

CHAPTER II

REVIEW OF RELATED LITERATURE

The review of literature is instrumental in the selection of the topic, formation of hypothesis and deductive reasoning leading to the problem. It helps to get a clear idea and supports the finding with regard to the problem under study.

The review of literature is instrumental in the formation of hypotheses and to get a full picture of what done with regard to the problem under study. Such a review brings about a deep and clear perspective of the overall field. Now a day the educational program of any type is characterized by reforms and innovative ideas. It seems to be necessary one to formulate such a reviews of various scholars' works. We can bring out a deep insight and clear perspective of the overall field in such reviews. Such collected reviews have been presented in logical order, in order to importance and in sequence of merit. This chapter is a step to get full picture of what has been done and said with regard to the problem under study. The review of literature in given as follows.

2.1. STUDIES ON YOGA

Manjunath RB, (2013). the efficacy of yoga as an intervention for in-patients with psychosis is as yet unknown. .This study aimed to compare the effect of add-on yoga therapy or physical exercise along with standard pharmacotherapy in the treatment of in-patients with Psychosis. This study was performed in an in-patient setting using a randomized controlled single blind design. A total of 88 consenting in-patients with psychosis were randomized into yoga therapy group (n=44) and physical exercise group (n=44). Sixty patients completed

the study period of 1½ months. Patients who completed in the yoga group (n=35) and in the exercise group (n=25) were similar on the demographic profile, illness parameters and psychopathology scores at baseline. The two treatment groups were not different on the clinical syndrome scores at the end of 2 weeks. At the end of 6 weeks, patients in the yoga group however had lower mean scores on Clinical Global Impression Severity (CGIS), Positive and Negative Syndrome Scale (total and general psychopathology subscale) and Hamilton Depression Rating Scale (HDRS) ($P < 0.05$). Repeated measure analysis of variance detected an advantage for yoga over exercise in reducing the clinical CGIS and HDRS scores. Adding yoga intervention to standard pharmacological treatment is feasible and may be beneficial even in the early and acute stage of psychosis.

Koenig KP, (2012). Occupational therapists use school-based yoga programs, but these interventions typically lack manualization and evidence from well-designed studies. Using an experimental pretest-posttest control group design, they examined the effectiveness of the Get Ready to Learn (GRTL) class room yoga program among children with autism spectrum disorders (ASD). The intervention group received the manualized yoga program daily for 16 wk, and the control group engaged in their standard morning routine. They assessed challenging behaviors with standardized measures and behavior coding before and after intervention. They completed a between-groups analysis of variance to assess differences in gain scores on the dependent variables. Students in the GRTL program showed significant decreases ($p < .05$) in teacher ratings of maladaptive behavior, as measured with the Aberrant Behavior Checklist, compared with the control participants. This study demonstrates that use of daily class room wide yoga interventions has a significant impact on key classroom behaviors among children with ASD...

Nagendra HR (2010). A specially designed Integrated Approach to Yoga Therapy module was applied to Autism Spectrum Disorders over a period of two academic years. Despite low numbers (six in each arm), consistency and magnitude of effects make the findings significant. Parental participation, allowing firm guidance to be given to each child, resulted in significant improvements in imitation and other skills, and in behavior at home and family relationships. They hypothesize that guided imitation of therapist body positions stimulated mirror neuron activation, resulting in improved sense of self.

Cheung MC, (2013). Effect of Chinese mind-body exercise improves self-control of children with autism, Self-control problems commonly manifest as temper outbursts and repetitive/rigid/impulsive behaviors, in children with autism spectrum disorders (ASD), which often contributes to learning difficulties and caregiver burden. The present study aims to compare the effect of a traditional Chinese Chan-based mind-body exercise, Nei Yang Gong, with that of the conventional Progressive Muscle Relaxation (PMR) technique in enhancing the self-control of children with ASD. Forty-six age- and IQ-matched ASD children were randomly assigned to receive group training in Nei Yang Gong (experimental group) or PMR (control group) twice per week for four weeks. The participants' self-control was measured by three neuropsychological tests and parental rating on standardized questionnaires, and the underlying neural mechanism was assessed by the participants' brain EEG activity during an inhibitory-control task before and after intervention. The results show that the experimental group demonstrated significantly greater improvement in self-control than the control group, which concurs with the parental reports of reduced autistic symptoms and increased control of temper and behaviors. In addition, the experimental group showed enhanced EEG activity in the anterior cingulate cortex, a region

that mediates self-control, whereas the PMR group did not. The present findings support the potential application of Chinese Chan-based mind-body exercises as a form of neuropsychological rehabilitation for patients with self-control problems. Chinese Clinical Trial Registry; Registration

2.2. STUDIES ON DYSLEXIA

Getchell N, (2010) examined the effect of short-term auditory pacing practice on dual motor task performance in children with and without dyslexia. Groups included dyslexic with Movement Assessment Battery for Children (MABC) scores > 15th percentile (D_HIGH, n = 18; mean age 9.89 +/- 2.0 years), dyslexic with MABC < or = 15th percentile (D_LOW, n = 15; mean age 10.43 +/- 1.8 years), and typically developing (TD, n = 18; mean age 10.64 +/- 1.8 years). Participants clapped and walked simultaneously for 3 pretest trials, completed 16 trials with auditory pacing, and 3 posttest trials without pacing. D_LOW differed significantly from D_HIGH and TD in mean relative phase (MRP) of the clap relative to the step, and variability (VRP) of the MRP. Significant differences also existed between pretest blocks and all other blocks in MRP. The results suggest that a short-term auditory pacing may be effective in improving MRP in all children. Further, there may be subtypes of dyslexia wherein children have more profound coordination difficulties and may preferentially change dual motor task performance with auditory pacing.

Katzen-Luchenta J. (2007) documented that The Declaration of Nutrition, Health, and Intelligence for the Child-to-be is an urgent cry from the unborn child for a life-span of nutrients for physical and mental wellness. It is a proclamation of paramount importance for everyone involved in child development: parents, health professionals, teachers, government

agencies, all producers of food--and children, so they may learn how to feed themselves well. The Declaration of Olympia on Nutrition and Fitness, 1996, came from a group of nutritional scientists and medical doctors to commemorate the Olympic Games' 100th anniversary. They based it on the health principles of Hippocrates: genetics, the age of the individual, the powers of various foods, and exercise. Following today's vast wealth of nutritional research and expressing it with my teaching experience, I have revitalized the Declaration of Olympia by writing from the heart of the little learner and the hope of the child-to-be. The nutrients implicated in healthy reproduction and lifelong health includes B vitamins, particularly B1, B6, folate, B12 antioxidants, particularly vitamins C and E: minerals such as iron, zinc, magnesium, selenium, iodine, and copper; and essential fatty acids, particularly DHA. These nutrients also lower the risk of neural tube defects: autism, dyslexia, Down's syndrome: childhood cancers, obesity, and defective fetal cell membranes associated with maternal diabetes. Our metabolism is hugely influenced also by activity and by affection. Today's foods are often processed beyond the cells' recognition and can result in neurological and physical morbidity and mortality. A diet of unprocessed free-range animals and seafood: legumes, deep-colored vegetables and fruits: nuts, seeds, and whole grains, germ and bran, reinstates nutritional potency.

Getchell N, (2007) reported that Dyslexia is the most commonly occurring learning disability in the United States, characterized by difficulties with word recognition, spelling, and decoding. A growing body of literature suggests that deficits in motor skill performance exist in the dyslexic population. This study compared the performance of children with and without dyslexia on different subtests of the Test of Gross Motor Development and Movement Assessment Battery for Children and assessed whether there were developmental

changes in the scores of the dyslexic group. Participants included 26 dyslexic children (19 boys and 7 girls; 9.5 yr. old, SD = 1.7) and 23 age- and sex-matched typically developing (17 boys and 6 girls; 9.9 yr. old, SD = 1.3) children as a control group. Mann-Whitney U tests indicated that the dyslexic group performed significantly lower than the control group only on the Total Balance subtest of the Movement Assessment Battery for Children. Additionally, the young dyslexic group performed significantly better on the Total Balance subtest, compared to the older dyslexic group. These results suggest that cerebella dysfunction may account for differences in performance.

Bishop DV. (2007) documented that Dore Achievement Centres are springing up world-wide with a mission to cure cerebellar developmental delay, thought to be the cause of dyslexia, attention-deficit hyperactivity disorder, dyspraxia and Asperger's syndrome. Remarkable success is claimed for an exercise-based treatment that is designed to accelerate cerebellar development. Unfortunately, the published studies are seriously flawed. On measures where control data are available, there is no credible evidence of significant gains in literacy associated with this intervention. There are no published studies on efficacy with the clinical groups for whom the programme is advocated. It is important that family practitioners and paediatricians are aware that the claims made for this expensive treatment are misleading.

Reynolds D, Nicolson RI. (2007) reported the results of a long-term follow-up of an exercise-based approach to dyslexia-related disorders (Reynolds, Nicolson, & Hambly, *Dyslexia*, 2003; 9(1): 48-71). In the initial study, children at risk of dyslexia were identified in 3 years of a junior school. One half then undertook a 6 month, home-based exercise

programme. Evaluation after 6 months indicated that the exercise group improved significantly more than the controls on a range of cognitive and motor skills. Critics had suggested that the improvement might be attributable to artifactual issues including Hawthorne effects; an initial literacy imbalance between the groups; and inclusion of non-dyslexic participants. The present study evaluated the issue of whether the gains were maintained over the following 18 months, and whether they were in some sense artifactual as postulated by critics of the original study. Comparison of (age-adjusted) initial and follow-up performance indicated significant gains in motor skill, speech/language fluency, phonology, and working memory. Both dyslexic and non-dyslexic low achieving children benefited. There was also a highly significant reduction in the incidence of symptoms of inattention. Interestingly there were no significant changes in speeded tests of reading and spelling, but there was a significant improvement in (age-adjusted) reading (NFER). It is concluded that the gains were indeed long-lasting, and that the alternative hypotheses based on potential artifacts were untenable, and that the exercise treatment therefore achieved its applied purpose. Further research is needed to determine the underlying reasons for the benefits. Possible (and potentially synergistic) explanations include: improved cerebellar function (neural level); improved learning ability and/or attentional ability (cognitive level); improved self-esteem and self-efficacy (affective level); and improved parental/familial support (social level)

Shastry BS. (2007) found that Dyslexia is the most common and carefully studied of the learning disabilities in school-age children. It is characterized by a marked impairment in the development of reading skills, and affects a large number of people (5-10%). Reading difficulties may also arise from poor vision, emotional problems, decreased hearing ability,

and behavioral disorders, such as attention-deficit hyperactivity (ADHD). Although many areas of the brain are involved in reading, analysis of postmortem brain specimens by a variety of imaging techniques most consistently suggests that deficiency within a specific component of the language system - the phonologic module - in the temporo-parietal-occipital brain region underlies dyslexia. It is a highly familial and heritable disorder with susceptibility loci on chromosomes 1, 2, 3, 6, 11, 13, 15 and 18. Recently, four candidate genes (KIAA 0319, DYX1C1, DCDC2 and ROBO1) are shown to be associated with dyslexia. Although some of these results are controversial because of the genetic heterogeneity of the disorder, the available evidence suggests that dyslexia could be due to the abnormal migration and maturation of neurons during early development. Interestingly, in spite of genetic heterogeneity, the pathology appears to involve common phonological coding deficits. The condition can be managed by a highly structured educational training exercise.

Aziz S, et.al. (2006) investigated whether orthoptic exercises are an effective way to influence the near point of convergence, fusion range and asthenopic symptoms. methods: Seventy-eight patients met the inclusion criteria of visual acuity 6/9 or better, no history of orthoptic treatment, squint surgery or Meares Irlen syndrome/dyslexia. Information was collected from case records related to diagnosis, near point of convergence, fusion range, prism and cover test measurements and symptoms. Type, duration and frequency of exercises were also recorded. Non-parametric statistics were applied. RESULTS: Patients ranged in age from 5 to 73 years (mean 11.9). Females outnumbered males (46:32). The diagnoses were: decompensating heterophoria (n = 50) or convergence insufficiency (n = 28: primary 27; secondary 1). Exophoria was more common (n = 65), than esophoria (n = 11) or

orthophoria (n = 1). Treatments were aimed at improving near point of convergence and/or reduced fusional reserves. The mean treatment period was 8.2 months. Reduced near point of convergence normalized following treatment in 47/55 cases, and mean near point of convergence improved from 16.6 to 8.4 cm (p = 0.0001). Fusional reserves normalized in 29/50. Fusional convergence improved significantly for those with exodeviation (p > 0.0006). Asthenopic symptoms improved in 65 patients. A reduction in deviation of 5 pd or more occurred in 20 patients. CONCLUSIONS: Orthoptic exercises are an effective means of reducing symptoms in patients with convergence insufficiency and decompensating exophoria, and appear to target the proximal and fusional components of convergence. Their role in esophoria is unclear and needs further study.

Rawstron JA, (2005), examined the current scientific evidence base regarding the efficacy of eye exercises as used in optometric vision therapy. methods: A search was performed of the following databases: Allied and Complementary Medicine Database, Cochrane Database of Systematic Reviews, and Cochrane Register of Controlled Trials, embase, and medline. Relevant articles were reviewed and analyzed for strengths and weaknesses. Pertinent sections of classic texts were studied to provide a historical basis and to serve as a source for additional early references. results: Forty-three refereed studies were obtained. Of these, 14 were clinical trials (10 controlled studies), 18 review articles, 2 historical articles, 1 case report, 6 editorials or letters, and 2 position statements from professional colleges. Many of the references listed by the larger reviews were unpublished or published in obscure or nonrefereed sources and therefore were not accessible. conclusions: Eye exercises have been purported to improve a wide range of conditions including vergence problems, ocular motility disorders, accommodative dysfunction,

amblyopia, learning disabilities, dyslexia, asthenopia, myopia, motion sickness, sports performance, stereopsis, visual field defects, visual acuity, and general well-being. Small controlled trials and a large number of cases support the treatment of convergence insufficiency. Less robust, but believable, evidence indicates visual training may be useful in developing fine stereoscopic skills and improving visual field remnants after brain damage. As yet there is no clear scientific evidence published in the mainstream literature supporting the use of eye exercises in the remainder of the areas reviewed, and their use therefore remains controversial.

Berry T et.al. (2005), selected constructs of the transtheoretical model (TTM) of behavior change in relation to exercise behavior with an adolescent sample. A further purpose was to examine reasons why adolescents stop physical activity and to relate these to stages of exercise change. **METHODS:** Participants were 15 to 17 year old students at a private high school (N = 327). Participants completed a questionnaire consisting of an exercise measure, measures of the TTM variables, and an open-ended question that asked if they used to exercise in the past but currently did not, why they had stopped. The TTM data were analyzed using ANOVA F-tests with post-hoc Scheffe tests. To evaluate the ability of the TTM variables to discriminate between stages of exercise behavior, standard discriminant function analyses were performed. Open-ended answers to the relapse question were themed according to a model which categorizes barriers preventing youth's participation in yogenic practices as infrastructural, superstructural, and procedural. The relationship of perceived barriers to stage of behavior change was assessed using cross-tabulation and chi-square analyses. **RESULTS:** Moderate support for the TTM constructs were found, with the strongest discriminator between stages being strenuous exercise, and self-efficacy being the

most supported construct. Infrastructural, superstructural, and procedural barriers were all evident. CONCLUSION: Over 30% of previously active adolescents in this study reported barriers precluding extracurricular physical activity. Interventions should target the most often cited reasons for relapse: time and limits relating to the nature of the adolescent self.

Kolanowski AM, et.al. (2005) found that Agitation and passivity are behavioral symptoms exhibited by 90% of nursing home residents with dementia. They account for many poor health outcomes, caregiver burden, and increased costs of long-term care. OBJECTIVES: This study tested the efficacy of yoga activities derived from the Need-driven Dementia-compromised Behavior (NDB) model: activities matched to skill level only; activities matched to style of interest only; and a combination of both (NDB-derived) for responding to the behavioral symptoms of dementia. METHODS: Thirty participants were randomly assigned to 1 of 6 possible order-of-condition presentations in this crossover experimental design with repeated measures of dependent variables. Trained research assistants, blind to condition match, implemented each condition for 12 consecutive days. Measures of engagement (time on task and participation), affect, and behavioral symptoms (agitation and passivity) were taken from videotape recordings of each session. Mood was measured with the Dementia Mood Picture Test. The primary analysis method was mixed-model analysis of variance. RESULTS: Significantly more time on task, greater participation, more positive affect, and less passivity were found under NDB-derived and matched to interest only treatments compared with the matched to skill level only treatment or baseline. Agitation and negative affect improved under all treatments compared with baseline. There was no significant change in mood. DISCUSSION: The NDB-derived activities are tailored to meet individual needs and improve behavioral symptoms associated with dementia. These

findings help to explain factors that produce behavioral symptoms and the mechanisms that underlie their successful treatment.

Reynolds D, et.al. (2003) reported of an exercise-based approach to remediation of dyslexia-related disorders. Pupils in three years of a Warwickshire junior school were screened for risk of literacy difficulty using the Dyslexia Screening Test (DST). The 35 children scoring 0.4 or over on the DST were divided randomly into two groups matched for age and DST score. One quarter of the participants had an existing diagnosis of dyslexia, dyspraxia or ADHD. Both groups received the same treatment at school but the intervention group used the DDAT exercise programme daily at home. Performance on the DST and specialist cerebellar/vestibular and eye movement tests were assessed initially and after six months. Cerebellar/vestibular signs were substantially alleviated following the exercise treatment whereas there were no significant changes for the control group. Even after allowing for the passage of time, there were significant improvements for the intervention group in postural stability, dexterity, phonological skill, and (one-tailed) for naming fluency and semantic fluency. Reading fluency showed a highly significant improvement for the intervention group, and nonsense passage reading was also improved significantly. Significantly greater improvements for the intervention group than the control group occurred for dexterity, reading, verbal fluency and semantic fluency. Substantial and significant improvements (compared with those in the previous year) also occurred for the exercise group on national standardized tests of reading, writing and comprehension. It is concluded that, in addition to its direct effects on balance, dexterity and eye movement control, the benefits of the DDAT exercise treatment transferred significantly to cognitive

skills underlying literacy, to the reading process, and to standardized national literacy attainment tests.

Bruce DG, et.al. (2002) examined whether fear of falling is a probable cause of reduced yoga physical activity levels in healthy older women. DESIGN: Cross-sectional analysis of baseline data from a longitudinal study. PARTICIPANTS: One thousand five hundred older, ambulatory women (aged 70-85), selected at random from the electoral roll. MEASUREMENTS: Self-reported recreational physical activity levels and fear of falling, demographic variables, anthropometric variables and measures of disability, and physical and cognitive function. RESULTS: The study subjects had low levels of physical and cognitive impairments; 24.1% of the group was obese (body mass index > 30). Twenty-six percent of the women did not participate in recreational physical activity; 39% participated in sufficient activity to gain probable health benefits. Although the women who did not participate in recreational activities were most likely to report fear of falling (45.2%), it was common in the group as a whole (33.9%), including the most active women (27.0%). Independent risk factors for nonparticipation in physical activity were fear of falling (odds ratio (OR)=0.70, 95% confidence interval (CI)=0.54-0.90, P=.006), obesity (OR=0.50, 95% CI=0.38-0.66, P=.001), and slower times on the timed up-and-go test (OR=0.88, 95% CI=0.84-0.92, P=.001). Fear of falling was also independently associated with lower recreational physical activity levels in women who were active (beta=-0.09, P=.003). Subgroup analysis suggested that fear of falls affected activity levels at a prides ability stage in women with mildly impaired mobility. CONCLUSIONS: Fear of falling is common in healthy, high-functioning older women and is independently associated with reduced levels of participation in

recreational physical activity. Fear of falling is an important psychological barrier that may need to be overcome in programs attempting to improve activity levels in older women.

Gabler-Halle D, (1993) reported that Physical fitness of persons who are developmentally disabled has received relatively little attention in the special education literature when compared to intellectual functioning (e.g., learning, memory, and language) and to acquisition of functional skills (e.g., self-care, community, and vocational). Despite an increased interest in recreational programming stimulated by the concept of functional curricula, teachers may still be reluctant to include physical fitness activities in their students' schedules. Perhaps physical fitness programming for those with developmental disabilities would have wider appeal and application if it were embedded in the broader context of psychological and behavioral change (i.e., engagement in exercise produces generalized changes beyond direct improvement in physical well-being). This article is a review and critique of literature that focuses on the effects of participation in aerobic exercise on three classes of psychological/behavioral variables for persons with mental retardation and associated disabilities. The methodology that characterizes this literature is analyzed, and recommendations for future research are proposed.

Rounds BB, et.al. (1991) studied to record and measure, by means of a microcomputer, the reading eye movements and reading efficiency of a sample of "poor readers" from an adult, professional school population. A program of oculomotor skill enhancement training was given to 10 students who failed an academically appropriate reading test. Their pre- and post-training reading performance was compared to that of a group of students who also failed the reading test but received no such training. All subjects' eye

movements were monitored and recorded individually while reading, using a Visagraph Eye-Movement Recording System. The subjects were split into an experimental group (receiving training) and a control group (receiving no training). Following a 12-hour program of "in office" and "home" training, the group receiving oculomotor training showed trends toward improved reading eye movement efficiency (number of regressions, number of fixations and span of recognition), compared to that of the untrained group.

Byl NN, et.al. (1989) found that Form rotation, figure directionality, and figure-ground discrimination were evaluated before and after 10 days of vestibular or aerobic exercises for 30 boys (7 to 12 yr.) who showed problems in learning, reading, and inattention. Eight subjects had normal vestibulo-ocular reflex (VOR) responses as determined by caloric and rotational testing. They were assigned to a vestibular program (Control Group I). The 22 subjects with abnormal VOR test responses were randomly assigned to either aerobic exercises (Experimental Group II) or a vestibular program (Experimental Group III). Spatial perceptual test scores varied widely, with the majority performing below age-expected norms but no significant differences on vestibular status appeared. Postexercise, only subjects completing the vestibular program made significant gains: Experimental Group III (abnormal VOR) made significant gains in accuracy and normal test responses compared to the other groups, and Control Group I made significantly greater gains in speed of spatial perceptual processing. For boys with problems in learning, reading, inattention, and vestibular function, a vestibular exercise program complementing a traditional or special educational program may enhance the spatial perceptual skills needed for reading.

Silver LB. (1986) estimated that between 3% and 7% of children and adolescents in this country--up to 4 million--are learning disabled. Of this group, about 20% also have attention deficit disorder. Many professionals in multiple disciplines have proposed treatment approaches. When research has been done to support the approach, the reports and data may be published in journals not normally read by the practicing physician. When research data are not available, the information may be in a popular book, newspapers, or lay magazines or on television. Thus, parents may know of ideas and suggestions before the professional in clinical practice. These acceptable and controversial approaches to treatment are reviewed. It is understandable that a parent would seek out improved ways of helping his or her child. I reviewed the significant literature in an effort to assist the practicing physician in providing appropriate parental guidance and clinical interventions

Kaciński M, et.al. (1985) analysed the causes of mirror writing and its evolution in a girl aged 7-9 years. Among the possible causes they consider changing lateralization of extremities, absence of evident predominance of a hemisphere, acquiring of this writing by exercise through imitation with the left hand of the writing movements performed by the right hand, and the possibility of microtrauma of the central nervous system. It is stressed that the mental development was normal and there were no features of developmental dyslexia. Dyslexia is now recognized world over as a difficulty which can be assailed with a suitable remedial programme. It is no more considered as a disorder. It is a matter of making the correct choice of an intervention programme which goes a long way in making life better and easier for the dyslexia. Texas Education Code (TEC 38.003) State definition of dyslexia is as follows: "Dyslexia" means a disorder of constitutional origin manifested by a difficulty in learning to read, write, or spell, despite conventional instruction, adequate

intelligence, and socio-cultural opportunity. “Related disorders” include disorders similar to related to dyslexia, such as developmental auditory imperceptions, dysphasia, specific developmental dyslexia developmental dysgraphia and developmental spelling disability. The International Dyslexia Association’s current definition of dyslexia: Characterized by difficulties with accurate and / or fluent word recognition and by poor spelling and decoding abilities. These difficulties typically result from a deficit in the phonological component of language that is often effective classroom instruction. Secondary consequences may include problems in reading comprehension and reduced reading experience that can impede growth of vocabulary and background knowledge. Efforts are now under way to assail the difficulties posed by Dyslexia in the process of language learning and language acquisition and various studies have been undertaken in different dimensions to ascertain the specific causes and symptoms so as to finds suitable strategies to overcome this difficulty.

2.3. STUDIES ON SOCIO ENVIRONMENTAL AND LEARNING DISORDER SYNDROME FACTORS

White LS.(2009) reported that There is an increasing interest in the use of yoga for children to calm the mind and increase health and well being. Despite scant but increasing evidence supporting the efficacy of yoga in children, special yoga programs within schools are being developed for children and adolescents. This increasing popularity of the potential benefits of yoga may encourage parents to consider yoga for their children and request referrals or clarification of the purported effects. A description of the philosophical basis of yoga, the basic components of a yoga practice, safety concerns, and how to locate and evaluate a yoga program for children will be addressed.

Berger DL, et.al. (2009) examined yoga's effects on inner-city children's well-being.

METHODS: This pilot study compared fourth- and fifth-grade students at 2 after-school programs in Bronx, New York. One program offered yoga 1 hour per week for 12 weeks (yoga) and the other program (non-yoga) did not. Preintervention and post intervention emotional well-being was assessed by Harter's Global Self-Worth and Physical Appearance subscales, which were the study's primary outcome measures. Secondary outcomes included other measures of emotional well-being assessed by 2 new scales: Perceptions of Physical Health and Yoga Teachings (including Negative Behaviors, Positive Behaviors, and Focusing/relaxation subscales). Preintervention and post intervention, physical wellbeing was assessed by measures of flexibility and balance. Subjective ratings of yoga's effects on well-being were evaluated by an additional questionnaire completed by the yoga group only.

RESULTS: Data were collected from 78% (n=39) and 86.5% (n=32) of potential yoga and non-yoga study enrollees. No differences in baseline demographics were found. Controlling for preintervention well-being differences using analysis of covariance, we found that children in the yoga group had better post intervention Negative Behaviors scores and balance than the non-yoga group ($P < .05$). The majority of children participating in yoga reported enhanced wellbeing, as reflected by perceived improvements in behaviors directly targeted by yoga (e.g., strength, flexibility, balance).

CONCLUSIONS: Although no significant differences were found in the study's primary outcomes (global self-worth and perceptions of physical well-being), children participating in yoga reported using fewer negative behaviors in response to stress and had better balance than a comparison group. Improvements in wellbeing, specifically in behaviors directly targeted by yoga, were reported. These results suggest a possible role of

yoga as a preventive intervention as well as a means of improving children's perceived well-being.

Oppenheim WL. (2009) documented that There are no published studies specifically addressing complementary and alternative treatments in adults with cerebral palsy (CP). However, national surveys of adults with chronic disabilities document that a majority of them use such treatments, that they are willing to pay out of pocket, if necessary, and that they believe that pursuing such treatment relieves pain, reduces stress and anxiety, and leads to improved feelings of fitness and well-being. Individuals enjoy taking charge of their own health care decisions, and frequently feel more in control with these therapies than with more traditional methods. In contrast to adults, there is some information on complementary and alternative methods (CAM) in children with CP. This article discusses some of the CAM used in children that may be carried over into adulthood, as well as the pitfalls for patients and conventional physicians as they try to sort out what might be helpful and what might be harmful in this arena. Practitioners of both conventional and CAM therapies believe that exercise can be beneficial; accordingly, activities such as recreational sports, yoga, and hippo therapy may be continued from childhood into adulthood. General treatments for stress and anxiety, through such activities as yoga and meditation, though not directed at CP per se, may be more popular for adults than children. Research in this area should first identify what methods are being utilized and then subject these methods to well-designed outcome studies that take into account any associated risks.

Birdee GS, et.al. (2009)evaluated the evidence for clinical applications of yoga among the pediatric population. **METHODS:** We conducted an electronic literature search including

CINAHL, Cochrane Central Register of Controlled Trials (CENTRAL), EMBASE, Medline, PsycINFO, and manual search of retrieved articles from inception of each database until December 2008. Randomized controlled trials (RCTs) and nonrandomized controlled trials (NRCTs) were selected that included yoga or yoga-based interventions for individuals aged 0 to 21 years. Data were extracted and articles critically reviewed using a modified Jadad score and descriptive methodological criteria, with summarization in tables. **RESULTS:** Thirty-four controlled studies published from 1979 to 2008 were identified, with 19 RCTS and 15 NRCTs. Many studies were of low methodological quality. Clinical areas for which yoga has been studied include physical fitness, cardio respiratory effects, motor skills/strength, mental health and psychological disorders, behavior and development, irritable bowel syndrome, and birth outcomes following prenatal yoga. No adverse events were reported in trials reviewed. Although a large majority of studies were positive, methodological limitations such as randomization methods, withdrawal/dropouts, and details of yoga intervention preclude conclusive evidence. **CONCLUSIONS:** There are limited data on the clinical applications of yoga among the pediatric population. Most published controlled trials were suggestive of benefit, but results are preliminary based on low quantity and quality of trials. Further research of yoga for children by using a higher standard of methodology and reporting is warranted.

Benavides S, and Caballero J. (2009) determined the effect of yoga on weight in youth at risk for developing type 2 diabetes. Secondly, the impact of participation in yoga on self-concept and psychiatric symptoms was measured. **METHODS:** A 12-week prospective pilot Ashtanga yoga program enrolled twenty children and adolescents. Weight was measured before and after the program. All participants completed self-concept, anxiety, and depression inventories at the initiation and completion of the program. **RESULTS:** Fourteen

predominately Hispanic children, ages 8-15, completed the program. The average weight loss was 2kg. Weight decreased from 61.2+/-20.2kg to 59.2+/-19.2kg (p=0.01). Four of five children with low self-esteem improved, although two had decreases in self-esteem. Anxiety symptoms improved in the study. CONCLUSION: Ashtanga yoga may be beneficial as a weight loss strategy in a predominately Hispanic population.

Benner-Davis S, and Heaton PC. (2007) found that Attention-Deficit and Hyperactivity Disorder (ADHD) is a condition that presents with a variety of behavioral and social problems. The objective of this review was to examine the evidence concerning the controversies surrounding the diagnosis of ADHD and the safety of pharmacological and nonpharmacological treatment. A MEDLINE search was conducted using MeSH terms ADHD, children, treatments or behavioral therapy. The search was limited to January 1990 to present, randomized clinical trials, retrospective studies and English. Fifty-seven articles were selected for review. Controversies exist regarding the diagnosis: variations exist by gender, across countries and by method of diagnosis. These issues are currently unresolved. The interventions with the most data concerning their safety and efficacy in children were stimulant medications. Children with ADHD who took stimulant medications showed the greatest improvement in behavior when compared to other interventions such as behavior therapy or family counseling. Limitations of behavior therapy included that it is often a difficult process to continue on an ongoing basis and only a portion of the therapy stimulated the child's natural reward system. However, a combination of both stimulant medication and behavior therapy demonstrated synergistic efficacy. Care must be taken to insure that issues of gender and race, as well as the adverse effects of treatment options, are adequately taken into account by the treating clinician.

Weber W (2007) found that Complementary and alternative medical (CAM) therapies are commonly used by parents for their children who have attention deficit hyperactivity disorder (ADHD) or autism spectrum disorders. The use of these therapies is well documented, yet the evidence of the safety and efficacy of these treatments in children is limited. This article describes the current evidence-based CAM therapies for ADHD and autism, focusing on nutritional interventions; natural health products, including essential fatty acids, vitamins, minerals, and other health supplements; biofeedback; and reducing environmental toxins. The CAM evidence in ADHD is addressed, as is the CAM literature in autism.

Lotan M.(2007) reported that The individual with Rett syndrome (RS) displays an array of challenging difficulties in all areas of daily living. Since there is no cure for the disorder at this moment, parents of the individual with Rett search for different interventional modalities that will improve the condition and quality of life for their child. During the last few years, many individuals with RS have experienced different kinds of interventions. This paper presents these methods with relevant case stories for others to share the possibilities. This paper reviews the following interventions: animal-assisted therapy, such as dolphin therapy and dog-assisted therapy; auditory integration training; hyperbaric chamber; manual therapy, such as acupuncture/acupressure, aromatherapy, craniosacral therapy, Mayo facial release, Treager massage, chiropractor, and Reiki; mental modification techniques, such as Lovas and cognitive rehabilitation; motoric interventions, such as advanced biomechanical rehabilitation, patterning/Doman-DeLacato approach, and yoga. The present paper is not a recommendation for any of the above-mentioned techniques, but merely a review of different interventions available for the inquisitive parent of the individual with RS.

Nespor K, (2006) found that Physical activity can improve mental health. Positive effect of physical activity on depression and anxiety are mentioned. Moreover physical activity increases resistance against memory loss during aging. Physical activity also improves quality and life satisfaction in all age group; this fact was confirmed also in Czech children. Physical activity should be sufficient, but not excessive, and it should be combined with pharmacotherapy in severe and long-term depression. The kind of physical activity depends on the preferences and possibilities of patients; walking, yoga, swimming, etc. are usually appropriate.

Rojas NL(2005) found that Use of complementary and alternative medicine (CAM) for treatment of attention-deficit hyperactivity disorder (ADHD) has become widespread in both referral and primary care populations. We review the purported mechanism of action and available evidence for selected CAM therapies for ADHD. Enduring controversies, such as elimination of artificial food additives, colors, and/or preservatives; the effect of sugar on behavior in children; and the use of EEG biofeedback, have been well studied but lack support as effective sole treatments for ADHD. The initial evidence for some emerging CAM therapies, such as essential fatty acid supplementation, yoga, massage, homeopathy, and green outdoor spaces, suggests potential benefits as part of an overall ADHD treatment plan. More rigorously designed studies are needed to evaluate their effectiveness as single therapy for ADHD.

Manjunath NK. (2004) found that The performance scores of children (aged 11 to 16 years) in verbal and spatial memory tests were compared for two groups (n = 30, each), one

attending a yoga camp and the other a fine arts camp. Both groups were assessed on the memory tasks initially and after ten days of their respective interventions. A control group (n = 30) was similarly studied to assess the test-retest effect. At the final assessment the yoga group showed a significant increase of 43% in spatial memory scores (Multivariate analysis, Tukey test), while the fine arts and control groups showed no change. The results suggest that yoga practice, including physical postures, yoga breathing, meditation and guided relaxation improved delayed recall of spatial information.

Jensen PS (2004) reported that Boys diagnosed with ADHD by specialist pediatricians and stabilized on medication were randomly assigned to a 20-session yoga group (n = 11) or a control group (cooperative activities; n = 8). Boys were assessed pre- and post-intervention on the Conners' Parent and Teacher Rating Scales-Revised: Long (CPRS-R:L& CTRS-R:L; Conners, 1997), the Test of Variables of Attention (TOVA; Greenberg, Cormna, & Kindschi, 1997), and the Motion Logger Actigraph. Data were analyzed using one-way repeated measures analysis of variance (ANOVA). Significant improvements from pre-test to post-test were found for the yoga, but not for the control group on five subscales of the Conners' Parents Rating Scales (CPRS): Oppositional, Global Index Emotional Lability, Global Index Total, Global Index Restless/Impulsive and ADHD Index. Significant improvements from pre-test to post-test were found for the control group, but not the yoga group on three CPRS subscales: Hyperactivity, Anxious/Shy, and Social Problems. Both groups improved significantly on CPRS Perfectionism, DSM-IV Hyperactive/ Impulsive, and DSM-IV Total. For the yoga group, positive change from pre- to post-test on the Conners' Teacher Rating Scales (CTRS) was associated with the number of sessions attended on the DSM-IV Hyperactive-Impulsive subscale and with a trend on DSM-IV Inattentive subscale.

Those in the yoga group who engaged in more home practice showed a significant improvement on TOVA Response Time Variability with a trend on the ADHD score, and greater improvements on the CTRS Global Emotional Lability subscale. Results from the Motion Logger Actigraph were inconclusive. Although these data do not provide strong support for the use of yoga for ADHD, partly because the study was under-powered, they do suggest that yoga may have merit as a complementary treatment for boys with ADHD already stabilized on medication, particularly for its evening effect when medication effects are absent. Yoga remains an investigational treatment, but this study supports further research into its possible uses for this population. These findings need to be replicated on larger groups with a more intensive supervised practice program.

Chris Singleton made a study on **interventions for dyslexia**. Other research studies carried out in the UK, in the USA and other countries, are considered in separate because of differences in schools systems and approaches to special educational needs. In addition, eight high-quality studies of more intensive intervention programmes for pupils (with specialist support being given individual or in group) are considered in greater detail. The overall findings are that children and young people with dyslexia or learning difficulties are able to benefit significantly and substantially from intensive support, provided by those who have undertaken high quality specialist teacher training. There has been massive effort to unravel the mysteries pertaining to the cause and nature of dyslexia and the anomalies in the Structure and function of the dyslexia brain. Some of the works form the profound basis for the remedial programmes and the intervention strategies adopted to assuage dyslexia.

Andrew Papanicolaou, Shirin Sarkari made a study on **learning disabilities**. Center for clinical Neurosciences Children's Learning Institute University of Texas Houston Health Science Center, also made a contribution to the study. Using Magnetic Source Imaging in the laboratory at the University of Texas in Houston, they obtained evidence of a brain activity pattern that is peculiar to dyslexia children and dramatically different from the patterns of normal readers. Thus far, they examined 30 children with documented dyslexia and an equal number of normal readers. In virtually all cases the pattern was almost identical, showing greater activity in certain areas of the right hemisphere (i.e. the right of the brain), exactly opposite to those activated in the left hemisphere of normal readers during reading. These findings are interesting for a number of reasons: (1) Information regarding aberrant brain function was made available for individuals rather than on a group basis. This can have significant impact from clinical point of view, in the treatment of this condition, since MSI can serve as an objective method to follow up specific intervention strategies. (2) This was the first functional brain imaging study on dyslexia that actually examined dyslexia children rather than adults diagnosed with the disorder. It is known that, with years of training and education, dyslexia may develop compensatory strategies for learning to read. Therefore, they assessed brain function in young children who are beginning to read. The goal of the research program was to determine what goes wrong in the brain to impede this process; (3) The findings may have important theoretical implications by providing a more complete picture of the mechanism responsible for dyslexia.

The result of the study assess directly the utility of MSI procedures for detecting changes in brain function in the course of education programs that teach children basic reading skills, such as the ability to mentally manipulate the sound of the English language and to learn associations between printed letters and their pronunciation. In the context of

these studies, the first researchers collected preliminary data from four dyslexia children before and after participating in intensive eight-week-long skills. Results showed marked improvement in reading fluency. The profile of all four children shows a dramatic increase in left temporoparietal activation, which renders it nearly indistinguishable from the profiles of normal readers. In the case of the dyslexia students there is greater activity in certain areas of the right hemisphere (i.e. the right half of the brain), exactly opposite to those activated in the left hemisphere of normal readers during reading.

Burden, Robert studied on the **necessary association of negative feelings with self-worthiness**. This study provides an overview of research in the past 20 years into the relationship between dyslexia and various aspects of self-perception, including self-concept, self-esteem, self-efficacy and locus of control. The problems are identified as results which are related to the measurement of some of the most widely used constructs, as is the need for more precise identification of key variables relating to them.

Christopher Schatschneide did a study on **the major risk factors for reading disability**. He found that one of the major risks is difficulty learning difficulty to read words in text in an accurate and fluent manner. This is apparent when a child at risk of dyslexia first starts to attempt to read. Dyslexia children struggle to grasp and automate the alphabetic principle (i.e. they can not “sound out” words or use phonemic decoding strategies) and therefore have difficulty deciphering unfamiliar words that they have not encountered before. Even though many of these words are part of the Child’s oral vocabulary, the child cannot recognize them in printed form. As a result, reading can be extremely laborious and time-consuming, fraught with errors, and altogether an unrewarding, aversive experience. To be an efficient reader, one must be able to rapidly and effortlessly recognize many words by

sight and for a child to acquire this facility require multiple exposures to these words. The difficulty that dyslexia children have in developing reliable and efficient phonemic decoding ability makes the acquisition of a lexicon of sight words a much slower process than it is for the average reader. Several other factors can affect a child's ability to read, which are reviewed herein. However, early recognition and treatment of deficient phonologic awareness are an extremely important step in the prevention of a reading problem in the child who is at risk of dyslexia.

Ori Andrea Facoetti, et al. (2000) made a study on **visual spatial attention in developmental dyslexia**. Orienting and focusing of visual attention are two processes strictly involved in reading. They were studied in a group of dyslexia children and normal readers. Shifting of attention by both peripheral and central visual cues was studied by means of the covert orienting paradigm. Focusing, consisting in the ability to control the size of the attentional focus was investigated using simple reaction times in central vision. Results showed that dyslexia had a specific disability in the shifting of attention caused by a peripheral cue at short SOA, and were also able to maintain attention focused for short periods of time only, presumably not long enough for efficient visual processing. The results support the suggestion that visual selective attention deficits in disabled readers may be due to a specific difficulty in orienting and focusing.

Andrea Facoetti, et al. (2000) did a study on **auditory and visual automatic attention deficits in developmental dyslexia**. According to the researchers, several studies have provided evidence for a phonological deficit in developmental dyslexia. However, recent studies provide evidence for a multimedia temporal processing deficit in dyslexia. In fact, dyslexics show both auditory and visual abnormalities, which could result from a more

general problem in the perceptual selection of stimuli. Here they report the results of a behavioral study showing that children with dyslexia have both auditory and visual deficits in the automatic orienting of spatial attention. The findings suggest that a deficit of selective spatial attention may distort the development of phonological and orthographic representations that is essential for learning to read.

Karin Landeri (2000) did a study on **deficits in phoneme segmentation**. A widely held assumption about dyslexia is that difficulties in accessing the constituent phonemes of the speech stream are responsible for specific reading and spelling difficulties. In consistent orthographies, however, the acquisition of accurate phonological recording and phonemic awareness was found to pose much less difficulty than in English, and even dyslexia children were found to exhibit high levels of performance in phonemic segmentation. Nevertheless, using a rather complex phonological awareness and manipulation task (spoonerism: MAN-HAT as HAN-MAT), found support for the original position on phonological awareness deficit, as both German and English dyslexia children showed poor performance. In the present studies, the spoonerism response of dyslexia children were reanalyzed such that children were given credit for partially correct responses (e.g.: a response of HAN for MAN – HAT). Such partially correct responses were taken to indicate full segmentation of both stimulus words at the onset-rime level. The effect of this rescoring was that the error rate dropped from 76% to 26% for the English dyslexia children and from 63% to 15% for the German dyslexia children. Even higher performance levels, although not perfect as for the age-matched control children, were found on a non-word spelling task in both groups. A second study examined the segmentation of consonant clusters in younger German dyslexia children and found performance levels of about 90% correct when memory problems were ruled out. Hence the study finds that deficits in phoneme segmentation are not the core

problem of dyslexia. The researchers argued that, at least in the context of a consistent orthography (and a phonics-based teaching approach), deficits in phoneme awareness are only evident in the early stages of reading acquisition, whereas rapid naming and phonological memory deficits are more persistent in dyslexia children.

Ziegler (2001) made a study on developmental dyslexia and the dual route model of reading: simulating individual differences and subtypes. The developmental dyslexia was investigated within a well-understood and fully specified computational model of reading aloud: the dual route cascaded model of visual word recognition and reading aloud. Four tasks were designed to assess each representational level of the DRC: letter level, orthographic lexicon, phonological lexicon, and phoneme system. The data showed no single cause of dyslexia, but rather a complex pattern of phonological, phonemic and letter processing deficits. Importantly, most dyslexia had deficits in more than one domain. Subtyping analyses also suggested that both the phonological and surface dyslexia almost always had more than a single underlying deficit. To stimulate the reading performance for each individual with the DRC, we added noise to the model at a level proportional to the underlying deficit(s) individual reading patterns but also captured the different dyslexia profiles discussed in the literature (i.e. surface, phonological, mixed and mild dyslexia). Thus, taking into account the multiplicity of underlying deficits on an individual basis provides a parsimonious and accurate description of developmental dyslexia. The results of the study discussed the necessity and merits of investigating dyslexia at the level of each individual rather than as a unitary disorder.

Thalamus, Summer (2001) made a study on variation in the development of decoding and encoding skills among students with phonological dyslexia. Seventy-four

children who had been identified as exhibiting the characteristic profile of phonological dyslexia were subdivided according to their relative skills status on a checklist of skills developed to operational the phase theory of reading (decoding) acquisition. Performance on measures of phonological processing and word recognition were compared for students whose skills clustered at the alphabetic phase (AP) with those whose skills clustered at the early orthographic phase (OP). Both groups were also compared to a sample of average readers (AR) in grades 3-7. Group mean differences and discriminate analysis confirmed significant differences among the groups. Regression analysis was used to examine the relative contribution of the decoding variables and spelling (as another index of phonological processing) to reading comprehension performance within each group. Students in the AR group presented with a pattern of decoding strategies that more closely approximated that of the AR group, suggesting a delay in the development of both phonological and orthographic / morphemic abilities. In contrast, the OP group presented with a pattern that was more suggestive of disordered development, perhaps at the level of cognitive interface of phonological processes with orthographic / morphemic representations. Compensatory mechanisms developed among students in the OP group who were, on average, older and more advanced in school might explain this finding. They found the result as differences among the two subgroups of phonological dyslexics did not comfortably fit the current operational distinction for the surface and deep dyslexia subtypes. A difference in criteria used to segregate the subgroups is suggested as a possible explanation for the unexpected outcomes.

Walter Backes, et al. (2002) made a study on brain activation of reading processes in children with developmental dyslexia. In this study, Brain activation difference of reading-related processes between dyslexia and normal reading children were localized with functional magnetic resonance imaging (MRI). The children performed tasks that varied in visual-spatial, orthographic, phonologic, and semantic processing demands. Enhanced activation of the left extra striate cortex was found during all tasks in the dyslexia group. During orthographic processing, dyslexic children predominantly showed activation in the right prefrontal cortex, as also occurred during visual-spatial the task. Normal readers also showed activation in the left prefrontal cortex. Dyslexia readers showed less activation of both the temporal and the prefrontal cortex during phonologic processing. The results suggest that dyslexia readers fail to use brain areas that are normally specialized in language processing, but rather use areas that underlie visuo-specialized in language processing. It meant that dyslexics are shown to use right brain areas associated with visual spatial processing for tasks rather than left brain areas for phonological processing.

Joshual I. Breier, et al. (2003) made a study on Abnormal Activation of Temporoparietal language Areas during Phonetic Analysis in Children with Dyslexia. The researchers studied the brain activity of 12 children with and 11 children without dyslexia during a simple speech perception task. The children were eight to 12 years old. While distinguishing between sounds, the non-impaired readers showed more relative activity in the speech part of the left TP areas. During the same task, after a slight delay impaired readers showed a sharp peak of relative activation in corresponding (but functionally mysterious) areas on the right side. The poorer the child's performance in phonological processing, the more their right brains "lit up" during that task. The result suggest that hemisphere auditory association cortices" shown by children and adults without reading problems'.

Snowling, Margret J. (2004) did a study on the dyslexia spectrum continuities between reading, speech, and language impairments, the dimension language are required to conceptualize the relationship between dyslexia and specific language impairment: phonological skills and wider language skills beyond phonology (grammatical, semantic and pragmatic skills). This article discusses the commonalities between reading and language disorders within the context of a model of reading development that posits phonological skills are a critical foundation for learning to read. Children with dyslexia and specific language impairment typically share a continuity of risk for decoding deficits in reading that can be traced to phonological problems, whereas children who have wider language problems are at risk of reading comprehension deficits. The evidence that there are both genetic and environmental influences on the language skills that contributes to literacy development before turning to consider implications for the assessment, diagnosis and treatment of reading disorders is taken up for review.

Gupta, Ashum (2004) made a study on Reading Difficulties of Hindi-Speaking Children with Developmental Dyslexia, this research is an examination of the nature of reading difficulties in dyslexia readers of Hindi. The reading performance of children with dyslexia was compared with that of reading-age (RA) and chronological-age (CA) matched controls on word and non word reading of items of different length. The results showed that the dyslexia children were significantly poorer than CA controls on reading speed and accuracy and were worse than RA controls on reading accuracy. For all group, reaction time and errors increase with increasing length of stimuli. Analysis of reading errors further indicated that the dyslexic children produced a greater percentage of grapheme than phonological errors, and the errors involving vowel substitutions or deletions were much more frequent than those involving consonant errors. The findings reveal that, despite the

transparency of the Hindi script, dyslexia readers of Hindi have difficulty in developing high-quality, segmental organized phonological representations of words and display poor bleedings skills.

Rispens, Judith; (2004) made a study on Subject-Verb Agreement and Phonological Processing in Developmental Dyslexia and Specific Language Impairment (SLI): A Closer Look. Problems with subject-verb agreement and phonological (processing) skills have been reported to occur in children with specific language impairment (SLI) and in those with developmental dyslexia, but only a few studies have compared such problems in these two groups. Previous studies have claimed a causal relationship between phonological processing deficits and morph syntactic problems. Aims: The following questions were addressed in this study: (1) Are children with developmental dyslexia and SLI comparable in the level of sensitivity to subject-verb agreement, phonological awareness and non-word repetition? (2) Are children with developmental dyslexia and SLI comparable in their performance profiles on tasks tapping subject-verb agreement, phonological awareness, and non-word repetition? (3) Are deficits in phonological processing skills related to morph syntactic deficits? Methods & Procedures: Forty-five children (mean age=8;6 years) with developmental Dyslexia, SLI and typically developing children participated. The sensitivity to subject-verb agreement, phonological awareness and non-word repetition was measured. Outcomes & Results: Both the children with dyslexia and with SLI made more errors than the control children on the subject-verb agreement task, with the children with dyslexia scoring significantly better than the children with SLI. Similarly, the children with SLI and dyslexia both performed more poorly on the phoneme-deletion tasks than the control group. Both clinical groups performed more poorly on the non-word repetition task than the control children, with the children, with dyslexia outperforming the children with SLI. In all three

tasks differences in performance profiles were found between the children with developmental dyslexia and SLI. Across all three groups non-word repetition was correlated with morph syntactic sensitivity.

The results show similarities between the performances of children with SLI and dyslexia on tasks tapping subject-verb agreement, phonological awareness and non-word repetition: they scored more poorly than typically developing children. Qualitative analyses revealed, however, differences in the error patterns on all three tasks. The results indicate that associations between non-word repetition and sensitivity to subject-verb agreement were found, suggesting that problems with phonological processing impact on morph syntactic skills.

Ho, Connie Suk-Hun et al., (2005) studied on Reading-Related Cognitive deficits in Developmental Coordination Disorders among Chinese Children. Most past research findings suggest that phonological deficit is unique to developmental dyslexia insofar as alphabetic languages are concerned. The present study investigated the existence of any similar unique reading-related cognitive deficits associated with developmental dyslexia in a non alphabetic script, Chinese. The pattern of Co morbidity among various developmental disorders was also examined. One hundred six Chinese children with developmental disorders or developmental disorders or learning difficulties, including developmental dyslexia (DYS), attention-deficit/hyperactivity disorder (ADHD), developmental coordination disorder (DCD), and borderline intelligence (BI) were tested on literacy, rapid-naming, phonological, orthographic and visual processing skills. It was found that (a) the co morbidity rates among developmental disorders were high; (b) the DYS – only group was most impaired in rapid naming and orthographic processing and performed significantly

worse than other “pure” groups; (c) the ADHD – only groups performed very closely to the average normal range in literacy and cognitive domains; and (d) the cognitive profile of the DYS+ADHD group resembled that of the DYS- only group, while that of the DYS+CDD group resembled some characteristics of both the “pure” groups. The researchers conclude that rapid-naming deficit and orthographic deficit are unique marker deficits of developmental dyslexia in Chinese, while children with ADHD or DCD are less impaired in literacy and reading-related cognitive areas. Implications for educational and clinical practices are also discussed.

Hoeft, Arvel Hernandez, (2006) made a study on Neural Basis of Dyslexia: A Comparison between Dyslexia and Nondyslexic Children Equated for Reading Ability. According to these studies adults and children with developmental dyslexia exhibit reduced parietal-temporal activation in functional neuroimaging studies of phonological processing. These studies used age-matched and/or intelligence quotient-matched control groups whose reading ability and scanner task performance were often superior to that of the dyslexic group. It is unknown, therefore, whether differences in activation reflect simply poorer performance in the scanner, the underlying level of reading ability, or more specific neural correlates of dyslexia. To resolve this uncertainty, a functional magnetic resonance imaging study was conducted with rhyme judgment tasks, in which the compared dyslexic children were compared with two control groups: age-matched children and reading-matched children (younger normal readers equated for reading ability or scanner-performance to the dyslexic children). Dyslexic children exhibited reduced activation relative to both age-matched and reading-matched children in the left parietal-temporal cortex. The dyslexic children also exhibited reduced activation bilaterally in the parietal-temporal cortex when compared with children equated for task performance during scanning. Nine of 10 dyslexic children

exhibited reduced left partial-temporal activation compared with their individually selected age-matched or reading-matched control children. Additionally, normal reading fifth graders showed more activation in the same bilateral parietal-temporal regions than normal reading third graders. The findings indicate that the activation differences seen in the dyslexia children cannot be accounted for by either current reading level or scanner task performance, but instead represent a distinct developmental atypicality in the neural systems that support learning to read.

Lyytinen, Heikki; (2006) intended to find out Trajectories of Reading Development: A Follow-up from Birth to School Age of Children with and without Risk for Dyslexia. In order to understand why some children are vulnerable to difficulties in their language development and their acquisition of reading skill, the Jyvaskyla Longitudinal Study of Dyslexia followed 200 Finish Children from birth to school age. Half of these children had a family history of reading problems and were considered at risk for dyslexia; the other half was not at risk. A noel analysis, mixture modeling, revealed four subgroups with differential developmental trajectories to early reading. The subgroups who showed either a “diffluent trajectory” (n=12; 11 at risk vs. 1 control) or a “declining trajectory” (n=35; 24 vs. 11) contained more children with familial risk for dyslexia. The subgroups showing an “unexpected trajectory” contained equal numbers of at-risk and non-risk children (n=67; 3 vs. 34). The subgroup displaying a “typical trajectory” (n=85, 38 vs. 47) contained more children born without dyslexia risk. This differential development of skills revealed that there are at least three troubled routes along which a child may ultimately encounter difficulties in reading acquisition. The most explicit routes are characterized by problems in either phonological awareness, naming speed, or letter knowledge – problems that increase in severity with age.

Bosman, Anna M.T (2006) studied on spelling consistency Affects Reading in young Dutch Readers with and without Dyslexia, Lexical – decision studies with experienced English and French readers have shown that visual-word identification is not only affected by pronunciation inconsistency of a word (i.e., multiple ways to spell a pronunciation rime). The aim of this study was to compare the reading behavior of young Dutch readers with dyslexia to the behavior of readers which we presented pronunciation-consistent stimuli were spelling consistent and the other half were spelling inconsistent. All three reader groups, that is, students with dyslexia, age-match students and reading-match student, read spelling-consistent words faster than spelling-inconsistent words. The results suggest that reading in students with or without dyslexia is similarly affected by spelling inconsistency, subtle qualitative differences emerge, however, with respect to pseudo word identification. The conclusion was that the findings were best interpreted in terms of a recurrent-feedback model. Overall reading speed of students with dyslexia was similar to that of reading-match students, and was substantially slower than that of age-match students.

Chan, David W (2006) studied on Exploring the Reading-Writing Connection in Chinese Children with Dyslexia in Hong Kong. Comparing the analyses based on the data of 1,235 Chinese child referred for Government services and subsequently diagnosed as children with dyslexia in Hong Kong and those of 690 Chinese Children in the sample for the normative study of the Hong Kong Test of Specific Learning Difficulties in Reading and Writing, the study explored the reading-writing connection through a series of regression and correlation analyses. Specifically, orthographic knowledge, naming speed and phonological memory were found to be salient predictors prediction both reading and writing, and when

they we controlled and particle out, the corrections between reading and writing were sizably attenuated, suggesting that these cognitive abilities or skills could act as third-variables contributing to the relationship between reading and writing. Issues related to casual inference, directionality of causality and implications of the findings for intervention efforts and future research are discussed.

Polychroni, Fotini (2006) intended to find out Academic Self-Concept, Reading Attitudes and Approaches to learning of Children with Dyslexia: do they differ from their peers? This research aimed at exploring the motivation for reading of pupils with dyslexia, and to investigate whether they differ from their peers. A total of 32 pupils formed the LD group (22 boys and 10 girls, 5th and 6th – Graders) who were diagnosed with dyslexia. A comparison group was formed of pupils who attended the same classes (N=210), and these were divided into two groups (average/low performance, N=115; high performance, N=95), according to teachers ratings of pupils' performance on reading. Self-report measures were used to assess perceptions of academic ability, reading attitudes and approaches to learning. The results revealed that dyslexia pupils displayed lower academic self-concept than low/average and high performance groups on all dominos, except Practical ability. Moreover, dyslexic pupils perceived reading less as a function of personal development, both enjoyment and utilitarian, as compared to their peers. Finally, the dyslexic group adopted the surface approach to learning, indicating an external motive, similarly to the group and adopted the deep approach to learning less as compared to their high achieving peers. The implications of these findings are discussed at pupil, teacher and classroom level.

Hamilton SS, Glascoe FP... (2006) Evaluated Children with Reading Difficulties. Reading difficulties are common and are associated with poor long-term academic achievement. Evaluation of a child's developmental, educational and family histories in conjunction with standardized screening tests (e.g., Ages and States Questionnaires, Parents' Evaluation of Developmental status, safety word Inventory and Literacy Screener) can increase recognition of risk factors for reading difficulties. Validated, office-based, standardized screening tests and school-administered standardized achievement tests (e.g., California Achievement Tests, Iowa Tests of Basic Skills, Metropolitan Achievement Tests, and Stanford Achievement Test) can be used to assess school-age children with reading difficulties. However, many children have reading or learning disabilities and will have lifelong difficulties with reading despite adequate intervention. Children with substantial reading difficulties should receive a full educational assessment. There is good evidence that individualized instruction emphasizing increased phonologic awareness can have a favorable long-term effect on academic achievement.

Russeler J, Becker, (2007) made a study on Semantic, Syntactic and Phonological processing of Written words in Adult Developmental Dyslexia Readers: An Event-Related Brain Potential Study. This study used event-related brain potentials to investigate semantic, phonological and syntactic processes in adult German dyslexic and normal readers' in a word reading task. Pairs of German words were presented one word at a time. Subjects had to perform a semantic judgment task (house-window; are they semantically related?), a rhyme judgment task (house-mouse; do they rhyme?) and a gender judgment task das-Haus [the – house]; is the gender correct? [in German, house has a natural gender: das Haus]). They

found out that Normal readers responded faster compared to dyslexic readers in all three tasks. The findings indicate that dyslexics are phonologically impaired but that they also have difficulties in other, non – phonological aspects of reading. Specifically, semantic and syntactic interrogation seems to require more effort for dyslexic readers and take longer irrespective of the reading task that has to be performed.

Tressoldi, P.E, Loursso (2007) made a study that Age Make a Difference in Dyslexic Children. They carried out a study on the age factor for remedial programme for the dyslexic and came out with a significant finding. This study tested the hypotheses whether older dyslexic children may obtain fewer grins on fluency and accuracy with respect to their younger peers after specific remediation. Changes in accuracy and fluency of a group of children with a diagnosis of dyslexia attending third and fourth grades were compared with those obtained by a group of children attending the sixth, seventh or eighth grade in two different treatments, one based on the Balance model (Bakker) and the second based on the autoimmunization of syllable recognition (sub lexical). Among all comparison between the gains in accuracy and fluency obtained a statistically significant gain with respect to their older peers' accuracy in reading words. The result suggest that, at least for the chronological ages and types of treatments considered in this study, older children with dyslexia may obtain comparable grins to their younger peers, suggesting that 'it never too late' to remediate reading fluency and accuracy.

Hamilton SS, Glascoe FP (2007).Evaluation of Children with Reading Difficulties carried out her studies on children with reading difficulties. According to her reading

difficulties are common and are associated with poor long-term academic achievement. Evaluation of a child's developmental, educational and family histories in conjunction with standardized screening tests an increase recognition of risk factors for reading difficulties. Validated, office-based, standardized screening tests and school-administered standardized achievements tests (e.g. California Achievement Tests, Iowa Test of Basic Skills, Metropolitan Achievement Tests, Stanford Achievement Test) can be used to assess school-age children with reading difficulties. Reading difficulties in children often are caused by environmental and organic risk factors. However, many children have reading or learning disabilities and will have lifelong difficulties with reading despite adequate intervention. Child with substantial reading difficulties should receive a full educational assessment. The findings is good evidence that individualized instruction emphasizing increased phonologic awareness can have a favorable long-term effect on academic achievement.

Shaywitz SE, gruen JR (2007) made a study on Management of Dyslexia, its Rationale and Underlying Neurobiology. They arrived at the following findings: Developmental dyslexia is characterized by an unexpected difficulty in reading in children and adults who otherwise possess the intelligence and motivation considered necessary for accurate and fluent reading. Dyslexia is the most common and most carefully studied of the learning disabilities, affecting 80% of all individuals identified as learning disabled. Although in the past the diagnosis and implications of dyslexia were often uncertain, recent advances in the knowledge of the epidemiology, the neurobiology, the genetics and the cognitive influences on the disorder now allow the disorder to be approached within the framework of a traditional medical model. Their work reviews the advances and their

implications for the approach to patients presenting with a possible reading disability. There are also other studies probing the neurological and cognitive basis of Dyslexia.

Valchos F, Papthanasiou I and Anderou G (2007) carried out a probe into the neurological origin of Dyslexia i.e. Cerebellum and Reading. Background of the study: Traditionally, the cerebellum has been considered to control coordinated to higher cognitive functions. The objective of the work was to present recent evidence concerning the role of the cerebellum and discusses how it can contribute to reading. The procedure used involves findings coming from three quite different areas, lesion, anatomic and functional imaging studies. The result of these studies indicates a link between cerebellum and reading and its relationship with specific reading difficulties and provides evidence which is an accordance with the recently established role of the cerebellum as a regulator of mental functions and supports theoretical models suggesting that cerebella deficits might be a cause of developmental dyslexia.

Helland T. (2007) made a study on the level of Dyslexia at a Behavioural and a Cognitive **level** made an attempt at understanding the neuron-cognitive aspects of language learning. The aim of this study was to see whether patterns of neuro-cognitive assets and deficits seen in dyslexia also would lead to different patterns of reading and writing. A group of dyslexic children was sub-grouped by language comprehension and mathematics skills in accordance with the British Dyslexia Association of 1998. This yielded three subgroups that showed three distinct neuron-cognitive profiles depicted within the Multi-Component Model of Working Memory. The participants were tested with single word reading and spelling

tasks. The scores varied only to a minor degree between the subgroups. The results were discussed in view of developmental phases into literacy. Only one subgroup could be defined within the alphabetic phase. Thus, patterns at the neuro-cognitive level seen in the subgroups were to a limited degree reflected at the behavioral level. The results were also discussed in view of different orthographies. Using information from phonological testing only, as currently appears to be common practice in many contexts, may result in intervention with little effect for some dyslexics. It was concluded that assessing neuro-cognitive assets and deficits targeting dyslexia is essential to intervention and the understanding of dyslexia.

Stoet G, MarkeY H (2007) have given yet another dimension of Dyslexia in the aspects of Dyslexia and Attention Shifting. According to them, Dyslexia is a neuron-cognitive deficit, primarily expressed in reading difficulties, but also affecting non-linguistic performance. Several studies report that dyslexics perform differently in the antinational blink paradigm, which indicates an impaired capacity to rapidly shift visual attention. However, antinational shifting can occur at different levels of cognitive processing, and it is unclear whether dyslexic attention shifting is impaired at all levels, or only at the peripheral levels. They had studied performance on a task-switching paradigm by dyslexics and normal readers to test whether the difficulty with attention shifting occurs at the level of central cognitive processing and found no specific impairments in task-switching in dyslexics. However, dyslexics performed generally much more slowly across all conditions than normal readers hence they concluded that while dyslexics have a problem with attention switching at a perceptual level, their capacity to rapidly switch between tasks is normal. The findings add to previous studies indicating that dyslexic problems with shifting visual attention are caused by anomalies in more peripheral neural pathways, such as the magnocellular layers in the lateral geniculation nucleus.

Booth JR, Bebko G, (2007) made a study on Modality Independent Brain Abnormalities during semantic task in Children with Reading Disorder. The study have suggested that inferior frontal gyrus, left inferior parietal lobule and left middle temporal gyrus are critical for semantic processing in normal children. The goal of his functional magnetic resonance imaging (fMRI) study was to determine whether these regions are systematically related to semantic processing in children (9 – to 15 – year – old) diagnosed with reading disorders (RD). semantic judgments required participants to indicate whether two words were related in meaning. The strength of semantic association varied continuously from higher association pairs (e.g. king-queen) to lower association pairs (e.g. net-ship). We found that the correlation between association strength and activation was significantly weaker for RD Children compared lobule and semantic lexical representations in the middle system and independent of modality. This study supports the inference, ‘dyslexia is associated with difficulty retrieving word meaning – would tend to support theory that dyslexics have difficulty thinking with words vs. pictures’.

Boden, Catherine, (2007) made a study on *M-stream Deficits and Reading – Related Visual Processes in Developmental Dyslexia*, some visual processing deficits in developmental dyslexia have been attributed to abnormalities in the sub-cortical M-Stream and/or the cortical dorsal stream of the visual pathways. The nature of the relationship between these visual deficits and reading is unknown. The purpose of the present article was to characterize reading-related perceptual processes that may link the visual deficits to reading problems. The researches identified contrast sensitivity, position encoding coulometer control, visual attention, parafoveal / foveal interaction and saccadic suppression

as potential reading-related dorsal stream processes. They then evaluated the role of each process in reading and the status of each process in dyslexia. In theory, a number of dorsal stream processes (e.g. coulometer control and visual attention) might contribute to reading problems in developmental dyslexia. More work is needed to demonstrate the connection empirically.

Chan, Won Shing Raymond (2007) intended to find out Cognitive Profiling on Chinese Developmental Dyslexia with Attention-Deficit / Hyperactivity Disorders. The cognitive profiles of children with Developmental Reading Disorder (RD) and Attention – Deficit / Hyperactivity Disorders(ADHD) have been extensively studied in alphabetic language communities. Deficits in phonological processing and rapid naming have been implicated as core features of RD although whether the later is a deficit specific to RD remains controversial. Similar research aiming to explore the cognitive profiles of children with both RD and ADHD in non-alphabetic language communities is limited. The specificity of rapid naming deficit to RD among Chinese has yet to be studied. In the first study, 43 Chinese children with confirmed diagnoses of RD + ADHD were assessed on their cognitive abilities in relating to reading. In the second study, the specificity deficits hypothesis of rapid naming to RD but not ADHD was examined. A digit naming test was administered to the RD+ADHD group (43 subjects) and an ADHD only group (49 subjects). In regard to cognitive profiling, rapid naming and orthographic knowledge were found to be the most common deficits among the Chinese Rd + ADHD group. This co-morbid group was also found to have a significant deficits performance on the rapid naming task than the ADHD only group. The present findings support the double dissociation hypothesis in cognitive deficit between RD and ADHD. The results of both studies are discussed with reference to the findings of the Western counterparts.

Bosse, Marie-Line (2007) made a study on Developmental Dyslexia: the visual Attention Span Deficit Hypothesis. The visual attention (VA) span is defined as the amount of distinct visual elements which can be processed in parallel in multi-element array. Both recent empirical data and the cortical accounts suggest that a VA span deficit might contribute to developmental dyslexia, independently of a phonological disorder. In this study, this hypothesis was assessed in two large samples of French and British dyslexic children whose performance was compared to that of chronological-age matched control children. Results of the French study show that the VA span capacities account for a substantial amount of unique variance in reading, as do phonological skills. The British study replicates these findings and further reveals that the contribution of the VA span to reading performance remains even after controlling IQ, verbal fluency, vocabulary and single letter identification skills, in addition to phoneme awareness. In both studies, most dyslexic children exhibit a selective phonological or VA span disorder. Overall, these findings support a multi-factorial view of developmental dyslexia. It is proposed that a VA span deficit is a likely alternative underlying cognitive deficit in dyslexia.

Shastri Bs (2007) intended to find out the update of Developmental dyslexia is the most common and carefully studied of the learning disabilities in school-age children. It is characterized by a marked impairment in the development of reading skills and affects a large number of people (5-10%). Reading difficulties may also arise from poor vision, emotional problems, decreased hearing ability and behavioral disorders, such as attention-deficit hyperactivity (ADHD). Although many areas of the brain are involved in reading, analysis of postmortem brain specimens by a variety of imaging techniques most consistently suggests that deficiency within a specific component of the language system-the phonological module-in the temporo-parietal-occipital brain region underlies dyslexia.

It is a highly familial and heritable disorder with susceptibility loci on chromosomes 1,2,3,6,11,13,15 and 18. Recently, four candidate genes (KIAA 0319), DYX1C1, DCDC2AND ROBO1)are shown to be associated with dyslexia. Although some of these results are controversial because of the genetic heterogeneity of the disorder, the available evidence suggests that dyslexia could be due to the abnormal migration and maturation of neurons during early development. Interestingly, in spite of genetic heterogeneity, the pathology appears to involve common phonological coding deficits. The condition managed by a highly structured educational training exercise.

Bogliotti c, serniclaes, W (2008) made a study on Discrimination of Speech Sounds by Children with Dyslexia: Comparisons with chronological Age and Reading. This study has shown that children suffering from developmental dyslexia have a deficit in categorical perception of speech sounds. The aim of the current study was to better understand the nature of this categorical perception deficit. In this study, categorical perception skills of children with dyslexia were compared with those of chronological age and reading level controls. Children identified and discriminated / do-to / syllabus along a voice onset time (VOT) continuum. Results showed that children with dyslexia discriminated among phonemically contrastive pairs less accurately than did chronological age and reading level controls and also showed higher sensitivity in the discrimination of allophonic contrasts. These results suggest that children with dyslexia perceive speech with allophonic in the course of perceptual development and its implication for reading acquisition is discussed.

Katzir (2008) made a study on the varieties of pathways to dysfluent Reading: Comparing Subtypes of Children with Dyslexia at Letter, word and Connected Text Level of

Reading. The majority of work on the double-deficit hypothesis (DDH) of dyslexia has been done at the letter and word levels of reading. Key research questions addressed in this study are (a) do readers with different subtypes of dyslexia display differences in fluency at particular reading levels (e.g. letter, word and connected text)? And (b) do children with dyslexia identified by either low-achievement or ability-achievement discrepancy criteria show similar differences when classified by the DDH?

To address these questions, the authors assessed a sample of 158 children with severe reading impairments in second and third grades on an extensive battery and classified them into three reader's subtypes using the DDH. The results demonstrated that the three DDH subtypes exhibited differences in fluency at different levels of reading (letter, word and connected text), underscoring the separated reading profiles of these subtypes and the different possible routes to dissiliency in reading disabilities. Further more, the results suggest that the different patterns among DDH subtypes are primarily driven by the ability-achievement discrepancy group. The implications of these findings are discussed for intervention, reading theory and a more refined understanding of heterogeneity.

Gosami, Usha (2008) made a study on Reading of Dyslexia and the Brain. Here a selective overview of recent neuroimaging studies, drawing out implications for education and the teaching of reading is provided. The purpose was to highlight the different neuron-imaging technologies available which offer complementary techniques for revealing the biological basis of reading and dyslexia. Functional magnetic resonance imaging (fMRI) was found to be most suited to localization of function and hence to investigate the neural networks that underpin efficient (or inefficient) reading. Electroencephalography (EEG) was

found to be sensitive to millisecond differences in timing, hence was suitable to studying the time course of processing; for example, it can reveal when networks relevant to phonology versus semantics are activated. Magnetic source imaging (MSI) gives information about both location in the brain and the time course of activation. The study illustrated how each technology is most suited to answering particular questions about the core neural systems for reading and how these systems integrate, and what might go wrong in the dyslexic brain. Following a brief overview of behavioral studies of reading acquisition in different languages, selected neuron-imaging studies of typical development were discussed and analyzed. Those studies including the widest age ranges of children were selected. Neuro-imaging studies of developmental dyslexia were then reviewed, focusing on (a) the neural networks recruited for reading, (b) the time course of neural activation and (c) the neural effects of remediation. Representative studies using the different methodologies were selected. It was established that the dyslexics' brain is characterized by under-activation of the key neural networks for reading. Different neuron – imaging methods can contribute different kinds of data relevant to key questions in education. The most informative studies with respect of causation will be longitudinal prospective studies, which are currently rare.

Lee, Lay Wah (2008) made a study on Developmental and Validation of a Reading-Related Assessment Battery in Malay for the Purpose of Dyslexia Assessment. Malay is an alphabetic language with transparent orthography. A Malay reading-related assessment battery which was conceptualized based on the International Dyslexia Assessment. The battery consisted of ten tests: Letter Naming, Word Reading, Non-Word Reading, Spelling, Passage Reading, Reading Comprehension, Listening Comprehensions, Elision, rapid Letter Naming and Digit Span. Content validity was obtained using the schools' language tests as criteria. Evidence of predictive and construct validity was obtained through regression

analyses and factors analyses. Phonological awareness was the most significant predictive of world-level literacy skills in Malay, with rapid naming making independent secondary contributions. Decoding and listening comprehension made separate contributions to reading comprehension, with decoding as the more prominent predictor. Factor analysis revealed four factors: phonological decoding, phonological naming, comprehension and verbal short-term memory. In conclusion, despite differences in orthography, there are striking similarities in the theoretical constructs of reading-related tasks in Malay and in English.

Jones, Manon W (2008) made a study on Visual Deficits in Developmental dyslexia: Relationships between Non-Linguistic Visual Tasks and their contribution to components of Reading. Developmental dyslexia is often characterized by a visual deficit, but the nature of this impairment and how it relates to reading ability is disputed (“Brain” 2003; “126”: 841-865). In order to investigate this issue, the researchers compared groups of adults with and without dyslexia on the Terms, visual-research and symbols tasks. Dyslexic readers yielded more errors on the Visual-research and symbols tasks compared with non-dyslexic readers. A positive correlation between visual-research and symbols task performance suggests a common mechanism shared by these tasks. Performance on the visual-research and symbols tasks also correlated with non-word reading and rapid automatized naming measures and visual search contributed independent variance to non-word reading. The terms task did not discriminate reading groups nor contributed significant variance to reading measures. Visual-attention process might underlie specific component reading measures.

Bonifacci, Paola (2008) studied on the Speed of Procession and Reading Disability: A Cross-Linguistic Investigation of Dyslexia and Borderline Intellectual Functioning.

English and Italian children with dyslexia were compared with children with reading difficulties associated with low-IQ on tests of simple and choice RT, and in number and symbol scanning tasks. On all four speed-of-processing tasks, children with low-IQ responded more slowly than children with dyslexia and age-controls. In the choice RT task, the performance of children with low-IQ was also less accurate than that of children of normal IQ, consistent with theories linking processing speed limitations with low-IQ. The findings support the hypothesis that dyslexia is a specific cognitive deficit that can arise in the context of normal IQ and normal speed of processing. The same cognitive phenotype was observed in readers of a deep (English) and a shallow (Italian) orthography.

Natale, Katja (2008) studied on Mothers' Causal Attributions Concerning the Reading Achievement of their children with and without Familial Risk for Dyslexia. The present study analyzed data from the Jyvaskyla Longitudinal Study on Dyslexia to investigate the factors to which mothers of children with and without familial risk for dyslexia attributed the causes of their first-grade children's achievement. Mothers' causal attributions were assessed three times during their children's first school year. Children's verbal intelligence was assessed at 5 years and their word and non-word reading skills at 6.5 years.

The results showed that the higher the word reading skills the children had, the more their mothers attributed their success to ability than to effort. However, if children had familial risk for dyslexia, their mothers' attribution of success to ability decreased during the first grade as compared with the ability attributions of mothers whose children were in the control group.

McBride-Chang, Catherine (2008) made a study on Word Recognition and cognitive Profiles of Chinese Pre-School Children at Risk for Dyslexia through Language Delay or Familial History of Dyslexia. This study sought to identify cognitive abilities that might distinguish Hong Kong Chinese Kindergarten children at risk for dyslexia through either language delay or familial history of dyslexia from children who were not at risk and to examine how these abilities were associated with Chinese word recognition. The cognitive skills of interest were syllable awareness, tone detection, rapid automatic naming, visual skill and morphological awareness. 36 children whose sibling had been previously diagnosed with dyslexia (familial risk group) and 36 children who were initially reported to have difficulties in preschool literacy acquisition by either teachers or parents and subsequently found to demonstrate clinical at-risk factors in aspects of language by pediatricians (language delayed group) were recruited; the mean age of these groups was approximately 61 months. Thirty-Six children with no such risk factors were matched by age, IQ and parents' education to the at-risk groups. All children were tested on cognitive skills and Chinese word recognition. Compared to the controls, children in the language delayed group scored significantly lower on all measures, whereas children in the familial risk group performed significantly worse only on tone detection, morphological awareness and Chinese word recognition. In regression analyses, word recognition was best explained by morphological awareness, tone detection and visual skill. Language-related measures are strongly associated with early reading development and impairment in Hong Kong Chinese children. Tests of tone detection and morphological awareness may be important clinical tools for diagnosing risk for reading problems in young Chinese children. In contrast, Chinese language delay may be associated with broader cognitive impairments as found previously in various Indo-European languages.

Harrison, Allyson G (2008) made a study on Identifying Students Feigning Dyslexia: Preliminary Findings and Strategies for Detection. When conducting psychological evaluations, clinicians typically assume that individuals being evaluated are putting forth maximal effort and are not exaggerating or magnifying symptom complaints. Recent research, however, suggest that students undergoing post-secondary-level assessments to document learning difficulties may not always put forth their best effort and may even be motivated to exaggerate or magnify symptoms. This paper presents evidence indicating that symptom exaggeration in this context is not only possible, but is indistinguishable from valid symptomatology when it occurs. It is argued that symptom validity assessment should be included in all higher-education assessments for dyslexia and other specific learning disorders and suggest some preliminary strategies for detection.

2.4 SUMMARY OF REVIEW OF RELATED LITERATURE.

The investigator has compiled and reviewed the literature and professional reviews related to hatha yoga sadhana on socio environmental and learning disorder syndrome factors from the library of Tamil Nadu Physical Education And Sports University and the material available on the internet to provide sufficient knowledge to the readers and comparative analysis of the present study.

The reviews show that there is positive impact in hatha yoga sadhana on socio environmental and learning disorder syndrome factors. The investigator has found very sufficient studies made an analysis with hatha yoga sadhana. Based on the review and the studies the researcher has chosen this topic as well as this reviews supported on this study. The investigator formulated suitable methodology in this research that is presented in chapter III.