The Menopause Gut References

Chapter 1

1 https://www.researchgate.net/profile/Julian-Marchesi/publication/247153630_The_gut_microbiome_The_role_of_a_virtual_organ_in_the_endocrinology_of_the_host/links/58206cda08ae40da2cb4e4ac/The-gut-microbiome-The-role-of-a-virtual-organ-in-the-endocrinology-of-The-host.pdf
2 DOI: 10.1371/journal.pone.0174544
3 https://www.frontiersin.org/journals/endocrinology/articles/10.3389/fendo.2020.00025/full
4 DOI: 10.1111/1462-2920.15517
5 https://doi.org/10.3390/nu13082710
6 https://doi.org/10.1038/s41467-020-18871-1
7 https://doi.org/10.3389/fmicb.2022.843170
8 DOI: 10.1371/journal.pone.0174544
9 doi: 10.2147/IJWH.S340491
10 doi: 10.1038/s41564-022-01071-6
11 https://doi.org/10.2147/IJWH.S340491
12 10.3390/diagnostics13061193
13 https://pubmed.ncbi.nlm.nih.gov/31847455/

Chapter 2

14https://pmc.ncbi.nlm.nih.gov/articles/PMC8001875/#:~:text=The%20immune%20system%20plays%20a,the%20local%20mucosal%20immune%20system.
15 https://peerj.com/articles/659/
16 doi: 10.1016/S0262-4079(23)00214-2.
17 https://pmc.ncbi.nlm.nih.gov/articles/PMC10094624/#:~:text=Both%20clinical%20and%20animal%20models,the%20prevalence%20of%20autoimmune%20disorders.
18 Lecture Dr Pam Smith 11/16/2024: Personalized Functional Medicine
19 Turi, A., et al., “Lymphocytes subset in hyperandrogenic women with polycystic ovarian disease,” Acta Eur Fertil 1988; 19(3):155-57.
20 https://www.frontiersin.org/journals/immunology/articles/10.3389/fimmu.2023.1169232/full
21 https://doi.org/10.1007/s43032-020-00430-0
22 Xist ribonucleoproteins promote female sex-biased autoimmunity, Dou, Diana R. et al. Cell, Volume 187, Issue 3, 733 - 749.e16

23 doi: 10.1002/art.41632
24 https://doi.org/10.1111/j.1365-2265.2007.03051.x
25 doi: 10.1136/annrheumdis-2019-216694
26 doi: 10.1177/135245859900500418.
27 https://link.springer.com/chapter/10.1007/978-3-642-02155-8_8
https://doi.org/10.3389/fimmu.2020.604000
https://doi.org/10.4049/jimmunol.2200454
28 Cutolo, M., et al., “Estrogens and autoimmune diseases,” ANN NY Acad Sci 2006; 1089:538-47
29 Kovats, S., “Estrogen receptors regulate an inflammatory pathway of dendritic cell differentiation: mechanisms and
implications for immunity,” Horm Behav 2012; 62(3):254-62
30 30 Kovats, S., “Estrogen receptors regulate innate immune cells and signaling pathways,” Cell Immunol 2015; 294(2):63-
31 https://doi.org/10.1016/j.maturitas.2010.08.003
32 https://pmc.ncbi.nlm.nih.gov/articles/PMC10392282/
https://corporate.dukehealth.org/news/hormone-therapy-appears-reduce-risk-shoulder-pain-older-women
33 https://doi.org/10.1002/advs.201902054
34 doi: 10.4065/mcp.2009.0413
35 doi: 10.1139/w05-070. [DOI]
36 doi: 10.1016/j.jadohealth.2008.07.009.
37 doi: https://doi.org/10.1136/bmj.304.6830.809
38 Ridker, P. M., Hennekens, C. H., Buring, J. E., & Rifai, N. (2000). C-reactive protein and other markers of
inflammation in the prediction of cardiovascular disease in women. New England journal of medicine, 342(12), 836-
843.
39 https://pmc.ncbi.nlm.nih.gov/articles/PMC2907167/
https://doi.org/10.1016/S0015-0282(01)02934-X
40 Dr Pam Smith lecture Personalized Functional Medicine 11/16/2024
41 https://doi.org/10.1016/j.exger.2017.10.024
42 Lang, P. O., Mitchell, W. A., Lapenna, A., Pitts, D., & Aspinall, R. (2010). Immunological pathogenesis of main
age-related diseases and frailty: role of immunosenescence. European Geriatric Medicine, 1(2), 112-121.
43 doi: 10.1007/978-0-387-09789-3_21.
44 doi: 10.1097/00062752-200105000-00001.
45 Prall, S., et al., “The role of dehydroepiandrosterone on functional innate immune responses to
acute stress,” Stress Health 2017; 33(5):656-64.
46 Reiche, E., et al., “Stress, depression, the immune system, and cancer,” Lancet Oncol 2004; 5:617–25.
47 Jeffries, W., et al., “Cortisol and immunity,” Med Hypotheses 1991; 34(3):198-208.

48 Ershler, W., “Interleukin-6: a cytokine for gerontologists,” Jour
Amer Geriatr Soc 1993; 41:176–81.
49 DOI: 10.1016/s1473-3099(03)00857-0
50 Karagkouni, A., et al., “Effect of stress on brain inflammation and multiple sclerosis,”
Autoimmune Rev 2013; 12:947–53.
51 Carpenter, L., et al., “Association between plasma IL-6 responses to acute stress and
early-life adversity in healthy
adults,” Neuropsychopharmacology 2010; 35:2617–23
52 McEwen, B., “Brain on stress: how the social environment gets under the skin,” Proc Natl
Acad Sci USA 2012;
109:17180–185
53 Tomiyama, A., et al., “Does cellular aging relate to patterns of allostasis?: an examination of
basal and stress reactive HPA axis
activity and telomere length,” Physiol Behav 2012; 106:40–5
54 DOI: 10.1016/j.maturitas.2017.09.013
55 DOI: 10.1097/GME.0000000000002056
56 https://pmc.ncbi.nlm.nih.gov/articles/PMC3113168/
57 del Mar Montesinos, M., et al., “Thyroid hormone action on innate immunity,”
Front Endrocrinol (Lausanne) 2019; 10:350
58 Smith, P., Max Your Immunity. Garden City Park, NY: Square One Publishers, 2021

Chapter 3

59 https://www.nature.com/articles/s43587-022-00339-0
60 https://www.nature.com/articles/s41392-023-01451-2
61 https://app.podscribe.ai/episode/84385799
62 https://www.tandfonline.com/doi/full/10.1080/19490976.2023.2295394.
63 .Jamil Z, Fatima SS, Ahmed K, Malik R. Anti-mullerian hormone: above and beyond
conventional ovarian reserve markers.
Dis Markers 2016;2016:5246217
64 https://immunityageing.biomedcentral.com/articles/10.1186/s12979-024-00480-
X
65 doi: 10.1097/01.gme.0000147018.30796.25.
66 doi: 10.1016/0378-5122(92)90003-m.
67 doi: 10.1093/humrep/deg005
68 doi: 10.3390/nu15102280
69 https://www.moli-sani.org/?page_id=423
70 https://www.moli-sani.org/?page_id=423
71 https://doi.org/10.1111/j.1471-0528.2004.00348.x.
72 doi: 10.1016/j.bbih.2022.100411
73 DOIhttps://doi.org/10.1038/s41598-023-36226-w
74 DOIhttps://doi.org/10.1038/s41598-023-36226-w
75 https://doi.org/10.1016/j.tjog.2017.05.002

76 https://doi.org/10.1097/GME.0000000000000444
77 M. Kaczmarek, The timing of natural menopause in Poland and associated factors Maturitas, 57 (2007), pp. 139-153
78 DOI: 10.1111/j.1447-0756.2012.01992.x
79 https://doi.org/10.1016/j.tjog.2017.05.002
80 https://doi.org/10.1016/j.tjog.2017.05.002
81 doi: 10.4103/jhrs.JHRS_98_16
82 https://www.sciencedirect.com/science/article/abs/pii/S0269749122004833
83 https://doi.org/10.1016/j.arr.2022.101683
84 https://doi.org/10.1016/j.metabol.2013.09.001
85 https://rep.bioscientifica.com/view/journals/rep/158/3/REP-18-0583.xml
86 doi: 10.1016/s0015-0282(16)49942-5.
87 doi: 10.1111/j.1471-0528.2005.00696.x.
88 doi: 10.3390/biology11111683
89 https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10471094/figure/j_mr-2022-0031_fig_001/
90 .Coulam CB, Adamson SC, Annegers JF. Incidence of premature ovarian failure. Obstet Gynecol.
1986;67:604–606.
91 doi: 10.1007/s40618-016-0467-z
92 doi: 10.1111/j.1365-2265.1993.tb01748.x
93 doi: 10.1111/aji.12151.
94 https://www.frontiersin.org/journals/immunology/articles/10.3389/fimmu.2015.00635/full
https://academic.oup.com/edrv/article/44/1/117/6609424?login=trueLecture: Dr. Felice Gersh, Estrogen, Immunity,
Menopause
95 doi: 10.1146/annurev-immunol-020711-075001
96 doi: 10.1038/nrdp.2016.57
97 doi: 10.1210/jcem.85.8.6740.
98 doi: 10.1210/jc.2008-0701.
99 doi: 10.1016/j.jacc.2009.10.009.
100 doi: 10.1210/jc.2002-021549.
101 doi: 10.1210/jc.2003-031851.
102 Teede HJ, Tay CT, Laven JJE. Recommendations from the 2023 international evidence-based guideline for the
assessment and management of polycystic ovary syndrome. Eur J Endocrinol 2023;189:G43–64.
103 Khan MJ, Ullah A, Basit S. Genetic basis of polycystic ovary syndrome (PCOS): current perspectives. Appl Clin
Genet 2019;12:249–60.
104 doi: 10.1210/jendso/bvaa177.
105 doi: 10.1016/j.lfs.2021.119753.
106 doi: 10.1016/j.mehy.2012.04.016.
107 doi: 10.3390/ijms23084334
108 doi: 10.3389/fcimb.2023.1142041

109 Teede HJ, Misso ML, Costello MF, et al.; International PCOS Network. Recommendations from the international evidence-
based guideline for the assessment and management of polycystic ovary syndrome. Hum Reprod 2018;33:1602–18.
110 Gnanadass SA, Prabhu YD, Gopalakrishnan AV. Association of metabolic and inflammatory markers with polycystic ovarian
syndrome (PCOS): an update. Arch Gynecol Obstet 2021;303:631–43.
111 doi: 10.3390/biomedicines10081924
112 doi: 10.3389/fendo.2020.00025.
113 doi: 10.1016/j.tem.2018.11.001.
114 doi: 10.1016/j.yhbeh.2016.10.016.
115 doi: 10.1210/jc.2011-0039.
116 doi: 10.1210/jc.2010-2959.
117 doi: 10.1016/j.lfs.2019.04.046.

Chapter 4

118 https://www.nytimes.com/2025/01/07/well/estrogen-cream-for-menopause.html
119 https://pubmed.ncbi.nlm.nih.gov/36933040/
https://pubmed.ncbi.nlm.nih.gov/11532481/
https://pubmed.ncbi.nlm.nih.gov/34003309
120 Turi, A., et al., “Lymphocytes subset in hyperandrogenic women with polycystic ovarian disease,” Acta Eur Fertil 1988;
19(3):155-57
121 Dr Felice Gersh A4M lecture on Estrogen and Immunity
122 https://drlindseyberkson.com/product/safe-hormones-smart-women/
123 doi: 10.3389/fendo.2019.00561.
124 doi: 10.1080/13697137.2017.1421921
125 https://journals.sagepub.com/doi/10.1177/07487304231172069
126 https://journals.physiology.org/doi/abs/10.1152/ajpregu.1989.257.5.R1241
127 https://doi.org/10.1210/en.2014-1922
128 https://pmc.ncbi.nlm.nih.gov/articles/PMC2954516/
129 DOI: 10.1249/MSS.0000000000002809
130 Microbiome lecture series A4M (Dr. Pam Smith)
131 Microbiome lecture series A4M (Dr. Pam Smith)
132 DOI: 10.1016/j.maturitas.2017.06.025
133 https://doi.org/10.1093/jnci/djw029
134 Dr. Felice Gersh A4M lecture on estrogen and immunity
135 DOIhttps://doi.org/10.1007/s11920-023-01447-3
136 DOI: 10.1007/s11920-023-01447-3
137 DOI: 10.1038/nn.4086
https://doi.org/10.1016/j.neurobiolaging.2015.03.013
138 DOI: 10.1093/humrep/dead130

139 . Mosconi L, Nerattini M, Matthews DC, et al. In vivo brain estrogen receptor density by neuroendocrine aging and
relationships with cognition and symptomatology. Sci Rep. 2024;14(1):12680. Published 2024 Jun 20. doi:10.1038/s41598-024-
62820-7
140 DOI: 10.4014/jmb.1710.10001
141 doi: 10.3389/fnagi.2022.831807
142 DOI: 10.1136/gutjnl-2021-326269
143 DOIhttps://doi.org/10.1007/s11920-023-01447-3
144 DOI: 10.1007/s11920-023-01447-3
145 doi: 10.3389/fmicb.2017.01884
146 DOI: 10.1249/MSS.0000000000002809
147 DOI: 10.1002/jcsm.12788
148 DOI: 10.1002/jcsm.12788
149 DOI: 10.1002/jcsm.12788
150 https://doi.org/10.3390/nu17091463
151 https://doi.org/10.3390/foods11182863
152 doi: 10.2147/IJWH.S340537
153 https://doi.org/10.1111/j.1532-5415.2000.tb04719.x
154 Smart Hormones, Smart Women, Dr Lindsey Berkson, pg 34
155 doi: 10.1093/sleep/zsac272
156 Microbiome Lecture series A4M (Dr. Pam Smith)
157 https://doi.org/10.3389/fpsyt.2023.1162501
158 JAMA. 2003 May 28; 289(20): 2663-72
159 Endocrinology Reviews. 2007 Jun; 28(4): 387-439
160 https://drlindseyberkson.com/product/safe-hormones-smart-women/
161 https://doi.org/10.1210/er.2006-0050
162 DOI: 10.1016/j.clnu.2007.05.005
163 https://doi.org/10.1038/s41398-019-0487-5
164 Physiology, Thyroid Hormone Muhammad A. Shahid; Muhammad A. Ashraf; Sandeep Sharma.
Author Information and Affiliations Last Update: June 5, 2023.

Chapter 5

165 https://onlinelibrary.wiley.com/doi/10.1016/j.cdtm.2015.02.006
166 https://onlinelibrary.wiley.com/doi/10.1016/j.cdtm.2015.02.006
167 doi: 10.1038/s41598-020-68890-7
168 doi: 10.1038/s41598-020-68890-7
169 https://doi.org/10.1080/19490976.2023.2295432
170 https://doi.org/10.1155/2015/281287
171 doi: 10.1007/s11914-024-00896-w
172 doi: 10.18632/aging.103168

173 doi: https://pubmed.ncbi.nlm.nih.gov/38174650/ 10.7150/ijms.61080
174 doi: 10.1007/s11914-024-00896-w
175 https://doi.org/10.1152/ajpgi.00496.2010
176 https://doi.org/10.1002/jbmr.1588
177 https://doi.org/10.1073/pnas.160723511
178 https://doi.org/10.1002/jbmr.3114
179 DOI: 10.1007/s11154 (-010-9154-0
180 https://doi.org/10.1016/j.jamda.2021.10.021.
181 Hernlund, E., Svedbom, A., Ivergård, M., Compston, J., Cooper, C., Stenmark, J., ... & Kanis, J. A. (2013). Osteoporosis in the
European Union: medical management, epidemiology and economic burden: a report prepared in collaboration with the
International Osteoporosis Foundation (IOF) and the European Federation of Pharmaceutical Industry Associations
(EFPIA). Archives of osteoporosis, 8, 1-115.
182 DOI: 10.1056/NEJMcp1513724
183 doi: 10.1186/s12891-024-07904-1
20 https://www.cdc.gov/radiation-health/data-research/facts-stats/dexa-scan.html#:~:text=Screening%20for%20osteoporosis%20is%20recommended,who%20has%20broken%20a%20hip.
185 https://weillcornell.org/news/what-women-should-know-about-osteoporosis-and-menopause
186 DOI: 10.1210/edrv-11-2-386
187 doi: 10.4061/2010/845180 this link works: doi: 10.4061/2010/845180
188 https://doi.org/10.1080/13697137.2018.1467400
189 Age-Related Changes in Muscle Nair, K. Sreekumaran Mayo Clinic Proceedings, Volume 75, Issue 1, S14 - S18
190 https://doi.org/10.1016/j.afos.2016.06.002
191 doi: 10.1093/ageing/afy169
192 doi: 10.1016/j.revmed.2008.08.013 [
193 Maltais ML, Desroches J, Dionne IJ. Changes in muscle mass and strength after menopause. J Musculoskelet
Neuronal Interact. 2009;9(4):186–197
194 doi: 10.1007/s00198-009-1059-y
195 DOI: 10.1016/j.bbrc.2004.11.097
196 https://doi.org/10.1080/13697137.2018.1467400
197 doi: 10.1007/BF03345601.
198 doi: 10.18632/aging.103168
199 https://doi.org/10.1080/10408398.2021.1910481
200 https://doi.org/10.1007/s12603-022-1748-1
201 https://doi.org/10.1136/gutjnl-2019-320430
202 https://doi.org/10.1093/nutrit/nuaa010
203 doi: 10.7150/ijms.50680
204 https://doi.org/10.1007/s00198-014-2853-8
205 https://my.clevelandclinic.org/health/drugs/4086-depo-provera-birth-control-shot

206 https://www.goodrx.com/depo-provera/depo-provera-side-effects
207 https://doi.org/10.3389/fendo.2020.00603
208 doi: 10.1016/j.jpeds.2016.09.056
209 doi: 10.1210/jc.2010-3027
210 https://doi.org/10.1136/gutjnl-2012-302362
211 https://my.clevelandclinic.org/health/drugs/4086-depo-provera-birth-control-shot
212 https://www.goodrx.com/depo-provera/depo-provera-side-effects
213 Berenson AB, et al. A prospective, controlled study of the effects of hormonal contraception on bone mineral density. Obstet
Gynecol. October 2001;98:576-82.
214 doi: 10.1001/archpedi.159.2.139
215 doi: 10.1016/j.contraception.2009.11.003

Chapter 6

216 DOI: 10.1016/S2213-8587(21)00018-8
217 doi: 10.2147/IJWH.S340491
218 DOI: 10.1002/jcsm.12922
219 DOI: 10.1016/j.jamda.2013.05.021
220 https://doi.org/10.1016/j.exger.2015.02.015
221 DOI: 10.1002/oby.22531
222 DOI: 10.1111/1471-0528.17290
223 Nutritional Recommendations for the Management of Sarcopenia Morley, John E. et al.Journal of the American
Medical Directors Association, Volume 11, Issue 6, 391 - 396
224 doi: 10.1097/MED.0000000000000791
225 doi: 10.1097/MED.0000000000000791
226 doi: 10.1097/MED.0000000000000791
227 doi: 10.1097/MED.0000000000000791
228 https://doi.org/10.1007/s12263-011-0230-1
229 Source: USDA National Nutrient Database for Standard Reference, Legacy Release
230 Fiber Facts: https://sci.washington.edu/info/forums/reports/FiberFacts.pdf
231 DOI: 10.1056/NEJMoa1014296
232 Adapted from the University of Virginia's Health System: Digestive Heatlh Center
233 DOI: 10.3389/fcimb.2022.815798
234 doi: 10.1007/s13668-023-00462-3
235 https://doi.org/10.1007/s13668-023-00462-3
236 https://doi.org/10.1080/19490976.2023.2295429
237 doi: 10.1002/eji.201747122.
238 doi: 10.1371/journal.pone.0160533.
239 DOI: 10.3390/nu12082189
240 DOI: 10.1016/j.jnutbio.2018.03.009
241 DOI: 10.1038/ijo.2015.84

242 DOI: 10.1017/S0029665114001657
243 DOI: 10.1136/gutjnl-2014-306928
244 DOI: 10.1556/650.2015.30296
245 https://doi.org/10.1128/msystems.00558-21
246 https://doi.org/10.3389/fphys.2012.00165
247 https://doi.org/10.1016/j.redox.2015.05.002.
248 DOI: 10.1002/mnfr.201900952
249 doi: 10.3390/nu11092216
250 https://doi.org/10.3389/fnut.2019.00188
251 doi: 10.1039/C7FO00076F
252 Gut Check, Dr Steven Gundry
253 DOI: 10.1177/1933719113518992
254 doi: 10.1177/1939113518992
255 DOI: 10.1152/physrev.00003.2008
256
https://www.celiac.com/celiac-disease/celiac-disease-rates-skyrocket-up-400-in-last-50-years-r1472/
257 https://doi.org/10.1093/advances/nmy097
258 https://www.oecd.org/en/topics/agriculture-and-fisheries.html
259 https://doi.org/10.1210/endocr/bqz044
53 https://doi.org/10.1371/journal.pone.0132672
261 https://pmc.ncbi.nlm.nih.gov/articles/PMC1949018/
262 DOI: 10.1371/journal.pone.0174544
263 DOI: 10.1002/oby.21109
264 DOI: 10.1097/GME.0000000000000879
265 https://www.webmd.com/osteoporosis/features/alcohol
266 DOI: 10.4103/jmh.JMH_7_19
267 doi: 10.1136/bmj.j2353.
268 doi: 10.1002/ijc.32324
269
https://pubmed.ncbi.nlm.nih.gov/17468952/https://www.bcrf.org/blog/alcohol-and-breast-cancer-risk/#:~:text=Studies%20show%20that%20the%20more,a%2020%20percent%20higher%20risk.
270 Centers for Disease Control and Prevention. Outpatient antibiotic prescriptions — United States, 2022.
271 Hersh AL, King LM, Shapiro DJ, Hicks LA, Fleming-Dutra KE. Unnecessary Antibiotic Prescribing in US Ambulatory Care
Settings, 2010-2015. Clin Infect Dis. 2021;72(1):133-137.
272 doi: 10.3389/fcimb.2020.572912
273
https://pmc.ncbi.nlm.nih.gov/articles/PMC8988816/#:~:text=Recent%20evidence%20suggests%20that%20exposure,and%20air%20contamination%20%5B15%5D.
274 https://www.fda.gov/food/pesticides/questions-and-answers-glyphosate

275 https://www.iarc.who.int/featured-news/media-centre-iarc-news-glyphosate/#:~:text=What%20does%20IARC%E2%80%B2s%20classification,the%20effect%20of%20the%20agen
t.
276 https://pmc.ncbi.nlm.nih.gov/articles/PMC8988816/#R15
277 https://www.ewg.org/research/bottled-water-quality-investigation
278 https://doi.org/10.3109/13697137.2012.707385
279 DOI: 10.1056/NEJMoa0804748

Chapter 7

280 https://doi.org/10.1080/13697137.2024.2380363
282 https://doi.org/10.1016/j.maturitas.2024.107924
283 https://doi.org/10.1016/j.maturitas.2016.04.017
284 Grove KA, Londeree BR. Bone density in postmenopausal women: high impact vs low impact exercise. Med Sei
Sports Exerc. 1992;24:1190–4
285 doi: 10.1136/bmj.319.7205.279.
286 doi: 10.1111/j.1532-5415.1999.tb03833.x.
288 https://doi.org/10.3389/fendo.2021.682012
289 doi: 10.1097/GME.0000000000000651
290 doi: 10.3390/jcm12020548
291 https://www.sciencedirect.com/topics/medicine-and-dentistry/postmenopause
292 doi: 10.1055/a-2003-9406
293 doi: 10.2147/IJWH.S340491
294 https://doi.org/10.1016/j.smhs.2024.02.005
295 DOI: 10.1055/a-1301-7011
296 doi: 10.3390/nu15061534
297
https://pmc.ncbi.nlm.nih.gov/articles/PMC1798356/https://www.arthritis.org/health-wellness/about-
arthritis/related-conditions/other-diseases/how-fat-affects-osteoarthritis
298 Maltais ML, Desroches J, Dionne IJ. Changes in muscle mass and strength after menopause. J Musculoskelet
Neuronal Interact. 2009;9(4):186–197.
299 doi: 10.1007/s00421-005-0078-4.
300 doi: 10.1042/cs0820321.
301 doi: 10.3389/fendo.2021.682012
302 https://doi.org/10.1016/j.maturitas.2016.04.017
303 doi:10.1097/GME.0000000000000627
304 doi:10.3109/13697137.2014.933411
305 doi:10.1037/0278-6133.16.3.203
306 DOI: 10.1249/MSS.0000000000002809

307 DOI: 10.1016/j.maturitas.2019.05.005
308 doi: 10.3390/sports9020014.
310 doi: 10.3390/sports9020014
311 doi: 10.3390/nu15061534
312 doi: 10.4103/0976-7800.92524
313 https://pubmed.ncbi.nlm.nih.gov/23912805/Mueck-Weymann M, Janshoff G, Mueck H. Stretching increases
heart rate variability in healthy athletes complaining about limited muscular flexibility. Clin Auton Res 2004;
14:15–18.
314 .Daley AJ, Stokes-Lampard HJ, Macarthur C. Exercise to reduce vasomotor and other menopausal symptoms: a
review. Maturitas 2009; 63:176–180.
315 Elavsky S, McAuley E. Physical activity and mental health outcomes during menopause: a randomized controlled
trial. Ann Behav Med 2007; 33:132–142.
316 https://doi.org/10.1016/j.explore.2006.10.007
317 DOI: 10.1093/gerona/55.9.m489
318 DOI: 10.1093/gerona/55.9.m489
319 doi: 10.1007/s00421-009-1303-3.
320 doi: 10.3389/fneur.2019.00627.
321 doi: 10.1177/0269215514552829.
322 doi: 10.1519/00139143-200932030-00009.
323 doi: 10.1123/japa.2019-0070.
324 DOI: 10.4103/jmh.jmh_18_22
325 The New Menopause, Dr Maryclaire Haver, p249 (2024)
326 https://www.sleepfoundation.org/sleep-deprivation
327 https://doi.org/10.1093/humupd/dmp005
328 doi: 10.1152/physrev.00006.2012
329 https://doi.org/10.1152/ajpregu.2000.279.3.R874
330 The effect of menopause on objective sleep parameters: Data from an epidemiologic study in São Paulo,
Brazil Hachul, Helena et al. Maturitas, Volume 80, Issue 2, 170 - 178
331 doi: 10.1186/s40695-021-00064-5
332 doi: 10.3390/ijms24119603
333 doi: 10.1016/j.ogc.2018.07.008
334 doi: 10.2147/VHRM.S73688
335 https://www.co2meter.com/blogs/news/nasa-compiles-list-of-best-plants-to-clean-indoor-air?srsltid=AfmBOooJeEk_lSrAtV5JlPJ09s-dcOWw6yCmCsEFsHEvoa5LoVLIOmKX
336 https://doi.org/10.1016/j.jncc.2024.07.004
337 Mumenthaler MS, Taylor JL, O'Hara R, Yesavage JA. Gender differences in moderate drinking effects. Alcohol
Res Health. 1999;23(1):55-64. PMID: 10890798; PMCID: PMC6761697.

338 Erol A, Karpyak V. Sex and gender-related differences in alcohol use and its consequences: contemporary knowledge and
future research considerations. Drug and Alcohol Dependence. 2015;156:1–13.
339 Mumenthaler MS, Taylor JL, O'Hara R, Yesavage JA. Gender differences in moderate drinking effects. Alcohol
Res Health. 1999;23(1):55-64. PMID: 10890798; PMCID: PMC6761697.
340 https://doi.org/10.1073/pnas.1418490112
341 doi: 10.3390/molecules26092571
342 https://doi.org/10.1093/gerona/59.8.M844
343 doi: 10.3390/nu13113762

Chapter 9

344 Cohen LS, Soares CN, Vitonis AF, Otto MW, Harlow BL. Risk for new onset of depression during the menopausal transition:
the Harvard study of moods and cycles. Arch Gen Psychiatry 2006;63:385–390.
10.1001/archpsyc.63.4.385
345 Epperson CN Sammel MD Bale TL, et al. Adverse childhood experiences and risk for first-episode major depression during
the menopause transition. J Clin Psychiatry 2017;78:e298–e307. 10.4088/JCP.16m10662
347 \https://doi.org/10.1177/070674371663553
348 https://www.frontiersin.org/journals/public-health/articles/10.3389/fpubh.2017.00258/full
349 https://doi.org/10.1002/jts.21848
350 https://doi.org/10.1002/jts.21848
351 Goldstein RB Smith SM Chou SP, et al. The epidemiology of DSM-5 posttraumatic stress disorder in the United States: results
from the National Epidemiologic Survey on Alcohol and Related Conditions-III. Soc Psychiatry Psychiatr
Epidemiol 2016;51:1137–1148. 10.1007/s00127-016-1208-5
352 Ursano RJ Fullerton CS Epstein RS, et al. Acute and chronic posttraumatic stress disorder in motor vehicle accident
victims. Am J Psychiatry 1999;156:589–595. 10.1176/ajp.156.4.589
353 Ditlevsen DN, Elklit A. The combined effect of gender and age on post traumatic stress disorder: do men and women show
differences in the lifespan distribution of the disorder? Ann Gen Psychiatry 2010;9:32.
10.1186/1744-859X-9-32
354 Dr Sara Gottfried, The Autoimmune Cure, p.21)
355 doi:10.1017/S0954579411000174
356 Thurston, R. C., et al. (2017). History of Childhood Abuse and Risk of Depression in Midlife Women: The Study
of Women's Health Across the Nation (SWAN). Journal of Women's Health, 26(10), 1054–1061.
357 . (Anda & Felitti, 2003).
358 https://childinst.org/a-brief-explanation-of-aces-adverse-childhood-

experiences/?gad_source=1&gclid=CjwKCAiAnpy9BhAkEiwA-P8N4n8V87sNTAOMlmVlZAOERSyQOnrsrgUXCQnX8F7l_d4o3JekabrbThoCLjUQAvD_BwE
359 Dr Sara Gottfried: The Autoimmune Cure, pg xiii.
360 https://pmc.ncbi.nlm.nih.gov/articles/PMC6968572/
361 https://pubmed.ncbi.nlm.nih.gov/37577812/
362 https://doi.org/10.1016/j.xjmad.2024.100082
363 https://www.pennmedicine.org/news/news-releases/2017/march/trauma-and-stress-in-teen-years-increases-risk-of-depression-during-
364 https://www.joinmidi.com/post/menopause-anger?campaignid=21383234566&utm_campaign=&adgroupid=&keyword=&matchtype=&network=x&device=c&extensionid=&utm_source=google&utm_medium=ppc&gad_source=1&gclid=CjwKCAiAzba9BhBhEiwA7glbagals_VNztz77Doo28jchEP_L_WZt8EaAXnmzI_X7wcy4EavgNScHhoCVksQAvD_BwE
365 https://doi.org/10.1016/j.avb.2017.01.014
366 Dichter, M. E., Butler, A., Bellamy, S., Medvedeva, E., Roberts, C. B., & Iverson, K. M. (2017). Disproportionate mental health burden associated with past-year intimate partner violence among women receiving care in the Veterans Health Administration. Journal of Traumatic Stress, 30(6), 555-563. https://doi.org/10.1002/jts.22241
367 Bonomi, A. E., Anderson, M. L., Reid, R. J., Rivara, F. P., Carrell, D., & Thompson, R. S. (2009a). Medical and psychosocial diagnoses in women with a history of intimate partner violence. Archives of Internal Medicine, 169(18), 1692-1697. https://doi.org/10.1001/archinternmed.2009292.
368 Golding, J. M. (1999). Intimate partner violence as a risk factor for mental disorders. Journal of Family Violence, 14, 99-132. https://doi.org/10.1023/A:10220794182229.
369 Iverson, K. M., Dick, A., McLaughlin, K. A., Smith, B. N., Bell, M. E., Berger, M. R., Cook, N., & Mitchell, K. S. (2013). Exposure to interpersonal violence and its associations with psychiatric morbidity in a U.S. national sample A gender comparison. Psychology of Violence, 3(3), 273-287. https://doi.org/10.1037/a0030956
370 https://www.healio.com/news/womens-health-ob-gyn/20220228/intergenerational-abuse-childhood-violence-may-cause-earlier-onset-of-menopause#:~:text=Experiencing%20physical%20abuse%20in%20childhood,mothers%20who%20reported%20no%20abuse.

371
https://pmc.ncbi.nlm.nih.gov/articles/PMC10919405/#:~:text=Some%20fMRI%20studies%20have%20shown,da
mpen%20the%20brain's%20stress%20response.
372 IJFANS INTERNATIONAL JOURNAL OF FOOD AND NUTRITIONAL SCIENCES ISSN PRINT 2319 1775 Online 2320
7876 Research Paper © 2012 IJFANS. All Rights Reserved, Journal Volume 12, Iss 01, 2023
373 https://doi.org/10.1016/j.cpr.2013.05.005
374 https://doi.org/10.1111/nyas.12998
375 Acupuncture for Chronic Pain: Update of an Individual Patient Data Meta-AnalysisVickers, Andrew J. et al. The
Journal of Pain, Volume 19, Issue 5, 455 - 474
376 Acupuncture for Chronic Pain: Update of an Individual Patient Data Meta-Analysis. Vickers, Andrew J. et al.
The Journal of Pain, Volume 19, Issue 5, 455 - 474
377 doi: 10.1155/2012/513638
378 doi: 10.1089/acu.2014.1050
379 https://doi.org/10.1016/j.jams.2017.01.002
380 doi: 10.3389/fimmu.2023.1147718
381 https://doi.org/10.1016/j.eujim.2016.06.022
382 doi: 10.1371/journal.pone.0027566
383 doi: 10.1186/s12199-019-0800-1
384 doi: 10.1089/acm.2014.0297
385 DOIhttps://doi.org/10.1038/s41598-022-27247-y
386
https://hub.jhu.edu/magazine/2021/fall/holotropic-breathwork-ptsd-therapy/?utm_source=chatgpt.com
387 DOI: 10.1177/1550059412460164
388 DOI: 10.1016/j.biopsych.2013.10.024
389 Hammond DC. Neurofeedback treatment of depression and anxiety. J Adult Dev. 2005;12(2-3):131-137.
doi:10.1007/s10804-005-7029-5
390 Banerjee S, Argáez C. Neurofeedback and Biofeedback for Mood and Anxiety Disorders: A Review of Clinical
Effectiveness and Guidelines [Internet]. Ottawa (ON): Canadian Agency for Drugs and Technologies in Health;
2017 Nov 13. Available from: https://www.ncbi.nlm.nih.gov/books/NBK531603/
391 doi: 10.3346/jkms.2024.39.e94
392 Hammond, D. C. (2011). What is Neurofeedback: An Update. Journal of Neurotherapy, 15(4), 305–336.
393 https://www.health.harvard.edu/blog/what-is-somatic-therapy-202307072951
394 doi: 10.1080/20008198.2021.1929023
395 doi: 10.1002/jts.22189
396 https://mcpress.mayoclinic.org/living-well/the-befenits-of-somatic-

exercises/#:~:text=This%20type%20of%20therapy%20is,and%20improving%20symptoms%20of%20PTSD.
397 The Autoimmune Cure (SGottfried), pg 170)
398 doi: 10.3389/fpsyt.2022.947622
399 . doi: 10.1016/j.biopsych.2010.08.003
400 https://pmc.ncbi.nlm.nih.gov/articles/PMC6780820/
401 doi: 10.1621/nrs.04023
402 Majumdar SR, Almasi EA, Stafford RS. Promotion and prescribing of hormone therapy after report of harm by
the Women's Health Initiative. JAMA. 2004 Oct 27;292(16):1983-8.
403 Manson JE, Crandall CJ, Rossouw JE, Chlebowski RT, Anderson GL, Stefanick ML, Aragaki AK, Cauley JA,
Wells GL, LaCroix AZ, Thomson CA, Neuhouser ML, Van Horn L, Kooperberg C, Howard BV, Tinker LF,
Wactawski-Wende J, Shumaker SA, Prentice RL. The Women's Health Initiative Randomized Trials and Clinical
Practice: A Review. JAMA. 2024 May 28;331(20):1748-1760
404 doi: 10.1111/jch.13548
405 doi: 10.1621/nrs.04023
406 https://doi.org/10.1080/13697137.2020.1851183
407 https://doi.org/10.1080/13697137.2020.1851183

408 https://doi.org/10.1080/13697137.2020.1851183
409 J Gen Intern Med 2004; 19(7): 791-804
410 J Gen Intern Med 2004; 19(7): 791-804
411 J Gen Intern Med 2004; 19(7): 791-804
412 DOI: 10.1007/s00737-011-0242-2
413 doi: 10.1097/GME.0000000000001945
414 DOI: 10.1097/GME.0000000000000786
415 https://doi.org/10.1038/srep44917
416 DOIhttps://doi.org/10.1186/s13195-022-01121-5
417 Management of the Vasomotor Symptoms of Menopause: Twofers in Your Clinical Toolbox Kling, Juliana M. et al.Mayo
Clinic Proceedings, Volume 99, Issue 7, 1142 - 1148
418 doi: 10.1200/JCO.2009.22.0764
419 DOI: 10.1097/GME.0000000000001955
420 Estrogen–gut microbiome axis: Physiological and clinical implications Baker, James M. et al.Maturitas,
Volume 103, 45 - 53
421 DOI: 10.1056/NEJM200008243430809
422 J Gen Intern Med 2004; 19(7): 791-804
423 Woods, J. MD (2015). Clarifying The Terms “Bioidentical Hormones” And “Compounded Hormones”. Obstetrics & Gynecology menoPAUSE Blog.
https://www.urmc.rochester.edu/ob-gyn/ur-medicine-

menopause-and-womens-health/menopause-blog/april-2015/clarifying-terms-bioidentical-hormones-
compounded.aspx
424 Woods, J. MD (2015). Clarifying The Terms “Bioidentical Hormones” And “Compounded Hormones”. Obstetrics & Gynecology menoPAUSE Blog.
https://www.urmc.rochester.edu/ob-gyn/ur-medicine-
menopause-and-womens-health/menopause-blog/april-2015/clarifying-terms-bioidentical-hormones-
compounded.aspx

Chapter 11

425 doi: 10.4065/80.7.923.
426 doi: 10.3389/fendo.2022.904889
427 doi: 10.3389/fendo.2022.904889
428 doi: 10.1186/1471-2458-13-1153
429 doi: 10.1097/MED.0000000000000190
430 doi: 10.3389/fendo.2022.904889
431 doi: 10.3389/fendo.2022.904889
432 DOI: 10.1210/jcem.81.4.8636357
433 DOI: 10.1016/j.maturitas.2014.12.016
435
436 https://www.nhlbi.nih.gov/health/coronary-heart-disease/women
437 doi: 10.1001/jamacardio.2022.0716
438 https://doi.org/10.1016/j.ajpc.2024.100885
439 https://bostonheartdiagnostics.com/test/boston-heart-cholesterol-balance-test/
440 https://doi.org/10.1210/jc.2003-030242
441 doi: 10.3390/nu13072149
442 https://doi.org/10.18231/j.ijogr.2022.032
443 . Hurrell RF. Bioavailability of iodine. Eur J Clin Nutr (1997) 51 Suppl 1:S9–12.
444 doi: 10.1177/1559827616682933
445 doi: 10.1210/en.2011-2045
446 DOI: 10.1016/j.maturitas.2016.03.014
447 https://www.ncbi.nlm.nih.gov/books/NBK540969/
448 https://pubmed.ncbi.nlm.nih.gov/26962899/
449 doi: 10.1097/GME.0000000000000238
450 doi: 10.20945/2359-3997000000121.
451 doi: 10.1016/j.conctc.2017.10.006
452 doi: 10.1210/jc.2007-1876
453 doi: 10.3390/nu13072149
454 doi: 10.2147/IJWH.S340491
455 doi: 10.4161/gmic.19320
456 https://doi.org/10.1136/gut.2003.037697

457 https://doi.org/10.1080/07315724.2006.10719567
458 https://doi.org/10.3390/nu10050548
459 https://doi.org/10.3390/nu10050548
460 DOIhttps://doi.org/10.1186/1475-2891-10-85
461 https://doi.org/10.1177/03331024103614
462 DOI: 10.1111/j.1526-4610.2012.02296.x
463 DOI: 10.1111/j.1365-2222.1986.tb01980.x
464 Panush RS. Food induced ("allergic") arthritis: clinical and serologic studies. J Rheumatol. 1990 Mar;17(3):291-4.
PMID: 2332849.
465 DOI: 10.1016/j.autrev.2018.05.011
466 https://doi.org/10.1159/000264649
467 DOI: 10.1055/s-2007-993165
468 https://www.healthline.com/health/food-sensitivity-test#Quick-look-at-food-allergy-tests
469 https://www.gdx.net/products/food-sensitivity
470 https://www.eatonpurpose.com/wp-content/uploads/2014/09/Food-Sensitivity-IgG-Clinical-Paper.pdf
471 https://dutchtest.com/
472 https://www.rupahealth.com/lab-companies/precision-analytical-dutch
473 https://www.rupahealth.com/lab-companies/precision-analytical-dutch

Chapter 12

474 https://www.fda.gov/food/dietary-supplements
475 https://www.fda.gov/food/dietary-supplements
476 https://www.fda.gov/food/dietary-supplements
477 DOI: 10.1111/cbdd.13089
478 doi: 10.1155/2015/670504
479 doi: 10.2174/1389200217021601141501 37
480 https://share.upmc.com/2022/09/digestive-enzyme-supplements/
481 Invernizzi P, Setchell KD, Crosignani A, Battezzati PM, Larghi A, O'Connell NC, Podda MDifferences in the
metabolism and disposition of ursodeoxycholic acid and of its taurine-conjugated species in patients with primary
biliary cirrhosisHepatology.(1999 Feb)
482 doi: 10.3390/cells8121471
483 https://www.alzdiscovery.org/uploads/cognitive_vitality_media/Tauroursodeoxycholic-Acid-Cognitive-Vitality-
For-Researchers.pdf
1. X, Li Z, Zhang D. Exploration of the association between dietary fiber intake and depressive symptoms in

adults. Nutrition. 2018;54:48–53.
485 Xu H, Li S, Song X, Li Z, Zhang D. Exploration of the association between dietary fiber intake and depressive
symptoms in adults. Nutrition. 2018;54:48–53.
486 https://microbiomelabs.com/home/products/mega-igg2000-capsules/
487 DOIhttps://doi.org/10.1007/s00726-024-03420-7
488 doi:10.1016/j.clnesp.2020.12.023
490 doi: 10.1186/cc13185
491 https://doi.org/10.1006/cyto.2000.0813
492 https://nutritionandmetabolism.biomedcentral.com/articles/10.1186/s12986-020-00503-6
493 https://nutritionandmetabolism.biomedcentral.com/articles/10.1186/s12986-020-00503-6
494 doi: 10.15167/2421-4248/jpmh2022.63.2S3.2766
495 https://doi.org/10.1016/j.maturitas.2004.04.002
496 https://doi.org/10.1016/S0002-9378(99)70209-7
497 doi: 10.3390/antiox11061212
498 doi: 10.1097/01.mog.0000208463.69266.8c
499 https://doi.org/10.3389/fpsyt.2021.765485
500 https://doi.org/10.3389/fpsyt.2021.765485
501 doi: 10.1002/hsr2.2267
502 https://doi.org/10.1038/s41564-021-00880-5
503 doi: 10.1099/ijs.0.02873-0
504 doi: 10.1128/AEM.04050-14.
505 doi: 10.3390/life13061247
506 DOI: 10.1038/s42255-019-0073-4
507 DOI: 10.1016/j.molmed.2021.04.009
508 Cortés-Martín, A. ...
The gut microbiota urolithin metabotypes revisited: the human metabolism of ellagic acid is mainly
determined by aging
Food Funct. 2018; 9:4100-4106
509 Kim, S. · Jazwinski, S.M.
The gut microbiota and healthy aging: a mini-review
Gerontology. 2018; 64:513-520
510 doi:10.1001/jamanetworkopen.2021.44279
511 doi:10.1001/jamanetworkopen.2021.44279
512 doi: 10.3390/nu10010097
513 doi: 10.11005/jbm.2021.28.3.207
514 doi: 10.3390/nu10010097
515 https://doi.org/10.1007/s12603-009-0224-5
516 DOI: 10.1093/gerona/glz162
DOI: 10.1093/gerona/gl
z162
ERLINK "https://www.doi.org/10.3390/nu5083022" \t
"_blank"https://www.doi.org/10.3390/nu5083022

519 DOIhttps://doi.org/10.1007/BF02408050
520 https://doi.org/10.3390/nu5083022
521 https://ods.od.nih.gov/factsheets/Magnesium-HealthProfessional/
522 DOIhttps://doi.org/10.1007/s00394-023-03123-x
523 doi: 10.3390/nu2070693
524 DOI: 10.1016/j.beem.2011.05.002
525 doi:10.1001/jama.2019.11889
526 Bischoff-Ferrari, H.A; Dietrich, T.; Orav, E.J.; Dawson-Hughes, B. Positive association between 25-hydroxy vitamin D levels
and bone mineral density: a population-based study of younger and older adults. Am. J. Med.2004, 116, 634–639
527 Boland, R. Role of vitamin D in skeletal muscle function. Endocr. Rev. 1986, 7, 434–438
528 Larsen, E.R.; Mosekilde, L.; Foldspang, A. Vitamin D and calcium supplementation prevents osteoporotic fractures in elderly
community dwelling residents: a pragmatic population-based 3-year intervention study. J. Bone. Miner. Res. 2004, 19, 370–378.
529 Linton, P.J.; Dorshkind, K. Age-related changesin lymphocyte development and function. Nat. Immunol. 2004, 5, 133–139.
530 Clowes, J.A.; Riggs, B.L.; Khosla, S. The role of the immune system in the pathophysiology of osteoporosis. Immunol.
Rev. 2005, 208, 207–227
531 doi: 10.3390/nu2070693
533 https://doi.org/10.1016/j.sleep.2020.03.012
534 doi: 10.1016/j.jep.2020.113276.
535 https://doi.org/10.1093/sleep/zsac079.690
536 DOIhttps://doi.org/10.1038/s41598-024-53810-w
537 Ko, C. Y. et al. Disruption of sleep architecture in Prevotella enterotype of patients with obstructive sleep apnea-
hypopnea syndrome. Brain Behav. 9, e01287 (2019).
538 Li, Y. et al. Gut microbiota changes and their relationship with inflammation in patients with acute and chronic
insomnia. Nat. Sci. Sleep 12, 895–905 (2020).
539 Marotta, A. et al. Effects of probiotics on cognitive reactivity, mood, and sleep quality. Front. Psychiatry 10, 164
(2019).
540 Allen AP, Hutch W, Borre YE, et al. Bifidobacterium longum 1714 as a translational psychobiotic: Modulation of
stress, electrophysiology and neurocognition in healthy volunteers. Transl Psychiatry 2016;6(11):e939
541 doi: 10.14309/ajg.0000000000000203
542 doi: 10.1111/jsr.12523
543 https://www.sciencedirect.com/science/article/abs/pii/S0031938406003763
544 doi: 10.1111/jsr.12523
545 doi: 10.2217/cnc-2016-0016

546 DOI: 10.1254/jphs.11r04fm
547 doi: 10.1038/npp.2014.326
548 Yamadera W., Inagawa K., Chiba S., Bannai M., Takahashi M., Nakayama K. (2007). Glycine ingestion improves
subjective sleep quality in human volunteers, correlating with polysomnographic changes. Sleep Biol. Rhythms 5,
126–131
549 doi: 10.1038/npp.2014.326
550 https://doi.org/10.1254/jphs.11R04FM
551 Inagawa K., Kawai N., Ono K., Sukegawa E., Tsubuku S., Takahashi M. (2006b). Assessment of acute adverse
events of glycine ingestion at a high dose in human volunteers. Seikatsu Eisei 50, 27–32
552 https://pubmed.ncbi.nlm.nih.gov/26404370/
553 https://doi.org/10.1016/j.sleepx.2024.100121
554 https://doi.org/10.1016/j.sleepx.2024.100121
555 https://doi.org/10.1093/ajcn/33.9.1954
556 DOI: 10.1080/14767058.2020.1818225
557 https://pubmed.ncbi.nlm.nih.gov/32933356/
559 DOI:10.1016/j.jnim.2015.12.308
560 doi: 10.3390/nu11102362
561 Canar, L. Phosphatidylserine: Cell Membrane Nutrient for Stress Resiliency. Chronobiology. 2016;1(23):1-2.
Accessed July 22, 2022.
562 doi: 10.21037/jtd.2019.12.64
563 https://thyroiduk.org/related-conditions/adrenal-conditions/dhea-deficiency/#:~:text=Low%20levels%20of%20DHEA%20in,with%20cancer%20of%20the%20adrenals.
564 https://www.intechopen.com/books/sex-hormones-in-neurodegenerative-processes-and-diseases/dehydroepiandrosterone-dhea-and-dhea-sulfate-roles-in-brain-function-and-disease
565
https://www.sciencedirect.com/science/article/pii/S0083672918300347#:~:text=DHEA%20also%20plays
%20an%20important,et%20al.%2C%201991)
566
https://pubmed.ncbi.nlm.nih.gov/27346309/#:~:text=It%20is%20also%20shown%20that,against%20osteo
porosis%20through%20its%20metabolites.
567
https://diabetes.diabetesjournals.org/content/54/3/765#:~:text=There%20is%20additional%20evidence%2
0suggesting,and%20blood%20glucose%20(22).
568 https://academic.oup.com/humupd/article/13/3/239/2457836

569
https://www.omicsonline.org/open-access/the-role-of-pregnenolone-in-inflammatory-degenerative-brain-disease-ijm.1000121.php?aid=35410#:~:text=Pregnenolone%20is%20a%20steroid%20hormon,the%20mood%20and%20the%20memory