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Torticollis with Toddlers

A Guidebook for the Parents

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Abstract

Torticollis is a postural condition where the head and neck are twisted due to a shortened sternocleidomastoid muscle, making the head tilt towards the affected side and turn the chin towards the opposite side. All ages from babies to adults can be affected and it is a common disorder.

The aim of the thesis was to find and assemble information to enhance the knowledge of the parents about how to treat torticollis of toddlers at home in a practical way, and what is the parents' role in the treatment. The objective of the thesis was to create a guidebook, requested by Satasairaala, for the parents of toddlers with torticollis to help their everyday life.

Theoretical framework was gathered from evidence-based research focusing on the concept of torticollis, clinically relevant anatomy, motor development of a toddler, treatment of the condition and the role of the parent in physiotherapy treatment. The information gathered worked as a base for the guidebook. The created guidebook includes guided exercises, pictures of the hard collars, and evidence-based information about the condition and the parents' role in treating it at home, in an understandable clear manner. The creation of the guidebook dictated the thesis to become action-based research, where the learning happens through action and reflection.

The created guidebook was sent for feedback. Mainly positive feedback was received with a few additional suggestions. After critical viewing, the chosen changes were made, and a new and final, more reader friendly version of the guidebook was done.

The end product of this thesis is a parent friendly guidebook to be given as a complimentary tool for parents of toddlers with torticollis at Satasairaala during physiotherapy sessions.

Key words
Torticollis, toddlers, children, physiotherapy treatment, guidebook, CMT, acquired torticollis, atlanto-axial rotary subluxation

CONTENTS

1 INTRODUCTION

Torticollis is a postural condition where the head and neck are twisted due to a shortened sternocleidomastoid muscle, making the head tilt towards the affected side and turn the chin towards the opposite side. All ages from babies to adults can be affected and it is a common disorder. It can be either on the right or on the left side. Torticollis can be divided into two categories, congenital or acquired torticollis. (Tomczak & Rosman, 2013, pp. 365, 367.) Congenital muscular torticollis is the third most common congenital condition in newborns (Kuo et al., 2014).

This thesis was requested by the physiotherapy service unit of Satasairaala Hospital. There is plenty of research done about newborns with torticollis and one can find several guidebooks about how to treat a baby with torticollis at home. However, torticollis is commonly met even in children above one year of age, but little research is done for this specific age group and no guidebooks can be found about their treatment. Since a toddler is a lot more mobile and active than a newborn, the guidebooks developed for babies are not considered helpful when treating a toddler, even if the same principles may apply. A toddler will simply not be willing to lie down quietly to stretch the neck muscles. This is why the need to create a guidebook for the parents of toddlers with torticollis existed. The wish was to create a guidebook that has simple exercises that are written in an understandable language and would be easily fitted into the everyday life of toddlers' parents.

There are over 80 causes of torticollis that have been documented, but after congenital muscular torticollis, which is most common in infants, the two other common causes are due to trauma or upper respiratory tract infection (Blankstein et al., 1997; Gubin, 2012, p. 121). The thesis will be expanding more on the causes and treatment of the torticollis more often met with toddlers.

The end product of this thesis, as mentioned is a guidebook to help the parents of toddlers with torticollis with their home treatment program. A complementary booklet to be given during physiotherapy sessions at Satasairaala. This directed the thesis to become action-based research, where the learning happens through action and

reflection (McNiff, 2013, p. 24). To create the content of the guidebook, evidence-based research was made to create the theoretical framework providing the information. The theoretical framework focuses on the concept of torticollis, clinically relevant anatomy, motor development of a toddler, treatment of the condition and the role of the parent in physiotherapy treatment.

2 AIM AND OBJECTIVE

The aim of the thesis is to find and assemble information to enhance the knowledge of the parents about how to treat torticollis of toddlers at home in a practical way, and what is the parents' role in the treatment. The objective of the thesis is to create a guidebook for the parents of toddlers with torticollis to help their everyday life.

3 THE CONCEPT OF TORTICOLLIS

3.1 Definition, types, and causes

The name *torticollis* comes from the Latin words "torus" meaning twisted and "collum" meaning neck, and it is also sometimes referred to as "wryneck". It is a common disorder occurring at all ages from newborns to adults. In torticollis, the sternocleidomastoid muscle is shortened causing the head to be tilted towards the shortened side and the chin twisted towards the opposite side as seen in Figure 1. Torticollis can develop either pre-/perinatally, being *congenital*, or postnatally, being *acquired.* (Ben Zvi & Thompson, 2022, p. 865; Tomczak & Rosman, 2013, p. 365.) An acquired and short-term torticollis is fairly common and usually comes without any injuries, typically after waking up in the morning and is connected with a bad sleeping position, or after a mild trauma (Klinik Healthcare Solutions Oy, 2020). Various causes can attribute to the aetiology of the condition making it more suited to call it a

presenting symptom instead of a diagnosis (Ben Zvi & Thompson, 2022, p. 865; Herman, 2006; Severo et al., 2021, p. 1).

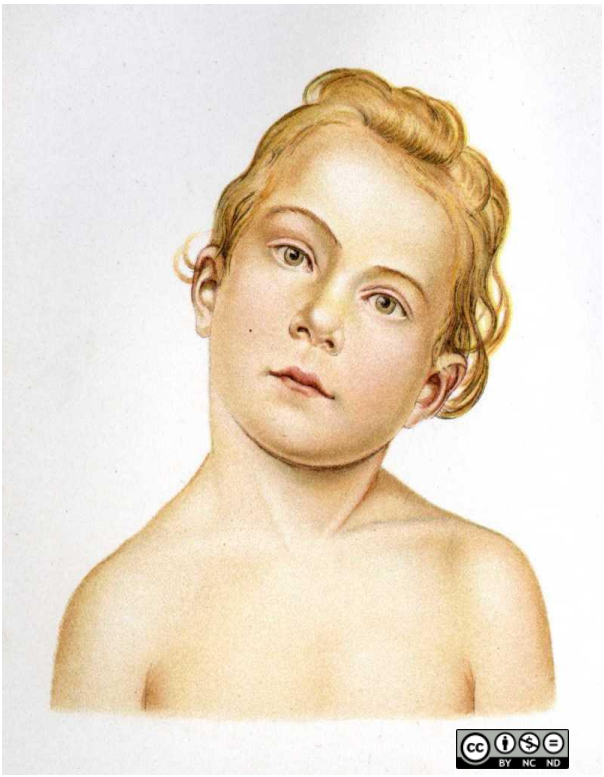

Figure 1. A Child with torticollis. (Wikimedia Commons, n.d.)

Some of the causes behind torticollis can be either pre-, peri-, or postnatal, like trauma or infection, which is why Tomczak & Rosman (2013, pp. 365-375) have suggested the condition to be classified into two categories: non paroxymal (nondynamic/static) and paroxysmal (dynamic/episodic) torticollis (Table 1). An example of non paroxymal torticollis includes *Congenital muscular torticollis* (CMT).

CMT is the most common cause of torticollis in children, and it can be caused by birth trauma or intrauterine constraint like breech position. In a study retrospectively analyzing 288 children with torticollis, only 18.4% did not have muscular causes for their condition (Ballock & Song, 1996). Some of the less common causes of torticollis are listed as follows. *Osseous torticollis* is a malformation of the spine such as vertebral segmentation defects, which can be congenital (as in Klippel-Feil syndrome), traumatic (like an atlanto-axial rotary subluxation, AARS, after a minor neck trauma) or inflammatory (like Grisel syndrome) (Ryoo et al., 2020, p. 2; Tomczak & Rosman, 2013, pp. 369–370). Atlanto-axial rotatory displacement is the most common cause of

torticollis in older children (Herman, 2006). *Ocular torticollis* is caused by eye muscle weakness, where the head is trying to compensate for the alignment of the eyes to improve vision (Ben Zvi & Thompson, 2022, pp. 871–872; Herman, 2006). *Benign paroxysmal torticollis* is recurrent intermittent torticollis and often comes with ataxia, nausea, drowsiness, and irritability (Ben Zvi & Thompson, 2022, pp. 895–896; Greene et al., 2021). *Retropharyngeal abscesses* and *pyogenic cervical spondylitis* are some of the infectious causes of torticollis. Inflammatory torticollis is developed by muscle spasms or swollen lymph nodes from external injuries or cold, and creates stiffness, and rotation of the neck (Hasegawa et al., 2007, p. 100; Herman, 2006). Tumors of the *posterior fossa* or the *cervical spinal cord* can have torticollis as their first symptom. Some medicine can also cause muscle spasms of the neck, face, and upper shoulder and so cause torticollis. (Fąfara-Leś et al., 2014; Göztepe et al., 2019, p. 65.)

Since the most common cause of torticollis is CMT, many of the alternative diagnoses, of which there are over 80 of, can easily be overlooked due to their rareness (Ben Zvi & Thompson, 2022, p. 865; Göztepe et al., 2019, p. 65; Ryoo et al., 2020, p. 1). In this thesis, the focus is on the types of torticollis most common to toddlers that are treated with physiotherapy.

Table 1. Classification of torticollis. (Tomczak & Rosman, 2013, p. 366)

Nonparoxymal (nondynamic) Torticollis	Paroxymal (dynamic) Torticollis

• Congenital muscular torticollis
  • Intrauterine constraint
  • Birth trauma
• Osseous torticollis
  • Congenital
  • Traumatic
  • Inflammatory
• Central nervous system/peripheral nervous system torticollis
  • Brain
  • Posterior fossa
  • Basal ganglia
• Spinal cord
  • Spinal nerve root/peripheral nerve
• Occular torticollis
  • Superior oblique muscle palsy
  • Other ocular deviations
  • Spasmus nutants
• Nonmuscular, soft tissue torticollis
  • Infectious
	• Benign paroxymal torticollis
	• Spasmodic (cervical dystonia)
	  • Primary
	  • Secondary
	• Sandifer syndrome
	• Drug-induced torticollis
	• Torticollis from increase intracranial pressure
	• Torticollis as a conversion disorder

3.2 Symptoms

Since there are several causes of torticollis, there can be symptoms specific to only a certain type, however, some symptoms can be seen in most of the types, those are as follows; tilting the head towards the side of the affected muscle and turning the head towards the other side, compensatory changes in the cervical spine, changes in the muscle tone of the trunk and limbs, misalignment of the jaw because of the condition, and compensatory scoliosis. After a long period of symptoms, alterations in the skull like flattening of the occiput, or facial asymmetry where the face develops more on the side of the affected muscle may occur. (Wojciechowska et al., 2019, pp. 132–133.)

In cases of atlanto-occipital rotary subluxation, contrary to most of the other torticollis, the head is tilted towards the non-affected side as the spasms are caused by the attempt of correcting the subluxation (Tomczak & Rosman, 2013, p. 369). Torticollis caused by infections can have additional symptoms like fever, irritability, drooling, painful and difficult swallowing, and respiratory distress (Tomczak & Rosman, 2013, p. 372).

4 CLINICALLY RELEVANT ANATOMY

In torticollis, the sternocleidomastoid (SCM) muscle is tightened and pulls the mastoid process toward the ipsilateral acromioclavicular joint making the chin rotate towards the opposite shoulder. The degree of the neck flexion and extension can vary. The SCM has two origins which are the inferior attachments: sternal head at the anterior surface of the manubrium and clavicular head at the superior surface of the medial third of the clavicle as illustrated in Figure 2. Both tendons join to form a single muscle bundle leading up superiorly and anteriorly to insert onto the lateral surface of the mastoid process of the temporal bone and lateral half of the superior nuchal line. (Agur & Dalley, 2021, p. 733; Tomczak & Rosman, 2013, p. 365.)

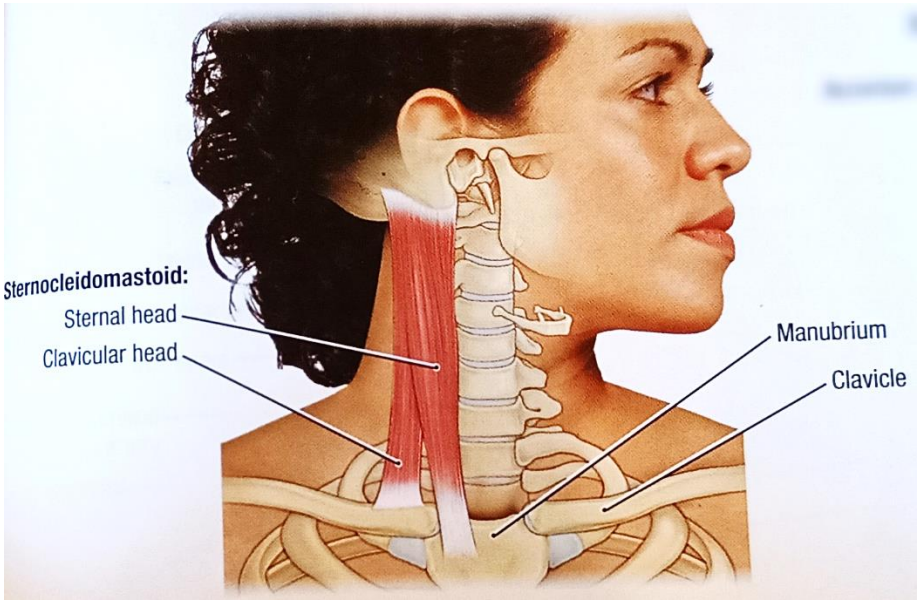

Figure 2. Sternocleidomastoid muscle placement (Agur & Dalley, 2021, p. 733)

When one side of the SCM is being contracted it laterally flexes the neck, making the ear come closer to the shoulder, and rotates the neck, making the face look towards the opposite side. When both SCM are contracting together the neck can extend at the atlanto-occipital joint (Figure 3), the cervical vertebrae flex making the chin move closer to the chest, or the superior cervical vertebrae extend while inferior vertebrae flex, so the chin moves forward while keeping the head level. If the cervical vertebrae are fixed, manubrium and medial end of clavicles can elevate, assisting deep respiration. The SCM is innervated by the accessory nerve (Cranial nerve XI) and C2 and C3 nerves provide the sensory supply of proprioception and pain. (Agur & Dalley, 2021, p. 733; Tomczak & Rosman, 2013, p. 365.)

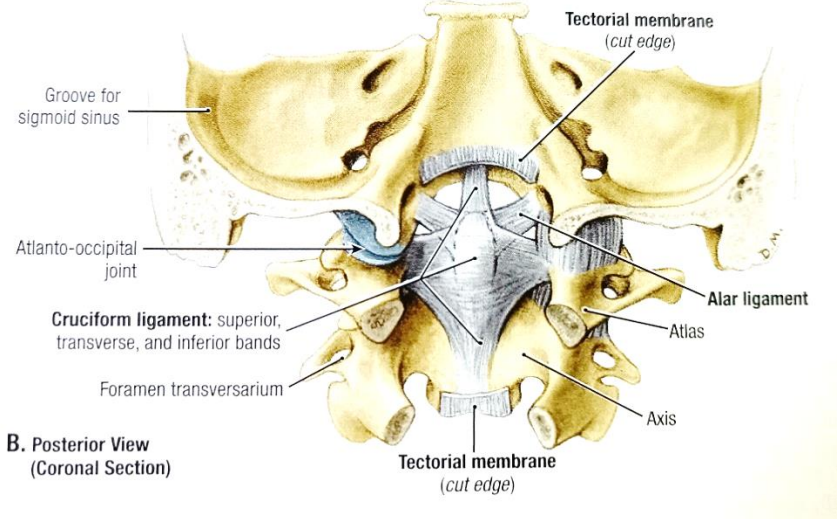

Figure 3. Atlanto-occipital joint, posterior view. (Agur & Dalley, 2021, p. 13)

Atlanto-axial rotary subluxation, AARS, is a common cervical spine injury cause in children. (Powell et al., 2017, p. 2.) Normally the atlanto-axial joint (the joint below atlanto-occipital joint) is responsible for 60% of the rotation of the neck, whereas atlanto-occipital joint is responsible for 3-8%, and the remaining of the rotation comes below the axis. The stability of the joint is provided by the surrounding ligaments. Young children have highly elastic ligaments and synovium, and more horizontally facing facet joints which makes it easier for accidents to occur. The heads of children are also bigger in comparison to the adults' and their musculature is less developed which can contribute to predisposing factors. (Powell et al., 2017, p. 2; Sundseth et al., 2013, p. 519.)

The development of the vertebrae is ongoing until approximately the age of 7 years. At birth, a vertebra consists of three bony parts, two halves of the neural arch and the centrum, united by hyaline cartilage (Figure 4). At the age of 2, the neural halves start to fuse together and around the age of 7, the arches fuse together with the centrum. So the vertebrae are still developing during the ages of 1-3 years. (Agur & Dalley, 2021, p. 3.)

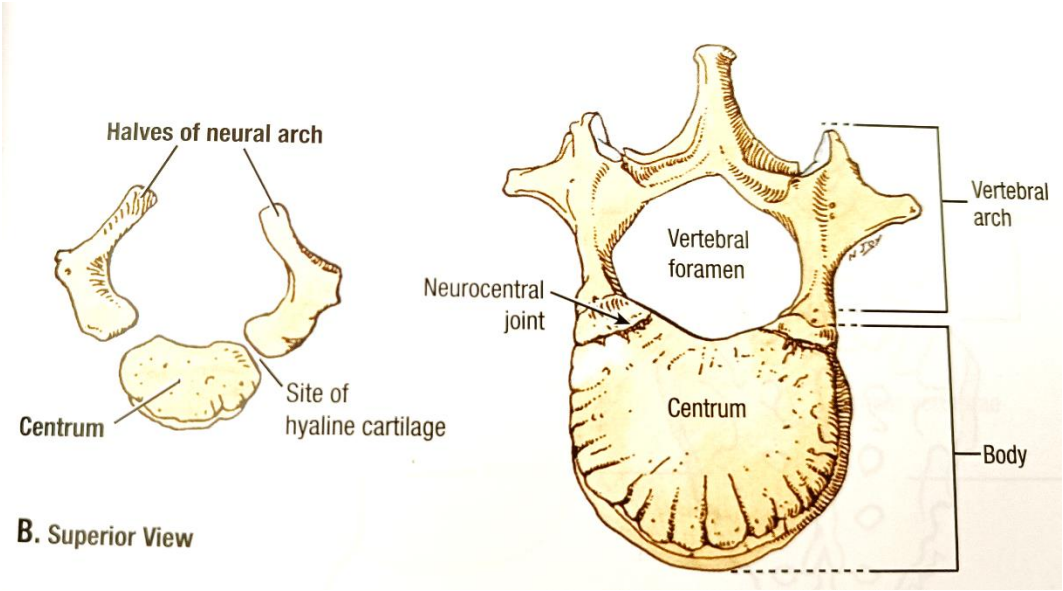

Figure 4. Development of vertebrae. (Agur & Dalley, 2021, p. 3.)

5 PHYSICAL AND MOTOR CONTROL DEVELOPMENT OF CHILDREN BETWEEN AGES 1 TO 3 YEARS

5.1 Toddler's development and play as tools in physiotherapy

A toddler is defined as a young child who toddles, meaning they have recently learned how to walk, or walk unsteadily, and are usually between the ages of 1 and 3 years old (*Toddler Definition & Meaning - Merriam-Webster*, n.d.). The natural world of a child is play, through which they learn about themselves, others, and their world. It is researched that play stimulates the neural structures in the brain, thus making it critical for normal development. Play is a normal way for children to communicate and it lowers the barrier of resistance to therapy making the environment less threatening. (Homeyer & Morrison, 2008, pp. 211–212.)

Pediatric physiotherapists work with children of all ages, and they need to understand their growth and its impact on the child (Pountney, 2007, p. vii). Since the objective of this thesis is to create a guidebook for the parents of toddlers with torticollis to help their everyday life, it is important to know how a toddler develops and how they play at different ages to incorporate it into the treatment. In the following chapters, the motor control development and the development of play is explained to know what can be expected during treatment.

5.2 1-2-year-olds

A child between the ages of 12 to 15 months can steadily sit on their own and is able to get from a lying position up to a sitting position easily. They have their own way of moving, whether it is by crawling on hands and knees, 'bear walking' or shuffling on their bottom. They are able to pull up to standing using furniture and stand by holding on with either one or two hands. They can take a few steps forwards or sideways by holding onto the furniture or someone's hand. Some may stand alone for a few seconds or even take some steps alone. They enjoy being close to and hearing familiar people

and show affection towards them. They like playing with adults and their focus is being switched between objects and people. They enjoy toys that make noise. Social milestones include waving goodbye and clapping and putting objects in and out of boxes. (Sheridan et al., 2008, pp. 21–24.)

A child between the ages of 15 to 18 months may walk independently, but usually with a wide base and using arms to balance at shoulder level. The length of the steps is unequal, and the steps are high. They often start walking at their own will but keep stopping because of falling or bumping into things. They can also stop moving by falling backward with a bump or forwards catching onto their hands. They are able to get up again on their own. They enjoy pushing large, wheeled toys forwards, exploring how different toys function, carrying toys around, and playing with functional toys and household objects. They are also physically restless and curious about everything as well as need reassurance from an adult in unfamiliar situations. (Sheridan et al., 2008, pp. 25–27.)

Between the ages of 18 months and 2 years, a child can walk more steadily even while carrying a larger toy, as well as is able to stop and start walking safely. They can run carefully but have difficulties avoiding obstacles. They enjoy climbing onto sofas and adult-sized chairs. They can also squat and pick up toys from the ground and then get up again with the help of the support of their hands. They are interested in their environment which they are beginning to understand more of. No sense of danger. They enjoy mimicking everyday activities in their play and are happy to play both alone and with adults. They are still emotionally dependent on their carers but can change between being clingy and independent. (Sheridan et al., 2008, pp. 28–31.)

5.3 2-3-year-olds

A child between the ages of 2 to 2,5-years-old can run safely avoiding obstacles as well as is able to start and stop safely. They are able to squat down to pick up or play with a toy and don’t need any support in getting up. Uses furniture to climb on to get to other things. They show an understanding of their own size, relation, and position compared to other objects. They can push themselves forward on a tricycle without

using pedals. They enjoy imitating everyday tasks in simultaneous play, opening and closing doors. Starts to show pretend play using imagination on toys and what they represent. Can engage in parallel play, playing on their own next to other children. Constantly requiring the attention of an adult and frequently having tantrums that quickly resolve. (Sheridan et al., 2008, pp. 32–35.)

A child between the ages of 2,5- 3-years old can run well and climb up play equipment. Can jump down with two feet from a small step and stand on tiptoes when shown. They can awkwardly throw a ball and unevenly kick a large ball. They are getting increasingly active and restless with little understanding of danger. They throw tantrums when their actions are restricted but are still very dependent on the adult's care in unfamiliar situations. Can keep longer role plays using more imagination. Sometimes joining other children's play but does not see it necessary. (Sheridan et al., 2008, pp. 36–38.)

5.4 3-4-year-olds

A child between the ages of 3-4 years old can walk up the stairs with alternating feet whilst holding a toy and walk down the stairs with two feet on one step and jumps down the last step. They can skilfully climb on play equipment, run around with confidence avoiding obstacles, and walk forwards, backward, sideways and on tiptoe as well as ride a tricycle and turn around corners with it. They have a good understanding of their own body, and they can throw a ball overhand as well as catch a large ball. They are more willing to cooperate and show affection. They enjoy make-believe playing and playing on the floor with other children and on their own and understand sharing. They show some understanding of the past, present, and future. (Sheridan et al., 2008, pp. 39–41.)

6 TREATMENT OF THE CONDITION

6.1 Treatment guidelines

The American Physical Therapy Association Academy of Pediatric Physical Therapy has published an evidence-based clinical practice guideline on the physical therapy management of CMT (2018). However, the guidelines refer to treating infants and do not refer to other forms of torticollis other than CMT. There are very few reports of the treatment of acquired paediatric torticollis as most publications refer to missed diagnoses and case studies with common or uncommon causes of torticollis (Young & Young, 2017, p. 252).

For children over one year of age with CMT, who have had six months or more of conservative treatment, surgical procedures are recommended (Tomczak & Rosman, 2013, p. 368; Trovato & Dietzen, 2021). Early treatment of AARS has been proven to have better outcomes no matter the form of the treatment, than if it has been started later. AARS without neurological or radiological abnormalities can be treated with a soft collar and analgesics. However, there is a lack of high-quality data to verify the best nonsurgical treatment strategy. (de Kroon et al., 2010, p. 1279; Sae-Huang et al., 2020, p. 108.) A sudden cause of torticollis without any trauma can be treated at home as long as it passes in a few days (Helenius, 2016, p. 1026; Klinik Healthcare Solutions Oy, 2020; Terveyskylä, 2019).

6.2 Physiotherapy

The treatment of torticollis is always based on the cause of the condition and should be planned individually (Terveyskylä, 2019). The clinical practice guideline suggests five main interventions when treating CMT, which all have level II evidence quality and moderate recommendation strength. The five components are as follows: neck passive range of motion (PROM), neck and trunk active range of motion (AROM), development of symmetrical movement, environmental adaptations, and parent/caregiver education. The components should also include all parts of the ICF-

model, including body structure, activities, participation, and environmental and personal factors. The activities should promote age-appropriate participation as well as current and future development and learning. There are no standards when it comes to dosage, duration, or repetition of stretches, but they should be frequent throughout the day and performed every day. (Kaplan et al., 2018, pp. 45–46.)

Stretching should not be painful and it should not be performed if the child resists, or if there would be any changes in breathing or circulation. The recommendation to avoid microtrauma of the muscle tissue is to have low-intensity, sustained, and pain-free stretches. For the PROM of the neck, one should stabilize the child for as few compensatory movements as possible and guide the head through the available range. Also, positioning and handling can help achieve the PROM of the neck and AROM of the neck and trunk, like changing the place of the car seat so the window is on the weaker side of the neck, encouraging sleeping head away from the tighter side, and exercising the weaker muscles. (Kaplan et al., 2018, pp. 47–48.)

In severe cases of AARS, cervical traction can be used to help the partially dislocated vertebrae to get back on their normal position, and to ease the muscle tension to restore the normal ROM. This is used if the condition lasts more than a week. In acute (less than one week of duration) less severe cases, a soft, or a hard collar can be used for approximately two weeks to release the pain. The collars used at Satasairaala can be seen in figure 5. The collar is often used together with nonsteroidal anti-inflammatory drugs or muscle relaxants. (Helenius, 2016, p. 1026; Neal & Mohamed, 2015, p. 387; Terveyskylä, 2019; Tomczak & Rosman, 2013, p. 370.)

Figure 5. The two different hard collars used at Satasairaala.

Other supplemental treatments can include Kinesiological taping (KT) or Soft Tissue Mobilization (STM), but there is no research to support any long-lasting effects. With KT the results seem to disappear as soon as the tape is removed. STM could be advised if the child resists passive stretching. (Kaplan et al., 2018, pp. 51–52)

6.3 Surgery, halo vest and antibiotics

In CMT, if the client has undergone at least six months of physiotherapy and still has a tilted head, diminished passive rotation and lateral bending of the neck is more than 15 degrees, and a tight muscular band or a tumor in the sternocleidomastoid, surgery should be performed. There are several different methods of surgical procedures. Also, in the severe cases of AARS, surgery is done. After surgery, approximately three to four months of physiotherapy is needed. (Cheng et al., 2001; Tomczak & Rosman, 2013, p. 368; Trovato & Dietzen, 2021.)

Postoperatively or in severe cases of AARS without any neurological symptoms a halo vest can be used for cervical immobilization (Severo et al., 2021). An example of a halo vest can be seen in Figure 6. Halo vest is frequently used for C1-C2 injuries, but

it can cause complications like pain, loose pins, pin site infections, and patient intolerability (Malnik et al., 2021, p. 639).

Figure 6. Postoperative external fixation with a halo vest (Sundseth et al., 2013, p. 522).

Children who have an infection as an underlying cause can be treated with appropriate antibiotics (Macias & Gan, 2023).

7 ROLE OF THE PARENT IN PHYSIOTHERAPY HOME TREATMENT

Just like any other children's health services, physiotherapy services need to take a holistic approach while treating a child to consider all the aspects of social, emotional, and educational needs as well as take the family into consideration. An important part of the physiotherapist is to educate, consult, and train the parents. Although the parent of a toddler will be consenting the forms in intervention, the physiotherapist should make sure to communicate both with the parents and with the child in a manner suiting the child's age. (Pountney, 2007, pp. 10–11.)

The goals of the treatment should be made together with the family, and the physiotherapist's role is to provide enough information to make the goals. The

physiotherapist and the family working together towards these goals will provide the best outcomes. (Pountney, 2007, p. 11.) The physiotherapist and the parents should talk about the prognosis and possible outcomes together, how the progress will be evaluated, and what to expect of the physiotherapist and home exercises during the implementation of the care. Good, clear communication and goals will provide a basis for referral back to the doctor if the goals are not met. (Kaplan et al., 2018, pp. 42–43.)

Even if the parents may not have training in assessing children, they are very good at observing anything different in their children, and since a toddler may not be able to express themselves verbally the observations of the parents are important. An individual home exercise program should be planned around the daily routines of the family, and it should include the limitations of the child and other parental responsibilities, demands, and resources. The home program should be reasonable and effective. This way it will be easier to get in as many opportunities as possible for the interventions. The parents should be educated about the importance of the constant practice of the home program to maximize outcomes. The parents should be informed about the signs of unresolved or returning torticollis, so they know when to return for a new consultation. (Kaplan et al., 2018, pp. 14, 40, 43, 45, 60.)

Research has shown that there is strong evidence that parental expectancies have a big effect on children's behaviour, and the parents' attitude towards the child's therapy can affect the therapeutic response of the child (Whalley & Hyland, 2013, pp. 341–342). This suggests that a parent who shows little interest or belief in doing home exercises or wearing a collar, can negatively affect the outcome of the treatment.

8 THESIS EXECUTION

8.1 Thesis process and methods

When choosing the topic of the thesis, the author felt drawn to the field of paediatric physiotherapy, which had been one of the leading interests of theirs. This led the author

in contacting the paediatric physiotherapy service unit of Satasairaala to ask if they would have any interest in cooperation, and if so, if there was any topic they were interested in being researched and produced material for. This raised the interest for the topic of a guidebook for the parents of toddlers with torticollis. In November 2022, a meeting was held to discuss the needs for the guidebook. In the meeting the need of a guidebook including exercises suited for toddlers, informing the parents of the importance of a positive attitude, and guiding the use of collars, was addressed. After the meeting, the topic was narrowed down by reading research already existing on the subject, and a plan was made, and it was presented in January 2023. The development supervisor of Satasairaala was contacted to make sure if any permissions were needed for the thesis. Since there was not going to be any contact with any of the hospital's patients, the only contact being feedback for the guidebook, no special permissions were needed. In March 2023, a formal contract was signed by all parties.

Due to the author having long placement practices, and courses throughout the spring term, the writing started as planned in June 2023, and the theoretical framework was finished in August 2023. The evidence-based research was gathered from research publications, articles, books, and guidelines. Search engines used in the process were Finna, Google scholar, PubMed, and other official health organisational websites. Languages used in the research were English, Finnish, Swedish and Norwegian. Notice was given to when the research was published, trying to exclude research older than 10 years old. However, since it was clear from the beginning that little research of this particular age group with torticollis was made, one needed to expand to older research as well. Since there are many causes of torticollis, a lot of thought was put into which causes should be presented in this thesis, what was relevant for treating torticollis with toddlers. This led to excluding articles about torticollis with adults and torticollis with under one-year-olds and causes of torticollis not treated with physiotherapy.

Since the request for a guidebook existed, the strategic approach of the thesis became action research. Action research develops both personal and social learning, suiting the intent of the thesis. In it the learning happens in and through action and reflection, making testing an important part of the approach, leading to public use of a proper and trustworthy guidebook. (McNiff, 2013, pp. 24, 89.) This is why it was essential to test the exercises and send the guidebook for feedback, and reflect on the findings, as

explained in chapters 8.3.2 and 8.3.6. The guidebook was created in October 2023 and sent out for feedback. The thesis was finalized during October and November 2023.

The thesis was evaluated through feedback from the supervising teacher during the writing process, and the guidebook was finalized with the help of the parents' and a physiotherapist's feedback. The final version of the thesis was accepted by the supervising teacher and the final version of the guidebook was accepted by the contact person in Satasairaala, and they were presented in November 2023. The thesis was also given for an opponent to read, who participated in the presentation.

8.2 Description of the guidebook

The guidebook is an eight-page booklet (Appendices 1-4) that will be given to the parents during a physiotherapy session. Four versions of the guidebook were made including versions treating the right side and left side both in Finnish and in English. The guidebook is written in a parent friendly language and made with light natural colours giving it an easy-to-read appearance.

The essential information of the thesis theoretical framework was used as a base for the guidebook. The guidebook consists of four parts: short information about the condition and why it needs to be treated, role of the parents, home treatment, and information about the guidebook. The home treatment is based on the five components of the evidence-based clinical practice guidelines by The American Physical Therapy Association Academy of Pediatric Physical Therapy, including the components of neck PROM, neck and trunk AROM, symmetry, and environmental adaptations. The guidebook itself serves as the final component of the guidelines of parent/caregiver education. Two PROM exercises were chosen to stretch the sternocleidomastoid muscle in two ways and two AROM exercises were chosen to strengthen the weaker side of the neck. The number of exercises was dictated by the studies that have shown that if given more than four exercises the patients are less likely to perform them at home (Timothy Eckard et al., 2015, p. 190). The guidebook includes a section giving practical advice on the possible environmental changes one can make in the home surroundings. Pictures and information on the use of hard collars were added for the

patients needing extra support in finding symmetrical and correct alignment of the neck. The last page of the guidebook consists of the information and rights regarding the making of the guidebook. The guidebook is meant to be complimentary to the guidance given at the physiotherapy session and so there is space for added notes one can write regarding the individual treatment.

8.3 Executing the guidebook

According to the wishes from the physiotherapy department of Satasairaala, the guidebook includes guided exercises, pictures of the hard collars, and evidence-based information about the condition and the parents' role in treating it at home, in an understandable clear manner.

8.3.1 Standards for the information and layout

The guidebook was created by using Canva, which is a free-to-use online graphic design tool that was already familiar to the author. The tool was chosen to create a professional look that would hopefully be more appealing to the parents reading it. The process started by choosing the essential information to have in the guidebook, which is listed in the chapter 8.2. Attention was given to the readable and understandable manner of writing the basics of what the condition is, why it is important to treat it, why the parents' role is important as well as the possible environmental modifications. The choice was to not to make the text too long and yet to include the needed information. The guidebook was made to meet the 7 standards mentioned in the guidelines of how to create good and useful health related content by Rouvinen-Wilenius (2007). The material has a clear and concrete health goal which is separately mentioned in the guidebook, it provides information about the condition, gives tools to treat it, takes the life situation into consideration, and it is also written in a manner which should motivate the readers to use it. The guidebook also is made to serve the specific target group of parents and toddlers, hopes to create a positive feeling in them, and is created in a format which is suited for the purpose. (Rouvinen-Wilenius, 2007, p. 9.)

8.3.2 Exercises

The exercises chosen for the guidebook were based on the evidence found during the gathering of the theoretical framework of the thesis. The two stretches included the tilting and rotating the neck to increase the stretch of the sternocleidomastoid, the main muscle affected in torticollis. The stretches were made so the toddler could comfortably sit in their parent's lap to make them more willing to stay still for the exercise. The stretches were tested with the authors own toddler to know if it was possible to do. The two active movements chosen, were created with a playful approach to make the toddler willingly turn and tilt their head. The two exercises are based on a playful connection between the parent and the child in which the children do not need advanced motor skills, body awareness or ability to follow instructions too difficult for the target group. In the exercise that practices strengthening the neck by tilting the head, the tilting of the head is based on a postural reflex, the neck righting reflex, the children of the target group obtain (Goodway et al., 2019, p. 19). The exercise practicing turning of the head, is based on the curiosity and playfulness of the child using vocal and visual stimulation to make the child turn their head. Both exercises were tested with the authors toddler, and both were experienced fun and the toddler wanted to repeat them several times suggesting they would work for the target group in mind.

Guidance text for the exercises was created to be accurate, practical, and easy to follow. The choice to make two guidebooks, one for the patients with right side torticollis and one for the left side torticollis, was made to simplify the guidance and refer simply to the right or left sides instead of weaker and stronger sides. This decision was made to avoid misunderstandings. Since the guidelines referred to in chapter 6.2 did not include standards for dosage, duration, or repetitions, and the treatment of each client is individual, the doses was left to be filled by the physiotherapist for each specific case.

8.3.3 Collars

The collars chosen for the guidebook were received from the physiotherapy service unit of Satasairaala, and are the ones used in their practice. The aim was to picture the correct use of the two types of collars, and the reason why they are used. The length of how long the collars is used, are based on each individual case, and so the length of use was not mentioned in the guidebook. The collars pictured were Philadelphia C-SPN CLLR and Miami J collar P2. The collars presented were to represent hard collars used in easier and more challenging cases.

8.3.4 Pictures

The importance of good, clear, and informative pictures became obvious from the very beginning. Two types of pictures were chosen to improve the quality of the guidebook. Firstly pictures provided by Canva, to create a more pleasant reading experience. Secondly pictures taken by the author and a helping photographer, to provide imaging of the exercises. The three pictures provided by Canva were chosen to be in neutral tones and to match the information given on each page. The pictures taken specifically for this guidebook were taken with children of the same age group as the targeted patients. Clothes and surroundings for the pictures were chosen carefully to match the natural tones of the rest of the guidebook. The clothes did not have any colourful images or logos on them. Also, all jewellery and watches were removed to make the handling of the child clearer. A classroom of Satakunta University of Applied Sciences (SAMK) was booked to provide a clear white background for the pictures. The author was handling the toddler to make sure of the correct positions. Since the author was present at the pictures a photographer was recruited to take the pictures. The setting and editing of the pictures were done by the author. When editing the pictures colourful arrows were added to further guide the directions of the movement. The ethics behind the photographs are explained in chapter 8.4.

8.3.5 Official information

The last page of the guidebook consists of the official information including the creator's and photographers' names. Information about what the guidebook is based on and where the full thesis can be found was added, so the parents who are interested in learning more about the condition can easily find it. The names of the official parties of SAMK and Satasairaala were added, so the readers know who are behind this guidebook and that it can be trusted. The logo of Satasairaala and their webpage address was added by the request of the physiotherapist working as the contact person. No other added official information from the behalf of Satasairaala was needed.

8.3.6 Feedback

After the first version of the guidebook was finished, it was sent to the physiotherapy service unit of Satasairaala for the approval of the content related to the information, chosen exercises, accuracy of pictures, guidance, and other feedback. It was also sent to four parents of toddlers, two to be read in Finnish and two to be read in English, for feedback on the readability, sufficient information, clear enough guidance and pictures etc. Two weeks were given to return the feedback. The parents were of healthy toddlers of different ages who willingly participated after being asked to offer their help.

By the deadline, feedback was received from the physiotherapist and 3 parents. Due to the busy nature of parents with toddlers, one parent did not have time to give feedback. Overall, the feedback was very positive with few suggestions for improvements. The positive feedback stated that the information in the guidebook was clear, advice was considered practical, the pictures were good, the guidance of the exercises was clear, and the parents were able to successfully try the exercises their child. Also, the length of the guidebook was considered to be good.

The suggestions, gathered in Table 2, mainly consisted of adding suggestion on how to better handle the situation of doing the exercises with the child. Some more practical advice was added, but still keeping the guidebook the same length as before. One could have added several more advices, but the wish was to keep the text in a length, so the

parents would be more likely to read all the information in it. A suggestion of not blurring the children's face was also made, but the author decided to not make any changes due to ethical reasons.

Table 2. Suggestions listed according to feedback and the changes regarding them.

Suggestions	Changes
Suggestions/notice of typo and better formulating or wording, and information corrections.	These changes were all implemented.
Suggestion to add advice on looking at the guidebook together with the child.	Advice added to the guidebook.
A smiling child would be better than a blurred face if children look at the guidebook.	For ethical reasons changes were not made regarding this opinion.
Suggestion to add information about the benefits of the exercises to motivate the parents.	Information about the benefits of treating the condition already exists on the first page and will come more apparent when meeting a physiotherapist, so no added changes were made.
Suggestion to add information on how to address the child about the situation to make them better be part of the process.	Advice added to discuss and look at the guidebook together with the child was added.

Overall, the feedback helped the guidebook become even more reader friendly, with some more understandable wordings and added guidance. The guidebook kept the layout, pictures, and information the same, making the changes made mainly to be additional information.

8.4 Ethics during the execution of the guidebook

The written text was based on the evidence-based research found during the process of making the thesis. All the content was created by the author and none of it was

copied from other sources. The photographers and all other parties relevant to the content are credited in the end of the guidebook.

The children photographed were previously known by the author and a written parental consent was made to photograph the children (Appendix 5). The children gave their verbal consent for the photographs to be taken. The photography sessions were made to be fun and executed with the pace of the children allowing them to play in between. The surroundings were safe, and the children were under constant supervision. The children were also familiar with the photographers making it easy for them to relax. The photographs were taken with a system camera and were transferred straight to a password protected USB-memory stick, so no online storage was used for the photographs. The pictures will be stored in the USB-memory stick for the duration of the making of the thesis, after which they will be deleted. To keep the identity of the children hidden, the pictures were edited, and the faces of the children were blurred so no identification can be made by whoever will be reading the guidebook. The parental consent is mentioned in the end of the guidebook.

9 DISCUSSION

9.1 Ethics and credibility

While creating the thesis, Samk's guidelines of ethical ground rules have been followed using honest, responsible, and correct measures throughout the research (SAMK, 2022). This is seen as all the resources have been correctly sited and the materials used have been from highly regarded sources. Careful consideration has been put into choosing the research material, being critical of the sources and when they have been produced. All the theoretical framework is fully based on evidence-based research, looked through objectively, and no assumptions were made by the author. The process of the thesis has been well documented including all the problems along the way. The theoretical framework has been written in a clear, understandable, and professional manner using the thesis guidelines provided by Samk. The guidebook has

been written with the target group in mind, using language and examples helpful for the readers. All the needed permissions and contracts, including parental consent for the pictures used, were signed during the process. Extra attention was given to keep the identities of the children in the pictures hidden. The author does not have any conflict of interest on the topic and has not had any personal or second-hand experiences of torticollis. The guidebook was written with information found during the research and the exercises are based on the guidelines found. The guidebook was sent for the contact person in Satasairaala, a paediatric physiotherapist, who has approved the exercises, pictures, and information in it. Feedback was also asked from four different parents and their suggestions were taken in and needed improvements were made. The original schedule of the thesis was kept, and the guidebook was given to Satasairaala when promised.

9.2 The thesis process and guidebook

From the very start it was clear that little research on the topic was made about the chosen age group. All material concerning toddlers was consisting of case studies and reports. However, plenty of material can be found about torticollis with babies, older children, and adults. Since also myriad causes of torticollis have been reported, the importance of carefully choosing the material relevant to the topic of this thesis was paramount. Finding enough information to support and cover the wishes for the guidebook, made the writing of the theoretical framework slow and challenging. However, little research done on the topic together with the wishes of the Satasairaala, also proved the importance of gathering and producing more information for parents of toddlers with torticollis. The thesis process made the author realise having exercises specific for the ages between 1- 3-year-olds are needed. Unlike babies, toddlers are more active, and so they need to participate on the exercises on a level matching their physical abilities. The cognitive abilities of older children are more developed, and with older age group one can more easily talk and explain the need for the exercises and ask them to copy movements. This led to finding information concerning the motor development of toddlers and the parents' role in treatment. Using critical thinking on

which material to include in the thesis, led to the author's growth in considering the patient holistically.

Another important part of the learning process for the author, was transferring the gathered information into making practical exercises and being able to pick the essential information relevant for many parents of toddlers with torticollis of different causes. Since it was not enough to develop exercises for the correct muscles, but one needed to invent ways to engage toddlers' attention, testing was needed. Testing and photographing the exercises ended up producing also practical advice added to the guidebook to give extra tools to the parents. The photography session proved how the child's engagement is an essential part of successfully practicing the exercises. To engage a child the parent's/caregiver's positive attitude and the right circumstances can not be missed. Guiding a child needs flexible attitude and timing. The creation process of the guidebook was the most rewarding and natural for the author making it smooth and fast.

The author believes the thesis process has given her tools for her future career. Not only ideas on how to treat torticollis, but the experience of transferring knowledge from theory to practical implementation. This process has made the author understand better the importance of including all the aspects of a child and their family, when planning treatment. So many factors come to play when a patient is being treated affecting on how the rehabilitation goes, and with a small child the number of factors is even bigger. A life of a family with young children is busy and it is difficult to find time for extra activities, and toddlers are not always willing to do what they are told. This is why the planning must happen in a manner that the treatment can become a part of the everyday schedule, and it must be appealing to the toddler. This can be easier said than done. The author believes this realisation is useful and easily implemented in future work in the field of physiotherapy.

Getting feedback from several different sources was considered very useful. Feedback from the physiotherapist made sure all the information was correct and acceptable, making it more likely that the guidebook would be used in the future. The parents all had different professional backgrounds and different aged children, so they were sharing a range of perspectives on the guidebook. Their suggestions were greatly

appreciated and made the guidebook even more approachable and reader friendly. Critical thinking was also applied in which suggestions to add to the new version, making sure that the length of the guidebook would not become too long and unreadable, and keeping the ethical choice of not relieving the children's identity. The author was pleased to hear that the guidebook was so well received and that the exercises did indeed work with the readers' children. The author learned, that having sent the guidebook to several people and giving a long deadline was a good choice, to receive the needed feedback.

The co-operation with Satasairaala was good and educational. The communication was clear and worked well both ways. Having worked with a big institution gave the assignment even more value and pushed the author to put a lot of effort into making a good product.

The guidebook has been created for Satasairaala with the information available now. When new research will be done, an updated version of the guidebook is due. The author wishes the guidelines existing now on the treatment of torticollis with babies could be expanded to treating older children as well, or separate guidelines regarding them could be made. The author's wish is for more hospitals having similar guidebooks to hand out for the parents. Hopefully this guidebook can help many parents and toddlers in their journey with torticollis since it has been made with them especially in mind.

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Satasairaala

TORTICOLLIS WITH TODDLERS: A GUIDEBOOK FOR PARENTS

Right side

WHAT IS TORTICOLLIS?

In torticollis, the head and neck are twisted due to shortened muscles of the neck making the head tilt towards the affected side and turn the chin towards the opposite side. All ages can be affected, and it is a common disorder. Either side, left or right, can be affected. It can be present already at birth or acquired later due to trauma, infection, etc.

It's important to treat the condition because tilting the head towards one side for a long period of time can make the body compensate through changes in the spine, muscle tone of the body, and misalignment of the jaw.

This guidebook aims to give parents practical advice and exercises on how to help their toddlers to better control and position their head, and relax the neck area.

ROLE OF THE PARENT

Parents are an important part when treating a toddler. Parents' expectations and attitudes towards the child's therapy can have a big effect on the child's participation. Be sure to meet the exercises and use of collar with a positive attitude, and include fun and games. For the best outcome, read through the exercises with your child and discuss why it is important to do them.

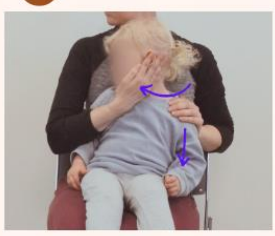
MODIFICATIONS

- If necessary consider changing the place of the car seat so the window is on the left side of the child (when facing away from the direction of travel), this will encourage the child actively to look out the window and use the weaker muscles.
- Encourage sleeping with the head pointing to the right. You can turn the head while the child is sleeping to increase mobility.
- Position yourself on the right side of the child when playing and talking to increase the child's natural head turning to the weaker side.

EXERCISES

The treatment of torticollis is always based on the cause of the condition and should be planned individually, so follow the instructions given to you by your physiotherapist. Make sure you find good time for the exercises in your schedule, make it part of your daily routine just like brushing your child's teeth. This will help to keep up the home treatment. A well-rested and fed child is more ready for the exercises.

1



Stretch to the side

- Sit down and hold the child sitting in your lap facing away from you.
- Stabilize the left shoulder of the child with your left hand. Place your right hand on the left cheek of your child.
- Gently turn the head towards you making the right ear get closer your chest.
- Hold for ___ s. Return back slowly.
- Repeat ___ times.

Stretching can feel uncomfortable but not too painful. The stretches should be stopped if the child physically resists or if there is changes in breathing or circulation. To make it easier, your child can for instance watch their favorite show at the same time.

2

Tilt stretch

- Sit down and hold the child sitting in your lap facing away from you.
- Stabilize the right shoulder of the child with your right hand. Place your left hand on top of your child's head on the right side.
- Gently pull the head towards the left making the left ear get closer to the left shoulder.
- Hold for ___ s. Return back slowly.
- Repeat ___ times.

EXERCISES

3

Head tilting exercise

- Lie down with your knees bent and place your child on your belly sitting and facing towards you.
- Hold your child's hands in yours and gently tilt your child to the left, far enough to make your child tilt their head in the opposite direction. Return back to the center.
- Repeat ___ times.

4

Head turning exercise

- Stand upright in front of a mirror or a family member holding the child horizontally to the ground with both arms under the belly. The child's head should point towards the left.
- Encourage your child to look towards the mirror or family member by calling their name, or making funny noises or faces.
- Hold for ___ s. Lower the child back on the floor.
- Repeat___ times.

USE OF COLLAR

A hard collar can be used in some cases to practice finding the correct midline. How long a collar should be used is individual and your physiotherapist will give you instructions suited for your child.

Make sure the straps are placed equally on both sides and the collar is firmly placed around the chin. Hard plastic parts should not be placed directly on the skin.

notes

About THE GUIDEBOOK

Made by: Silja Reidie
Pictures of the exercises: Keijo Koivumäki
Pictures of the collars: Silja Reidie
Other pictures: Canva.com
Pictures were taken with parental approval.

The guidebook is based on the thesis: Torticollis with Toddlers: A Guidebook for the Parents. The full thesis can be found at www.theseus.fi.

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TORTICOLLIS WITH TODDLERS: A GUIDEBOOK FOR PARENTS

Left side

WHAT IS TORTICOLLIS?

In torticollis, the head and neck are twisted due to shortened muscles of the neck making the head tilt towards the affected side and turn the chin towards the opposite side. All ages can be affected, and it is a common disorder. Either side, left or right, can be affected. It can be present already at birth or acquired later due to trauma, infection, etc.

It's important to treat the condition because tilting the head towards one side for a long period of time can make the body compensate through changes in the spine, muscle tone of the body, and misalignment of the jaw.

This guidebook aims to give parents practical advice and exercises on how to help their toddlers to better control and position their head, and relax the neck area.

ROLE OF THE PARENT

Parents are an important part when treating a toddler. Parents' expectations and attitudes towards the child's therapy can have a big effect on the child's participation. Be sure to meet the exercises and use of collar with a positive attitude, and include fun and games. For the best outcome, read through the exercises with your child and discuss why it is important to do them.

MODIFICATIONS

- If necessary consider changing the place of the car seat so the window is on the right side of the child (when facing away from the direction of travel), this will encourage the child actively to look out the window and use the weaker muscles.
- Encourage sleeping with the head pointing to the left. You can turn the head while the child is sleeping to increase mobility.
- Position yourself on the left side of the child when playing and talking to increase the child's natural head turning to the weaker side.

EXERCISES

The treatment of torticollis is always based on the cause of the condition and should be planned individually, so follow the instructions given to you by your physiotherapist. Make sure you find good time for the exercises in your schedule, make it part of your daily routine just like brushing your child's teeth. This will help to keep up the home treatment. A well-rested and fed child is more ready for the exercises.

1

Stretch to the side

- Sit down and hold the child sitting in your lap facing away from you.
- Stabilize the right shoulder of the child with your right hand. Place your left hand on the right cheek of your child.
- Gently turn the head towards you making the left ear get closer your chest.
- Hold for ___ s. Return back slowly.
- Repeat ___ times.

Stretching can feel uncomfortable but not too painful. The stretches should be stopped if the child physically resists or if there is changes in breathing or circulation. To make it easier, your child can for instance watch their favorite show at the same time.

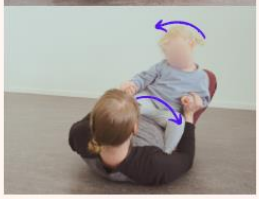
2

Tilt stretch

- Sit down and hold the child sitting in your lap facing away from you.
- Stabilize the left shoulder of the child with your left hand. Place your right hand on top of your child's head on the left side.
- Gently pull the head towards the right making the right ear get closer to the right shoulder.
- Hold for ___ s. Return back slowly.
- Repeat ___ times.

EXERCISES

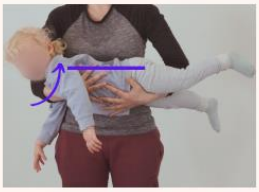
3



Head tilting exercise

- Lie down with your knees bent and place your child on your belly sitting and facing towards you.
- Hold your child's hands in yours and gently tilt your child to the right, far enough to make your child tilt their head in the opposite direction. Return back to the center.
- Repeat ___ times.

4



Head turning exercise

- Stand upright in front of a mirror or a family member holding the child horizontally to the ground with both arms under the belly. The child's head should point towards the right.
- Encourage your child to look towards the mirror or family member by calling their name, or making funny noises or faces.
- Hold for ___ s. Lower the child back on the floor.
- Repeat___ times.

USE OF COLLAR

A hard collar can be used in some cases to practice finding the correct midline. How long a collar should be used is individual and your physiotherapist will give you instructions suited for your child.

Make sure the straps are placed equally on both sides and the collar is firmly placed around the chin. Hard plastic parts should not be placed directly on the skin.

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TORTICOLLIS TAAPEROILLA: OHJEKIRJA VANHEMMILLE

Oikea puoli

MIKÄ ON TORTICOLLIS?

Tortikolliksessa pää ja kaula ovat kiertyneet johtuen kaulan toispuoleisesta lyhentyneestä lihaksesta. Tämä saa pään kallistumaan kiristyneemmälle puolelle ja leuan kiertymään siitä poispäin. Torticollista esiintyy kaikenikäisillä ja se on yleinen vaiva. Joko oikea tai vasen puoli voi kireytyä. Torticollis voi olla synnynnäinen tai sen voi saada myöhemmin johtuen mm. vammasta tai tulehduksesta.

On tärkeää hoitaa vaivaa, sillä pään pitkäaikainen kiertyminen ja kallistuminen voi johtaa vartaloa kompensoimaan mm. selkärangan ja lihaksiston muutoksilla sekä leuan virheasennolla.

Tämän ohjekirjan tarkoitus on antaa vanhemmille käytännön neuvoja ja harjoituksia, jotka auttavat heidän taaperoikäisiä lapsiaan paremmin kontrolloimaan päätään ja löytämään sen oikea asento sekä rentouttamaan niskan lihaksistoa.

VANHEMPIEN ROOLI

Vanhemmat ovat tärkeässä osassa taaperoiden hoitoa. Vanhempien odotuksilla ja asenteilla hoitoa kohtaan voi olla suuri merkitys lapsen osallistumiseen. Lähesty harjoituksia ja kauluria positiivisin mielin ja ota leikki ja hauskuus mukaan niitä harjoittaessa. Harjoituksia voi lukea lapsen kanssa yhdessä ja keskustella, miksi niiden tekeminen on tärkeää, parhaiden tulosten saavuttamiseksi.

MUUTOKSIA

- Tarvittaessa harkitse autonistuimen paikan vaihtamista, niin että ikkuna on lapsen vasemmalla puolella (selkä menosuuntaan mentäessä), tämä rohkaisee lasta aktiivisesti katsomaan ulos ikkunasta ja käyttämään heikompia lihaksia.
- Rohkaise nukkumista niin, että pää on kääntyneenä oikealle. Käännä lapsen pää, kun hän on nukahtanut lisätäksesi liikkuvuuden harjoittelua.
- Lapsen kanssa leikkiessä ja puhuessa, ole lapsen oikealla puolella edistääksesi lapsen luonnollista pään käännöstä heikommalle puolelle.

HARJOITUKSET

Torticolliksen hoito perustuu sen syyhyn ja se on aina yksilöllisesti suunniteltu, joten nou-data fysioterapeuttisi antamia ohjeita. Pidä huoli, että löydät hyvän ajankohdan harjoituksille aikataulustasi, jotta siitä tulee osa päivittäisiä rutiineja, kuten lapsesi hampaiden pesu. Tämä auttaa harjoitusten toteuttamista. Levännyt ja kylläinen lapsi on valmiimpi harjoituksiin.

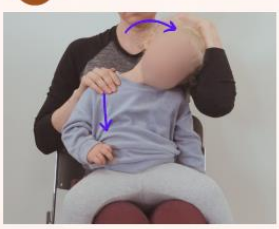
1

Kiertovenytys

- Istu alas ja pidä lasta sylissäsi siten, että hän istuu sinusta poispäin.
- Pidä lapsen vasen olkapää paikallaan vasemmalla kädelläsi. Laita oikea kätesi lapsen vasemmalle poskelle.
- Käännä hellästi päätä itseesi, niin että lapsen oikea korva tulee rintaasi vasten.
- Pidä ___ s. Palaa takaisin rauhallisesti.
- Toista___ kertaa.

Venytys voi tuntua epämukavalta, mutta ei saa sattua liikaa. Venytys tulisi lopettaa, jos lapsi fyysisesti vastustaa liikettä, tai jos huomaat muutoksia hengityksessä tai verenkierrossa. Helpottaaksesi yhteistyötä lapsi voi samalla katsoa, vaikka lempi ohjelmaansa.

2



Kallistusvenytys

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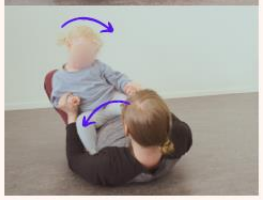

Pään kallistusharjoitus

- Makaa selälläsi polvet koukussa ja aseta lapsi istumaan vatsallesi katsomaan sinua kohti.
- Pidä lapsesi käsiä omissasi ja rauhallisesti kallista lasta vasemmalle niin kauas kunnes hän kallistaa päätään vastakkaiseen suuntaan.
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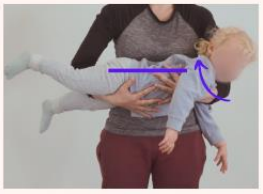
4



Pään käännön harjoitus

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KAULURIN KÄYTTÖ

Kovaa kauluria käytetään joissakin tapauksissa pään oikean keskilinjan löytämisen harjoittamiseksi. Kuinka kauan kauluria tulee käyttää on yksilöllistä ja fysioterapeuttisi antaa sinun lapsellesi yksilölliset ohjeet.

Pidä huoli, että hihnat ovat tasapuolisesti molemmilla puolilla ja kauluri on tiukasti leuan ympärillä. Kovan muovin ei tulisi olla suoraan ihoa vasten.

muistiinpanoja

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Satasairaala
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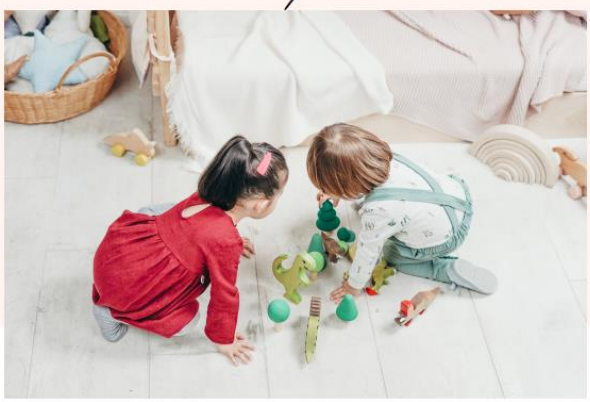
TORTICOLLIS TAAPEROILLA: OHJEKIRJA VANHEMMILLE

Vasen puoli



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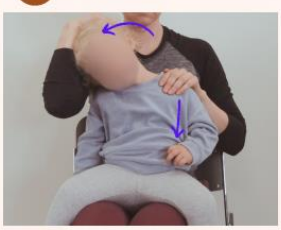

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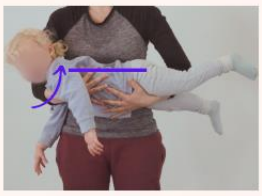

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Satasairaala
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Informed Consent

A physiotherapy student, Silja Reidie of Satakunta University of Applied Science (Samk) is collaborating with Satakunnan Hyvinvointialue, Satasairaala Hospital's physiotherapy service unit to make a guidebook for the parents of toddlers with torticollis. The guidebook is part of a thesis called: Torticollis with Toddlers - A Guidebook for the Parents and aims to help the parents in the home treatment program of torticollis. We are looking for participants, children between ages 1-4 years old, to be photographed for the images to illustrate the exercises in the guidebook. The participation is voluntary, and one can stop at any time.

There is a need for a child to participate in images including four (4) exercises including stretching and strengthening of the neck muscles. The exercises will be done with the author of the thesis. There is also a need for a participant to be wearing a soft and hard collar around their neck normally used in treating torticollis at Satasairaala. The photography sessions will be held in a classroom of Samk and will be maximum of one hour, shorter if everything goes smoothly. The pictures will be taken in October 2023.

The pictures will be taken by the terms of the children and the photography sessions are aimed to be a fun experience and the child can refuse to do any of the given tasks. The identity of the children will be protected, and the images will be edited in a way the children's faces will be unrecognizable. The original images will be stored in a password protected USB-memory stick for the duration of making the thesis, after which they will be deleted. The parents will have the rights to receive the original images if they so wish.

The guidebook will be launched with the presentation of the thesis in November 2023. After the presentation it can be found at www.theseus.fi and will be given to the parents of relevant patients in Satasairaala. Satasairaala will own the using rights of the guidebook.

If you have any questions, you can contact the author of the thesis Silja Reidie. Phone number: xxx, E-mail: xxxx (Phone number and email are hidden)

☐ I hereby consent my child _____ to participate in the making of the thesis and I am aware me or my child can stop participating at any time.

☐ I have read the information concerning the photography and the use, editing, and storage of the pictures.

Place and time:

_____

Name of the parent

_____

Signature of the parent

_____