Table S1. Insights regarding the studies included in the Review: authors, aim, material and its con iguration, dataset, acquired data and clinical application.

Authors	Aim	Material and its Configuration	Dataset	Acquired Data	Clinical Application
Bartalesi *et al.* (2010) [1]	Designing, developing, and testing a wearable system to perform the real time estimation of the local curvature and the length of the spine lumbar arch	Electrically conductive elastomer/commercial accelerometers, Lycra (rowing suit)	1 HC	Acceleration data, strain signals	Improving the development of wearable posture capture systems
Lopez *et al.* (2010a) [2]	Describing a novel healthcare IT platform for localization and monitoring within hospital environments	E-textile based tape/accelerometer/thermometer, Nylon and Lycra (shirts)	5 PP	ECG, heart rate, angle of inclination, activity index, body temperature, location, battery level, alert code	Supporting noninvasive and pervasive services demanded by future healthcare environments
Lopez *et al.* (2010b) [3]	Presenting a medical IT platform platform based on Wireless Sensor Networks and e-textile for patients' localization and monitoring	E-textile-based tape/accelerometer/thermometer, Nylon and Lycra (shirts)	5 PP	ECG, heart rate, angle of inclination, activity index, body temperature, patient's location, battery level, alert code	Evaluating remote location and wearable healthcare monitoring support for hospital environments
Fevgas *et al.* (2010) [4]	Presenting a platform and a methodology for the rapid prototype development of e-textile applications for human activity monitoring	Commercial devices (accelerometers)	3 HC	Acceleration data	Estimating the acceleration in different body points and to assess potential falls
Wu *et al.* (2010) [5]	Presenting a novel cloth electrode for ECG monitoring	Fabric with MWCNTs (electrode)	1 HC	ECG	Performing ECG daily and long-term monitoring of the ECG signal
Farina *et al.* (2010) [6]	Proposing a novel way for interfacing myoelectric prostheses with the neuromuscular system by integrating electrodes in garments	Stainless steel yarns	3 HC	EMG	Recording high-density EMG signals for myoelectric control
Healey *et al.* (2011) [7]	Presenting and validating performances of a novel e-textile sock for measuring GSR	Polar WearLink heart rate monitor strap (fabric electrodes), Shimmer wireless GSR sensor, soldered wires	1 HC	EDA	Monitoring galvanic skin response from foot plant
Zieba *et al.* (2011) [8]	Creating new sensorical clothing structures to measure human physiological signals in a non-invasive way	Silver-woven fabric, textile laminar structure	1 HC	ECG	Monitoring of ECG in various conditions
Catarino *et al.* (2012) [9]	Designing and fabricating textile integrated electrodes for ECG continuous health monitoring for disabled or elderly people	Elitex (electrode areas), polyamide/elastan (shirt). The t shirt has 3 electrodes connected to the cable and the electrode areas are knitted with Elitex, which is a textured multifilament polyamide yarn with a thin silver coating	1 HC	ECG	Monitoring ECG from a T shirt integrated with electrodes
Liu *et al.* (2012) [10]	Manufacturing intelligent incontinence pants made of conductive yarns to monitor the incontinence status	Nylon/spandex (elastic waistband), Nylon 66 metalized with silver (conductive yarns), Modal® and Nylon 22/20 (incontinence pants)	HC#	Volume of leaked urine	Enhancing the safety and quality of life in humans by providing them with a wearable continuous detection and monitoring system

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Authors	Aim	Material and its Configuration	Dataset	Acquired Data	Clinical Application
Della Toffola *et al.* (2012) [11]	Presenting a wearable system for long-term monitoring of knee kinematics in the home and community settings	Commercial perforated thermoplastic (knee attachment), conductive thread with sown sensor (e-textile), commercial textile (knee sleeve)	1 HC	Acceleration data, strain signals	Monitoring knee flexion/extension movements during ADL; monitoring knee function during clinical trials of novel therapies
Zieba *et al.* (2012) [12]	Designing a textile knitted sensor to monitor the frequency of human breathing	Silver-coated polyester (yarn), cotton + elastan (shirt)	1 HC	Respiratory Rate	Measuring the breathing rhythm frequency
Frydrysiak & Zieba (2012) [13]	Designing a textile knitted sensor to monitor the frequency of human breathing	Silver-coated polyester (yarn), cotton + elastan (shirt)	HC#	Respiratory Rate	Monitoring the breathing rhythm of people suffering from sleep apnea
Huang *et al.* (2013) [14]	Presenting an e-textile bedsheet to measure human respiratory rate	Conventional fabric with conductive lines (bottom and top layer), e-textile piezoresistive fabric (middle layer)	14 HC	Respiratory rate	Performing screenings in clinical and home environment
Kuroda *et al.* (2013) [15]	Prototyping an ECG sensing e-textile vest	Prototype 1: polyvinyl chloride (non-conductive yarns), stainless steel fibers (conductive yarn) Prototype 2: polyester (non-conductive yarns), silver-plated nylon fibers (conductive yarn)	1 HC	ECG	Replacing Holter ECG Monitoring chronic heart patients
Goy *et al.* (2013) [16]	Fabricating e-textiles to monitor LEVOP	Stainless Steel (electrodes), Argenmesh, Ripstop Silver, Stainless Steel Mesh, Silver Mesh, Stretch (e-textiles)	5 HC	LEVOP	Performing LEVOP recording
Samy *et al.* (2014) [17]	Performing sleep stage analysis with a contact-free unobtrusive system	Conventional fabric with conductive lines (bottom and top layer), e-textile piezoresistive fabric (middle layer)	7 HC	Respiratory rate and its variability and leg EMG from pressure images, sleep posture	Performing screenings in clinical and home environment
Postolache *et al.* (2014) [18]	Presenting a wheelchair architecture equipped with e-textiles for ECG and SKC sensing	Fibers coated with conductive polymer and silver (e-textile dry electrode)	7 HC	ECG; EDA	Collecting data for nurses/physiotherapists/physicians Collecting for the wheelchair user/informal caregivers
Liu *et al.* (2014) [19]	Presenting an unobtrusive on-bed respiration system	Conventional fabric with conductive lines (bottom and top layer), e-textile piezoresistive fabric (middle layer)	12 HC	Respiratory rate	Performing screenings in clinical and home environment
Mason *et al.* (2014) [20]	Evaluating the performance of a flexible sensor with an embedded e-textile cloth for sensing applications	Flexible fabric (cloth) supplied with conductive pathways, strain gauge, connectors, and sensor pressure points	1 HC	Biomedical microwave sensing	Performing several sensing tasks
Ramos-Garcia *et al.* (2016) [21]	Using a coverstitched stretch sensor in a commercial shirt to monitor respiration	Textile-based (stretch sensor), polyester/spandex (T-shirt)	3 HC	Breathing patterns	Capturing respiration rate in sedentary and active tasks
Ferreira *et al.* (2016) [22]	Presenting the design and fabrication of SWSs to prevent infants' SIDS	Silver coated textured polyamide elastic yarn (conductive yarn), electrodes, base fabric (chest belt)	HC#	Skin temperature, respiratory rate, ECG	Understanding and preventing SIDS
Frydisiak & Tesiorowski (2016a) [23]	Designing a smart textronic shirts for the health monitoring of elderly people	Textile electrodes, not better specified	HC#	Blood Pulse; Breath Signal; Skin Temperature	Monitoring heart rate, breath rate and indoor-outdoor position of elderly people

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Authors	Aim	Material and its Configuration	Dataset	Acquired Data	Clinical Application
Frydisiak & Tesiorowski (2016b) [24]	Designing a smart textronic shirts for the health monitoring of elderly people	Textile electrodes, not better specified	HC#	Blood Pulse; Breath Signal; Skin Temperature	Monitoring heart rate, breath rate and indoor-outdoor position of elderly people
Li *et al.* (2017) [25]	Presenting an electronic dyeing method to fabricate wearable silver-based e-textile sensors for human motion monitoring and analysis	Silver ink (coating), polyester (e-textile)	1 HC	Strain signals at heel, lower and upper knee	Monitoring human activity
Dabby *et al.* (2017) [26]	Presenting a new method for building wearable electronic and textile sensor systems directly integrated in garments to detect the heart rate	Electronic devices, stretchable copper, and waterproof elastomer (stretchable module)	1 HC	Heart Rate	Performing heart rate long-term monitoring
Niijima *et al.* (2017) [27]	Designing and fabricating an EMG-integrated sensors cap to register EMG data of the masticatory muscles for monitoring ADL	PEDOT:PSS (electrodes)	1 HC[1] 3 HC[2]	EMG (temporal muscles)	Monitoring the temporal activity of the masticatory muscles
Hayashi *et al.* (2017) [28]	Using smart wheelchairs to monitor posture	Conductive fibers (e-textile pressure sensor)	3 HC	FS index and LL index	Notifying potentially dangerous postures
Golparvar & Yapici (2017) [29]	Acquiring EOG signals with graphene textile electrodes comparing the outcome with conventional Ag/AgCl electrodes	rGO (coating)	1 HC	EOG	Monitoring EOG-related pathologies
Golparvar & Yapici (2018a) [30]	Detecting EOG signal using textile electrodes	rGO (coating)	HC#	EOG	Monitoring EOG-related pathologies
Golparvar & Yapici (2018b) [31]	Characterization of graphene-coated electroconductive textile electrodes for EOG acquisition	rGO (coating)	4 HC 2 ME 2 HE	EOG	Monitoring EOG-related pathologies
Acar *et al.*(2018) [32]	Developing a single-arm ECG armband embedded with flexible graphene textiles for ECG data acquisition	GO nylon coated fibers (electrodes)	1 HC	ECG	Recording ECG from a single arm
Vu & Kim (2018) [33]	Introducing a new approach to classify human body movements using textile sensors integrated into smart muscle pants	SWCNT dispersed in H2O (carbon powder-based ink), PET/SP fabric (pants)	1 HC	Motion Signals	Monitoring human activity
Niijima *et al.* (2018) [34]	Assessing the feasibility of estimating biceps fatigue using an e-textile headband	PEDOT:PSS (electrodes)	10 HC	EMG (temporal muscles)	Estimating biceps fatigue
Lugoda *et al.* (2018) [35]	Fabricating temperature sensing yarns to manufacture temperature sensing garments	Commercial thermistors, copper wires, textile (sensing yarns)	5 HC	Skin temperature	Monitoring body area temperature

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Authors	Aim	Material and its Configuration	Dataset	Acquired Data	Clinical Application
Lorussi *et al.* (2018) [36]	Developing a sensing platform constituted by wearable sensors for musculo-skeletal rehabilitation	Electro-conductive yarn/Lycra (knitted piezoresistive fabrics)	5 HC	Knee and scapular flexion angles	Supporting the rehabilitation from muscoloskeletal disorders
Chen *et al.* (2018) [37]	Fabricating a multifunctional e-textile for multi-detection of strain, pressure, and force maps	AgNW/SBS (coating), PU (fibers)	1 HC	Resistance signals	Detecting and monitoring several impairments/pathologies (blood pressure, RLS, neck motions, phonation)
Haddad *et al.* (2018) [38]	Designing and integrating Ag/AgCl e-textile electrodes to monitor EDA comparing the outcome with standard electrodes	Ag/AgCl (e-textile electrodes), cotton/nylon/polyester (fabrics)	1 HC	EDA stimulus responses	Improving neurological disorder treatment and monitoring
Tao *et al.* (2018) [39]	Presenting a novel system - made up of a washable and wearable smart textile shirt, smartphone app and software desktop - for the acquisition of ECG signal, breathing rate, acceleration data for activity recognition and skin temperature	Electrodes: knitted fabric using conductive threads; Connections: conductive thread polyamide thread (Shieldtex 234/34-2 ply HCB, Statex Produktions + Vertries GmbH); Protective layer: polydimethylsiloxane and thermoplastic polyurethane	5 HC^{ML} HC$^{\#}$	ECG; Skin temperature; Respiratory rate; Acceleration data	Continuous monitoring of ECG signal and heart rate, breath signal and rate, skin temperature and activity recognition
Kiaghadi *et al.* (2018) [40]	Developing of a wearable joint sensor	Sheets of cotton/lycra spandex and silver-plated nylon/elastic fiber (textile patch)	1 HC	Elbow Flexion Angles; Sweat Volume	flexion and extension of the joints, sweat monitoring
Ye *et al.* (2019) [41]	Fabricating e-textile sensors sensible to body and environmental stimuli modifying the surface of natural silks with CNTs	MWCNTs/silk yarns	1 HC	Knee flexion angle, finger flexion angles	Monitoring human activity Recognizing hand gesture
Li *et al.* (2019) [42]	Fabricating e-textiles depositing conducting materials thorough inkjet printing on conventional textiles for monitoring purposes	PET fibers/silver inks (e-textile)	1 HC	ECG	Performing biometric monitoring of ECG signals
Ozturk & Yapici (2019) [43]	Studying the performance of graphene textiles in muscular activity monitoring (acquisition of surface EMG signals from biceps brachii muscle), comparing the outcome with Ag/AgCl electrodes	GO coated nylon cotton textile (e-textile)	1 HC	EMG (biceps brachii)	Sensing and monitoring of muscular activity
Awan *et al.* (2019) [44]	Presenting the fabrication of graphene-based e-textile for EMG monitoring, comparing sensing performance with commercial Ag/AgCl wet electrodes	EOGO coated PET fabric (sensors), commercial textile (sleeve)	8 HC	EMG (arm)	Monitoring muscular activity

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Authors	Aim	Material and its Configuration	Dataset	Acquired Data	Clinical Application
Yao *et al.* (2019) [45]	Designing and fabricating multi-functional e-textiles with mechanical and functional properties comparable with typical textiles for monitoring applications	AgNW and TPU (electrodes), commercial textile (patch)	1 HC	ECG, EMG (arm), motion signals	Assessing electrophysiological sensing, motion sensing and thermotherapy
Le *et al.* (2019) [46]	Comparing differences in ECG registration between silver-based textile electrodes and silver/silver-chloride gel electrodes, both integrated in a smart bra	Silver-plated nylon textile (electrodes)	1 HC	ECG	Monitoring ECG activity
Jin *et al.* (2019) [47]	Fabricating a metal - elastomer - nanofibers conductive material for long-term monitoring	Fluoroelastomer + PVDF nanofibers + silver flakes (sensor electrode/wiring), polyester/spandex (sportswear)	1 HC	ECG, EMG (bicep muscle), motion signals	Performing continuous long-term monitoring of ECG, EMG and motions in real-time
Raad *et al.* (2019) [48]	Proposing a novel Smart Glove for both live and on-demand monitoring	Normal stretched clothe (glove), flex and force sensors (commercial sensors), nylon (protective film)	1 HC	Motion signals (hand and finger movement)	Monitoring patients affected by rheumatoid arthritis
Heo *et al.* (2019) [49]	Introducing, characterizing, and experimenting novel textile strain sensors based on AgNW	Multilayer AgNW/PDMS/PET/SP (e-textile strain sensor)	1 HC	Finger flexion angles	Detecting hand motion Discriminating grasp forces
Fouassier *et al.* (2019) [50]	Comparing the quality of the ECG signal registered using both a 12-lead Holter and a novel smart 12-lead ECG acquisition T-shirt	Silver yarns and hydrogel pads (electrodes), cotton fabric (T-Shirt)	30 HC	ECG	Performing ECG long-term monitoring (Holter)
Kim *et al.* (2019) [51]	Developing an all-textile based pressure/strain sensor for physiological signals using 3D spacer textile	Polyurethane dispersion and carbon nanotubes ink on polyethylene terephthalate substrates (textile patch)	HC[#]	Blood Pulse (wrist and neck); Finger flexion angles; Cheek motion; Pharynx motion	Measuring arterial pulse, motion of jugular vein and recognizing sound signal when the subject talks
Ko *et al.* (2019) [51]	Designing SCAs for various applications	Ag particles, MWCNTs and silicone rubber mixture	1 HC	ECG	Monitoring of human body signals (e.g. EGC) in real-time using SCAs as electrodes
Park *et al.* (2019) [52]	Evaluation of a dynamically stretchable high-performance supercapacitor for powering an integrated sensor in an all-in-one textile system to detect various biosignals	MWCNT/MoO	1 HC	Strain Signals	Detection of the strain due to joint movement and the wrist pulse
Zhang *et al.* (2019) [53]	Developing a fabric E-textile for tracking active motion signals	Silver and polytetrafluoroethylene yarn	1 HC	Motion Signals	Monitoring the motion signals of the human body
Jang *et al.* (2019) [54]	Preparing a highly sensitive fiber-type strain sensor with a broad range of strain by introducing a single active layer onto the fiber	Coating carbon-based nanomaterials with responsive microbeads onto elastic fibers	1 HC	Blood Pulse; Spinal Cord Bending Angles; Breath Signal	Monitoring waveforms of pulsations, respirations, and various postures of level of bending a spinal cord

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Authors	Aim	Material and its Configuration	Dataset	Acquired Data	Clinical Application
Sinha *et al.* (2020) [55]	Fabricating PEDOT:PSS coated electrodes to record EMG, ECG and EDA	PEDOT:PSS (electrodes), polyester (arm sleeve)	4 HC^{emg} 1 HC^{eda} 1 HC^{ecg}	EDA, ECG, EMG (biceps, triceps, tibialis, and quadriceps	Performing continuous health monitoring and physiotherapy
Amitrano *et al.* (2020) [56]	Presenting a novel e-textile smart sock and verifying its performances during gait analysis	EeonTex (pressure sensors), commercial fabric (sock)	3 HC	Angular velocity signals of the ankle, foot plantar pressures	Performing gait analysis and posturography
Choundry *et al.* (2020) [57]	Fabricating piezoresistive sensors – and studying their washability – to monitor breathing and muscular activity	Conductive sewing thread stitched on cotton fabric (layer 1), conductive aluminium (layer 2), stock paper (layer 3), cotton fabric (layer 4)	1 HC	Breath pressure signal of the ribcage, pressure signal from biceps femoris muscle	Monitoring breathing and muscular activity Detecting breathing rate
Lian *et al.* (2020) [58]	Fabricating a multifunctional e-textile for multiple applications (such as diagnostics and environmental)	High-density AgNW coated fabric (bottom layer), double-layered sensing fabrics with cotton mesh spacer (bottom layer)	1 HC	Breath pressure signal	Assessing wrist heart pulse Recording breath signal
Vu & Kim (2020) [59]	Fabricating and optimizing the performance of e-textile strain sensors	Multilayer Ag/SWCNTs/PET/SP (e-textile strain sensor)	1 HC	Finger flexion angles, signal of pharynx motion	Monitoring – vaguely – finger or pharynx motion
Ozturk & Yapici (2020) [60]	Investigating the performance of conductive graphene textiles as surface EMG electrodes, later integrated in textile electrodes as pedometer	GO/nylon (conductive textile)	4 HC	sEMG	Monitoring muscle activities during walking and pedometer
Jiang *et al.* (2020) [61]	Integrating textile NFC antennas with temperature and humidity sensors to enable battery-free wireless sensing for monitoring purposes	Silver yarns and cotton textile (NFC antennas), commercial sweat sensor	1 HC	Skin Temperature; Sweat Volume	Performing personal body temperature and sweat loss monitoring from fever and sweating symptoms
Li *et al.* (2020) [62]	Describing a miniature accelerometer solution integrated seamlessly within the fabric of a sleeve to monitor movement	Polyimide + copper + copper wires (chip substrate), embroidered copper wires (tracking system), Lycra cuff (fastening system), polyester + cotton (fabric pockets)	3 HC	Elbow and knee bending angle	Monitoring movement
Shathi *et al.* (2020a) [63]	Presenting a highly flexible and wearable e-textile for smart clothing and ECG detection	rGO/PEDOT:PSS (coating), Nylon/Lycra (fabric)	1 HC	ECG	Detecting ECG placing the e-textile on patients' wrist
Shathi *et al.* (2020b) [64]	Developing e-textile electrodes for the detection of high-quality biomedical signals	rGO/PEDOT:PSS (coating), cotton (bra)	1 HC	ECG, blood pulse	Monitoring biomedical signals using novel textile electrodes to be integrated in biomedical and health monitoring devices
Tang *et al.* (2020) [65]	Fabricating machine-washable e-textiles with high strain sensitivity and high thermal conduction for monitoring applications	rGO/MWCNTs/NWF (e-textile)	1 HC	Motion signals, blood pulse	Monitoring body motion and blood pulse
Arquilla *et al.* (2020) [66]	Using sewn textile electrodes for ECG monitoring	Silver NPs coated nylon (thread), inextensible fabric backing (textile)	8 HC	ECG	Integrating electrodes directly into garments for daily use
Garcia Patino *et al.* (2020) [67]	Designing a textile-based wearable platform to prevent low back pain	Copper wire (electronic), elastic fabric (sensors fabric)	1 HC	Motion signals (Back movements)	Monitoring back posture to prevent or treat low back pain

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Authors	Aim	Material and its Configuration	Dataset	Acquired Data	Clinical Application
Zhao et al. (2020) [68]	Presenting a thread-based wearable nanobiosensor to detect lactate and sodium concentrations during perspiration	Carbon coated cotton thread (electrode), ZnONWs (electrode coating)	1 HC	Sodium and lactate concentration in human sweat	Quantifying patients' biochemical variables from sweat analysis
Liang *et al.* (2020) [69]	Developing a stable and biocompatible silk sericine carbon nanotubes (CNT) ink and demonstrating its versatile applications in flexible electronics for monitoring human biosignals	Conductive ink made of carbon nanotubes (CNTs) improved with silk sericin to allow CNT dispersion in water and improve ink biocompability	HC[#]	ECG, Breath Signal; Hydrogen Peroxide Concentration	Electrodes for biosignal registration (ECG, EMG, etc.); sensors for breathing rate monitoring ; electrochemical sensor for detecting hydrogene peroxide concentration
Fan *et al.* (2020) [70]	Developing TATSA for precise epidermal physiological signal monitoring	Stainless steel fibers (electrodes), one-ply Terylene yarns	1 HC 1 PP	Blood Pulse& Breath Signal	Distinguishing between healthy individuals and those with CAD or SAS

Abbreviations. [#] number of patients not provided; ADL: activities of daily living; AgNW: silver nanowire; CAD: Cardiovascular Disease; CNTs: carbon nanotubes; ECG: electrocardiogram; EDA: electrodermal activity; EG: ethylene glycol; EMG: electromyography;EOG: electrooculography; EOGO: edge-oxidized graphene oxide; FS: forward shift; GO: graphene oxide; GSR: Galvanic Skin Response; HC: healthy controls; IT: information technology; LEVOP: lower extremity venous occlusion plethysmography; LL: lateral lean; MWCNTs: multi-walled carbon nanotubes; NFC: near field communication ; NPs: nanoparticles; NWF: non-woven fabric; PEDOT:PSS: poly(3,4-ethyelenedioxythiophne polystyrene sulfonate); PET: polyethylene terephthalate; PP: Pathological Patients; PVDF: Polyvinylidene fluoride; rGO: reduced GO; RLS: restless legs syndrome; SAS: Sleep Apnea Syndrome; SBS: styrene-butadiene-styrene; SCAs: Stretchable Conductive Adhesives; SIDS: sudden infant death syndrome; SKC: skin conductivity; SP: spandex; SWCNTs: single-walled carbon nanotubes; SWS: smart wearable system; TATSA: Triboelectric All-Textile Sensor Array; TPU: thermoplastic polyurethane; ZnONWs : zinc-oxide nanowires.

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