

Table 4 Assessment of each experiment's application to the FD Model. Application marked with a 'X'

Experiments	Sensor family	Sub-family	Sensor(s)	Broad measurement	Nutrition	Environment	Health	Behaviour	Mental State
Alhamada et al (2016)	Location	Relative	RFID (oestrus sensor)	Social interaction	X	-	-	X	X
Alhamada et al (2017)	Location	Relative	RFID (oestrus sensor)	Social interaction	-	-	-	X	X
Alvarenga et al (2016)	Motion	Acceleration	Accelerometer	Raw and/or derived metrics	X	X	-	X	-
Animut et al (2005)	Motion	Body or body-part position	Jaw/bite	Proprietary metrics	X	X	-	X	-
	Physiological	-	HR monitor	General HR					
Ares et al (2007)	Location	Absolute	GPS	Distance/speed & Spatial data	X	X	-	X	-
Barkai et al (2002)	Motion	Body or body-part position	Jaw/bite	Proprietary metrics					
	Physiological	-	HR monitor	General HR	X	X	-	-	-
	Physiological	-	Oxygen Sensor	Oxygen concentration					
Betteridge et al (2010a)	Location	Absolute	GPS	Spatial data					
	Motion	Body or body-part position	Pendulum with magnetic reed switch	Body orientation & Body movement	X	X	-	X	-
	Physiological	-	Urine sensor	Urination events					
Betteridge et al (2010b)	Location	Absolute	GPS	Spatial data	-	-	-	X	-
	Physiological	-	Urine sensor	Urination events					
Broster et al (2010)	Location	Relative	Contact Logger	Social interaction	X	X	X	X	-
Broster et al (2012)	Location	Absolute	GPS	Distance/speed & Spatial data	-	X	X	X	-
	Location	Relative	Contact Logger	Social interaction					
Broster et al (2017)	Location	Absolute	GPS	Distance/speed & Spatial data	X	X	X	X	-
Champion et al (1997)	Motion	Body or body-part position	Mercury tilt sensor	Body orientation & Body movement	X	-	-	X	-
Coulon et al (2015)	Physiological	-	HR monitor	Complex HR	-	-	-	X	X
Cronin et al (2016)	Motion	Acceleration	Accelerometer	Proprietary metrics	X	-	X	X	-
Désiré et al (2004)	Physiological	-	HR monitor	Complex HR	-	X	-	X	X
Destrez et al (2012)	Physiological	-	HR monitor	General HR	-	-	-	X	X
Destrez et al (2013)	Physiological	-	HR monitor	General HR	-	X	-	X	X
di Virgilio and Morales (2016)	Location	Absolute	GPS	Social interaction & Spatial data	X	X	-	X	-
Dobos et al (2014)	Location	Absolute	GPS	Distance/speed & Social interaction	-	-	-	X	-
Dobos et al (2015)	Location	Absolute	GPS	Distance/speed	X	-	-	X	-
Donovan et al (2013)	Location	Absolute	GPS	Distance/speed	X	-	X	X	-
Doyle et al (2016)	Location	Relative	Contact Logger	Social interaction	-	X	-	X	X
Falú et al (2014)	Location	Absolute	GPS	Distance/speed & Spatial data	X	X	-	X	-
Falzon et al (2013)	Location	Absolute	GPS	Distance/speed	-	-	X	X	-
Fogarty et al (2015)	Location	Absolute	GPS	Distance/speed	-	-	-	X	-

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Freire et al (2012)	Location	Absolute	GPS	Distance/speed	X	X	-	X	X
	Location	Relative	Contact Logger	Social interaction					
Giovanetti et al (2017)	Motion	Acceleration	Accelerometer	Raw and/or derived metrics	X	-	-	X	-
Gipson et al (2012)	Location	Absolute	GPS	Distance/speed & Spatial data & Social interaction	-	X	-	X	X
Goddard et al (2000)	Physiological	-	HR monitor	General HR	-	-	X	X	X
Greiveldinger et al (2007)	Physiological	-	HR monitor	Complex HR	-	X	-	X	X
Haddadi et al (2011)	Location	Absolute	GPS	Social interaction	-	-	-	X	-
	Motion	Multiple	IMU	NA ¹					
Hargreaves and Hutson (1990)	Physiological	-	HR monitor	General HR	-	-	-	-	X
Harris et al (2016)	Location	Absolute	GPS	Spatial data	X	X	-	-	-
Hobbs-Chell et al (2012)	Location	Absolute	GPS	NA ¹	-	-	-	X	-
	Motion	Multiple	IMU	NA ¹					
Hulbert et al (1998)	Location	Absolute	GPS	NA ¹	X	-	X	X	-
Jørgensen et al (2016)	Location	Absolute	GPS	Spatial data	X	X	-	X	-
Kaur et al (2016)	Location	Absolute	GPS	Distance/speed	-	-	X	X	-
Kawamura et al (2005)	Location	Absolute	GPS	Distance/speed & Spatial data	X	X	-	-	-
Kuźnicka and Gburzyński (2017)	Motion	Acceleration	Accelerometer	Raw and/or derived metrics	X	-	-	X	-
Lin et al (2011)	Location	Absolute	GPS	Distance/speed & Spatial data	X	X	X	X	-
Lowe et al (2001)	Physiological	-	HR monitor	General HR	-	X	X	-	X
	Physiological	-	Temperature sensor	Body temperature					
Manning et al (2014)	Location	Absolute	GPS	Distance/speed	-	-	-	X	-
McLennan et al (2015)	Motion	Acceleration	Accelerometer	Proprietary metrics	X	-	X	X	-
Morgan-Davies et al (2016)	Location	Absolute	GPS	Distance/speed & Spatial data	X	X	X	X	-
Morton et al (2014)	Motion	Acceleration	Accelerometer	Proprietary metrics	-	-	X	X	-
Munn et al (2013)	Location	Absolute	GPS	Distance/speed & Spatial data	X	X	-	X	-
Munn et al (2016)	Location	Absolute	GPS	Distance/speed	X	X	-	X	-
Mysterud et al (2014)	Location	Absolute	GPS	Spatial data	X	X	-	-	-
Nadimi et al (2012)	Motion	Acceleration	Accelerometer	Raw and/or derived metrics	X	-	-	X	-
Ormaechea and Peri (2015)	Location	Absolute	GPS	Distance/speed & Spatial data	X	X	-	X	-
Penning (1983)	Motion	Acceleration	Accelerometer	Raw and/or derived metrics					
	Motion	Body or body-part position	Mercury tilt sensor	Body orientation	X	-	-	X	-
	Motion	Body or body-part position	Jaw/bite	Body movement					
Pérez-Barbería et al (2015)	Location	Absolute	GPS	Distance/speed & Social interaction	X	X	-	X	-

Experiments	Sensor family	Sub-family	Sensor(s)	Broad measurement	Nutrition	Environment	Health	Behaviour	Mental State
Putfarken et al (2008)	Location	Absolute	GPS	Distance/speed & Spatial data	X	X	-	X	-
Radeski and Iliiski (2017)	Motion	Acceleration	Accelerometer	Raw and/or derived metrics	-	-	-	X	-
Reefmann et al (2009)	Physiological	-	HR monitor	Complex HR	-	-	-	-	-
	Physiological	-	Respiratory sensor	Respiration rate	-	-	-	X	X
	Physiological	-	Temperature sensor	Body temperature & Humidity	-	-	-	-	-
Rurak et al (2008)	Motion	Acceleration	Accelerometer	Proprietary metrics	-	-	X	X	-
Rusch et al (2009)	Location	Absolute	GPS	Distance/speed & Spatial data	-	X	-	-	-
Rutter et al (1997a)	Location	Absolute	GPS	Spatial data	-	-	-	-	-
	Motion	Body or body-part position	Mercury tilt sensor	Body orientation	X	X	-	X	-
	Motion	Body or body-part position	Jaw/bite	NA ¹	-	-	-	-	-
Rutter et al (1997b)	Motion	Body or body-part position	Jaw/bite	Proprietary metrics	X	-	-	X	-
Schlecht et al (2006)	Location	Absolute	GPS	Distance/speed & Spatial data	X	X	-	X	-
Simitzis et al (2009)	Physiological	-	HR monitor	General HR	X	-	X	X	-
Simitzis et al (2012)	Physiological	-	HR monitor	General HR	-	-	-	X	X
Tallet et al (2006)	Physiological	-	HR monitor	General HR	-	-	-	X	X
Taylor et al (2011)	Location	Absolute	GPS	Distance/speed & Spatial data	-	X	-	X	-
Thomas et al (2008)	Location	Absolute	GPS	Distance/speed & Spatial data	X	X	X	X	-
	Motion	Body or body-part position	Inclinometer	Body orientation	-	-	-	-	-
Umstätter et al (2008)	Location	Absolute	GPS	NA ¹	X	-	-	X	-
	Motion	Body or body-part position	Pitch-Roll sensor	Body orientation	-	-	-	-	-
Verbeek et al (2012)	Motion	Acceleration	Accelerometer	Proprietary metrics	X	-	-	X	X
Webber et al (2015)	Location	Absolute	GPS	Distance/speed	X	X	X	X	X
Williams et al (2009)	Location	Absolute	GPS	Spatial data	X	X	-	X	-
Williams et al (2011)	Location	Absolute	GPS	Spatial data	X	X	-	X	-
Zampaligré and Schlecht (2017)	Location	Absolute	GPS	Distance/speed & Spatial data	X	X	-	X	-

1. Sensor data not presented