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**MONOGRAPH**

**“HOW CHANGES IN MEDICINE IN ECUADOR IN THE LAST FIFTEEN YEARS  
HAVE SHOWN A PROGRESS IN TREATING DOWN SYNDROME”**

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### **Gratitude**

First I would like to thank God for having accompanied me in all my years of life, getting me up every time I wanted to give up. To my parents, who guided me in my first steps and educated me before anyone else. To my tutor Nestor Perez, who opened me many doors of knowledge, teaching me how to make a written by myself.

### **Summary**

This monograph work has been done to show people the life of a down syndrome person, so they can see the very first beginning and understand why there are so many therapies, and how these activities can change the point of view of a trisomy twenty-one case. In Ecuador there are currently 46109 people with disabilities registered in schools. Many of them in institutions for special education, although in the law (article forty-eight of our constitution) says that state and private institutions have the right to give social inclusion. Does the country know what Down syndrome really is and how to treat it? This is what the monographic work “How changes in medicine in Ecuador in the last fifteen years have shown a progress in treating Down Syndrome” will explain to us.

The monograph has three parts, in which it's explained in a deeper way what exactly is this genetic disorder, the therapies or methods used to treat it and the process of these activities in recent years in Ecuador. Among these words you can also see how the process begins not only for those who have the syndrome, but also their families. From conception the syndrome is what it is, it cannot be prevented or cured because it is not a virus, much less a disease., but the mental and physical state of a person with Down syndrome can be improved thanks to therapies. Has Ecuador been interested in improving therapies? How long has it taken? It is also important to see the attention that has been given to the integration of those who have the syndrome with those who do not. What has been studied and discovered over the years is also reflected in the chapters.

In conclusion, it can be seen that Ecuador still needs to make progress regarding the social inclusion of people with disabilities. However, we can also verify that there has been progress in the last years regarding the therapies received by young people with Down syndrome.

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## **Introduction**



This monographic work shows **How changes in medicine in Ecuador in the last fifteen years have shown a progress in treating down syndrome**, explaining in each chapter different fractions regarding the topic. This genetic disorder, caused by a mutation, is known worldwide, but many do not know that, since it is not a disease, it cannot be cured, but it can be treated to improve motor skills and other factors that the syndrome presents. Although the topic only talks about the progress of treatments, the monograph explains the syndrome since its conception and describes the stages that children and their families live.

For Ecuadorians it is good to know what happens in all areas of their country, such as treatment for down syndrome. Disabilities have always existed, but they have not always received attention. If there are many therapies and early stimulation before taking them, it is for one reason: people with special needs require special education. If it's compared the treatment for special children fifteen years ago with the present, the interest that Ecuador has given to disabled care can be seen, and that is what the monograph will present.

In Latin America there have been many studies that demonstrate the imbalance that exists in the actions that people with Down syndrome and an ordinary person do. Books like "Claves para una respuesta ante la educación especial" and "El éxito del esfuerzo. Trabajo colaborativo (estudio de casos)", both written by Ascensión Palomares Ruiz and Daniel Garrote Rojas, talk about how is actually the mutation during their daily life.



It isn't known exactly what was the first case of the syndrome, but it is known that Dr. John Down was the first to investigate the disorder, which is why the syndrome is named after him. As for the therapies, they were created by the 16th century in Europe for children suffering from sensory deficiencies. Since people with down syndrome have different types of disabilities and to different degrees, they take this type of therapy. And talking about Ecuador, the therapies started in the twentieth century.

The monograph has three chapters: the first shows the subchapter "the genetic mutation", how does it starts and the principal characteristics of them (karyotype and phenotype); the second presents "a life with the mutation" focusing on the life of their families (how do they normally feel and how should they act when realize that a down syndrome baby is coming), and "the therapies" showing the stages before choosing therapies and the therapies themselves, and "the results" proving that treatments are important; and the third shows "the help provided" and "the medical treatments" exposing the situation in Ecuador with respect to education and the advancement of therapies over the years.

## Chapter I

### What is trisomy twenty-one

#### 1.1 The genetic mutation

##### 1.1.1 The karyotype.

##### *1.1.1.1 The cells.*

“The syndrome name comes from Dr. John Langdon Down, who was the first man to describe the physical characteristics of these procedures in 1866 although he never discovered the causes that produced them” (Garrote and Palomares, 2014, p.2). When somebody talks about the “down syndrome”, or in medicine terms “trisomy twenty-one” we think about the people with slanted eyes and a smiley face, but many people doesn’t know the reason, the genetic reason.

We all have cells, and in the centre there are chromosomes, little structures with an “X” shape that have the genetic information we receive from our parents and then give to children when people conceive them. Garrote and Palomares (2014) affirm: “Therefore, down syndrome is a genetic alteration produced during conception, being a chromosomal abnormality that involves the twenty-one pair of chromosomes” (p.2).

A person with no mutation has normally twenty-three pairs of chromosomes, which in total are forty-six, but a person with down syndrome has a total of forty-seven chromosomes due to a copy of one of the chromosomes from the pair twenty-one. That is called a genetic disorder, and can happen to anyone at the moment the spermatozoon and the ovum get together.

Nevertheless, the three or four per cent of the down syndrome population has no extra chromosome because it gets stuck with other and becomes one of the pair, but they do have the appearance and characteristics of a trisomy twenty-one.

There is a test that women can do during pregnancy to know if the baby has any mutation. It consists in get a blood test of the mother, in a period of two weeks approximately, and see the chromosomes with a microscope to check if they are all in pairs.

In spite of the times that this test has detected the baby's disability before birth, many times it has given a wrong answer, so it is not a hundred percent effective. The tests can be done after the fourteenth week of pregnancy, and before they get started the family must know what are they going to do: keep the pregnancy or have an abortion.

#### ***1.1.1.2 The conception.***

Garrote and Palomares (2010) said: "There is nothing during pregnancy that contributes to the reproduction of this anomaly" (p.313). It is said that women who get pregnant with an age older than thirty-five years old is more likely to have a down syndrome baby.

However, it is not impossible for younger women to have a trisomy twenty-one. It does not depend about the age or the nutrition of the woman; actually, even doctors don't know why this happens.

Having other member of the family with the same mutation or having serious illness during the first three months of pregnancy can also be related to the mutation of the child.

"The zygote, when reproduced by mitosis to form the fetus, results in cells equal to themselves, that is, forty-seven chromosomes, producing the birth of a down syndrome" (Garrote and Palomares, 2010, p.312). Scientifically it is proven that in the eighty-eight per



cent of the cases are the genes of the mother the ones that started the trisomy, and in other cases is the father or just mitotic errors. With an extra chromosome the baby is different from the others, not only in appearance, but also in mental growth.

According to the United States Department of Health and Human Services (2014), 6,037 babies are born each year with Down syndrome, which present three different types of disability:

Trisomy twenty-one, that can be considered as the “lower type” is the ninety-fifth percent of the cases. It happens when the twenty-first pair of chromosomes has three instead of two. Chromosomal translocation, is considered the medium type. It forms part of the fourth percent of the cases, and it happens when a chromosome gets stick to another that has already a partner, forming a trisomy that cannot be easily seen.

Mosaicism, that can be actually defined as a not very common type, and at the same time not really dangerous, is the one percent of the cases. It consists in having two cells blended, one with forty-six chromosomes and the other having forty-seven. They do have minimal characteristics of down syndrome comparing them with the other two cases.

Most of the cases are between low and medium.

### **1.1.2 The phenotype.**

#### ***1.1.2.1 Physical.***

Down Syndrome people have characteristics, mental and physical, that make them different from the others. They have slanted eyes, smaller mouth, little hands, shorter neck and a shorter stature. Mentally, they understand the things slower, for example, they delay to start talking because of the lack of integration they have with other people.

While other babies are walking at the age of one, the babies with down syndrome wait until they are twenty-four or twenty-eight months of age. Their sexual organs take longer to mature, and the men cannot have children while the fifty percent of the women have had a normal stage of pregnancy. “People with Down syndrome have a somewhat higher probability than the general population to suffer from some diseases, especially heart, digestive system and endocrine system, due to excess protein synthesized by the extra chromosome” (Garrote and Palomares, 2014, p.5). As they are more open to have health problems, their lifespan is between fifty and sixty years.

#### ***1.1.2.2 Mental.***

##### *1.1.2.2.1 Learning.*

As it was said, they learn things slower than other people, and the best way to help them is to keep up with their learning. The family, teachers and close people are part of their days and are not supposed to deconcentrate them or try to advance their development, because if they do, the child may feel insecure and will not have enough confidence to demonstrate the progress of his or her learning.

##### *1.1.2.2.2 Education.*

A good idea to help them to open up with other people is to bring them together with different people. Garrote and Palomares (2014) affirm:

A classroom with five year-old children with a great cultural diversity: two Moroccan girls, a Roman boy, a Cuban girl, a Turkish boy, etc. This variety of cultures and ethnic groups enriches every child from the classroom while live with each other, learning from the others. (p.1)

The teachers have to compromise on attending the child every day at any time. There must be created pedagogical conditions for the human development of the down syndrome people, because support from the educational service is needed, so children with exceptional talents will be able to develop their potentials and achieve their goals in different areas (Segrera and Torres, 2011).

It must be emphasized that education of down syndrome children and the people around them during this stage is essential for understanding many things in their future, that is why it is convenient that every teacher from every school have some experience, knowledge or ideas about how to treat a child with special cases. No one can deny or despise another person for being disabled, not even in education.



## **Chapter II**

### **The changes with therapies**

#### **1.1 A life with the mutation**

##### **1.1.1 The doubts.**

The first people who suffer are the parents, and not because they know about the disability of their child, but for all the questions that come to their heads: What problems will he come to the world with? How long will he live? How many surgeries will he have to pass? They know it won't be easy, and the situation is worse when they do not know anyone who has raised a trisomy twenty-one kid.

Raising a child with down syndrome is raising a child for the rest of their lives, plus the medical care they have to take depending on the medical complications the child has.

However, parents should not forget what ought to never be missing: the upbringing and love that any parent has for a son or daughter.

Finding therapies for a new-born kid is impossible, the doctor first has to make a complete study of the case and see what problems the child has and keep studying him to see the complications that will have while growing up. After that, the therapies can be selected according to what the down syndrome person needs so it will not be a nuisance, and will work for their communication and development with other people.

##### **1.1.2 Looking for a change.**

A Down syndrome kid doesn't know how dangerous the world can be, that is why, for the parents, raising them is practically an adventure. One of those stories is Rocio's with

her mother, Maria del Carmen, who said that doctors can't control it while a woman is pregnant, but they can use methods to keep the kids active so they can feel more comfortable in an environment full of strangers. With the therapies the families are looking forward to integrate the child, and even though no one can get used to it, therapies can help children feel a little freer when they have to express themselves.

#### ***1.1.2.1 Choosing therapies.***

A trisomy twenty-one person can have different deficiencies, that is why there are many therapies, including stimulation, speech therapy, physiotherapy, hippotherapy and rehabilitation. Each one has an important role in every case, but not all of them work for all the cases.

The studies and percentages have an important role on the moment of choosing a therapy. Seeing the results of past cases can make the parents to think it twice before spending time on a therapy for their child, as there are low percentages such as down syndrome walking shortly after one and a half year of age (14%) or running and jumping at the age of four (18 to 25%). Being this considered normal, it can be said that therapies are not needed to stimulate the legs, at least not before the 5 or 6 first years of life.

It is good to have an early intervention in any case (not only down syndrome) because it helps to see aspects of the child normally during the first three years of life, although for the down syndrome the phase may be the first six years of life, and makes the selection of a therapy easier. "The first instance, the psychological intervention, is mobilized in the field of diagnosis to know the characteristics of the child, in this way the behaviours or behaviour of the child's learning will be evaluated" (Garrote and Palomares, 2014, p.13).

## **2.1 The therapies**

Garrote and Palomares (2014) affirm:

When referring to the psychological factors that hinder intellectual performance, most children have a generality of moderate deficiencies since their intellectual coefficients in Down children are slow but sure, some authors affirm that their mental process covers a development up to thirty-year-old. (p.12)

Although there are schools for children with special needs, it is important that those children take therapies from an early age, which can be started after early stimulation.

### **2.1.1 Early intervention.**

An early intervention is a process in which doctors start intervening, and between pediatricians and psychologists the special education professionals appear, and they become the ones who give the last word to recommend the types of therapy. During this phase the community around the child must not get away, on the contrary, they should take part of the stage.

It starts with the plasticity of the nervous system and the brain, so the brain biological development is the first to be intervened. After it, the intervention tries to see how the kid reacts on improving the personal care of itself, the language, fine and coarse motor skills and socialization by making the teachers teach them a way of living with actions, since that is the best way for a child to learn.

It prepares them to live a good and most normal life possible, because in spite of the limitations they have, they can be seen as people who deserve the same respect as others.



According to the way of responding to these activities the child can move to a next stage (for example, start reading and writing). If they cannot complete the requirements to move forward, they must look for another way to make the mental abilities advance, without leaving the family attention or the good people around them.

At the end of the early intervention the professionals can tell the best activities the child and the family are ought to take. This is an essential process that a trisomy twenty-one child must take before a therapy is taken.

### **2.1.2 Speech therapy.**

#### ***2.1.2.1 Understanding.***

A child with down syndrome understands that people communicate, and wants to communicate as well, but it becomes more difficult. Many children have problems with speech from an early age, that is why, if they have speech problems, they have to take speech therapy.

Also known as phono audiology, these therapies need the parents present if they want it to work. Since the therapists cannot spend time with their patients every day, it is important for parents to know the types of exercises they do so that they can practice anywhere.

Speech therapy is different for each child, as it depends on their needs. Different methods can be used such as sign language, writing on a blackboard or mimicking, as it consists of making the child repeat these words and learn them, being that speech therapy has two objectives: to make the child learn the language and to make him feel safe speaking it.

First, it is important to take a hearing test, because with it you can know the complexity of the learning process. It does not matter if the child is not talking yet, because the start of the

therapy can be exercises for the tongue so the kid can learn how to talk from the very first beginning with the same therapist.

Then, the therapist must be sure that the kid has the capacity of learning something. If it's very young, it is need to know if the kid can pay enough attention to understand something that is being taught. Once in a while (from six months to a year) there are controls to see if there's any process with the communication and if the system is working as they planned. Making sounds with the mouth can be useful too; for example, if you make a lion roar and then show the kid a picture of a lion, he or she will understand that the way of speaking of the lions is by roaring, and when the child sees a lion will make the same sound with the mouth, just as with every baby, but in a different age and a larger process. It also helps with the muscles of the tongue to work more often.

#### ***2.1.2.2 Communicating.***

It should be emphasized that communicating not only means speaking, and that is why a child can receive these communication therapies at an early age, without the need to learn to speak yet, since they can communicate with other methods such as sign language.

There is a difference between language and speech, and the fact of knowing how to speak does not guarantee to have a good language. That is why speech therapies help not only to speak, but also to communicate in the right way.

In the communication all the senses are included, since with all of them messages can be transmitted. If it is already known that the child understands when people communicate with him, then it is known that he is ready to learn to communicate.

To teach them how to speak in a good way it's good to let them hear how people around them speak, the messages that are given, whether they are talking or signing, and the reactions that people have during the conversation. It is also good to show them photos, since most people with down syndrome have hearing problems (75% according to The American Academy of Pediatrics) and they find it difficult to concentrate on a voice that speaks while there are other sounds in the same place.

A good way to advance the language is by reading, because with the readings kids learn a good vocabulary and, at the same time, the children's memory is improved. Books with figures also help, as these serve to understand the story.

To start reading there are three stages they have to pass:

Perception and recognition of written words: If the child has read a word more than once it means he should know already the meaning of that word.

Recognition and learning of syllables: When reading, the child must know how to speak the words correctly.

Reading progress: Be able to read without difficulty in the pronunciation of words.

Sometimes this stage can last a long period, maybe a lifetime.

### **2.1.3 Physiotherapy.**

To help children with down syndrome, physiotherapy focuses mainly on the psychomotor development of the child, which is seen during the early intervention and is the one that circulates in our nervous system.

After analyzing the early intervention, physiotherapists select specific exercises that will be helpful for the patient. For example, if the kid has gross motor skills, exercises that move



his whole body (such as standing, crawling, or bending) should be involved, and if he has fine motor skills, then he touches softer things such as manipulating objects (grabbing or holding a toy).

It consists mainly of doing physical exercises that help stimulate the body of children.

Electrotherapy is also used (which, as the name implies, are small electrical discharges that are applied in the body), as this helps with the recovery and stimulation of muscle injuries.

The different methods of physiotherapy are used depending on the complication.

The first thing that should exist in physiotherapy is trust, since the child will feel that a stranger touches his body and may end up hating therapies; that is why normally these therapies start being short sessions and little by little the appointments increase and, at the same time, the intensity of the exercise.

The cycle of these exercises begins with basic exercises that can be performed while lying down (such as moving arms or shrinking and stretching the legs), continues with learning to sit and grab things and ends with exercises that act as a defense since they are for moving principally the joints. These cycles end with activities such as kneeling alone or walking with the help of a handrail. The level of difficulty placed on them depends on the kid's level of motor skills.

Physiotherapy helps them mainly in nervous system injuries, those that prevent them from walking at an early age or make it difficult for them to move other parts of the body.

#### **2.1.4 Hippotherapy.**

##### ***2.1.4.1 The therapy.***

Known officially because of the use of horses, the hippotherapy is used to improve people with physical or mental disabilities. among these people with cerebral palsy, autism or down syndrome. This is not considered part of physiotherapy because there are no scientific studies that prove the amelioration of a patient while practicing this activity. However, many people have progressed in their daily activities thanks to this therapy.

If we talk about physical, sitting on a horse helps those who have difficulty walking, because while sitting on a horse that is walking the person's pelvis will move in the same way as when a person walks; and while the centre of gravity of the horse is moving, the person's centre is moving too, so it activates the muscles (principally the sacral-lumbar and thoracic regions) and helps with posture.

Thanks to this, patients become more balanced, as they strive to maintain a proper posture to ride alone, and get more confidence with the movements they make with their arms and their ways of expressing themselves inasmuch as one of the movements that are practiced while riding is to raise their arms.

It's also said that horses have an energy greater than that of humans, and this is because they have an electromagnetic field five times greater than ours. This is why in hippotherapy patients lie down in the horses' bodies. This gives them more energy and confidence when they do physical activities.

#### ***2.1.4.2 The horses.***

As co-therapists, the horses have to know how to make their job as well. First, to be part of this therapy the animal must be meek. They have to walk slowly and not be alarmed when

they meet strangers, because it can make them feel uncomfortable and could run away or ruin the exercise.

Second, they must learn to communicate with the therapists, since these are the ones that will tell what they should do during the therapies. Communication can be signed or simple words.

Third, they must know the activities they will carry out and how to carry them out. The posture must be firm, and with the head not very raised. The steps and the trot must be in a defined time, as if it had a specific rhythm. The steps must be counted (this with the help of the therapist), which are approximately three thousand steps per thirty-minute session.

### **3.1 The results**

As I said many times before, the “kids” are the ones who take the therapies, because the last thing they learn is to help themselves. They can start at an early age, but they don’t end on a specific age. It all depends on the case and how was the progress through the years. As long as the group of experts is the indicated, the use of tools and programmed activities will not be in vain, rather, it will help to progress faster and children with down syndrome will end up doing the same activities, previously taught, by themselves (Garrote and Palomares, 2014).

The therapies do help, the main objective is to enhance the motor skills and personality of trisomy 21 since they are children so that they gradually develop in their daily lives.

So, indeed, speech therapies help the child learn more words and more ways to express themselves, physiotherapy causes their muscles and movements to develop and hippotherapy improves their posture and balance.

## **Chapter III**

### **The changes through the years**

#### **1.1 The help provided**

##### **1.1.1 Education.**

In Ecuador, special education officially began in January 2002, when the Ministry of Education declared that kids with advanced or extreme disabilities needed a specific



education according to their case. It means that children with disabilities have the right to enter any to school, but, if they needed, they could go to a special education institution.

Later, in 2003, a Model of attention in special education gets started in our country, so the teachers would become leaders. One year after this they would have classes to know how to use their knowledge with special children in a regular classroom. However, this process has not become a tradition, since today these classes for teachers are not given.

As we know, every Down syndrome person has a different level of intellectual disability, so it is understood that it's not necessary to send them to school with children of their age, but with children who have approximately the same intellectual capacity as them. When talking about curricular adaptations, we talk about the teacher's plan, which will help with the learning of the student with Down syndrome, and also will guide and help him with the decision making for the organization of his learning (Garrote and Palomares, 2014).

In Ecuador there are one hundred and seven public schools specifically for children with different types of disabilities; however, many private schools of Ecuador are not prepared to receive a special child.

The forty-second article of the Childhood and adolescence code (2003) says:

Children and adolescents with disabilities have the right to inclusion in the education system, to the extent of their level of disability. All educational units are obliged to receive them and to create the physical, pedagogical, evaluation and promotion support and adaptations appropriate to their needs. (p. 5)

This means that every school must be prepared, but the question is... are they?

Although nowadays are many schools of special education, it's not enough for everyone.

Before the 1950s it was said that people with special needs had to take education

specifically for them, but after the half of the twentieth century specialists said that it is better for them to have the most normal life as possible, but it is not being fulfilled.

“As we have been able to verify, throughout the study the boy is faced with serious problems of adaptation to both the school and social environment, so that the educational intervention will be destined to reinforce these aspects” (Garrote and Palomares, 2014, p.221). But actually, both teachers and students (or at least many of them) would not know how to act with a child with down syndrome if he shows strange behaviour or if he tries to integrate in his own way.

### **1.1.2 Public benefits.**

The country focuses on giving them rights, but not on giving them inclusion in society. The population covered by health insurance, whether public or private, reached only 23% in 2004; there were 7457 people with Down syndrome in Ecuador (2010) and just the 57% could receive the medical attention the country offers.

## **2.1 The medical treatments**

### **2.1.1 Use of medicine.**

These days it's known that to improve the motor skills of a child with Down syndrome, therapies are needed, not medicines.

It's worth to say that therapies and medicines are totally different. Although both help people, the first helps to stimulate and the second to cure from a disease.

Fifteen years ago people thought that medicines could work as “alternative therapies” (MCA) to benefit Down syndrome people. From thirty families, the 70% were in therapies, and the 67% didn't communicate their doctors about the use of alternative medicine on the



patients. This was a problem, cause the using of medicine while during therapy could be a risk of interactions. It was believed that the same medicines that were prescribed for patients with Alzheimer could be used because, according to studies, down syndrome cells had oxidative stress, as in people with Alzheimer.

These days it's known that to improve the motor skills of a child with Down syndrome, therapies are needed, not medicines.

### **2.1.2 Therapies in Ecuador.**

Currently in Ecuador the above-mentioned therapies are practiced, with hippotherapy being the most required. Since the beginning of the millennium, hippotherapy centers have offered their service (with the help of professional and physiotherapy students) to people of all ages who need it. This and other kind of therapies have always been looking forward by Ecuadorians to improve the motor skills of the disabled.

Garrote and Palomares (2010) affirm:

The desires to help and improve the situation of those who live mired in disappointment of not being supported, stay halfway, off the hook, due to lack of economic and human resources, family issues, policies, lack of interest, and a very long and heavy "etcetera". (p. 166)

But it's not always like this; places like "Centro integral de equinoterapia de La Prefectura del Guayas" started after 2010, and after many years they have grown so much that even include other kinds of therapies like hydrotherapy, dance therapy, art therapy, among others. These new included therapies also work for their mental skills and creativity.

Even though the hippotherapy is still being the most practiced, the other therapies also help with socialization, since when seeing other children, trisomy twenty-one get used to being in an environment with strangers.

### **Conclusions**

At the end of this work can be reached the following conclusions:

- Although many born with down syndrome have similar characteristics, such as the fact that most of them were born when their mothers were over 35 years old, this mutation cannot be prevented or recognized during the first months after conception; it can occur in any case cause is aleatory, and there is nothing that can prevent it.
- People with disabilities require therapies from a young age or as early as possible. Despite participating in many studies when they are young, these children require therapies from a young age or as early as possible, because they will need them over

the years since without them their abilities will not develop and act as if they were

babies for the rest of their life, without any recognizable improvement.

- It is crucial that they take the right therapies for their development, because if the type of activities that the child should perform in the early intervention is not selected then there will not be many changes in his motor skills and the correct therapies would begin much later, but at the same time everything would be with a slower process.
- It's important for them to live their life as normal as possible since the objective of this is that they try to relate to normal people and feel like one of them; interacting with others is also one of the goals that are sought when talking about "social inclusion".
- The medical area (doctors) cannot do much with respect to people with Down syndrome since it is not a disease; those who really help are graduates in special education along with psychologists and therapists. However, pediatricians constantly show up for medical checks.
- The situation in Ecuador has improved with respect to special education (therapies and school education); however, the level of inclusion of disabled children in private institutions still needs to be improved, since many of these are not ready to receive them; likewise, it would be important for students (from these schools) to interact with special children once in a while, so they will know how to behave and how to interact with kids with special needs.

### **Recommendations**

- For a child with Down syndrome the best way to develop in the most appropriate and comfortable way for him it is advisable to take him to early intervention when he is very young, and perform the recommended therapies and accompany him to see how he is progressing. Also, play with him and pay attention all the time so he can grow in a loving and friendly environment. It should be remembered that if they take therapies that are not necessary there will be no change in their physical and mental development.
- Since with the passage of time social inclusion with respect to jobs has been increasing in Ecuador, if you must interact with a person with a Down syndrome, treat him as normal as possible (being polite as with any other) and if you are with a group of friends, include him in a social way, so he can feel confident.
- Although in recent years the number of special education schools and therapy centers has increased, it would be recommendable for the government to keep insisting the private schools to prepare to receive a child with any type of disability, since in any time one can arrive, and promote therapy centers so that people with



special needs (especially those most in need of monetary assistance) can go and stimulate.

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