

Prof. Roberto Merletti, Ph.D.

Complete list of publications in the field of sEMG, November 2020

Publications: Books and Chapters of Books

1. Hermens H., Freriks B, Merletti R., Stegeman D., Blok J., Rau G., Disselhorst-Klug C., Hagg G., European Recommendations for Surface Electromyography, RRD publisher. ISBN 90-75452-15-2, 1999.
2. Hermens H., Freriks B, Merletti R., Stegeman D., Blok J., Rau G., Disselhorst-Klug C., Hagg G., Raccomandazioni Europee per l'Elettromiografia di Superficie, Edizione italiana a cura di R. Merletti, Coop. Lib. Univ. Torinese (CLUT), ISBN 88-7992-1525, 2000
3. Merletti (editor) , Elementi di elettromiografia di superficie, Coop. Lib. Univ. Torinese (CLUT), ISBN 88-7922-153-3, 2000
4. Pozzo M., Farina D., Merletti R., Electromyography: detection, processing and applications, in: Handbook of biomedical technology and devices, J. E. Moore (ed.), CRC Press, 2003
5. Farina D., Filligoi G.C., Merletti R., Analisi di segnali EMG di superficie per lo studio del controllo motorio. In "Bioingegneria della postura e del movimento" Cappello A., Cappelozzo A., di Prampero P.E. (Eds.), Patron Editore (Pub.), pp. 281-306, 2003
6. Merletti R., Medicina del lavoro: valutazioni tramite EMG di superficie. In "Bioingegneria della postura e del movimento" Cappello A., Cappelozzo A., di Prampero P.E. (Eds.), Patron Editore (Pub.), pp. 495-510, 2003
7. Merletti R., Marchetti M., Contardo V., Veronica M., Applicazioni dell'EMG di superficie in riabilitazione sportiva, cap. 4.7 del testo "La Spalla e lo Sport", Masson,
8. Merletti R., Parker P.A. (edts.), Electromyography: Physiology, engineering and non invasive applications, IEEE Press / J Wiley, USA, 2004
9. Barbero M., Rainoldi A, Merletti R. Atlas of muscle innervation zones: understanding surface EMG and its applications, Springer, Italy 2012
10. Merletti R, Farina D. (edts) Surface Electromyography: physiology, engineering and applications, IEEE Press / J Wiley, USA, May 2016
11. Merletti R., Pelvic floor EMG: principles, technique and applications, Ch 7 of " Childbirth related pelvic floor dysfunctions", Springer 2016.

Publications on peer-reviewed journals

1. Merletti R, V. Kirilkuc, E. Corson, S. Corson, D. Patel, Instrumentation for the maintenance of an open loop condition in the body fluid volume control system of small laboratory animals and for the automatic recording of urine flow and conductivity during antidiuretic hormone bioassay, *Med. and Biol. Eng.*, v. 11, pg. 480-488, 1972.
2. Stefancic M, R. Merletti, S. Rebersek, Therapeutic effect of the Ljubijana functional electronic brace, *Europa Medicophysica*, v. 12, pg. 1-9, 1976.
3. Merletti R, R. Acimovic, S. Grobelnik, G. Cvilak, Electrophysiological orthosis of the upper extremity in hemiplegic patients: feasibility study, *Arch. of Phys. Med. and Rehab.*, v. 56, pg. 507-513, 1975.
4. Merletti R, F. Zelaschi, D. Latella, M. Galli, S. Angeli, M. Bellucci Sessa, A control study of muscle force recovery in hemiparetic patients during treatment with functional electrical stimulation, *Scand. J. of Phys. Med. and Rehab.*, v. 10, pg. 147-154, 1978.
5. Merletti R, A. Andina, M. Galante, I. Furlan, Clinical experience of electronic peroneal stimulators in 50 hemiparetic patients, *Scand. J. of Phys. Med. and Rehab.*, v. 11, pg. 111-121, 1979.
6. Merletti R., L'elettrostimolazione funzionale nel neuroleso centrale: efficacia ortesica e terapeutica, risultati, criteri, e limiti di applicazione, *Europa Medicophysica*, v. 16, pg. 11-22, 1980.
7. Merletti R, P. Pinelli, A critical appraisal of neuromuscular stimulation and electrotherapy in neurorehabilitation, *European Neurology*, v. 19, pg. 39-42, 1980.
8. Merletti R, M. Burzio, L. Granero, M.L. Rolfo, Tomographic evaluation of size and X-Ray density of normal and denervated human muscles, *Int. Rehab. Medicine*, v. 3, pg. 193-200, 1981.
9. Merletti R., D. Bravar, Clinical engineering in Italy: two local experiences, *Medical and Biolog. Eng. and Comp.* v. 22, pg. 106-112, 1984.
10. Merletti R, M. Sabbahi, C.J. De Luca, Median frequency of the myoelectric signal: effect of muscle ischemia and cooling, *European J. of Applied Physiology*, v. 52, pg. 258-265, 1984.
11. Merletti R., M. Biey, D. Biey, G. Prato, A. Orusa, On-line monitoring of the median frequency of the surface EMG power spectrum, *IEEE Trans. on Biomedical Eng.*, v. 32, pg. 1-7, 1985.
12. Merletti R, F. Repposi, C. Mathis, E. Richetta, C. Saracco, Size and X-Ray density of normal and denervated muscles of the human leg and forearm *International Rehabil. Medicine*, v. 8, pg. 82-89, 1986.
13. De Luca C., Merletti R., Surface EMG crosstalk among muscles of the leg, *Electroenc. and Clin. Neurophys.*, 69, pg. 568-575, 1988.
14. Knaflitz M., Merletti R, Suppression of stimulation artifacts from myoelectric evoked potential recordings, *IEEE Trans. on BME*, 35, pg. 758-736, 1988.
15. Knaflitz, M., Merletti, R., & De Luca, C. J. (1990). Inference of motor unit recruitment order in voluntary and electrically elicited contractions. *Journal of Applied Physiology*, 68(4), 1657–1667. doi:10.1152/jappl.1990.68.4.1657
16. Merletti R., M. Knaflitz, C.J. De Luca, Myoelectric manifestations of muscle fatigue during voluntary and electrically elicited contractions., *J. of appl. physiol.* 69, pg. 1810-1820, 1990
17. Merletti R., L. Lo Conte, C. Orizio, Indices of muscle fatigue, *J. of Electromyog. and Kines.* 1, 20-33, 1991
18. R. Merletti, L. Lo Conte, C. Cisari, M. V. Actis Age related changes in surface myoelectric signals, *Scand. J. of Rehab. Med.*, 25, 25-36, 1992.

19. Merletti R., M. Knaflitz, C. J. De Luca Electrically evoked myoelectric signals , *Reviews in Biomedical Engineering*, 19, 293-340, 1992.
20. Merletti R, L. Lo Conte Electrically evoked surface myoelectric signals , *Functional Neurology*, VII, 153-158, 1992.
21. Merletti R., Lo Conte L., Avignone E., Guglielminotti P., Modeling of surface myoelectric signals, Part I: Model implementation, *IEEE Trans. on Biomedical Eng.* 46, 810-820, 1999.
22. Merletti R., Roy S., Kupa E., Roatta S., Granata A., Modeling of surface myoelectric signals, Part II: Model based signal interpretation, *IEEE Trans. on Biomedical Eng.* 46, 821-829, 1999
23. Merletti R., Parker P., *Electromyography*, J. Wiley Encyclopedia of Electrical and Electronics Engineering , 6, 523-540, 1999
24. Farina D., Merletti R., Rainoldi A., Buonocore M., Casale R., Two methods for the measurement of voluntary contraction torque in the biceps brachii muscle, *Medical Engineering & Physics*, 21, (8), 533-540, 1999, doi:10.1016/s1350-4533(99)00076-4
25. Farina D., Merletti R., Comparison of algorithms for estimation of EMG variables during voluntary isometric contractions, *J. of Electromyography and Kinesiology*, 10, 337-350, 2000
26. Merletti R., Hermens H., Introduction to the special issue on the SENIAM European Concerted Action, *J. of Electromyography and Kinesiology*, 10, 283-285, 2000
27. Merletti R., Surface Electromyography: the SENIAM Project, *Europa Medicophysica*, 36, 167-169, 2000
28. Rainoldi A., Nazzaro M., Merletti R., Farina D., Caruso I., Gaudenti S., Geometrical factors in surface EMG of the vastus medialis and lateralis, *J. of Electromyography and Kinesiology*, 10, 327-336, 2000
29. Farina D., Fortunato E., Merletti R., Non-invasive estimation of motor units conduction velocity distribution using linear electrode arrays, *IEEE Trans. on Biomed. Eng.*, 47, (3) 380-388, 2000
30. Farina D., Merletti R., Effect of electrode shape on spectral features of surface detected motor unit action potentials, *Acta Physiol. Pharmacol. Bulg.*, vol. 26, pp. 63-66, 2001
31. Farina D., Muhammad W., Fortunato E., Meste O., Merletti R., Rix H., Estimation of single motor unit conduction velocity from myoelectric signals detected with linear electrode arrays, *Medical & Biological Eng. & Comput.*, 39, 225-236, 2001
32. Farina D., Merletti R., Nazzaro M., Caruso I., Effect of joint angle on surface EMG variables for the muscles of the leg and thigh, *IEEE Eng. Med. Biol. Mag.*, vol. 20, pp. 62-71, 2001
33. Merletti R., Farina D., Gazzoni M., Merlo A., Ossola P., Rainoldi A., Surface Electromyography: a window on the muscle, a glimpse on the central nervous system. *Europa Medicophysica*, 37, pp. 57-68, 2001
34. Farina D., Cescon C. Merletti R, Concentric ring electrode systems for non-invasive detection of single motor unit activity, *IEEE Trans. Biomed. Eng.*, vol. 48, pp. 1326-1334, 2001
35. Farina D., Merletti R., A novel approach for precise simulation of the EMG signal detected by surface electrodes, *IEEE Trans. on Biomed. Eng.*, 48, 637-646, 2001
36. Farina D., Colombo R., Merletti R., Baare-Olsen H., Evaluation of intramuscular EMG decomposition algorithms. *J. of Electromyography and Kinesiology*, 11, 175-187, 2001
37. Farina D., Crosetti A., Merletti R., A mathematical model for the generation of synthetic intramuscular EMG signals to test decomposition algorithms, *IEEE Trans. on Biomed. Eng.*, 48, 66-77, 2001

38. Merletti R., Rainoldi A., Farina D., Surface EMG for non invasive muscle characterization, *Exercise and Sport Sciences Reviews*, 29, 20-5, 2001
39. Gazzoni M., Farina D., Merletti R., Motor unit recruitment during constant low force and long duration muscle contractions investigated by surface electromyography, *Acta Physiol. Pharmacol. Bulg.*, vol. 26, pp. 67-71, 2001
40. Madeleine P., Farina D., Merletti R., Arendt-Nielsen L., Upper trapezius muscle mechanomyographic and electromyographic activity in humans during low force fatiguing and non-fatiguing contractions, *Eur. Journ. Appl. Physiol.*, 87, 327-336, 2002
41. Merletti R., Casale R., Orizio C., Marcandelli S., Merlo A., Ossola P., Pozzo M., Rainoldi A., Advances in neuromuscular electrical stimulation techniques. Optimization of countermeasures for microgravity induced muscular deterioration, *Microgravity and Space Station Utilization*, vol. 2, 235-237, 2002
42. Farina D., Merletti R., Indino B., Nazzaro M., Pozzo M., Surface EMG crosstalk between knee extensor muscles: experimental and model results, *Muscle Nerve*, 26, 681-695, 2002
43. Farina D., Fosci M., Merletti R., Motor unit recruitment strategies investigated by surface EMG variables. An experimental and model based feasibility study, *Journ. Appl. Physiol.*, 92, 235-247, 2002
44. Falla D., Dall'Alba P., Rainoldi A., Merletti R., Jull G., Location of innervation zones of sternocleidomastoid and scalene muscles - a basis for clinical and research electromyography applications, *Clinical Neurophysiology*, 113, 57-63, 2002
45. Farina D., Cescon C., Merletti R., Influence of anatomical, physical and detection system parameters on surface EMG, *Biol. Cybern.*, 86, 445-456, 2002
46. Farina D., Madeleine P., Graven-Nielsen T., Merletti R., Arendt-Nielsen L., Standardising surface electromyogram recordings for assessment of activity and fatigue in the human upper trapezius muscle, *Eur. Journ. Appl. Physiol.*, 86, 469-478, 2002
47. Merletti R., Farina D., Gazzoni M., Schieroni M.P., Effect of age on muscle functions investigated with surface electromyography, *Muscle and Nerve*, 25: 65-76, 2002
48. Falla D., Dall'Alba P., Rainoldi A., Merletti R., Jull G., Repeatability of surface EMG variables in the sternocleidomastoid and anterior scalene muscles, *Eur J Appl Phys*, 87, 542-549, 2002
49. Farina D., Arendt-Nielsen L., Merletti R., Graven-Nielsen T., Assessment of single motor unit conduction velocity during sustained contractions of the tibialis anterior muscle with advanced spike triggered averaging, *Journ. Neurosci. Meth.*, 115, 1-12, 2002
50. Clancy E.A., Morin E.L., Merletti R., Sampling, noise-reduction and amplitude estimation issues in surface electromyography, *J. of Electromyography and Kinesiology*, 12, 1-16, 2002
51. Falla D., Rainoldi A., Merletti R., Jull G. Myoelectric manifestations of sternocleidomastoid and anterior scalene muscle fatigue in chronic neck pain patients *Clinical Neurophysiology*, 114: 488-495, 2003
52. Falla D., Jull G., Dall'Alba P., Rainoldi A., Merletti R., An electromyographic analysis of the deep cervical flexor muscles in performance of craniocervical flexion, *Physical Therapy*, 83, 10: 899-906, 2003
53. Farina D., Arendt-Nielsen L., Merletti R., Indino B., Graven-Nielsen T., Selectivity of spatial filters for surface EMG detection from the tibialis anterior muscle, *IEEE Trans. Biomed. Eng.*, 50, 3: 354-364, 2003
54. Farina D., Gazzoni M., Merletti R., Assessment of low back muscle fatigue by surface EMG signal analysis: methodological aspects, *J. of Electromyography and Kinesiology*, 13: 319-332, 2003

55. Farina D., Kallenberg L.A.C., Merletti R., Hermens H., Effect of side dominance on myoelectric manifestations of muscle fatigue in the human upper trapezius muscle, *Eur. Journ. Appl. Physiol.*, 90: 480-488, 2003
56. Farina D., Merletti R., A novel approach of estimating muscle fiber conduction velocity by spatial and temporal filtering of surface EMG signals, *IEEE Trans. Biomed. Eng.*, 50, 12: 1340-1351, 2003
57. Farina D., Schulte E., Merletti R., Rau G., Disselhorst-Klug C., Single motor unit analysis from spatially filtered surface EMG signals – Part I: spatial selectivity, *Med. Biol. Eng. Comput.*, 41: 338-345, 2003
58. Merletti R., Farina D., Gazzoni M., The linear electrode array: a useful tool with many applications, *J. of Electromyography and Kinesiology*, 13: 37-47, 2003
59. Merlo A., Farina D., Merletti R., A fast and reliable technique for muscle activity detection from surface EMG signals, *IEEE Trans. Biomed. Eng.*, 50, 3: 316-323, 2003
60. Mandrile F., Farina D., Pozzo M., Merletti R., Stimulation artifact in surface EMG signal: effect of the stimulation waveform, detection system, and current amplitude using hybrid stimulation technique, *IEEE Trans Neural Syst Rehabil Eng.* (11), 4: 407-15, 2003
61. Schulte E., Farina D., Rau G., Merletti R., Disselhorst-Klug C., Single motor unit analysis from spatially filtered surface EMG signals – Part II: conduction velocity estimation, *Med. Biol. Eng. Comput.*, 41: 338-345, 2003
62. Pozzo M., Farina D., Merletti R., Electromyography: detection, processing and applications. In “Handbook of biomedical technology and devices”, J.E. Moore (Ed), CRC Press, 4.1-4.66, ISBN: 0-8493-1140-3, 2003
63. Casale R., Farina D., Merletti R., Rainoldi A., Myoelectric manifestations of fatigue during a twelve day exposure to hypobaric hypoxia, *Muscle Nerve*, 30: 618-625, 2004
64. Cescon C., Farina D., Gobbo M., Merletti R., Orizio C., Effect of accelerometer location on mechanomyogram variables during voluntary, constant force contractions in three human muscles, *Med. Biol. Eng. Comput.*, 42: 121-128, 2004
65. Enck P., Franz H., Azpiroz F., Fernandez Fraga X., Hinninghofen H., Kaske-Bretag K., Bottin A., Martina S., Merletti R., Innervation Zones of the External Anal Sphincter in Healthy Male and Female Subjects (Preliminary Results), *Digestion*, 69:123-130, 2004
66. Falla D., Jull G., Rainoldi A., Merletti R., Neck flexor muscle fatigue is side specific in patients with unilateral neck pain, *Eur. J. Pain*, 8(1):71-77, 2004
67. Farina D., Arendt-Nielsen L., Merletti R., Graven-Nielsen T., The effect of experimental muscle pain on motor unit firing rate and conduction velocity, *J. Neurophysiol.*, 91: 1250-9, 2004
68. Farina D., Blanchietti A., Pozzo M., Merletti R., M-wave properties during progressive motor unit activation by transcutaneous stimulation, *J. Appl. Physiol.*, 97, (2):545-555, 2004
69. Farina D., Févotte C., Doncarli C., Merletti R., Blind separation of linear instantaneous mixtures of non-stationary surface myoelectric signals, *IEEE Trans. Biomed. Eng.*, 51, 9: 1555-1567, 2004
70. Farina D., Merletti R., Enoka R.M., The extraction of neural strategies from the surface EMG, *J. Appl. Physiol.*, 96: 1486-1495, 2004
71. Farina D., Merletti R., Estimation of average muscle fiber conduction velocity from two-dimensional surface EMG recordings, *J. Neurosci. Meth.*, 134: 199-208, 2004
72. Farina D., Merletti R., Indino B., Graven-Nielsen T., Surface EMG crosstalk evaluated from experimental recordings and simulated signals. Reflections on crosstalk interpretation, quantification and reduction, *Methods of Information in Medicine*, 43: 30-35, 2004

73. Farina D., Mesin L., Martina S., Merletti R., A surface EMG generation model with multi-layer cylindrical description of the volume conductor, *IEEE Trans. Biomed. Eng.*, 51: 415-426, 2004
74. Farina D., Mesin L., Martina S., Merletti R., Comparison of spatial filter selectivity in surface myoelectric signal detection – Influence of the volume conductor model, *Med. Biol. Eng. Comput.*, 42: 114-120, 2004
75. Farina D., Pozzo M., Merlo E., Bottin A., Merletti R., Assessment of muscle fiber conduction velocity from surface EMG signals during fatiguing dynamic contractions, *IEEE Trans. Biomed. Eng.*, 51, (8):1383-1393, 2004
76. Farina D., Zagari D., Gazzoni M., Merletti R., Repeatability of muscle fiber conduction velocity estimates using multi-channel surface EMG techniques, *Muscle Nerve*, 29: 282-291, 2004
77. Gazzoni M., Farina D., Merletti R., A new method for the extraction and classification of single motor unit action potentials from surface EMG signals, *J. Neurosci. Meth.*, 136: 165-177, 2004
78. Merletti R., Benvenuti F., Doncarli C., Disselhorst-Klug C., Ferrabone R., Hermens J.H., Kadefors R., Laübli T., Orizio C., Sjøgaard G., Zazula D., The European Project “Neuromuscular assessment in the elderly worker” (NEW): achievements in electromyogram signal acquisition, modelling, and processing, *Med. Biol. Eng. Comput.*, 42: 429-431, 2004
79. Merletti R., Bottin A., Cescon C., Farina D., Gazzoni M., Martina S., Mesin L., Pozzo M., Rainoldi A., Enck P., Multi-channel surface EMG for the non-invasive assessment of the anal sphincter muscle, *Digestion*, 69:112-122, 2004
80. Pozzo M., Bottin A., Ferrabone R., Merletti R., Sixty-four channel wearable acquisition system for long term surface EMG recording with electrode arrays, *Med. Biol. Eng. Comput.*, 42, (4):455-466, 2004
81. Pozzo M., Merlo E., Farina D., Antonutto G., Merletti R., di Prampero P.E., Muscle fiber conduction velocity estimated from surface EMG signals during explosive dynamic contractions, *Muscle Nerve*, 29: 823-833, 2004
82. R. Merletti, P. Parker (Eds), “Electromyography. Physiology, engineering and non invasive applications”, J. Wiley/IEEE Press Publication, 133-168, USA, ISBN 0-471-67580-6, 2004
83. Clancy EA, Farina D, Merletti R. , Cross-comparison of time- and frequency-domain methods for monitoring the myoelectric signal during a cyclic, force-varying, fatiguing hand-grip task, *J Electromyogr Kinesiol.* 2005; 15(3):256-65
84. Castroflorio T, Farina D, Bottin A, Piancino MG, Bracco P, Merletti R., Surface EMG of jaw elevator muscles: effect of electrode location and inter-electrode distance, *J Oral Rehabil.* 2005; 32(6):411-7
85. Azpiroz F, Fernandez-Fraga X, Merletti R, Enck P., The puborectalis muscle, *Neurogastroenterol Motil.* 2005; 17 Suppl 1:68-72.
86. Enck P, Hinninghofen H, Merletti R, Azpiroz F., The external anal sphincter and the role of surface electromyography, *Neurogastroenterol Motil.* 2005; 17 Suppl 1:60-7.
87. Merlo E, Pozzo M, Antonutto G, di Prampero PE, Merletti R, Farina D., Time-frequency analysis and estimation of muscle fiber conduction velocity from surface EMG signals during explosive dynamic contractions, *J Neurosci Methods.* 2005, 30;142(2):267-74.
88. Lanzetta M, Pozzo M, Bottin A, Merletti R, Farina D., Reinnervation of motor units in intrinsic muscles of a transplanted hand, *Neurosci Lett.* 2005, 10;373(2):138-43.
89. Keenan KG, Farina D, Maluf KS, Merletti R, Enoka RM., Influence of amplitude cancellation on the simulated surface electromyogram, *J Appl Physiol.* 2005;98(1):120-31.
90. Cescon C, Sguazzi E, Merletti R, Farina D. Non-invasive characterization of single motor unit EMG and MMG activities in the biceps brachii muscle. *J. Electromyogr. Kinesiol.* 2006; 16:17-24.

91. Farina D, Zennaro D, Pozzo M, Merletti R, Laubli T. Single motor unit and spectral surface EMG analysis during low-force, sustained contractions of the upper trapezius muscle. *Eur. J. Appl. Physiol.* 2006; 96:157-64.
92. Franz H, Hinninghofen H, Kowalski A, Merletti R, Enck P. Mode of delivery affects anal sphincter innervation. *Gastroenterology*, 2006;130(Suppl 2):S724.
93. Keenan KG, Farina D, Merletti R, Enoka RM. Influence of motor unit properties on the size of the simulated evoked surface EMG potential. *Exp. Brain Res.*2006;169:37-49.
94. Keenan KG, Farina D, Merletti R, Enoka RM. Amplitude cancellation reduces the size of motor unit potentials averaged from the surface EMG. *J. Appl. Physiol.*2006; 100:1928-37.
95. Mesin L, Joubert M, Hanekom T, Merletti R, Farina D. A finite element model for describing the effect of muscle shortening on surface EMG, *IEEE Trans. Biomed. Eng.* 2006; 53:593-600.
96. Campanini, Merlo A, Degola P, Merletti R, Vezzosi G, Farina D. Effect of electrode location on EMG signal envelope in leg muscles during gait. *J. Electrom. Kinesiol.* 2007; 17:515-26.
97. Carotti E, De Martin JC, Merletti R, Farina D. Compression of surface EMG signals with algebraic code excited linear prediction. *Med. Eng. Phys.* 2007; 29:253-258.
98. Cescon C, Madeleine P, Graven-Nielsen T, Merletti R, Farina D. Two-dimensional spatial distribution of surface mechanomyographical response to single motor unit activity. *J. Neurosci. Methods* 2007; 159:19-25.
99. Keenan KG, Farina D, Meyer FG, Merletti R, Enoka RM. Sensitivity of the cross-correlation between simulated surface EMGs for two muscles to detect motor unit synchronization. *J Appl. Physiol.* 2007; 102:1193-201.
100. Botter A, Merletti R, Minetto MA. Pulse charge and not waveform affects M-wave properties during progressive motor unit activation. *J. Electromyogr. Kinesiol.* 2009; 19(4): 564-573.
doi: 10.1016/j.jelekin.2008.03.009.
101. Cescon C, Bottin A, Fernandez Fraga XL, Azpiroz F, Merletti R. Detection of individual motor units of the puborectalis muscle by non-invasive EMG electrode arrays. *J. Electromyogr. Kinesiol.* 2008; 18:382-389.
102. Cescon C, Rebecchi P, Merletti R. Effect of electrode array position and subcutaneous tissue thickness on conduction velocity estimation in upper trapezius muscle. *J. Electromyogr. Kinesiol.* 2008; 18:628-636.
103. Clancy EA, Bertolina MV, Merletti R, Farina D. Time- and frequency-domain monitoring of the myoelectric signal during a long-duration, cyclic, force-varying, fatiguing hand-grip task. *J. Electromyogr. Kinesiol.* 2008; 18:789-797.
104. Merletti R. Motor units in cranial and caudal regions of the upper trapezius muscle have different discharge rates during brief static contractions. *Acta Physiol. (Oxf)* 2008; 192:453. (invited editorial)
105. Mesin L, Merletti R. Distribution of electrical stimulation current in a planar multilayer anisotropic tissue. *IEEE Trans. Biomed. Eng.* 2008; 55:660-670.
106. Mesin L, Merletti R, Rainoldi A. Surface EMG: The issue of electrode location. *J. Electromyogr. Kinesiol.* 2009;19:719-726.
107. Minetto MA, Botter A, Ravenni R, Merletti R, De Grandis D. Reliability of a novel neurostimulation method to study involuntary muscle phenomena. *Muscle Nerve* 2008; 37:90-100.
108. Rainoldi A, Gazzoni M, Merletti R, Minetto MA. Mechanical, electromyographical and biochemical variables after a fatiguing task in endurance and power-trained athletes. *J. Sports Sci.* 2008; 26:321-331.

109. Troiano A, Naddeo F, Sosso E, Camarota G, Merletti R, Mesin L. Assessment of force and fatigue in isometric contractions of the upper trapezius muscle by surface EMG signal and perceived exertion scale. *Gait Posture* 2008; 28:179-186
110. Merletti R, Holobar A, Farina D. Analysis of motor units with high-density surface electromyography. *J. Electromyogr. Kinesiol.* 2008; 18, 879-890.
111. Farina D, Holobar A, Gazzoni M, Zazula D, Merletti R, Enoka RM. Adjustments differ among low-threshold motor units during intermittent, isometric contractions. *J. Neurophysiol.* 2009;101:350-359
112. Holobar A, Gazzoni M, Farina D, Merletti R, Zazula D. Estimating motor unit discharge pattern from the surface electromyogram. *Clin. Neurophysiol.* 2009;120:551-562.
113. Merletti R, Botter A, Troiano A, Merlo E, Minetto MA. Technology and instrumentation for detection and conditioning of the surface electromyographic signal: state of the art. *Clin Biomech*, 2009;24:122-134
114. Merletti R, Farina D. Analysis of intramuscular electromyogram signals. *Philosoph Trans. of the Royal Soc. . Philos. Transact. A Math. Phys. Eng. Sci.* 2009;367:357-368.
115. Minetto MA, Botter A, De Grandis D, Merletti R. Time and frequency domain analysis of surface myoelectric signals during electrically-elicited cramps. *Neurophysiol. Clin.* 2009; 39:15-25
116. Alexe-Ionescu A, Barbero G., Merletti R., Electrode potential and selective ionic absorption, *Physics Letters* 2009; 37: 1791-1795
117. Mesin L, Cescon C, Gazzoni M, Merletti R, Rainoldi A. A bi-dimensional index for the selective assessment of myoelectric manifestations of peripheral and central muscle fatigue. *J. Electromyogr. Kinesiol.* 2009;19:851-863
118. Botter A, Lanfranco F, Merletti R, Minetto MA. Myoelectric fatigue profiles of three knee extensor muscles. *Int. J. Sports Med.* 2009;30:408-417.
119. Botter A, Merletti R, Minetto MA. Pulse charge and not waveform affects M-wave properties during progressive motor unit activation. *J. Electromyogr. Kinesiol.* 2009;19:564-573.
120. Mesin L., Gazzoni M., Merletti R., Automatic localization of innervation zones: a simulation study of the external anal sphincter, *J. Electromyogr. Kinesiol.* 2009;19(6):413-421.
121. Vieira T., Windhorst U., Merletti R., Is the stabilization of quiet upright stance in humans driven by synchronized and similar modulations of the activity of medial and lateral gastrocnemius muscles? *J. Appl. Physiol.* 2010; 108: 85-97
122. Enck P, Franz H, Davico E, Mastrangelo F, Mesin L, Merletti R., Repeatability of Innervation Zone Identification in the External Anal Sphincter Muscle, *Neurourology and Urodynamics*, 2010; 29: 449-457.
123. Mesin L., Merlo E., Merletti R., Orizio C., Investigation of motor unit recruitment during stimulated contractions of tibialis anterior muscle, *J. Electromyogr. Kinesiol.* 2010;20:580-589.
124. Vieira TMM, Merletti R, Mesin L. Automatic segmentation of surface EMG images: Improving the estimation of neuromuscular activity. *J. Biomech.* 2010;43:2149-2158.
125. Farina D, Holobar A, Merletti R, Enoka RM. Decoding the neural drive to muscles from the surface electromyogram. *Clin Neurophysiol.* 2010;121(10):1616-23. doi: 10.1016/j.clinph.2009.10.040.
126. Merletti R. The electrode-skin interface and optimal detection of bioelectric signals. *Physiol. Meas.* 2010;31:3.

127. Merletti R, Avenaggiato M, Botter A, Holobar A, Marateb HR, Vieira TMM. Advances in surface EMG: recent progress in detection and processing techniques. *Crit. Rev. Biomed. Eng.* 2010;38:305-345.
128. Merletti R, Botter A, Cescon C, Minetto MA, Vieira TMM. Advances in surface EMG: recent progress in clinical research applications. *Crit. Rev. Biomed. Eng.* 2010;38:347-379.
129. Barbero M, Gatti R, Lo Conte L, Macmillan F, Coutts F, Merletti R. Reliability of surface EMG matrix in locating the innervation zone of upper trapezius muscle. *J. Electromyogr. Kinesiol.* 2011;21:827-833.
130. Cescon C, Mesin L, Nowakowski M, Merletti R. Geometry assessment of anal sphincter muscle based on monopolar multichannel surface EMG signals. *J. Electromyogr. Kinesiol.* 2011;21:394-401.
131. Gallina A, Merletti R, Vieira TMM. Are the myoelectric manifestations of fatigue distributed regionally in the human medial gastrocnemius muscle? *J. Electromyogr. Kinesiol.* 2011;21:929-938.
132. Marateb HR, McGill KC, Holobar A, Lateva ZC, Mansourian M, Merletti R. Accuracy assessment of CKC high-density surface EMG decomposition in biceps femoris muscle. *J. Neural Eng.* 2011;8:066002.
133. Marateb HR, Muceli S, McGill KC, Merletti R, Farina D. Robust decomposition of single-channel intramuscular EMG signals at low force levels. *J. Neural Eng.* 2011;8:066015.
134. Merletti R, Botter A, Lanfranco F, Minetto MA. Spinal involvement and muscle cramps in electrically elicited muscle contractions. *Artif. Organs.* 2011;35:221-225.
135. Mesin L, Merletti R, Vieira TMM. Insights gained into the interpretation of surface electromyograms from the gastrocnemius muscles: A simulation study. *J. Biomech.* 2011;44:1096-1103.
136. Vieira TMM, Loram ID, Muceli S, Merletti R, Farina D. Postural activation of the human medial gastrocnemius muscle: are the muscle units spatially localised? *J. Physiol.* 2011;589:431-443.
137. Piitulainen H, Botter A, Merletti R, Avela J. Muscle fiber conduction velocity is more affected after eccentric than concentric exercise. *Eur. J. Appl. Physiol.* 2011;111:261-273.
138. Vieira TMM, Loram ID, Muceli S, Merletti R, Farina D. Recruitment of motor units in the medial gastrocnemius muscle during human quiet standing: is recruitment intermittent? What triggers recruitment? *J. Neurophysiol.* 2012;107:666-76.
139. Marateb HR, Rojas-Martínez M, Mansourian M, Merletti R, Villanueva MA. Outlier detection in high-density surface electromyographic signals. *Med. Biol. Eng. Comput.* 2012;50:79-89.
140. Watanabe K, Kouzaki M, Merletti R, Fujibayashi M, Moritani T. Spatial EMG potential distribution pattern of vastus lateralis muscle during isometric knee extension in young and elderly men. *J. Electromyogr. Kinesiol.* 2012;22:74-9.
141. Bonfiglioli R, Botter A, Calabrese M, Mussoni P, Violante FS, Merletti R. Surface electromyography features in manual workers affected by carpal tunnel syndrome. *Muscle Nerve.* 2012;45:873-82.
142. Barone U, Merletti R. Design of a portable, intrinsically safe multichannel acquisition system for high-resolution, real-time processing HD-sEMG. *IEEE Trans Biomed Eng.* 2013;60:2242-52.
143. Baudry S, Lanfranco F, Merletti R, Duchateau J, Minetto MA. Effects of Short-Term Dexamethasone Administration on Corticospinal Excitability. *Med Sci Sports Exerc.* 2013 Sep 18. [Epub ahead of print]
144. Botter A, Vieira TM, Loram ID, Merletti R, Hodson-Tole EF. A novel system of electrodes transparent to ultrasound for simultaneous detection of myoelectric activity and B-mode ultrasound images of skeletal muscles. *J Appl Physiol.* 2013;115:1203-14.

145. Gallina A, Merletti R, Gazzoni M. Uneven spatial distribution of surface EMG: what does it mean? *Eur J Appl Physiol*. 2013;113:887-94.
146. Gallina A, Ritzel CH, Merletti R, Vieira TM. Do surface electromyograms provide physiological estimates of conduction velocity from the medial gastrocnemius muscle? *J Electromyogr Kinesiol*. 2013;23:319-25.
147. Piitulainen H, Botter A, Merletti R, Avela J. Multi-channel electromyography during maximal isometric and dynamic contractions. *J Electromyogr Kinesiol*. 2013;23:302-10.
148. Rojas-Martínez M, Mañanas MA, Alonso JF, Merletti R. Identification of isometric contractions based on High Density EMG maps. *J Electromyogr Kinesiol*. 2013 ;23:33-42.
149. Watanabe K, Gazzoni M, Holobar A, Miyamoto T, Fukuda K, Merletti R, Moritani T. Motor unit firing pattern of vastus lateralis muscle in type 2 diabetes mellitus patients. *Muscle Nerve*. 2013;48:806-13.
150. Cescon C, Raimondi EE, Zacesta V, Drusany-Staric K, Martsidis K, Merletti R. Characterization of the motor units of the external anal sphincter in pregnant women with multichannel surface EMG. *Int Urogynecol J*. 2014 Aug;25(8):1097-103.
151. Cescon C, Riva D, Zacesta V, Drusany-Staric K, Martsidis K, Protsepko O, Baessler K, Merletti R. Effect of vaginal delivery on the external anal sphincter muscle innervation pattern evaluated by multichannel surface EMG: results of the multicentre study TASI-2. *Int Urogynecol J*. 2014 Nov;25(11):1491-9.
152. Farina D, Merletti R, Enoka RM. The extraction of neural strategies from the surface EMG: an update. *J Appl Physiol* (1985). 2014 Dec 1;117(11):1215-1230.
153. Piervirgili G, Petracca F, Merletti R. A new method to assess skin treatments for lowering the impedance and noise of individual gelled Ag-AgCl electrodes. *Physiol. Meas.* 2014;35:2101-2118.
154. Ullah K, Cescon C, Afsharipour B, Merletti R. Automatic detection of motor unit innervation zones of the external anal sphincter by multichannel surface EMG. *J Electromyogr Kinesiol*. 2014;6:860-867.
155. Li X, Holobar A, Gazzoni M, Merletti R, Rymer W, Zhou P. Examination of Post-stroke Alteration in Motor Unit Firing Behavior Using High Density Surface EMG Decomposition. *IEEE Trans Biomed Eng*. 2015; 62(5):1242-1252. doi: 10.1109/TBME.
156. Di Vella G., Riva D., Merletti R. Incontinenza dello sfintere anale esterno da episiotomia e prevenzione del danno iatrogeno, *Riv. Italiana di Medicina Legale*, 2015, n 2, 473-489.
157. Afsharipour B., Ullah K., Merletti R., Amplitude indicators and spatial aliasing in high density surface electromyography recordings, *Biomed. Signal Proc. and Control*, 2015; 22: 170-179.
158. Afsharipour B, Petracca F, Gasparini M, Merletti R. Spatial distribution of surface EMG on trapezius and lumbar muscles of violin and cello players in single note playing. *J Electromyogr Kinesiol*. 2016; 31: 144-153.
159. Cattarello P., Merletti R., Petracca F., Analysis of High Density Surface EMG and finger pressure in the left forearm of violin players. *Medical Problems of Performing Artists*, September 2017, pg 139-151, <https://doi.org/10.21091/mppa.2017.3023>
160. Cattarello P., Vinelli S., D'Emanuele S., Gazzoni M., Merletti R., Comparison of chairs based on HDsEMG of back muscles, biomechanical and comfort indices, for violin and viola players: A short term study. *J Electromyogr Kinesiol*. 2018; 42: 92-103. doi:10.1016/j.jelekin.2018.06.013
161. Afsharipour B., Soedirdjo S., R. Merletti, Two-dimensional surface EMG: The effects of electrode size, interelectrode distance and image truncation. *Biomedical Signal Processing and Control* 2019; 49: 298–307. doi:10.1016/j.bspc.2018.12.001

162. Besomi M., Hodges P., et al. Consensus for experimental design in electromyography (CEDE) project: electrode selection matrix. *Journ. of Electromyogr. and Kinesiol.*, 2019; 48: 128–144. <https://doi.org/10.1016/j.jelekin.2019.07.008>
163. Merletti R., Muceli S., Tutorial. Surface EMG detection in space and time: best practices. *Journ. of Electromyogr. and Kinesiol.*, 2019; 49: doi.org/10.1016/j.jelekin.2019.102363
164. Russo A., Aranceta-Garza A., D'Emanuele S., Serafino F., Merletti R., HDsEMG activity of the lumbar erector spinae in violin players: comparison of two chairs. *Medical Probl. of Perform. Artists*, 2019; 34(4): 205-214, doi: 10.21091/mppa.2019.4034
165. Merletti R., Cerone G.L. Tutorial. Surface EMG detection, conditioning and pre-processing: best practices, *Journ. of Electromyogr. and Kinesiol.*, 2020; 54 102440, doi:10.1016/j.jelekin.2020.102440
166. Besomi M, Hodges P., et al. Consensus for experimental design in electromyography (CEDE) project: Amplitude normalization matrix. *Journ. of Electromyogr. and Kinesiol.*, 2020; 53:102438. doi: 10.1016/j.jelekin.2020.102438.
167. Campanini I., Disselhorst-Klug C., Rymer W.Z., Merletti R., Surface EMG in Clinical Assessment and Neurorehabilitation: barriers limiting its use. *Frontiers in Neurology/Neurorehabilitation*, Project 11157 , 2020, doi: 10.3389/fneur.2020.00934
168. Khorrani Chokami A., Gasparini M., Merletti R. Identification of periodic bursts in surface EMG: applications to the erector spinae muscles of sitting violin players. *Biomed. Signal Proc. and Control* (in press)