Examining the relationship between fatigue and cognition after stroke: A systematic review

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ABSTRACT

Many stroke survivors experience fatigue, which is associated with a variety of factors including cognitive impairment. A few studies have examined the relationship between fatigue and cognition and have obtained conflicting results. The aim of the current study was to review the literature on the relationship between fatigue and cognition post-stroke. The following databases were searched: EMBASE (1980–February, 2014), PsycInfo (1806–February, 2014), CINAHL (1937–February, 2014), MEDLINE (1946–February, 2014), Ethos (1600–February, 2014) and DART (1999–February, 2014). Reference lists of relevant papers were screened and the citation indices of the included papers were searched using Web of Science. Studies were considered if they were on adult stroke patients and assessed the following: fatigue with quantitative measurements (≥ 3 response categories), cognition using objective measurements, and the relationship between fatigue and cognition. Overall, 413 papers were identified, of which 11 were included. Four studies found significant correlations between fatigue and memory, attention, speed of information processing and reading speed (\(r = -0.36\) to \(0.46\)) whereas seven studies did not. Most studies had limitations; quality scores ranged from 9 to 14 on the Critical Appraisal Skills Programme Checklists. There was insufficient evidence to support or refute a relationship between fatigue and cognition post-stroke. More robust studies are needed.

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Introduction

Fatigue is frequently reported after stroke (Barbour & Mead, 2012). It is conceptualised as disproportionate mental or physical exhaustion and lack of energy triggered by simple activities that do not ameliorate with ordinary rest (De Groot, Phillips, & Eskes, 2003; Staub & Bogousslavsky, 2001). However, there is no universally agreed-upon definition, despite the consensus that fatigue is clinically significant, which makes it difficult to diagnose and impedes its assessment (De Groot et al., 2003). The reason for such lack of definition stems from the fact that fatigue is complex.

While the exact aetiology of fatigue is unclear, it is argued that post-stroke fatigue is multifaceted and studies have revealed associations between fatigue and several
factors, including biological (neuroanatomical abnormalities and neurotransmitter dysregulations, lesion location, corticomotor components and impaired movement speed) (Kuppuswamy, Clark, Sandhu, Rothwell, & Ward, 2015; Kuppuswamy, Clark, Turner, Rothwell, & Ward, 2015; Kutlubaev, Duncan, & Mead, 2012), psychological (Jaracz, McLcarek, & Kozubski, 2007; Schepers, Visser-Meily, Ketelaar, & Lindeman, 2006), social support (Michael, Allen, & Macko, 2003) and physical (Duncan, Kutlubaev, Dennis, Greig, & Mead, 2012; Ingles, Eskes, & Phillips, 1999).

Due to the lack of a standard definition, different terminology is used, which complicates its understanding. The lack of definition has been extensively discussed in previous papers (Aaronson et al., 1999; Barbour & Mead, 2012; De Groot et al., 2003; Falconer, Walsh, & Harbison, 2010; Staub & Bogousslavsky, 2001). For the purpose of this review, fatigue was defined as a subjective feeling of physical or mental exhaustion and weariness (Mead et al., 2007; van de Port, Kwakkel, Schepers, Heinemans, & Lindeman, 2007).

Studies show that the prevalence of fatigue after stroke ranges from 28 to 77% (Christensen et al., 2008; Feigin et al., 2012; Michael, 2014; Zedlitz, Visser-Meily, Schepers, Geurts, & Fasotti, 2011). Variations in prevalence may be attributed to methodological differences in studies and the fact that fatigue is multifactorial and complex (Aaronson et al., 1999). In addition, fatigue prevalence depends on the definition of fatigue, participant characteristics and the measures used (Annoni, Staub, Bogousslavsky, & Brioschi, 2008; Choi-Kwon & Kim, 2011; Christensen et al., 2008). Fatigue may persist for up to 12 months post-stroke (Van der Werf, van den Broek, Anten, & Bleijenberg, 2001) but some individuals may experience it for even longer (Ingles et al., 1999; Michael et al., 2003).

Many stroke patients experience mental or physical fatigue, which differs in quality and duration from the typical symptoms of tiredness in that it rarely ameliorates with ordinary rest (Kirkevold, Christensen, Andersen, Johansen, & Harder, 2012). Post-stroke fatigue may interfere with rehabilitation (Glader, Stegmayr, & Asplund, 2002), return to work and daily activities and compromise independence (Andersen, Christensen, Kirkevold, & Johnsen, 2012). Post-stroke fatigue is also a significant predictor of long-term mortality (Glader et al., 2002; Naess & Nyland, 2013). Therefore post-stroke fatigue is of clinical significance.

Despite the multifaceted nature of fatigue, only a few studies have examined the association between fatigue and cognition (Raji, Al Snih, Ostir, Markides, & Ottenbacher, 2010; Samper-Ternent, Al Snih, Raji, Markides, & Ottenbacher, 2008). Evidence shows that 50–70% of stroke survivors perform poorly in neuropsychological tests (Hochstenbach, Mulder, van Limbeek, Donders, & Schoonderwaldt, 1998; Rasquin, Verhey, Lousberg, Winkens, & Lodder, 2002). Cognitive impairment is observed in many stroke survivors and includes impairment of memory (Novitzke, 2008), attention (Barker-Collo, Feigin, Lawes, Parag, & Senior, 2010), concentration (Rasquin et al., 2002), mental speed (Winkens, Van Heugten, Fasotti, Duits, & Wade, 2006), cognitive control (Li et al., 2013), language (Pedersen, Vinter, & Olsen, 2004), visual perception (Jutai et al., 2003), and executive functioning (Poulin, Korner-Bitensky, Dawson, & Bherer, 2012).

Neuropsychologists have suggested a distinction between physical and mental fatigue, with the former being concerned with physical manifestations of fatigue (such as the need to take a break between activities) and the latter with mental slowness (such as difficulty with concentration) (Chaudhuri & Behan, 2004). Mental fatigue is
commonly reported and can hinder full recovery (Johansson et al., 2012). However, the relationship between post-stroke fatigue and cognitive impairment has rarely been examined. Some studies that address this question have not found any significant relationship between the two (Schepers et al., 2006; Van Eijsden, van de Port, Visser-Meily, & Kwakkel, 2012), whereas others have found that attention and speed of information processing were associated with fatigue after stroke (Appelros, 2006; Hubacher et al., 2012; Winkens, Van Heugten, Fasotti, & Wade, 2009).

Systematic reviews are currently the most efficient method of reviewing the existing literature and justifying further research (Moher, Liberati, Tetzlaff, & Altman, 2009). There is a systematic review (Ponchel, Bombois, Bordet, & Hénon, 2015) that investigated factors associated with fatigue, including cognition, however there was no previous review examining the relationship between cognition and fatigue after stroke.

Objective

The aim was to review the correlation between the severity of fatigue, as assessed on questionnaire measures, and cognitive abilities after stroke in adults.

Methods

The review was based on the PRISMA Statement for systematic reviews (Moher et al., 2009) and followed the guidelines provided by the Centre for Reviews and Dissemination (CRD; Centre for Review and Dissemination, 2009).

Type of participants

Studies were included if: (1) their sample included stroke patients, or at least 75% of participants were stroke patients. If stroke patients comprised less than 75%, studies were included if they reported or provided separate data for the stroke patients. Stroke was defined as a clinical syndrome of presumed vascular origin, typified by rapidly developed clinical signs of focal or global disturbance of cerebral functions, lasting more than 24 hours with no apparent cause other than vascular origin, as provided by the World Health Organisation (Aho et al., 1980). Subarachnoid haemorrhage (SAH) was not included because it requires different management from stroke (i.e., surgical operation) (Bederson et al., 2009; Sacco et al., 2013) and if a study included both stroke and SAH patients, it was included only if 75% of them were stroke patients or if separate data were available; (2) the sample included adults aged 18 years or over, or in the case that children were included only if separate results were available for those aged 18 years and over.

Type of studies

Studies were included if they: (3) used the term “fatigue”. Studies that assessed concepts related to fatigue, such as exhaustion, lack of energy, vitality or tiredness, were included if they reported these to be aspects of fatigue. Frailty was not considered as fatigue in this review because the term is highly associated with old age and natural ageing processes rather than as an explicit disease symptom. Despite the fact that fatigue might be
a symptom of frailty, these two are distinctive (Avlund, 2013); (4) included an assessment of fatigue that provided a quantitative score of at least three response categories. The reason is that a yes/no or agree/disagree format would only give information regarding the presence of fatigue and not allow correlations with severity of fatigue to be examined. If the study evaluated tiredness, for example, but assessed it with any assessment other than a fatigue scale, it was not included. These fatigue assessments included questionnaires, rating scales, visual analogue and ranking scales.

Furthermore, the SF-36 (Ware & Sherbourne, 1992) vitality subscale was considered as it is described as a measure of energy/fatigue. Studies that involved interviews on fatigue or ratings of fatigue as present or absent were not included; (5) reported on any aspect of cognition. This included any reference to memory, attention, spatial abilities, visual neglect, speed of information processing, mental flexibility, executive function, mental slowness, orientation, concentration, cognitive control, decision making, problem solving, ataxia, apraxia, mental speed, reasoning and learning. Studies of language impairment were not included. People with language problems have difficulty completing cognitive assessments and are usually excluded from such studies (El Hachioui et al., 2013). Therefore, it was decided to not include papers that reported only patients with language impairment; (6) assessed cognition using an objective standardised quantitative measure. Studies using self-report assessments of cognition were not included as these have been shown to be more closely correlated with mood and confidence than cognitive function (Payne and Schnapp, 2014); (7) examined the relation between fatigue as defined and specified in (3) and (4) above, and cognition, as defined and specified in (5) and (6) above. There were no restrictions regarding publication time or language. Translations were obtained for studies in languages other than English.

**Exclusion criteria**

Systematic, narrative and literature reviews were not included.

**Data extraction and quality assessment**

For each of the studies meeting the above criteria, one of the authors (CL) conducted the data extraction and the quality assessment, while the other (NL) checked the details. The extraction was concerned with: (1) participants’ characteristics (age, gender, type of stroke and time since stroke onset); (2) fatigue assessment methods; (3) cognitive assessment methods; (4) study design (settings and procedure); and (5) results (any association reported between fatigue and cognitive impairment). Quality assessment was conducted with the Critical Appraisal Skills Programme Checklists (CASP) quality assessment tool for cohort studies (CASP, 2014). CASP consists of 12 items that examine the context of the study results in relation to their validity, content and scientific contribution. It was chosen because it is the only tool available in a version for reviewing cohort studies as opposed to other commonly used lists. Each question was answered “yes”, “no” or “can’t tell”. In order to provide a quality index, a score of 1 was given for every “yes” answer and 0 for every “no” or “can’t tell” answer. For the items that are open-ended (7, 8, 12) a point was given if the answer was in favour of the study. The results of the CASP scoring were categorised as following: 0–5 = poor quality; 6–10 = average quality; 11–16 = high quality.
Data synthesis and correlation classification

The correlation coefficients between fatigue and cognition were summarised. Correlations were considered statistically significant at the 5% level of significance. The classification of the strength of correlation varied. It is generally suggested that correlations from .1 to .3 are considered weak, from .4 to .6 moderate, .7 to .9 strong and 1 is a perfect correlation (Hatcher, 2003).

Search methods for identification of studies

An electronic search for published studies was conducted in the following databases: EMBASE (1980–February, 2014), PsycInfo (1806–February, 2014), CINAHL (1937–February, 2014), MEDLINE (1946–February, 2014). The Ethos (UK dissertations; 1600–February, 2014) and the DART (European Theses Portal; 1999–February, 2014) databases were also searched for unpublished academic work in theses and dissertations.

The first four databases were searched with a separate strategy adjusted to the operating system of each database (see Appendix 1 for strategies). The dissertation databases were searched using keywords and their associated terms or synonyms; the same keywords were used to form the other searches (see Appendix 1 for key words). Finally, the reference lists of relevant systematic and narrative reviews and of the studies included, were further scanned for potential studies. The citation indexes of included studies were searched on Web of Science.

Study selection

Potentially relevant papers were identified from their titles and abstracts based on the inclusion criteria. The full text versions of those that met the criteria were obtained. If it was not clear from the abstract, the full text was obtained, and if in doubt the authors were contacted for clarifications. Papers that met the criteria were reviewed and duplicates were removed using the Mendeley referencing system. The third author (NL) confirmed their eligibility and a decision was made as to which studies to include.

Results

The initial electronic search conducted in February 2014 identified 387 papers. After duplicates were removed \((n = 69)\), 319 papers were assessed against the criteria. At this stage, 310 were excluded for not including stroke patients \((n = 191)\), not including the term fatigue \((n = 25)\), not assessing fatigue \((n = 57)\), not considering any cognitive domain \((n = 13)\), not assessing cognition \((n = 4)\), or not assessing the relationship between fatigue and cognition \((n = 19)\). One additional paper was excluded because its full text version was not accessible. Table 1 summarises all papers and the reason of their exclusion. The reference lists of the included papers were scanned for potentially relevant papers missed in the initial searching phase; one paper (Naess, Nyland, Thomassen, Aarseth, & Myhr, 2005) was identified from the reference lists of five of the included papers (Hubacher et al., 2012; Johansson & Rönnbäck, 2012; Naess & Nyland, 2013; Park, Chun et al., 2009; Radman et al., 2012) and was included. One paper (Johansson & Rönnbäck, 2012) was identified by chance on the web and
### TABLE 1. Studies identified by searches and their reason for inclusion/exclusion.

| Study | Database                  | Stroke/ humans/ adults | Mentions fatigue | Includes quantitative fatigue assessment | Mentions cognition | Objective quantitative cognitive assessment | Association between fatigue and cognition | Status    |
|-------|---------------------------|------------------------|------------------|------------------------------------------|-------------------|-------------------------------------------|-----------------------------------------|-----------|
| 1     | Addy (2011)               | PsycInfo               | X                | X                                        | X                 | X                                         | X                                       | Excluded  |
| 2     | Adeli, Drubach, and MacHulda (2013) | EMBASE                        | X                | X                                        | X                 | X                                         | X                                       | Excluded  |
| 3     | Agusti, Bonet, Arnau, Vidal, and Laporte (2003) | EMBASE                        | X                | X                                        | X                 | X                                         | X                                       | Excluded  |
| 4     | (Ahlqwist, Bengtsson, Lapidus, Gergdahl, and Schutz (1999) | MEDLINE                        | X                | X                                        | X                 | X                                         | X                                       | Excluded  |
| 5     | Aisen et al. (2003)       | EMBASE                        | X                | X                                        | X                 | X                                         | X                                       | Excluded  |
| 6     | Alaama, Basharat, and Nicolle (2012) | EMBASE                        | X                | X                                        | X                 | X                                         | X                                       | Excluded  |
| 7     | Albert, Sidney, Huot-Marchand, Hespel, and Pelayo (2005) | EMBASE                        | X                | X                                        | X                 | X                                         | X                                       | Excluded  |
| 8     | Alfano et al. (2012)      | EMBASE                        | X                | X                                        | X                 | X                                         | X                                       | Excluded  |
| 9     | Andrew and Grieve (2008)  | Ethos/DART                            | X                | X                                        | X                 | X                                         | X                                       | Excluded  |
| 10    | Appelros (2006)           | EMBASE                        | ✓                | ✓                                        | ✓                 | X                                         | X                                       | Excluded  |
| 11    | Araujo, da Silva, da Conceicao, de Santana, and Vasconelos (2012) | CINAHL                        | X                | X                                        | X                 | X                                         | X                                       | Excluded  |
| 12    | Armstrong et al. (2010)   | EMBASE                        | X                | X                                        | X                 | X                                         | X                                       | Excluded  |
| 13    | Askim et al. (2012)       | EMBASE                        | ✓                | ✓                                        | ✓                 | ✓                                         | X                                       | Excluded  |
| 14    | Attal et al. (2002)       | EMBASE                        | ✓                | ✓                                        | ✓                 | ✓                                         | X                                       | Excluded  |
| 15    | Aujouannet, Bonifazi, Hintzy, Vuillerme, and Rouard (2006) | MEDLINE                        | X                | X                                        | X                 | X                                         | X                                       | Excluded  |
| 16    | Avila-Funes et al. (2012) | PsycInfo/EMBASE              | X                | X                                        | X                 | X                                         | X                                       | Excluded  |
| 17    | Barbour and Mead (2012)   | EMBASE                        | ✓                | ✓                                        | X                 | X                                         | X                                       | Excluded  |
| 18    | Barrett et al. (2011)     | EMBASE                        | ✓                | ✓                                        | X                 | X                                         | X                                       | Excluded  |
| 19    | Beatty, Orbelo, Sorocco, and Ross (2003) | EMBASE                        | X                | X                                        | X                 | X                                         | X                                       | Excluded  |
| 20    | Berggren (2012)           | DART                          | X                | X                                        | X                 | X                                         | X                                       | Excluded  |
| 21    | Bernsmeier, Nickel, Bingisser, and Kim (2010) | EMBASE                        | X                | X                                        | X                 | X                                         | X                                       | Excluded  |
|   | Study                                                                 | Database          | X | X | X | X | X | X |   |   |
|---|----------------------------------------------------------------------|-------------------|---|---|---|---|---|---|---|---|
| 22 | Bhalla et al. (2013)                                                 | EMBASE            | X | X | X | X | X | X | X | Excluded   |
| 23 | Blanc-Garin (1994)                                                   | PsycInfo          | X | X | X | X | X | X | X | Excluded   |
| 24 | Blume and Harris (2003)                                              | EMBASE            | X | X | X | X | X | X | X | Excluded   |
| 25 | Bogousslavsky (2010)                                                 | EMBASE/            | ✓ |  X| X | X | X | X | X | Excluded   |
|   |                                                                       | MEDLINE           |   |   |   |   |   |   |   |   |
| 26 | Boshier, Wilton, and Shakir (2003)                                   | EMBASE            | X | X | X | X | X | X | X | Excluded   |
| 27 | Botella et al. (1995)                                                | MEDLINE           | X | X | X | X | X | X | X | Excluded   |
| 28 | Boutin-Lester and Gibson (2002)                                      | EMBASE            | X | X | X | X | X | X | X | Excluded   |
| 29 | Bowling et al. (2013)                                                | EMBASE            | ✓ | ✓ |  X| X | X | X | X | Excluded   |
| 30 | Boy et al. (2011)                                                    | EMBASE            | ✓ | X | X | X | X | X | X | Excluded   |
| 31 | Breeher, Gerr, and Fuortes (2013)                                     | EMBASE            | ✓ | ✓ |  X| X | X | X | X | Excluded   |
| 32 | Brioschi et al. (2009)                                               | EMBASE            | X | X | X | X | X | X | X | Excluded   |
| 33 | Buchman et al. (2011)                                                | EMBASE/            | X | X | X | X | X | X | X | Excluded   |
|   |                                                                       | MEDLINE           |   |   |   |   |   |   |   |   |
| 34 | Campailla, de Vanna, and Poldrugo (1980)                             | MEDLINE           | ✓ | X | X | X | X | X | X | Excluded   |
| 35 | Cantarero et al. (2011)                                              | EMBASE            | X | X | X | X | X | X | X | Excluded   |
| 36 | Caplan and Gardner (2005)                                            | EMBASE            | X | X | X | X | X | X | X | Excluded   |
| 37 | Carey et al. (2008)                                                  | EMBASE            | ✓ | X | X | X | X | X | X | Excluded   |
| 38 | Carlson, Smith, Russell, Fibich, and Whittaker (2006)                 | MEDLINE           | X | X | X | X | X | X | X | Excluded   |
| 39 | Carlsson, Papcke-Benson, Carnes, McBride, and Stein (2002)           | EMBASE            | X | X | X | X | X | X | X | Excluded   |
| 40 | Carlsson, Moller, and Blomstrand (2004)                               | CINAHL/            | ✓ | ✓ |  X| X | X | X | X | Excluded   |
|   |                                                                       | MEDLINE           |   |   |   |   |   |   |   |   |
| 41 | Carlsson, Moller, and Blomstrand (2003)                               | EMBASE/           | ✓ | ✓ |  X| X | X | X | X | Excluded   |
|   |                                                                       | MEDLINE           |   |   |   |   |   |   |   |   |
| 42 | Carlsson, Moller, and Blomstrand (2009)                               | CINAHL/           | ✓ | ✓ |  X| X | X | X | X | Excluded   |
|   |                                                                       | MEDLINE           |   |   |   |   |   |   |   |   |
| 43 | Casas, Calamia, and Tranel (2008)                                    | EMBASE/           | X | X | X | X | X | X | X | Excluded   |
|   |                                                                       | MEDLINE           |   |   |   |   |   |   |   |   |
| 44 | Cermak, Trombly, Hausser, and Tiernan (1991)                          | EMBASE            | ✓ | ✓ |  X| X | X | X | X | Excluded   |

(Continued)
| Study                  | Database          | Stroke/humans/ | Mentions | Includes | Mentions | Objective | Association | Status     |
|-----------------------|-------------------|---------------|----------|----------|----------|-----------|-------------|------------|
| Chan and Lee (2005)   | EMBASE            |               | X        | X        | X        | X         | X           | Excluded   |
| Chebotarev, Matiukhin, and Naumova (1994) | MEDLINE |               | X        | X        | X        | X         | X           | Excluded   |
| Chen, Mann, Tomita, and Burford (1998) | EMBASE |               | X        | X        | X        | X         | X           | Excluded   |
| Chia and Teo (2003)   | EMBASE            |               | X        | X        | X        | X         | X           | Excluded   |
| Chiocca et al. (2008) | EMBASE            |               | X        | X        | X        | X         | X           | Excluded   |
| Choe, Jung, Baird, and Grupen (2013) | EMBASE |               | ✓        | ✓        | ✓        | ✓         | X           | Excluded   |
| Choi-Kwon, Han, Kwon, and Kim (2005) | EMBASE |               | ✓        | ✓        | ✓        | ✓         | ✓           | Excluded   |
| Christensen et al. (2008) | EMBASE |               | ✓        | ✓        | ✓        | ✓         | X           | Excluded   |
| Claros-Salinas et al. (2010) | PsycInfo/EMBASE/MEDLINE |               | X        | X        | X        | X         | X           | Excluded   |
| Clemens et al. (2012) | CINAHL            |               | ✓        | ✓        | ✓        | ✓         | X           | Excluded   |
| Consoli et al. (2012) | EMBASE            |               | ✓        | ✓        | ✓        | ✓         | X           | Excluded   |
| Coyle, Hopper, and Coggan (1990) | MEDLINE |               | X        | X        | X        | X         | X           | Excluded   |
| Croquefois et al. (2005) | EMBASE |               | ✓        | ✓        | ✓        | ✓         | X           | Excluded   |
| Czepko, Orlowiejska, and Danilewicz (1999) | MEDLINE |               | X        | X        | X        | X         | X           | Excluded   |
| Dam (2001)            | EMBASE/MEDLINE    |               | ✓        | ✓        | ✓        | ✓         | ✓           | Excluded   |
| De Coster, Leentjens, Lodder, and Verhey (2005) | EMBASE |               | ✓        | ✓        | ✓        | ✓         | X           | Excluded   |
| De Joode et al. (2012) | EMBASE/MEDLINE    |               | ✓        | ✓        | ✓        | ✓         | X           | Excluded   |
| DeAngelis (2010)      | EMBASE            |               | X        | X        | X        | X         | X           | Excluded   |
| Dericioglu et al. (2013) | EMBASE |               | X        | X        | X        | X         | X           | Excluded   |
| Devereux (2010)       | Ethos             |               | X        | X        | X        | X         | X           | Excluded   |
| Di Summa and Iezzi (2013) | EMBASE |               | X        | X        | X        | X         | X           | Excluded   |
| Dixon (2012)          | Ethos/DART        |               | ✓        | ✓        | ✓        | ✓         | X           | Excluded   |
| Djkucic et al. (2011) | EMBASE            |               | X        | X        | X        | X         | X           | Excluded   |
|   | Authors                          | Database(s)     | Excluded |
|---|----------------------------------|-----------------|----------|
| 68 | Dobson, Leddy, Gangadharan, and Giovannoni (2013) | EMBASE          | Excluded |
| 69 | Dodge, Zitzelberger, Oken, Howieson, and Kaye (2008) | EMBASE          | Excluded |
| 70 | Domahs, Benke, and Delazer (2011) | PsyInfo         | Excluded |
| 71 | Donnellan et al. (2013)          | EMBASE/MEDLINE  | Excluded |
| 72 | Dove, Vezzetti, and Escobar (1994) | EMBASE          | Excluded |
| 73 | Dupont et al. (2010)             | EMBASE          | Excluded |
| 74 | Duschek et al. (2009)            | EMBASE          | Excluded |
| 75 | Elderkin-Thompson, Irwin, Hellemann, and Kumar (2012) | EMBASE/MEDLINE  | Excluded |
| 76 | Enkvist (2013)                   | DART            | Excluded |
| 77 | Erkinjuntti et al. (2008)        | EMBASE          | Excluded |
| 78 | Erkinjuntti et al. (2003)        | EMBASE          | Excluded |
| 79 | Erueti, Glasziou, Mar, and van Driel (2012) | EMBASE          | Excluded |
| 80 | Farner et al. (2009)             | EMBASE          | Excluded |
| 81 | Faunt et al. (1995)              | EMBASE          | Excluded |
| 82 | Feng et al. (2013)               | EMBASE          | Excluded |
| 83 | Figg et al. (2009)               | EMBASE          | Excluded |
| 84 | Figueiredo, Sanders, Gorski, Vilas-Boas, and Fernandes (2013) | EMBASE/MEDLINE  | Excluded |
| 85 | Figueiredo, Pendergast, Vilas-Boas, and Fernandes (2013) | EMBASE          | Excluded |
| 86 | Figueiredo, Toussaint, Vilas-Boas, and Fernandes (2013) | EMBASE          | Excluded |
| 87 | Floel, Hummel, Duque, Knecht, and Cohen (2008) | CINAHL          | Excluded |
| 88 | French and Pedley (2008)         | EMBASE          | Excluded |
| 89 | Fulde (2001)                     | EMBASE          | Excluded |
| 90 | Gabrilove, Perez, Tomita, Rossi, and Cleeland (2007) | EMBASE          | Excluded |

(Continued)
| Study | Database | Stroke/humans/adults | Mentions fatigue | Includes quantitative fatigue assessment | Mentions cognition | Objective quantitative cognitive assessment | Association between fatigue and cognition | Status |
|-------|----------|---------------------|------------------|----------------------------------------|------------------|----------------------------------------|------------------------------------------|--------|
| 91 Gafarov, Gromova, Gagulin, and Pilipenko (2005) | EMBASE | X | X | X | X | X | X | Excluded |
| 92 Gandiga, Hummel, and Cohen (2006) | EMBASE/ MEDLINE | ✓ | ✓ | ✓ | ✓ | ✓ | X | Excluded |
| 93 (Garcia-Pallares, Garcia-Fernandez, Sanchez-Medina, and Izquierdo (2010) | EMBASE | X | X | X | X | X | X | Excluded |
| 94 Geevasinga, Coleman, Webster, and Roger (2006) | EMBASE | X | X | X | X | X | X | Excluded |
| 95 Gershon et al. (2012) | EMBASE/ MEDLINE | X | X | X | X | X | X | Excluded |
| 96 Gibbs (2007) | Ethos | X | X | X | X | X | X | Excluded |
| 97 Ginsberg (1985) | EMBASE | X | X | X | X | X | X | Excluded |
| 98 Girard et al. (2005) | EMBASE | X | X | X | X | X | X | Excluded |
| 99 Glader et al. (2002) | CINAHL | ✓ | ✓ | ✓ | ✓ | ✓ | X | Excluded |
| 100 Goble, Zhang, Shimansky, Sharma, and Dounskaia (2007) | EMBASE | X | X | X | X | X | X | Excluded |
| 101 Goller (2011) | Ethos | X | X | X | X | X | X | Excluded |
| 102 Gorelik and Tampieri (2012) | EMBASE | X | X | X | X | X | X | Excluded |
| 103 Gorgoraptis et al. (2012) | EMBASE | ✓ | ✓ | ✓ | ✓ | ✓ | X | Excluded |
| 104 Gramigna et al. (2007) | EMBASE/ MEDLINE | ✓ | ✓ | ✓ | ✓ | ✓ | X | Excluded |
| 105 Grant (1985) | MEDLINE | ✓ | ✓ | ✓ | ✓ | ✓ | X | Excluded |
| 106 Grant, Glandon, Elliott, Giger, and Weaver (2004) | CINAHL/ EMBASE | X | X | X | X | X | X | Excluded |
| 107 Gravely-Witte, Jurgens, Tamim, and Grace (2010) | EMBASE | X | X | X | X | X | X | Excluded |
| 108 Grazidiio, Tomasevic, Assenza, Tecchio, and Eyre (2012) | EMBASE | ✓ | ✓ | ✓ | ✓ | ✓ | X | Excluded |
| 109 Gustafsson and Turpin (2012) | EMBASE | ✓ | ✓ | ✓ | ✓ | ✓ | X | Excluded |
| 110 Hale and Piggot (2005) | EMBASE | ✓ | ✓ | ✓ | ✓ | ✓ | X | Excluded |
| 111 Halligan, Marshall, and Wade (1993) | MEDLINE | ✓ | ✓ | ✓ | ✓ | ✓ | X | Excluded |
| 112 Hammer and Lindmark (2003) | EMBASE | ✓ | ✓ | ✓ | ✓ | ✓ | X | Excluded |
| 113 | Hanger, Walker, Paterson, McBride, and Sainsbury (1998) | CINAHL/EMBASE | ✓ | ✓ | ✓ | X | X | X | X | X | Excluded |
| 114 | Harboe et al. (2008) | MEDLINE | X | X | X | X | X | X | X | X | Excluded |
| 115 | Harciarek, Williamson, Burtis, Haque, and Heilman (2012) | EMBASE/MEDLINE | X | X | X | X | X | X | X | X | Excluded |
| 116 | Hedlund, Sojka, Lundstrom, and Lindstrom (2012) | EMBASE | ✓ | ✓ | X | X | X | X | X | X | Excluded |
| 117 | Henry, Ad, Martin, Hunt, and Crippen (2009) | EMBASE | X | X | X | X | X | X | X | X | Excluded |
| 118 | Hermans, Marien, and De Deyn (2011) | EMBASE | X | X | X | X | X | X | X | X | Excluded |
| 119 | Hochstenbach et al. (1998) | PsycInfo | ✓ | ✓ | X | X | X | X | X | X | Excluded |
| 120 | Holt, Bull, Cashman, and McGregor (2003) | EMBASE | X | X | X | X | X | X | X | X | Excluded |
| 121 | Hooper, MacKinnon, and Wilson (1995) | EMBASE | X | X | X | X | X | X | X | X | Excluded |
| 122 | Hopkins and Weaver (2001) | EMBASE | X | X | X | X | X | X | X | X | Excluded |
| 123 | Hornery, Farrow, Mujika, and Young (2007) | EMBASE | X | X | X | X | X | X | X | X | Excluded |
| 124 | Hsu et al. (2006) | MEDLINE | ✓ | ✓ | ✓ | ✓ | X | X | X | X | Excluded |
| 125 | Hu, Yuan, and Lu (2013) | EMBASE/MEDLINE | X | X | X | X | X | X | X | X | Excluded |
| 126 | Hubacher et al. (2012) | PsycInfo/EMBASE/MEDLINE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | Included |
| 127 | Hummel et al. (2006) | EMBASE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | X | X | Excluded |
| 128 | Hurwitz et al. (2012) | EMBASE | X | X | X | X | X | X | X | X | Excluded |
| 129 | Ikematsu and Kloos (2012) | EMBASE | X | X | X | X | X | X | X | X | Excluded |
| 130 | Ioannides et al. (2013) | EMBASE | X | X | X | X | X | X | X | X | Excluded |
| 131 | Jasiukeviciene et al. (2008) | MEDLINE | X | X | X | X | X | X | X | X | Excluded |
| 132 | Jatoi et al. (2005) | EMBASE | X | X | X | X | X | X | X | X | Excluded |
| 133 | Johansson, Bjühr, and Rönnbäck (2012) | PsycInfo/EMBASE | X | X | X | X | X | X | X | X | Excluded |
| 134 | Johansson et al. (2012) | PsycInfo/EMBASE/MEDLINE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | Excluded |
| 135 | Feigin et al. (2012) | CINAHL | ✓ | ✓ | ✓ | ✓ | X | X | X | X | Excluded |

(Continued)
| Study | Database | Stroke/humans/ adults | Mentions fatigue | Mentions quantitative fatigue assessment | Mentions cognition | Objective quantitative cognitive assessment | Association between fatigue and cognition | Status |
|-------|----------|-----------------------|------------------|-----------------------------------------|------------------|------------------------------------------|----------------------------------------|--------|
| Jones, McDermott, Nowels, Matlock, and Bekelman (2012) | EMBASE | X | X | X | X | X | X | Excluded |
| Kang, Baek, Kim, and Paik (2009) | MEDLINE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | Excluded |
| Kelly et al. (2006) | MEDLINE | X | X | X | X | X | X | Excluded |
| Kelly, Tungol, and Wesolowicz (2013) | EMBASE | X | X | X | X | X | X | Excluded |
| Kennedy (2011) | EMBASE | X | X | X | X | X | X | Excluded |
| Kim, Ohn, Yang, Park, and Jung (2009) | EMBASE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | Excluded |
| Kim (2012) | EMBASE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | Excluded |
| Kinay, Dubeau, Andermann, and Olivier (2004) | EMBASE | X | X | X | X | X | X | Excluded |
| Kobalava, Kotovskaya, and Moiseev (2008) | EMBASE | X | X | X | X | X | X | Excluded |
| Kofler, Quirbach, Schauer, Singer, and Saltuari (2009) | EMBASE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | Excluded |
| Koopman et al. (2009) | EMBASE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | Excluded |
| Kornerup et al. (2010) | EMBASE | X | X | X | X | X | X | Excluded |
| Kozora, Arciniegas, Zhang, and West (2007) | MEDLINE | X | X | X | X | X | X | Excluded |
| Krsmanovic et al. (2011) | EMBASE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | Excluded |
| Kulmala, Nykanen, Manty, and Hartikainen (2013) | EMBASE | X | X | X | X | X | X | Excluded |
| Kumar et al. (2007) | EMBASE | X | X | X | X | X | X | Excluded |
| Kurihara, Kawakita, Douzono, and Nagasaka (2008) | EMBASE | X | X | X | X | X | X | Excluded |
| Kurillo, Zupan, and Bajd (2004) | EMBASE | X | X | X | X | X | X | Excluded |
| Lagadec (2012) | DART | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | Excluded |
| 155 | Lai, Teel, and Duncan (2001) | EMBASE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | X | Excluded |
| 156 | Lamb, Anderson, Saling, and Dewey (2013) | CINAHL/EMBASE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | X | Excluded |
| 157 | Langer (1994) | EMBASE | ✓ | ✓ | X | X | ✓ | X | X | X | Excluded |
| 158 | Lannfelt et al. (2008) | EMBASE | ✓ | ✓ | X | X | ✓ | X | X | X | Excluded |
| 159 | Lehmann and Kieser (1997) | MEDLINE | X | X | X | X | ✓ | X | X | X | Excluded |
| 160 | Lehmann, van der Crone, Grobe-Einsler, and Linden (1993) | EMBASE/ MEDLINE | ✓ | ✓ | X | X | ✓ | X | X | X | Excluded |
| 161 | Leirdal, Sandbakk, and Ettema (2013) | EMBASE | ✓ | ✓ | X | X | ✓ | X | X | X | Excluded |
| 162 | Levy, Blizzard, Halligan, and Stone (1995) | EMBASE/ MEDLINE | ✓ | ✓ | ✓ | X | X | X | X | X | Excluded |
| 163 | Leyland-Jones et al. (2010) | EMBASE | X | X | X | X | ✓ | X | X | X | Excluded |
| 164 | Liang (2004) | EMBASE | ✓ | ✓ | X | X | ✓ | X | X | X | Excluded |
| 165 | Liu, Thompson and Playford (2004) | EMBASE | X | X | X | X | ✓ | X | X | X | Excluded |
| 166 | Llibre et al. (2014) | EMBASE | X | X | X | X | ✓ | X | X | X | Excluded |
| 167 | Loetscher and Lincoln (2013) | CINAHL | ✓ | ✓ | ✓ | X | X | X | X | X | Excluded |
| 168 | Lord, Rochester, Weatherall, McPherson, and McNaughton (2006) | EMBASE/ MEDLINE | ✓ | ✓ | ✓ | X | X | X | X | X | Excluded |
| 169 | LoVecchio, Pizon, Berrett, and Balls (2007) | EMBASE | ✓ | ✓ | X | X | ✓ | X | X | X | Excluded |
| 170 | Lund (2011) | DART | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | X | Excluded |
| 171 | Lundqvist, Alinder and Rönnberg (2008) | EMBASE/ MEDLINE | ✓ | ✓ | X | X | ✓ | X | X | X | Excluded |
| 172 | Lytinen et al. (2010) | EMBASE | X | X | X | X | ✓ | X | X | X | Excluded |
| 173 | Madden, Nan, Briones, and Waks (2012) | EMBASE | X | X | X | X | ✓ | X | X | X | Excluded |
| 174 | Malagoni et al. (2010) | EMBASE | X | X | X | X | ✓ | X | X | X | Excluded |
| 175 | Mandelzweig, Goldbourt, Boyko, and Tanne (2006) | EMBASE | ✓ | ✓ | X | X | ✓ | X | X | X | Excluded |
| 176 | Mark and Heilman (1997) | EMBASE/ MEDLINE | ✓ | ✓ | X | X | X | X | X | X | Excluded |
| 177 | Marshall, Grinnell, Heisel, Newall, and Hunt (1997) | EMBASE | ✓ | ✓ | X | X | X | X | X | X | Excluded |
| Study | Database | Stroke/humans/adults | Mentions fatigue | Includes quantitative fatigue assessment | Mentions cognition | Objective quantitative cognitive assessment | Association between fatigue and cognition | Status |
|-------|----------|---------------------|------------------|------------------------------------------|------------------|-------------------------------------------|------------------------------------------|--------|
| 178   | Marson et al. (2007) | EMBASE | X | X | X | X | X | X | Excluded |
| 179   | Martinsson and Wahlgren (2003) | EMBASE | ✓ | ✓ | ✓ | X | X | X | Excluded |
| 180   | Mattsson (2011) | DART | X | X | X | X | X | X | Excluded |
| 181   | May, Butt, Minor, Kolbinson, and Tulloch (2003) | EMBASE | X | X | X | X | X | X | Excluded |
| 182   | Mead et al. (2007) | EMBASE | ✓ | ✓ | ✓ | X | X | X | Excluded |
| 183   | Mead et al. (2012) | EMBASE/MEDLINE | ✓ | ✓ | ✓ | X | X | X | Excluded |
| 184   | Medi et al. (2013) | EMBASE | X | X | X | X | X | X | Excluded |
| 185   | Medziavichius, Medziavichene, and Zhaliunas (2005) | EMBASE | X | X | X | X | X | X | Excluded |
| 186   | Mepani et al. (2009) | EMBASE | X | X | X | X | X | X | Excluded |
| 187   | Metellus et al. (1999) | EMBASE | X | X | X | X | X | X | Excluded |
| 188   | Meyer et al. (1997) | MEDLINE | X | X | X | X | X | X | Excluded |
| 189   | Michal et al. (2013) | EMBASE | X | X | X | X | X | X | Excluded |
| 190   | Mills et al. (2012) | EMBASE | ✓ | ✓ | ✓ | X | X | X | Excluded |
| 191   | Milutinovic, Golubovic, Brkic, and Prokes (2012) | EMBASE | X | X | X | X | X | X | Excluded |
| 192   | Mittenberg, Patton, Canyock, and Condit (2002) | EMBASE | X | X | X | X | X | X | Excluded |
| 193   | Mohsenin and Valor (1995) | EMBASE/MEDLINE | ✓ | ✓ | ✓ | X | X | X | Excluded |
| 194   | Molnar (2008) | EMBASE | X | X | X | X | X | X | Excluded |
| 195   | Morais et al. (2012) | EMBASE | ✓ | ✓ | ✓ | X | X | X | Excluded |
| 196   | Morton-Bours, Jacobs, and Albers (2000) | MEDLINE | ✓ | ✓ | ✓ | X | X | X | Excluded |
| 197   | Moulaert, Wachelder, Verbunt, Wade, and van Heugten (2010) | EMBASE | X | X | X | X | X | X | Excluded |
| 198   | Mujika, De Txabarri, Maldonado-Martin, and Pyne (2012) | EMBASE | X | X | X | X | X | X | Excluded |
| 199   | Müller and Poulsen (2008) | CINAHL | ✓ | ✓ | ✓ | X | X | X | Excluded |
| 200   | Naess and Nyland (2013) | EMBASE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | Included |
|   | Study Reference                                      | Databases         | Excluded |
|---|-----------------------------------------------------|-------------------|----------|
| 201 | Naidech et al. (2013)                              | EMBASE            | X X X X X X X X Excluded |
| 202 | Nakagaki et al. (2005)                             | MEDLINE           | X X X X X X Excluded |
| 203 | Nierenberg et al. (2009)                           | EMBASE            | X X X X X X Excluded |
| 204 | Nyenhuis et al. (2004)                             | PsyCInfo          | ✓ X X X X X Excluded |
| 205 | Ogden, Mee, and Utley (1998)                        | MEDLINE           | X X X X X X Excluded |
| 206 | Ogden, Utley, and Mee (1997)                        | MEDLINE           | X X X X X X Excluded |
| 207 | Oizumi et al. (2013)                               | EMBASE            | X X X X X X Excluded |
| 208 | Oldroyd et al. (1995)                              | EMBASE/MEDLINE    | X X X X X X Excluded |
| 209 | Ormstad, Verkerk, Aass, Amthor, and Sandvik (2013) | EMBASE/MEDLINE    | ✓ ✓ X X X X Excluded |
| 210 | Oupra, Griffiths, Pryor, and Mott (2010)           | EMBASE            | ✓ X X X X X Excluded |
| 211 | Park, Chun et al. (2009)                           | EMBASE/MEDLINE    | ✓ ✓ ✓ ✓ ✓ ✓ Excluded |
| 212 | Park, Ko et al. (2009)                             | EMBASE            | X X X X X X Excluded |
| 213 | Parks et al. (2012)                                | EMBASE            | ✓ ✓ ✓ ✓ ✓ X Excluded |
| 214 | Passier, Post et al. (2011)                        | DART/MEDLINE      | X X X X X X Excluded |
| 215 | Passier, Elisabeth, and Agnes (2011)               | EMBASE/DART       | X X X X X X Excluded |
| 216 | Pearson-Fuhrhop, Minton, Acevedo, Shahbaba, and Cramer (2013) | EMBASE | X X X X X X Excluded |
| 217 | Peltonen and Rusko (1993)                          | MEDLINE           | X X X X X X Excluded |
| 218 | Peng, Xu, and Wang (2005)                          | EMBASE            | X X X X X X Excluded |
| 219 | Perrier and Monteil (2004)                         | EMBASE            | X X X X X X Excluded |
| 220 | Perrier, Korner-Bitseny, and Mayo (2010)           | EMBASE            | ✓ ✓ ✓ ✓ ✓ X Excluded |
| 221 | Pestka, Billman, Alexander, and Rosenbland (2002) | EMBASE            | X X X X X X Excluded |
| 222 | Petrovic et al. (2012)                             | EMBASE            | X X X X X X Excluded |
| 223 | Pinheiro and Andrade (2012)                        | EMBASE            | X X X X X X Excluded |
| 224 | Poreisz, Boros, Antal, and Paulus (2007)           | EMBASE            | ✓ ✓ ✓ ✓ ✓ X Excluded |
| 225 | Potts, Charlton, and Smith (2002)                  | EMBASE            | X X X X X X Excluded |
| Study | Database | Stroke/humans/adults | Mentions fatigue | Includes quantitative fatigue assessment | Mentions cognition | Objective quantitative cognitive assessment | Association between fatigue and cognition | Status |
|-------|----------|---------------------|-----------------|-----------------------------------------|-----------------|---------------------------------|---------------------------------|--------|
| 226   | MEDLINE  | X                   | X               | X                                       | X               | X                               | X                               | Excluded |
| 227   | EMBASE   | ✓                   | ✓               | ✓                                       | X               | X                               | X                               | Excluded |
| 228   | EMBASE/ MEDLINE | X              | X               | X                                       | X               | X                               | X                               | Excluded |
| 229   | PsyInfo/ CINAHL/ EMBASE | ✓             | ✓               | ✓                                       | ✓               | ✓                               | ✓                               | Included |
| 230   | EMBASE   | X                   | X               | X                                       | X               | X                               | X                               | Excluded |
| 231   | EMBASE   | X                   | X               | X                                       | X               | X                               | X                               | Excluded |
| 232   | EMBASE   | X                   | X               | X                                       | X               | X                               | X                               | Excluded |
| 233   | EMBASE/ MEDLINE | ✓             | ✓               | ✓                                       | ✓               | ✓                               | ✓                               | Excluded |
| 234   | EMBASE   | X                   | X               | X                                       | X               | X                               | X                               | Excluded |
| 235   | PsyInfo/ EMBASE | ✓             | ✓               | X                                       | X               | X                               | X                               | Excluded |
| 236   | EMBASE   | ✓                   | X               | X                                       | X               | X                               | X                               | Excluded |
| 237   | EMBASE   | ✓                   | ✓               | X                                       | X               | X                               | X                               | Excluded |
| 238   | MEDLINE  | X                   | X               | X                                       | X               | X                               | X                               | Excluded |
| 239   | EMBASE   | ✓                   | ✓               | X                                       | X               | X                               | X                               | Excluded |
| 240   | PsyInfo/ CINAHL/ EMBASE/ MEDLINE | ✓             | ✓               | X                                       | X               | X                               | X                               | Excluded |
| 241   | EMBASE   | X                   | X               | X                                       | X               | X                               | X                               | Excluded |
| 242   | EMBASE   | X                   | X               | X                                       | X               | X                               | X                               | Excluded |
| 243   | EMBASE   | X                   | X               | X                                       | X               | X                               | X                               | Excluded |
|   | Authors and Year | Databases Used | Included/Excluded |
|---|------------------|----------------|-------------------|
| 244 | Rothwell, Boaden, Bamford, and Tyrrell (2013) | CINAHL/EMBASE/MEDLINE | ✓ ✓ X X X X | Excluded |
| 245 | Rowe, Blanton, and Wolf (2009) | EMBASE | ✓ ✓ X X X X | Excluded |
| 246 | Salvarani et al. (2008) | EMBASE | X X X X X X | Excluded |
| 247 | Samper-Ternent et al. (2008) | PsychInfo/EMBASE | X X X X X X | Excluded |
| 248 | Schepers et al. (2006) | CINAHL/DART | ✓ ✓ ✓ ✓ ✓ ✓ | Included |
| 249 | Schneider et al. (2006) | EMBASE | ✓ ✓ ✓ ✓ ✓ | Excluded |
| 250 | Schwartz, Carlucci, Chambless, and Rosamond (2004) | EMBASE | ✓ ✓ X X X X | Excluded |
| 251 | Seifert, Chollet, and Rouard (2007) | EMBASE | X X X X X X | Excluded |
| 252 | Selch et al. (2004) | EMBASE | X X X X X X | Excluded |
| 253 | Seo et al. (2005) | EMBASE | X X X X X X | Excluded |
| 254 | Sibon, Lassalle-Lagadec, Renou, and Swendsen (2012) | EMBASE | ✓ ✓ ✓ ✓ ✓ | X Excluded |
| 255 | Singer, Vallenceb, Cleary, Cooper, and Loftusb (2013) | EMBASE | ✓ ✓ X X X X | X Excluded |
| 256 | Sisson (1995) | CINAHL/EMBASE/MEDLINE | ✓ ✓ X X X X | Excluded |
| 257 | Sisson (1998) | CINAHL | ✓ ✓ X X X X | Excluded |
| 258 | Skånér, Nilsson, Sundquist, Hassler, and Krakau (2007) | EMBASE/MEDLINE | ✓ ✓ ✓ ✓ | X Excluded |
| 259 | Soh (2006) | Ethos | X X X X X X | Excluded |
| 260 | Solberg Nes, Carlson, Crofford, de Leeuw, and Segerstrom (2011) | MEDLINE | X X X X X X | Excluded |
| 261 | Spalletta, Ripa, and Caltagirone (2005) | EMBASE | ✓ ✓ X X X X | X Excluded |
| 262 | Stangier et al. (2009) | MEDLINE | X X X X X X | Excluded |
| 263 | Starr, Whalley, Inch, White, and Hadley (1994) | EMBASE | X X X X X X | Excluded |
| 264 | Steele et al. (1997) | MEDLINE | X X X X X X | X Excluded |
| 265 | Stewart, Tomiak, Shamji, Maziak, and MacLeod (2004) | EMBASE | X X X X X X | Excluded |
| Study                                      | Database | Stroke/humans/adults | Mentions fatigue | Includes quantitative fatigue assessment | Mentions cognition | Objective quantitative cognitive assessment | Association between fatigue and cognition | Status          |
|--------------------------------------------|----------|----------------------|------------------|------------------------------------------|-------------------|--------------------------------------------|------------------------------------------|-----------------|
| 266 Stirn, Jarm, Kapus, and Strojnik (2011)| MEDLINE  | X                    | X                | X                                        | X                 | X                                         | X                                        | Excluded        |
| 267 Stone (2005)                           | EMBASE   | ✓                    | X                | X                                        | X                 | X                                         | X                                        | Excluded        |
| 268 Sundin, Jansson, and Norberg (2000)    | CINAHL   | ✓                    | X                | X                                        | X                 | X                                         | X                                        | Excluded        |
| 269 Sutorova, Kratky, and Adamkov (1987)   | MEDLINE  | COULD NOT BE ACCESSED| X                | X                                        | X                 | X                                         | X                                        | Excluded        |
| 270 Tachimura, Fujita, Yoneda, and Wada (2000) | EMBASE  | ✓                    | X                | X                                        | X                 | X                                         | X                                        | Excluded        |
| 271 Tanaka, Toyonaga, and Hashimoto (2011) | EMBASE   | ✓                    | ✓                | X                                        | X                 | X                                         | X                                        | Excluded        |
| 272 Tanaka, Takeda et al. (2011)           | CINAHL   | ✓                    | ✓                | ✓                                        | ✓                 | ✓                                         | X                                        | Excluded        |
| 273 Tang, Lu et al. (2010)                 | EMBASE/  | ✓                    | ✓                | ✓                                        | ✓                 | ✓                                         | ✓                                        | Included        |
|                                            | MEDLINE  | X                    | X                | X                                        | X                 | X                                         | X                                        | Excluded        |
| 274 Tannir et al. (2006)                   | EMBASE   | X                    | X                | X                                        | X                 | X                                         | X                                        | Excluded        |
| 275 Thavichachart et al. (2006)            | EMBASE   | X                    | X                | X                                        | X                 | X                                         | X                                        | Excluded        |
| 276 Thijs, Felt-Bersma, and ten Kate (1982)| EMBASE   | X                    | X                | X                                        | X                 | X                                         | X                                        | Excluded        |
| 277 Thompson and Ryan (2009)               | CINAHL   | ✓                    | ✓                | X                                        | X                 | X                                         | X                                        | Excluded        |
| 278 Thompson, MacLaren, Lees, and Atkinson (2002) | EMBASE  | X                    | X                | X                                        | X                 | X                                         | X                                        | Excluded        |
| 279 Tierney et al. (2009)                  | EMBASE   | X                    | X                | X                                        | X                 | X                                         | X                                        | Excluded        |
| 280 Tistad (2012)                          | DART     | ✓                    | ✓                | X                                        | X                 | X                                         | X                                        | Excluded        |
| 281 Tobiasch and Chrostek (1981)           | EMBASE/  | X                    | X                | X                                        | X                 | X                                         | X                                        | Excluded        |
|                                            | MEDLINE  | X                    | X                | X                                        | X                 | X                                         | X                                        | Excluded        |
| 282 Tokmakova et al. (2007)                | MEDLINE  | X                    | X                | X                                        | X                 | X                                         | X                                        | Excluded        |
| 283 Toraldo, Laiacona, and Pagani (2012)   | EMBASE   | ✓                    | X                | X                                        | X                 | X                                         | X                                        | Excluded        |
| 284 Tsai et al. (2013)                     | EMBASE   | X                    | X                | X                                        | X                 | X                                         | X                                        | Excluded        |
| 285 Tsalis et al. (2012)                   | EMBASE/  | X                    | X                | X                                        | X                 | X                                         | X                                        | Excluded        |
|                                            | MEDLINE  | X                    | X                | X                                        | X                 | X                                         | X                                        | Excluded        |
| 286 Turhan et al. (2006)                   | EMBASE   | X                    | X                | X                                        | X                 | X                                         | X                                        | Excluded        |
| 287 Tyson et al. (2006)                    | EMBASE   | X                    | X                | X                                        | X                 | X                                         | X                                        | Excluded        |
| ID  | First Name  | Last Name  | Year | Journal in which published | Search Terms | Included/Excluded |
|-----|-------------|------------|------|----------------------------|--------------|------------------|
| 288 | Van de Port | Kwakkel,   | 2008 | CINAHL/EMBASE             | ✓ ✓ ✓ ✓ ✓ ✓ X | Excluded         |
| 289 | Van De Port | Wevers,    | 2012 | EMBASE                     | ✓ ✓ ✓ ✓ ✓ ✓ X | Excluded         |
| 290 | Van de Port | Kwakkel,   | 2012 | DART/ MEDLINE             | ✓ ✓ ✓ ✓ ✓ ✓ X | Excluded         |
| 291 | Van den Burg| et al.     | 1985 | PsycInfo                   | X X X X X X X | Excluded         |
| 292 | Van Der Veld| et al.     | 2008 | EMBASE                     | X X X X X X X | Excluded         |
| 293 | Van der Zee | Visser-Meily, Lindeman, Jaap Kappelle, and Post | 2013 | EMBASE                     | X X X X X X X | Excluded         |
| 294 | Van Wijk    |           | 2006 | DART                       | ✓ ✓ ✓ ✓ ✓ ✓ X | Excluded         |
| 295 | Van Eijsden | et al.     | 2012 | EMBASE                     | ✓ ✓ ✓ ✓ ✓ ✓ ✓ | Included         |
| 296 | Van Zandvoort | Kappelle, Algra, and De Haan | 1998 | EMBASE/ MEDLINE           | ✓ ✓ ✓ X X X X X | Excluded         |
| 297 | Van Zomeren, ten Duis, Minderhoud, and Sipma | 1998 | EMBASE/ MEDLINE           | X X X X X X X | Excluded         |
| 298 | Vargo       |           | 2011 | EMBASE/ MEDLINE            | X X X X X X X | Excluded         |
| 299 | Visser-Meily, Rhebergen, Rinkel, Van Zandvoort, and Post | 2009 | EMBASE                     | X X X X X X X | Excluded         |
| 300 | Walker and Paez |           | 2013 | EMBASE                     | X X X X X X X | Excluded         |
| 301 | Wendel, Risberg, Pessah-Rasmussen, Stahl, and Iwarsson | 2008 | EMBASE/ MEDLINE           | ✓ X X X X X X | Excluded         |
| 302 | Widar, Ek, and Ahlstrom |           | 2004 | EMBASE                     | ✓ ✓ ✓ X X X X X | Excluded         |
| 303 | Williams, Weinberger, Harris, Clark, and Biller | 1999 | MEDLINE                   | ✓ ✓ X X X X X | Excluded         |
| 304 | Winkens et al. |          | 2006 | CINAHL/ EMBASE            | ✓ ✓ ✓ X X X X X | Excluded         |
| 305 | Winkens, Van Heugten, Fasotti, et al. | 2009 | PsycInfo/ CINAHL/ EMBASE/ MEDLINE | ✓ ✓ ✓ ✓ ✓ ✓ ✓ | Included         |
| 306 | Winkens, Van Heugten, Wade, Habets, and Fasotti | 2009 | EMBASE/CINAHL             | ✓ ✓ ✓ ✓ ✓ ✓ X | Excluded         |
| Study                        | Database               | Stroke/humans/adults | Mentions fatigue | Includes quantitative fatigue assessment | Mentions cognition | Objective quantitative cognitive assessment | Association between fatigue and cognition | Status   |
|-----------------------------|------------------------|----------------------|------------------|------------------------------------------|-------------------|---------------------------------------------|--------------------------------------------|----------|
| 307 Winward, Sackley, Metha, and Rothwell (2009) | CINAHL/EMBASE         | X                    | X                | X                                        | X                 | X                                           | X                                         | Excluded |
| 308 Wohlrab, Frances, and Sullivan (2006)       | EMBASE                | X                    | X                | X                                        | X                 | X                                           | X                                         | Excluded |
| 309 Wolfe et al. (2009)       | EMBASE                | ✓                    | ✓                | ✓                                        | ✓                 | ✓                                           | X                                         | Excluded |
| 310 Wu, Liu, Zhang, Li, and Wang (2008)         | EMBASE                | ✓                    | ✓                | ✓                                        | ✓                 | ✓                                           | X                                         | Excluded |
| 311 Yamanaka et al. (2011)    | EMBASE                | X                    | X                | X                                        | X                 | X                                           | X                                         | Excluded |
| 312 Yang and Kong (2013)      | EMBASE                | ✓                    | ✓                | ✓                                        | ✓                 | ✓                                           | X                                         | Excluded |
| 313 Yoshimura, Abe, and Terao (1994)             | EMBASE                | X                    | X                | X                                        | X                 | X                                           | X                                         | Excluded |
| 314 Yoshino et al. (2013)     | EMBASE                | X                    | X                | X                                        | X                 | X                                           | X                                         | Excluded |
| 315 Youmans (2012)            | EMBASE                | ✓                    | ✓                | ✓                                        | X                 | X                                           | X                                         | Excluded |
| 316 Zajicek et al. (2005)     | EMBASE                | X                    | X                | X                                        | X                 | X                                           | X                                         | Excluded |
| 317 Zakharov (2010)           | EMBASE/EMBASE/PSYCHINFO/CINAHL | ✓     | X                | X                                        | X                 | X                                           | X                                         | Excluded |
| 318 Zwinkels, Geusgens, van de Sande, and van Heugten (2004) | CINAHL                | ✓                    | X                | X                                        | X                 | X                                           | X                                         | Excluded |

Papers Excluded Because of Each Criterion

- 191
- 57
- 13
- 4
- 19
another (Kutluabaev et al., 2013) was identified in the reference list of a narrative review; they were both included. These papers are summarised in Table 2.

Conducting a search on Web of Science of the citation indexes of these 11 papers identified a further 149 papers which were also assessed against the inclusion criteria. There were no duplicates among these 149 papers, however there were some duplicates of papers already identified in the initial search \((n = 57)\), which were removed. Of the remaining 92 papers, none met the criteria and were excluded for either not having stroke patients \((n = 12)\), not using the term fatigue \((n = 16)\), not assessing fatigue \((n = 25)\), not including any cognitive domain \((n = 26)\), not assessing cognition \((n = 0)\) or not assessing the relationship between fatigue and cognition.

![Study flow diagram](image-url)
| Study  | Source                        | Stroke/ humans/ adults | Mentions fatigue | Includes quantitative fatigue assessment | Mentions cognition | Objective quantitative cognitive assessment | Association between fatigue and cognition | Status   |
|--------|-------------------------------|------------------------|------------------|------------------------------------------|-------------------|--------------------------------------------|------------------------------------------|----------|
| 320    | Johansson and Rönnback (2012) | Web                    | ✓                | ✓                                        | ✓                 | ✓                                          | ✓                                        | Included |
| 321    | Naess et al. (2005)           | Reference Lists        | ✓                | ✓                                        | ✓                 | ✓                                          | ✓                                        | Included |
| 322    | Kutlubaev et al. (2013)       | Reference Lists of A Review | ✓                | ✓                                        | ✓                 | ✓                                          | ✓                                        | Included |
TABLE 3. Papers generated from searching citation index of included papers.

| Study | Cited in | Stroke/humans/stroke patients/adults | Mentions fatigue | Includes quantitative fatigue assessment | Mention cognition | Objective quantitative cognitive assessment | Association between fatigue and cognition | Status |
|-------|----------|------------------------------------|------------------|------------------------------------------|------------------|---------------------------------|---------------------------------|--------|
| Kutlubaev et al. (2013) | 1 Acciarresi, Bogousslavsky, and Paciaroni (2014) | ✓ | ✓ | X | X | X | X | Excluded |
| 2 Michael (2004) | ✓ | ✓ | ✓ | X | X | X | X | Excluded |
| 3 Pihlaja, Uimonen, Mustanoja, Tatlisumak, and Poutiainen (2014) | ✓ | ✓ | ✓ | ✓ | ✓ | X | Excluded |
| Naess et al. (2005) | 4 Brainin and Pinter (2012) | ✓ | ✓ | X | X | X | X | Excluded |
| 5 Flinn and Stube (2010) | ✓ | ✓ | X | X | X | X | X | Excluded |
| 6 Harbison, Walsh, and Kenny (2009) | ✓ | ✓ | ✓ | X | X | X | X | Excluded |
| 7 Johansson, Kottorp, Lee, Gay, and Lerdal (2014) | ✓ | ✓ | ✓ | ✓ | X | X | X | Excluded |
| 8 Knoflach et al. (2012) | ✓ | ✓ | ✓ | ✓ | X | X | X | Excluded |
| 9 Kutlubaev and Akhmadeeva (2010) | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | X | Excluded |
| 10 Lerdal and Gay (2013) | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | X | Excluded |
| 11 Lewis et al. (2011) | ✓ | ✓ | ✓ | ✓ | X | X | X | Excluded |
| 12 Maaijwee, Rutten-Jacobs, Schaapsmeerders, van Dijk, and de Leeuw (2014) | ✓ | X | X | X | X | X | X | Excluded |
| Naess (2009) | ✓ | X | X | X | X | X | X | Excluded |
| Naess, Beiske, and Myhr (2008) | ✓ | ✓ | ✓ | ✓ | X | X | X | Excluded |
| Naess, Waje-Andreassen, Thomassen, Nyland, and Myhr (2006) | ✓ | ✓ | ✓ | ✓ | X | X | X | Excluded |
| Ormstad, Verkerk, Amthor, and Sandvik (2014) | ✓ | ✓ | ✓ | ✓ | X | X | X | Excluded |
| Paolucci (2013) | ✓ | ✓ | ✓ | X | X | X | X | Excluded |
| Townsend, Brady, and McLaughlan (2007) | ✓ | X | X | X | X | X | X | Excluded |

(Continued)
| Study Cited in | Stroke/humans/stroke patients/adults | Mentions fatigue | Includes quantitative fatigue assessment | Mention cognition | Objective quantitative cognitive assessment | Association between fatigue and cognition | Status |
|---------------|------------------------------------|-----------------|-----------------------------------------|------------------|-------------------------------------------|------------------------------------------|--------|
| Park, Chun et al. (2009) | ✓ | ✓ | ✓ | ✓ | ✓ | X | Excluded |
| Bakken, Kim, Finset, and Lerdal (2012) | ✓ | ✓ | ✓ | ✓ | X | X | Excluded |
| Buijck, Zuidema, Spruit-van Eijk, Geurts, and Koopmans (2012) | X | X | X | X | X | X | Excluded |
| Butt et al. (2013) | ✓ | ✓ | ✓ | ✓ | X | X | Excluded |
| Cereda, Manconi, and Bassetti (2012) | ✓ | ✓ | ✓ | X | X | X | Excluded |
| Duncan, Wu, and Mead (2012) | ✓ | ✓ | ✓ | X | X | X | Excluded |
| Gustafsson and McKenna (2010) | ✓ | ✓ | ✓ | X | X | X | Excluded |
| Hansson, Beckman, Wihlbo, Persson, and Troein (2010) | ✓ | ✓ | ✓ | X | X | X | Excluded |
| Hsieh, Hoffmann, Gustafsson, and Lee (2012) | ✓ | ✓ | ✓ | X | X | X | Excluded |
| Morris, van Wijck, Joice, and Donaghy (2013) | ✓ | ✓ | ✓ | X | X | X | Excluded |
| Nabavi et al. (2013) | X | X | X | X | X | X | Excluded |
| Robinson, Shumway-Cook, Ciol, and Martin (2011) | ✓ | ✓ | ✓ | ✓ | X | X | Excluded |
| White et al. (2012) | ✓ | ✓ | ✓ | X | X | X | Excluded |
| Widerström-Noga and Finlayson (2010) | ✓ | ✓ | ✓ | X | X | X | Excluded |
| Schepers et al. (2006) | ✓ | ✓ | ✓ | ✓ | ✓ | X | Excluded |
| Zedlitz, Fasotti, and Geurts (2011) | ✓ | ✓ | ✓ | X | X | X | Excluded |
| Berthier et al. (2013) | ✓ | ✓ | ✓ | X | X | X | Excluded |
| Brodtmann and van de Port (2013) | ✓ | ✓ | ✓ | X | X | X | Excluded |
| Kutlubaev and Mead (2012) | ✓ | ✓ | ✓ | X | X | X | Excluded |
| Sáez-Francàs, Hernández-Vara, Corominas Roso, Alegre Martin, and Casas Brugué (2013) | X | X | X | X | X | X | Excluded |
| Andersen et al. (2012) | ✓ | ✓ | ✓ | ✓ | ✓ | X | Excluded |
| Annoni et al. (2008) | ✓ | ✓ | ✓ | X | X | X | Excluded |
| Anton, Miller, and Townson (2008) | X | X | X | X | X | X | Excluded |
| Boyko et al. (2013) | ✓ | ✓ | ✓ | X | X | X | Excluded |
| Brola, Ziomek, and Czernicki (2007) | ✓ | ✓ | ✓ | X | X | X | Excluded |
| Brusse, Brusse-Keizer, Duivenvoorden, and van Swieten (2011) | X | X | X | X | X | X | Excluded |
| Cantor et al. (2012) | X | X | X | X | X | X | Excluded |
|   | Authors                                         | 2011 | 2006 | 2012 | 2007 | 2009 | 2010 | 2011 | 2013 | 2012 | 2012 | 2012 | 2012 | Excluded |
|---|------------------------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|----------|
| 44 | Choi-Kwon and Kim                               | ✓    | ✓    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | Excluded |
| 45 | Colle, Bonan, Leman, Bradai, and                | ✓    | ✓    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | Excluded |
|    | Yelnik (2006)                                   |      |      |      |      |      |      |      |      |      |      |      |      |          |
| 46 | Crosby, Munshi, Karat, Worthington, and        | ✓    | ✓    | ✓    | X    | X    | X    | X    | X    | X    | X    | X    | X    | Excluded |
|    | Lincoln (2012)                                  |      |      |      |      |      |      |      |      |      |      |      |      |          |
| 47 | Damush, Plue, Bakas, Schmid, and Williams       | ✓    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | Excluded |
| 48 | Erickson, Gharbawie, and Whishaw                | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | Excluded |
| 49 | Flinn and Stube                                 | ✓    | ✓    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | Excluded |
| 50 | Gencay-Can and Can                             | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | Excluded |
| 51 | Green and King                                  | ✓    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | Excluded |
| 52 | Green and King                                  | ✓    | ✓    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | Excluded |
| 53 | Jaracz et al.                                   | ✓    | ✓    | ✓    | ✓    | X    | X    | X    | X    | X    | X    | X    | X    | Excluded |
| 54 | Johansson, Starmark, Berglund, Rödholm, and     | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | Excluded |
|    | Rönnbäck (2010)                                 |      |      |      |      |      |      |      |      |      |      |      |      |          |
| 55 | Duncan, Kutlubaev, et al.                       | ✓    | ✓    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | Excluded |
| 56 | Duncan, Wu, et al.                              | ✓    | ✓    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | Excluded |
| 57 | Hoang et al.                                    | ✓    | ✓    | ✓    | ✓    | X    | X    | X    | X    | X    | X    | X    | X    | Excluded |
| 58 | Kirkevold et al.                                | ✓    | ✓    | ✓    | X    | X    | X    | X    | X    | X    | X    | X    | X    | Excluded |
| 59 | Kouwenhoven, Gay, Bakken, and Lerdal (2013)     | ✓    | ✓    | ✓    | X    | X    | X    | X    | X    | X    | X    | X    | X    | Excluded |
| 60 | Lerdal et al.                                   | ✓    | ✓    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | Excluded |
| 61 | Lerdal and Kottorp (2009)                       | ✓    | ✓    | ✓    | ✓    | ✓    | ✓    | ✓    | ✓    | ✓    | ✓    | ✓    | ✓    | Excluded |
| 62 | Lerdal et al. (2011)                            | ✓    | ✓    | ✓    | ✓    | ✓    | ✓    | ✓    | ✓    | ✓    | ✓    | ✓    | ✓    | Excluded |
| 63 | Leung et al.                                    | ✓    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | Excluded |
| 64 | Levine and Greenwald (2009)                     | ✓    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | Excluded |
| 65 | Lewis et al.                                    | ✓    | ✓    | ✓    | ✓    | ✓    | ✓    | ✓    | ✓    | ✓    | ✓    | ✓    | ✓    | Excluded |
| 66 | McGeough et al.                                 | ✓    | ✓    | ✓    | X    | X    | X    | X    | X    | X    | X    | X    | X    | Excluded |
| 67 | Mead et al.                                     | ✓    | ✓    | ✓    | ✓    | X    | X    | X    | X    | X    | X    | X    | X    | Excluded |
| 68 | Naess, Lunde, Brogger, and Waje-Andreasen (2012) | ✓    | ✓    | ✓    | ✓    | X    | X    | X    | X    | X    | X    | X    | X    | Excluded |
| 69 | Olai, Borgquist, and Svardudd (2012)            | ✓    | ✓    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | Excluded |
| 70 | Ormstad, Aass, Amthor, Lund-Sorensen, and Sandvik (2011) | ✓    | ✓    | ✓    | ✓    | X    | X    | X    | X    | X    | X    | X    | X    | Excluded |
| 71 | Ormstad, Aass, Amthor, Lund-Sorensen, and Sandvik (2012) | ✓    | ✓    | ✓    | ✓    | X    | X    | X    | X    | X    | X    | X    | X    | Excluded |

(Continued)
| Study | Cited in | Stroke/humans/ stroke patients/ adults | Mentions fatigue | Includes quantitative fatigue assessment | Mention cognition | Objective quantitative cognitive assessment | Association between fatigue and cognition | Status |
|-------|----------|----------------------------------------|------------------|------------------------------------------|-------------------|---------------------------------------------|------------------------------------------|--------|
| 72    | Russell, Dempster, and Donnelly (2010) | ✓ | ✓ | ✓ | ✓ | ✓ | X | Excluded |
| 73    | Schepers et al. (2009) | ✓ | ✓ | ✓ | ✓ | ✓ | X | Excluded |
| 74    | Snaphaan, van der Werf, and de Leeuw (2011) | ✓ | ✓ | ✓ | ✓ | ✓ | X | Excluded |
| 75    | Sieh, Meijer, and Visser-Meily (2010) | X | X | X | X | X | X | Excluded |
| 76    | Tang, Chen et al. (2010) | ✓ | ✓ | ✓ | X | X | X | Excluded |
| 77    | Thompson and Ryan (2009) | ✓ | X | X | X | X | X | Excluded |
| 78    | Tseng and Kluding (2009) | ✓ | ✓ | ✓ | X | X | X | Excluded |
| 79    | Van de Port, Kwakkel, Bruin, and Lindeman (2007) | ✓ | ✓ | ✓ | X | X | X | Excluded |
| 80    | Van de Port, Kwakkel, Schepers et al. (2007) | ✓ | ✓ | ✓ | ✓ | ✓ | X | Excluded |
| 81    | Van de Port, Visser-Meily, Post, and Lindeman (2007) | X | X | X | X | X | X | Excluded |
| 82    | Vuletic, Lezaic, and Morovic (2011) | ✓ | ✓ | ✓ | X | X | X | Excluded |
| 83    | Wachelder et al. (2009) | X | X | X | X | X | X | Excluded |
| 84    | Warren (2008) | ✓ | X | X | X | X | X | Excluded |
| 85    | Yorkston, Johnson, Boesflug, Skala, and Amtmann (2010) | ✓ | ✓ | ✓ | X | X | X | Excluded |
| 86    | Zedlitz, Rietveld, Geurts, and Fasotti (2012) | ✓ | ✓ | ✓ | X | X | X | Excluded |
| Tang, Lu et al. (2010) | Carod-Artal (2012) | ✓ | ✓ | X | X | X | X | Excluded |
| 88    | Kutlubaev et al. (2012) | ✓ | ✓ | X | X | X | X | Excluded |
| 89    | Miller et al. (2013) [also cited in Schepers] | ✓ | ✓ | ✓ | ✓ | ✓ | X | Excluded |
| 90    | Tang, Lu, Mok, Ungvari, and Wong (2011) | ✓ | ✓ | ✓ | ✓ | ✓ | X | Excluded |
| Winkens, Van Heugten, Fasotti, and et al. (2009) | 91 Winkens, Van Heugten, Fasotti, and Wade (2011) | ✓ | ✓ | X | X | X | X | Excluded |
| 92    | Winkens, Van Heugten, Wade, et al. (2009) | ✓ | ✓ | ✓ | ✓ | ✓ | X | Excluded |
(n = 13). Table 3 summarises all papers and the reason of their exclusion. Figure 1 outlines the study selection process. In total, 11 studies fulfilled the inclusion criteria. Tables 4–7 summarise these studies.

Demographic characteristics

Overall, the studies provided data on 1597 participants post-stroke, 982 men (62%) and 615 women (38%). Generally, the studies had a small sample and only two (Tang, Lu et al., 2010; Van Eijsden et al., 2012) had more than 200 participants. Of the total, 809 (51%) participants had ischaemic stroke, 197 (12%) haemorrhagic stroke and 591 (40%) were unspecified; 206 (13%) participants had a recurrent stroke whereas the rest had a first stroke. Of the total, 331 (22%) participants suffered a right hemisphere stroke, 270 (18%) a left hemisphere stroke and 35 (2.3%) were non-lateralised, bilateral 4 (0.3%), subcortical 20 (1.3%), brainstem 3 (0.2%), cerebellum 3 (0.2%), or other 5 (0.3%). Four studies (Kutlubaev et al., 2013; Naess et al., 2005; Naess & Nyland, 2013; Tang, Lu et al., 2010) did not provide information on lateralisation and one study (Winkens, Van Heugten, Fasotti, et al., 2009) reported missing data for 852 participants (57%). Two participants had suffered an SAH (0.1%).

Five hundred and thirty eight (36%) of the participants had a major comorbidity, as reported by five studies (Johansson & Rönnbäck, 2012; Naess et al., 2005; Naess & Nyland, 2013; Park, Chun et al., 2009; Schepers et al., 2006). Four studies mentioned hypertension, hypertonia, diabetes mellitus and cardiovascular diseases, migraine and depression, whereas one did not specify these. Seven studies did not report comorbidities.

| Study                                      | N   | Age (years) | Gender (%) | Marital status | Education        | Country                      |
|--------------------------------------------|-----|-------------|------------|----------------|-------------------|------------------------------|
| Hubacher et al. (2012); QI: 14              | 31  | 59.9 ± 10.3 | 81 ± 19    | NS             | Secondary: 5 ± 16 College: 20 ± 7 | Switzerland and Germany     |
| Johansson and Rönnbäck (2012); QI: 14      | 24  | 54.2 ± 7.0  | 45.8 ± 54.1| NS             | Years spent in education: 14.8 ± 2.8 | Sweden                      |
| Kutlubaev et al. (2013); QI: 14             | 107 | 70.5 ± 15   | 62 ± 38    | NS             | NS                | UK                          |
| Naess and Nyland (2013); QI: 14             | 190 | 47.2 ± 8.3  | 57 ± 43    | Married: 27%   | Higher education: 86% | Norway                      |
| Naess et al. (2005); QI: 14                 | 192 | 47.8 ± 10   | 57.3 ± 46.3| NS             | Higher education: 29.7% | Norway                      |
| Park, Chun et al. (2009); QI: 13            | 40  | 59.9 ± 11.8 | 66 ± 35    | With partner: 82.5% | NS                | Korea                       |
| Radman et al. (2012); QI: 13                | 109 | 51.1 ± 13.8 | 66 ± 34    | NS             | NS                | Switzerland                 |
| Schepers et al. (2006); QI: 14              | 167 | 56.4 ± 11.4 | 59 ± 41    | With partner: 73.7% | NS                | The Netherlands             |
| Tang, Lu et al. (2010); QI: 14              | 458 | 66.2 ± 11.7 | 61.6 ± 38.4| Married: 74.6% | Years spent in education: 5 ± 3 | Hong Kong                  |
| Van Eijsden et al. (2012); QI: 9            | 242 | 57.1 ± 10.3 | 64.9 ± 35.1| With partner: 82.8% | NS                | The Netherlands             |
| Winkens, Van Heugten, Fasotti, et al. (2009)| 37  | 54.8 ± 12.1 | 70.27 ± 29.7| NS             | Primary: 40.5% Secondary: 29.8% Higher: 29.8% | The Netherlands             |

Males ± females; Mean ± SD; Median; Mean; NS: Not Specified;
Sample sizes ranged from 24 to 458. The mean age in studies ranged from 47.2 (SD = 8.3) to 66.2 (SD = 11.7) years (median values ranged from 47.8 to 70.5). The time since stroke onset at recruitment ranged from 7 days to 18 years, with one study (Hubacher et al., 2012) not reporting this information.

One study (Tang, Lu et al., 2010) reported a median of 5 years (range 0–25) and another (Johansson & Rönnbäck, 2012) a mean of 14.8 years (SD = 2.8) spent in education, and information from three other studies (Hubacher et al., 2012; Naess & Nyland, 2013; Winkens, Van Heugten, Fasotti, et al., 2009) indicated that 150 participants had attended higher, 16 secondary and 15 primary education. Five studies did not provide relevant information on education. The proportion of married participants was reported in five studies and ranged from 27 to 83%. Six studies did not report

### Table 5. Participants’ medical characteristics.

| Study                                      | Stroke type                   | Previous stroke | Comorbidities                          | Time since stroke onset | Source                      |
|--------------------------------------------|-------------------------------|-----------------|----------------------------------------|-------------------------|-----------------------------|
| Hubacher et al. (2012); QI: 14             | 90% ± 10%                     | First: 23 ± 74  | NS                                     | NS                      | 8 rehabilitation centres   |
|                                            |                               | Second: 4 ± 13  |                                       |                         |                             |
|                                            |                               | Third: 2 ± 7    |                                       |                         |                             |
| Johansson and Rönnbäck (2012); QI: 14     | SAH: 2; Left: 3; Right: 6;    | 16.6%           | Hypertonia (% NS)                      | 6.1 ± 7.1 years         | Hospital and community     |
|                                            | Brainstem: 3; Cerebellum: 3;  |                 |                                       |                         |                             |
|                                            | 30% ± 8.4%                    |                 |                                       |                         |                             |
| Kutluabaev et al. (2013); QI: 14          | Ischaemic                     | No              | Myocardial Infarct: 47%; Diabetes: 65%| 18 years                | Community database         |
| Naess and Nyland (2013); QI: 14            | Cerebral infarction           | Yes, 9.4%       | Depression: 38.6%; Migraine: 17.9%;   | 6 years                 | Hospital registry          |
|                                            |                               |                 | Myocardial infarction: 10.0%; Angina  |                         |                             |
|                                            |                               |                 | pectoris: 5.8%; Diabetes mellitus:    |                         |                             |
|                                            |                               |                 | 11.1%; Hypertension: 35.8%            |                         |                             |
| Park, Chun et al. (2009); QI: 13          | 62.5% ± 37.5%                 | No              | Hypertension: 72.5%; Diabetes mellitus:| 37.2 ± 27.4             | Rehabilitation centre      |
|                                            |                               |                 | 32.5%; Cardiac disease: 17.5%         |                         |                             |
| Radman et al. (2012); QI: 13               | NS                            | No              | No                                     | 7 days                  | Acute stroke unit          |
|                                            |                               |                 |                                       |                         | 4 rehabilitation centres   |
| Schepers et al. (2006); QI: 14             | 68.9% ± 31.1%                 | No              | 55.1% (Comorbidities NS)               | 1 year post-stroke      | 3 months                   |
|                                            |                               |                 |                                       |                         | Rehabilitation centre      |
| Tang, Lu et al. (2010); QI: 14             | NS                            | Recurrent:      | No                                     | 97.0 ± 46.9             | Acute stroke unit          |
|                                            |                               | 21.4% Recurrent:|                                       |                         | Rehabilitation centre      |
|                                            |                               | 9.5%            |                                       |                         |                             |
| Van Eijsden et al. (2012); QI: 9          | 80.9% ± 19.1                  | Recurrent:      | No                                     | 234 ± 160               | 5 rehabilitation centres   |
|                                            |                               | 21.4% Recurrent:|                                       |                         |                             |
|                                            |                               | 9.5%            |                                       |                         |                             |
| Winkens, Van Heugten, Fasotti, et al. (2009); QI: 13 | 83.78% ± 16.21%               | Previous:       | No                                     |                         |                             |
|                                            |                               | 32.4%           |                                       |                         |                             |

Ischaemic ± Haemorrhagic; Mean ± SD; Median; Mean; r: NS: Not Specified; SAH: Subarachnoid Haemorrhage
marital status (Hubacher et al., 2012; Johansson & Rönnbäck, 2012; Naess et al., 2005; Radman et al., 2012; Winkens, Van Heugten, Fasotti, et al., 2009).

**Settings, design and quality assessment**

Time since stroke onset at baseline assessment ranged from 7 days to 18 years. Six studies had a follow-up in their design and two did not (Park, Chun et al., 2009; Tang, Lu et al., 2010), however, one of the longitudinal studies (Naess & Nyland, 2013) only recorded mortality at follow-up, with no data available for fatigue at that time. Time of follow-up ranged from 2 weeks to 1 year post-stroke. Seven studies were single centre and four studies were multicentre. Two studies were conducted in Asia (Park, Chun et al., 2009; Tang, Lu et al., 2010) and the rest were conducted in Western Europe. Ten studies were considered to be of high quality according to the CASP list (Table 3).

**Fatigue**

Seven studies used one assessment of fatigue and three used more than one instrument (Hubacher et al., 2012; Tang, Lu et al., 2010; Winkens, Van Heugten, Fasotti, et al., 2009). Eight studies used the Fatigue Severity Scale (fatigue severity; FSS) (Krupp, LaRocca,
Muir-Nash, & Steinberg, 1989); the remaining studies each used a different scale (see Table 6).

In the eight studies using the FSS, the mean fatigue score ranged from 3.1 \((SD = 1.4)\) to 4.1 \((SD = 1.7)\). Three studies (Hubacher et al., 2012; Johansson & Rönnbäck, 2012;
Winkens, Van Heugten, Fasotti, et al., 2009) measured cognitive fatigue whereas eight only reported overall fatigue. Three of the six longitudinal studies reported that fatigue remained stable over time whereas three studies (Hubacher et al., 2012; Scheipers et al., 2006; Winkens, Van Heugten, Fasotti, et al., 2009) reported that fatigue increased over time (Table 6). According to cut-off scores, 900 (57%) participants were not fatigued and 697 (44%) participants were fatigued.

Cognitive impairment

Seven studies used the Mini Mental State Examination (MMSE; Folstein, Folstein, & McHugh, 1975) (Naess & Nyland, 2013; Park, Chun et al., 2009; Tang, Lu et al., 2010; Van Eijsden et al., 2012). Three studies used the Trail Making Test–Parts A and B (mental flexibility, visual search, speed of information processing and executive functions) (Army Individual Test Battery, 1944) (Johansson & Rönnbäck, 2012; Schepers et al., 2006; Winkens, Van Heugten, Fasotti, et al., 2009) to assess executive function. The rest are summarised in Table 7. The mean score on the MMSE across three studies (Naess & Nyland, 2013; Park, Chun et al., 2009; Van Eijsden et al., 2012) ranged from 28.0 (SD = 1.7) to 28.2 (SD = 2.1). Three studies (Kutlubaev et al., 2013; Scheipers et al., 2006; Tang, Lu et al., 2010) reported that median on the MMSE ranged from 27 to 28. One study (Naess et al., 2005) reported that the majority of their participants scored ≥ 28 on the MMSE. The mean scores in the studies that used Trail Making Test ranged from 40.4 to 62.8 for Task A and from 83.7 to 153.9 for Task B with median of 123 for task B. All scores are presented in Table 7.

Correlations between fatigue and cognition after stroke

Table 8 summarises the correlations between measures of fatigue and measures of cognitive function. Seven studies (Kutlubaev et al., 2013; Naess et al., 2005; Naess & Nyland, 2013; Park, Chun et al., 2009; Schepers et al., 2006; Van Eijsden et al., 2012; Winkens, Van Heugten, Fasotti, et al., 2009) found no significant correlation (p < .05) between cognitive variables and fatigue whereas four found significant correlations (Hubacher et al., 2012; Johansson & Rönnbäck, 2012; Radman et al., 2012; Tang, Lu et al., 2010). The correlation between cognition and fatigue after stroke ranged from $r = −.36$ to $.54$ (Table 8). Significant correlations were found with Symbol Digit in two studies (Hubacher et al., 2012; Johansson & Rönnbäck, 2012) ($r = −.44$, $r = −.52$, $r = −.59$) and with speed of information processing in two studies (Hubacher et al., 2012; Johansson & Rönnbäck, 2012) ($r = −.50$ to $.46$). Significant correlations were also found with Selective Reminding Test (SRT) (verbal memory) and Word List Generation (WLG) (semantic verbal fluency). The Modified Fatigue Impact Scale (MFIS) cognitive sub-scale revealed four significant correlations with the cognitive tests, whereas the motor sub-scale was only correlated with mental speed. The cognitive sub-scale of the Fatigue Scale for Motor and Cognitive Function (FSMC) revealed four significant correlations with the cognitive tests, whereas the motor sub-scale revealed three.

Of the 77 correlation coefficients calculated, 21 were significant and 56 were not. Overall, the above coefficients suggest that there is an association between concentration, sustained attention, speed of information processing, memory retrieval and verbal fluency and fatigue after stroke, but not with global cognitive impairment.
The majority of the correlations between cognition and fatigue after stroke were not significant \((p > .05)\). Only four of the 11 studies revealed significant correlations between fatigue and divided attention, sustained attention, speed of information processing, long-term memory and concentration. The studies revealed either non-significant or weak to moderate correlations. Non-significant or weak significant correlations between cognition and fatigue could potentially be attributed to participants in the sample having low levels of fatigue or minimal cognitive impairment.

With regard to fatigue, the majority of the studies used the FSS to measure fatigue. The mean fatigue score across the studies was 4.0 on the FSS, indicating that fatigue was low in their samples. Four out of eight studies reported a mean FSS of 4.0 or slightly above, all of which were only just above the cut-off (e.g., 4.1). The Fatigue Assessment Instrument (FAI) classified severe fatigue as any score above 4 (Radman et al., 2012). The studies that used FAI reported a mean of 3.2, also a low level of fatigue.

The majority of the studies used the MMSE (Folstein et al., 1975). Of these, three reported a mean score of around 28, and the rest (three) reported a median of 27 or 28, which shows that the majority of the participants did not have dementia. That
indicates that the majority of participants (88%) were not considered to be cognitively impaired on the MMSE. The MMSE is a screening assessment of global cognitive status (Folstein et al., 1975) and does not assess adequately executive functions, visuospatial functions and attention (Radman et al., 2012; Woodford & George, 2007). It is therefore not suitable for assessing cognitive impairment after stroke, which frequently affects these functions (Cumming, Marshall, & Lazar, 2013). It is also well recognised that the MMSE is not sensitive to cognitive impairment after stroke (Blake, McKinney, Treece, Lee, & Lincoln, 2002; Nys et al., 2005) and many of the participants in the studies that used the MMSE may have been misclassified as not impaired. Therefore the majority of the studies used an insensitive test of cognition and this may compromise the assessment of the relationship between cognition and fatigue. The results are similar to these of another systematic review (Ponchel et al., 2015) which examined the effect of cognitive disorders on post-stroke fatigue.

Of the 21 significant correlation coefficients (plus unspecified number of correlations from Radman et al., 2012), 18 came from the same study (Hubacher et al., 2012) which used the FSMC and the MFIS that consider cognitive manifestations of fatigue. These scales may be better at assessing cognitive aspects of fatigue because they were developed with this aim. Therefore such scales are more likely to correlate significantly with cognitive impairment. For instance, the MFIS includes items such as: “I have been forgetful” (targeting memory), “I had trouble concentrating” (which targets attention), and “My thinking has been slowed down” (speed of information processing), and the FSMC items such as: “My powers of concentration decrease considerably when I’m under stress” (attention) and “During episodes of exhaustion, I am noticeably more forgetful” (memory). When the scores are separated for cognitive and motor sub-scales within the scales (Table 8) of the 18 significant correlations, 8 are attributed to the cognitive components of fatigue being correlated with cognitive impairment. More general fatigue scales such as the FSS, did not reveal such relationships. This could be due either to the cognitive measures used (mostly the MMSE in these studies) or to the fact that the FSS does not measure cognitive components of fatigue. Fatigue scales that consider cognitive symptoms may reflect subjective cognitive complaints rather than fatigue. Only two studies (Radman et al., 2012; Tang, Lu et al., 2010) revealed a significant association between fatigue and cognition without measuring the cognitive aspects of fatigue (the former used the FAI and the latter the SF-36: vitality).

The results seem to be in accordance with studies in other medical conditions. For instance, studies in cancer patients undergoing chemotherapy (Castellon et al., 2004; Tchen et al., 2003; Vardy, 2008), HIV/AIDS patients (Millikin, Rourke, Halman, & Power, 2002), multiple sclerosis patients (Jougleux-Vie et al., 2014; Kinsinger, Lattie, & Mohr, 2010; Middleton, Denney, Lynch, & Parmenter, 2006), and patients with traumatic brain injury, (Johansson, Berglund, & Rönnbäck, 2009) have reported that subjective mental fatigue was associated with subjective cognitive performance but not with objective cognitive performance. The majority of the significant correlations in this review were from a study that assessed mental fatigue as a cognitive complaint (Hubacher et al., 2012). All these indicate that there may be a significant relationship between subjective cognitive impairment and fatigue, but not with cognitive ability. Therefore, it is essential to assess general fatigue as well as perceived cognitive fatigue and to compare their relationship with cognitive impairment.

Most studies used more than one measures of fatigue or cognition and produced inconsistent results. For example, Winkens, Van Heugten, Fasotti, et al. (2009) used
both TMT-A and B and the Paced Auditory Serial Addition Test (PASAT) to measure speed of information processing, and both PASAT and the Symbol Digits Modalities Test (SDMT) to measure working memory, speed of information processing and sustained attention. None of the above tests was significantly correlated with the Mental Slowness Questionnaire (MSQ), as a measure of fatigue.

The inconsistency of the measures makes the interpretation of results difficult. Hubach et al. (2012) used three scales of fatigue and correlated each of them with all eight subtests of the Brief Repeatable Battery of Neuropsychological Tests (BRB-N) battery. Some of the correlations were significant while others were not. Sustained attention was measured by SDMT and PASAT. The latter was significantly correlated with the FSMC, however, when sustained attention was measured with SDMT, it was not significantly associated with any of the fatigue scales. The authors acknowledged that the PASAT is also a measure of working memory and SDMT a measure of mental speed. It is therefore unclear which components were, or were not, associated in each correlation. It is difficult to conclude whether cognitive domains were significantly associated with fatigue, or whether the lack of significant relationship was due to the measures used. There is a need for more studies with more appropriate measures for fatigue and cognition.

It appears that fatigue scales that measure general fatigue symptoms rather than cognitive subcomponents, would be more appropriate in measuring fatigue to assess evidence of an association with cognitive impairment. The majority of the studies did not include cognitive tests because their objective was not to measure and associate cognitive impairment with fatigue. They mostly used global cognitive status assessments such as the MMSE as screening measures for participant inclusion/exclusion to the study. Therefore it would appear that tests that are designed to address specific cognitive impairments would be more appropriate. A combination of a general fatigue scale with a domain-specific cognitive measure is more likely to assess accurately the relationship between fatigue and cognitive impairment after stroke.

Most of the studies were of good quality according to the CASP guidelines, however, one did not provide correlation coefficient values (Radman et al., 2012) and another (Van Eijsden et al., 2012) was considered of moderate quality because there was not sufficient information nor justification as to why they excluded individuals with limited mobility, and the significance level was .2, which is higher than the conventionally used level of .05. Some studies did not report some information (see Table 4). After establishing contact with authors of the two papers (Radman et al., 2012; Van Eijsden et al., 2012), they were unable to provide the correlation coefficients.

It is possible that no significant associations were found because there is no significant relationship between cognition and fatigue post-stroke. However, there are other possible explanations for why the studies did not reveal significant associations between fatigue and cognitive impairment after stroke. For instance, 538 (36%) of the participants had major comorbidities (such as diabetes mellitus, cardiac disease and hypertension), which could significantly affect the experience of fatigue. Fatigue is very common in cardiac disease (Casillas, Damak, Chauvet-Gelinier, Deley, & Ornetti, 2006), but cognitive impairment is not. If, for instance, participants’ fatigue was due to the comorbid condition and not the stroke, yet their cognitive impairment was attributed to their stroke, then this would mask any association between cognitive impairment and fatigue.
Another consideration is that some studies assessed fatigue within a month of the acute phase (Radman et al., 2012; Schepers et al., 2006), whereas others assessed it within the chronic phase (Johansson & Rönnbäck, 2012; Naess et al., 2005; Naess & Nyland, 2013; Winkens, Van Heugten, Fasotti, et al., 2009). However, there is conflicting evidence with regard to time of fatigue onset. Some studies reported fatigue being related to the acute phase (Choi-Kwon et al., 2005; Christensen et al., 2008), while other studies have argued that fatigue is a long-term issue. For instance, Schepers et al. (2006) reported that fatigue tends to increase over time, while Van de Port Kwakkel, Schepers, et al. (2007) found that fatigue peaks at approximately 12 months post-stroke. The results of the systematic review did not reveal any specific pattern. Fatigue was similar across studies and scores did not differ significantly according to time of assessment. The three highest scores according to FSS (4.7; 4.1 and 4.0) were spread out across the acute (4.7), middle (4.1) and chronic phase of stroke (4.0). Lower scores were also found in the acute, middle and chronic phases. When comparing data between baseline and follow-up assessments within the same longitudinal studies (Hubacher et al., 2012; Radman et al., 2012; Schepers et al., 2006; Van Eijsden et al., 2012; Winkens, Van Heugten, Fasotti, et al., 2009), a pattern emerges suggesting that fatigue tends to increase to some extent over time. Cognitive impairment tends to decrease over time (Danovska, Stamenov, Alexandrova, & Peychinska, 2012) and so any relationship between the two would be expected to be negative. Given that the time of onset and peak of fatigue is controversial, the fact that the above studies considered different time frames does not allow conclusive interpretations.

Overall, the papers had limitations. Most of them did not make it clear which type of correlation they used and therefore it is not possible to assess whether the statistical analyses followed were appropriate (parametric vs. non-parametric). The majority of the studies had very small samples with only two having more than 200 individuals (Tang, Lu et al., 2010; Van Eijsden et al., 2012).

Despite the exclusion of papers on people with SAH, one paper (Park, Chun et al., 2009) was included because it indicated there were only a few participants with the condition. The authors were contacted regarding the percentage of the participants with SAH but there was no response. The paper was included on the basis that SAH is far less common than other stroke types and on the assumption that the proportion of people with SAH would be low. Two studies (Naess et al., 2005; Naess & Nyland, 2013) mentioned an age range between 15 and 49 years. The review was focused on papers reporting on adult samples. After contacting the authors, only one participant was 17 years old at the baseline and 30 at the follow-up, and therefore these papers were included.

This systematic review had limitations. It did not include studies that analysed their data with logistic regression. The inclusion criterion for the fatigue scales was that the scale had at least three response categories, which means that studies that used no/yes for the presence of fatigue were excluded. This means that the review may have missed studies with information on the presence of fatigue rather than severity and its association to cognitive impairment. However, only one study with such analysis was detected (Appelros, 2006) and the relationship between fatigue (yes/no) and cognition (MMSE) was not significant ($p = .16$) which is consistent with the results the majority of the studies included.

Another potential limitation is that more gerontological, medical and social sciences orientated databases, such as AgeLine and Science Direct, would have identified more
papers. However, it is likely that the databases searched identified the majority of studies on the topic because they provided results drawn from medical, psychological and nursing journals. Another limitation is that, due to the nature of their search engines, some dissertation databases could not be searched in a systematic way identical to the one used in this review. The searching strategy included two thesis databases; but these would not include all dissertations (one is only for the UK and the other only for Europe). Two studies were identified either by chance (Johansson & Rönnbäck, 2012) or through the reference list of other papers (Naess et al., 2005). Therefore it is possible that other suitable studies were not included.

Despite no language restriction, the use of English terms in the search strategies limited the results to papers that had an abstract and key words in English. Therefore, some papers in other languages may have been missed.

**Author’s conclusion**

The findings of this review demonstrated that there was no evidence of a significant association between fatigue and global cognitive status after stroke. However, there was some evidence to suggest that attention, memory and speed of information processing may be significantly associated with fatigue.

Future studies should incorporate the use of both domain-specific and global cognitive tests, and investigate the association with general fatigue and cognitive fatigue scales. Furthermore, future studies could also include both subjective ratings of cognition and objective cognitive tests and examine their relationship to both general and cognitive fatigue scales. In summary, more studies are needed with measures that are sensitive to cognitive impairment after stroke and with fatigue scales that do not address cognitive components of fatigue. This will enable a more accurate investigation of the relationship between fatigue and cognitive impairment after stroke.

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References

Aaronson, L. S., Teel, C. S., Cassmeyer, V., Neuberger, G. B., Pallikathayil, L., Pierce, J., … Wingate, A. (1999). Defining and measuring fatigue. *Image–the Journal of Nursing Scholarship*, 31(1), 45–50.

Acciarresi, M., Bogousslavsky, J., & Paciaroni, M. (2014). Post-stroke fatigue: Epidemiology, clinical characteristics and treatment. *European Neurology*, 72(5–6), 255–261.

Addy, K. B. E. (2011). Neuropsychological assessment and intervention following perimesencephalic subarachnoid hemorrhage. *Clinical Case Studies*, 10(3), 187–197.

Adeli, A., Drubach, D. A., & MacHulda, M. M. (2013). Resolution of neuropsychological and FDG-PET abnormalities in a patient with neuropsychiatric systemic lupus erythematosus. *Cognitive and Behavioral Neurology*, 26(3), 161–166.

Agusti, A., Bonet, S., Arnau, J. M., Vidal, X., & Laporte, J. R. (2003). Adverse effects of ACE inhibitors in patients with chronic heart failure and/or ventricular dysfunction: Meta-analysis of randomised clinical trials. *Drug Safety*, 26(12), 895–908.

Ahlqvist, M., Bengtsson, C., Lapidus, L., Gergdahl, I. A., & Schutz, A. (2011). Carbamazepine and measuring fatigue. *European Neurology*, 66(4), 223–228.

Alaama, T., Basharat, P., & Nicolle, M. W. (2012). Unusual case of recurrent falls: Myasthenia gravis in an elderly patient. *Canadian Family Physician*, 58(11), 1231–1232.

Alberty, M., Sidney, M., Huot-Marchand, F., Hespel, J. M., & Pelayo, P. (2005). Intracyclic velocity variations and arm coordination during exhaustive exercise in front crawl stroke. *International Journal of Sports Medicine*, 26(6), 471–475.

Alfano, C. M., Imayamal, I., Neuhouser, M. L., Kiecolt-Glaser, J. K., Smith, A. W., Meeske, K., … Ballard-Barbash, R. (2012). Fatigue, inflammation, and ω-3 and ω-6 fatty acid intake among breast cancer survivors. *Journal of Clinical Oncology*, 30(12), 1280–1287.

Andersen, G., Christensen, D., Kirkevold, M., & Johnsen, S. P. (2012). Post-stroke fatigue and return to work: A 2-year follow-up. *Acta Neurologica Scandinavica*, 125(4), 248–253.

Andrew, D., & Grieve, A. (2008). The role of the muscle metaboreflex in patients with chronic disease. (Medical Doctoral Thesis, University of Glasgow). University of Glasgow. Retrieved from http://theses.gla.ac.uk/414/.

Annoni, J.-M., Staub, F., Bogousslavsky, J., & Brioschi, A. (2008). Frequency, characterisation and therapies of fatigue after stroke. *Neurological Sciences: Official Journal of the Italian Neurological Society and of the Italian Society of Clinical Neurophysiology*, 29(Suppl 2), 244–246.

Anton, H. A., Miller, W. C., & Townson, A. F. (2008). Measuring fatigue in persons with spinal cord injury. *Archives of Physical Medicine and Rehabilitation*, 89(3), 538–542.

Appelros, P. (2006). Prevalence and predictors of pain and fatigue after stroke: A population-based study. *International Journal of Rehabilitation Research*, 29(4), 329–333.

Araujo, J. S., da Silva, S. E. D., da Conceição, V. M., de Santana, M. E., & Vasconelos, E. (2012). “Caring” as an obligation: Caregivers social representations on caring for stroke victims. *Revista Mineira de Enfermagem*, 16(1), 98–105.

Armstrong, L. E., Johnson, E. C., Casa, D. J., Ganio, M. S., McDermott, B. P., Yamamoto, L. M., … Emmanuel, H. (2010). The American football uniform: Uncompensable heat stress and hyperthermic exhaustion. *Journal of Athletic Training*, 45(2), 117–127.

Army Individual Test Battery. (1944). *Manual of directions and scoring*. Washington, DC: War Department, Adjutant General’s Office.

Askim, T., Langhammer, B., Ihle-Hansen, H., Magnussen, J., Engstad, E., & Indredavik, B. (2012). A long-term follow-up programme for maintenance of motor function after Stroke: Protocol of the Life after Stroke-The LAST Study. *Stroke Research and Treatment*, 2012(2012). doi:10.1155/2012/392101

Attal, N., Guirimand, F., Brasseur, L., Gaude, V., Chauvin, M., & Bouhassira, D. (2002). Effects of IV morphine in central pain: A randomized placebo-controlled study. *Neurology*, 58(4), 554–563.
Aujouannet, Y. A., Bonifazi, M., Hintzy, F., Vuillerme, N., & Rouard, A. H. (2006). Effects of a high-intensity swim test on kinematic parameters in high-level athletes. *Applied Physiology, Nutrition, & Metabolism*, 31(2), 150–158.

Avila-Funes, J. A., Carcaillon, L., Helmer, C., Carriere, I., Ritchie, K., Rouaud, O., … Amieva, H. (2012). Is frailty a prodromal stage of vascular dementia? Results from the three-city study. *Journal of the American Geriatrics Society*, 60(9), 1708–1712.

Avlund, K. (2013). Fatigue in older populations. *Fatigue: Biomedicine, Health & Behavior*, 1(1–2), 43–63.

Bakken, L. N., Kim, H. S., Finset, A., & Lerdal, A. (2012). Stroke patients’ functions in personal activities of daily living in relation to sleep and socio-demographic and clinical variables in the acute phase after first-time stroke and at six months of follow-up. *Journal of Clinical Nursing*, 21(13–14), 1886–1895.

Barbour, V. L., & Mead, G. E. (2012). Fatigue after stroke: The patient’s perspective. *Stroke Research and Treatment*, 2012. doi:10.1155/2012/863031

Barker-Collo, S. L., Feigin, V. L., Lawes, C. M. M., Parag, V., & Senior, H. (2010). Attention deficits after incident stroke in the acute period: Frequency across types of attention and relationships to patient characteristics and functional outcomes. *Topics in Stroke Rehabilitation*, 17(6), 463–476.

Barrett, K. M., Brott, T. G., Brown Jr., R. D., Carter, R. E., Geske, J. R., Graff-Radford, N. R., … Meschia, J. F. (2011). Enhancing recovery after acute ischemic stroke with donepezil as an adjuvant therapy to standard medical care: results of a phase IIa clinical trial. *Journal of Stroke and Cerebrovascular Diseases*, 20(3), 177–182.

Beatty, W. W., Orbelo, D. M., Sorocco, K. H., & Ross, E. D. (2003). Comprehension of affective prosody in multiple sclerosis. *Multiple Sclerosis*, 9(2), 148–153.

Bederson, J. B., Connolly, E. S., Batjer, H. H., Dacey, R. G., Dion, J. E., Diringer, M. N., … Rosenwasser, R. H. (2009). Guidelines for the management of aneurysmal subarachnoid hemorrhage: A statement for healthcare professionals from a special writing group of the Stroke Council, American Heart Association. *Stroke: A Journal of Cerebral Circulation*, 40(3), 994–1025.

Berggren, E. (2012). *Daily life after Subarachnoid Haemorrhage*. Dissertation Series No 39. Jönköping University. Retrieved from http://www.diva-portal.org/smash/get/diva2:570181/FULLTEXT01.pdf

Bernsmeier, C., Nickel, C., Bingisser, R., & Kim, M. (2010). Urinary tract infection presenting with nonspecific complaints and normal urinary analis in 84-year-old woman. *American Journal of Case Reports*, 11, 116–118.

Berthier, M. L., Froudist Walsh, S., Dávila, G., Nabrozidis, A., Juárez Y Ruiz de Mier, R., Gutiérrez, A., … García-Casares, N. (2013). Dissociated repetition deficits in aphasia can reflect flexible interactions between left dorsal and ventral streams and gender-dimorphic architecture of the right dorsal stream. *Frontiers in Human Neuroscience*, 7. doi:10.3389/fnhum.2013.00873

Bhalla, D., Chea, K., Hun, C., Chan, V., Huc, P., Chan, S., … Preux, P.-M. (2013). Epilepsy in Cambodia-treatment aspects and policy implications: A population-based representative survey. *PLoS ONE*, 8(9). doi:10.1371/journal.pone.0074818

Blake, H., McKinney, M., Treece, K., Lee, E., & Lincoln, N. B. (2002). An evaluation of screening measures for cognitive impairment after stroke. *Age and Ageing*, 31(6), 451–456.

Blanc-Garin, J. (1994). Patterns of recovery from hemiplegia following stroke. *Neuropsychological Rehabilitation*, 4(4), 359–385.

Blume, W. T., & Harris, D. J. (2003). Considerations in the management of epilepsy in the elderly. *Geriatrics and Aging*, 6(6), 33–37.

Bogousslavsky, J. (2010). “The adventure”: Charles-Ferdinand Ramuz’s extraordinary stroke. *Frontiers of Neurology & Neuroscience*, 61(3), 138–142.

Boshier, A., Wilton, L. V., & Shakir, S. A. W. (2003). Evaluation of the safety of bupropion (Zyban) for smoking cessation from experience gained in general practice use in England in 2000. *European Journal of Clinical Pharmacology*, 59(10), 767–773.

Botella, G. F., Labios Gomez, M., Galindo, P., Balaguer, J. V., Babiloni, A., Dualde, M., & Beltran, D. (1995). Clinical and subclinical hyperthyroidism: Two faces of the coin?. *Anales de Medicina Interna*, 12(9), 425–430.

Boutin-Lester, P., & Gibson, R. W. (2002). Patients’ perceptions of home health occupational therapy. *Australian Occupational Therapy Journal*, 49(3), 146–154.

Bowling, C. B., Booth Ill, J. N., Safford, M. M., Whitson, H. E., Ritchie, C. S., Wadley, V. G., … Muntner, P. (2013). Nondisease-specific problems and all-cause mortality in the Reasons for Geographic and Racial Differences in Stroke. *Journal of the American Geriatrics Society*, 61(5), 739–746.

Boy, S., Sauerbruch, S., Kraemer, M., Schormann, T., Schlachetzki, F., Schuierer, G., … Bogdahn, U. (2011). Mobilisation of hematopoietic CD34+ precursor cells in patients with acute stroke is safe—results of an open-labeled non randomized phase I/II trial. *PLoS ONE*, 6(8). doi:10.1371/journal.pone.0023099
Casas, R., Calamia, M., & Tranel, D. (2008). A screening test of English naming ability in bilingual Spanish/English speakers. *Journal of Clinical & Experimental Neuropsychology: Official Journal of the International Neuropsychological Society, 30*(8), 956–966.

Casillas, J. M., Damak, S., Chauvet-Gelinier, J. C., Deley, G., & Ornetti, P. (2006). Fatigue in patients with cardiovascular disease. *Annales de Réadaptation et de Médecine Physique, 49*(6), 392–402.

Castellon, S. A., Ganz, P. A., Bower, J. E., Petersen, L., Abraham, L., & Greendale, G. A. (2004). Neurocognitive performance in breast cancer survivors exposed to adjuvant chemotherapy and tamoxifen. *Journal of Clinical and Experimental Neuropsychology, 26*(7), 955–969.

Centre for Review and Dissemination. (2009). *Systematic reviews: CRD’s guidance for undertaking reviews in health care*. York: University of York. Retrieved from http://www.york.ac.uk/inst/crd/pdf/Systematic_Reviews.pdf

Cereda, C. W., Manconi, M., & Bassetti, C. L. (2012). Sleep-wake disturbances in stroke. In L. R. Caplan & J. van Gijn (Eds.), *Stroke syndromes* (3rd ed., pp. 166–177). Cambridge, England: Cambridge University Press.

Cermak, S. A., Trombly, C. A., Hauser, J., & Tiernan, A. M. (1991). Effects of lateralized tasks on unilateral neglect after right cerebral. *Occupational Therapy Journal of Research, 11*, 271–292.

Chan, A. H. S., & Lee, P. S. K. (2005). Effects of different task factors on speed and Preferences in Chinese Handwriting. *Ergonomics, 48*(1), 38–54.

Chaudhuri, A., & Behan, P. O. (2004). Fatigue in neurological disorders. *Lancet, 363*(9413), 978–988.

Chebotarev, A. G., Matiukhin, V. V., & Naumova, A. P. (1994). Physiologic and hygienic characteristics of work conditions of miners in the Far North. *Meditsina Truda I Promyshlennaya Ekologiya (12)*, 7–10.

Chen, L. K. P., Mann, W. C., Tomita, M. R., & Burford, T. E. (1998). An evaluation of reachers for use by older persons with disabilities. *Assistive Technology, 10*(2), 113–125.

Chia, S.-E., & Teo, K.-J. (2003). Prognosis of adult men with heat exhaustion with regard to postural stability and neurobehavioral effects: A 6-month follow-up study. *Neurotoxicology and Teratology, 25*(4), 503–508.

Chiocca, E. A., Smith, K. M., McKinney, B., Palmer, C. A., Rosenfeld, S., Lillehei, K., … Kirn, D. (2008). A phase I trial of ad.HIFN-beta gene therapy for glioma. *Molecular Therapy, 16*(3), 618–626.

Choe, Y. K., Jung, H.-T., Baird, J., & Grupen, R. A. (2013). Multidisciplinary stroke rehabilitation delivered by a humanoid robot: Interaction between speech and physical therapies. *Aphasiology, 27*(3), 252–270.

Choi-Kwon, S., Han, S. W., Kwon, S. U., & Kim, J. S. (2005). Poststroke fatigue: Characteristics and related factors. *Cerebrovascular Diseases (Basel, Switzerland), 19*(2), 84–90.

Choi-Kwon, S., & Kim, J. S. (2011). Poststroke fatigue: An emerging, critical issue in stroke medicine. *International Journal of the International Stroke Society, 6*(4), 328–336.

Christensen, D., Johnsen, S. P., Watt, T., Harder, I., Kirkevold, M., & Andersen, G. (2008). Dimensions of post-stroke fatigue: A two-year follow-up study. *Cerebrovascular Diseases (Basel, Switzerland), 26*(2), 134–141.

Claros-Salinas, D., Bratzke, D., Greitemann, G., Nickisch, N., Ochs, L., Schroter, H., & Schröter, H. (2010). Fatigue-related diurnal variations of cognitive performance in multiple sclerosis and stroke patients. *Journal of the Neurological Sciences, 295*(1-2), 75–81.

Clemens, A., van Ryn, J., Sennewald, R., Yamamura, N., Stangier, J., Feuring, M., & Harter, S. (2012). Switching from enoxaparin to dabigatran etexilate: Pharmacokinetics, pharmacodynamics and safety profile. *European Journal of Clinical Pharmacology, 68*(5), 607–616.

Colle, F., Bonan, I., Lemon, M. C., Bradai, N., & Yelnik, A. (2006). Fatigue after stroke. *Annales de Réadaptation et de Medecine Physique, 49*(6), 361–364.

Consoli, D., Bosco, D., Postorino, P., Galati, F., Plastino, M., Perticoni, G. F., … Toni, D. (2012). Levetiracetam versus carbamazepine in patients with late poststroke seizures: A multicenter prospective randomized open-label study (Epic Project). *Cerebrovascular Diseases, 34*(4), 282–289.

Coyle, E. F., Hopper, M. K., & Coggan, A. R. (1990). Maximal oxygen uptake relative to plasma volume expansion. *International Journal of Sports Medicine, 11*(2), 116–119.

Critical Appraisal Skills Programme Checklists (CASP). (2014). *12 questions to help you make sense of cohort study*. Oxford: CASP, 3–8.

Croquelois, A., Assal, G., Annoni, J.-M., Staub, F., Gronchi, A., Bruggimann, L., … Bogousslavsky, J. (2005). Diseases of the nervous system: Patients’ aetiological beliefs. *Journal of Neurology, Neurosurgery and Psychiatry, 76*(4), 582–584.

Crosby, G. A., Munshi, S., Karat, A. S., Worthington, E., & Lincoln, N. B. (2012). Fatigue after stroke: Frequency and effect on daily life. *Disability and Rehabilitation, 34*(8), 633–637.
Cующ, Т. Б., Marshall, R. S., & Lazar, R. M. (2013). Stroke, cognitive deficits, and rehabilitation: Still an incomplete picture. *International Journal of Stroke: Official Journal of the International Stroke Society, 8*(1), 38–45.

Czekpo, R., Orłowiejska, M., & Danilewicz, B. (1999). Neuropsychological disorders after subarachnoid hemorrhage and surgery in anterior communicating artery brain aneurysms. *Przegląd Lekarski, 56*(11), 720–722.

Dam, H. (2001). Depression in stroke patients 7 years following stroke. *Acta Psychiatr Scand, 103*(4), 287–293.

Damush, T. M., Plue, L., Bakas, T., Schmid, A., & Williams, L. S. (2007). Barriers and facilitators to exercise among stroke survivors. *Rehabilitation Nursing: The Official Journal of the Association of Rehabilitation Nurses, 32*(6), 253–262, 262.

Danovska, M., Stamenov, B., Alexandrova, M., & Peychinska, D. (2012). Post-stroke cognitive impairment – phenomenology and prognostic factors. *Journal of IMAB – Annual Proceeding (Scientific Papers), 18*(3), 290–297.

DeAngelis, T. M. (2010). Patient management problem. *Continuum (Minneapolis, Minn), 16*(5), 226–233.

De Coster, L., Leentjens, A. F. G., Lodder, J., & Verhey, F. R. J. (2005). The sensitivity of somatic symptoms in post-stroke depression: A discriminant analytic approach. *International Journal of Geriatric Psychiatry, 20*(4), 358–362.

De Groot, M. H., Phillips, S. J., & Eskes, G. A. (2003). Fatigue associated with stroke and other neurolologic conditions: Implications for stroke rehabilitation. *Archives of Physical Medicine and Rehabilitation, 84*(11), 1714–1720.

De Jode, E., Proot, I., Slegers, K., van Heugten, C., Verhey, F., & van Boxtel, M. (2012). The use of standard calendar software by individuals with acquired brain injury and cognitive complaints: a mixed methods study. *Disability & Rehabilitation Assistive Technology, 7*(5), 389–398.

Dericioglu, N., Vural, A., Agayeva, N., Basar, K., Anil Yagcioglu, A. E., & Gursoy-Ozdemir, Y. (2013). Cerebral autosomal dominant arteriopathy with subcortical infarcts and leukoencephalopathy (CADASIL) in two siblings with neuropsychiatric symptoms. *Psychosomatics, 54*(6), 594–598.

Devereux, G. R. (2010). *The effects of isometric exercise training on resting blood pressure with specific reference to selected cardiovascular, neuromuscular, and metabolic variables*. (Doctoral Thesis, Canterbury Christ Church University). Retrieved from [http://create.canterbury.ac.uk/6974/](http://create.canterbury.ac.uk/6974/)

Di Summa, M., & Iezzi, F. (2013). Giant fibroelastoma of the aortic valve. *Case Reports in Cardiology, 2013*, 2.

Dixon, S. (2012). *Understanding sleep problems in rehabilitation inpatients after stroke*. (Doctoral thesis, University of Glasgow). Retrieved from [http://theses.gla.ac.uk/3646/](http://theses.gla.ac.uk/3646/)

Djukic, M., Schmidt-Samoa, C., Nau, R., von Steinbuchel, N., Eiffert, H., & Schmidt, H. (2011). The diagnostic spectrum in patients with suspected chronic Lyme neuroborreliosis – the experience from one year of a university hospital’s Lyme neuroborreliosis outpatient clinic. *European Journal of Neurology, 18*(4), 547–555.

Dobson, R., Leddy, S. G., Gangadharan, S., & Giovannoni, G. (2013). Assessing fracture risk in people with ms: A service development study comparing three fracture risk scoring systems. *BMJ Open, 11*(3). doi:10.1136/bmjopen-2012-002508

Dodge, H. H., Zitzelberger, T., Oken, B. S., Howieson, D., & Kaye, J. (2008). A randomized placebo-controlled trial of Ginkgo biloba for the prevention of cognitive. *Neurology, 6*(70), 1809–1817.

Domahs, F., Benke, T., & Delazer, M. (2011). A case of “task-switching acalculia”. *Neurocase, 17*(1), 24–40.

Donnellan, C., Martins, A., Conlon, A., Coughlan, T., O’Neill, D., Collins, D. R., & Martins, A. (2013). Mapping patients’ experiences after stroke. *Disability and Rehabilitation, 35*(6), 483–491.

Dove, C. A., Vezzetti, D., & Escobar, N. (1994). Metoprolol for action tremor following intracerebral hemorrhage. *Archives of Physical Medicine and Rehabilitation, 75*(9), 1011–1014.

Duncan, F., Kutlubaev, M. a., Dennis, M. S., Greig, C., & Mead, G. E. (2012). Fatigue after stroke: A systematic review of associations with impaired physical fitness. *International Journal of Stroke: Official Journal of the International Stroke Society, 7*(2), 157–162.

Duncan, F., Wu, S., & Mead, G. E. (2012). Frequency and natural history of fatigue after stroke: A systematic review of longitudinal studies. *Journal of Psychosomatic Research, 73*(1), 18–27.

Dupont, P., Gillet, C., Guerin, M., Kalamardies, S., Larinier, E., Meignan, C., … Perriot, J. (2010). Tolerability profile of varenicline in current medical practice. *Presse Medicaule, 39*(1), e17–e24.

Duscheck, S., Heiss, H., Buechner, B., Werner, N., Schandy, R., & Reyes Del Paso, G. A. (2009). Hemodynamic determinants of chronic hypotension and their modification through vasopressor application. *Journal of Physiological Sciences, 59*(2), 105–112.
Elderkin-Thompson, V., Irwin, M. R., Hellemann, G., & Kumar, A. (2012). Interleukin-6 and memory functions. *American Journal of Geriatric Psychiatry, 20*(9), 753–763.

El Hachoui, H., Visch-Brink, E. G., Lingsma, H. F., van de Sandt-Koenderman, M. W. M. E., Dippel, D. W. J., Koudstaal, P. J., & Middelkoop, H. A. M. (2013). Nonlinguistic cognitive impairment in poststroke aphasia: A prospective study. *Neurorehabilitation and Neural Repair, 28*(3), 273–281.

Enkvist, A. (2013). *Life satisfaction and the oldest-old: Results from the population study good aging in Skåne*. (Doctoral thesis, Lund University). Retrieved from https://lup.lub.lu.se/search/publication/4023069.

Erickson, C. A., Gharbawie, O. A., & Whishaw, I. Q. (2007). Attempt-dependent decrease in skilled reaching characterizes the acute postsurgical period following a forelimb motor cortex lesion: An experimental demonstration of learned nonuse in the rat. *Behavioural Brain Research, 179*(2), 208–218.

Erkinjuntti, T., Gauthier, S., Bullock, R., Kurz, A., Hammond, G., Schwalen, S., … Brashear, R. (2008). Galantamine treatment in Alzheimer’s disease with cerebrovascular. *Journal of Psychopharmacology, 22*(7), 761–768.

Erkinjuntti, T., Kurz, A., Small, G. W., Bullock, R., Lilienfeld, S., & Damaraju, C. V. (2003). An open-label extension trial of galantamine in patients with probable vascular dementia and mixed dementia. *Clinical Therapeutics, 25*(6), 1765–1782.

Erueti, C., Glasziou, P., Mar, C. D., & van Driel, M. L. (2012). Do you think it’s a disease? A survey of medical students. *BMJ Medical Education, 12*(19). doi:10.1186/1472-6920-12-19.

Falco, M., Walsh, S., & Harbison, J. A. (2010). Estimated prevalence of fatigue following stroke and transient ischemic attack is dependent on terminology used and patient gender. *Journal of Stroke and Cerebrovascular Diseases: The Official Journal of National Stroke Association, 19*(6), 431–434.

Farner, L., Wagle, J., Flekky, K., Wyller, T. B., Fure, B., Stensrod, B., & Engedal, K. (2009). Factor analysis of the Montgomery Aasberg depression rating scale in an elderly stroke. *International Journal of Geriatric Psychiatry, 24*(11), 1209–1216.

Faunt, J. D., Wilkinson, T. J., Aplin, P., Henschke, P., Webb, M., & Penhall, R. K. (1995). The effet in the heat: Heat-related hospital presentations during a ten day heat wave. *Australian and New Zealand Journal of Medicine, 25*(2), 117–121.

Feigin, V. L., Barker-Collo, S., Parag, V., Hackett, M. L., Kerse, N., Barber, P. A., … Krishnamurthi, R. (2012). Prevalence and predictors of 6-month fatigue in patients with ischemic stroke: A population-based stroke incidence study in Auckland, New Zealand, 2002–2003. *Stroke: a Journal of Cerebral Circulation, 43*(10), 2604–2609.

Feng, Y., Qiu, Y., Zhou, X., Wang, Y., Xu, H., & Liu, B. (2013). Optimizing prescription of Chinese herbal medicine for unstable angina based on partially observable Markov decision process. *Evidence-Based Complementary and Alternative Medicine, 2013*(6), 1–7. doi:10.1155/2013/532534.

Figg, W. D., Hussain, M. H., Gulley, J. L., Arlen, P. M., Aragon-Ching, J. B., Petrylak, D. P., … Dahut, W. L. (2009). A double-blind randomized crossover study of oral thalidomide versus placebo for androgen dependent prostate cancer treated with intermittent androgen ablation. *Journal of Urology, 181*(3), 1104–1113.

Figueiredo, P., Pendergast, D. R., Vilas-Boas, J. P., & Fernandes, R. J. (2013). Interplay of biomechanical, energetic, coordinative, and muscular factors in a 200 m front crawl swim. *BioMed Research International, 2013*. doi:10.1155/2013/897232.

Figueiredo, P., Sanders, R., Gorski, T., Vilas-Boas, J. P., & Fernandes, R. J. (2013). Kinematic and electromographic changes during 200 m front crawl at race pace. *International Journal of Sports Medicine, 34*(1), 49–55.

Figueiredo, P., Toussaint, H. M., Vilas-Boas, J. P., & Fernandes, R. J. (2013). Relation between efficiency and energy cost with coordination in aquatic locomotion. *European Journal of Applied Physiology, 113*(3), 651–659.

Flinn, N. A., & Stube, J. E. (2010). Post-stroke fatigue: Qualitative study of three focus groups. *Occupational Therapy International, 17*(2), 81–91.

Floel, A., Hummel, F., Duque, J., Knecht, S., & Cohen, L. G. (2008). Influence of somatosensory input on interhemispheric interactions in patients with chronic stroke. *Neurorehabilitation & Neural Repair, 22*(5), 477–485.

Folstein, M. F., Folstein, S. E., & McHugh, P. R. (1975). “Mini-mental state”. A practical method for grading the cognitive state of patients for the clinician. *Journal of Psychiatric Research, 12*(3), 189–198.

French, J. A., & Pedley, T. A. (2008). Initial management of epilepsy. *New England Journal of Medicine, 359*(2), 166–176.

Fuđ, G. (2001). Chaos and confusion all around. *Medicine Today, 2*(1), 52–54.
Gabrilove, J. L., Perez, E. A., Tomita, D. K., Rossi, G., & Cleeland, C. S. (2007). Assessing symptom burden using the M. D. Anderson Symptom Inventory in patients with chemotherapy-induced anemia: Results of a multicenter, open-label study (SURPASS) of patients treated with darbepoetin-alpha at a dose of 200 mug every 2 weeks. Cancer, 110(7), 1629–1640.

Gafarov, V. V., Gromova, E. A., Gagulin, I. V., & Pilipenko, P. I. (2005). A study of the risk factors of stroke development in the framework of WHO program “MONICA-psychosocial”. Zhurnal Nevrologii I Psikiatrii Imeni S, (Suppl. 13), 36–41.

Gandiga, P. C., Hummel, F. C., & Cohen, L. G. (2006). Transcranial DC stimulation (tDCS): A tool for double-blind sham-controlled clinical studies in brain stimulation. Clinical Neurophysiology, 117(4), 845–850.

Garcia-Pallares, J., Garcia-Fernandez, M., Sanchez-Medina, L., & Izquierdo, M. (2010). Performance changes in world-class kayakers following two different training periodization models. European Journal of Applied Physiology, 110(1), 99–107.

Geevasinga, N., Coleman, P. L., Webster, A. C., & Roger, S. D. (2006). Proton pump inhibitors and acute interstitial nephritis. Clinical Gastroenterology and Hepatology, 4(5), 597–604.

Gencay-Can, A., & Can, S. S. (2012). Validation of the Turkish version of the fatigue severity scale in patients with fibromyalgia. Rheumatology International, 32(1), 27–31.

Gershon, R. C., Lai, J. S., Bode, R., Choi, S., Moy, C., Bleck, T., … Cella, D. (2012). Neuro-QOL: Quality of life item banks for adults with neurological disorders: Item development and calibrations based upon clinical and general population testing. Quality of Life Research, 21(3), 475–486.

Gibbs, A. (2007). Characterising the influence of Pre-drive lung volume on force and power production during rowing. Doctoral thesis, Brunel University. Retrieved from http://bura.brunel.ac.uk/handle/2438/3637

Ginsberg, A. H. (1985). Extraduillary Hematopoesis presenting as a transient ischemic attack. Archives of Neurology, 42(10), 1020–1021.

Girard, O., Sciberras, P., Habrard, M., Hot, P., Chevalier, R., & Millet, G. P. (2005). Specific incremental test in elite squash players. British Journal of Sports Medicine, 39(12), 921–926.

Glader, E.-L., Stegmayr, B., & Asplund, K. (2002). Poststroke fatigue: A 2-year follow-up study of stroke patients in Sweden. Stroke, 33(5), 1327–1333.

Goble, J. A., Zhang, Y., Shimansky, Y., Sharma, S., & Dounskaia, N. V. (2007). Directional biases reveal utilization of arm’s biomechanical properties for optimization of motor behavior. Journal of Neurophysiology, 98(3), 1240–1252.

Goller, A. (2011). Perceptual abnormalities in amputees: Phantom pain, mirror-touch synaesthesia and referred tactile sensations Aviva Idit Goller School of Psychology University of Sussex. Retrieved from http://sro.sussex.ac.uk/39679/1/Goller_Aviva_Idit.pdf

Gorelik, N., & Tampieri, D. (2012). Cocaine-induced vasospasm causing spinal cord transient ischemia. Neuroradiology Journal, 25(3), 364–367.

Gorgoraptis, N., Mah, Y.-H., MacHner, B., Singh-Curry, V., Malhotra, P., Hadji-Michael, M., … Husain, M. (2012). The effects of the dopamine agonist rotigotine on hemispatial neglect following stroke. Brain, 135(8), 2478–2491.

Gramigna, S., Schluep, M., Staub, F., Bruggimann, L., Simioni, S., Bogousslavsky, J., & Annoni, J. M. (2007). Fatigue in neurological diseases: Different patterns in stroke and multiple sclerosis. Revue Neurologique, 163(3), 341–348.

Grant, I. (1985). The social environment and neurological disease. Advances in Psychosomatic Medicine, 13, 26–48.

Grant, J., Glandon, G. L., Elliott, T. R., Giger, J. N., & Weaver, M. (2004). Caregiving problems and feelings experienced by family caregivers of stroke survivors the first month after discharge. International Journal of Rehabilitation Research, 27(2), 105–111.

Gravely-Witte, S., Jurgens, C. Y., Tamim, H., & Grace, S. L. (2010). Length of delay in seeking medical care by patients with heart failure symptoms and the role of symptom-related factors: A narrative review. European Journal of Heart Failure, 12(10), 1122–1129.

Graziodio, S., Tomasevic, L., Assenza, G., Tecchio, F., & Eyre, J. A. (2012). The myth of the ‘unaffected’ side after unilateral stroke: Is reorganisation of the non-infarcted corticospinal system to re-establish balance the price for recovery?. Experimental Neurology, 238(2), 168–175.

Green, T. L., & King, K. M. (2009). Experiences of male patients and wife-caregivers in the first year post-discharge following minor stroke: A descriptive qualitative study. International Journal of Nursing Studies, 46(9), 1194–1200.

Green, T. L., & King, K. M. (2010). Functional and psychosocial outcomes 1 year after mild stroke. Journal of Stroke and Cerebrovascular Diseases: The Official Journal of National Stroke Association, 19(1), 10–16.
Hummel, F. C., Voller, B., Celnik, P., Floel, A., Giraux, P., Gerloff, C., & Cohen, L. G. (2006). Effects of brain polarization on reaction times and pinch force in chronic stroke. *BMC Neuroscience*, 7(3), doi:10.1186/1471-2202-7-73

Hurwitz, T. A., Honey, C. R., Allen, J., Gosselin, C., Hewko, R., Martzke, J., ... Taylor, P. (2012). Bilateral anterior capsulotomy for intractable depression. *Journal of Neuropsychiatry and Clinical Neurosciences*, 24(2), 176–182.

Ikematsu, Y., & Kloos, J. A. (2012). Patients’ descriptions of dysphoria associated with cardiac tamponade. *Heart and Lung: Journal of Acute and Critical Care*, 41(3), 264–270.

Ingles, J. L., Eskes, G. a., & Phillips, S. J. (1999). Fatigue after stroke. *Archives of Physical Medicine and Rehabilitation*, 80(2), 173–178.

Ioannides, Z. A., Airey, C., Fagermo, N., Blum, S., McCombe, P. A., & Henderson, R. J. (2013). Susac syndrome and multifocal motor neuropathy first manifesting in pregnancy. *Australian and New Zealand Journal of Obstetrics and Gynaecology*, 53(3), 314–317.

Jaracz, K., Mielcarek, L., & Kozubski, W. (2007). Clinical and psychological correlates of poststroke fatigue. *Preliminary results. Neurologia i Neurochirurgia Polska*, 41(1), 36–43.

Jasiulekviceniene, L., Vasiliauskas, D., Kavoliuniene, A., Marcinkeviciene, J., Grybauskiene, R., Grizas, V., Tumyniene, V. (2008). Evaluation of a chronic fatigue. *Medicina (Kaunas, Lithuania)*, 44(5), 366–372.

Jatoi, A., Alberts, S. R., Foster, N., Morton, R., Burch, P., Block, M., ... Kugler, J. (2005). Is bortezomib, a proteasome inhibitor, effective in treating cancer-associated weight loss? Preliminary results from the North Central Cancer Treatment Group. *Supportive Care in Cancer*, 13(6), 381–386.

Johansson, B., Berglund, P., & Rönnbäck, L. (2009). Mental fatigue and impaired information processing after mild and moderate traumatic brain injury. *Brain Injury*, 23(13–14), 1027–1040.

Johansson, B., Bjuhr, H., & Rönnbäck, L. (2012). Mindfulness-based stress reduction (MBSR) improves long-term mental fatigue after stroke or traumatic brain injury. *Brain Injury: [BI]*, 26(13–14), 1621–1628.

Johansson, B., Carlsson, A., Carlsson, M. L., Karlsson, M., Nilsson, M. K. L., Nordquist-Brandt, E., & Rönnbäck, L. (2012). Placebo-controlled cross-over study of the monoaminergic stabiliser (−)-OSU6162 in mental fatigue following stroke or traumatic brain injury. *Acta Neuropsychiatria*, 24(5), 266–274.

Johansson, B., & Rönnbäck, L. (2012). Mental fatigue and cognitive impairment after an almost neurological recovered stroke. *ISRN Psychiatry*, 2012 doi:10.5402/2012/686425

Johansson, B., Starmark, A., Berglund, P., Rödholm, M., & Rönnbäck, L. (2010). A self-assessment questionnaire for mental fatigue and related symptoms after neurological disorders and injuries. *Brain Injury: [BI]*, 24(1), 2–12.

Johansson, S., Kottorp, A., Lee, K., Gay, C., & Lerdal, A. (2014). Can the Fatigue Severity Scale 7-item version be used across different patient populations as a generic fatigue measure–a comparative study using a Rasch model approach. *Health and Quality of Life Outcomes*, 12(24). doi:10.1186/1477-7525-12-24

Jones, J., McDermott, C. M., Nowels, C. T., Matlock, D. D., & Bekelman, D. B. (2012). The experience of fatigue. *Heart and Lung: Journal of Acute and Critical Care*, 41(5), 484–491.

Jougleux-Vie, C., Duhin, E., Deken, V., Outteryck, O., Vermersch, P., & Zéphir, H. (2014). Does fatigue complaint reflect memory impairment in multiple sclerosis? *Multiple Sclerosis International*, 2014. doi:10.1155/2014/692468

Jutai, J. W., Bhogal, S. K., Foley, N. C., Bayley, M., Teasell, R. W., & Speechley, M. R. (2003). Treatment of visual perceptual disorders post stroke. *Topics in Stroke Rehabilitation*, 10(2), 77–106. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/13680519

Kang, E. K., Baek, M. J., Kim, S., & Paik, N. J. (2009). Non-invasive cortical stimulation improves post-stroke. *Restorative Neurology & Neuroscience*, 27(6), 645–650.

Kelly, D. F., McArthur, D. L., Levin, H., Swimmer, S., Dusick, J. R., Cohan, P., ... Swerdloff, R. (2006). Neurobehavioral and quality of life changes associated with growth hormone insufficiency after complicated mild, moderate, or severe traumatic brain injury. *Journal of Neurotrauma*, 23(6), 928–942.

Kelly, E. M., Tungol, A. A., & Wesolowicz, L. A. (2013). Formulary management of 2 new agents: Lorcaserin and phentermine/topiramate for weight loss. *Journal of Managed Care Pharmacy*, 19(8), 642–654.

Kennedy, P. (2011). Changes in emotional state modulate neuronal firing rates of human speech motor cortex: A case study in long-term recording. *Neurocase*, 17(5), 381–393.

Kim, D. Y., Ohn, S. H., Yang, E. J., Park, C. I., & Jung, K. J. (2009). Enhancing motor performance by anodal transcranial direct current stimulation in subacute stroke. *American Journal of Physical Medicine and Rehabilitation*, 88(10), 829–836.
Kim, I. (2012). Effects of an enjoyable nurse-led intervention to promote movement in poststroke inpatients. *Clinical Nursing Research*, 21(4), 390–405.

Kinay, D., Duboeuf, F., Andermatten, G., & Ollivier, A. (2004). Palliative temporal resection for the treatment of intractable bioccipital epilepsy. *Epileptic Disorders*, 6(2), 97–105.

Kinsinger, S. W., Lattie, E., & Mohr, D. C. (2010). Relationship between depression, fatigue, subjective cognitive impairment, and objective neuropsychological functioning in patients with multiple sclerosis. *Neuropsychology*, 24(5), 573–580.

Kirkevold, M., Christensen, D., Andersen, G., Johansen, S. P., & Harder, I. (2012). Fatigue after stroke: manifestations and strategies. *Disability and Rehabilitation*, 34(8), 665–670.

Knochflach, M., Matosevic, B., Rücker, M., Furtner, M., Mair, A., Wille, G., … Willeit, J. (2012). Functional recovery after ischemic stroke—a matter of age: data from the Austrian Stroke Unit Registry. *Neurology*, 78(4), 279–285.

Kobalava, Z. D., Kotovskaya, Y. V., & Moiseev, V. S. (2008). Efficacy and acceptability of indapamide sustained release in elderly high-risk hypertensive patients: The ARGUS study. *High Blood Pressure and Cardiovascular Prevention*, 15(4), 275–282.

Kofler, M., Quirbach, E., Schauer, R., Singer, M., & Saltuari, L. (2009). Limitations of intrathecal baclofen for spastic hemiparesis following stroke. *Neurorehabilitation and Neural Repair*, 23(1), 26–31.

Koopman, K., Uyttenboogaart, M., Vroemen, P. C., van der Meer, J., De Keyser, J., & Luijckx, G. (2009). Long-term sequelae after cerebral venous thrombosis in functionally independent patients. *Journal of Neurology & Cerebrovascular Diseases*, 18(3), 198–202.

Kornerup, H., Osler, M., Boysen, G., Barefoot, J., Schnoor, P., & Prescott, E. (2010). Major life events increase the risk of stroke but not of myocardial infarction: results from the Copenhagen City Heart Study. *European Journal of Cardiovascular Prevention and Rehabilitation*, 17(1), 113–118.

Kouwenhoven, S. E., Gay, C. L., Bakken, L. N., & Lerdal, A. (2013). Depressive symptoms in acute stroke: A cross-sectional study of their association with sociodemographics and clinical factors. *Neuropsychological Rehabilitation*, 23(5), 658–677.

Kozora, E., Arciniegas, D. B., Zhang, L., & West, S. (2007). Neuropsychological patterns in systemic lupus erythematosus patients with depression. *Arthritis Research & Therapy*, 9(3). doi:10.1186/ar2203

Krsmanovic, Z., Dincic, E., Kostic, S., Lackovic, V., Bajcetic, M., Lackovic, M., … Raicevic, R. (2011). Cerebral autosomal dominant arteriopathy with subcortical infarcts and leukoencephalopathy. *Vojnosanitetski Pregled*, 68(5), 455–459.

Krupp, L. B., LaRocca, N. G., Muir-Nash, J., & Steinberg, A. D. (1989). The fatigue severity scale. Application to patients with multiple sclerosis and systemic lupus erythematosus. *Archives of Neurology*, 46(10), 1121–3.

Kulmala, J., Nykanen, I., Manty, M., & Hartikainen, S. (2013). Association between frailty and dementia: A population-based study. *Gerontology*, 60, 16–21.

Kumar, A., Singh, R. B., Saxena, M., Niaz, M. A., Josh, S. R., Chattopadhyay, P., … Fedacko, J. (2007). Effect of carnitine Q-gel (ubiquinol and carnitine) on cytokines in patients with heart failure in the Tishcon study. *Acta Cardiologica*, 62(4), 349–354.

Kuppuswamy, A., Clark, E. V., Sandhu, K. S., Rothwell, J. C., & Ward, N. S. (2015). Post-stroke fatigue: a problem of altered corticomotor control? *Journal of Neurology, Neurosurgery, and Psychiatry*, 86(8), 902–904.

Kuppuswamy, A., Clark, E. V., Turner, I. F., Rothwell, J. C., & Ward, N. S. (2015). Post-stroke fatigue: A deficit in corticomotor excitability? *Brain: A Journal of Neurology*, 138(Pt 1), 136–148.

Kurihara, Y., Kawakita, K., Douzono, T., & Nagasaka, Y. (2008). A large-scale, long-term, prospective post-marketing surveillance of pitavastatin (LIVALOTablet) -LIVALO effectiveness and safety (LIVES) study-. *Japanese Pharmacology and Therapeutics*, 36(8), 709–731.

Kurillo, G., Zupan, A., & Bajd, T. (2004). Force tracking system for the assessment of grip force control. *Clinical Biomechanics*, 19(10), 1014–1021.

Kutlubaev, M., Shenkin, S. D., Farrall, A. J., Duncan, F. H., Lewis, S. J., Greig, C., … Mead, G. E. (2013). CT and clinical predictors of fatigue at one month after stroke. *Cerebrovascular Diseases Extra*, 3, 26–34.

Kutlubaev, M. A., & Akhmadeeva, L. R. (2010). Poststroke fatigue. *Zhurnal Nevrologii i Psikiatriki Imeni S S Korsakova*, 110(4), 60–66.

Kutlubaev, M. A., Duncan, F. H., & Mead, G. E. (2012). Biological correlates of post-stroke fatigue: A systematic review. *Acta Neurologica Scandinavica*, 125(4), 219–227.

Kutlubaev, M. A., & Mead, G. E. (2012). One step closer to understanding poststroke fatigue. *Neurology*, 79(14), 1414–1415.
Lagadec, S. (2012). Dépression post-AVC: apport d’une double approche de neuroimagerie et enquête en vie quotidienne. (Doctoral thesis, Université Bordeaux Segalen). Retrieved from http://www.dart-europe.eu/full.php?id=616731

Lai, S. M., Teel, C. S., & Duncan, P. (2001). Caregiving experiences after stroke. Nursing Research, 50(1), 53–60.

Lamb, F., Anderson, J., Saling, M., & Dewey, H. (2013). Predictors of subjective cognitive complaint in post-acute older adult stroke patients. Archives of Physical Medicine & Rehabilitation (ARCH PHYS MED REHABIL), 94(9), 1747–1752.

Langer, K. G. (1994). Depression in disabling illness: Severity and patterns of self-reported symptoms in three groups. Journal of Geriatric Psychiatry and Neurology, 7(2), 121–128.

Lannfelt, L., Blennow, K., Zetterberg, H., Batsman, S., Ames, D., Harrison, J., ... Ritchie, C. W. (2008). Safety, efficacy, and biomarker findings of PBT2 in targeting Abeta as a modifying therapy for Alzheimer’s disease: A phase IIa, double-blind, randomised, placebo-controlled trial. The Lancet Neurology, 7(9), 779–786.

Lehmann, E., van der Crone, L., Grobe-Einsler, R., & Linden, M. (1993). Drug monitoring study (phase IV) of xantinolnicotinate (Complamin) in general practice. Pharmacopsychiatry, 26(2), 42–48.

Lehmann, E., & Klieser, E. (1997). Drug monitoring studies as a method of analyzing response criteria. Pharmacopsychiatry, 30(1), 52–56.

Leirdal, S., Sandbak, O., & Ettema, G. (2013). Effects of frequency on gross efficiency and performance in roller ski skating. Scandinavian Journal of Medicine and Science in Sports, 23(3), 295–302.

Lerdal, A., Bakken, L. N., Kouvenhoven, S. E., Pedersen, G., Kirkevold, M., Finset, A., ... Kim, H. S. (2009). Poststroke fatigue–A review. Journal of Pain and Symptom Management, 38(6), 928–949.

Lerdal, A., Bakken, L. N., Rasmussen, E. F., Beiermann, C., Ryen, S., Pynten, S., ... Kim, H. S. (2011). Physical impairment, depressive symptoms and pre-stroke fatigue are related to fatigue in the acute phase after stroke. Disability and Rehabilitation, 33(4), 334–342.

Lerdal, A., & Gay, C. L. (2013). Fatigue in the acute phase after first stroke predicts poorer physical health 18 months later. Neurology, 81(18), 1581–1587.

Lerdal, A., & Kottorp, A. (2011). Psychometric properties of the Fatigue Severity Scale-Rasch analyses of individual responses in a Norwegian stroke cohort. International Journal of Nursing Studies, 48(10), 1258–1265.

Leung, A. W. S., Cheng, S. K. W., Mak, A. K. Y., Leung, K.-K., Li, L. S. W., & Lee, T. M. C. (2010). Functional gain in hemorrhagic stroke patients is predicted by functional level and cognitive abilities measured at hospital admission. NeuroRehabilitation, 27(4), 351–8.

Levine, J., & Greenwald, B. D. (2009). Fatigue in Parkinson disease, stroke, and traumatic brain injury. Physical Medicine and Rehabilitation Clinics of North America, 20(2), 347–361.

Levy, D., Blizzard, R. A., Halligan, P., & Stone, S. (1995). Fluctuations in visual neglect after stroke. European Neuropsychologia, 35(6), 341–343.

Lewis, S. J., Barugh, A. J., Greig, C. A., Saunders, D. H., Fitzsimons, C., Dinan-Young, S., ... Mead, G. E. (2011). Is fatigue after stroke associated with physical deconditioning? A cross-sectional study in ambulatory stroke survivors. Archives of Physical Medicine and Rehabilitation, 92(2), 295–298.

Leyland-Jones, B., Colomer, R., Trudeau, M. E., Wardley, A., Latreille, J., Cameron, D., ... Cortes, J. (2010). Intensive loading dose of trastuzumab achieves higher-than-steady-state serum concentrations and is well tolerated. Journal of Clinical Oncology, 28(6), 960–966.

Li, W., Han, T., Qin, W., Zhang, J., Liu, H., Li, Y., ... Yu, C. (2013). Altered functional connectivity of cognitiveredlated cerebellar subregions in well-recovered stroke patients. Neural Plasticity, 2013, 1–10.

Liang, K. (2004). Characteristics of kinetic aphasia: Analysis of 10 cases. Chinese Journal of Clinical Rehabilitation, 8(31), 7010–7011.

Liu, C., Thompson, A. J., & Playford, E. D. (2004). Patient dissatisfaction: Insights into the rehabilitation process. Journal of Neurology, 251(9), 1094–1097.

Llibre, J. J., Lopez, A. M., Valhuerdí, A., Guerra, M., Llibre-Guerra, J. J., Sanchez, Y. Y., ... Moreno, C. (2014). Frailty, dependency and mortality predictors in a cohort of Cuban older adults, 2003–2011. MEDICCC Review, 16(1), 24–30.

Loetscher, T., & Lincoln, N. B. (2013). Cognitive rehabilitation for attention deficits following stroke. Cochrane Database of Systematic Reviews, S. doi:10.1002/14651858.CD002842.pub2

Lord, S. E. Rochester, L., Weatherall, M., McPherson, K. M., & McNaughton, H. K. (2006). The effect of environment and task on gait parameters after stroke. Archives of Physical Medicine & Rehabilitation, 87(7), 967–973.
LoVecchio, F., Pizon, A. F., Berrett, C., & Balls, A. (2007). Outcomes after environmental hyperthermia. *American Journal of Emergency Medicine, 25*(4), 442–444.

Lund, A. (2011). Lifestyle intervention for older adults in rehabilitation after stroke: Development, implementation and evaluation. Faculty of Medicine, University of Oslo.

Lundqvist, A., Alinder, J., & Rönnberg, J. (2008). Factors influencing driving 10 years after brain. *Brain Injury, 22*(4), 295–304.

Lyytinen, J., Sairanen, T., Valanne, L., Salmi, T., Paetau, A., & Pekkonen, E. (2010). Progressive stroke-like. *Case Reports in Neurology, 2*(1), 1–18.

Maaijwee, N., Rutten-Jacobs, L., Schaapsmeersders, P., van Dijk, E., & de Leeuw, F. (2014). Ischaemic stroke in young adults: Risk factors and long-term consequences. *Nature Reviews. Neurology, 10*(6), 315–325.

Madden, K., Nan, X., Briones, R., & Waks, L. (2012). Sorting through search results: A content analysis of HPV vaccine information online. *Vaccine, 30*(25), 3741–3746.

Malagoni, A. M., Galeotti, R., Menegatti, E., Manfredini, F., Basaglia, N., Salvi, F., & Zamboni, P. (2010). Is chronic fatigue the symptom of venous insufficiency associated with multiple sclerosis? A longitudinal Pilot Study. *International Angiology, 29*(2), 176–182.

Mandelzweig, L., Goldbourt, U., Boyko, V., & Tanne, D. (2006). Perceptual, social, and behavioral factors associated with delays in seeking medical care in patients with symptoms of acute stroke. *Stroke, 37*(5), 1248–1253.

Mark, V. W., & Heilman, K. M. (1997). Diagonal neglect on cancellation. *Neuropsychologia, 35*(11), 1425–1436.

Marshall, S. C., Grinnell, D., Heisel, B., Newall, A., & Hunt, L. (1997). Attentional deficits in stroke patients: A visual dual task experimental. *Archives of Physical Medicine and Rehabilitation, 78*(1), 7–12.

Marson, A. G., Appleton, R., Baker, G. A., Chadwick, D. W., Doughty, J., Eaton, B., … Williamson, P. R. (2007). A randomised controlled trial examining the longer-term outcomes of standard versus new antiepileptic drugs. The SANAD trial. *Health Technology Assessment, 11*(37), 1–108.

Martinsson, L., & Wahlgren, N. G. (2003). Safety of dexamphetamine in acute ischemic stroke: A randomized, double-blind, controlled dose-escalation trial. *Stroke, 34*(2), 475–481.

Mattsson, C. M. (2011). *Physiology of adventure racing – with emphasis on circulatory response and cardiac fatigue*. (Doctoral thesis, Karolinska Institutet). Retrieved from http://gih.diva-portal.org/smash/get/diva2:401774/FULLTEXT01.pdf.

May, L. A., Butt, C., Minor, L., Kolbinson, K., & Tulloch, K. (2003). Measurement reliability of functional tasks for persons who self-propel a manual wheelchair. *Archives of Physical Medicine and Rehabilitation, 84*(4), 578–583.

McGeough, E., Pollock, A., Smith, L. N., Dennis, M., Sharpe, M., Lewis, S., & Mead, G. E. (2009). Interventions for post-stroke fatigue. *The Cochrane Database of Systematic Reviews* (3). doi:10.1002/14651858.CD007030.pub2

Mead, G. E., Hsieh, C-F., Lee, R., Kuttlaubaev, M. A., Claxton, A., Hankey, G. J., & Hackett, M. L. (2012). Selective serotonin reuptake inhibitors (SSRIs) for stroke recovery. *Cochrane database of systematic reviews, (11)*. doi:10.1002/14651858.CD009286.pub2

Mead, G. E., Graham, C., Dorman, P., Bruins, S. K., Lewis, S. C., Dennis, M. S., & Sanderson, P. A. G. (2011). Fatigue after stroke: baseline predictors and influence on survival. Analysis of data from UK patients recruited in the International Stroke Trial. *PloS One, 6*(3), e16988.

Medi, C., Evered, L., Silbert, B., Teh, A., Halloran, K., Morton, J., … Kalman, J. (2013). Subtle post-procedural cognitive dysfuction after atrial fibrillation ablation. *Journal of the American College of Cardiology, 62*(6), 531–539.

Medziavichius, P. A., Medziavichene, V., & Zhalilunas, R. (2005). Electrophysiological and hemodynamic consequences of pacemaker syndrome. *Kardioligija, 45*(9), 39–42.

Mepani, R., Antonik, S., Massey, B., Kern, M., Logemann, J., Pauloski, B., … Shaker, R. (2009). Augmentation of deglutitive thyrohyoid muscle shortening by the shaker exercise. *Dysphagia, 24*(1), 26–31.

Metellus, J., Eyoum, I., Marane, A. M., Randianarisoa, B., Schacre, D., & Pequignot, J. M. (1999). Psychic disorders in the Korsakof Syndrome of two young alcoholic patients. *Annales Medico-Psychologiques, 157*(10), 731–735.

Meyer, K., Samek, L., Schwaibold, M., Westbrook, S., Hajric, R., Beneke, R., … Roskamm, H. (1997). Interval training in patients with severe chronic heart failure: Analysis and recommendations for exercise procedures. *Medicine & Science in Sports & Exercise, 29*(3), 306–312.

Michael, K. (2014). Fatigue After Stroke. In Z. & G. W. J. Stein, R. L. Harvey, C. J. Winston, R.D. (Ed.), *Stroke recovery and rehabilitation* (2nd ed., p. 1000). New York: Demos Medical Publishing.
Michael, K., Allen, J., & Macko, R. (2003). Fatigue after stroke: Relationship to mobility, fitness, ambulatory activity, social support, and falls efficacy. *Rehabilitation Nursing: The Official Journal of the Association of Rehabilitation Nurses, 31*(5), 210–217.

Michael, K. M. (2004). Fatigue after stroke. Dissertation Submitted to The Johns Hopkins University.

Michal, M., Wiltink, J., Lackner, K., Wild, P. S., Zwiener, I., Blettner, M., … Beutel, M. E. (2013). Association of hypertension with depression in the community: Results from the Gutenberg Health Study. *Journal of Hypertension, 31*(5), 893–899.

Middleton, L. S., Denney, D. R., Lynch, S. G., & Parmenter, B. (2006). The relationship between perceived and objective cognitive functioning in multiple sclerosis. *Archives of Clinical Neuropsychology: The Official Journal of the National Academy of Neuropsychologists, 21*(5), 487–494.

Miller, K. K., Combs, S. A., Van Puymbroeck, M., Altenburger, P. A., Kean, J., Dierks, T. A., & Schmid, A. A. (2013). Fatigue and pain: Relationships with physical performance and patient beliefs after stroke. *Topics in Stroke Rehabilitation, 20*(4), 347–355.

Millikin, C. P., Rourke, S. B., Halman, M. H., & Power, C. (2002). Fatigue is associated with depression and subjective neurocognitive complaints but not neuropsychological functioning. *Journal of Clinical and Experimental Psychology, 0*, 1–15.

Mills, R. J., Pallant, J. F., Koufali, M., Sharma, A., Day, S., Tennant, A., & Young, C. (2012). Validation of the Neurological Fatigue Index for stroke (NFI-Stroke). *Health and Quality of Life Outcomes, 10*(51). doi:10.1186/1477-7525-10-51

Milutinovic, D., Golubovic, B., Brkic, N., & Prokes, B. (2012). Professional stress and health among critical care nurses in Serbia. *Arhiv Za Higijenu Rada I Toksikologiju, 63*(2), 171–180.

Mittenberg, W., Patton, C., Canyock, E. M., & Condit, D. C. (2002). Base rates of malingering and symptom exaggeration. *Journal of Clinical and Experimental Neuropsychology, 24*(8), 1094–1102.

Moher, D., Liberati, A., Tetzlaff, J., & Altman, D. G. (2009). Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *PLoS Medicine, 6*(7), e1000097.

Mohsenin, R., & Valor, V. (1995). Sleep apnea in patients with hemispheric stroke. *Archives of Physical Medicine and Rehabilitation, 76*(1), 71–76.

Molnar, G. (2008). Depressive type of drawing test without melancholy. *Neuropsychopharmacologia Hungarica, 10*(3), 159–164.

Moraes, H. C. C., Soares, A. M. G., Oliveira, A. R. S., Carvalho, C. M. L., da Silva, M. J., & de Araujo, T. L. (2012). Burden and modifications in life from the perspective of caregivers for patients after stroke. *Revista Latino-Americana de Enfermagem, 20*(5), 944–953.

Morris, J. H., van Wijck, F., Joice, S., & Donaghy, M. (2013). Predicting health related quality of life 6 months after stroke: The role of anxiety and upper limb dysfunction. *Disability and Rehabilitation, 35*(4), 291–299.

Morton-Bours, E. C., Jacobs, M. B., & Albers, G. W. (2000). Clinical problem-solving. Eyes wide open. *New England Journal of Medicine, 343*(1), 50–55.

Moulaert, V. R., Wachelder, E. M., Verbunt, J. A., Wade, D. T., & van Heugten, C. M. (2010). Determinants of quality of life in survivors of cardiac arrest. *Journal of Rehabilitation Medicine: Official Journal of the UEMS European Board of Physical and Rehabilitation Medicine, 42*(6), 553–558.

Mujika, I., De Txabarri, R. G., Maldonado-Martin, S., & Pyne, D. B. (2012). Warm-up intensity and duration’s effect on traditional rowing time-trial performance. *International Journal of Sports Physiology and Performance, 7*(2), 186–188.

Müller, K., & Poulsen, I. (2008). Fatigue after stroke [Danish]. *Klinisk Sygepleje, 22*(4), 46–55.

Nabavi, S. F., Sobarzo-Sanchez, E., Nabavi, S. M., Daglia, M., Moghaddam, A. H., & Garcia Silva, A. (2013). Behavioral effects of 2,3-Dihydro- and Oxisoaoporphine derivatives in post stroke-depressive like behavior in male Balb/c Mice. *Current Topics in Medical Chemistry, 13*(17), 2127–2133.

Naess, H. (2009). Prognosis after cerebral infarction among young adults. In A. A. Pezzini & Padovani (Ed.), *Cerebral Ischemia in young adults: Pathogenic and clinical perspectives* (pp. 653–677). Hauppauge, NY: Nova Science Publishers, Inc.

Naess, H., Beiske, A. G., & Myhr, K. M. (2008). Quality of life among young patients with ischaemic stroke compared with patients with multiple sclerosis. *Acta Neurologica Scandinavica, 117*(3), 181–185.

Naess, H., Lunde, L., Brogger, J., & Waje-Andræassen, U. (2012). Fatigue among stroke patients on long-term follow-up. The Bergen stroke study. *Journal of the Neurological Sciences, 312*(1–2), 138–141.

Naess, H., & Nyland, H. (2013). Poststroke fatigue and depression are related to mortality in young adults: A cohort study. *BMJ Open, 3*(3), 6–11.

Naess, H., Nyland, H., Thomassen, L., Aarseth, J., & Myhr, K. (2005). Fatigue at long-term follow-up in young adults with cerebral infarction. *Cerebrovascular Diseases, 20*(4), 245–250.
Naess, H., Waje-Andreassen, U., Thomassen, L., Nyland, H., & Myhr, K. (2006). Health-related quality of life among young adults with ischemic stroke on long-term follow-up. *Stroke: a Journal of Cerebral Circulation*, 37(5), 1232–1236.

Naidech, A. M., Beaumont, J. L., Rosenberg, N. F., Maas, M. B., Kosteva, A. R., Ault, M. L., … Ely, E. W. (2013). Intracerebral hemorrhage and delirium symptoms length of stay, function. *American Journal of Respiratory and Critical Care Medicine*, 188(11), 1331–1337.

Nakagaki, H., Furuya, J., Santa, Y., Nagano, S., Araki, E., & Yamada, T. (2005). A case of MELAS presenting juvenile-onset hyperglycemic chorea-ballism. *Rinsho Shinkeigaku – Clinical Neurology*, 45(7), 502–505.

Nierenberg, A. A., Trivedi, M. H., Gaynes, B. N., Mitchell, J., Davis, L. L., Husain, M. M., … John Rush, A. (2009). Effectiveness study of venlafaxine-XR combined with aripiprazole for chronic or recurrent major depressive disorder. *Australian and New Zealand Journal of Psychiatry*, 43(10), 956–967.

Novitzke, J. (2008). Privation of Memory: What can be done to help stroke patients remember? *Journal of Vascular and Interventional Neurology*, 1(4), 122–3.

Nyenhuis, D. L., Gorelick, P. B., Geenen, E. J., Smith, C. A., Gencheva, E., Freels, S., & DeToledo-Morrell, L. (2004). The pattern of neuropsychological deficits in vascular cognitive impairment-no dementia (vascular CIND). *The Clinical Neuropsychologist*, 18(1), 41–49.

Nys, G. M. S., van Zandvoort, M. J. E., de Kort, P. L. M., Jansen, B. P. W., Kappelle, L. J., & de Haan, E. H. F. (2005). Restrictions of the mini-mental state examination in acute stroke. *Archives of Clinical Neuropsychology: The Official Journal of the National Academy of Neuropsychologists*, 20(5), 623–629.

Ogden, J. A., Mee, E. W., & Utley, T. (1998). Too little, too late: Does tirilazad mesylate reduce fatigue. *Neurosurgery*, 43(4), 782–787.

Ogden, J. A., Utley, T., & Mee, E. W. (1997). Neurological and psychosocial outcome 4 to 7 years after subarachnoid hemorrhage. *Neurosurgery*, 41(1), 25–34.

Oizumi, T., Laakso, I., Hirata, A., Fujiwara, O., Watanabe, S., Taki, M., … Sasaki, K. (2013). FDTD analysis of temperature elevation in the lens of human and rabbit models due to near-field and far-field exposures at 2.45 ghz. *Radiation Protection Dosimetry*, 155(3), 284–291.

Olai, L., Borgquist, L., & Svársudd, K. (2012). Health problems in elderly patients during the first post-stroke year. *Uppsala Journal of Medical Sciences*, 117(3), 318–327.

Oldroyd, K. G., Gray, C. E., Carter, R., Harvey, K., Borland, W., Beastall, G., & Cobbe, S. M. (1995). Activation and inhibition of the endogenous opioid system in human heart failure. *British Heart Journal*, 73(1), 41–48.

Ormstad, H., Aass, H. C. D., Amthor, K. F., Lund-Sørensen, N., & Sandvik, L. (2011). Serum cytokine and glucose levels as predictors of poststroke fatigue in acute ischemic stroke patients. *Journal of Neurology*, 258(4), 670–676.

Ormstad, H., Aass, H. C. D., Amthor, K. F., Lund-Sørensen, N., & Sandvik, L. (2012). Serum levels of cytokines, glucose, and hemoglobin as possible predictors of poststroke depression, and association with post-stroke fatigue. *The International Journal of Neuroscience*, 122(11), 682–690.

Ormstad, H., Verkerk, R., Aass, H. C. D., Amthor, K. F., & Sandvik, L. (2013). Inflammation-induced catabolism of tryptophan and tyrosine in acute ischemic. *Journal of Molecular Neuroscience*, 51(3), 893–902.

Ormstad, H., Verkerk, R., Amthor, K., & Sandvik, L. (2014). Activation of the kynurenine pathway in the acute phase of stroke and its role in fatigue and depression following stroke. *Journal of Molecular Neuroscience : MN*, 54(2), 181–187.

Oupra, R., Griffiths, R., Pryor, J., & Mott, S. (2010). Effectiveness of supportive educative learning programme on the level of strain experienced by caregivers of stroke. *Health and Social Care in the Community*, 18(1), 10–20.

Paolucci, S. (2013). Role, indications, and controversies of antidepressant therapy in chronic stroke patients. *European Journal of Physical and Rehabilitation Medicine*, 49(2), 233–241.

Park, J. Y., Chun, M. H., Kang, S. H., Lee, J. A., Kim, B. R., & Shin, M. J. (2009). Functional outcome in post-stroke patients with or without fatigue. *American Journal of Physical Medicine & Rehabilitation*, 88(7), 554–558.

Park, S. U., Ko, C. N., Bae, H. S., Jung, W. S., Moon, S. K., Cho, K. H., … Park, J. M. (2009). Short-term reactions to acupuncture treatment and adverse events following acupuncture: A cross-sectional survey of patient reports in Korea. *Journal of Alternative and Complementary Medicine*, 15(12), 1275–1283.

Parks, N. E., Eskes, G. a., Gubitz, G. J., Reidy, Y., Christian, C., & Phillips, S. J. (2012). Fatigue impact scale demonstrates greater fatigue in younger stroke survivors. *The Canadian Journal of Neurological Sciences*, 39(5), 619–625.

Passier, P., Elisabeth, P., & Agnes, C. (2011). *Quality of Life after aneurysmal subarachnoid haemorrhage*. Dissertation Submitted in Maastricht University.
Passier, P. E. C. A., Post, M. W. M., van Zandvoort, M. J. E., Rinkel, G. J. E., Lindeman, E., & Visser-Meily, J. M. A. (2011). Predicting fatigue 1 year after aneurysmal subarachnoid hemorrhage. *Journal of Neurology*, 258(6), 1091–1097.

Payne, T. W., & Schnapp, M. A. (2014). The relationship between negative affect and reported cognitive failures. *Depression Research and Treatment*, 2014, 396195.

Pearson-Fuhrhop, K. M., Minton, B., Acevedo, D., Shahbaba, B., & Cramer, S. C. (2013). Genetic variation in the human brain dopamine system influences motor learning and its modulation by L-Dopa. *PLoS One*, 8(4).

Pedersen, P. M., Vinter, K., & Olsen, T. S. (2004). Aphasia after stroke: Type, severity and prognosis. The Copenhagen aphasia study. *Cerebrovascular Diseases*, 17(1), 35–43.

Petlonen, J., & Rusko, H. (1993). Interrelations between power, force production and energy metabolism in maximal leg work using a modified rowing ergometer. *Journal of Sports Sciences*, 11(3), 233–240.

Peng, D. T., Xu, X. H., & Wang, L. N. (2005). Efficiency and safety assessment of donepezil for treating mild and moderate Alzheimer disease. *Chinese Journal of Clinical Rehabilitation*, 9(13), 170–172.

Perrier, D., & Monteil, K. (2004). Triathlon wet suit and technical parameters at the start and end of a 1500-m swim. *Journal of Applied Biomechanics*, 20(1), 3–13.

Perrier, M. J., Korner-Bitensky, N., & Mayo, N. E. (2010). Patient factors associated with return to driving poststroke: Findings from a multicenter cohort study. *Archives of Physical Medicine and Rehabilitation*, 91(6), 868–873.

Pestka, E. L., Billman, R. R., Alexander, J. M., & Rosenbland, M. K. (2002). Acute medical crises masquerading as psychiatric illness. *Journal of Emergency Nursing*, 28(6), 531–535.

Petrovic, I. N., Mandic, G., Svetel, M., Dragasevic, N., Lackovic, V., & Kostic, V. S. (2012). Mitochondrial myopathy, encephalopathy, lactate acidosis with stroke-like episodes syndromes (MELAS): A case report. *Srpski Arhiv Za Celokupno Lekarstvo*, 140(5), 355–358.

Pihlaja, R., Ilmonen, J., Mustanoja, S., Tattisumak, T., & Poutiainen, E. (2014). Post-stroke fatigue is associated with impaired processing speed and memory functions in first-ever stroke patients. *Journal of Psychosomatic Research*, 77(5), 380–384. doi:10.1016/j.jpsychores.2014.08.011

Pinheiro Jr., C. G., & Andrade, A. O. (2012). The simulation of click and double-click through EMG signals. *Conference Proceedings*, 2012, 1984–1987.

Ponchel, A., Bombois, S., Bordet, R., & Hénon, H. (2015). Factors associated with poststroke fatigue: A systematic review. *Stroke Research and Treatment*, 2015, 11.

Poreisz, C., Boros, K., Antal, A., & Paulus, W. (2007). Safety aspects of transcranial direct current stimulation concerning healthy subjects and patients. *Brain Research Bulletin*, 72(4), 208–214.

Potts, A. D., Charlton, J. E., & Smith, H. M. (2002). Bilateral arm power imbalance in swim bench exercise to exhaustion. *Journal of Sports Sciences*, 20(12), 975–979.

Poulin, V., Korner-Bitensky, N., Dawson, D. R., & Bherer, L. (2012). Efficacy of executive function interventions after stroke: A systematic review. *Topics in Stroke Rehabilitation*, 19(2), 158–171.

Powell, J., Kitchen, N., Heslin, J., & Greenwood, R. (2004). Psychosocial outcomes at 18 months after good neurological recovery from aneurysmal subarachnoid haemorrhage. *Journal of Neurology, Neurosurgery & Psychiatry*, 75(8), 1119–1124.

Prasad, G., Herman, P., Coyle, D., McDonough, S., & Crosbie, J. (2010). Applying a brain-computer interface to support motor imagery practice in people with stroke for upper limb recovery: A feasibility study. *Journal of Neuroengineering and Rehabilitation*, 7(60), 1–17.

Psycharakis, S. G., Cooke, C. B., Paradisis, G. P., O’Hara, J., & Phillips, G. (2008). Analysis of selected kinematic and physiological performance determinants during incremental testing in elite swimmers. *Journal of Strength & Conditioning Research*, 22(3), 951–957.

Radman, N., Staub, F., Aboulafia-Brakha, T., Berney, A., Bogousslavsky, J., & Annoni, J. M. (2012). Poststroke fatigue following minor infarcts: A prospective study. *Neurology*, 79(14), 1422–1427.

Rainer, M., Brunnbauer, M., Dunky, A., Ender, F., Goldsteiner, H., Holl, O., … Mossier, H. (1997). Therapeutic results with Cerebrolysin in the treatment of Dementia. *Wiener Medizinische Wochenschrift*, 147(18), 426–431.

Raji, M. a., Al Snih, S., Ostir, G. V., Markides, K. S., & Ottenbacher, K. J. (2010). Cognitive status and future risk of frailty in older Mexican Americans. *The Journals of Gerontology. Series A, Biological Sciences and Medical Sciences*, 65(11), 1228–1234.

Rasquin, S. M. C., Verhey, F. R. J., Lousberg, R., Winkens, I., & Lodder, J. (2002). Vascular cognitive disorders: memory, mental speed and cognitive flexibility after stroke. *Journal of the Neurological Sciences*, 203–204, 115–119.
Rhodes, R. H., Monastersky, B. T., Tyagi, R., & Coyne, T. (2011). Mycoplasmal cerebral vasculopathy in a lymphoma patient: Presumptive evidence of Mycoplasma pneumoniae microvascular endothelial cell invasion in a brain biopsy. Journal of the Neurological Sciences, 309(1), 18–25.

Rigby, H., Gubitz, G., Eskes, G., Reidy, Y., Christian, C., Grover, V., & Phillips, S. (2009). Caring for stroke survivors: baseline and 1-year determinants of caregiver burden. International Journal of Stroke, 4(3), 152–158.

Ritchie, C. W., Chiu, E., Harrigan, S., Mcfarlane, S., Mastwyk, M., Halliday, G., … Ames, D. (2006). A comparison of the efficacy and safety of olanzapine and risperidone in the treatment of elderly patients with schizophrenia: An open study of six months duration. International Journal of Geriatric Psychiatry, 21(2), 171–179.

Robertson, I. H., & North, N. (1993). Fatigue versus disengagement in unilateral neglect. Journal of Neurology, Neurosurgery, and Psychiatry, 56(6), 717–719.

Robinson, C. A., Shumway-Cook, A., Ciol, M. A., & Karlin, D. (2011). Participation in community walking following stroke: Subjective versus objective measures and the impact of personal factors. Physical Therapy, 91(12), 1865–1876.

Robinson, R. G., Jorge, R. E., Moser, D. J., Acion, L., Solodkin, A., Small, S. L., … Arndt, S. (2008). Escitalopram and problem-solving therapy for prevention of poststroke depression: A randomized controlled trial. JAMA – Journal of the American Medical Association, 299(20), 2391–2400.

Robison, J., Wiles, R., Ellis-Hill, C., McPherson, K., Hyndman, D., & Ashburn, A. (2009). Resuming previously valued activities post-stroke: Who or what helps. Disability and Rehabilitation, 31(19), 1555–1566.

Rodholm, M., Starmark, J. E., Svensson, E., & Von Essen, C. (2001). Asthenic-emotional disorder after aneurysmal SAH: Reliability, symptomatology and relation to outcome. Acta Neurologica Scandinavica, 103(6), 379–385.

Roding, J., Lindstrom, B., Malm, J., & Ohman, A. (2003). Frustrated and invisible – Younger stroke patients’ experiences of the rehabilitation process. Disability and Rehabilitation, 25(15), 867–874.

Roffe, C., Frohnhofen, H., Sills, S., Hodsoll, J., Allen, M., & Jones, P. W. (2010). Frequency of nocturnal hypoxia in clinically stable patients during stroke. Clinical Rehabilitation, 24(3), 267–275.

Rosenblum, S., & Weiss, P. L. (2010). Evaluating functional decline in patients with Multiple Sclerosis. Research in Developmental Disabilities, 31(2), 577–586.

Rosler, M., Anand, R., Cicin-Sain, A., Gauthier, S., Agid, Y., Dal-Bianco, P., … Gharabawi, M. (1999). Efficacy and safety of rivastigmine in patients with Alzheimer’s disease: International randomised controlled trial. British Medical Journal, 318(7184), 633–640.

Rosness, T. A., Baca, M. L., & Engedal, K. (2010). Occurrence of depression and its correlates in early onset dementia patients. International Journal of Geriatric Psychiatry, 25(7), 704–711.

Rothwell, K., Boaden, R., Bamford, D., & Tyrrell, P. J. (2013). Feasibility of assessing the needs of stroke patients after six months using the GM-SAT. Clinical Rehabilitation, 27(3), 264–271.

Rowe, V. T., Blanton, S., & Wolf, S. L. (2009). Long-term follow-up after constraint-induced therapy: A case report of a chronic stroke survivor. American Journal of Occupational Therapy, 63(3), 317–322.

Russell, M., Dempster, M., & Donnelly, M. (2010). Measuring health-related quality of life after stroke: A brief tool. Applied Research in Quality of Life, 6(1), 41–51.

Sacco, R. L., Kasner, S. E., Broderick, J. P., Caplan, L. R., Connors, J. J. B., Culebras, A., … Vinters, H. V. (2013). An updated definition of stroke for the 21st century: A statement for healthcare professionals from the American Heart Association/American Stroke Association. Stroke; A Journal of Cerebral Circulation, 44(7), 2064–2089.

Sáez-Francàs, N., Hernández-Vara, J., Corominas Roso, M., Alegre Martín, J., & Casas Brugué, M. (2013). The association of apathy with central fatigue perception in patients with Parkinson’s disease. Behavioral Neuroscience, 127(2), 237–244.

Salvarani, C., Brown, R. D., Calamia, K. T., Christianson, T. J. H., Huston, J., Meschia, J. F., … Hunder, G. G. (2008). Angiography-negative primary central nervous system vasculitis: A syndrome involving small cerebral vessels. Medicine, 87(5), 264–271.

Samper-Ternent, R., Al Snih, S., Raji, M. A., Markides, K. S., & Ottenbacher, K. J. (2008). Relationship between frailty and cognitive decline in older Mexican Americans. Journal of the American Geriatrics Society, 56(10), 1845–1852.

Schepers, V., Post, M., Visser-Meily, A., van de Port, I., Akhmouch, M., & Lindeman, E. (2009). Prediction of depressive symptoms up to three years post-stroke. Journal of Rehabilitation Medicine: Official Journal of the UEMS European Board of Physical and Rehabilitation Medicine, 41(11), 930–935.
Schepers, V. P., Visser-Meily, A. M., Ketelaar, M., & Lindeman, E. (2006). Poststroke fatigue: Course and its relation to personal and stroke-related factors. Archives of Physical Medicine and Rehabilitation, 87(2), 184–188.

Schneider, L. S., Tariot, P. N., Dagerman, K. S., Davis, S. M., Hsiao, J. K., Ismail, M. S., … Lieberman, J. A. (2006). Effectiveness of atypical antipsychotic drugs in patients with Alzheimer’s disease. New England Journal of Medicine, 355(15), 1525–1538.

Schwartz, S. W., Carlucci, C., Chambless, L. E., & Rosamond, W. D. (2004). Synergism between smoking and vital exhaustion in the risk of Ischemic stroke: evidence from the ARIC study. Annals of Epidemiology, 14(6), 416–424.

Seifert, L., Chollet, D., & Rouard, A. (2007). Swimming constraints and arm coordination. Human Movement Science, 26(1), 68–86.

Selch, M. T., Ahn, E., Laskari, A., Lee, S. P., Agazaryan, N., Solberg, T. D., … Desalles, A. A. F. (2004). Stereotactic radiotherapy for treatment of cavernous sinus meningiomas. International Journal of Radiation Oncology Biology Physics, 59(1), 101–111.

Seo, P., Min, Y. I., Holbrook, J. T., Hoffman, G. S., Merkel, P. A., Spiera, R., … Stone, J. H. (2005). Damage caused by Wegener’s granulomatosis and its treatment: Prospective data from the Wegener’s Granulomatosis Etanercept Trial (WGET). Arthritis and Rheumatism, 52, 2168–2178.

Sibon, I., Lassalle-Lagadec, S., Renou, P., & Swendsen, J. (2012). Evolution of depression symptoms following stroke: A prospective study using computerized ambulatory monitoring. Cerebrovascular Diseases, 33(3), 280–285.

Sieh, D. S., Meijer, A. M., & Visser-Meily, J. M. A. (2010). Risk factors for stress in children after parental stroke. Rehabilitation Psychology, 55(4), 391–397.

Singer, B. J., Vallenceb, A.-M., Cleary, S., Cooper, I., & Loftusb, A. M. (2013). The effect of EMG triggered electrical stimulation plus task practice on arm function in chronic stroke patients with moderate-severe arm deficits. Restorative Neurology and Neuroscience, 31(6), 681–691.

Sisson, R. A. (1995). Cognitive status as a predictor of right hemisphere stroke outcomes. Journal of Neuroscience Nursing, 27(3), 152–156.

Sisson, R. A. (1998). Life after a stroke: Coping with change. Rehabilitation Nursing, 23(4), 198–203.

Skånér, Y., Nilsson, G. H., Sundquist, K., Hassler, E., & Krakau, I. (2007). Self-rated health, symptoms of depression and general symptoms at 3 and 12 months after a first-ever stroke: A municipality-based study in Sweden. BMC Family Practice, 8, 61.

Snap,aan, L., van der Werf, S., & de Leeuw, F. E. (2011). Time course and risk factors of post-stroke fatigue: A prospective cohort study. European Journal of Neurology: The Official Journal of the European Federation of Neurological Societies, 18(4), 611–617.

Soh, H. P. (2006). Fretting wear studies of Aeroengine materials. (Doctoral thesis, University of Nottingham). Retrieved from http://eprints.nottingham.ac.uk/13177/

Solberg Nes, L., Carlson, C. R., Crofford, L. J., de Leeuw, R., & Segerstrom, S. C. (2011). Individual differences and self-regulatory fatigue: Optimism, conscientiousness, and self-consciousness. Personality and Individual Differences, 50(4), 475–480.

Spalletta, G., Ripa, A., & Caltagirone, C. (2005). Symptom profile of DSM-IV major and minor depressive disorders in first-ever stroke. American Journal of Geriatric Psychiatry, 13(2), 108–115.

Stangier, J., Rathgen, K., Stahle, H., Reseski, K., Kornicke, T., & Roth, W. (2009). Coadministration of dabigatran etexilate and atorvastatin: Assessment of potential impact on pharmacokinetics and pharmacodynamics. American Journal of Cardiovascular Drugs, 9(1), 59–68.

Starr, J. M., Whalley, L. J., Inch, S., White, A., & Hadley, L. (1994). A double-blind trial of captopril or benindrofluazide in newly diagnosed senile hypertension. Current Medical Research and Opinion, 13(4), 214–221.

Staub, F., & Bogousslavsky, J. (2001). Fatigue after stroke: A major but neglected issue. Cerebrovascular Diseases, 12(2), 75–81.

Steele, L. C., Moore, A., Nugent, A. M., Riley, M. S., Campbell, N. P., & Nicholls, D. P. (1997). Non-invasive measurement of cardiac output and ventricular ejection fractions in chronic cardiac failure: Relationship to impaired exercise tolerance. Clinical Science, 93(3), 195–203.

Stewart, D. J., Tomiak, E., Shamji, F. M., Mazik, D. E., & MacLeod, P. (2004). Phase II study of alternating chemotherapy regimens for advanced non-small cell lung cancer. Lung Cancer, 44(2), 241–249.

Stirn, I., Jarm, T., Kapus, V., & Strojnik, V. (2011). Evaluation of muscle fatigue during 100-m front crawl. European Journal of Applied Physiology, 111(1), 101–113.

Stone, S. D. (2005). Reactions to invisible disability: The experiences of young women survivors of hemorrhagic stroke. Disability and Rehabilitation, 27(6), 293–304.
Sundin, K., Jansson, L., & Norberg, A. (2000). Communicating with people with stroke and aphasia: Understanding through sensation without words. *Journal of Clinical Nursing*, 9(4), 481–488.

Sutorova, D., Kratyk, M., & Adamkov, J. (1987). Changes in psychological parameters after hemodilution in cerebrovascular diseases. *Československa Neurologie a Neurochirurgie*, 50(4), 228–232.

Tachimura, T., Fujita, Y., Yoneda, M., & Wada, T. (2000). Levator veli palatini muscle activity in patients with velopharyngeal incompetence due to stroke. *Japan Journal of Logopedics and Phoniatrics*, 41(1), 8–16.

Tanaka, H., Toyonaga, T., & Hashimoto, H. (2011). Functional and occupational characteristics associated with very early return to work after stroke in Japan. *Archives of Physical Medicine and Rehabilitation*, 92(5), 743–748.

Tanaka, S., Takeda, K., Otaka, Y., Kita, K., Osu, R., Honda, M., … Watanabe, K. (2011). Single session of transcranial direct current stimulation transiently increases knee extensor force in patients with Hemiparetic stroke. *Neurorehabilitation & Neural Repair*, 25(6), 565–569.

Tang, W. K., Chen, Y. K., Mok, V., Chu, W. C. W., Ungvari, G. S., Ahuja, A. T., & Wong, K. S. (2010). Acute basal ganglia infarcts in poststroke fatigue: An MRI study. *Journal of Neurology*, 257(2), 178–182.

Tang, W. K., Lu, J. Y., Chen, Y. K., Mok, V. C., Ungvari, G. S., & Wong, K. S. (2010). Is fatigue associated with short-term health-related quality of life in stroke? *Archives of Physical Medicine and Rehabilitation*, 91(10), 1511–1515.

Tang, W.-K., Lu, J.-Y., Mok, V., Ungvari, G. S., & Wong, K.-S. (2011). Is fatigue associated with suicidality in stroke? *Archives of Physical Medicine and Rehabilitation*, 92(8), 1336–1338.

Tannir, N. M., Cohen, L., Wang, X., Thall, P., Mathew, P. F., Jonasch, E., … Logothetis, C. (2006). Improved tolerability and quality of life with maintained efficacy using twice-daily low-dose interferon-alpha-2b: Results of a randomized phase II trial of low-dose versus intermediate-dose interferon-alpha-2b in patients with metastatic renal cell carci. *Cancer*, 107(9), 2254–2261.

Tchen, N., Juffs, H. G., Downie, F. P., Yi, Q., Hu, H., Chemerynsky, I., … Tannock, I. F. (2003). Cognitive function, fatigue, and menopausal symptoms in women receiving adjuvant chemotherapy for breast cancer. *Journal of Clinical Oncology: Of The American Society of Clinical Oncology*, 21(22), 4175–4183.

Thavichachart, N., Phanthumchinda, K., Chankrachang, S., Praditsuwan, R., Nidhinandana, S., Senanarong, V., & Poungvarin, N. (2006). Efficacy study of galantamine in possible Alzheimer’s disease with or without cerebrovascular. *International Journal of Clinical Practice*, 60(5), 533–540.

Thijss, J. C., Felt-Bersma, R. J., & ten Kate, R. W. (1982). Exertion-induced heat stroke. *Nederlands Tijdschrift Voor Geneeskunde*, 126(40), 1811–1814.

Thompson, H. S., & Ryan, A. (2009). The impact of stroke consequences on spousal relationships from the perspective of the person with stroke. *Journal of Clinical Nursing*, 18(12), 1803–1811.

Thompson, K. G., MacLaren, D. P., Lees, A., & Atkinson, G. (2002). Accuracy of pacing during breaststroke swimming using a novel pacing device, the Aquapacer. *Journal of Sports Sciences*, 20(7), 537–546.

Tierney, M. C., Oh, P., Moineddin, R., Greenblatt, E. M., Snow, W. G., Fisher, R. H., … MacLusky, N. J. (2009). A randomized double-blind trial of the effects of hormone therapy on delayed verbal recall in older women. *Psychoneuroendocrinology*, 34(7), 1065–1074.

Tistad, M. (2012). Needs for, use of and satisfaction with health care services in the course of the first year after stroke -the perspective of people with stroke. Karolinska Institutet.

Tobiasch, V., & Chrostek, M. (1981). So-called presclerosis developing cerebral ischemia. *Zeitschrift Fur Gerontologie*, 14(2), 120–144.

Tokmakova, M. P., Marinov, B. I., Manukov, I. H., Djurdjev, A., Kostianev, S. S., & Iluchev, D. H. (2007). Assessment of respiratory compensation phase during graded exercise in patients with chronic heart failure. *Folia Medica (Plodiv)*, 49(3), 26–31.

Toraldo, A., Laiacona, M., & Pagani, R. (2012). Perceptual and response-related components of unilateral neglect may evolve independently of one another: Evidence from five single-case studies. *Neurocase: The Neural Basis of Cognition*, 20(3), 241–259.

Townend, E., Brady, M., & McLaughlan, K. (2007). Exclusion and inclusion criteria for people with aphasia in studies of depression after stroke: A systematic review and future recommendations. *Neuroepidemiology*, 29(1-2), 1–17.

Tsai, W. W., Lee, M. Y., Yeh, W. L., Cheng, S. C., Soon, K. S., Lei, K. F., & Lin, W.-Y. (2013). A quantitative method for evaluating inferior glenohumeral joint stiffness using ultrasonography. *Medical Engineering and Physics*, 35(2), 236–240.
Tsalis, G., Toubekis, A. G., Michailidou, D., Gourgoulis, V., Douda, H., & Tokmakidis, S. P. (2012). Physiological responses and stroke-parameter changes during interval swimming in different age-group female swimmers. *Journal of Strength & Conditioning Research*, 26(12), 3312–3319.

Tseng, B. Y., & Kluding, P. (2009). The relationship between fatigue, aerobic fitness, and motor control in people with chronic stroke: A pilot study. *Journal of Geriatric Physical Therapy*, 32(3), 97–102.

Turhan, V., Polat, E., Murat-Atasoyu, E., Ozmen, N., Kucukkardali, Y., & Cavuslu, S. (2006). Leptospirosis in Istanbul, Turkey: A wide spectrum in clinical course and complications. *Scandinavian Journal of Infectious Diseases*, 38(10), 845–852.

Tyson, R. M., Kraemer, D. F., Hunt, M. A., Muldoon, L. L., Orby, P., Maron, L., … Neuwelt, E. A. (2006). The treatment of brain. *Therapy*, 3(1), 97–112.

Van den Burg, W., Saan, R. J., Van Zomeren, A. H., Boontje, A. H., Haaxma, R., & Wichmann, T. E. (1985). Carotid endarterectomy: Does it improve cognitive or motor functioning? *Psychological Medicine*, 15(2), 341–346.

Van de Port, I. G., Kwakkel, G., & Lindeman, E. (2008). Community ambulation in patients with chronic stroke: How is it related to gait speed? *Journal of Rehabilitation Medicine: Official Journal of the UEMS European Board of Physical and Rehabilitation Medicine*, 40(1), 23–27.

Van de Port, I. G., Kwakkel, G., van Wijk, I., & Lindeman, E. (2006). Susceptibility to deterioration of mobility long-term after stroke: A prospective cohort study. *Stroke*, 37(1), 167–171.

Van de Port, I. G. L., Kwakkel, G., Bruin, M., & Lindeman, E. (2007). Determinants of depression in chronic stroke: A prospective cohort study. *Disability and Rehabilitation*, 29(5), 353–358.

Van de Port, I. G. L., Kwakkel, G., Schepers, V. P. M., Heinemans, C. T. I., & Lindeman, E. (2007). Is fatigue an independent factor associated with activities of daily living, instrumental activities of daily living and health-related quality of life in chronic stroke? *Cerebrovascular Diseases (Basel, Switzerland)*, 23(1), 40–45.

Van de Port, I. G. L., Visser-Meily, A. M. A., Post, M. W. M., & Lindeman, E. (2007). Long-term outcome in children of patients after stroke. *Journal of Rehabilitation Medicine: Official Journal of the UEMS European Board of Physical and Rehabilitation Medicine*, 39(9), 703–707.

Van De Port, I. G. L., Wevers, L. E. G., Lindeman, E., Kwakkel, G. (2012). Effects of circuit training as alternative to usual physiotherapy after stroke. *British Medical Journal*, 344, e2672.

Van Der Veldt, A. A. M., Boven, E., Helgason, H. H., Van Wouwe, M., Berkhof, J., De Gast, G., … Haenen, J. B. A. G. (2008). Predictive factors for severe toxicity of sunitinib in unsellected patients with advanced renal cell cancer. *British Journal of Cancer*, 99(2), 259–265.

Van der Werf, S. P., van den Broek, H. L., Anten, H. W., & Bleijenberg, G. (2001). Experience of severe fatigue long after stroke and its relation to depressive symptoms and disease characteristics. *European Neurology*, 45(1), 28–33.

Van der Zee, C. H., Visser-Meily, J. M. A., Lindeman, E, Jaap Kappelle, L, & Post, M. W. M. (2013). Participation in the chronic phase of stroke. *Topics in Stroke Rehabilitation*, 20(1), 52–61.

Van Eijnden, H. M., van de Port, I. G. L., Visser-Meily, J. M. A., & Kwakkel, G. (2012). Poststroke fatigue: Who is at risk for an increase in fatigue? *Stroke Research and Treatment*, 2012, 1–8.

Van Wijk, I. (2006). TIA and stroke: The long-term perspective. Dissertation Submitted at Utrecht University.

Van Zandvoort, M. J., Kappelle, L. J., Algra, A., & De Haan, E. H. (1998). Decreased capacity for mental effort after single supratentorial lacunar infarct may affect performance in everyday life. *Journal of Neurology, Neurosurgery, and Psychiatry*, 65(5), 697–702.

Van Zomeren, a. H., ten Duis, H. J., Minderhoud, J. M., & Sipma, M. (1998). Lightning stroke and neuropsychological impairment: Cases and questions. *Journal of Neurology, Neurosurgery, and Psychiatry*, 64 (6), 763–770.

Vardy, J. (2008). Neurocognitive effects of chemotherapy in adults. *Australian Prescriber*, 31, 22–24.

Vargo, M. (2011). Brain tumor rehabilitation. *American Journal of Physical Medicine & Rehabilitation*, 90(5), S50–S62.

Visser-Meily, J. M. A., Rhebergen, M. L., Rinkel, G. J. E., Van Zandvoort, M. J., & Post, M. W. M. (2009). Long-term health-related quality of life after aneurysmal subarachnoid hemorrhage relationship with psychological symptoms and personality characteristics. *Stroke*, 40(4), 1526–1529.

Vuletic, V., Lezaic, Z., & Morovic, S. (2011). Post-stroke fatigue. *Acta Clinica Croatica*, 50(3), 341–344.

Wachelder, E. M., Moulaert, V. R. M. P., van Heugten, C., Verbunt, J. A., Bekkers, S. C. A. M., & Wade, D. T. (2009). Life after survival: Long-term daily functioning and quality of life after an out-of-hospital cardiac arrest. *Resuscitation*, 80(5), 517–522.

Walker, D. K., & Paez, A. P. (2013). Aortic valve endocarditis due to lactobacillus casei complicated by stroke. *Infectious Diseases in Clinical Practice*, 21(1), 66–68.
Ware, J. E., & Sherbourne, C. D. (1992). The MOS 36-item short-form health survey (SF-36). I. Conceptual framework and item selection. *Medical Care, 30*(6), 473–483.

Warren, M. (2008). Memory loss, dementia, and stroke: Implications for rehabilitation of older adults with age-related macular degeneration. *Journal of Visual Impairment & Blindness, 102*(10), 611–615.

Wendel, K., Risberg, J., Pessah-Rasmussen, H., Stahl, A., & Iwarsson, S. (2008). Long-term cognitive functional limitations post stroke: Objective assessment compared with self-evaluations and spouse reports. *International Journal of Rehabilitation Research, 31*(3), 231–239.

White, J. H., Gray, K. R., Magin, P., Attia, J., Sturm, J., Carter, G., & Pollack, M. (2012). Exploring the experience of post-stroke fatigue in community dwelling stroke survivors: a prospective qualitative study. *Disability and Rehabilitation, 34*(16), 1376–1384.

Widar, M., Ek, A. C., & Ahlström, G. (2004). Coping with long-term pain after a stroke. *Journal of Pain and Symptom Management, 27*(3), 215–225.

Widerström-Noga, E., & Finlayson, M. L. (2010). Aging with a disability: Physical impairment, pain, and fatigue. *Physical Medicine and Rehabilitation Clinics of North America, 21*(2), 321–337.

Williams, L. S., Weinberger, M., Harris, L., Clark, D., & Biller, J. (1999). Development of a stroke-specific quality of life scales. *Stroke, 30*(7), 1362–1369.

Winkens, I., Van Heugten, C. M., Fasotti, L., Duits, A. A., & Wade, D. T. (2006). Manifestations of mental slowness in the daily life of patients with stroke: A qualitative study. *Clinical Rehabilitation, 20*(9), 827–834.

Winkens, I., Van Heugten, C. M., Fasotti, L., & Wade, D. T. (2009). Reliability and validity of two new instruments for measuring aspects of mental slowness in the daily lives of stroke patients. *Neuropsychological Rehabilitation, 19*(1), 64–85.

Winkens, I., Van Heugten, C. M., Fasotti, L., & Wade, D. T. (2011). Treatment of mental slowness: how to evaluate treatment effects. A systematic review of outcome measures. *Neuropsychological Rehabilitation, 21*(6), 860–883.

Winkens, I., Van Heugten, C. M., Wade, D. T., Habets, E. J., & Fasotti, L. (2009). Efficacy of time pressure management in stroke patients with slowed information processing: A randomized controlled trial. *Archives of Physical Medicine and Rehabilitation, 90*(10), 1672–1679.

Winward, C., Sackley, C., Metha, Z., & Rothwell, P. M. (2009). A population-based study of the prevalence of fatigue after transient ischemic attack and minor stroke. *Stroke: A Journal of Cerebral Circulation, 40*(3), 757–761.

Wohlrab, J., Frances, C., & Sullivan, K. E. (2006). Strange symptoms in Sneddon’s syndrome. *Clinical Immunology, 119*(1), 13–15.

Wolfe, F., Petri, M., Alarcon, G. S., Goldman, J., Chakravarty, E. F., Katz, R. S., & Karlson, E. W. (2009). Fibromyalgia, systemic lupus erythematosus (SLE), and evaluation of SLE activity. *Journal of Rheumatology, 36*(1), 82–88.

Woodford, H. J., & George, J. (2007). Cognitive assessment in the elderly: A review of clinical methods. *QJM : Monthly Journal of the Association of Physicians, 100*(8), 469–484.

Wu, C. W., Liu, Z. D., Zhang, Y. B., Li, J. M., & Wang, D. X. (2008). Validity and reliability of Chinese version of Fatigue. *Neural Regeneration Research, 3*(2), 177–181.

Yamanaka, R., Koga, H., Yamamoto, Y., Yamada, S., Sano, T., & Fukushige, T. (2011). Characteristics of patients with brain metastases from lung cancer in a palliative care center. *Supportive Care in Cancer, 19*(4), 467–473.

Yang, S., & Kong, K. (2013). Level and predictors of participation in patients with stroke undergoing inpatient rehabilitation. *Singapore Medical Journal, 54*(10), 564–568.

Yorkston, K. M., Johnson, K., Boesflug, E., Skala, J., & Amtmann, D. (2010). Communicating about the experience of pain and fatigue in disability. *Quality of Life Research: An International Journal of Quality of Life Aspects of Treatment, Care and Rehabilitation, 19*(2), 243–251.

Yoshimura, R., Abe, K., & Terao, T. (1994). Lithium and antidepressant combination therapy in depressive patients with organic brain lesions. *Lithium, 5*(3), 169–171.

Yoshino, Y., Akiyama, S., Ouchi, K., Oishi, T., Takahashi, H., Lee, J., … Ishioka, C. (2013). Acute exacerbation of paraneoplastic neurological syndrome after massive tumor lysis of neuroendocrine carcinoma by chemoradiotherapy. *International Cancer Conference Journal, 2*(4), 247–250.

Youmans, G. L. (2012). Isolated visual production cues (mouth shape) and isolated auditory cues (initial phoneme) may selectively promote word retrieval in some individuals with aphasias. *Evidence-Based Communication Assessment and Intervention, 6*(2), 79–83.

Zajicek, J. P., Sanders, H. P., Wright, D. E., Vickery, P. J., Ingram, W. M., Reilly, S. M., … Thompson, A. J. (2005). Cannabinoids in multiple sclerosis (CAMs) study: Safety and efficacy data for 12 months follow up. *Journal of Neurology, Neurosurgery and Psychiatry, 76*(12), 1664–1669.
Zakharov, V. V. (2010). Vinpotropil in the treatment of dyscirculatory encephalopathy with cognitive impairment without dementia. Zhurnal Nevrologii i Psikhiiatrii Imeni S.S. Korsakova, 110(11), 13–6.
Zedlitz, A. M. E. E., Fasotti, L., & Geurts, A. C. H. (2011). Post-stroke fatigue: A treatment protocol that is being evaluated. Clinical Rehabilitation, 25(6), 487–500.
Zedlitz, A. M. E. E., Rietveld, T. C. M., Geurts, A. C., & Fasotti, L. (2012). Cognitive and graded activity training can alleviate persistent fatigue after stroke: A randomized, controlled trial. Stroke; a Journal of Cerebral Circulation, 43(4), 1046–1051.
Zedlitz, A. M. E. E., Visser-Meily, A. J. M. A., Schepers, V. P., Geurts, A. C. H., & Fasotti, L. (2011). Patients with severe poststroke fatigue show a psychosocial profile comparable to patients with other chronic disease: implications for diagnosis and treatment. ISRN Neurology, 2011, 1–8.
Zwinkels, A., Geusgens, C., van de Sande, P., & van Heugten, C. (2004). Assessment of apraxia: Inter-rater reliability of a new apraxia test, association between apraxia and other cognitive deficits and prevalence of apraxia in a rehabilitation setting. Clinical Rehabilitation, 18(7), 819–827.

APPENDIX 1

EMBASE (Ovid) 1980–17/November, 2013

1. stroke$.mp. or exp cerebrovascular accident/ (271510)
2. ischemic stroke$.mp. or exp brain ischemia/ (113089)
3. haemorrhagic stroke$.mp. (1045)
4. brain infarction$.mp. or exp brain infarction/ (49404)
5. cerebrovascular accident$.mp. or exp cerebrovascular accident/ (67011)
6. (intracranial embolism and thrombosis).mp. [mp = title, abstract, subject headings, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword] (31)
7. stroke/ or exp lacunar stroke/ or brain ischemia/ or brain infarction/ (206625)
8. cerebral clot$.mp. (6)
9. exp basal ganglion hemorrhage/ (363)
10. brain thrombosis.mp. or exp occlusive cerebrovascular disease/ (23537)
11. 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 (359046)
12. chronic fatigue syndrome/ or Fatigue Severity Scale/ or Fatigue Impact Scale/ or fatigue.mp. or exp fatigue/ (146693)
13. tiredness$.mp. or exp fatigue/ (124398)
14. (weariness$ or exhaustion$).mp. [mp = title, abstract, subject headings, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword] (16067)
15. mental fatigue.mp. (688)
16. 12 or 13 or 14 or 15 (158894)
17. cognitive impairment$.mp. or exp cognitive defect/ (108029)
18. cognitive deficit$.mp. (16405)
19. exp memory/ or cognitive decline$.mp. (179299)
20. cognitive function$.mp. (44117)
21. exp cognition/ or exp executive function/ or memory/ or task performance/ (1201781)
22. exp attention/ or mental function/ or thinking/ or mental control.mp. (135934)
23. mental performance/ or mental effort$.mp. (10912)
24. learning/ or working memory/ or mental speed.mp. (136711)
25. mental concentration/ (1816)
26. reasoning.mp. or decision making/ or thinking/ or problem solving/ (183037)
27. exp information processing/ (953035)
28. 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 or 25 or 26 or 27 (2125771)
29. 11 and 16 and 28 (791)
30. limit 29 to human (705)
31. limit 30 to (article or report)
32. limit 31 to (adult <18 to 64 years> or aged <65+ years>) (214)

PsycINFO 1806–18/November, 2013

1. exp Cerebrovascular Accidents/ or exp Cerebral Ischemia/ or stroke$.mp. (23183)
2. ischemic stroke$.mp. (2738)
3. exp Hemorrhage/ or exp Cerebral Hemorrhage/ or haemorrhagic stroke$.mp. (2268)
4. 1 or 2 or 3 (24709)
5. exp Fatigue/ or exp Chronic Fatigue Syndrome/ (7082)
6. tiredness$.mp. or exp Fatigue/ (6579)
7. slowness.mp. (782)
8. (weariness$ or exhaustion$).mp. [mp = title, abstract, heading word, table of contents, key concepts, original title, tests & measures] (4580)
9. exp Fatigue/ or exp Chronic Fatigue Syndrome/ or mental fatigue.mp. (7263)
10. 5 or 6 or 7 or 8 or 9 (12558)
11. exp Cognitive Impairment/ (21030)
12. exp Cognition/ or exp Cognitive Processes/ or exp Cognitive Ability/ or exp Memory/ or cognitive function$.mp. (419921)
13. exp Sustained Attention/ or exp Attention/ (48803)
14. exp Reasoning/ (20019)
15. exp Cognitive Impairment/ or exp Concentration/ or mental concentration.mp. (22212)
16. information processing.mp. (24350)
17. exp Executive Function/ (5625)
18. 11 or 12 or 13 or 14 or 15 or 16 or 17 (476729)
19. 4 and 10 and 18 (28)
20. limit 19 to human (27)
21. limit 20 to “300 adulthood <age 18 yrs and older>“ (18)
22. limit 21 to (“0100 journal” or “0110 peer-reviewed journal” or “0120 non-peer-reviewed journal” or “0130 peer-reviewed status unknown” or “0400 dissertation abstract” or “0500 electronic collection”) (18)

CINAHL (EBSCO) 1937–19/November, 2013

1. (MH “Fatigue Syndrome, Chronic”) OR (MH “Fatigue”) (11143)
2. “tiredness” (670)
3. “weariness” (33)
4. “exhaustion” (2.726)
5. “slowness” (170)
6. “mental fatigue” (127)
7. (S1 OR S2 OR S3 OR S4 OR S5 OR S6) (14243)
8. (MH “Stroke, Lacunar”) OR (MH “Stroke”) OR (MH “Cerebral Ischemia”) OR (MH “Basal Ganglia Hemorrhage”) OR (MM “Basal Ganglia Cerebrovascular Disease”) OR (MH “Intracranial Embolism and Thrombosis”) OR (MH “Stroke Units”) OR (MH “Cerebrovascular Disorders”) (44364)
9. “ischemic stroke” (4979)
10. “haemorrhagic stroke” OR (MH “Stroke Patients”) (2560)
11. S8 OR S9 OR S10 (46040)
12. (MH “Thinking”) OR (MH “Problem Solving”) OR (MH “Learning”) OR (MH “Memory”) (33807)
13. (MH “Attention”) OR “attention” (50246)
14. “concentration” (28061)
15. “mental speed” OR (MH “Distraction”) (858)
16. “information processing” OR (MH “Information Processing (Iowa NOC)”) OR (MH “Cognitive Ability (Iowa NOC)”) (1414)
17. “executive function” (1478)
18. “mental effort” (56)
19. “mental control” (31)
20. “cognitive impairment” (7092)
21. (S12 OR S13 OR S14 OR S15 OR S16 OR S17 OR S18 OR S19 OR S20) (116346)
22. S7 AND S11 AND S21 (36)
23. Limit 22 to humans (29)

MEDLINE (Ovid) 1946–18/November, 2013

1. Stroke, Lacunar/ or exp Stroke/ or stroke$.mp. (193119)
2. exp Cerebrovascular Disorders/ or post-stroke.mp. (277248)
3. Cerebral Infarction/ or Brain Ischemia/ or ischemic stroke$.mp. or “Intracranial Embolism and Thrombosis”/ (69915)
4. haemorrhagic stroke$.mp. (683)
5. poststroke.mp. (2517)
6. 1 or 2 or 3 or 4 or 5 (357293)
7. Fatigue/ or Mental Fatigue/ or Fatigue Syndrome, Chronic/ or fatigue.mp. (66154)
8. (tiredness$ or weariness$).mp. [mp = title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept, rare disease supplementary concept, unique identifier] (2683)
9. 7 or 8 (68060)
10. Mild Cognitive Impairment/ or cognitive impairment$.mp. (29475)
11. cognitive deficit$.mp. (11593)
12. exp Memory/ (102051)
13. exp Attention/ (60274)
14. exp Cognition/ or reasoning.mp. or exp Decision Making/ or exp Problem Solving/ (253163)
15. cognitive function$.mp. (31450)
16. information processing.mp. (14385)
17. concentration.mp. or exp Attention/ (1158244)
18. 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 (1513500)
19. 6 and 9 and 18 (131)
20. limit 19 to humans (125)
21. limit 20 to (“young adult (19 to 24 years)” or “adult (19 to 44 years)” or “young adult and adult (19-24 and 19-44)” or “middle age (45 to 64 years)” or “middle aged (45 plus years)” or “all aged (65 and over)” or “aged (80 and over)” (88)
22. limit 21 to (case reports or classical article or clinical trial or controlled clinical trial or evaluation studies or introductory journal article or journal article or multicenter study or randomized controlled trial or “scientific integrity review” or validation studies) (80)

*DART (1999) & Ethos (1600) /November, 2013*

1. Stroke
2. Cerebrovascular disease/accident/condition
3. Haemorrhagic stroke
4. Ischemic stroke
5. Lacunar stroke
6. Poststroke/post-stroke/after stroke
7. Fatigue
8. Tiredness
9. Weariness
10. Exhaustion
11. Chronic Fatigue Syndrome
12. Mental fatigue
13. Slowness
14. Cognitive Impairment
15. Cognitive deficit/function
16. Mental performance/effort
17. Mental/cognitive control
18. Mental concentration
19. Memory
20. Attention
21. Thinking
22. Learning
23. Reasoning
24. Decision making
25. Problem solving
26. Mental speed

*Combined with AND/OR when appropriate.*