of problems requiring zero, one, or two carries. Participants responded by either writing the solution on paper or saying it out loud depending on the suppression condition. There was no time limit for answering, although the time taken was recorded“ (p. 294).
	Articulatory suppression (secondary task)	„This task was used to engage the phonological loop. Participants were asked to repeat the word ‘the’ at the rate of one per second throughout performance of the addition problems“ (p. 294).
	Spatial tapping (secondary task)	„This task was used to engage the visuo-spatial sketchpad. Participants were asked to tap their index finger on four squares printed on a card in a clockwise direction at a rate of one tap per second using their preferred hand“ (p. 294).

Table 3: Cognitive tasks of studies assessing the effects of restrained eating, (vii – xi).

Study	Task	Description
	Random generation (secondary task)	„This task was used to engage the central executive. Participants were asked to verbally randomly generate numbers between 1 and 10, at a rate of one per second...`like picking out a number from a hat, then replacing it in the hat and picking out a number again´.They were also asked to avoid stereotypical sequences, such as `1,2,3,4´ ...“ (p. 294).
	Phonological similarity effect	The task was adapted from the procedure used by Green & Rogers (1998), using a visual presentation, and Shaw & Tiggermann (2004), using an auditory presentation. The list of 5-letter strings were presented either aurally (computer voice) or visually (computer screen). For test description see above, Green & Rogers (1998).
	Word length effect	This task was adapted from Shaw & Tiggermann (2004), see above. The two lists of word sequences were presented either aurally or visually.
	Matrix reasoning	This task is a subtest of the Wechsler Adult Intelligence Scale (WAIS-III; Wechsler, 1997; R31). It was used to measure general cognitive ability. For description see the study.
	Spot the word	This task was used to assess verbal ability and was selected as an estimate of verbal IQ. For description see the study.
	Self-report measures:	
		<ul style="list-style-type: none"> • Dutch Eating Behaviour Questionnaire (DEBQ: Van Strein, Frijters, Bergers & Defares, 1986; R26) • The Centre for Epidemiological Studies-Depression Scale (CESD: Radloff, 1977; R32)
Shaw & Tiggermann, 2004.	Phonological Similarity Effect, with auditory presentation (Wilding & Mohindra, 1980; R24)	Modified version.Measures the phonological store of the phonological loop. Participants were presented aurally with two lists of two practice and 12 test letter strings. Each letter string consisted of a different random ordering of either the five phonologically similar (confusable) letters C, P, T, D, G, or the five phonologically dissimilar (non-confusable) letters H, M, J, R, Z. After each word sequence was presented, participants were required to recall and write down the words in order. Half the participants performed one of the two lists the presence of articulatory suppression.

Table 3: Cognitive tasks of studies assessing the effects of restrained eating, (vii – xi).

Study	Task	Description
	Word length effect (Channon et al., 1993; R33)	Adapted version. Measures the articulatory control process of the phonological loop. Participants were presented aurally with two lists of word sequences, containing either five short or five long words. After each word sequence was presented, participants were required to recall and write down the words in order of presentation. Half the participants performed one of the two lists the presence of articulatory suppression.
	Self-report measures: <ul style="list-style-type: none"> Dutch Eating Behaviour Questionnaire (DEBQ; Van Strien, Frijters, Bergers & Defares, 1986; R26) Depression Anxiety Stress Scale (DASS; Lovibond & Lovibond, 1995; R34) 	
Brunstrom et al., 2005.	Simple reaction time (SRT)	On each trial, the participants focused on a blank screen. „A white circle appeared after a random interval in the range one to seven seconds. The circle remained on the screen until the participant pressed the spacebar on the keyboard. Depressing the spacebar also initiated the next trial. A measure of reaction time was derived from the latency between the onset of the circle and depression of the spacebar... The main SRT task comprised a set of 20 trials“ (p.236).
	Tower of London (TOL) (Shallice, 1982; R25)	Modified version: On each trial, the participants were presented with a ‘starting position’ in the centre of a screen. „This consisted of a set of virtual ‘pegs’ of three different lengths. The left, middle, and right pegs had a capacity to hold three, two, and one block, respectively. The participants were told to use the mouse to move the blocks around the screen so that the starting position matched a ‘target’ position. Only the top-most block on each peg could be moved and only one block could be moved at a time. The main session comprised 12 trials that became progressively more difficult. Specifically, trials one and two were two-move puzzles, three and four were three-move puzzles, five to eight were four-move puzzles, and nine to 12 were five-move puzzles. If the participant failed to complete a puzzle in the requisite number of moves, then the trial reset. The computer recorded the time period that elapsed during each attempt and the number of attempts that were required.“ (S. 236)
	Self-report measures: <ul style="list-style-type: none"> Dutch Eating Behaviour Questionnaire (DEBQ, Van Strien et al., 1986; R26). Academic assessment: 3 is above average in the class, 2 is average in the class, 1 is below average in the class.) 	