ANGER IN CHILDREN: A MINIREVIEW

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ABSTRACT

Aggressive behavior is a peculiar characteristic of most animal species playing an important role in species preservation and two types have been identified: interspecific and intraspecific aggression. The interspecific refers purely to the instinct of predation, while the intraspecific is the purpose for species preservation. Anger has been found in very young children between the ages of four and seven, is manifested through vocalizations, expressions and global movements affecting the entire body of the child: it is a means of communication privileged to express themselves and communicate. Anger must be considered a positive event, even if it may frighten it has a positive effect: transforming an event that could only be destructive and useless in a constructive process, and channeling the child's anger toward a specific goal.

Keywords: anger, children, emotional control, drawings.

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Introduction

Aggressive behavior is a peculiar characteristic of most animal species playing an important role in species preservation and two types have been identified: interspecific and intraspecific aggression. The interspecific refers purely to the instinct of predation, while the intraspecific is the purpose for species preservation. These aggressive behavior have been observed in all animals from fishes to Mammalians. Aggressiveness can be defined as defensive aggressiveness, indispensable to survival, adaptive aggression, which is about the evolution of the species and ultimately explorative aggression that allows the maturation of the individual. The latter consists of the need for the puppy to experience the outside environment and to try it out, thus discovering the limits and obstacles it encounters in daily life. It has also been observed that aggressive behavior in domestic chicks determines the retention of hierarchy within the group. This is of utmost importance for the survival of a species because it guarantees peaceful coexistence and improves hunting techniques, which, by experimenting with them, becomes more effective. Considering the aggressive behavior of Primates, it turns out to be the closest species to the human being, it is manifested through the activation of the sympathetic system that prepares the body for a violent activity: the animal acquires strong amounts of energy in Predicting the struggle for survival, you have the body expansion up to its maximum size, to intimidate your opponent by forcing it to yield or escape. One can therefore guess how certain aggressive behaviors we find in Humans are archaic behaviors and are characteristic of primates as of other animal species. In conclusion, we can assert that aggression is not only a destructive and negative character, but it has a crucial regulatory and evolutionary meaning, providing greater chance of success in the challenge of survival⁽¹⁻²⁵⁾.

Anger process in children

Anger has been found in very young children between the ages of four and seven, is manifested through vocalizations, expressions and global movements affecting the entire body of the child: it is a means of communication privileged to express themselves and communicate. Through simple bodily movement, the child is able to express sensations-emotions that turn into real feelings, in ways of being, in peculiar characteristics of one's character and personality.

The way children communicate, to send their messages outwardly, is through a very global expression, carrying a number of different information among themselves: they are relevant to understanding the inner world of the child and everything that emotionally experiences. The child talks through the body, the particular muscular tone, postures, movements and temperament.

In particular, there is a close relationship between the temperament and the emotional world of the child: temperament is defined as the innate repertoire of peculiar traits and features, a biological model that the child works to interact with the surrounding world.

The development of the child is basically based on four factors: maturation, experience, social transmission, and self-regulation process. Maturation is based on genetic basis, development is outlined by a natural trajectory that is established by the genes, while experience refers to an active interaction between the child and the environment, social broadcasting illustrates the information and habits passed on by parents to a child in a specific environment.

Finally, the self-regulation process can be defined as the basic psychological growth, because child tries to establish an equilibrium between what he knows and what he experiences. Moreover, researches in the evolutionary field have identified three temperamental categories: "easy", "difficult", "slow to warm", also important for the therapeutic management⁽³⁻¹⁴⁾.

These features can easily be identified at birth:

1) the easy child looks happy, flexible, regular in his behavior, easily adapts to new situations;

2) the difficult child has completely opposite traits, looks very intense, inflexible, fickle, nervous, and often very angry;

3) The slow to warm up baby presents great difficulties in adapting to new situations, but unlike the infant, it has low intensity reactions. These different temperamental aspects are characterized by a low level of motor activation, tendency to withdraw from situations and interactions with non-familiar people. Children who have a difficult temper can learn to express anger less destructive, avoiding the suppression of this kind of emotion, necessary for the human being, is absolutely healthy, what is the "problem" is the consequences evoked by this kind of feeling⁽²⁻⁷⁾.

Some children are difficult to console from birth, they seem to feel more angry than others and are more likely to have colic and different physical problems and have difficulty in falling asleep. Temperament is defined based on the activity of the child, his/her impulsiveness, the intensity of emotions, its ability to respond to different situations, its ability to adapt, and finally how the eating, sleeping, evacuation. The child with a difficult temperament is always active, growing, even impulsive, showing intense reactions, is rigid, inflexible, and tends to have sagging and violent reactions as a result of new stimuli.

Kids with a certain temperament can change their way of relationship, their being, through the experience sphere and environmental influences: a child who has received the right care from the family will consider the environment as a safe place to make

Experience and face new achievements in a serene way. Healthy anger can lead to a positive change and growth by the baby. When anger becomes a destructive, constant force, escaping control of the individual and influencing relationships and the quality of daily life, then anger becomes a pathological event and it is necessary to intervene in a timely manner to reduce the damage could have significant consequences on the same individuals, on the other people and on the outside environment⁽⁵⁻¹²⁾.

When anger comes to a stressful event, our body undergoes specific modifications, determined by the autonomic nervous system activation: increases heart rate, increased muscle tension, sweating, and blood pressure. This type of emotion, moreover, is characterized by a well-delineated facial mimic: frowning eyebrows, uncovering and grinding teeth, or tightening their lips, voice changes (i.e. from more intense to threatening, shaky, or hissing). During the child development, we can observe how the manifestations of aggressive behavior may change over time.

Through maturation processes and above all through the new skills acquired, the communicative capacity is expanded: by simple body involvement, the only means of communication, it comes to the verbalization and therefore to the verbal display of their feelings. The child uses the muscular tone to exert his/her own discomfort or to request satisfaction for his/her need, showing flexion of the limbs, a high tone and can be accompanied by weeping, the child is consolable at the time of satisfaction. He/she may show anger through the involvement of the body, often not even the child himself can identify the cause of his illness, and manifests through hyperactivity, non-economic gestures, violent anger of the environment, people or towards oneself, taking antisocial behavior, which is usually suppressed and inhibited⁽²⁶⁻⁴⁵⁾.

In the course of development and thus pursuing the pursuit of new skills and autonomies, the child can manifest anger through the communicative channel of verbalization, then scream in situations that are not consonant, and involve the bodily level chaotic. The angry baby may have hyperactivity, great difficulty in attention, difficulty in graphic activity that may be confusing and may also have difficulty in language, which appears hasty and often the child is unable to verbally explain his/her mood. It is not necessary to suppress or inhibit anger, because it is nothing more than a means of communicating the child, who cannot use other and different communicative channels to express discomfort, malaise.

Trying to investigate the causes of child anger often takes into consideration the family environment, and in particular the relationships between mother and child. By observing the tonic dialogue established between mother and child, it is possible to understand how this a first report will provide the basis for the formation of the child's affective world and the establishment of future relationships during the course of development. In this regard, it has been shown that a period of separation from the person from whom emotional dependence, called "attachment figure", as well as the threat of separation and other forms of rejection, causes children, as in adults, anxious behaviors and of anger. The anguish of separation and aggressive behavior are at the root of hostility towards the attachment figure: they symbolize a sort of rebuke to what has happened, hoping it will not happen anymore is a clear manifestation of discomfort⁽⁴⁶⁻⁷⁰⁾.

The child often feeling frustrated, expressing this malaise with anger and aggressive behaviors, often unable to deal with the obstacles that lie ahead of him, needs to relieve these accumulated energies within himself by aggressive acts towards objects that are not Using them in a functional way and often destroying them, and often using very animated verbalizations, or the child may resort to a total closure, never allowing relationship with each other and triggering an explosive rage by inducing the child to take antisocial behavior and experience great difficulties in understanding it and especially in consoling it. This close relationship between anger and attachment theory has been studied, and studies have been conducted in this regard, arguing that aggressive behavior often depends on a lack of development of the "reflective function", also called a "metacognitive function".

That is, the ability of the child to build the theory of the mind and hence to assume the vision of oneself, of the other and of objects in relation to feelings, beliefs to intentions and desires. The development of reflexive function depends specifically on the ability of the mother to recognize and understand the child's mental states, his inner world, that is, his feelings, thoughts, desires, and intentions. The caregiver performs a mirror function by showing that he understands the child's inner world. Only in this way does the child learn to read his mental states and even the others. The lack of process of mentalization, that is, of adequate psychic structures that allow him to understand himself and the intentions of others, can push the child to use the body, and thus also aggression, as the only communication vehicle. Anger must be considered a positive event, even if it may frighten it has a positive effect: transforming an event that could only be destructive and useless in a constructive process, and channeling the child's anger toward a specific goal. It is not necessary to suppress this feeling, but to support it because it is

often a cause for growth by the child, so it is necessary to ensure a safe environment, appropriate care to its needs, provide effective strategies to tackle obstacles during its development, avoiding mortification and, above all, avoiding repression of anger, which is an alternative child communication channel⁽⁷¹⁻¹⁰⁰⁾.



The two pictures represent two child's drawings about their anger state.

References

- Crittenden PM. Gifts from Mary Ainsworth and John Bowlby. Clin Child Psychol Psychiatry. 2017 Jul;22(3):436-442. doi: 10.1177/1359104517716214.
- George C, Solomon J. The Attachment Doll Play Assessment: Predictive Validity with Concurrent Mother-Child Interaction and Maternal Caregiving Representations. Front Psychol. 2016 Oct 18; 7: 1594.
- 3) van Rosmalen L, van der Horst FC, van der Veer R. From secure dependency to attachment: Mary Ainsworth's integration of Blatz's security theory into Bowlby's attachment theory. Hist Psychol. 2016 Feb; 19(1): 22-39. doi: 10.1037/hop0000015.
- Esposito M, Carotenuto M. Intellectual disabilities and power spectra analysis during sleep: a new perspective on borderline intellectual functioning. J Intellect Disabil Res. 2014 May; 58(5): 421-9. doi: 10.1111/jir.12036.
- Coppola G, Licciardi F, Sciscio N, Russo F, Carotenuto M, Pascotto A. Lamotrigine as first-line drug in childhood absence epilepsy: a clinical and neurophysiological study. Brain Dev. 2004 Jan; 26(1): 26-9.
- Carotenuto M, Esposito M. Nutraceuticals safety and efficacy in migraine without aura in a population of children affected by neurofibromatosis type I. Neurol Sci. 2013 Nov; 34(11): 1905-9. doi: 10.1007/s10072-013-1403-z.

- 7) Carotenuto M, Gimigliano F, Fiordelisi G, Ruberto M, Esposito M. Positional abnormalities during sleep in children affected by obstructive sleep apnea syndrome: the putative role of kinetic muscular chains. Med Hypotheses. 2013 Aug; 81(2): 306-8. doi: 10.1016/j.mehy.2013.04.023.
- Perillo L, Esposito M, Caprioglio A, Attanasio S, Santini AC, Carotenuto M. Orthodontic treatment need for adolescents in the Campania region: the malocclusion impact on self-concept. Patient Prefer Adherence. 2014 Mar 19; 8: 353-9. doi: 10.2147/PPA.S58971.
- Carotenuto M, Esposito M, Pascotto A. Migraine and enuresis in children: An unusual correlation? Med Hypotheses. 2010 Jul; 75(1): 120-2. doi: 10.1016/j.mehy.2010.02.004.
- 10) Esposito M, Gallai B, Roccella M, Marotta R, Lavano F, Lavano SM, Mazzotta G, Bove D, Sorrentino M, Precenzano F, Carotenuto M. Anxiety and depression levels in prepubertal obese children: a case-control study. Neuropsychiatr Dis Treat. 2014 Oct 3; 10: 1897-902. doi: 10.2147/NDT.S69795.
- Esposito M, Parisi L, Gallai B, Marotta R, Di Dona A, Lavano SM, Roccella M, Carotenuto M. Attachment styles in children affected by migraine without aura. Neuropsychiatr Dis Treat. 2013; 9: 1513-9. doi: 10.2147/NDT.S52716.
- 12) Messina A, Monda V, Avola R, Moscatelli F, Valenzano AA, Villano I, Ruberto M, Monda E, La Marra M, Tafuri D, Chieffi S, Cibelli G, Monda M, Messina G. Role of the orexin system on arousal, attention, feeding behaviour and sleep disorders. Acta Medica Mediterranea, 2017, 33: 645; DOI: 10.19193/0393-6384_2017_4_096.
- 13) Carotenuto M, Esposito M, Cortese S, Laino D, Verrotti A. Children with developmental dyslexia showed greater sleep disturbances than controls, including problems initiating and maintaining sleep. Acta Paediatr. 2016 Sep;105(9): 1079-82. doi: 10.1111/apa.13472.
- 14) Santamaria F, Esposito M, Montella S, Cantone E, Mollica C, De Stefano S, Mirra V, Carotenuto M. Sleep disordered breathing and airway disease in primary ciliary dyskinesia. Respirology. 2014 May; 19(4): 570-5. doi: 10.1111/resp.12273.
- 15) Esposito M, Gallai B, Parisi L, Castaldo L, Marotta R, Lavano SM, Mazzotta G, Roccella M, Carotenuto M. Self-concept evaluation and migraine without aura in childhood. Neuropsychiatr Dis Treat. 2013; 9: 1061-6. doi: 10.2147/NDT.S49364.
- 16) Esposito M, Roccella M, Gallai B, Parisi L, Lavano SM, Marotta R, Carotenuto M. Maternal personality profile of children affected by migraine. Neuropsychiatr Dis Treat. 2013; 9: 1351-8. doi: 10.2147/NDT.S51554.
- Esposito M, Marotta R, Gallai B, Parisi L, Patriciello G, Lavano SM, Mazzotta G, Roccella M, Carotenuto M. Temperamental characteristics in childhood migraine without aura: a multicenter study. Neuropsychiatr Dis Treat. 2013; 9: 1187-92. doi: 10.2147/NDT.S50458.
- 18) Esposito M, Precenzano F, Sorrentino M, Avolio D, Carotenuto M. A Medical Food Formulation of Griffonia simplicifolia/Magnesium for Childhood Periodic Syndrome Therapy: An Open-Label Study on

Motion Sickness. J Med Food. 2015 Aug; 18(8): 916-20. doi: 10.1089/jmf.2014.0113.

- Di Filippo, T., Parisi, L., Roccella, M. Psychological aspects in children affected by Duchenne de Boulogne muscular dystrophy. Mental Illness, 2012, 4 (1), pp. 21-24.
- 20) Epifanio MS, Genna V, Vitello MG, Roccella M, La Grutta S. Parenting stress and impact of illness in parents of children with coeliac disease. Pediatr Rep. 2013 Dec 19; 5(4): e19. doi: 10.4081/pr.2013.e19.
- Precenzano F, Ruberto M, Parisi L, Salerno M, Maltese A, D'Alessandro I, Della Valle I, Visco G, Magliulo RM, Messina G, Roccella M. ADHD-like symptoms in children affected by obstructive sleep apnea syndrome: case-control study. Acta Medica Mediterranea, 2016, 32: 1755-1759; DOI: 10.19193/0393-6384_2016_6_159.
- 22) Parisi L, Salerno M, Maltese A, Tripi G, Romano P, Di Folco A, Di Filippo T, Roccella M. Anxiety levels in mothers of children affected by X-fragile syndrome. Acta Medica Mediterranea, 2017, 33: 495; DOI: 10.19193/0393-6384_2017_3_074.
- 23) Parisi L, Salerno M, Maltese A, Tripi G, Romano P, Di Folco A, Di Filippo T, Roccella M. Autonomic regulation in autism spectrum disorders. Acta Medica Mediterranea, 2017, 33: 491; DOI: 10.19193/0393-6384_2017_3_073.
- 24) Parisi L, Salerno M, Maltese A, Tripi G, Romano P, Di Folco A, Di Filippo T, Messina G, Roccella M. Emotional intelligence and obstructive sleep apnea syndrome in children: preliminary case-control study. Acta Medica Mediterranea, 2017, 33: 485; DOI: 10.19193/0393-6384_2017_3_072.
- 25) Parisi L, Salerno M, Maltese A, Tripi G, Romano P, Di Folco A, Di Filippo T, Roccella M. Paternal shift-working and sleep disorders in children affected by primary nocturnal enuresis. Acta Medica Mediterranea, 2017, 33: 481; DOI: 10.19193/0393-6384_2017_3_071.
- 26) Moscatelli F, Valenzano A, Monda V, Ruberto M, Monda G, Triggiani AI, Monda E, Chieffi S, Villano I, Parisi L, Roccella M, Messina A. Transcranial Magnetic Stimulation (TMS) application in sport medicine: A brief review. Acta Medica Mediterranea, 2017, 33: 423; Doi: 10.19193/0393-6384_2017_3_062.
- 27) Parisi L, Faraldo Ma, Ruberto M, Salerno M, Maltese A, Di Folco A, Messina G, Di Filippo T, Roccella M. Life events and primary monosymptomatic nocturnal enuresis: a pediatric pilot study. Acta Medica Mediterranea, 2017, 33: 23; DOI: 10.19193/0393-6384_2017_1_003.
- 28) Precenzano F, Ruberto M, Parisi L, Salerno M, Maltese A, Verde D, Tripi G, Romano P, Di Folco A, Di Filippo T, Messina G, Roccella M. Sleep habits in children affected by autism spectrum disorders: a preliminary case-control study. Acta Medica Mediterranea, 2017, 33: 405; DOI: 10.19193/0393-6384_2017_3_059.
- 29) Parisi L, Fortunato MR, Salerno M, Maltese A, Di Folco A, Di Filippo T, Roccella M. Sensory perception in preschool children affected by autism spectrum disorder: A pilot study. Acta Medica Mediterranea, 2017, 33: 49; DOI: 10.19193/0393-6384_2017_1_007.
- 30) Maltese A, Salerno M, Tripi G, Romano P, Ricciardi A, Di Folco A, Di Filippo T, Parisi L. The Angelman Syndrome: A Brief Review. Acta Medica Mediterranea,

2017, 33: 667; DOI: 10.19193/0393-6384_2017_4_100.

- Salerno M, Maltese A, Tripi G, Romano P, Di Folco A, Di Filippo T. Separaxion anxiety in pediatric migraine without aura: A Pilot Study. Acta Medica Mediterranea, 2017, 33: 621; DOI: 10.19193/0393-6384_2017_4_092.
- 32) Maltese A, Salerno M, Tripi G, Romano P, Ricciardi A, Sessa G, Di Folco A, Di Filippo T, Parisi L. Rehabilitative treatment proposals in pediatric non-verbal syndrome. Acta Medica Mediterranea, 2017, 33: 675; DOI: 10.19193/0393-6384_2017_4_101.
- 33) Monda V, Nigro E, Ruberto M, Monda G, Valenzano A, Triggiani Ai, Moscatelli F, Monda E, Villano I, Roccella M, Parisi L, Messina A. Synergism or competition between zinc and chromium dietary levels on insulin action mechanism. A method to investigate. Acta Medica Mediterranea, 2017, 33: 581; DOI: 10.19193/0393-6384_2017_4_085.
- 34) Messina A, Monda V, Avola R, Moscatelli F, Valenzano AA, Villano I, Ruberto M, Monda E, La Marra M, Tafuri D, Chieffi S, Cibelli G, Monda M, Messina G. Role of the orexin system on arousal, attention, feeding behaviour and sleep disorders. Acta Medica Mediterranea, 2017, 33: 645; DOI: 10.19193/0393-6384_2017_4_096.
- 35) Messina A, Monda V, Nigro E, Valenzano AA; Villano I, Ruberto M, Monda G, Ascione A, Chieffi S, Cibelli G, Messina G, Monda M. AN Allied health: the pasta. Acta Medica Mediterranea, 2017, 33: 641; DOI: 10.19193/0393-6384_2017_4_095.
- 36) Messina A, Russo G, Monda V, Valenzano A, Villano I, Ascione A, Moscatelli F, Crescenzo R, Catizzone Ar, Panico A, Fulgione E, Piombino L, Dorato D, Cavaliere G, Trinchese G, Cibelli G, Bartoletti E, Messina G. Effect of radiofrequency on sympathetic nervous system functioning. Acta Medica Mediterranea, 2017, 33: 833; DOI: 10.19193/0393-6384_2017_5_124.
- 37) Precenzano F, Ruberto M, Parisi L, Salerno M, Maltese A, Gallai B, Marotta R, Lavano SM, Lavano F, Roccella M. Visual-spatial training efficacy in children affected by migraine without aura: a multicenter study. Neuropsychiatr Dis Treat. 2017 Jan 27; 13: 253-258. doi: 10.2147/NDT.S119648.
- 38) Parisi L, Faraldo M, Ruberto M, Salerno M, Maltese A, Di Folco A, Messina G, Di Filippo T, Roccella M. Life events and primary monosymptomatic nocturnal enuresis: A pediatric pilot study. Acta Medica Mediterranea, 2017 33(1), 23-27. doi:10.19193/0393-6384 2017_1 003.
- 39) Parisi L, Fortunato MR, Salerno M, Maltese A, Di Folco A, Di Filippo T, Roccella M.. Sensory perception in preschool children affected by autism spectrum disorder: A pilot study. Acta Medica Mediterranea, 2017 33(1), 49-53. doi:10.19193/0393-6384_2017_1_007
- 40) Parisi L, Salerno M, Maltese A, Tripi G, Romano P, Di Folco A, Di Filippo T, Messina G, Roccella M. Emotional intelligence and obstructive sleep apnea syndrome in children: preliminary case-control study. Acta Medica Mediterranea, 2017, 33: 485; DOI: 10.19193/0393-6384_2017_3_072.
- 41) Parisi L, Salerno M, Maltese A, Tripi G, Romano P, Di Folco A, Di Filippo T, Roccella M. Anxiety levels in

mothers of children affected by X-fragile syndrome. Acta Medica Mediterranea, 2017, 33: 495; DOI: 10.19193/0393-6384_2017_3_074.

- 42) Parisi L, Salerno M, Maltese A, Tripi G, Romano P, Di Folco A, Di Filippo T, Roccella M. Autonomic regulation in autism spectrum disorders. Acta Medica Mediterranea, 2017, 33: 491; DOI: 10.19193/0393-6384_2017_3_073.
- 43) Parisi L, Salerno M, Maltese A, Tripi G, Romano P, Di Folco A, Di Filippo T, Roccella M. Paternal shift-working and sleep disorders in children affected by primary nocturnal enuresis. Acta Medica Mediterranea, 2017, 33: 481; DOI: 10.19193/0393-6384_2017_3_071.
- Pekel NB, Yildiz D, Kahvecioğlu S, Kiliç AK, Yildiz A, Seferoğlu M, Güneş A. Restless legs syndrome and related factors in peritoneal dialysis patients. Acta Medica Mediterranea, 2017 33(1), 101-105. doi:10.19193/0393-6384_2017_1_016.
- 45) Precenzano F, Ruberto M, Parisi L, Salerno M, Maltese A, Vagliano C, Messina G, Di Folco A, Di Filippo T, Roccella M. Executive functioning in preschool children affected by autism spectrum disorder: a pilot study. Acta Medica Mediterranea, 2017, 33: 35-39; DOI: 10.19193/0393-6384_2017_1_005.
- 46) Precenzano F, Lombardi P, Ruberto M, Parisi L, Salerno M, Maltese A, D'alessandro I, Della Valle I, Magliulo RM, Messina G, Roccella M. Internalizing symptoms in children affected by childhood absence epilepsy: a preliminary study. Acta Medica Mediterranea, 2016, 32: 1749-1753; DOI: 10.19193/0393-6384_2016_6_158.
- Precenzano F, Ruberto M, Parisi L, Salerno M, Maltese A, D'alessandro I, Grappa MF, Magliulo RM, Messina G, Roccella M. Borderline intellectual functioning and parental stress: an italian case-control study. Acta Medica Mediterranea, 2016, 32: 1761-1765; DOI: 10.19193/0393-6384_2016_6_160.
- 48) Ruberto M, Precenzano F, Parisi L, Salerno M, Maltese A, Messina G, Roccella M. Visuomotor integration skills in children affected by obstructive sleep apnea syndrome: a case-control study. Acta Medica Mediterranea, 2016, 32: 1659; DOI: 10.19193/0393-6384_2016_5_146.
- Maltese A, Salerno M, Romano P, Ricciardi A, di Filippo T, Tripi G. Ketogenic diet as antiepileptic therapy: Historical perspective. Acta Medica Mediterranea, 2017 33(5), 769-775. doi:10.19193/0393-6384_2017_5_113.
- 50) Maltese A, Salerno M, Romano P, Ricciardi A, Di Filippo T, Tripi G. Ketogenic diet as antiepileptic therapy: Neurotrasmission effects. Acta Medica Mediterranea, 2017 33(5), 777-783. doi:10.19193/0393-6384 2017_5_114.
- 51) Maltese A, Salerno M, Tripi G, Romano P, Ricciardi A, di Folco A, di Filippo T, Parisi L.. Internalizing problems are related to sleep patterns disordered in children affected by primary headache. Acta Medica Mediterranea, 2017 33(5), 729-735. doi:10.19193/0393-6384_2017_5_107.
- Maltese A, Salerno M, Tripi G, Romano P, Ricciardi A, Folco A, Di Filippo T, Parisi L. The Angelman syndrome: A brief review. Acta Medica Mediterranea, 2017 33(4), 667-673. doi:10.19193/0393-6384_2017_4_100.

- 53) Maltese A, Salerno M, Tripi G, Romano P, Ricciardi A, Sessa G, Di Folco A, Di Filippo T, Parisi L. Rehabilitative treatment proposals in pediatric non-verbal syndrome. Acta Medica Mediterranea, 2017 33(4), 675. doi:10.19193/0393-6384_2017_4_101.
- 54) Karakas D, Demiroglu M, Caddesi E. Rare complication after hip arthroscopy; glaucoma. Acta Medica Mediterranea, 2017 33(5), 811-813. doi:10.19193/0393-6384_2017_5_120.
- 55) Karataş E, Ekşi F, Zer Y. Investigation of antibiotic resistance genes and panton-valentine leucocidin in staphylococcus aureus strains isolated from various clinical samples. Acta Medica Mediterranea, 2017 33(2), 341-350. doi:10.19193/0393-6384_2017_2_051.
- 56) Khodaii Z, Ghaderian SMH, Natanzi MM. Probiotic bacteria against halitosis producing bacteria, in the presence of the HEp 2 cells. Acta Medica Mediterranea, 2017 33(2), 301-304. doi:10.19193/0393-6384_2017_2_045.
- 57) Kiliç B, Demiroğlu M, Özkan FÜ, Söylemez, MS, Türkmen I, Sağlam Y, Özkan K. Osteoarthritis: Can it be reversed? A new biological treatment technique for treating patients with moderate to advanced gonarthrosis. Acta Medica Mediterranea, 2017 33(2), 335-340. doi:10.19193/0393-6384_2017_2_050.
- 58) Li Z, Mi D, Wen Z. A systematic review of the association between the inflammatory cytokines polymorphisms and cancer-related fatigue. Acta Medica Mediterranea, 2017 33(1), 41-47. doi:10.19193/0393-6384_2017_1_006.
- 59) Rinaldi B, Guida F, Furiano A, Donniacuo M, Luongo L, Gritti G, Urbanek K, Messina G, Maione S, Rossi F, de Novellis V. Effect of Prolonged Moderate Exercise on the Changes of Nonneuronal Cells in Early Myocardial Infarction. Neural Plast. 2015;2015:265967. doi: 10.1155/2015/265967.
- Viggiano A, Chieffi S, Tafuri D, Messina G, Monda M, De Luca B. Laterality of a second player position affects lateral deviation of basketball shooting. J Sports Sci. 2014; 32(1): 46-52. doi: 10.1080/02640414.2013.805236.
- Messina G, Monda V, Moscatelli F, Valenzano AA, Monda G, Esposito T, Blasio SD, Messina A, Tafuri D, Barillari MR, Cibelli G, Chieffi S, Varriale B, Monda M. Role of orexin system in obesity. Biology and Medicine, 2015 7 (4), art. no. 1000248. DOI: 10.4172/0974-8369.1000248.
- 62) Messina G, Palmieri F, Monda V, Messina A, Dalia C, Viggiano A, Tafuri D, Messina A, Moscatelli F, Valenzano A, Cibelli G, Chieffi S, Monda M. Exercise causes muscle GLUT4 translocation in an insulin-independent manner. Biology and Medicine, 2015 7 (Special issue 3), art. no. 006. DOI: 10.4172/0974-8369.1000S3007.
- 63) Messina G, Viggiano A, Tafuri D, Palmieri F, De Blasio S, Messina A, De Luca A, Chieffi S, Monda M. Role of orexin in obese patients in the intensive care unit. Journal of Anesthesia and Clinical Research, 2014 5 (3), art. no. 1000395. DOI: 10.4172/2155-6148.1000395.
- 64) Valenzano A, Moscatelli F, Triggiani AI, Capranica L, De Ioannon G, Piacentini MF, Mignardi S, Messina G, Villani S, Cibelli G. Heart-Rate Changes After an Ultraendurance Swim From Italy to Albania: A Case

Report. Int J Sports Physiol Perform. 2016 Apr;11(3):407-9. doi: 10.1123/ijspp.2015-0035.

- 65) Moscatelli F, Valenzano A, Petito A, Triggiani AI, Ciliberti MAP, Luongo L, Carotenuto M, Esposito M, Messina A, Monda V, Monda M, Capranica L, Messina G, Cibelli G. Relationship between blood lactate and cortical excitability between taekwondo athletes and non-athletes after hand-grip exercise. Somatosens Mot Res. 2016 Jun; 33(2): 137-44. doi: 10.1080/08990220.2016.1203305.
- 66) Li, Y., Li, X., Shi, G., Wang, P., Ma, H. Application value of joint detection of serum marker CYFRA21-1, NSE, CEA, CA19-9, CA125, SCC in diagnosis of lung cancer (2016) Acta Medica Mediterranea, 32 (5), pp. 1671-1674. DOI: 10.19193/0393-6384_2016_5_148.
- Eraslan, A., Selcuk, O.T., Eyigor, H., Erkal, Z., Osma, U. Success rate of outpatient weight management in obese patients with obstructive sleep apnea (2016) Acta Medica Mediterranea, 32 (5), pp. 1705-1712.DOI: 10.19193/0393-6384_2016_5_153.
- 68) Feghhi, F. Study of relationship between attitude and practice of nurses in the care of drug-dependent patients admitted in public hospitals of the city of Yasouj, Iran in 2014 (2016) Acta Medica Mediterranea, 32 (SpecialIssue2), pp. 1011-1014.
- 69) Perciavalle, V., Buscemi, A., Borbone, C., Catania, A., Buscemi, B., Petralia, M.C., Puglisi, M.L., Coco, L.S.G., Coco, M. Exhaustive exercise and short term memory (2016) Acta Medica Mediterranea, 32 (1), pp. 23-27. DOI: 10.19193/0393-6384_2016_1_03.
- 70) Salehi, M., Shobairi, E., Orfi, J. Correlation between resistance index of the uterine artery and leiomyoma volume change after uterine artery embolization (2016) Acta Medica Mediterranea, 32 (Special Issue 5), pp. 1933-1937.
- 71) Kirisci, O., Paksoy, T., Caliskan, A., Analan, A., Ozkaya, E., Kirmaci, B., Tumer, S., Citil, R., Cikim, G., Agirbas, S., Guzel, Z., Senol, H. The relationship between serum dna levels and serological markers, alt and ast with liver histology in chronic hepatitis b patients (2016) Acta Medica Mediterranea, 32 (6), pp. 1805-1811. DOI: 10.19193/0393-6384_2016_6_167.
- 72) Nankaly, A., Jalilian, N., Eshghiali, S., Rezaei, M. The effects of sublingual misoprostol and intravenous oxytocin in reducing bleeding among cesarean deliveries (2016) Acta Medica Mediterranea, 32 (Special Issue 2), pp. 953-957.
- 73) Licata, M., Iorio, S., Badino, P., Tornali, C., Vecchio, I. Leopoldo maggi: Physican, anthropologist and archaeologist (2016) Acta Medica Mediterranea, 32 (5), pp. 1569-1570. DOI: 10.19193/0393-6384_2016_5_131.
- 74) Di Serio, F., Lovero, R., D'Agostino, D., Nisi, L., Miragliotta, G., Contino, R., Man, A., Ciccone, M.M., Santacroce, L. Evaluation of procalcitonin, Vitamin D and C-reactive protein levels in septic patients with positive emocoltures. Our preliminary experience (2016) Acta Medica Mediterranea, 32, pp. 1911-1914. DOI: 10.19193/0393-6384_2016_6_182.
- 75) Acar, Y., Çevik, E., Yilmaz, B.K., Çinar, O., Yamanel, L. The role of red cell distribution width predicting inhospital mortality of intensive care unit patients (2016) Acta Medica Mediterranea, 32 (1), pp. 75-79. DOI: 10.19193/0393-6384_2016_1_11.

- 76) Pirsaheb, M., Salari, M., Pourhaghighat, S., Sharafi, K. The comparison of the effectiveness of newly market disinfectants with commonly used disinfectants in Iran in reducing hospital infections index- a case study: Kermanshah hospitals (2015) (2016) Acta Medica Mediterranea, 32 (SpecialIssue2), pp. 967-971.
- 77) Yoon, H., Kim, S.G., Kim, G.S., Park, B.Y. Relationship between metabolic syndrome and metabolic syndrome score and insulin resistance and beta cell function in Korean adults with type 2 diabetes mellitus (2016) Acta Medica Mediterranea, 32 (5), pp. 1697-1704. DOI: 10.19193/0393-6384_2016_5_152.
- 78) Behnamipour, S., Abbasi, K.H., Rouhollahi, A., Mazloum Ardakani, M., Haghgoo, S., Arast, Y. Determination of isoniazid by using room temperature ionic liquids modified glassy carbon electrode (2016) Acta Medica Mediterranea, 32 (Special Issue 4), pp. 1549-1553.
- 79) Refahi, S., Kachooei, A.R., Farsadpour, M., Shahrayeni, R., Goudarzian, M., Taleghani, Y.M., Foji, S., Amiri, P., Malekkahi, A., Salari, M., Vejdani, M. Is prescription of knee MRI according to standard clinical guideline? (2016) Acta Medica Mediterranea, 32 (Special Issue 4), pp. 1207-1211.
- 80) Fariba, F., Gholamhosein, A. The comparison study on the effect of magnesium hydroxide and esabgol (Plantagoovata) on constipation Angina hospitalized patients in the cardiac care unit1 of the hospital Isa Ibn Maryam Isfahan in 2014-2015. (2016) Acta Medica Mediterranea, 32 (Special Issue 5), pp. 2101-2106.
- Mohammadnejad, E., Abbaszadeh, A., Soori, H., Afhami, S. Prevention and control of nosocomial infections proceeding in intensive care units: A content analysis study (2016) Acta Medica Mediterranea, 32 (SpecialIssue4), pp. 1295-1301. DOI: 10.19193/0393-6384_2016_6_162.
- 82) Li, H., Shang, F., Zhang, C., Liu, K., Xu, H. Clinical study of CT, B ultrasound and nuclear magnetic resonance imaging in diagnosis of extrahepatic bile duct stones (2016) Acta Medica Mediterranea, 32 (SpecialIssue1), pp. 519-522.
- 83) Wang, G.-P., Li, Y., Ding, Z.-J., Liang, Y.-A., Hou, S.-C. Significance of COX-2, HIF-1a, CA153 and CA125 for breast cancer prognosis and evaluation of therapeutic effects (2016) Acta Medica Mediterranea, 32 (Special Issue 1), pp. 599-606.
- 84) Wang, H., Xiang, H. Clinical effect of meniscus tear repair surgery by arthroscopy (2016) Acta Medica Mediterranea, 32 (Special Issue 1), pp. 547-550.
- 85) Kargin, N.Ç., Marakoglu, K., Unlu, A., Kebapcilar, L., Korucu, E.N. Comparison of bone turnover markers between male smoker and non-smoker (2016) Acta Medica Mediterranea, 32 (2), pp. 317-323; DOI: 10.19193/0393-6384_2016_2_47.
- 86) Jalili, Z., Jalili, C., Sakhaie, S. Frequency of congenital heart diseases and the probable predisposing risk factors in children admitted to imam ali hospital, Kermanshah, Iran, 2002-2012 (2016) Acta Medica Mediterranea, 32 (Special Issue 2), pp. 915-919.
- Ugures, M., Senol, S., Yuksel, A. Is hemoglobin A1c a valuable parameter in non-diabetic patients with peripheral arterial disease? (2016) Acta Medica Mediterranea, 32 (4), pp. 911-915. DOI: 10.19193/0393-6384_2016_4_109.

- 88) Liu, T.-G., Wan, Y.-X., Zheng, Z.-A., Bai, C., Yu, H., Deng, Q., Zhao, S., Gu, X.-H. Study on mechanism of Yinlai decoction's anti-inflammatory effects with the method of network pharmacology (2016) Acta Medica Mediterranea, 32 (4), pp. 877-882. DOI: 10.19193/0393-6384_2016_4_104.
- 89) Vazirinejad, R., Jafarzadeh, A., Yassini, S.M., Rahimdel, A., Sayadi, A.R. Effectiveness of psychological training with gradual muscle relaxation technique on Fatigue in multiple sclerosis patients (2016) Acta Medica Mediterranea, 32 (4), pp. 987-990. DOI: 10.19193/0393-6384_2016_4_120.
- 90) Akdam, H., Alp, A., Özbek, O., Kahraman, A., Özişik, M., Arda, H.Ü., Yeniçerioğlu, Y. Evaluation of nutritional status of peritoneal dialysis patients by bioimpedance analysis (2016) Acta Medica Mediterranea, 32 (3), pp. 685-690. DOI: 10.19193/0393-6384_2016_3_75.
- 91) Zohreyi, T., Erfanim, N., Jadidiyan, A.A. Predicting academic stress based on academic procrastination among female students (2016) Acta Medica Mediterranea, 32 (Special Issue 4), pp. 1257-1264.
- 92) Hong, M., Xiaohong, Q., Cai, W., Xiuhua, C. Pcosinduced anxiety disorder treated mainly with acupuncture therapy: A randomized controlled trial (2016) Acta Medica Mediterranea, 32 (Special Issue 3), pp. 1155-1158.
- 93) Salehi, N., Rai, A., Saidi, M.-R., Kiani, A., Janjani, P., Tadbiri, H. Left ventricular diastolic functional status after coronary artery bypass grafting (2016) Acta Medica Mediterranea, 32 (Special Issue 5), pp. 1965-1969.
- 94) Motlagh, A.H., Zaboli, S., Mehrabi, S., Hosseinpor, R., Mardani, P. Evaluating patient's satisfaction with the service provided in Yasouj Shahid Beheshti Hospital in 2014. (2016) Acta Medica Mediterranea, 32 (Special Issue 5), pp. 2065-2068.
- 95) Wen, S., Song, S. On the effect of health insurance on chinese rural elders' health demand. (2016) Acta Medica Mediterranea, 32 (Special Issue 1), pp. 481-484.
- 96) Wen, S., Jin, Y., Wang, L. Comparison study of integrin B2 gene expressions between acute myocardial infarction and stable angina pectoris patients. (2016) Acta Medica Mediterranea, 32 (2), pp. 303-312. DOI: 10.19193/0393-6384_2016_2_45.
- 97) Rasouli, A.S., Alizadeh, S., Vahdati, S.S., Jafarabadi, M.A., Pouraghaei, M. Investigating nursing students' level of knowledge in caring for trauma patients. (2016) Acta Medica Mediterranea, 32 (Special Issue 2), pp. 1062-1066.

- 98) Chisari, G., Rampello, L., Chisari, E.M., Catania, V.E., Greco, C., Stagni, E., Chisari, C.G. Microbiology synergism between tear substitutes and symbiotic treatment of patients with irritable bowel syndrome.(2016) Acta Medica Mediterranea, 32 (4), pp. 865-870. DOI: 10.19193/0393-6384_2016_4_102.
- 99) Valiee, S., Bagheri Saweh, M.I., Seidi, J., Vatandost, S. A randomized clinical trial of the effect of tutorial videotape on the selfefficacy of tracheostomy patients. (2016) Acta Medica Mediterranea, 32 (Special Issue 2), pp. 1021-1024.
- 100) Lin, Z., Cai, Z., Chen, M., Ruan, H., Lin, Q. Hemostatic effect of bunting in otolaryngology head and neck surgery (2016) Acta Medica Mediterranea, 32 (Special Issue 1), pp. 575-575.

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