George A Brooks

List of Publications by Citations

140 papers	12,911 citations	55 h-index	113 g-index
153 ext. papers	14,666 ext. citations	4.6 avg, IF	7 L-index

#	Paper	IF	Citations
140	Fully integrated wearable sensor arrays for multiplexed in situ perspiration analysis. *Nature*, **2016**, 529, 509-514	50.4	2526
139	Free radicals and tissue damage produced by exercise. *Biochemical and Biophysical Research Communications*, **1982**, 107, 1198-205	3.4	1326
138	Cell-cell and intracellular lactate shuttles. *Journal of Physiology*, **2009**, 587, 5591-600	3.9	443
137	Biochemical adaptation of mitochondria, muscle, and whole-animal respiration to endurance training. *Archives of Biochemistry and Biophysics*, **1981**, 209, 539-54	4.1	358
136	The Science and Translation of Lactate Shuttle Theory. *Cell Metabolism*, **2018**, 27, 757-785	24.6	355
135	Role of mitochondrial lactate dehydrogenase and lactate oxidation in the intracellular lactate shuttle. *Proceedings of the National Academy of Sciences of the United States of America*, **1999**, 96, 1129-34	11.5	328
134	Chronically and acutely exercised rats: biomarkers of oxidative stress and endogenous antioxidants. *Journal of Applied Physiology*, **2000**, 89, 21-8	3.7	310
133	Lactate sensitive transcription factor network in L6 cells: activation of MCT1 and mitochondrial biogenesis. *FASEB Journal*, **2007**, 21, 2602-12	0.9	265
132	Reexamining cancer metabolism: lactate production for carcinogenesis could be the purpose and explanation of the Warburg Effect. *Carcinogenesis*, **2017**, 38, 119-133	4.6	263
131	Intra- and extra-cellular lactate shuttles. *Medicine and Science in Sports and Exercise*, **2000**, 32, 790-9	1.2	231
130	The lactate shuttle during exercise and recovery. *Medicine and Science in Sports and Exercise*, **1986**, 18, 360-8	1.2	230
129	Endurance training, expression, and physiology of LDH, MCT1, and MCT4 in human skeletal muscle. *American Journal of Physiology - Endocrinology and Metabolism*, **2000**, 278, E571-9	6	219
128	Metabolic bases of excess post-exercise oxygen consumption. *Medicine and Science in Sports and Exercise*, **1984**, 16, 29???43	1.2	203
127	Active muscle and whole body lactate kinetics after endurance training in men. *Journal of Applied Physiology*, **1999**, 87, 1684-96	3.7	177
126	Respiratory gas-exchange ratios during graded exercise in fed and fasted trained and untrained men. *Journal of Applied Physiology*, **1999**, 86, 479-87	3.7	176
125	Mammalian fuel utilization during sustained exercise. *Comparative Biochemistry and Physiology - B Biochemistry and Molecular Biology*, **1998**, 120, 89-107	2.3	163
124	Lactate transport is mediated by a membrane-bound carrier in rat skeletal muscle sarcolemmal vesicles. *Archives of Biochemistry and Biophysics*, **1990**, 279, 377-85	4.1	156

123	Current Concepts in Lactate Exchange. *Medicine and Science in Sports and Exercise*, **1991**, 23, 895???906	1.2	154
122	Colocalization of MCT1, CD147, and LDH in mitochondrial inner membrane of L6 muscle cells: evidence of a mitochondrial lactate oxidation complex. *American Journal of Physiology - Endocrinology and Metabolism*, **2006**, 290, E1237-44	6	153
121	Chronicle of the Institute of Medicine physical activity recommendation: how a physical activity recommendation came to be among dietary recommendations. *American Journal of Clinical Nutrition*, **2004**, 79, 921S-930S	7	153
120	Training-induced alterations of carbohydrate metabolism in women: women respond differently from men. *Journal of Applied Physiology*, **1998**, 85, 1175-86	3.7	153
119	Anaerobic threshold. *Medicine and Science in Sports and Exercise*, **1985**, 17, 22???31	1.2	144
118	Lactate and glucose interactions during rest and exercise in men: effect of exogenous lactate infusion. *Journal of Physiology*, **2002**, 544, 963-75	3.9	131
117	Evidence for the mitochondrial lactate oxidation complex in rat neurons: demonstration of an essential component of brain lactate shuttles. *PLoS ONE*, **2008**, 3, e2915	3.7	129
116	Lactate and pyruvate transport is dominated by a pH gradient-sensitive carrier in rat skeletal muscle sarcolemmal vesicles. *Archives of Biochemistry and Biophysics*, **1990**, 279, 386-94	4.1	128
115	Cardiac and skeletal muscle mitochondria have a monocarboxylate transporter MCT1. *Journal of Applied Physiology*, **1999**, 87, 1713-8	3.7	126
114	H2O2-induced mitochondrial fragmentation in C2C12 myocytes. *Free Radical Biology and Medicine*, **2010**, 49, 1646-54	7.8	124
113	Lipolysis and fatty acid metabolism in men and women during the postexercise recovery period. *Journal of Physiology*, **2007**, 584, 963-81	3.9	121
112	Mitochondrial and plasma membrane lactate transporter and lactate dehydrogenase isoform expression in breast cancer cell lines. *Physiological Genomics*, **2011**, 43, 255-64	3.6	117
111	Training-induced alterations of glucose flux in men. *Journal of Applied Physiology*, **1997**, 82, 1360-9	3.7	101
110	Mitochondrial lactate oxidation complex and an adaptive role for lactate production. *Medicine and Science in Sports and Exercise*, **2008**, 40, 486-94	1.2	98
109	Lactate as a fulcrum of metabolism. *Redox Biology*, **2020**, 35, 101454	11.3	97
108	Women at altitude: carbohydrate utilization during exercise at 4,300 m. *Journal of Applied Physiology*, **2000**, 88, 246-56	3.7	94
107	Lactate: brain fuel in human traumatic brain injury: a comparison with normal healthy control subjects. *Journal of Neurotrauma*, **2015**, 32, 820-32	5.4	91
106	Endurance training increases fatty acid turnover, but not fat oxidation, in young men. *Journal of Applied Physiology*, **1999**, 86, 2097-105	3.7	91

105	Endurance training increases gluconeogenesis during rest and exercise in men. *American Journal of Physiology - Endocrinology and Metabolism*, **2000**, 278, E244-51	6	88
104	Mild heat stress induces mitochondrial biogenesis in C2C12 myotubes. *Journal of Applied Physiology* , **2012**, 112, 354-61	3.7	85
103	Investigation of circadian rhythms in metabolic responses to exercise. *Ergonomics*, **1982**, 25, 1093-107	2.9	84
102	Peroxisomal membrane monocarboxylate transporters: evidence for a redox shuttle system?. *Biochemical and Biophysical Research Communications*, **2003**, 304, 130-5	3.4	81
101	Effects of oral contraceptives on peak exercise capacity. *Journal of Applied Physiology*, **2002**, 93, 1698-702	3.7	78
100	Glucose and lactate interrelations during moderate-intensity exercise in humans. *Metabolism: Clinical and Experimental*, **1988**, 37, 850-8	12.7	78
99	Lactate kinetics at the lactate threshold in trained and untrained men. *Journal of Applied Physiology* , **2013**, 114, 1593-602	3.7	77
98	Changes in MCT 1, MCT 4, and LDH expression are tissue specific in rats after long-term hypobaric hypoxia. *Journal of Applied Physiology*, **2002**, 92, 1573-84	3.7	77
97	Effects of exercise intensity and training on lipid metabolism in young women. *American Journal of Physiology - Endocrinology and Metabolism*, **1998**, 275, E853-63	6	76
96	Lactate: link between glycolytic and oxidative metabolism. *Sports Medicine*, **2007**, 37, 341-3	10.6	72
95	Menstrual cycle phase and oral contraceptive effects on triglyceride mobilization during exercise. *Journal of Applied Physiology*, **2004**, 97, 302-9	3.7	69
94	Effects of oral contraceptives on glucose flux and substrate oxidation rates during rest and exercise. *Journal of Applied Physiology*, **2003**, 94, 285-94	3.7	67
93	Overtraining affects male reproductive status. *Fertility and Sterility*, **1993**, 60, 686-92	4.8	67
92	Immunohistochemical analysis of MCT1, MCT2 and MCT4 expression in rat plantaris muscle. *Journal of Physiology*, **2005**, 567, 121-9	3.9	65
91	Assessment of Metabolic Flexibility by Means of Measuring Blood Lactate, Fat, and Carbohydrate Oxidation Responses to Exercise in Professional Endurance Athletes and Less-Fit Individuals. *Sports Medicine*, **2018**, 48, 467-479	10.6	64
90	Effects of acute and chronic exercise on sarcolemmal MCT1 and MCT4 contents in human skeletal muscles: current status. *American Journal of Physiology - Regulatory Integrative and Comparative Physiology*, **2012**, 302, R1-14	3.2	64
89	Lipid oxidation in fit young adults during postexercise recovery. *Journal of Applied Physiology*, **2005**, 99, 349-56	3.7	64
88	Selective persistence of circadian rhythms in physiological responses to exercise. *Chronobiology International*, **1990**, 7, 59-67	3.6	61

87	Importance of the "crossover" concept in exercise metabolism. *Clinical and Experimental Pharmacology and Physiology*, **1997**, 24, 889-95	3	59
86	MCT1 confirmed in rat striated muscle mitochondria. *Journal of Applied Physiology*, **2004**, 97, 1059-66	3.7	57
85	Exercise bioenergetics following sprint training. *Archives of Biochemistry and Biophysics*, **1982**, 215, 260-5	4.1	55
84	Cerebral metabolism following traumatic brain injury: new discoveries with implications for treatment. *Frontiers in Neuroscience*, **2014**, 8, 408	5.1	53
83	The anaerobic threshold: 50+ years of controversy. *Journal of Physiology*, **2021**, 599, 737-767	3.9	53
82	Gluconeogenesis and hepatic glycogenolysis during exercise at the lactate threshold. *Journal of Applied Physiology*, **2013**, 114, 297-306	3.7	51
81	No effect of cycling experience on leg cycle ergometer efficiency. *Medicine and Science in Sports and Exercise*, **1996**, 28, 1396-401	1.2	49
80	Metabolic and cardiorespiratory responses to "the lactate clamp". *American Journal of Physiology - Endocrinology and Metabolism*, **2002**, 283, E889-98	6	48
79	Luteal and follicular glucose fluxes during rest and exercise in 3-h postabsorptive women. *Journal of Applied Physiology*, **2002**, 93, 42-50	3.7	47
78	Three weeks of caloric restriction alters protein metabolism in normal-weight, young men. *American Journal of Physiology - Endocrinology and Metabolism*, **2005**, 289, E446-55	6	47
77	Recovery of (13)CO2 during rest and exercise after [1-(13)C]acetate, [2-(13)C]acetate, and NaH(13)CO3 infusions. *American Journal of Physiology - Endocrinology and Metabolism*, **2001**, 281, E683-92	6	45
76	Contributions of working muscle to whole body lipid metabolism are altered by exercise intensity and training. *American Journal of Physiology - Endocrinology and Metabolism*, **2007**, 292, E107-16	6	42
75	Measurement of gluconeogenesis in exercising men by mass isotopomer distribution analysis. *Journal of Applied Physiology*, **2002**, 93, 233-41	3.7	41
74	Direct and indirect lactate oxidation in trained and untrained men. *Journal of Applied Physiology*, **2013**, 115, 829-38	3.7	40
73	Wearable physiological systems and technologies for metabolic monitoring. *Journal of Applied Physiology*, **2018**, 124, 548-556	3.7	39
72	Effects of training on VO2 max and VO2 during two running intensities in rats. *Pflugers Archiv European Journal of Physiology*, **1980**, 386, 215-9	4.6	39
71	Lactate shuttle -- between but not within cells?. *Journal of Physiology*, **2002**, 541, 333-4	3.9	38
70	Fatty acid reesterification but not oxidation is increased by oral contraceptive use in women. *Journal of Applied Physiology*, **2005**, 98, 1720-31	3.7	38

69	Pyruvate shuttling during rest and exercise before and after endurance training in men. *Journal of Applied Physiology*, **2004**, 97, 317-25	3.7	37
68	Iron deficiency: improved exercise performance within 15 hours of iron treatment in rats. *Journal of Nutrition*, **1990**, 120, 909-16	4.1	34
67	Hematological and acid-base changes in men during prolonged exercise with and without sodium-lactate infusion. *Journal of Applied Physiology*, **2005**, 98, 856-65	3.7	31
66	Endogenous Nutritive Support after Traumatic Brain Injury: Peripheral Lactate Production for Glucose Supply via Gluconeogenesis. *Journal of Neurotrauma*, **2015**, 32, 811-9	5.4	30
65	Is Lactate an Oncometabolite? Evidence Supporting a Role for Lactate in the Regulation of Transcriptional Activity of Cancer-Related Genes in MCF7 Breast Cancer Cells. *Frontiers in Oncology*, **2019**, 9, 1536	5.3	30
64	Bioenergetics of exercising humans. *Comprehensive Physiology*, **2012**, 2, 537-62	7.7	29
63	Poor relationship between arterial [lactate] and leg net release during exercise at 4,300 m altitude. *American Journal of Physiology - Regulatory Integrative and Comparative Physiology*, **1998**, 275, R1192-201	3.2	29
62	Host metabolism regulates growth and differentiation of Toxoplasma gondii. *International Journal for Parasitology*, **2012**, 42, 947-59	4.3	27
61	Autoregulation of glucose production in men with a glycerol load during rest and exercise. *American Journal of Physiology - Endocrinology and Metabolism*, **2001**, 280, E657-68	6	27
60	Glucoregulation is more precise in women than in men during postexercise recovery. *American Journal of Clinical Nutrition*, **2008**, 87, 1686-94	7	26
59	Catecholamine response is attenuated during moderate-intensity exercise in response to the "lactate clamp". *American Journal of Physiology - Endocrinology and Metabolism*, **2005**, 288, E143-7	6	26
58	Training decreases muscle glycogen turnover during exercise. *European Journal of Applied Physiology*, **1998**, 78, 479-86	3.4	25
57	What does glycolysis make and why is it important?. *Journal of Applied Physiology*, **2010**, 108, 1450-1	3.7	23
56	Pulse injection, 13C tracer studies of lactate metabolism in humans during rest and two levels of exercise. *Biomedical Mass Spectrometry*, **1982**, 9, 310-4		21
55	Effects of endurance training on cardiorespiratory fitness and substrate partitioning in postmenopausal women. *Metabolism: Clinical and Experimental*, **2009**, 58, 1338-46	12.7	20
54	Exercise tames the wild side of the Myc network: a hypothesis. *American Journal of Physiology - Endocrinology and Metabolism*, **2012**, 303, E18-30	6	19
53	Plasma triglyceride concentrations are rapidly reduced following individual bouts of endurance exercise in women. *European Journal of Applied Physiology*, **2010**, 109, 721-30	3.4	19
52	Transpulmonary pyruvate kinetics. *American Journal of Physiology - Regulatory Integrative and Comparative Physiology*, **2011**, 301, R769-74	3.2	18

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50	Critical importance of controlling energy status to understand the effects of "exercise" on metabolism. *Exercise and Sport Sciences Reviews*, **2008**, 36, 2-4	6.7	18
49	Retention of intravenously infused [13C]bicarbonate is transiently increased during recovery from hard exercise. *Journal of Applied Physiology*, **2007**, 103, 1604-12	3.7	18
48	Investigation of the lactate shuttle in skeletal muscle mitochondria. *Journal of Physiology*, **2007**, 584, 705-6;author reply 707-8	3.9	18
47	Endurance training has little effect on active muscle free fatty acid, lipoprotein cholesterol, or triglyceride net balances. *American Journal of Physiology - Endocrinology and Metabolism*, **2006**, 291, E656-65	6	18
46	Twelve weeks of endurance training increases FFA mobilization and reesterification in postmenopausal women. *Journal of Applied Physiology*, **2010**, 109, 1573-81	3.7	17
45	The Metabolic Systems: Anaerobic Metabolism (Glycolytic and Phosphagen) **2003**, 322-360		16
44	Energy Flux, Lactate Shuttling, Mitochondrial Dynamics, and Hypoxia. *Advances in Experimental Medicine and Biology*, **2016**, 903, 439-55	3.6	15
43	Lactate in contemporary biology: a phoenix risen. *Journal of Physiology*, **2021**,	3.9	14
42	Training improves the response in glucose flux to exercise in postmenopausal women. *Journal of Applied Physiology*, **2009**, 107, 90-7	3.7	12
41	Pyruvate metabolism in working human skeletal muscle. *American Journal of Physiology - Endocrinology and Metabolism*, **2007**, 292, E366	6	11
40	Tracer and nontracer studies yield similar conclusions. *Metabolism: Clinical and Experimental*, **1993**, 42, 1498-501	12.7	11
39	The tortuous path of lactate shuttle discovery: From cinders and boards to the lab and ICU. *Journal of Sport and Health Science*, **2020**, 9, 446-460	8.2	10
38	Ventilation studied with circulatory occlusion during two intensities of exercise. *European Journal of Applied Physiology and Occupational Physiology*, **1985**, 54, 269-77		10
37	The Precious Few Grams of Glucose During Exercise. *International Journal of Molecular Sciences*, **2020**, 21,	6.3	10
36	Unique growth pattern of human mammary epithelial cells induced by polymeric nanoparticles. *Physiological Reports*, **2013**, 1, e00027	2.6	9
35	Ion-retardation desalting of blood and other animal tissues for separation of soluble metabolites by two-dimensional chromatography. *Analytical Biochemistry*, **1977**, 83, 580-8	3.1	9
34	Are arterial, muscle and working limb lactate exchange data obtained on men at altitude consistent with the hypothesis of an intracellular lactate shuttle?. *Advances in Experimental Medicine and Biology*, **1999**, 474, 185-204	3.6	8

33	Ventilatory control studied with circulatory occlusion during exercise recovery. *European Journal of Applied Physiology and Occupational Physiology*, **1987**, 56, 299-305		7
32	Roles of estrogen receptor-alpha in mediating life span: the hypothalamic deregulation hypothesis. *Physiological Genomics*, **2017**, 49, 88-95	3.6	5
31	Substantial working muscle glycerol turnover during two-legged cycle ergometry. *American Journal of Physiology - Endocrinology and Metabolism*, **2007**, 293, E950-7	6	5
30	Maintenance of euglycemia is impaired in gluconeogenesis-inhibited iron-deficient rats at rest and during exercise. *Journal of Nutrition*, **1994**, 124, 2131-8	4.1	4
29	Role of the Heart in Lactate Shuttling. *Frontiers in Nutrition*, **2021**, 8, 663560	6.2	4
28	Energy substrate partitioning and efficiency in individuals with atherogenic lipoprotein phenotype. *Obesity*, **2011**, 19, 1360-5	8	3
27	Comments on point:counterpoint: "the lactate paradox does/does not occur during exercise at high altitude". *Journal of Applied Physiology*, **2007**, 102, 2408; author reply 2409-10	3.7	3
26	Body-mind learning: a lesson for the mind from muscle. *Exercise and Sport Sciences Reviews*, **2007**, 35, 163-5	6.7	3
25	The "Anaerobic Threshold" Concept Is Not Valid in Physiology and Medicine. *Medicine and Science in Sports and Exercise*, **2021**, 53, 1093-1096	1.2	3
24	Governor recalled! Now what?. *Journal of Physiology*, **2005**, 568, 355	3.9	2
23	The Exercise Physiology Paradigm in Contemporary Biology: To Molbiol or Not to Molbiol□hat is the Question. *Quest*, **1987**, 39, 231-242	2.2	2
22	Nutrition and Metabolism **2014**, 285-300		1
21	Roles of lactate in lactate oxidation complex, mitochondrial biogenesis and cell signaling in cultured L6 skeletal muscle cells. *Japanese Journal of Physical Fitness and Sports Medicine*, **2008**, 57, 83-83	0.1	1
20	Recycling of deuterium from dideuterated glucose during moderate exercise. *Annals of Clinical Biochemistry*, **2000**, 37 (Pt 4), 540-2	2.2	1
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18	Hyperlactatemia in diabetic ketoacidosis. *Diabetic Medicine*, **2021**, e14723	3.5	0
17	Chronic Lactate Exposure Decreases Mitochondrial Function by Inhibition of Fatty Acid Uptake and Cardiolipin Alterations in Neonatal Rat Cardiomyocytes.. *Frontiers in Nutrition*, **2022**, 9, 809485	6.2	0
16	Thanks Mike ???and First Shot on Obesity Management, Incentives, and Social Responsibility. *Exercise and Sport Sciences Reviews*, **2006**, 34, 2-3	6.7	

15	Effect of Diet and Metabolic Rate on Open Circuit Calculations of [Vdot]O2 and [Vdot]CO2. *Research Quarterly American Alliance for Health Physical Education and Recreation*, **1976**, 47, 731-740	
14	Palmitate oxidation during rest, exercise, and post-exercise recovery. *FASEB Journal*, **2006**, 20, A1450	0.9
13	Evidence of a mitochondrial lactate oxidation complex at mitochondrial inner membrane in mammalian skeletal muscle cells. *FASEB Journal*, **2006**, 20, A816	0.9
12	Tracer Measured glucose uptake by the leg demonstrates dynamic kinetics across the working muscle. *FASEB Journal*, **2006**, 20, A169	0.9
11	Glucose Kinetics in HIV Infected Patients on Antiretroviral Therapy During Rest and Exercise. *FASEB Journal*, **2007**, 21, A928	0.9
10	Energy efficiency and substrate partitioning in individuals with atherogenic lipoprotein profile. *FASEB Journal*, **2008**, 22, 1176.2	0.9
9	Effects of endurance training on energy substrate partitioning during exercise in postmenopausal women. *FASEB Journal*, **2008**, 22, 753.15	0.9
8	Reduced aerobic capacity in HIV infected patients is associated with decreased capacity for lactate oxidation during exercise. *FASEB Journal*, **2008**, 22, 111-111	0.9
7	Gluconeogenesis and hepatic glycogenolysis during exercise at the lactate threshold. *FASEB Journal*, **2013**, 27, 1132.2	0.9
6	An interactive quantitative temporal physiological model of glucose passage and absorption through the gastrointestinal tract and subsequent modulation of insulin and glucagon secretion in humans. *FASEB Journal*, **2013**, 27, 1213.2	0.9
5	Reply from David Poole, Harry Rossiter, George Brooks and L. Bruce Gladden. *Journal of Physiology*, **2021**, 599, 1715-1716	3.9
4	Reply from George A. Brooks, Harry B. Rossiter, David C. Poole and L. Bruce Gladden. *Journal of Physiology*, **2021**, 599, 1711-1712	3.9
3	Authors□Reply to Monferrer-Mar□ J, et al.: Assessment of Metabolic Flexibility by Means of Measuring Blood Lactate, Fat, and Carbohydrate Oxidation Responses to Exercise in Professional Endurance Athletes and Less-Fit Individuals.. *Sports Medicine*, **2022**, 1	10.6
2	Reply from George A. Brooks.. *Journal of Physiology*, **2022**,	3.9
1	Trimetazidine Blocks Lipid Oxidation□Should it be Repurposed for Prevention and Treatment of Diabetic Ketoacidosis?. *Journal of Diabetes Science and Technology*,193229682211001	4.1