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If it ain't broke don't fix it? Ethics of splinting deformed newborn ears



M.P. van Wijk^{a,*}, R.H.P. Wouters^b, A.L. Bredenoord^b, M. Kon^c,
C.C. Breugem^d

^aDepartment of Plastic Surgery, Isala Zwolle, the Netherlands

^bDepartment of Medical Humanities, Julius Center, University Medical Center Utrecht, the Netherlands

^cDepartment of Plastic Surgery, Wilhelmina Children's hospital, University Medical Center Utrecht, the Netherlands

^dEmma Children's Hospital UMC Amsterdam

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Summary Neonatal ear splinting is a proven and safe method to mold deformed ears into a more common shape. Based on our earlier studies, splinting is recommended only before the age of six weeks and preferably within the first week after birth. This can be done by initiating a system in which this intervention is actively proposed to parents. In this paper, we ethically evaluate such a system.

By molding perfectly healthy newborn ears, we reach the boundary between treatment and enhancement. A key question is, therefore, whether we could classify neonatal ear splinting as a therapy. On the level of the individual, the advantages outweigh the drawbacks, but on the level of society, it is more complicated. Making ear deformities a part of official national screening programs fails to meet WHO criteria. Moreover, by systematically offering ear molding, professionals may be promoting guilt or fear of missing the opportunity. Additionally, it could affect societal attitudes toward cosmetic deformities. However, if we argue that on the individual level infants may benefit from ear splinting, then active detection of ear deformities allows parents to choose in a timely way from the full range of options, including splinting and a wait-and-see approach. We are inclined to optimally inform parents without setting up a full-blown public health program.

The extent to which it is possible to timely offer splints to parents of newborns depends on the infrastructure of health care systems.

The key will be for everyone involved, public or commercial, to responsibly educate and facilitate.

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Introduction: nonsurgical correction of protruding ears

Prominent ears are a common human feature. Though literally standing out, "odd ears" do not have to be a burden.

* Corresponding author.

E-mail address: ma.van.wijk@isala.nl (M.P. van Wijk).

Yet, operative correction of prominent ears is regularly performed and remains (one of the few) generally accepted esthetic surgical procedures performed in children. This procedure improves self-confidence and reduces negative social feedback.¹ Though largely cosmetic in nature, studies show that having a minor anomaly such as prominent ears may provoke a higher anxiety score than having a severe congenital facial deformity.²

Surgical correction of protruding ears is usually performed after the age of 5-6 years, when most of the auricular growth has taken place and the child is motivated. In children, correction is mostly performed under general anesthesia. The postoperative course is usually uneventful, though complications such as hypersensitivity, skin necrosis, and shape deformities can occur.³ Whether the costs are reimbursed depends on the health care and insurance systems. In the UK, the procedure is being rationed and is not always available through the NHS as a “procedure of limited clinical value.” In the Netherlands, which has approximately 17 million inhabitants among which 2.8 million are under the age of twenty,⁴ each year around 2500 people receive protruding ear correction.⁵

In newborn babies, there is an opportunity to reshape ears using a splint, which avoids potential surgeries later in life. Since the first publications from Japan in the late 1980s, many authors demonstrated that permanent correction can be achieved by “forcing” the ear into the desired position by splinting for two to twenty-six weeks, depending on age.⁶ It is assumed that it is the high level of maternal estrogens at birth that makes ear cartilage especially pliable. These levels quickly drop to almost zero at six weeks of age,⁷ and subsequently, the ear becomes less moldable. Splinting can be performed in many ways, provided that the ear is permanently kept in the desired shape for a specific period of time.

Often ears are a bit distorted at birth. Most often this resolves spontaneously in the first few days of life. Therefore, early detection leads to overtreatment. Rim kinks and lop ears can resolve, protruding ears cannot.⁸⁻¹⁰ Ear anomalies suitable for splinting should have sufficient skin and cartilage, for example in protruding, Stahl’s, cup, and lop ears. Splinting cannot correct deficient tissue in ear malformations such as microtia.

Large prospective studies on this intervention are few,^{8,11,12} which makes questions such as the age until treatment can reasonably be offered and initiated unclear. Many authors treat only newborns, whereas others find splinting worthwhile up to older ages.⁶

In 2012, we published a prospective study of our results of ear splinting in 132 babies with protruding ears using a commercially available splint and tape (EarBuddies®). Our study focused on the relationship between age at the start of the treatment and success rate and on the relationship between patient age and the time needed to splint.¹² Best results were seen in babies in which treatment was initiated within six weeks after birth, with a fair/good result in two-thirds of patients. The success rate in children beyond six weeks of age deteriorated to an unacceptably low level. In older children, longer splinting was required: generally, it is suggested to splint for as many weeks as the child is old. Subsequently, the window of opportunity is short and our recommendation was to consider splint-



Figure 1 Protruding ear in a newborn.

ing only before the age of six weeks and preferably within the first week after birth. But especially in countries where home birth is popular, plastic surgeons usually see these babies late. This brings up the question whether professionals should be actively propagating this intervention to all new (soon to be) parents. In this paper, we ethically evaluate active detection and splinting of deformed newborn ears. [Figures 1-4.](#)

Advantages of active detection and splinting of deformed newborn ears

At first glance, there is much to gain if all deformed newborn baby ears were detected and splinted immediately after birth. Ear splinting by a maternity nurse or infant health care worker allows a quick start of splinting without the need to refer to a hospital.

Active detection lowers the age at the start of splinting, which improves outcome and lowers effort. Although the risks of complications from splinting are very limited, this intervention could prevent future harm in a number of ways. First, detection and noninvasive correction during infancy is likely to reduce the number of surgical interventions later in life, thus preventing complications associated with surgery, the psychological impact of hospital care, and the risks of exposing young children to general anesthesia.

Second, psychological harm due to negative social feedback and feelings of low self-confidence (however unjustified) would be avoided. Hence, splinting is an effective, noninvasive way to prevent degrading experiences.

From our clinical experience, parents of babies for whom splinting is or could have been an option often state “if only I would have known this earlier.” Active detection of ear



Figure 2 Technique involved in ear splinting.

deformities allows parents to choose in a timely way from the full range of options, including splinting and a wait-and-see approach. Do we have an obligation to inform parents of their options?

“Right to an open future” arguments, which dictate that a parent should not make decisions that violate a child’s future capacity to make autonomous decisions, do not have much argumentative force here;¹³ splinting is a decision that cannot be postponed without con-

sequences: waiting until maturity enables children to choose freely whether they want to correct their ears but deprives them of the opportunity to do so without surgery.



Figure 3 Protruding ear before and after splinting.

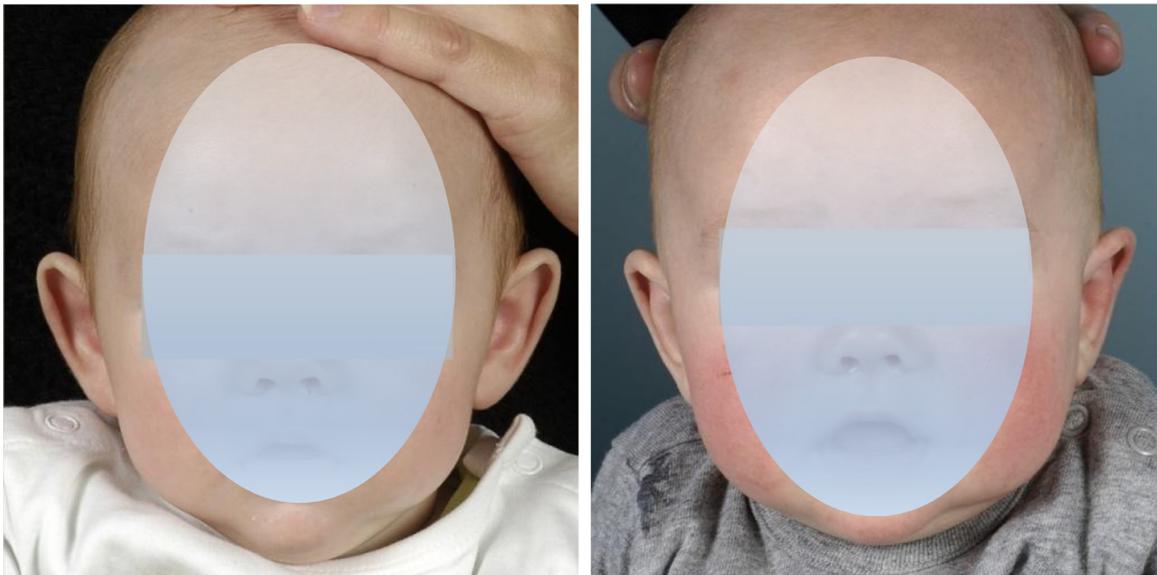


Figure 4 Protruding ear before and after splinting; front view.

Drawbacks

In this section, a distinction is made between risks for individuals (i.e. children and parents) and drawbacks for society.

Individual drawbacks

One individual drawback is the risk associated with manipulating the ears into the desired shape. Arguably, professionals who splint ears might violate the principle of nonmalef-

icence, one of the key principles of bioethics that dictate that healthcare workers should avoid harm. The reported complications in ear splinting are limited to skin irritation and mild pressure irritation.^{11,8,12} Although risks associated with improving traits for mere cosmetic reasons in minors are hard to justify,¹⁴ low-risk cosmetic interventions, such as braces, are commonly performed in children. Additionally, surgical correction of protruding ears is commonly done in children from the age of five,^{1,3} where children are still unable to make autonomous decisions. In summary, risks associated with splinting should be assessed relative to risks of other cosmetic interventions that are already accepted.

Overtreatment

The second question is whether professionals are able to select the right babies. Ears, a bit distorted after birth, could spontaneously reshape.⁹ Consequently, early detection could lead to overtreatment. This is ethically problematic because in these cases patients are pointlessly exposed to complication risks, no matter how small these risks are. Additionally, the resources spent on these patients are in vain. Overtreatment also occurs when, years later, it turns out that beauty ideals have changed; protruding ears may become a fashionable asset no sensible person wants to correct.

Uncertainty for parents

A further concern is that parents may feel unduly pressured by professionals pointing out they may miss out on a unique opportunity. This results in parents making decisions out of anticipated regret. Uncertainty may also be evoked by the huge amount of information that is piled upon young parents already. Adding detection and splinting of deformed ears may contribute to further medicalization of the post-partum period. It is our experience that many parents that currently seek information about splinting had ear surgery themselves; active detection would bring parents to our office who would never have thought about this option.

Societal drawbacks

Burden on the health care system

Nonsurgical correction of deformed ears is not well-known to the general public, but many health care professionals involved in newborn care are also unaware of the possibility of splinting. It could, therefore, be expected that a proactive screening program increases the number of babies treated. This may be a burden on the system, as there are many other important infant health issues to care for. It is hard to predict the scale of the increase in referrals if professionals screen the population. Based on the data from the Matsuo⁹ study, which show 55.2% deformities at birth and 31.7% at the age of one month, splinting could potentially be offered to a third of the newborn population. However, these numbers represent deformities of various degrees. Presumably, parents of children with only minor ear deformities will not use splinting.

Splinting is not a job for healthcare professionals

Central to an ethical debate on the disadvantages of active promotion of molding perfectly healthy newborn ears is acknowledging that the boundary between treatment and enhancement is reached. A key question is, therefore, whether ear splinting could still be classified as therapy. Enhancement interventions are criticized as practices that medical professionals should not pursue, as these activities do not serve the proper goals of medicine.¹⁵ One could argue that professionals should cure diseases rather than im-

proving certain traits to comply with contemporary beauty standards.¹⁶

In the philosophy of medicine, no agreement exists on the definition of disease. Probably, the most well-known theory is Christopher Boorse's biostatistical theory of disease, which defines disease as not having the range of functional abilities typically associated with the species.¹⁷ According to this influential theory, deformed ears would not be a disease because they do not affect the execution of functions. However, theories that claim to provide objective standards for the demarcation of health and disease (also referred to as descriptive theories) have been criticized for failing to define what "normal" is or why these definitions, such as statistical deviance, are morally relevant.¹⁸

Contrary to descriptive theories, normative and constructivist accounts of the health-disease distinction state that societal views are indispensable for distinguishing healthy from ill.¹⁹ According to these views, one could argue that deformed ears may be splinted because society or cultural norms define this feature as worthy of being treated. There appears to be a general recognition in many of today's society that the correction of protruding ears by medical professionals is justified, which can be inferred from the fact that surgery on protruding ears is often covered by health insurance plans (for example, in the Netherlands, the procedure is covered up to the age of 16). A challenge of approaches that allow society to decide on what the category of disease encompasses is determining the limits of medical intervention and coverage:¹⁸ to include splinting of deformed ears on the list of essential medical activities may give rise to an open-ended and seemingly unlimited list of traits that parents want to manipulate. Hence, other criteria than societal acceptance and statistical accounts of normalcy are needed to decide whether splinting is a warranted medical practice.

Splinting changes the norm

By enhancing certain features in individuals, practitioners also affect the population's average. This argument is most famously put forward in the debate on prescription of growth hormones to short children without growth hormone deficiency: this increases the average height in society, making previously average children relatively small.¹⁶ Likewise, regular splinting has the potential to change the norm; people who currently consider their ears "normal" may seek surgery in the future.

Splinting makes society more perfectionistic

Another lesson from the enhancement debate is to look at the underlying tendency that is promoted: the increasing pressure to perform. Michael Sandel famously addressed the ethics of self-improvement²⁰ and argued that enhancement represents a drive to master our nature, a push for perfection. As far as children are concerned, Sandel warns for what he calls "hyperparenting"; a desire to alter a child's characteristics rather than to lovingly accept the

Table 1 Ethical analysis of advantages and disadvantages of active detection and splinting of deformed ears in newborns.

Advantages	Drawbacks
Allowing ears to be perceived as “normal”	Individual level
Noninvasive technique, avoiding possible surgery, anesthesia and its drawbacks	Physical risks (skin irritation from splint usage)
Active detection allows early start with improved outcome	Risk of overtreatment (some ears correct by themselves)
No doctor needed to correct ears	Medicalization of postpartum period:
Being responsive to parents’ wishes to correct deformities	Imposing on parents a previously unperceived medical problem
Informing parents timely about the full range of options	Societal level
	Burden on the health care system
	Regular splinting changes the norm
	Official promotion by the health care system of perfectionism

Table 2 WHO screening criteria that are debatable in the case of ear splinting.

WHO screening criteria	Evaluation	+ / + / - / -
1(1968) <i>The disease should be an important health problem.</i>	A deformed ear is not a health problem at all.	-
2(1968) <i>There must be a generally accepted treatment method for the disease.</i>	Splinting is not universally used.	+/-
7(1968) <i>The natural course of the disease to detect must be known.</i>	Often ears are a bit distorted after passing through the birth canal. This spontaneously resolves in the first days. Early detection may lead to over treatment.	+/-
8(1968) <i>There must be agreement on who should be treated.</i>	What is seen as a deformed ear is hard to capture in measurements.	+/-
1(2008) <i>The screening program should respond to a recognized need</i>	Ears normally stick out in a variety of angles and our assumption that this would set children apart from the crowd may be culturally determined and change over time.	+/-
4 (2008) <i>The effectiveness of the screening program should be scientifically proven.</i>	As there is no screening program now, a pilot study would be necessary, especially as a larger screening program would change the setting of splinting by a plastic surgeon in the hospital to one at home by a health care worker.	+/-
5 (2008) <i>The program should be a coherent set of training, education, practice test, care, and program management.</i>	As splinting of deformed ears is not generally known, there should be a proper number of health care professionals be trained. There is no such established training program as of yet.	+/-
10(2008) <i>Benefits of screening should outweigh potential disadvantages of screening</i>	This is debatable, and one of the key themes of this article.	

features that some may describe as imperfections.^{20,21} Indeed, splinting ears may be a part of a deeper inclination to reshape our children in the image of our own ideals. Splinting tries to influence the child’s social status by changing the child’s body instead of its social environment. Arguably, it would be a better strategy to teach the child on how to cope with social pressure.

After analyzing the advantages and disadvantages (shown in Table 1), we conclude that, on an individual level, splinting and taping could be ethically justified because of its proven effect and potential to prevent harm while involving minimal risks. Moreover, early detection and correction is responsive toward the wishes of parents. Even though splinting is situated in a grey area between

treatment and enhancement, it is comparable with other accepted customs such as braces. However, things are more complicated on the societal level. If ear splinting would be officially and proactively promoted from within the health care system or the government, that might be interpreted as implying that deformed ears are a serious problem which needs to be addressed by a publicly funded screening program.

Screening

Nevertheless, we still want to reach out to the individual to provide the full range of options within a very limited time-

frame. A potential middle way would be to take a look at the external ears during the already existing (Dutch) national first week hearing test and inform parents of a present ear deformity and the possible intervention. Yet, strict criteria apply for carrying out an official screening program, as stated in 1968 by Wilson and Jungner, which were adopted by the World Health Organization²² (an update of these criteria was released in 2008).²³ Ear splinting fails to meet several criteria, as shown in Table 2.

Conclusion

We conclude that on the level of the individual, it could be ethically justified to splint deformed baby ears. Associated risks should be assessed relative to other commonly accepted cosmetic interventions in children. Parents have the right to make such a decision for their child. Yet, this can also be a new burden in a postpartum period already full of medical and nonmedical choices and responsibilities.

On the level of society, one has to acknowledge that official promotion of ear splinting by the health care system may change norms regarding ear shapes. Promotion of enhancement may also increase the tendency of hyperparenting. Parents may feel the fear of missing out on the opportunity and the pressure to act.

Making molding part of the official national screening program fails based on WHO criteria. Furthermore, if ear splinting is proactively promoted from within the health care system, the message is conveyed that deformed ears are a significant health problem.

Luckily, there are less controversial alternatives to official screening. A reasonable first step is to educate midwives, maternity nurses, general practitioners, pediatricians, and plastic surgeons to recognize deformed ears and offer splints. However, it will be challenging to incorporate this in wide variety of clinical practices. This is the main reason why this therapy still has not made the break-through one would expect. Yet, in the digital age, this may very well change. As splints are available for everyone on the internet, it is possible that commercial parties want to play a role. Key will be to responsibly educate and facilitate health care professionals and parents alike.

Conflict of Interest

None.

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