# Chapter 16 Cognition and Stress

M.G. Calvo and A. Gutiérrez-García

University of La Laguna, Tenerife, Spain

# References

1.[Carver CS. Coping. In: Contrada RJ, Baum A, eds.](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink1rf0010) *[The Handbook of Stress Science: Biology, Psychology, and Health](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink1rf0010)*[. New York, NY: Springer; 2011:195–208.](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink1rf0010)

2.[Smith CA, Kirby LD. The role of appraisal and emotion in coping and adaptation. In: Contrada RJ, Baum A, eds.](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink2rf0015) *[The Handbook of Stress Science: Biology, Psychology, and Health](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink2rf0015)*[. New York, NY: Springer; 2011:221–229.](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink2rf0015)

3.[Lazarus RS, Folkman S.](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink3rf0020) *[Stress, Appraisal, and Coping.](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink3rf0020)* [New York, NY: Springer; 1984.](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink3rf0020)

4.[Lazarus RS. Vexing research problems inherent in cognitive-mediational theories of emotion and some solutions.](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink4rf0025) *[Psychol Inq](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink4rf0025)*[. 1995;3:183–196.](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink4rf0025)

5.[Koolhaas JM, Bartolomucci A, Buwalda B, et al. Stress revisited: a critical evaluation of the stress concept.](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink5rf0030) *[Neurosci Biobehav Rev](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink5rf0030)*[. 2011;35:1291–1301.](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink5rf0030)

6.[Armstrong T, Olatunji BO. Eye tracking of attention in the affective disorders: a meta-analytic review and synthesis.](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink6rf0035) *[Clin Psychol Rev](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink6rf0035)*[. 2012;32:704–723.](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink6rf0035)

7.[Bar-Haim Y, Lamy D, Pergamin L, Bakermans-Kranenburg MJ, van IJzendoorn MH. Threat-related attentional bias in anxious and non-anxious individuals: a meta-analytic study.](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink7rf0040) *[Psychol Bull](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink7rf0040)*[. 2007;133:1–24.](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink7rf0040)

8.[Blanchette I, Richards A. The influence of affect on higher-level cognition: a review of research on interpretation, judgment, decision making, and reasoning.](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink8rf0045) *[Cogn Emot](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink8rf0045)*[. 2010;24:561–595.](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink8rf0045)

9.[Cisler JM, Koster EHW. Mechanisms of attentional biases towards threat in anxiety disorders: an integrative review.](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink9rf0050) *[Clin Psychol Rev](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink9rf0050)*[. 2010;30:203–216.](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink9rf0050)

10.[Eysenck MW, Derakshan N, Santos R, Calvo MG. Anxiety and cognitive performance: attentional control theory.](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink10rf0055) *[Emotion](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink10rf0055)*[. 2007;7:336–353.](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink10rf0055)

11.[Ouimet AJ, Gawronsky B, Dozois DJA. Cognitive vulnerability to anxiety: a review and integrative model.](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink11rf0060) *[Clin Psychol Rev](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink11rf0060)*[. 2009;29:459–470.](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink11rf0060)

12.[Bishop SJ. Neurocognitive mechanisms of anxiety: an integrative account.](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink12rf0065) *[Trends Cogn Sci](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink12rf0065)*[. 2007;11:307–316.](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink12rf0065)

13.[Bishop SJ. Trait anxiety and impoverished prefrontal control of attention.](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink13rf0070) *[Nat Neurosci](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink13rf0070)*[. 2009;12:92–98.](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink13rf0070)

14.[Hofmann SG, Ellard KK, Siegle GJ. Neurobiological correlates of cognitions in fear and anxiety: a cognitive-neurobiological information-processing model.](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink14rf0075) *[Cogn Emot](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink14rf0075)*[. 2012;26:282–299.](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink14rf0075)

15.[Marin MF, Lupien SJ. Stress and glucocorticoid effects on learning and memory: human studies. In: Conrad CD, ed.](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink15rf0080) *[Handbook of Stress: Neuropsychological Effects on the Brain](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink15rf0080)*[. Chichester: Wiley-Blackwell; 2011:248–265.](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink15rf0080)

16.[Sandi C. Stress and cognition.](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink16rf0085) *[Wiley Interdiscip Rev Cogn Sci](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink16rf0085)*[. 2013;4:245–261.](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink16rf0085)

17.[Schwabe L, Joºls M, Roozendaal B, Wolf OT, Oitzl MS. Stress effects on memory: an update and integration.](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink17rf0090) *[Neurosci Biobehav Rev](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink17rf0090)*[. 2012;36:1740–1749.](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink17rf0090)

18.[Van Stegeren AH. Imaging stress effects on memory: a review of neuroimaging studies.](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink18rf0095) *[La Rev Can Psychiatr](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink18rf0095)*[. 2009;64:16–27.](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink18rf0095)

19.[Payne JD, Jackson ED, Ryan L, Hoscheidt S, Jacobs JW, Nadel L. The impact of stress on neutral and emotional aspects of episodic memory.](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink19rf0100) *[Memory](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink19rf0100)*[. 2006;14:1–16.](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink19rf0100)

20.[Schwabe L, Bohringer A, Chatterjee M, Schachinger H. Effects of pre-learning stress on memory for neutral, positive and negative words: different roles of cortisol and autonomic arousal.](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink20rf0105) *[Neurobiol Learn Mem](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink20rf0105)*[. 2008;90:44–53.](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink20rf0105)

21.[Buchanan TW, Lovallo WR. Enhanced memory for emotional material following stress-level cortisol treatment in humans.](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink21rf0110) *[Psychoneuroendocrinology](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink21rf0110)*[. 2001;26:307–317.](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink21rf0110)

22.[Smeets T, Otgaar H, Candel I, Wolf OT. True or false? Memory is differentially affected by stress-induced cortisol elevations and sympathetic activity at consolidation and retrieval.](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink22rf0115) *[Psychoneuroendocrinology](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink22rf0115)*[. 2008;33:1378–1386.](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink22rf0115)

23.[Kuhlmann S, Piel M, Wolf OT. Impaired memory retrieval after psychosocial stress in healthy young men.](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink23rf0120) *[J Neurosci](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink23rf0120)*[. 2005;25: 2977–2982.](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink23rf0120)

24.[Smeets T, Wolf OT, Giesbrecht T, Sijstermans K, Telgen S, Joºls M. Stress selectively and lastingly promotes learning of context-related high arousing information. *Psychoneuroendocrinology*. 2009;34:1152–1161.](file:///D:\womat-filecopy\Ed-Reference\0002570118.html#rfLink24rf0125)

25.[Schwabe L, Wolf OT. Stress and multiple memory systems: from ‘thinking’ to ‘doing’.](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink25rf0130) *[Trends Cogn Sci](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink25rf0130)*[. 2013;17:60–68.](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink25rf0130)

26.[Schwabe L, Wolf OT, Oitzl MS. Memory formation under stress: quantity and quality.](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink26rf0135) *[Neurosci Biobehav Rev](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink26rf0135)*[. 2010;3:514–591.](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink26rf0135)

27.[Beste C, Yildiz A, Meissnera TW, Wolf OT. Stress improves task processing efficiency in dual-tasks.](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink27rf0140) *[Behav Brain Res](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink27rf0140)*[. 2013;252: 260–265.](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink27rf0140)

28.[Pabst S, Brand M, Wolf OT. Stress and decision making: a few minutes make all the difference.](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink28rf0145) *[Behav Brain Res](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink28rf0145)*[. 2013;250:39–45.](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink28rf0145)

29.[Arnsten AF. Stress signalling pathways that impair prefrontal cortex structure and function.](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink29rf0150) *[Nat Rev Neurosci](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink29rf0150)*[. 2009;10:410–422.](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink29rf0150)

30.[Henckens MJ, van Wingen GA, Joels M, FernÆndez G. Time-dependent corticosteroid modulation of prefrontal working memory processing.](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink30rf0155) *[Proc Natl Acad Sci U S A](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink30rf0155)*[. 2011;108:5801–5806.](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink30rf0155)

31.[Butts KA, Weinberg J, Young AH, Phillips AG. Glucocorticoid receptors in the prefrontal cortex regulate stress- evoked dopamine efflux and aspects of executive function.](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink31rf0160) *[Proc Natl Acad Sci U S A](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink31rf0160)*[. 2011;108:18459–18464.](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink31rf0160)

32.[Marin MF, Lord C, Andrews J, et al. Chronic stress, cognitive functioning and mental health. *Neurobiol Learn Mem*. 2011;96: 583–595.](file:///D:\womat-filecopy\Ed-Reference\0002570118.html#rfLink32rf0165)

33.[Pechtel P, Pizzagalli DA. Effects of early life stress on cognitive and affective function: an integrated review of human literature.](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink33rf0170) *[Psychopharmacology (Berl)](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink33rf0170)*[. 2011;214:55–70.](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink33rf0170)

34.[Wolf OT, Buss C. Effect of chronic stress on cognitive function through life. In: Cooper CL, Field J, Goswami U, Jenkins R, Sahakian BJ, eds.](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink34rf0175) *[Mental Capital and Wellbeing](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink34rf0175)*[. Chichester: Wiley-Blackwell; 2010:233–241.](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink34rf0175)

35.[MacQueen G, Frodl T. The hippocampus in major depression: evidence for the convergence of the bench and bedside in psychiatric research?](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink35rf0180) *[Mol Psychiatry](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink35rf0180)*[. 2011;16:252–264.](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink35rf0180)

36.[De Bellis MD, Hooper SR, Spratt EG, Woolley DP. Neuropsychological findings in childhood neglect and their relationships to pediatric PTSD.](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink36rf0185) *[J Int Neuropsychol Soc](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink36rf0185)*[. 2009;15:868–878.](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink36rf0185)

37.[Loman MM, Wiik KL, Frenn KA, Pollak SD, Gunnar MR. Postinstitutionalized children's development: growth, cognitive, and language outcomes. *J Dev Behav Pediatr*. 2009;30:426–434.](file:///D:\womat-filecopy\Ed-Reference\0002570118.html#rfLink37rf0190)

38.[Noble KG, Tottenham N, Casey BJ. Neuroscience perspectives on disparities in school readiness and cognitive achievement.](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink38rf0195) *[Future Child](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink38rf0195)*[. 2005;15:71–89.](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink38rf0195)

39.[Teicher M, Dumont N, Ito Y, Vaituzis C, Giedd J, Andersen S. Childhood neglect is associated with reduced corpus callosum area.](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink39rf0200) *[Biol Psychiatry](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink39rf0200)*[. 2004;56:80–85.](file:///D:\\womat-filecopy\\Ed-Reference\\0002570118.html" \l "rfLink39rf0200)